SPATIAL ORGANIZATION OF SERVICE ACTIVITIES IN ANKARA

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I certify that this thesis satisfies all the requirements as a thesis for the degree of Doctor of Philosophy.

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ABSTRACT

SPATIAL ORGANIZATION OF SERVICE ACTIVITIES IN ANKARA

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In the last decades, the spatial organization of services has become a key issue in the urban planning literature. The basic reasons for this significance are the difficulties not only in understanding this complex and context-dependent organization, but also in developing planning interventions for this organization. Moreover, author believes that the existing theoretical frameworks have some inabilities in interpreting the spatial organization at the intra-metropolitan scale. Therefore, this study basically aims to redefine the spatial organization of service activities in Ankara with a relational perspective, and consequently, to develop an information-base for new types of planning interventions. For this purpose, first, the concepts and the fields of concepts that are integral to the spatial organization of services are examined. These concepts are the spatial patterns of concentration and dispersion and the spatial cohesiveness. Thereafter, the analytical framework that is required to study these concepts empirically, is introduced by stating the advantages of using descriptive mathematical techniques, indicators and methodological procedures in relational perspective. In the case study, the spatial organization of services in Ankara is redefined basically with reference to the spatial patterns of concentration and dispersion and the spatial cohesiveness of services. This redefinition displays the monocentric structure of Ankara and the differentiated parts within the spatial organization of services according to the activity compositions. Afterwards, this redefinition is utilized as the starting point for the reformulation of a new planning approach and new regulations directed towards the differentiated parts of the spatial organization of services. Finally, the methodological and contentual contributions, and also the possible further studies are presented as concluding remarks.

Keywords: service activities, spatial organization, spatial patterns of concentration and dispersion, spatial cohesiveness, relational perspective

ÖZ

HİZMET FAALİYETLERİNİN ANKARA'DAKİ MEKANSAL ÖRGÜTLENMESİ

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Son yıllarda hizmet faaliyetlerinin mekansal örgütlenmesi kent planlama literatüründe önemli bir yer edinmeye başlamıştır. Bunun temel nedenleri, kompleks ve bağlam-bağımlı bu örgütlenmelerin anlaşılmasındaki zorluklar ve müdahale aşamasında ortaya çıkan güçlüklerdir. Bu çalışma, Ankara örneğinde hizmet faaliyetlerinin mekansal organizasyonunu yeniden tanımlamayı ve bu sayede hizmet alanlarına yönelik yeni planlama müdahale biçimleri geliştirmeye olanak sağlayan bir bilgi temeli oluşturmayı amaçlamaktadır. Mevcut kuramsal çerçevelerin teorik olarak yetersiz olduğu düşünüldüğünden, ilk olarak, hizmet faaliyetlerinin mekansal organizasyonunu incelemek için gerekli olan kavramlar ve kavram alanı belirlenmiştir. Bu kavramlar, yoğunlaşma ve dağılmanın mekansal örüntüleri ile mekansal biraradalıklarıdır. Daha sonra, bu kavramların nasıl bir analitik çerçeve ile incelenebileceği ortaya koyulmuş ve betimleyici matematiksel tekniklerin, göstergelerin ve metodolojik prosedürlerin ilişkisel bir yaklaşım içerisinde kullanılmasının avantajları belirtilmiştir. Görgül çalışmada, Ankara kentindeki hizmet faaliyetlerinin mekansal organizasyonu, temel olarak, hizmetlerin dağılma ve yoğunlaşma örüntüleri ile mekansal biraradalıkları üzerinden tanımlamıştır. Bu tanım, Ankara kentinin tekil bir merkez yapısına sahip olduğunu, ancak hizmet faaliyetleri açısından farklılaşmış alt-bölgelerinin bulunduğunu göstermiştir. Ayrıca, bu yeniden tanımdan hareketle, hizmet faaliyetlerinin mekansal organizasyonuna yönelik kent planlama müdahale biçimlerinin ve düzenlemelerinin nasıl kurgulanması gerektiği üzerinde durulmuştur. Son bölüm, çalışmanın metodolojik ve içeriksel katkılarının yanı sıra, tezden hareketle yapılması olası çalışmalar gündeme getirmektedir.

Anahtar Kelimeler: hizmet faaliyetleri, mekansal organizasyon, yoğunlaşma ve dağılmanın mekansal örüntüleri, mekansal biraradalık, ilişkisel yaklaşım

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TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER 1

INTRODUCTION

Cities cannot be conceptualized only as physical entities. They are also compositions of economical, social, political and cultural activities. According to Schnore (1971, 32), they are something political, economic and social, historical and geographic, physical and even psychological. Because these entities are intertwined together, cities usually present complex characters in their internal spatial organizations.

According to Bourne (1971, 69), "all cities display a degree of internal organization". The term internal spatial organization refers to the location, systematic arrangement, and interrelationships between social and physical elements within the cities, and can be defined as an order described by regularities in the urban patterns.

These regularities are mainly characterized by distributions of people, activities and institutions to specific sites, and interactions among those distributions in urban context (Bourne, 1971, 5). In this framework, these distributions and distributional patterns become one of the variables for analyzing the spatial organizations. These distributions reflect the locations of sets of these elements in geographic space, and are important because they give chance to relate those elements with the concrete space (Lozano, 1990).

The fact that people, activities and institutions are seldom distributed evenly or randomly in urban space brings out the idea that there are certain regularities in those distributions and certain underlying principles governing internal organization of cities (Wong, 2001, 1825). Some of these principles can be defined as general and universal, and are observed almost intact at every single city, such as the general tendencies for business activities to be clustered or agglomerated or the highest residential densities around the city centers. Some of the others, on the other hand, have a context-dependent basis with reference to the historical, social and cultural variations in cities. The concurrent existence of both universal and contextual organizational principles turns the analysis of spatial organizations into a problematic issue.

There are several distributional patterns which can be used for analyzing urban internal spatial organizations of cities. These are mainly population distribution, segregation and employment distribution. However, the most important one is the land-use differentiation that inherently includes the distribution of economic activities (Wong, 2001, 1825-26).

The internal spatial organizations are most often described by regularities in land-use patterns (Bourne, 1971, 69). Land-use patterns have differentiated characters, and this differentiation depends on the fact that land-uses are compatible or incompatible in proximity with one another. Compatible uses produce mutual benefits and positive externalities, and may coexist with one another. Incompatible uses, on the other hand, create harmful outcomes on each other and negative externalities presenting rigid segregation. In this framework, compatibility and incompatibility of land-uses become a criterion of internal spatial organizations; since, through them, land-uses display several geometric forms such as concentric rings and linear formations (Wong, 2001).

Population distributions also display regular patterns on urban space. These regular patterns mostly depend on the conception that urban population densities tend to be higher around the CBDs and lower at the edges. Alonso's monocentric model based on *density decay function* is one of the best examples that reflect these regular patterns, although it is limited because its approximation of densities is specific to a specific scale of observation (Alonso, 1964; Wong, 2001).

Segregation can also be considered as another noticeable feature of urban spatial organizations. The fact that differentiated locational preferences of social groups are predictable is the basis for analyzing urban spatial organization through segregation. It provides a more detailed knowledge for urban spatial organization than the employment distribution; yet, it is concerned only with the residential areas.

Employment distributions display more dispersal character than the population distributions. The distribution of employment presents a kind of spatial organization to a certain degree, on the basis of which, there is the clustering tendency of similar economic activities on close locations.

According to Chapin (1965), the spatial organization is something that is not only related to activity systems and their distributional characters, but also their relationships with the physical structure. The relations from activity systems towards the physical

structure are not one-way and causal ones. This means that the activity systems can shape the spatial structures, and in turn, are modified by them. The product of these specific relations constitutes the spatial organizations.

Chapin (1965) claims that the inability to explain the urban spatial organization results from the relational complexity between activity systems and urban space. In order to overcome this inability, the spatial features of different categories of activity systems have to be carefully determined.

There are two different categories of activity systems. The first category contains activity systems, which have specific locus in a particular urban area at a particular time. This means only *place-type of activities*, which implies "within-place" interactions, can be observed in these activity systems. For the second category, spatial delimitation is almost impossible. The activity systems in this category have no specific boundaries, and these *non-place types of activities* do not contain any kind of spatial features. The interaction in these non-place types of activities has a communication component (and a movement sub-component), and implies a "between-place" interaction. Therefore, these types of activities can only be organized independent of the spatial scale, at any particular moment in time (Chapin, 1965; Aktüre, 1971).

The existence of interaction component within the activity systems adds a dynamic character to spatial organizations, and thus, complicates the analysis of spatial organizations. The qualitative and quantitative changes in the interactions generate new locational preferences of the behavior of the agencies such as people, activities and institutions (Chapin, 1965). The direct result of this change becomes, consequently, changing or continuously-evolving spatial organizations.

This definition of spatial organization is noteworthy; because it does, not only, give chance to delimit the area of content by analyzing spatial organizations through the relevant activity system, but also helps to determine the unit of analysis with reference to the chosen activity system component.

Within this framework, this dissertation basically aims to ***analyze the spatial organization of service activities in Ankara with a relational perspective and discuss how these analyses can be used as a planning tool***. The main variables of the analyses are the place-type of economic activities, namely the service activities, and spatial patterns of them constituted by their spatial distribution. The need for using

relational perspective depends on the assumption that existing theoretical frameworks having interpretation about spatial organizations do not provide proper analytical tools for understanding the existing spatial organization of services.

1.1. The Statement of the Problem

Urban planners are aware of the fact that the spatial distributions and organizations are in the core of urban planning (Lozano, 1990). They assume that the basic step for achieving proper planning policies starts with the analysis of existing urban spatial distributions and organizations, continues with the description of the related problems, and finally ends up with a proposition about the future spatial distributions and organizations. One of the main tendencies in urban planning is to achieve new urban distributions and organizations. Therefore, it is important to understand these distributions and organizations in their initial states to design the planning processes for desired spatial distributions and organizations. In this sense, understanding them becomes not only significant to obtain an information-base by shaping better futures for urban areas, but also a must for planning practices (Wong, 2001, 1825).

In the last decades, understanding the spatial distributions and organizations has become much more important, since cities have experienced profound transformations in their structural and functional organizations. One of the obvious results of these transformations is the appearance of new forms of spatial organizations, which necessitate a special theoretical attention for the people who try to explain the spatial phenomena. Although the explanation of these new spatial organizations begins to take a central position within the spatial studies, it is hard to achieve an analysis on these organizations due to certain difficulties. These difficulties can be grouped under two categories.

The first category arises from a paradigmal change in conceptualization of spatial organizations. Spatial organizations are, no longer, conceptualized as *organization in space*, but rather, *organization of space*. This new kind of conceptualization requires a concurrent consideration of spatial and social phenomena. It generates the appearance of new concepts like networks, relational space, and the death of tyranny of distance, which cannot be handled easily with the prescriptive abstractions of the existing theoretical frameworks.

The second one is the appearance of new structural features of spatial organizations. Independent of their scales, all spatial organizations have two basic features: *complexity* and *contextuality*. Spatial organizations are as complex, since they contain various parts and elements connected or knotted together pointing out a basic duality between parts, which are at the same time distinct and connected (Heylingen, 1998). The relations among these parts attach a substantial richness to the spatial organizations, which are difficult to be abstracted. Moreover, spatial organizations are contextual, because they have had historically-formed organizational principles differing from city to city. This differentiation makes difficult to develop universally accepted rules and broad generalizations, and consequently, complicates the process of analyzing spatial organizations.

The existing theoretical frameworks about the spatial organizations become inadequate not only because of the ways of conceptualization fomenting new concepts, but also because of the new features of spatial organizations that have to be carefully considered in spatial analyses. Although the popular use of these conceptualization and features is relatively widespread in the spatial studies, there is an obvious lack of empirical stability by choosing the relevant methods and techniques for theoretical calculations.

The importance of these concepts and features arises with the fact that they expand the field of spatial analysis, and postulate the existing conceptual frameworks to be reconsidered because of their inabilities by achieving appropriate theoretical explanations and low-level of representational capacity. In this framework, what has to be carried out for analyzing the spatial organizations is to build a new analytical framework enriched by contemporary methods and techniques.

This analytical framework is also required for the spatial organization of service activities at the intra-metropolitan scale, since the changes in spatial organizations are also traceable within the metropolitan contours of individual cities (Macleod, Raco and Ward, 2003).

Since the late 1980s, there has been a growing theoretical interest in changes in the intra-metropolitan spatial organizations with reference to the (re)distributional patterns of economic activities, especially service activities (Shearmur and Alvergne, 2002; Coffey, 2000). There are two main reasons for this interest:

- the appearance of new urban functions and activities,
- the new systemacy in the locational preferences of urban functions,

both of which point out central business districts (CBDs) and the spatial organizations of service activities.

Central Business Districts (CBDs) are crucial elements within the urban systems. The importance of CBDs results from the fact that they contain elements of the most important activity system for cities, services, the distribution of which directly affects overall intra-metropolitan spatial organizations.

CBDs can be defined from different perspectives. However, four of the major characteristics are common in almost all definitions. 1.- they contain service activities controlling economical, social and cultural life of cities and the metropolitan hinterlands, 2.- they have the highest concentrations of urban activities, 3.- they locate themselves around the most accessible zones within the urban systems, and 4.- they are dense employment centers, especially for white-collar labor force (Mayer and Kohn, 1959).

However, these characteristics of CBDs are questioned considerably within the recent decades because of the changes observed in the functional organizations of activities. These changes come into being with the externalities, usually in the forms of massive incursion of information and communication technologies (ICT). In the process of adaptation to them, the organizational aspects of services and the ways of accomplishing the tasks of business activities have started to change. The natural result becomes instability in the functional equilibriums of activity systems where certain service functions have lost their reputations and began to disappear, while some others have transformed into new functional forms and gained importance. The changes in the functional organization of activities, consequently, influence spatial strategies and locational preferences of those activities, and modify their spatial organizations. The changes in the spatial organizations of services are not only related with the developments in ICT. Technological developments in transportation create new accessibility patterns in the cities, which also change the locational preferences of each service activity and transform the spatial organizations of them.

The theoretical and empirical efforts aiming to understand the spatial organization of service activities become highly legitimate in the context of these changing and transforming facts. There emerge, consequently, several studies about the western cases focusing on these subjects (Gaschet, 2002; Krätke, 2000; Aguilera-Belanger and Arabeyre-Petiot, 2001; Gong and Wheeler, 2002). However, one of the main limitations of these studies is related with their ontological perspectives. These studies about the spatial organization of services elevate either the processes of deconcentration-decentralization or the ones of concentration-centralization.

Those studies emphasizing deconcentration-decentralization processes generally declare "the death of CBDs", and introduce polycentric formations and edge cities arguing the emergence of dispersed activity clusters and niches, new concentrations of employment, heterogeneous sprawl under the dominance of centrifugal forces, and scatterations of activities (Greene, 1980; Griffith, 1981; Kumar, 1990; Garreau, 1991; Freestone and Murphy, 1998). The other ones highlighting the concentration-centralization, however, claim basically that the processes of decentralization and deconcentration do not lessen the importance of traditional CBDs that remain successfully in the overall urban structure, because a considerable amount of activities continue to locate on themselves (Airoldi et. al., 1997; Aguilera-Belanger and Arabeyre-Petiot, 2001).

The studies from both of these ontological perspectives may have a certain degree of justificability, which bases on the facts where these studies are performed, which assumptions they have, and which methods and techniques they have used. However, they underestimate the fact that the service activities, even within the same service categories may have concentrative and deconcentrative character at the same time. In this context, the preaccepted ontological perspectives begin to lose their significance, and may attach a misleading character to the analysis of spatial organizations of services, since they generally ignore one of the characters.

What should be done is analyzing the spatial organization of services in a relational perspective in order to achieve proper descriptions and explanations. Achieving analyses congruent to the relational perspective is necessary, since the existing theoretical frameworks have certain limitations. This necessity is especially urgent for the Turkish case, because the theoretical and empirical richness about the spatial organization of services resulting from the Western cannot be easily translated into the Turkish case. The limited number of such studies in the Turkish context, however, does not indicate

that there are not any problematic issues related to spatial organizations of services within the major metropolitan areas of Turkey.

Ankara emerges as a good example for such a study. In Ankara case, there is a noticeable spatial development problematic of services. Since 1990s, it has been very difficult to predict the locations, directions and the spatial conext of the growth of services. Within this period, new service niches have emerged in Balgat, Kavaklıdere, and Sancak districts, which were not foreseen in the development plans of the city, but developed under the influence of market mechanisms. Moreover, there is an observable dispersion of certain business service activities, like professional consultancy firms, towards the peripheral districts of Ankara such as Çayyolu and Koru districts. Although such observations could be done with reference to specific districts, the positions of these phenomena in the overall spatial organization of services is still unknown. “Do these dispersions pair themselves with deconcentration or decentralization process?”, “Are they evidences of the loss of power of the CBD?”, or “Could they change the overall urban structure into a polycentric formation?” are some of the questions waiting for to be answered.

It should not be misunderstood that spatial organizations of services evolve only through the rules of market mechanisms. Planning interventions and specific legislative frameworks also try to determine the spatial organization of services by resolving the problems emerged in the market order. However, in Ankara case, when the planning proposals are examined, it becomes relatively easy to claim that these proposals are not capable to control, manage and handle market-led spatial developments of service activities in Ankara, and the development proposals for services are generally resigned to these newly-emerging patterns. The planning practices in Ankara have proposed generally an articulative development for service activities around the near surroundings of the traditional center such as Kazıkiçi Bostanları and Maltepe, and there are not any clues that the planning professionals have considered these above-mentioned factual growths.

It is possible to overcome the incapability of planning proposals for service activities by formulating new control mechanisms for spatial development of services. However, the foremost step for proposing new control mechanisms is to understand the existing spatial organizations of service activities, which could provide an information base for planning practices and might broaden the horizons for developing proper control mechanisms for the spatial development of services. The success of control mechanisms

may increase if they depend on an information base derived from the analysis of spatial organization of services.

1.2. Inability of the Existing Theoretical Frameworks about the Spatial Organization

In the very nature of the capitalist system, economic activities, including services, continuously seek new locational strategies (Stanback, 1991, 2). Adams et. al. (2002) state that the basic motivation of economic activities within these new locational strategies is the demand to maximize their profit through the protection and/or development of their market shares.

In this dynamic nature of (re)location processes, economic activities continuously reproduce new spatial relations with other activities and institutions, and consequently, transform their existing spatial organizations within the intra-metropolitan context. The process of continual change makes theoretical interpretation of spatial organization extremely difficult; but necessary.

In the case of intra-metropolitan scale, there are four relevant approaches, which do have theoretical interpretations about spatial organizations. These are 1.- ecological approach, 2.- utility maximization approach, 3.- morphological approach, and 4.- system approach. These approaches tend to emphasize the dynamic natures of cities, highlight the factors that influence the spatial organizations, and direct their attentions to spatial models of urban organization and structures from different perspectives.

1.2.1. Ecological Approach

Ecological approach is the first and foremost scientific effort aiming to achieve a spatial generalization of the urban phenomenon. According to Park, Burgess and McKenzie (1967), it is the earliest systemic approach about the overall urban form and organization.

The ecological approach is “fundamentally interested in the effect of position, in both time and space, upon human institutions and human behavior” (McKenzie, 1967, 64). According to Gist and Halbert (1956, 75), such a theoretical interest forces urban ecology to concern with relationships among individuals and groups, and also the ways these relationships influence and are influenced by the predetermined spatial processes. Because of the primary ontological assumption that people’s relationships

and activities are affected by their position in the spatial order, one of the most significant scientific concerns of ecological approach is the urban spatial organization (Gist and Halbert, 1956; Reissman, 1964). In other words, ecological approach tries to explain the ways how the social phenomenon locates itself in urban space, and the role of space in the formation of behaviors, experiences, and the social organization (Reissman, 1964, 94; Gottdiener, 1994, 102-3).

The main assumption of ecological approach by achieving spatial models of urban phenomena is that, if there are uniformities and regularities in the ecological patterning of cities, they can be theoretically represented in forms of systematic principles and abstract laws (Gist and Halbert, 1956; Reissman, 1964). In this framework, the aim of ecological approach is:

> "…to discover the principles and factors involved in the changing patterns of spatial arrangements of population and institutions resulting from the interplay of living beings in a continuously changing culture" (McKenzie, 1931, cited in Reissman, 1964, 93-4).

The urban ecology is like a theoretical interpretation of the spatial structure in terms of sociological concepts obtained through the analogies from biological ecology (Reissman, 1964). Similar to biological ecology, which basically studies the relationships between organisms and their environments; the ecological approach focuses on the collective interaction and adaptation of individuals and groups with their environment, and questions every single relationship between social interaction patterns and the spatial formation of cities. In order to simplify this study, the content of its analysis is concentrated on the social organization and its adaptation patterns of spatially-distributed individuals and groups in a given territory (Reissman, 1964, 101; Flanagan, 1993).

The theoretical explanation of ecological approach depends on suggestive analogies of Darwinist principles and concepts, such as struggle for existence and survival of the fittest (Reissman, 1964, 96).

The first concept derived from biological ecology is the **natural processes** which are used to define the processes producing functional parts of the cities. Another one is the **competition**, which arises with the struggle for existence due to the limited environment. Under the pressure of competition, in order to enhance their chances for survival, individuals and groups evolve **adaptations**, each of which is subjected to test,

and then socially accepted only if they enhance the survival. In other words, the basic motivation behind the location decisions and adaptations is competition. **Dominance**, on the other hand, refers to the idea that certain urban elements, such as industry and commerce, dominate the surrounding area like the *tallest tree* in its biotic community. According to ecology approach, **symbiosis,** a mutual dependence between unlike organisms in biology, can also be observed on the urban space; for instance, where different occupations may contribute to each other's existence (Reissman, 1964, 99-101).

Beside these concepts derived from biological ecology, urban ecology also uses certain methods and techniques of biological ecology in order to analyze the urban structures. The theoretical analysis of ecological approach is motivated by the search of balance and negotiation within the urban environment, and consequently, proceeds through examinations of the distribution of activities in cities. Therefore, the analysis contains not only the description of the characteristics of urban areas based on land-use, or the description of the characteristics of the inhabitants of an area, by such variables as age, occupation, ethnic and religious backgrounds; but also charting of changes both in population compositions and in land-uses (Reissman, 1964, 105). Because of these methods and techniques, the ecological approach fulfills almost all the methodological necessities of a natural science.

By using these analogically-derived concepts and methods, the ecological approach elaborates a literature on certain processes which do have spatial repercussion. One of these processes is **centralization**. According to Gist and Halbert (1956, 78), centralization can be defined as the tendency of people, activities and institutions to gather at some pivotal point in a city in order to satisfy their interests, fulfill their needs, or carry out designated social and economic functions. Another process is **nucleation** which means the spatial clustering of economic and other institutions. According to ecological explanation, the major nuclei are the central business districts where there is a strong tendency of economic activities towards them. **Decentralization**, on the other hand, means the tendency to move away from a central point. It is a concept not only related to people and social groups, but also to all types of institutions shifting from the central areas of the cities toward the peripheries. There are also other spatial processes such as **segregation** and **invasion-succession.** Segregation means the tendency of people to associate themselves with others who have similar interests, values and social positions, and to position themselves away from the unlike others. **Invasion-succession** includes abandonment of an urban area and

move into another, related to individuals, groups and institutions (Gist and Halbert, 1956).

In the ecological approach, the major driving force behind the locational decisions for any particular urban space is based on competition for urban land. These competitions are like the adjustment processes to the environment, and the existence of them brings the idea that the cities do not grow coincidentally or randomly, but within a *rationale*. In this framework, the relational locations of urban activities and land-uses become partly predictable, from which general organizational principles between urban elements could be extracted (Gottdiener, 1994, 105). Through these principles, it becomes possible to analyze the *universal order* of urban spatial structures (Flanagan, 1993, 45; Wong, 2001, 1828).

The most important aspect of ecological approach is that it proposes concrete models for urban structures that are well-known in the urban social theory. Chronologically, these models are concentric zone, sector and multiple nuclei models.

The **concentric zone theory** is based on the studies of Park, Burgess and McKenzie. The most original aspect of Park's studies (1967) is the use of principles of a natural science, biological ecology, in the analysis of urban spaces. By doing this, he achieves to combine economy, sociology and geography in a scientific systemacy (Flanagan, 1993, 46-7). Park observes the environmental patterning of social life, and develops complex analogies between plant communities in their natural environments and similar social elements collected in the "natural areas" within the cities. He develops his first arguments from those analogies that all types of social and spatial organization depend on *struggle for survival* and *competition for the scarce urban resources* (Gottdiener, 1994, 106).

McKenzie (1967), on the other hand, focuses on the dynamic nature of urban arenas and certain processes that form the cities such as centralization-decentralization, concentration-deconcentration, and invasion-succession. He aims to explain the urban change by performing empirical studies about the locational preferences of urban functions. He is, in fact, the first theoretician interested in urban sprawl, the process of metropolitanization, and thus, urban differentiation in a social Darwinist manner (Flanagan, 1993, 47-8).

Burgess (1967) also studies dynamic interrelationships among distinctive urban areas, namely social degeneration, disorganization and finally regeneration with reference to spatial context. He translates and adapts the processes of invasion-succession to a general and universal model of urban growth, and develops "concentric zone theory" by using the studies of Park and McKenzie. The well-known model he proposes combines geographic context with the social patterning of cities, and explains not only the relative locations of urban land-use categories with reference to central business districts, but also urban growth on a spatial ground (Flanagan, 1993, 48).

According to the generalizations of the concentric zone theory, the city can be best understood in terms of five concentric zones; central business district, the zone in transition, the zones of independent working-men's home, the zone of better residences, and the commuter's zone (Burgess, 1967, 51). However, this model is criticized even by the other members of the ecology approach, such as Hoyt and Hurd.

Hoyt's main proposition is the **sector theory** proposed in 1939 which stands at the intersection of economy, sociology and geography. First and foremost, his analysis has an economical dimension because the classification of urban areas is made according to the levels of urban rents and the perspectives of property value (Richardson, 1977, 13). Next, it has a sociological dimension because it is based on behavioral theory (Richardson, 1977, 12). Finally, it has a geographical dimension, because it depends on spatial maps and spatial terms.

According to Hoyt's propositions, the residential areas usually develop in a linear form from the center to periphery, and are dependent on main transportation infrastructures. The starting assumption of this theory is that the growth along particular transportation axis usually consists of similar types of land-uses and social elements. The city, therefore, is conceptualized in the sector theory as a circle in the center and various sectors radiating out from that center (Flanagan, 1993, 48; Harris and Ullman, 1959, 283).

Hurd develops this idea and states that the urban expansion can be observed along the main radial transportation arteries, and with the help of transportation innovations, it becomes possible to overcome spatial limitations (Flanagan, 1993, 48; Hoyt, 1971). As one of the most important figures in the modern urban economics, Hurd (1903; quoted in Richardson, 1977, 10) emphasizes the role of competitive bidding for land in determining urban land-uses and the influence of accessibility of land values. According

to Richardson (1977), Hurd's theory not only combines rent, location and accessibility, but also analyzes internal changes that accompany urban growth, the influence of market potential on business locations, and the stability of urban equilibrium.

Although sector theory could be considered as a revision of concentric zone theory, it provides an empirical base for the influential analyses about the residential spatial structure from which a set of inductive generalizations can be extracted (Richardson, 1977, 11). Yet, this feature does not eliminate the criticisms directed toward it. The most important set of critics was developed within the ecological approach. These critics basically depend on the empirical evidences about the dispersed and sprawled urban patterns, which had become characteristic features of postwar period Western cities (Harris and Ullman, 1959; Flanagan, 1993, 49).

The **multiple nuclei theory** is developed by Harris and Ullman (1959) based on the observations of the "explosive territorial expansion" that weakens the previous monocentric urban models of ecology approach not only in the US cities, but also in certain European cities (Flanagan, 1993, 49). In their theoretical framework, the interests shift towards more complex models of urban structures, in which the emergence of multicenters becomes an inevitable reality.

According to Harris and Ullman (Harris and Ullman, 1959, 283-4), the emergence of separate nuclei, or multicenters, reflects a combination of four factors: 1.- certain activities require specialized facilities; 2.- certain activities congregate because they profit from cohesion; 3.- certain activities are detrimental to each other and push each other from their locations; and 4.- certain activities are unable to afford the high rents of the most desirable sites such as CBDs.

The multiple nuclei theory is based on the fact that the land-use patterns in cities are not built around a single center, but around several discrete nuclei which may have existed from the very origins of the city, or which may have developed with the growth of cities (Harris and Ullman, 1959, 283). The distinctive aspect of the multiple nuclei theory is the fact that the cities are conceptualized as the composition of different land-use categories presenting different spatial patterns of land-uses, although central business districts continue to possess the referential position in the urban spatial structure (Flanagan, 1993, 49).

In the post-war period, ecological approach has separated into two main fractions. On one side, there is *empirical (factorial) ecology* which aims to understand the characteristics of population with the help of statistical techniques; on the other side, there is *functionalist ecology* focusing on social relations. Yet, none of them continues the ecological tradition focusing on the spatial structures (Flanagan, 1993).

1.2.2. Utility-Maximization Approach

Utility-maximization approach has been dominant especially in the second half of 20th century, although its formulation had started in 1920s. With its quantitative techniques, it provides one of the most powerful theoretical interpretations of intra-metropolitan spatial organization (Wong, 2001, 1828).

The members of this approach deal with the matters of spatial organization based on the classical theory of location, which was originally codified by Weber (1929), and subsequently expressed by neoclassical theorists such as Hoover (1937), Isard (1956) and Moses (1958). In this classical theory, location is treated as a problem of individual decision-making process relative to a given spatial environment. The basic assumption of this theory is that each decision maker is assumed to seek out a location such that the transport costs incurred in assembling inputs from their (given) sources and in dispatching outputs to their (given) final markets are at a minimum (Scott, 1988, 44).

Utility-maximization approach also shares a common analytical basis with neoclassical economic theory. Therefore, it recognizes the economic value of space relationships, and considers the process of spatial structuring as economical phenomena. It examines the "where"s of economic activities, studies basically spatial aspects of locational decision-making of firms and households, and, finally, aims to achieve models of land-uses by adapting the neoclassical economic principles to urban spatial analysis. The main reason behind these interests is the belief that urban problems can be solved relatively easily through a careful examination of location decisions (Ratcliff, 1959, 299; Richardson, 1977, 26; DiPasquale and Wheaton, 1996).

The utility-maximization approach mainly highlights the comparative costs to understand the economic behaviors of individuals, households, and firms on urban space by assuming that their spatial behaviors emerge under competitive market conditions (Hoover and Vernon, 1959; Richardson, 1977). This competitiveness creates a kind of allocation mechanism that determines urban spatial organization as a whole. The study

of urban spatial organization in utility-maximization approach involves these allocation mechanisms on urban space (Richardson, 1977, 38; Chapin, 1971, 149).

By the study of allocation mechanisms, instead of stochastic types of models focusing on the intra-metropolitan distribution of population density, utility-maximization approach uses generally deterministic types of mathematical models, which involve application of consumer theory to urban locational analysis. These models provide insights into three major aspects: 1.- the rationale behind the emergence of core-dominated cities, 2.- the negativity of the slope of urban (locational) rent function, and 3.- the decline of building heights away from the city center (Alao, 1974, 60).

There are different theoretical studies supporting the development process of utility-maximization approach. Although the studies of Hurd, Mills, Muth and Wingo are significant in the developmental history of this approach, Von Thünen and Alonso established the milestones of this theory. Many studies point out that Von Thünen is the initiator of utility-maximization theory. Alonso, on the other hand, is the founder of the approach whose seminal monocentric model provides a basis for the approach (Richardson, 1977; Wong, 2001, Alonso, 1971).

The very origin of utility-maximization approach can be traced back to von Thünen's studies in 1820s. According to Richardson (1977, 6), "von Thünen's model refers to the spatial distribution of crops according to yield per unit area around a central town". The spatial organization within this model basically depends on the balancing practices of transportation costs. Although it has an agricultural basis and focuses mainly on the near surroundings of cities, it is revolutionary for the urban studies, because, as Isard (1956) states, it can be easily applied in any urban context. Von Thünen proposes an abstract model based on a variety of assumptions. The existence of homogeneous plain with equal quality land on which the city is centrally located, the neglection of spatial differentiations within the city, the existence of fixed prices and linear transportation costs, and constant production costs are the basic assumptions of this model (Richardson, 1977).

An important milestone in the history of utility-maximization approach is the "bid-rent function" developed by Alonso in 1964 (Richardson, 1977). According to Hall (1997, 313), the bid-rent function stands at the intersection of geography and urban economy, and has originated from real estate economics. Alonso is the first theoretician interested in rent gradients and bid-rents in the urban context, which reflects distance,

accessibility and operating costs factored into the price of urban land. The model assumes that each land-use type has a different demand for urban land and a different bid-rent curve resulting from the nature of its locational preferences. Therefore, the spatial organization is conceived in terms of the location decisions of the individual firms facing a given rent-distance function in the bid-rent theory (Richardson, 1977).

The preassumptions behind bid-rent theory are similar to the model proposed by von Thünen. For instance, homogenous and featureless plain, the possibility of transportation in every direction, and the perfectly competitive land market make the cities free from institutional constraints and distortions of existing structures. While these assumptions may seem unrealistic, the model provides some advantages for empirical studies (Richardson, 1977).

There are other versions of utility-maximization approach that focus on the locational aspects of commercial activity systems. These versions, which develop on the normative behavior of consumers, are Reilly's *Spatial Interaction Theory* (1929-1931), Hotelling's *Principle of Minimum Differentiation* (1929) and Christaller's *Central Place Theory* (1933) (Brown, 1993, 186).

Spatial interaction theory basically tries to explain the system and locational characteristics of central places. The development of spatial interaction theory depends on Reilly's *Law of Retail Gravitation* derived analogically from Newton's Law of Gravity (Johnston, 1983, 35). This law of retail gravitation is helpful for obtaining normative models designed to explain the normative behavioral interactions and optimal patterns of spatial behaviors (Shepherd and Thomas, 1980). According to Brown (1993, 191), spatial interaction theory is based on the idea that consumers trade off the attractiveness of alternative shopping areas against the frictional effect of physical distances. In other words, this theory proposes that a customer can bypass the nearest centers offering the desired goods and services for a more distant, but better-appointed destination (Openshaw, 1975; Haynes and Fotheringham, 1984; Fotheringham and O'Kelly, 1985). Although surpassing the nearest center does not fit to the idea of minimization of the costs of movement in the utility-maximization approach, in the context of multipurpose and combined shopping trips, it can be conceptualized as a movement minimization effort (Johnston, 1983, 34).

Spatial interaction theory extends the conceptions about the central areas. However, as Carrothers (1956) and Huff (1963) state, the deterministic models of this theory and

closed system assumption do not always perform well in practice. Neglecting the variables, such as retail floor space, travel time and consumer cognitions, decreases the explanatory capacity of these interaction models, and prevents to cover the inherent dynamism of commercial activity systems (Parry-Lewis and Trail, 1968).

The **principle of minimum differentiation**, developed by Hotelling, is based on the assumption of inelastic and identical demands and supplies of utility-maximizing consumers (Brown, 1993, 199). According to this theory, not every activity depends upon the accessibility of the entire market or the general accessibility of a location within the city center. Therefore, it conceptualizes locational characteristics of central places as the equilibrium among central activities, and focuses on the intra-metropolitan locations of these activities.

This purpose provides certain possibilities to understand the inner structures of business areas and the concentration patterns of service activities. However, its assumptions, especially the inelastic demand assumption, are too reductionist. Because, there is always a possibility of deconcentration from central zones in the absence of the inelastic demand assumption, as even Hotelling states (Brown, 1993, 200).

Although Christaller's **central place theory** considers the spatial organization of commercial activities in inter-metropolitan scales, it has profound arguments about the locational decision making of modern retail organizations (Dawson, 1980, 205). As a version of utility-maximization approach, it is based on certain assumed laws of behavior and identical consumers from which a model of a settlement pattern and system of central places has been developed (Berry, 1967, 132). These laws have been provided by a set of testable hypothesis related to size, spacing, functional composition of cities and central places in microeconomic world in which there is a uniform distribution of identical, equally-affluent and fully-informed consumers (Johnston, 1983, 32; Brown, 1993, 188). The central place theory assumes that consumers patronize the nearest center offering the required goods and services with a separate and single purpose of shopping trip for each individual good (Brown, 1993). The assumptions of central place theory, about both the transportation and population, depend on uniformity that takes root from the normative character of the theory. The uniformity in its assumptions, however, means ignorance of the possible existence of contrasting modes of transportation and of the variation in morphological structures (Johnston, 1966; Potter, 1981). Moreover, single purpose shopping trips to nearest center argument is another focus of critics (Bacon, 1984; McLafferty and Ghosh, 1986). Yet, the most

important limitation of this theory is its static, equilibrium seeking assumptions, which do not suit the highly dynamic physical environment of the retail function (Dawson, 1979).

The explanations of all versions of utility-maximization approach, which are based on the market system dynamics (Green, 1969), have certain critical aspects. These are about mathematical considerations, long-run equilibriums, concentration on single goods and continuous space conception.

Utility-maximization approach has a strong *mathematical consideration* followed by a set of deductive methods that require vigorous formulation of premises. These mathematical formulations depend on the stimulation of one variable in the *ceteris paribus* conditions (Richardson, 1977). In this approach, the abstraction of cities as monocentric structures is the first step to develop a quantitative analysis for urban spatial structure. According to Richardson (1977, 89), the existence of monocentric conceptualization has a strong logic in itself, because it permits analytical solutions by making the mathematics tractable.

Another important assumption of the utility-maximization approach is the *long-run equilibrium* that arises on the close ties between this approach and equilibrium theory. The equilibrium assumption makes the proposition of simple static models possible, only, if the scale of activities are fixed, and locational interdependences are not considered (Richardson, 1977; Chapin, 1971, 149).

The analyses of utility-maximization approach are developed from the assumption of single good. This means that the approach focuses on single goods and tries to understand the spatial behaviors directed to those goods (Richardson, 1977, 93). This way of analyses has not much consideration to the notion of agglomeration, although spatial concentrations in cities are usually explained in terms of it; since there is a lack of knowledge about what factors induce agglomeration, and how the forces of agglomeration operate (Richardson, 1977, 75).

Continuous space conception is used to represent the spatial organizations instead of discrete areal zones with different characteristics (Portnow and Erell, 2001). With this conception, calculus easily becomes a tool for analysis of theoretical explanation (Richardson, 1977, 31). However, the use of continuous space representation in explanation changes the “notion of location” to “distance from center”, and eliminates

the understanding of the real and possible discontinuities and variations within the urban space (Richardson, 1977).

According to Ratcliff (1959, 301), ecological approach enriches the understanding of cities by applying concepts from natural sciences to human behavior in urban areas. Utility-maximization approach, on the other hand, has done much to fill out the descriptive material and to develop practical applications of theory to planning problems. However, this does not prevent the critiques directed towards utility-maximization approach, and morphological approach takes the place of utility-maximization approach within the theoretical arena.

1.2.3. Urban Morphology Approach

Urban morphology is the study of physical forms of cities as human habitats in a very general manner (Moudon, 1997, 3; Wong, 2001, 1828). The morphological approach is originally bounded in geography; yet, it also has close relationships with the domain of architecture and urban planning, especially in recent decades (Moudon, 1997).

The main focus of morphological approach is the physical results of social and economic forces. It aims to identify and dissect various components of the cities, and to study the interactions of elements of physical structure at various scales in which human activities are correlated with the physical configuration of cities. (Moudon, 1997, 5; Vance, 1990).

The morphological approach conceptualizes the city as the accumulation and integration of many individual and small group actions which are governed by cultural traditions and shaped by social and economic forces over time. By this conceptualization, it also considers historical and institutional constraints and behavioral interactions with space (Moudon, 1997, 3).

With reference to the overall objectives of urban morphological approach, the city can be analyzed through the medium of its physical form. Moudon (1997, 7) states that there are three principles of morphological analysis:

- Urban form can be defined by three fundamental physical elements: buildings and their related open spaces, plots and lots, and streets.
- Urban form can be understood at different levels of spatial resolution. The most commons are the buildings/lots, the streets/blocks, the cities and the regions.

- Urban form can only be understood historically, since the elements of cities experience continuous transformations and replacements.

As it can be easily understood from these principles, form, resolution and time are three fundamental components of the urban morphological approach.

One of the main interests of the morphological approach is the description of spatial differentiation in cities. This interest is also directed towards the spatial organizations of service activities embodied in the studies about CBDs. Morphological approach conceptualizes CBDs as the most important part of the urban fabric, and either concentrates on the internal structure of CBDs or tries to develop delimitation criteria for them. According to Davies (1959), these two theoretical issues provide a capability to morphological approach for understanding the dynamic nature and the continuously-changing boundaries of CBDs (Tekeli, 1991).

Related to the studies about the internal structures of CBDs, morphological approach analyzes the congruencies and correspondences of the specific land-use categories with the physical configuration of CBDs. These analyses can be understood as one of the initial steps for understanding spatial organizations of services. However, they are limited in essence due to the broad land-use categories used in the analyses.

The second issue related to CBDs in the morphological approach is the delimitation studies[1] (Smith, 1971, 353). These studies aim to discover the zones of (service) activity intensities. According to Mayer and Kohn (1959), they are not only for developing a deeper understanding of the nature of CBD, but also for obtaining a comparable data for CBDs from various cities.

Although morphological approach provides proper and useful analytical tools for planning practices, and produces data for the comparative analysis between different contextual cases, it has certain limits in the explanation of spatial organization of services. This is the main reason for system approach to become the dominant theoretical framework in the spatial organization studies.

[1] For detailed explanation about the types of delimitation, see Appendix A.

1.2.4. System Approach

The word "system" literally means something that hangs (or stands) together. In the contemporary scientific literature, system is something made up of a set of elements, and interrelations and interactions among these elements (Couclelis, 2000, 6; Lozano, 1990, 74). A system can also be defined as "a group of parts whose interaction facilitates the performance of the parts into an organized whole with characteristic overall responses" (Odum and Peterson, 1972 cited in Lozano, 1990, 74).

The concepts of system approach are originated before the Second World War, and can be easily traced back to the works of Bertalanffy dating from 1930s. Scientists in both natural and social sciences (Couclelis, 2000, 6; Lozano, 1990, 74) use his general system theory, composed of system science, system technology, system philosophy, and system epistemology. After 1950s, system approach has expanded into new fields such as system engineering, system analysis, system theory, information theory, and mathematical modeling, all of which propose a common way of solving complex problems (Lozano, 1990).

The reason of translating system approach into urban studies is the need to comprehend the complexities within the urban structures, and to overcome the overwhelmingly complex problems of spatial organization and distribution of human activities that increase the incoherencies within the urban systems. This comprehension is mainly for developing urban policy decisions (Lozano, 1990, 75; Rogers, 1967).

According to Rogers (1967, 108), the system approach towards the analysis of urban spatial organization is a macro approach, which interprets the spatial patterns of cities in terms of dynamics of natural, social and economic forces. The primary concern of this approach is to describe and explain why a particular activity is carried out at a given site and how it is spatially related to all other activities of the system. In other words, it is concerned with the forces that determine the location of activities (Rogers, 1967, 109), and aims to discover, explain, and predict the regularities that exist in man's adaptation to urban spaces.

The most important aspect of system approach in spatial analysis is that it attempts to understand the spatial organization in its entirety (Bourne, 1971). Although it is difficult to comprehend cities, which are conceived as complex networks of functional interdependencies, system approach has achieved this by refusing the isolation of the

elements of the systems and formulating an overarching analytical framework to incorporate various organizing principles (Wong, 2001, 1828; Webber, 1964).

Within the urban systems, each element positions itself only in relation to other elements in urban space. This presents the fact that the location is relatively determined in the system approach. According to Falk and Abler (1980, 63), the reason of this relativity is the use of effort distance, usually in terms of costs, instead of physical distance in their theoretical explanations. Therefore, urban areas are conceptualized as spatial systems composed of parts whose locational values are relative. While the location is relatively determined, it is still important, because the location of any part of the urban whole is essential for spatial scientists and urban planners to understand the urban system (Lozano, 1990, 84).

System approach proposes two complementary methodological and theoretical approaches to study complex systems. The first approach is called as *top-down approach* and can be exemplified by system analysis. The latter one is the *bottom-up approach* emphasized in complexity theory. Both of these approaches can be used directly for urban modeling (Couclelis, 2000) which is an abstract representation of some parts of the real world.

The aim of **top-down approach** is basically decomposing and conquering the systems in order to clarify the internal structure of a complex system and to derive forecasts regarding future system behavior. It is based on the principle that complex systems can be decomposed into simpler sub-systems (or sub-sub-systems) in which the components can be treated as elementary. Its focus is not on the elementary components, but on the relationships among them and assemblies of them at and between the levels of the (de)composition hierarchy. It is considered, therefore, in the domain of system analysis (Couclelis, 2000).

Bottom-up approach, on the other hand, is related to complex systems being characterized mathematically by multiple non-linearities and feedbacks. These characteristics are embodied in the multiplicity of the parts of systems, and in the highly differentiated levels of interactions between these parts (Lozano, 1990, 79). These characteristics often lead to phenomena such as self-organization, chaos and bifurcation, which are not well-known in classical science (Couclelis, 2000, 8-9).

The first approach relates to focusing on components. In this approach, the whole can be understood completely only if one can understand its parts and the nature of their sum. The second one approach considers totality in a holistic way. In an urban planning experience, both of these approaches are inadequate, because urban planning aims to maintain a balance between whole and parts (Couclelis, 2000).

Although Rogers (1967) states that the system approach has a well-developed theoretical interpretation because of the empirically sound and logically consistent propositions, it lost its importance in mid 1970s (Hall, 1997).

1.2.5. Comparative Evaluation on Theoretical Interpretations of Spatial Organization

All theoretical frameworks about the spatial organizations have strong and weak dimensions in their explanations. These strengths or weaknesses emerge with reference to the fields in which they are developed. Since these concepts are different from each other, they can be considered as different layers for the analysis of spatial organization of services. In this part of this study, instead of examining the theoretical frameworks or listing their strengths and weaknesses, the following question will be answered :"how do these approaches define the cities, the CBDs, and spatial organization of service activities?"

As mentioned before, ecological approach provides the earliest systematical and institutional studies on the overall urban form and spatial organization. Therefore, this approach has produced outstanding explanatory capacity for urban spatial phenomena. In all versions of ecological approach, the city is conceived as a complex composition of multiple socio-ecological colonies segregated by income, class or ethnicity (Wong, 2001, 1828), and conceptualized as organic totalities (Reissman, 1964, 96). They are, in fact, the places of certain processes like centralization, nucleation, decentralization, segregation and invasion-succession motivated by competition, dominance, balance and symbiosis. Therefore, they can also be conceptualized as the containers of the social phenomena.

The first definition of central business districts is developed within the ecological approach. According to this definition, CBDs are the locus of centralization for service activities, and the major nuclei in which non-residential activities are spatially concentrated. The reason of this concentration relates to the fact that CBDs are the best locations for which all competition occur. With these characteristics, they are like

the anchors for all other activities that control all the competition around them. They are also the organizing nodes for the overall urban spatial structure, not only economically, but also physically.

Ecological approach is mainly interested in the overall spatial organization of cities. Its interest in spatial organization of services arises mainly by analyzing the domination of economic competition by formation of urban organization. Competition for best location that creates ecological sorting is the source of spatial differentiation of land-uses, which also promotes studies of spatial organizations of services. This is why ecological approach is sometimes labeled as “the theory of competition for spatial positions” (Hall, 1997).

This analysis, however, assumes that the spatial behaviors of individuals and groups on urban space are rational and predictable. On the other hand, as Firey (1945) states, there may exist certain irrational choices in reality, and these individual or collective irrational choices cannot be understood with pure economical assumptions as ecological approach suggests (Flanagan, 1993, 50).

This interest in spatial organization also relates to the search of a universal, but relationally-defined urban order. Universality arises with its deterministic consideration, relationality with observation and empirically derived hypothesis (Richardson, 1977, 111). Relationality basically relates to the location determined through relations among urban elements. However, these urban elements are described in a broad manner, usually referring to land-use categories, which prevents tracing the relational locations of detailed activities. In other words, ecological approach provides a relational treatment of location, whereas empirically broad categories reduce the theoretical validity of location and the representational capacity of explanation. Hence, the question of intra-urban locational efficiency cannot be answered (Alao, 1974, 60).

The explanatory achievements in overall spatial organizations decrease when the subject becomes the spatial organization of services. Almost everything about this subject is given through the explanations of CBDs. These explanations, where the internal structures of CBDs are not properly presented, depend on zonal definitions. In these definitions, CBDs are treated as homogenous zones, and spatial and functional differentiations within CBDs are not tractable. This results in an inability to describe the spatial organization of services in general. Although the concept of secondary business

centers is present in the multiple nuclei theory, the flu aspects of internal spatial organization still exist.

Despite certain achievements in understanding spatial organizations, ecological approach has limitations. One of its main limitations relates to the methodology used in its theoretical explanation. This kind of a consideration results in an idealization in modeling the cities. According to Alihan (1938; cited in Flanagan, 1993, 50), this "creation of ideal types" for cities pairs itself with a high level of abstraction. Moreover, the idealization of urban phenomena results in the negligence of local culture in theoretical explanations, which cannot be easily avoided in spatial organizations studies (Reissman, 1964). Although cultural features may determine the formation of spatial organizations within cities, they are ignored in this environmentally deterministic consideration of ecological approach (Flanagan, 1993, 50). There is an obvious dominance of western urban realities in assertion of extracting universal principles. In other words, they try to achieve universal principles only by observing the western realities in a reductionist way (Şengül, 2001). This reductionist consideration prevents perceiving the context-dependency of spatial organizations.

Utility-maximization approach is basically interested in the spatial aspects of decision-making with a focus on location theory, neoclassical economic theory and consumer theory. It analyzes the locational patterns and distributions of activities, and consequently, aims to grasp the spatial regularities in land-use patterns and activity systems. According to Brown (1993, 186) and Johnston (1983, 35), the utility-maximization approach, just like the ecology approach, searches for universal laws and orders by presupposing essentially that there is an identifiable order in urban space, that individuals are rational and utility-maximizing decision makers, and that the economic activity takes place in a freely competitive, equilibrium seeking setting.

This approach conceptualizes the city as an aggregate unit of optimization, in which each agent settles in a location that maximizes its utility and profit (Wong, 2001, 1828). According to Richardson (1977, 31), almost all versions of the utility-maximization approach assume "a circular city with the possibility of pie-slice radians taken out for topographical constraints". With this assumption, the city is spatially represented by linear rays from the CBD to the urban peripheries with the acceptance of uniformly-conceptualized urban plane. The city of utility-maximization approach is like a doughnut. The hole in the middle is the CBD, and the doughnut itself is the residential

ring (Richardson, 1977, 32) as if there are not any variations in the morphology and geomorphology.

The dominant single center, namely CBD, is assumed to be "centrally located". The spatial model for CBD, or the monocenter, is extremely similar to the one of concentric zone theory, which, however, is proposed for the overall urban structure. The model sorts the service activities according to their bid-rent functions from the very center of the CBD to the transitional zones. However, this assessment does not cover the heterogeneous associations of different service categories, and it underestimates the spatial cohesiveness of services, which originate from the fact that different types of service activities may have similar locational preferences.

Different from the ecological approach, which concentrates on the overall spatial organization, utility-maximization approach develops its arguments about the locational preferences and spatial behaviors of firms on an atomistic basis. Although it is helpful to understand the intra-metropolitan locational efficiencies (Alao, 1974), the insistence on the primacy of atomistic behavioral microeconomic processes of spatial adjustments is the main limitation to understand the overall spatial organization of services (Alonso, 1964; Richardson, 1977). In this framework, utility-maximization approach can achieve a detailed explanation of the locational preferences of individual firms; but, not a general assessment of the whole locational and organizational system of services (Richardson, 1977).

All utility-maximization models are prescriptive, which means that they indicate the patterns that ought to occur. This explains why they are frequently used in planning and policy-making. However, this prescriptive character attaches a normative character to utility-maximization approach, in which the contextual dynamics bringing land-use systems from their present state to a desirable state are not considered (Richardson, 1977).

Moreover, there is a considerably radical effort to simplify the complex urban phenomenon in the utility-maximization approach (Richardson, 1977; Forrester, 1969a). The approach assumes the urban systems as simple systems, and this assumption implies cause-effect associations which can be identified as being proximate in space and time (in the long-run equilibrium conditions). In this framework, simplicity, which is used for mathematical representation, becomes unable to represent complex systems emerging due to the nonlinearities and uncertainties (Forrester, 1969a) and the dynamic nature of

spatial organization of service activities (Richardson, 1977). This way of explanation becomes generally inconsistent with the evidence of increasing employment decentralization and spatial dispersion of certain activities away from the dominant centers (Richardson, 1977, 32). The theory could not develop satisfactory quantitative models for multicentric urban structures, and conceive them as deviations from the ideal spatial organization. The mathematical models do not have the capacity to cope with the nonlinearity and complexity in the spatial organization of service activities. These non-linearities and uncertainties are omitted in the explanations of spatial organizations in utility-maximization models, which reduce the explanatory capacity of the theory.

Utility-maximization approach necessitates a clear definition of consumer for its explanation directed to a single good. This definition of consumer behavior is relatively easy in the context of tangible good-provider retail activities, but not in the context of the business activities. Therefore, the concept of agglomeration is usually neglected in its explanation, although it is a main concept for understanding the spatial clustering in the central zones of business services. Therefore, all versions of utility-maximization approach conceptualize CBDs as if their only function is retail (Brown, 1993), which reduces the comprehensiveness of their explanations.

Similar to the ecological and utility-maximization approach, morphological approach continues monocentric modeling of cities. However, different from the ecological approach, which focuses on the spatial processes, and the utility-maximization approach, which concentrate on the locational preferences of individualistic firms, morphological approach focuses on the urban fabric itself. The conceptualization of the city in morphological approach is also different from these theories. Morphological approach conceives the city as the place of accumulation and integration of many individual and group actions governed by cultural traditions and shaped by social and economic forces over time. It aims to understand the relationships between human activities and the physical arrangement of cities, hence, the spatial differentiation within cities.

The capacity in spatial description of CBDs is much more improved in morphological approach. The basic reason of this improvement is due to the fact that CBDs are the most important zones of cities influencing the overall urban structure. It tries to understand the internal structure and spatial boundaries of CBDs through broad land-use categories. These studies are worth mentioning, because they do not only provide

insights for the morphological structure of CBDs, but also generally end with the detection of relative location of the service core within the city and the spatial tendencies of activity development around the CBDs

The studies about internal structure and delimitations do not help much to uncover the spatial organization of services. Like ecological and utility-maximization approaches, it focuses solely on central zones, and tries to detect the centralized (service) activity clusters. This means an ignorance of deconcentration and decentralization processes of services, which limits the understanding of the overall spatial organization of services.

System approach is a macro approach in order to comprehend the complexities of the spatial structure. It conceptualizes the city as a complex network of functional interdependencies. Since functional interdependencies are important in system approach, it attempts to understand the spatial organization in its entirety by refusing the isolation of any elements.

These conceptualizations provide insights for studying the spatial organization of services. To understand the spatial organization of services, system approach tries to decompose the spatial system of services, and to define their functional sub-systems. Moreover, the treatment of the location is different in the system approach. Because the functional interdependencies bring the idea of relative locational values between urban parts into the light, the relation between space and the attributes is conceptualized different from the previous approaches. Therefore, at intra-metropolitan level, it points out mainly center-subcenter dichotomy hierarchically instead of focusing on the internal spatial organization of CBDs.

As mentioned before, these theoretical frameworks provide definitional expansions for CBDs. However, there is opaqueness in explanations of spatial organization of service systems. There is a need for an analytical framework in which:

- The locations of detailed activity categories and subcategories is treated relationally as the ecological approach,

- spatial distributions of activities is analyzed quantitatively as in the utility-maximization approach, however, not through the individualistic firms, but by considering the locational system of services,

- the relationship between space and activities are considered together as in the morphological approach

- parts of the service system have to be defined at an intra-metropolitan scale as it is achieved by system approach at metropolitan level.

1.3. The Method of the Study

In this framework, the second chapter aims to introduce the concepts of spatial organizations of service activities, and enframe the relevant conceptual framework. The main focus of this chapter is the activity and space components of spatial organization of services. After a brief explanation of CBDs, the system of economic activities is clarified by facing up the problems of classification to understand the activity component of service systems. The next part of this chapter focuses on the locational attribution of services, service categories and sub-categories, and the internal and external factors that influence locational attributions. This chapter ends up with a discussion on typology of concentration and dispersion patterns, and spatial cohesiveness of economic activities which can be considered as a linkage between abstract locations and concrete spaces.

Within the third chapter, there is an attempt to achieve a new analytical framework which depends on the relational approach. After a brief introduction of relational perspective, the advantages of using this perspective for the analytical framework in a spatial analysis of service activities are presented. In the last part, there is a discussion about the methods and techniques, indicators and methodological procedures of relational approach, which are preferred in the case study.

The fourth chapter presents the case study. The aim of this chapter is to understand the spatial organization of the service activities in the city of Ankara with its functional and spatial complexities. Firstly, the research questions of the study are declared which are as follows:

- *What are the concentration and dispersion patterns of service activities of Ankara?*
- *How can the relative cohesiveness of service activities in Ankara be spatially defined?*

It is expected that the answers of these questions will inform the spatial organization of service activities in Ankara. There are four assumptions:

- An analytical framework depending on relational perspective has to be used for the analyses of spatial organization of services to cope with their complexity and contextuality.
- The whole surface of Ankara has to be considered as the frame of spatial analysis which rejects the supposition assuming the spatial patterning of service activities is delimited in central zones.
- The level of spatial resolution has to be increased as much as possible in order to prevent distortions in descriptive and explanative efforts.
- The attributional data has to be used in its most detailed form to extend the limits of description and explanation.

After the description of spatial organization of services is achieved, there is an examination about historical evolution of spatial organization of services with reference to the descriptive studies of Akçura (1971) and Bademli (1987b), and the planning proposals for Ankara. This examination helps to understand the historical inclinations in the formation of existing spatial organization of services. The last part of this chapter focuses on the impacts of geomorphological structure of Ankara, and includes an interrogation of distribution of services of Ankara as it relates to its geomorphological structure and the general planning decisions.

The **fifth** chapter, firstly, discusses different planning systems for intervening spatial organization of services activities. These are mainly the Planning System of the United States and British Planning System. However, other planning systems from continental Europe, such as the ones in France, Sweden and the Netherlands are also examined. The second part of this chapter concentrates on the Turkish context, and analyzes existing planning tools and legislative frameworks for controlling the spatial organization of services. The last part of this chapter can be considered as an effort from description toward the prescription for spatial organizations of services by keeping the question "How might urban planners translate the new understanding of complex and contextual urban phenomena into their practices within the Turkish case" in mind.

The **sixth** chapter is the conclusion chapter. After a synopsis, this chapter tries to state the original aspects of the study through two categories. The *first* category covers the methodological originalities and contributions which are discussed mainly through the

representational capacity of the analytical framework used in the dissertation. The *second* category contains the contentual originalities and contributions, which may appear with the discussions about the redefinition of spatial organization of services activities in Ankara Case. The last part of this chapter is about the possible further studies, which may widen the horizons of planning theory and practices.

CHAPTER 2

SPATIAL ORGANIZATION OF SERVICE ACTIVITIES

The theoretical frameworks, which aim to explain the urban spatial organization, are not guiding and explanatory for the analysis of spatial organization of service activities. The basic reason for this is due to the difficulties in handling the variables determining the spatial organization of services. These variables are the activity components (services) and space component (locational attributions of services). In other words, theoretical frameworks provide general information and clues for the definition of CBDs and spatial organization of services form different perspective; yet, they are not able to understand these spatial organizations in-depth.

The spatial organization of services can only be understood within a comprehensive framework considering the patterns of locational preferences of different activity categories. In order to develop a conceptual framework for the spatial organization of services, the first part of this chapter focuses on the common features of CBD definitions that are extracted from the theoretical frameworks about spatial organizations. The next part includes the analysis of service activity components by facing up the classification problem of economical activities and services. Afterwards, the locational attribution of the service activities and the internal and external factors influencing them, are discussed. These are evaluated in relation to the urban context in order to achieve a typology for locational patterns, both for concentration and dispersion. These typologies are significant, because, through them, it becomes possible to move from abstract spatial distribution to concrete urban space.

2.1. General Definition of Central Business Districts

Central business districts (CBDs) are major elements within the land-use fabric of the city in which the performances of various activities for private profit are mostly dominant (Bourne, 1971, 70). However, they are not only the areas of specialized activities as the name implies, but also functional entities referring service activity systems. Therefore, they have relations both with space (locations, distributions,

patterns) and attributes (service categories and subcategories). Independent of the scale and location of the cities, all CBDs have four common features.

1. The first feature refers to the *decision-making function* that CBDs serve. This function relates itself to service activities controlling economical, social, and cultural life of the city and the near surroundings.

2. CBDs have the highest concentrations of non-extracting and non-transforming activities. Independent of the fact whether there exist dispersion or not, CBDs mostly continue this dominating character.

3. CBDs are one of the most dense employment centers in cities.

4. CBDs usually have the highest accessibility in the city and metropolitan region, which introduces the highest degree of land competition within the CBDs (Mayer and Kohn, 1959; Nelson, 1969).

Because of these features, CBDs are the most prominent activity zones within the cities. As the nucleus of the original settlement, CBDs act as the strongest single organizing influence on the spatial distribution of people, institutions, and other economic activities. In fact, they are the basic determinants of overall urban spatial structure. Whether there exists dispersion of services or not, they remain as the focus of the spatial structure of consumer and producer service activities (Bourne, 1971, 346).

2.2. Activities within the Central Business Districts

The main components of the city's functional structure are its activity systems which are almost limitless in number and complexity. These systems are represented through the clusters of similar activities of commercial, industrial, and institutional sectors of urban economy. These clusters are developed because of the strength of interaction among the activities, and each cluster displays, somehow, similar spatial patterns of corporate behavior and land-use (Bourne, 1971, 345).

Since there is an obvious qualitative and quantitative diversity of activity systems within the cities, the first achievement has to be the decodification of this activity system in order to understand their spatial organizations. This means facing up the problematic issue of the classification of economical activities.

According to Kellerman (1985, 134), the classification of economic activities is originally proposed by Clark (1940) and Fisher (1935). They propose three sectors for economic activities. The ***primary sector*** mainly consists of extractive activities related to agriculture, forestry and mining. Therefore, they usually pair themselves with the non-urban areas, or the fringes of urban areas. The ***secondary sector*** includes all kinds of manufacturing and production activities. These are activities transforming raw materials to the semi-processed or processed tangible goods. Although there is a theoretical intention to discover the locations of transforming activities with reference to *Weberian Triangle* (Stevens, 1985), these activities generally pair themselves with the industrial zones and industrial sites within the metropolitan areas. The remaining services form ***tertiary sector,*** and this sector includes all other types of activities. The importance of this sector emerges with the fact that all the central business activities in CBDs stand within this category. This sector contains activities such as construction, retail, wholesaling, transportation, communication, finance, general management services, consultancies, innovation, design, and advertising; in short, any kind of producer and consumer service activities (Kellerman, 1985; Walker, 1985).

"Services are an extremely important element in our understanding of the future as well as of the present, in terms of the economic geography of the various countries, in terms of land-use, of the distribution and location of people and their activities" (Gottmann, 1983, 21 quoted in Kellerman, 1985, 133). However, it is difficult to associate services with the urban space, because they are multitudinous in number, and each of them has differentiated locational preference. Therefore, before associating services with the urban space, the issue of classification of services has to be clarified.

Services are differentiated from one another according to what they serve and to whom they serve. However, the classification problem of services emerges due to the fact that there is no authoritative consensus on determining the boundaries of service categories (Marshall et. al., 1987).

There are several studies about the classification of services (Marshall et. al., 1987; Stein, 2002; Zoppè, 2005). In fact, each conceptual or empirical study on services, about either functional organizations or the spatial distributions of them, proposes its own classification through different criteria. These classifications directly affect the results of studies, which makes comparison between them difficult.

One of the first studies about the classification of services is developed by Bell (1973). This study is distinctive because it is evaluated as a theoretically accepted classification within academic circles, and referenced extensively.

Bell proposes a three-folded categorization for services (Bell, 1973). In the first category, there is transportation and recreation. The second category includes trade, finance, insurance, and real estate. According to Gottmann (1961, 580), this category contains "supplying services that require research, analysis, judgment, in brief, brainwork and responsibility". The activities in this category can be easily broadened into information activities which pair themselves controlling, producing information, and non-routine decision-making (Abler, Adams and Gould, 1977). The last category includes economic activities which cluster around governmental facilities such as health, education and social security (Kellerman, 1985, 134).

This classification, which has been valid until 1980s, lost its meaning after the appearance of new activities and changes in the nature of existing services. These changes are observable, especially in business services like finance, insurance, and management. After 1980s, there emerged numerous studies about the classification of services for the changing context. Stein (2002) proposed one of the most advanced classifications (table 2.1), which divided services into two broad categories: producer services and consumer services.

Table 2.1: A Classification for Service Activities

Source: Stein, 2002, 731

Consumer services			Producer services	
Welfare services	**Household services**	**Distribution**	**Financial services**	**Business services**
Education and training	Restaurants and hotels	Retail**	Banking**	Computer and related services*
Health	Repairs	Wholesale**	Other credit institutions**	Professional services**
Social security	Travel agencies**	Intermediaries**	Insurance**	Marketing services**
	Recreation and other cultural activities		Real estate**	Technical services
	Home services		Pension schemes**	Research & Development*
	Personal services		Venture/risk capital**	Renting and leasing services
	Other services			Labour recruitment and provision of personnel*
				Operational services
				Other business services*

Note: *Activities are partially of transactional nature; **Activities are mainly of transactional nature.

Producer services provide special knowledge for business organizations, mainly for manufacturing industries, to enhance the value of the output of production. They are supervisory activities, and their significance is due to their qualitative contribution to the work process. The product of producer services is the output of their qualitative efficiency and the quality, which is based of reproduction and reorganization of information (Gottmann, 1976, 28). Producer services make a vital contribution to the performance of firms because they cover almost all decision-making facilities. Having these characteristics, the category of producer services contains all of the central business activities. Stein (2002) divides producer services into two main sub-categories: *financial services*, which include FIRE activities (finance, insurance and real estate), and *business services* which include marketing, professional consultancies, leasing, research and development.

Consumer services, on the other hand, can be analyzed in three sub-categories (Stein, 2002). They include *welfare services* like education, health, and social security; *household services* like restaurants, travel agencies, recreation and cultural activities, personal services, and repair; and *distributive services* like retail and wholesaling.

Central business districts contain all kinds of service activities. Yet, producer services, especially business services, are the key components for the analysis of CBDs and spatial organizations of services; since, the distribution of them directly influences the overall spatial organization of services. Although some studies (Brown, 1987; Brown, 1993; Dawson, 1983; Davies, 1984; Kivell and Shaw; 1980) conceptualizes CBDs as if their most important functions are retail activities because of being dominant in number, this study emphasizes producer services within the analyses of spatial organization of services.

2.3. Locational Attribution of Service Activities

According to Atkinson (1998, 130), cities are complex systems resulting from ongoing decisions by individuals, governmental bodies and business firms. A significant dimension of these decisions is the location as the main factor shaping the city. In this framework, any kind of spatial organization can be seen as the aggregate consequence of locational preferences (Atkinson, 1998).

Location refers to the unique complex of space relationships within which each site is fixed at a given point in time (Haig, 1926a; Haig, 1926b). The studies about the location

of industrial activities basically depend on this definition. However, when the unit of analysis is services, location theories become inconsistent to consider the complexity of their locational strategies (Aguilera-Belanger and Arabeyre-Petiot, 2001, 5); since, the location of services cannot be reduced to a simple dichotomy based on the cost distance between center and periphery.

It is obvious that services concentrate in metropolitan areas; yet, the determinants of choices of locations are still unknown. There exist many case studies; yet, they can not specify any generalization about the locational attribution of services. Therefore, services, especially producer services, are still not within the interest of optimal location studies; even the general tendencies of their locational attributions are identifiable.

For **consumer services**, locational attribution is easier to be conceptualized. In order to continue their existence, consumer services have to establish strong relationships with their customers. According to Aguilera (2003, 43) and Gilli (2003), the locational strategies of these services depend on the nature of these relationships. This means that they locate themselves in the urban space with reference to their principal customer locations.

The locational preferences of consumer services generally illustrate "jobs follow people" principle. If the customers are dispersed onto urban space, the expected result, is the dispersion of consumer services, more truly, in pursue of the customers. In compact cities, on the other hand, in which most of the population is located around the central zones, consumer services tend to continue their positions in central zones. Therefore, the spatial structure of consumer services is like reflection of the spatial distribution of population (Brown; 1987, 154; Davies, 1984; Dawson, 1983).

For **producer services**, it is more difficult to understand the locational attribution. Locational studies about the producer services have been confronted by two basic difficulties. *First*, producer service functions have cut off the organic ties with the manufacturing companies, and became independent branch within the system of economic relations. Therefore, the studies about optimal locations for producer services cannot be developed anymore with reference to the manufacturing firms containing industrial units. *Second*, the production and consumption relations have become more diversified and complex. Therefore, it becomes almost impossible to identify the concept of *principal customer* clearly, which can be used as the bases for the locational

choice process. Under these conditions, producer services begin to be characterized through the information they use and produce, and the consequences in terms of face-to-face requirements. Hence, it is difficult to extract the locational attribution of producer services through empirical studies (Aguilera-Belanger and Arabeyre-Petiot, 2001, 4).

Many empirical studies prove that consumer services move close to their customers (Aguilera-Belanger and Arabeyre-Petiot, 2001, 8). Producer services also need to have a good access to their customers because they should meet their customers very often. However, their customers are dispersed not only within, but also outside metropolitan areas. Because producer services serve different markets, require different skills, and necessitate different environments, they may follow different locational patterns (Shearmur and Alvergne, 2002, 1144).

Within such a context, it is not possible to claim that the producer services are uniformly or randomly distributed within the entire urbanized territory (Airoldi et.al., 1997, 112). Their locations are determined by relative advantages and disadvantages of alternate locations (Stanback, 1991, 57). Consequently, the problem becomes what the rationality of producer services is by choosing their locations. According to Airoldi (1997), there are five main locational tendencies of producer services at intra-metropolitan level.

1. There is a significant spatial tendency for most of the producer services to be located within city centers. Their central locations are usually explained by their ability to pay higher land rents unlike other economic activities like manufacturing, and by their need to be close to the headquarters of manufacturing in CBDs that they serve. Therefore, according to Airoldi et. al. (1997, 91), as the distance from the centers increases, the intensity of producer services locations tend to decrease.

2. The second tendency develops on the issue of the agglomerative patterns of producer services. These activities usually tend to polarize around the important poles of economic attractions of a city such as business districts, and universities. The agglomeration of producer services follows two regularities. The strategic services are located more centrally, while the less significant ones are located, frequently, in the periphery (Airoldi et. al., 1997, 92).

3. When considering the dynamics of services, the literature deals with the shifts in the steepness of the decreasing density functions. According to the density gradient pattern, the center of a city is the area of highest density of economic activities due to the obvious historical causes (Airoldi et. al., 1997, 93). Historical causes not only affect the locations of economic activities, but also their subsequent movements on the urban space. The patterns of location, therefore, are explained by the functional relations between location densities and the distance from the city center. With this perspective, the progressive dispersal of economic activities can only be explained with reference to the *saturation* of CBDs and the central lands (Airoldi et. al., 1997, 112). Beside this saturation, there are also *push factors* due to the strategy of certain service activities aiming to enlarge their market and *pull factors* due to the increase of demands located in the periphery of cities (Airoldi et. al., 1997, 92; Mills, 2004, 10).

4. The nature of services implies high degrees of interaction between supply and demand. The need for the accessibility of the latter to the former, and vice versa, influences the locations of services. In this manner, the locations of service activities have strong relevancies with the transportation infrastructure and the existing accessibility patterns within the cities (Airoldi et. al., 1997, 92).

5. For the explanation of the locations of producer service activities within an urban context, quality of built environment plays a relevant role. The building characteristics and the environmental quality are significant factors in attracting new activities to different locations (Airoldi et. al., 1997).

All of these locational tendencies point out the central zones as the locations of producer services. Although the general tendencies of locational preferences of services can be defined, there are other factors affecting spatial strategies and the locational preferences of producer services. These factors can be categorized under two headings: internal factors and external factors.

2.3.1. Internal Factors

The internal factors that influence the locational preferences of the producer services are directly related to the nature of service categories. According to Ota and Fujita (1993), it is an over assumption that service categories have undifferentiated natures, and in order to understand and explain their locational preferences, the nature of

producer services has to be considered. There are two major domains related with the nature of producer services: front unit and back unit.

Front units exchange tacit information both with other front units and with their back units. According to Bryson, Keeble and Wood (1993, 127), strategic advise is the main component of these front units. However, this component is intangible and embodied in individuals carrying advice and necessary information. This means that the continuation of front unit activities is strongly dependent on individuals. The central concentration and the locational preferences for central zones mainly relate to these front units. These firms, which tend to locate in central locations, are mainly customer-oriented firms, the markets of which are primarily other firms. They chose the information-rich and contact-intensive environments of central zones to enhance their control over their managed company.

Back units, on the other hand, do not generally communicate with each other, or with the customers. They are like assembly lines where paper is processed and information is added (Moss, 1990). Historically, they are behind the front units, and located usually in central zones. Today, because the linkages between front and back units are relatively limited and can be easily sustained within the ICT environments, they become more footloose, and tend to disperse spatially (Atkinson, 1998, 144). They generally prefer to position themselves in the periphery due to the affordable and lower land rents than the CBDs (Aguilera, 2003; Stanback, 1991, Cohen, 2000).

2.3.2. External Factors

Although the internal factors are major assets to understand the locational attribution of producer services, there are other factors that externally influence producer services. The most influential external factor on the locational attribution and spatial strategies of producer services is the technology.

Technology directly influences the locational preferences of producer service activities. Although it is almost impossible to isolate the independent impacts of technology onto the locations producer service functions, it is commonly accepted that there are strong relations between these two (Daniels, 1987, 281; Park, 2004, 447). These relations can be analyzed under three categories: transportation technologies, information and communication technologies (ICT), and building technologies.

As mentioned in many studies (Armstrong, 1972; Park, 2004), transportation technology has a substantial influence on the spatial and locational patterns of producer services. According to Wong (2001, 1825), the technological developments in transportation systems are so important that spatial organization at any scale cannot be understood without a careful examination of it.

New modes of transportation and new types of transportation infrastructure principally transform and usually expand the accessibility patterns within the urban system. Because the spatial patterns of producer services have strong relationships with spatial patterning of accessibilities (Daniels, 1987), the changes in the accessibility patterns alter the locational tendencies of producer services.

In theory, the developments in transportation technologies seem to liberate producer services while determining their locations on the urban space. However, the areal increase in the accessibility surfaces with the developments in transportation technologies does not always mean dispersion or deconcentration of producer services. In fact, the need to be located in central zones increases for producer services, because any development in transportations generally promotes accessibilities in central zones (Daniels, 1987).

The influence of the developments of *information and communication technology* (ICT) is much more opaque because there is not any consensus whether developments in ICT promote spatial dispersion or concentration of producer services.

Most studies assume that the developments in ICT accelerate the dispersion of producer services (Garreau, 1991; Stanback, 1991). However, these theoretical assumptions can be invalidated in practice. Daniels (1987, 284) mentions that, opposed to the developments in transportation technologies, the developments in ICT seem to challenge almost every aspect of the way offices fulfill their functions, and create an illusion as if the spatial distribution of CBD functions, mainly producer services, would be totally changed. It is true to some extent that the developments in ICT, and the rapid adaptation of them, affect the organizational aspects of services, the nature of work, and the way of accomplishing the tasks (Stanback, 1991, 4). However, this adaptation is not typical for all kinds of office activities (Daniels, 1983), especially for the ones which necessitate face-to-face communication, because new telecommunication possibilities cannot successfully substitute the face-to-face contacts, unless the transmitted information is relatively standardized (Pred, 1975).

Although the developments in ICT have a capacity to transcend the tyranny of distance, neutralize space, homogenize land values, and consequently, promote deconcentration processes, at least in theory; it is optimistic that these developments will produce *a massive decentralization* of high order services (Coffey and Shearmur, 1997, 416; Audirac and Fitzgerald, 2003; Daniels, 1987, 284, Berry, 1973). The increasing use of ICT, or telematics, does not strongly affect their locational preferences, because communication through telematics is not a substitute of direct meetings, but a complement of them (Gaspar and Galeser, 1998; Esparza and Krmenec, 1994; Stanback, 1991; Mills, 2004, 9). The clear dispersive effects of the technological developments in ICT is mainly on back units of producer services; yet, the front units of producer services (advanced business services and services of decision-making) tend to choose central locations (Stanback, 1991).

The developments in "building technology" also affect the locational patterns of producer service activities, as with the emergence of elevator at the beginning of last century. The steel-girded buildings, electric elevators and the telephone communication had facilitated the construction of skyscrapers which had intensified the central zones (Atkinson, 1998, 131). They had a role in rebuilding city centers into central business districts with concentration of high-rise buildings for offices and retails (Wong, 2001, 1825; Daniels, 1987). These changes, in general, accelerate the trends of centralization of economic activities. On the other hand, it is not always feasible to redevelop the existing buildings with reference to new ICTs. In those cases, firms tend to search new locations in the periphery of cities in which they can find cheaper buildings suitable for new available technology. This can be labeled as the *dispersal effects of building technology*.

2.4. Centripetality – Centrifugality: The Base for Spatial Patterning

The evolution of economic process, both in developed and developing countries, has been usually characterized by the growth of producer services. These services generally prefer to locate themselves in metropolitan areas (Coffey and Shearmur, 1997). However, it is problematic issue to define how they are spatially organized, as underlined extensively in this study. In every case, they form different spatial patterns. They are usually concentrated in CBDs due to the benefits of agglomeration (O'hullachain, 1989; Ota and Fujita, 1993). However, in some cases, they are also observed outside CBDs (Gordon and Richardson, 1996). These two distinct patterns of spatial distributions arise with reference to the fact that there are different contextual

forces affecting the spatial organization of service activities. These are centrifugal and centripetal forces, as proposed by Colby in 1933.

Colby (1959, 287) states that the spatial organizations within the urban scale are continuously evolving with reference to the dynamic process of (re)location. This evolution involves both a transformation of long-established functions and the addition of new functions. These new functional forms call for modification of previously established urban forms and realignments of urban patterns. The importance of centrifugal and centripetal forces emerges at this point, because they govern the modification and realignments of spatial organization contextually.

According to Colby (1959), a proper analysis of spatial organization can only be understood by investigation of these forces. Colby (1959, 297), and later on, Krugman (1996) mention that these two forces are continually in conflict. They both create a contextual balance, or tension, in which urban spatial organization and structure are determined.

Centrifugal forces provoke urban functions to move from central zones of the city to the periphery (Colby, 1959, 287; Medda, Nijkamp and Rietveld, 1998) and they are evident in all parts of an urban area. These forces are the ones that promote the dispersion of business activities.

According to Colby (1959, 292-3) and Nelson (1969, 201), there are five easily-recognizable centrifugal forces. These are; 1.- **spatial forces** which appear when congestions force economic activities to move from central zones to vacant spaces, especially in the outer zones; 2.- **site forces** which involve the disadvantages of the intensively used central zone, the limited supply of available spaces in central zones, and the high demand directed towards them in contrast to the relatively less-used natural landscape of the periphery; 3.- **situational forces** which result in unsatisfactory functional spacing and alignments in the central zones, and the promise of more satisfactory alignments in the periphery; 4.- **forces of social evolution** which emerge in response to the trends of ever-rising land and property values, high taxes, inhibitions and legal restrictions in central zones, and create a desire to move in newly-developing periphery embodying opposite conditions; 5.- **the status and organization of occupance** are other centrifugal forces which force a change of location due to the outdated functional forms, the crystallized patterns, the time and cost constraints

caused by increasing traffic congestion, and the expensive and unsatisfactory transportation facilities of the central zone.

Centripetal forces, on the other hand, tend to hold certain functions in the central zones and attract the others (Colby, 1959, 287). With these forces, urban functions tend to agglomerate in central locations (Medda, Nijkamp and Rietveld, 1998). The existence of them, therefore, increases the number and complexity of urban functions within the central zones.

According to Colby (1959), centripetal forces increase with a number of attractive qualities of the central portion of the cities. These are; 1.- **site attraction** which refers to the quality of urban landscapes; 2.- **functional convenience** which results from the possession of the central zone because of maximum accessibility, not only to the metropolitan area but also to the entire surrounding region; 3.- **functional magnetism** which emerges with the concentration of functions in the central zone that operates as a powerful magnet attracting other functions; 4.- **functional prestige** which stems from a developed reputation that forces certain activities to be clustered at certain locations.

There is, however, another force -**human equation**- that acts both as a centrifugal and centripetal force. In general, human equation covers the human factor and individual choices. As a centrifugal force, it includes potent migratory impulses which arise with personal religious beliefs, real estate booms, manipulated politics and the like. On the other hand, as a centripetal force, it pairs itself with the desire to be close to the dense cultural and social life of the city (Colby, 1959).

2.5. Spatial Patterns of Producer Services: Concentration and Dispersion

Spatial organization for service activities can be defined as a spatial configuration of physical resources, which results from an overall process of decision-making of different service activities. Therefore, spatial organization of services can be regarded as a portfolio of locational assets of those activities in terms of their concentration and dispersion characteristics (Krätke, 2000).

Under the pressure of centrifugal and centripetal forces, there emerge different types of concentration and dispersion patterns of service activities. These types of

concentration and dispersion patterns are important, because they provide significant information about the spatial organization of service activities.

The first issue that has to be considered is “concentration”. It is important because the centrality and the processes of centralization, which are crucial concepts for creating a theoretical capacity by explaining the spatial organization of service activities, pair themselves with a specific spatial concentration (Berry, 1967, 3).

Spatial concentration of services usually means clustering in and around central zones. Such a clustering provides certain benefits for producer services. One of the main benefits is that clustering in central zones makes it possible to achieve frequent interactions among firms. These interactions are important for individual firms to maximize the profits of individual firms (Stanback, 1991, 57). Under these conditions, sharing of major capital investments results in monetary savings (Stanback, 1991, 58). Another benefit is the marketing advantage. By concentrating within one, and relatively small location, firms make it easier for clients to reach their services, as in the case of shopping centers (Stanback, 1991, 57).

According to Beyers (1993), the patterns of spatial concentration differ from one city to another one. Yet, Shearmur and Alvergne (2002) define three different types of concentration patterns in the central zones. These are full concentration, concentric diffusion, and the ring models.

Full concentration of service activities means that most of the activities are located within the central zones, namely in CBDs (figure 2.1). Concentric diffusion, on the other hand, refers to the fact that some of the service activities began to lose their positions within the CBD, but they could not locate themselves very far from central zones (figure 2.2). The ring, or doughnut model, presents the fact that some of the activities could not locate themselves within central zones, however, they have strong ties with the central business activities which do not permit them to locate far from CBDs (figure 2.3) (Shearmur and Alvergne, 2002).

Alternatively, in certain cases, limited capacity of central areas, high rental values, limited office spaces, altogether, may cause concentration of economic activities outside the central zones. This can be defined as a fourth type of concentration, and called as centered outside the CBD formation (figure 2.4) (Shearmur and Alvergne, 2002). In some cases, planning policies may encourage this trend, resulting in

polycentric form of urban developments. However, these developments do not provide evidences that CBDs are losing their significances as the centers of service activities (Moulaert and Gallouj, 1996).

Dispersion of service activities is also crucial for understanding the spatial organization of central business activities. It pairs itself with both decentralization and deconcentration processes. It is much more difficult to describe and understand the patterns of dispersion of service activities, since they spread out over large areas unrestricted. There is no clear way of identifying and measuring the dispersed service activities which are not absorbed by the CBD (Shearmur and Alvergne, 2002). However, there are two types of abstract patterns of dispersion. The first one is structured dispersion which looks like *decentralized concentration* (figure 2.5). The other one is random dispersion, which can be called *scatteration* (figure 2.6)[2].

These abstract patterns of concentration and dispersion provide practical advantages to understand the spatial organization of service activities. However, they are not solely capable for the comprehensive assessment of spatial organization of services.

[2] There is another abstract pattern of dispersion in Shermur and Alvergne (2002) which is "Dispersion to the other Suburban Communes". However, this type of dispersion is excluded from this study, since there does not exist any suburban communes in Ankara as it does in Paris.

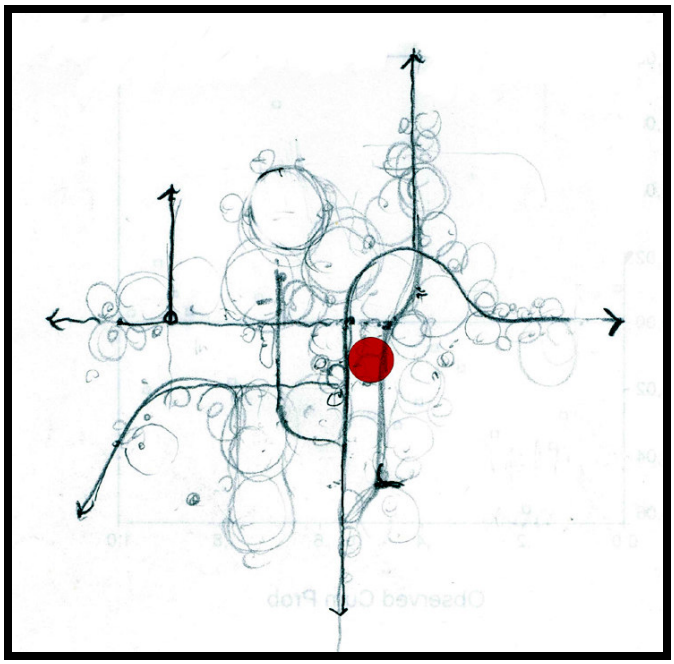

Figure 2.1: Full Concentration

(reproduced from Shearmur and Alvergne, 2002, 1152)

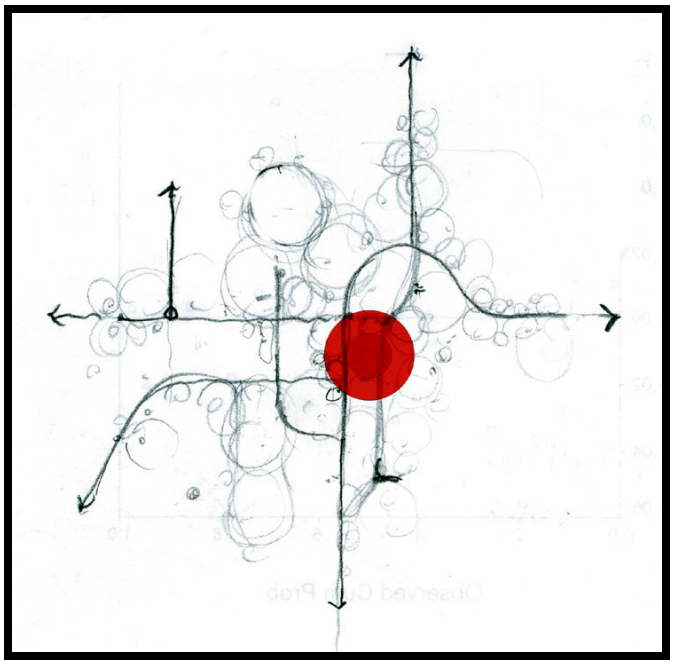

Figure 2.2: Concentric Diffusion

(reproduced from Shearmur and Alvergne, 2002, 1152)

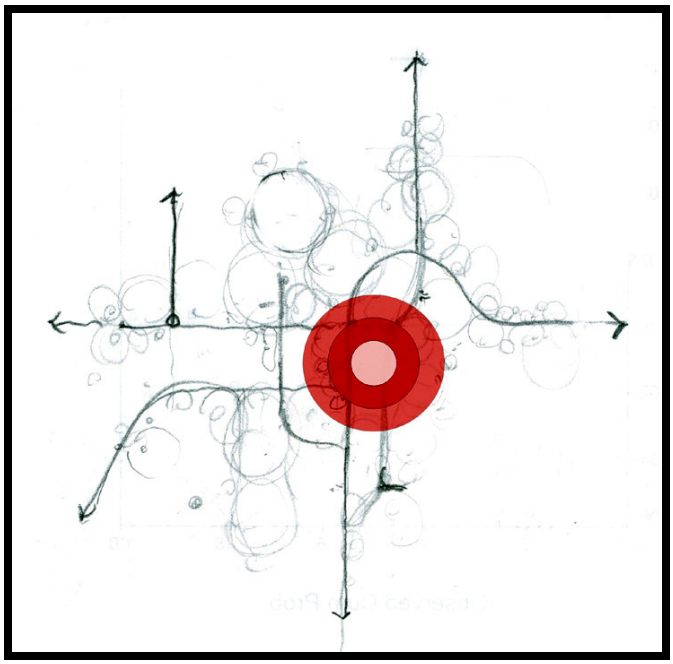

Figure 2.3: The Ring Model

(reproduced from Shearmur and Alvergne, 2002, 1152)

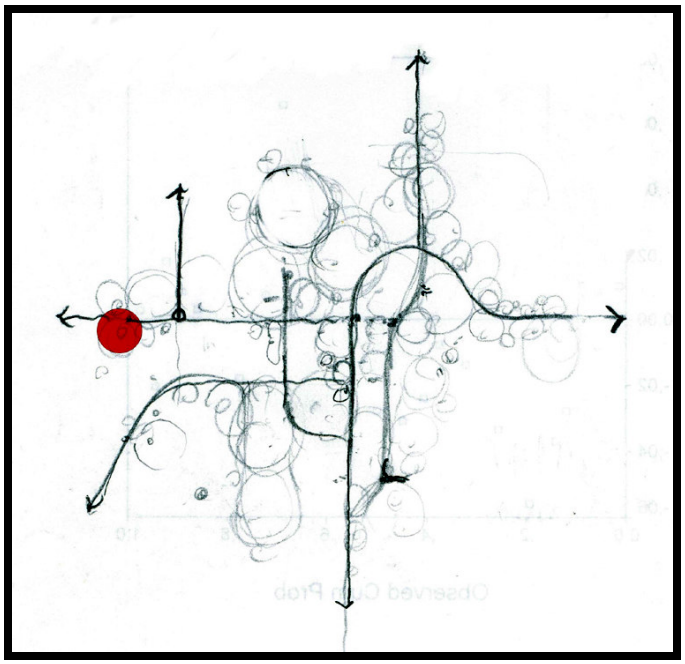

Figure 2.4: Centered outside the CBD

(reproduced from Shearmur and Alvergne, 2002, 1152)

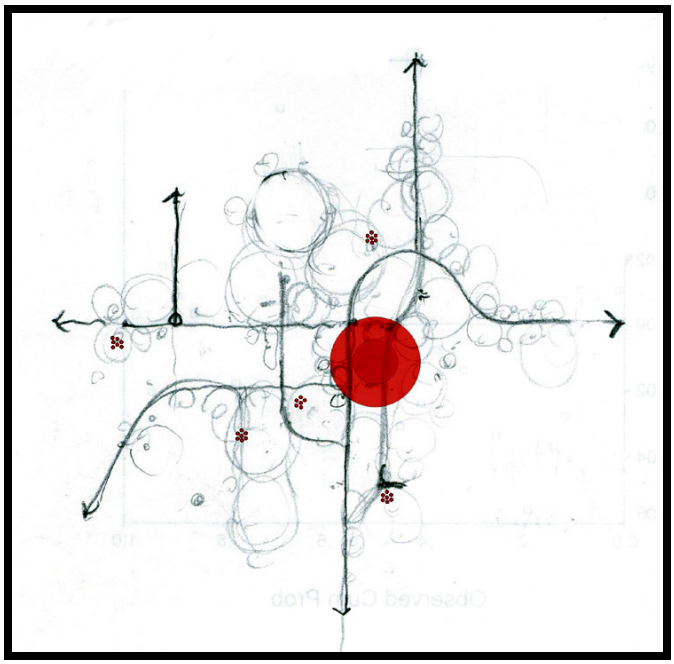

Figure 2.5: Structured Dispersal

(reproduced from Shearmur and Alvergne, 2002, 1156)

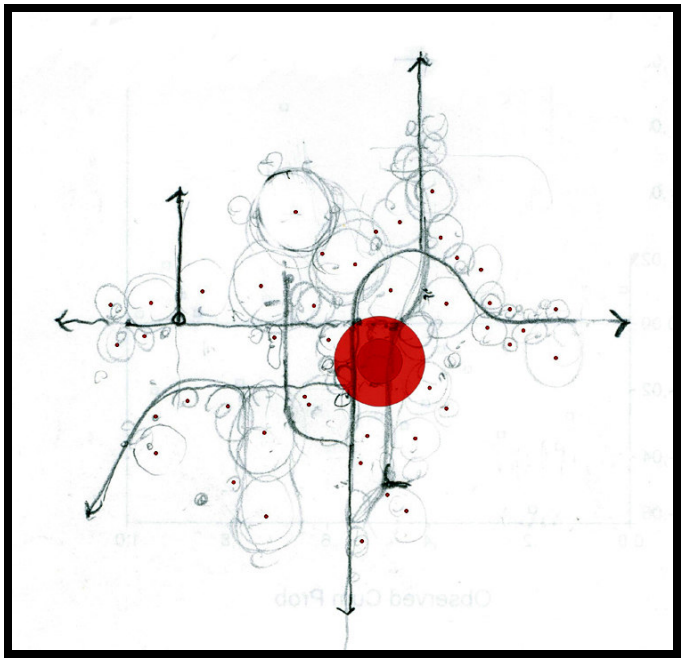

Figure 2.6: Random Dispersal (Scatteration)

(reproduced from Shearmur and Alvergne, 2002, 1156)

The spatial cohesiveness of activities should also be considered for understanding the spatial organization of services. The cohesiveness of service activities relates itself with the fact that different service activities may have similar locational preferences and tend to cluster. This clustering emerges in order to provide a kind of availability for the customers. The analysis of spatial cohesiveness provides information about which activities coexist in which locations. Yet, they are also important in order to make the detection of spatial niches composed by different activities and the definition of functional parts of the spatial organization of services become possible (Mayer and Kohn, 1959), although it is difficult to detect them in the complex networks business activities (Forrester, 1969a).

2.6. Evaluation

As stated before, the existing theoretical frameworks having interpretation about spatial organization provide information for the definition of CBDs from different perspectives. They try to delineate the CBDs by examining the social, economical, and physical aspects of the context. However, they are unable to comprehend the overall spatial organization of service activities properly, because these theoretical frameworks do not directly focus on this subject.

What is needed is to build a new analytical framework for the spatial organization of services, the basic components of which are the examination of the activity component and the locational attribution component. Both components are initially helpful to determine the content of the issue. The examination of the activity component would help to group the multitudinous service activities under manageable and interpretable categories through their similarities in their functional organizations. It would make, therefore, theoretical calculations possible. The examination of locational attribution, on the other hand, would help us to understand the locational preferences and spatial tendencies of service activities.

Although the content of these examinations is quite clear, there are two dimensions to be carefully considered. The first one is the description of concentration and dispersion patterns of services, and the second one is the detection of spatial cohesiveness of services. Beside these two dimensions, however, the most important question within the analytical framework remains to be answered: “How will these components be analyzed?”

CHAPTER 3

A NEW ANALYTICAL FRAMEWORK

Theory is a set of ideas, or a system of statements about how the world works (Harvey, 1969, 88). It does not only detail knowledge about the world, but also reveals relationships between the knowledge (Hubbard, et. al., 2002, 3). According to Harvey (1969), the main reason of producing such a system is the demand to understand the regularities behind the certain phenomena seen as complex, complicated and chaotic, to describe them in a systematic way, and consequently, to achieve a proper explanation about them.

Laird (1993) mentions that this process has certain phases: observation of the phenomena, creation of cognitive image of them, development of the concepts, and explanation. The reason of following out such a process simplifies the complexity of the observed world, produces an economy of thinking, and makes the transfer of accumulated knowledge possible. Once it is appreciated how theory is constructed, interpreted and used, it becomes a valuable tool for understanding and engaging with the real world (Hubbard et. al., 2002, 3).

The fact that the theories are produced in this framework does not mean that they cannot be questioned. When reality has changed radically, descriptions and explanations of existing theories become invalid. This invalidation connotes itself with the appearance of a need for new conceptual and analytical frameworks and explanations.

This need is particularly legitimate for spatial studies. For 30 years, the radical changes observed in all kinds of spatial organization have brought about the inabilities of existing theoretical frameworks by their explanation. In this period, almost all of the existing theoretical frameworks begin to be questioned, new types of conceptual and analytical frameworks are developed, on which primitive terms and axiomatic statements emerged; and concepts and definitions became interrelated to each other (Harvey, 1969). Each of these theoretical efforts tends to redefine the types and the

tools of representation in order to form a basis for explanation of radically-changed reality, although they have widened the theoretical horizons of the spatial studies.

In this perspective, a study, which aims to discuss the spatial organizations of service activities, has to consider the limitations of existing theoretical frameworks on spatial organization first, and then describe the significant concepts of spatial organization of service activities. Both of these are discussed in the first two chapters. In this chapter, there is a discussion about the analytical framework of the study, which informs the relational perspective. The analytical frameworks of this perspective may increase the descriptive capacities of analysis about spatial organization of services.

3.1. Relational Perspectives in Spatial Studies

In the last few decades, numerous studies emerged which tend to enrich the explanation possibilities about spatial phenomena (Sayers, 1985; Duncan, 1989; Murdoch, 1998; Graham and Healey, 1999; Smith, 2003). These studies are established firmly with the search of a new space conception, namely *relational space conception*. According to Tekeli (2001), this search results from the inabilities of two extensively used space conceptions. The former one is the *absolute space*, which depends on the abstract features of space. The latter one is the *relative space* that enters into the spatial analysis as the space being embedded into the social units and processes. Both conceptions have certain limitations in explaining the spatial phenomena. In order to overpass these limitations, relational space conception appears as a third space conception. The inevitable result of the appearance of third conception is the fundamental changes in the forms of spatial analysis.

Absolute space can be regarded as a Kantian conception of space (Murdoch, 1998). According to this conception, space exists in itself without necessitating any other force (Tekeli, 1977), and is empty in essence. This is, in fact, a Euclidean conception of space. The weakness of this conception is due to its definition. Because the relationship between space and social phenomena is considered as external in this conception, they are taken as independent categories from each other, which means they do not have any causal power affecting each other. Space is conceptualized, therefore, as the scene of social phenomena (Şengül, 1998, 123), or as the container bounding the activities (Murdoch, 1998, 358; Graham and Healey, 1999, 624).

The relativity of space has emerged as a reaction to absolute space conception. This reaction depends on the fact that space is bounded into particular social processes. The basic claim of relative space conception is that space cannot be independent from social phenomena (Harvey, 1969). It emphasizes the idea that social activities and objects define spatial field of influence (Harvey, 1969, 191). This conception assumes that space is created by the relative positions of social units. This conception has a higher degree of explanatory capacity than the absolute space conception, because it accepts the relationship between space and social phenomena. Yet, it has limitations in explaining the physical existence of spatial phenomena. Because space is reduced into social units (Şengül, 1998) and embedded into the objects in space, relative space undermines the idea of Euclidean space and problematises the notion of distance (Harvey, 1969, 210). Therefore, it is impossible to understand the form, order, or organization of space with relative space conception.

Relational space conception is rooted in the appearance of new relations in space. The distinctive aspects of these relations are that they pair themselves with both Euclidean space and non-Euclidean organizations. Therefore, they could not be properly represented with conventional conceptions (Smith, 2003). Relational conception of space, in this sense, overpasses the existing absolute and relative space conceptions within a realistic perspective (Sayers, 1985; Duncan, 1989), and becomes more beneficial to use in spatial analyses.

In this conception, space is treated as a dialectic relation between social units and the space (Şengül, 2001). Different from relative space, this relationship cannot be reduced irreducible to social units after it has emerged. (Sayers, 1985; Urry, 1981; Şengül, 1998). Relational space does not have any causal power to start a process as social units. Because it is not conceptualized as an object, like it is assumed in absolute space conception. It only creates a difference which influences the results of the social process after it has started (Şengül, 1988, 124).

The extensive use of relational space and relational perspective as the basis of spatial analysis changes the focus of interest. According to Adams and Ghoose (2003), this interest shifts to the description and explanation extracted from the relations among social, economical, political and cultural spaces, or move to the positions on the patterns of relations instead of concrete attributes of space.

The relational perspective aims to develop valid and meaningful categories based on the relational space conception. Different from conventional approaches that use categories of substantive attributes for description and explanation, the representation of relational perspective depends on relational categories. These categories depend on the relations they set, and the patterns of relations they are in. Although they are based on relations, they cannot be considered as temporal categories. They are, in fact, resistant to minor changes. Therefore, they can be considered as *trustable* representational and analytical tools, although defining categories in this way is strange for the ones who use attribute-based substantive categories as the basis of analyses (Güvenç, 2001; Güvenç, 2004).

3.2. Advantages of Using Relational Categories in Spatial Analysis

According to Güvenç (2004), there are three basic advantages of using relational categories for explanation. They are dynamic in nature; suitable for not only detailing and generalizing, but also oscillating between these two; and easily mapable in distribution maps or synthesis maps. Güvenç (2004) mentions that, with these features, relational categories are more efficient categories than the substantial ones which make it easier to overpass geographical representation problems in spatial analysis. However, these advantages can be easily diversified and detailed for the case of spatial organization of service activities. There are five groups of advantages in this sense.

3.2.1. Representational Advantages

The first group of advantages of using relational categories in the spatial analysis of service activities can be called as representational advantage. The spatial organization of service activities pairs itself with an instabilized character. The reason of this instability is dynamic (re)location process of these services. However, due to this instability, these organizations necessitate continuous redefinition through new modes of theoretical representation. Because relational perspective is basically interested in the description of instabilized organizations, which does not possess any completely negotiated and long-lasting theoretical definitions, and consequently tends to decodify them, they are more suitable for the analysis of spatial organizations of service activities than the functional models adopted from natural sciences.

Using relational perspective for the analysis of spatial organization of services is additionally appropriate, because 1.- it forms a unique language of representation by

obtaining relational categories for the sake of validity of explanation which do not depend on over-reductionist universal statements, but on existing contexts; 2.- it combines dynamic and flexible features of spaces, which are established firmly on empirical observations instead of normative assumptions, due to its interest in complex structures (Abbott, 1997).

3.2.2. Treatment of Classification Problem

Another advantage arises with the success of relational categories by facing up the classification problem of service activities. According to Bryson, Daniels and Ingram (1999, 1), there are three distinctive periods of research of service activities. In the first period until 1960s, extensive research studies have been conducted about the location, organizational structure, and distribution of different types of service activities. The second period is mainly between 1960s and 1970s. In this period, the central focus of research studies have shifted to the office function, and the development, location and impact of office function on urban built form. Additionally, studies on deconcentration of workplaces and identification of problematics of city centers have emerged (Daniels, 1979; Bryson, Daniels and Ingram, 1999). After 1980s, a large number of custom-made surveys have been undertaken related to service activities. The significant characteristic of the third period is that service activities have been conceptualized as facilitator of consumption rather than production (Bryson, Daniels and Ingram, 1999).

According to Stein (2002), although there are several studies, broader presentations about the important aspects of services historically, geographically, theoretically, and methodologically have not emerged. This lack of presentation directly relates to the "question of classification" and "problematics by definition" (Stein, 2002, 726).

Bryson, Keeble and Wood (1993, 127) states that reclassification approaches in different theoretical and empirical studies create an illusion, which prevents making meaningful comparisons between different studies.

Relational perspective has a revolutionary strategy to surpass the classification problem of services. It produces relational categories considering the activity component and the space concurrently. Therefore, these categories become contextually effective categories that can be defined functionally and spatially. Although it is difficult to name

them, they are informative by spatial determination of relational cohesiveness of service activities, which is one of the basic aspects in the spatial analysis of services.

3.2.3. Handling the Locational Attribution

Using relational perspective by analyzing the spatial organization of service activities connotes itself considering the location relationally. Location is an important concept in the analysis of spatial organizations, since spatial organizations emerge with an aggregate consequence of locational preferences (Atkinson, 1998). According to Krätke (2000), understanding the spatial organization of service activities can be achieved, mainly, through the empirical observation of the locational patterns of services. However, location is usually considered as a simple and one-way direction from the individual decision-makers to the spatial environment in the classical location theories. The underlying assumption of these theories is that the geographical arrangement of activities is created by entrepreneurs' searches for the least cost locations. Therefore, these theories usually focus on optimal locations for the individual decision-makers (Falk and Abler, 1980, 63). Due to this assumption, the importance of the web of relations among different decision-makers by their location decisions cannot be considered. According to Lozano (1990), on the other hand, it is impossible to understand the spatial organizations through the knowledge obtained from each element separately.

Scott (1988) states that, in order to grasp the locational patterns of intra-metropolitan organizations properly, a new conceptualization for location has to be developed. Within this conceptualization, the spatial organization has to be evaluated as the sum of all internal relational locations in which the location of each element relative to each other and to all others is taken into consideration. Only through such a conceptualization, urban geographers can develop an idea about whether a pattern of a distribution is dense, sparse, concentrated or dispersed (Abler, Adams and Gould, 1971). This way of thinking is fundamental to overcome the uncertainties of spatial distributions arising in the urban framework (Harris, 1961) so that the spatial organization is assessed.

Relational perspective is not interested in the location of single activities in space or simple one-way relations by location decisions. By considering the relation between space and activity, it concatenates service activities together which do have similar

locational preferences, which, in return, help to understand the web of relations of location decisions.

3.2.4. Success in Coping with Complexity

Relational perspective can cope with the complexity which arises due to the diversity of activities and their locational preferences. The spatial organization of service activities is too complex. There are multitudinous producer and consumer services, almost all of which have unique locational preferences. Although most of them are usually clustered in small geographical areas, namely in CBDs, there may be others dispersed on the whole surface of the city. Therefore, the analysis of their spatial organization cannot be performed by focusing on central zones within the cities. Such a consideration can be misleading by description of spatial distributions (figure 3.1).

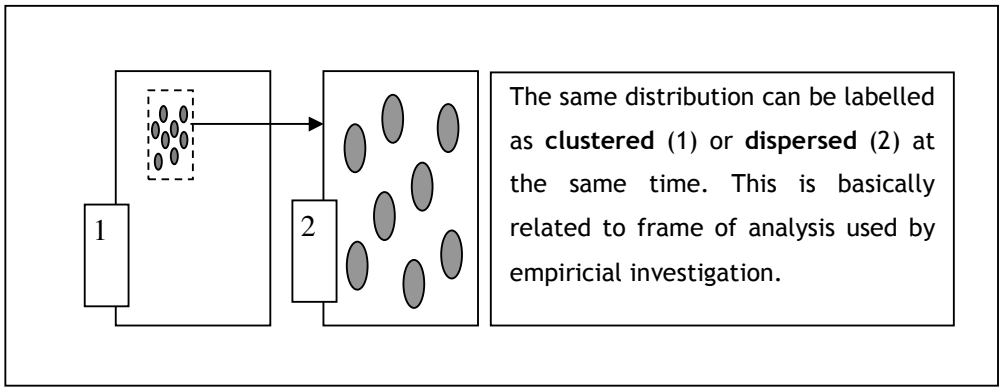

Figure 3.1: The Possible Misapprehension of Spatial Distribution

A proper analysis can only be achieved when the frame of analysis is extended to the whole metropolitan area, so that possible concentrations of service activities outside the central zones, or the potential dispersions, can also be detected. This is the basic reason that creates complexity by the analysis of spatial organizations of service activities; yet, it can be handled in the analyses of relational perspective.

Moreover, a proper analysis of spatial organizations of service activities also necessitates high levels of spatial resolution in order to increase the representational capacity of the analysis (Güvenç, 2004; Krätke, 2000). This means using urban blocks, streets or buildings as spatial units of analysis, instead of naïve spatial units such as sub-

regions or districts. This increase in the level of spatial resolution may help achieve accurate explanation, but also complicate the process of gathering information and handling with the huge numbers of spatial units. Therefore, it can make the use of mathematical and statistical techniques more complex.

However, the extensive size of the frame of analysis and the high level of spatial resolution used in these analyses do not create problema for the relational perspective, since, it can cope with complex and complicated data sets, and can easily grasp the structural patterns in the "big picture" of datasets.

3.2.5. Ease in Visualization

Visualization of the categorical data is important assess spatial organization. ***Relational perspective is more capable in surpassing the problems of visualization of this categorical data than the conventional techniques***. These problems arise due to the process of translation of substance to space, or vice versa. According to Harvey (1969), there has always been a loss of meaning during this translation. However, this loss of meaning becomes very extreme when the relation between space and substance is constructed externally (absolute space), or when the space is embedded into the substance, and conceptualized as a dependent variable of social phenomena (relative space). The main reason of this excessive loss of meaning is the use of predetermined substantial categories in conventional spatial analysis. These categories, which do not create any problem in verbal representation due to their ambiguous character, become problematic in spatial representation; because, they are not sensitive to extreme cases that are generally neglected or excluded in conventional statistical techniques. They are, however, not evenly or randomly distributed in space, and have a significant rationale in their locational preferences. Because of this rationale, these cases have to be covered in spatial analysis for the sake of comprehensiveness of explanation (MacEachren, 1995). By the process of determining relational categories, these extreme cases usually construct separate categories containing all of their unique and differentiated features. Additionally, because relational perspective considers space and substance simultaneously, and describes them with reference to each other; the loss of meaning by the above-mentioned translation is reduced, thereby providing an advantage for visualization.

3.3. The Techniques and Methodological Procedures of Relational Perspective

Relational perspective is a convenient approach for the analysis of spatial organization of service activities, and necessitates different techniques and methodological procedures. According to Güvenç (2001), there are two basic prerequisites of using relational techniques.

1. Relational techniques apply atomistic data in its most detailed form. This atomistic data is evaluated first in a concept and category library. After this evaluation, the calculus is performed, which forms the base for explanation. The evidences of calculus, sometimes, force concepts and categories to change. The reason of following this procedure is the need to eliminate the possibility of pseudo-defined relationships (figure 3.2).

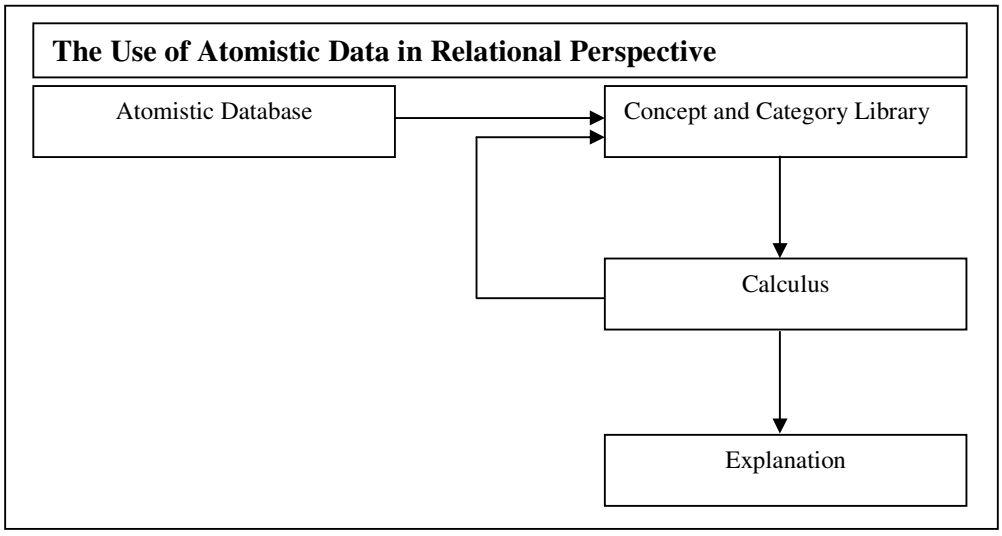

Figure 3.2: The Procedure of Using Atomistic Data in Relational Perspective

2. The level of spatial resolution in cartographic sources has to increase as much as possible. The increase in the spatial resolution always means a decrease in the size of spatial units. At low levels of spatial resolution, there is always a possibility of differentiated and unlike attributes to be aggregated in the same spatial units, which may lead misconception by formation of relationship between space and substance, and sequentially, distortions by achieving meaning.

The techniques used in relational perspective are mainly for producing relational categories. They are descriptive mathematical (not statistical) techniques and assumption free in essence. This character is suitable and operational for the analysis of spatial organization of service activities. In this framework, the use of classical statistical techniques, which are based on *normal distributions* and *standard deviations* from them, becomes ineffectual; since, these techniques usually search for homogeneities in space. However, the spatial organization of service activities is composed of heterogeneous associations that can only be extracted with specific techniques.

The basic techniques used in the analytical framework are basically *correspondence analysis* and *cluster* analysis, both of which can be labeled as descriptive mathematical techniques. Yet, for the analyses of the case study, certain indicators (concentration (N50%) indicators and dispersion (N100%-90%)) indicators are developed through the examination of widely-used indicators in similar studies.

3.3.1. Correspondence Analysis

Correspondence analysis is a mathematical technique developed for data analysis; particularly Benzécri has contributed to this method (Greenacre and Blasius, 1994). From being a neglected multivariate method in 1970s, it has moved to a fully-fledged member of multivariate statistical family in 1980s. Although correspondence analysis is a kind of principal component analysis, which has been elevated by French statisticians to a "jack-of-all-trades" technique of data analysis, it remained relatively unknown outside the fields of psychology and ecology until 1990s (Greenacre and Hastie, 1987, 446; Meter et. al., 1994, 129). During 1990s, there has been a growing popularity of this technique, especially in sociology, paleontology, education, medicine, biochemistry, linguistics, marketing research, and advertising (Greenacre, 1993).

Correspondence analysis has gained a positive reputation as a necessary tool in recent decades. Although it has been performed in a wide range of disciplines, it became famous with Bourdieu's studies based on relational theory and methodology (de Nooy, 2003, 309). Alt (1990, 97) has formulated correspondence analysis as a mapping technique, which attempts to present the similarities between rows and columns of a cross-tabulation. Since the course of research in social sciences so often produces cross-tabulations in the form of numerical frequencies, correspondence analysis has become a

valuable tool in the disciplines of social sciences (Greenacre and Blasius, 1994; Greenacre, 1993; Greenacre, 1994, 3).

Correspondence analysis is a graphical method of data analysis. It is a way of data description through visualization that provides a picture of the data (Greenacre, 1993, 1; Greenacre and Hastie, 1987, 437; Heijden, Mooijaart and Takane, 1994, 79; Meter et. al., 1994, 133; Härdle and Simar, 2003; Alt, 1990, 97; Everitt and Dunn, 2001, 74). It is a kind of factorial decomposition of contingency tables (Härdle and Simar, 2003, 357). Mathematically, it can be regarded either as a method of decomposing the chi-squared statistic for a contingency table into components corresponding to different dimensions of the heterogeneity between its row and columns. It can also be regarded as a method for simultaneously assigning a scale to rows and columns so as to maximize the correlation between resulting pair of variables (Everitt and Dunn, 2001, 74-5). It basically transforms complex cross-tabular data into simple graphical displays, called "maps", and related numerical statistics for identifying and visualizing the association between two or more categorical variables (Greenacre and Blasius, 1994; Greenacre and Hastie, 1987, 437). Through these maps, correspondence analysis provides the users an opportunity to handle complex data and to communicate with them through the medium of graphics. Consequently, it permits a more rapid interpretation and understanding of the content of associations. With these characteristics, it leads to a first heuristic exploration of any pattern or structure in the data (Greenacre, 1993; Greenacre, 1994, 3; de Nooy, 2003, 307; Blasius, 1994, 51; Everitt and Dunn, 2001, 74).

Correspondence analysis basically investigates both the magnitude and the substantive nature of the associations between row and column categories of cross-tabulation (Greenacre and Blasius, 1994; de Nooy, 2003, 306), and is interested in finding patterns in the data (Meter et. al., 1994, 134). According to Härdle and Simar (2003, 341), developing simple graphical indices to present the relations between rows and columns is the main idea behind the analysis. In order to achieve this, it treats the rows and column categories symmetrically, and depicts them as points in the correspondence maps where the closeness of points presents the strong associations (Greenacre, 1993, 11; Greenacre and Hastie, 1987, 437).

The technique pairs itself with description rather than analysis (Greenacre, 1994). It is basically used "to reveal features in the data rather than to confirm or reject hypothesis about the underlying processes which generate the data" (Greenacre and Blasius, 1994). It can be labeled as a model free technique which means that no explicit

choices are made in studying the data (Heijden, Mooijaart and Takane, 1994, 80). Instead of application of a set of data to a model, it tries to understand the patterns and structure of the data. The *checking assumption procedure* in the usual statistical data analysis is replaced in correspondence analysis with the substantive justification of the graphical elements of the maps. This way of describing the data via visualization includes a particular kind of thinking, which can be associated with a famous quotation of Benzécri: "the model must follow the data, not the other way around" (Greenacre and Blasius, 1994).

The interpretation of the maps of correspondence analysis is performed by examining the positions of the row categories and column categories as reflected by their respective coordinate values. The values of the coordinates reflect the associations between the categories of row variable and those of column variable (Everitt and Dunn, 2001, 78). Categories that co-occur relatively often are drawn closely together or clustered in the map, whereas categories that exclude one another, that is, which co-occur relatively seldom, are drawn apart (de Nooy, 2003, 307).

There are five main advantages of using the correspondence analysis rather than the other data analysis techniques in research studies.

1. According to Greenacre and Blasius (1994), by application of correspondence analysis, there is no need to make any assumptions about the underlying distribution of the data. Therefore, it cannot be considered as a conventional and usual statistical technique, which is based on the normal distribution assumption, but as a mathematical technique aiming to describe the distribution of the data.

2. This technique is flexible enough to be applied to almost all types of cross-tabulations in any quality and quantity (Greenacre and Blasius, 1994).

3. It can be easily used for reduction of complex databases and mapping them, especially with the complementary use with cluster analysis (Lebart, 1994). Using these techniques, relational categories, which are at the same time legend categories, can be easily extracted.

4. In contrast to principal component analysis and other multidimensional scaling techniques, correspondence analysis can use categorical and qualitative data instead of

quantitative ones for investigating the associations (de Nooy, 2003). Therefore, it is quite suitable for spatial analysis.

5. Classical statistical tools offer little help in analyzing "messy data", because these tools are developed for the deductive or causal approaches of natural sciences. Their purpose is largely to test hypotheses and statistical inference, and little attention is given to complementary problems, such as the overall structure of the data set, the description of the data, and new ways of looking at the data set. They require researchers first to state a model, and then try to fit the data into it. Such procedures can only model a limited number of variables, and their use is restricted to local and contextual aspects of the data. The problem with such methods is, therefore, to move the focus from wide ranging questions down to narrower questions concerning particular relationships (Meter et. al., 1994, 134). The major advantage of correspondence analysis is that it can deal with the categorical data without ignoring the distributional characteristics of the initial variables (Meter et. al., 1994, 132).

3.3.2. Cluster Analysis

Another technique used in relational perspective is the cluster analysis that is a classifying technique in essence. It is a data exploration tool for building groups (clusters) with homogenous properties from heterogeneous multivariate data objects (Härdle and Simar, 2003, 301; Gore, 2000, 300).

There are two types of cluster analysis, hierarchical cluster analysis and non-hierarchical cluster analysis. Hierarchical cluster analysis is the more common technique, and is labeled as agglomerative method that groups data items together into clusters based on similarity in their properties (Jobson, 1992; Gore, 2000). It starts with the finest (coarsest) possible partition and puts groups together (or split groups apart) step by step (Härdle and Limar, 2003, 315). In non-hierarchical cluster analysis, on the other hand, "the data are divided into k partitions or groups with each partition representing a cluster. Therefore, as opposed to hierarchical clustering, the number of clusters must be known a priori in non-hierarchical cluster analysis" (Sharma, 1996, 202), which results in problems in objective description.

Hierarchical cluster analysis is mainly an exploratory data analysis tool for solving classification problem. Such a classification may help to[3]:

- formulate hypotheses concerning the origin of the sample, e.g. in evolution studies,
- describe a sample in terms of a typology, e.g. for market analysis or administrative purposes,
- predict the future behavior of population types, e.g. in modeling economic prospects for different industry sectors,
- optimize functional processes, e.g. business site locations or product design
- assist in identification, e.g. in diagnosing diseases, and
- measure the different effects of treatments on classes within the population, e.g. with analysis of variance.

There are two fundamental steps in performing hierarchical cluster analysis: the choice of a proximity measure and the choice of a group-building algorithm. Proximity measure directly relates to how the distance between clusters is measured. Through this distance, the number of clusters can be controlled. Group-building algorithm, which can also be called as the linkage method, on the other hand, depends on the procedure how closest clusters are combined to form a new cluster for the next higher level of aggregation.

Hierarchical cluster analysis can be applied by using different linkage methods, such as Nearest Neighborhood, Centroid Clustering, and Ward's Method. These linkage methods differ from each other primarily how the distance between clusters is measured to determine which clusters are joined at successive stages of the analysis. The most suitable linkage method for spatial analysis is the Ward's method.

Ward's method is also called as minimum-variance hierarchical method (Gore, 2000, 311). It is one of the most popular hierarchical clustering methods (Karson, 1982). In this method, cluster membership is assigned by calculating the total sum of squared deviations from the mean of a cluster. This criterion of partition produces the smallest possible increase in the error sum of the squares. The main aim of Ward's method is not

[3] Available in Internet: http://www.clustan.com/clustering_applications.html, Last accessed date: June, 2006.

primarily computing distances between clusters; rather, it tends to form clusters by maximizing within-clusters homogeneity (Sharma, 1996, 193).

The distance between two clusters in the Ward's method is the ANOVA sums of squares between the clusters and is defined as follows:

$$D_{kl} = \frac{\left\| X_k - X_l \right\|^2}{\left(\frac{1}{N_k} + \frac{1}{N_l} \right)}$$

D_{kl} distance between cluster k and cluster l

X_k mean vector for the cluster k

X_l mean vector for the cluster l

N_k number of the observation in cluster k

N_l number of observation in cluster l

At each iteration stage, the within-cluster sums of squares are minimized over all partitions obtainable by merging two closest clusters from the previous stage for the next higher level of aggregation. Iterations continue until all cases are merged into one cluster (Streeter and Gillespie, 1992).

There are three main reasons of choosing Ward's Method as a hierarchical clustering technique in the analyses of relational perspective:

1. It is suitable for the data sets with large number of cases (Ward, 1963).

2. The outputs of Ward's method are more interpretable in the case of spatial analysis, and it provides some advantages by visualization as being relatively sensitive to outliers (Jobson, 1992) which is often observed in the urban spatial distributions.

3. It tends to determine compact clusters of well-distributed sizes, which are suitable for building legend categories and yields unique and exact hierarchy in a successful cluster structure.

3.3.3. The Indicators and the Primary Methodological Procedures of the Analytical Framework

The analytical framework of the case study aims to bring out two dimensions of spatial organization of service activities in Ankara case. The first dimension is the detection of concentration and dispersion patterns of service activities for correlating their spatial organizations with their spatial distributions. The second dimension, on the other hand, is about the spatial description of relative cohesiveness within the service activity system.

3.3.3.1. The First Dimension: Detection of Concentration and Dispersion Patterns

For empirical studies aiming to measure spatial concentration, the examples of standard measures are gini coefficient or entropy (Shearmur and Alvergne, 2002). There are also much simpler measures of concentration, such as location quotient or signed chi-square indexes. However, all of these traditional measures and indicators are dissatisfying in detecting the spatial concentration, because they are uni-dimensional. This uni-dimensionality means that they are unable to deal with the coexistence of concentration and dispersion at the same time. They only measure concentration by inappropriately assuming that any kind of spatial distribution cannot simultaneously display concentration and dispersion (Shearmur and Alvergne, 2002, 1147).

However, as empirically proved in many studies and easily observed in many cases, concentration and dispersion may coexist at the same time for the same service activity category (Aguilera-Belanger and Arabeyre-Petiot, 2001; Airoldi et. al., 1997). According to Archer and Smith (1993, 53) and Shearmur and Alvergne (2002, 1150), services exhibit a dual characteristics of dispersing and clustering. In other words, some portions of specific service activities may tend to cluster in the central zones, while other portions may tend to disperse towards the periphery of metropolitan areas.

Moreover, the peaks of concentration in each sector do not follow the same spatial patterns. Each sector may have different locational preferences for concentration. It may be impossible to observe certain activities outside the spatial units in which peaks are identified, while some others may be present in large numbers of spatial units (Shearmur and Alvergne, 2002, 1149).

This dual character of service activities, which is the inseparable part of their locational preferences, is the main factor not only complicating the process of measuring concentration and dispersion, but also introducing the fact that any kind of indicator designated to understand the patterns of concentration and dispersion of economic activities has to capture this complexity.

Within this framework, in order to detect the spatial concentration patterns of services, a simple indicator and a mapping procedure have been developed, which bases on the indicator proposed by Shearmur and Alvergne (2002). The indicator of Shearmur and Alvergne (2002) basically measure the number of spatial units for a given percentage of economic activities. According to them, the critical level is 50 percent; therefore, the indicator is also labeled as N50% indicator. It mainly denotes the respective ratio of economic activity location in different spatial units, and tends to include only those spatial units with high number of firms. The smaller the number of districts within which 50 percent of firms in a specific sector exists, the higher the concentration of firms in that sector.

N50% indicator can be formulated as the number of spatial units where

$$\sum_{r=1}^{n} \mathrm{Pr}_{50}^{si} = 50\ \%\ \text{of sector i.}$$

Pr^{si} is the percentage of the number of firms of sector **i** in spatial unit **s** of rank **r**. **r** is the rank of spatial unit **s** according to the percentage of the number of firms in sector **i**.

In order to understand the N50% indicator more properly, it has not be forgotten that the rank r is always "1" for spatial unit with highest percentage of firm in sector i, or if some districts have no firms in sector i, then N100% is always less than the total number of spatial units.

The assessments of concentration in Shearmur and Alvergne's (2002) empirical study base on the number of the spatial units, and the indicator does not comment about the location of spatial units where concentration of service activities has been observed. However, it is obvious that this indicator can be much more powerful for assessment of concentration when it is mapped with reference to the attributive percentages in

spatial units. All versions of concentration maps in the case study of this study, therefore, are performed in this manner.

Dispersion is much more difficult to be measured. The difficulty emerges from the limitations of conventional statistical techniques. Conventional statistical techniques typically focus upon measuring concentration, and declare the existence of dispersion for the cases where concentration is not detected. However, Shearmur and Alvergne (2002) have developed an indicator for dispersion that is N100%-90% indicator. The indicator simply bases on the number of spatial units containing the last 10 percent of the firms in a specific sector which enables to exclude the spatial units with high concentrations for a specific sector. The high value of N100%-90% means that there are many spatial units on which small number of services is distributed (Shearmur and Alvergne, 2002). They labeled such formations as scatteration. The reduction in the number of spatial units means the structured dispersion. This indicator basically determines the number of spatial units for the last 10 percent of the firms with an equation, which is quite similar to concentration indicator.

$$(\sum_{r=1}^{n} \mathrm{Pr}_{100}^{si} - \sum_{r=1}^{k} \mathrm{Pr}_{90}^{si})$$

$\sum_{r=1}^{n} \mathrm{Pr}_{100}^{si}$ is the 100 percent of the firms of sector i, and gives the whole number of spatial units that sector i is dispersed.

$\sum_{r=1}^{k} \mathrm{Pr}_{90}^{si}$ gives the number of spatial units for 90 percent of the firms of sector i.

The result of this indicator is the absolute numbers. The higher the number is, the more increase in the dispersion of the analyzed service activity is observed. However, similar to the concentration indicator, this indicator can be improved by using certain visualization procedures.

The indicator has been improved by considering the absolute areas subjected to dispersion. The area of dispersion is the sum of all areas on which the last 10 percent of

attributes are dispersed[4], and the indicator is obtained by division of this area of dispersion to the whole possible area[5].

3.3.3.2. The Second Dimension: The Description of Spatial Cohesiveness

The second dimension is about the spatial description of relative cohesiveness within the service activity system. This description is important to understand the integral spatial parts of the service systems. For this description, more complex procedures have been developed through which relational categories are formed based on space and attributes. As it is proved in certain studies (Güvenç, 2004), the versions of this procedure are successful in obtaining these relational categories.

This procedure basically depends on the complementary use of correspondence analysis and cluster analysis and the steps of this procedure are as below[6]:

Step 1: *Correspondence analysis is performed by using spatial units and attributes.* Although it is generally performed within a two dimensional scale in the social sciences, (n-1) number of attributes has chosen as the number of dimensions in the correspondence analysis for this study in order to associate the space and attributes more strongly, and to increase the descriptive capacity of the analysis[7].

Step 2: *Scores in dimensions of spatial units are hierarchically clustered by using Ward's method.* These scores in dimensions are the coordinates of spatial units depicted as points in (n-1) dimensional space. The aim of clustering these scores is to build categories from spatial units which do have the same or similar associations with the attributes.

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[4] The areas are district areas. It is obvious that there is a difference between the built-up area and the total area of districts. However, performing the indicator either with built-up areas or with total district areas does not affect the numerical value of the indicator.

[5] The total area used in dispersion indicator is 55626 ha., which is the total area of districts.

[6] For detailed application of the procedure, see Appendix B.

[7] In the cases, where the number of attributes is multitudinous, dissimilarity index is used before the correspondence analysis. The index of dissimilarity (or differentiation) is the most popular summary statistics for measuring segregation and integration in distribution (Kestenbaum, 1980, 275). It is commonly used in social science with large databases to describe the lack of fit of models for categorical data (Agresti, 1996, 162). It is an index based on spatial proximity (White, 1983) and coexistence of things of the proximal locations. Dissimilarity Index, **DI = *1/2 Σ (from i to n) |xi - yi|***, where xi = column percentage of attribute x in the observation unit I and yi = column percentage of attribute y in the observation unit i, (Güvenç, 2001, 33). The interpretation of the dissimilarity index is quite easy. The bottom level of dissimilarity index is 0, which means that the attributes are exactly coexist at every observation units (full intergration). The upper level of dissimilarity index is 1, which means that the attributes are not observable at the indexed locations (full segregation).

Step 3: *Spatial units are recoded with reference to clusters built in step 2*, so that the number of spatial units have reduced to a moderate level.

Step 4: *Again, correspondence analysis is performed by using the clusters of spatial units and attributes.*

Step 5: *Hierarchical cluster analysis is performed with both scores in dimensions of clusters of spatial units and attributes.* The distinctive aspect of this step is that the clustering process forms relational legend categories in which space and attributes are treated at the same time.

Step 6: *The final step is visualization of the relational legend categories.*

3.4. Evaluation

Determination of the significant concepts of spatial organization of services is not solely sufficient to solve problems in spatial analyses. The analytical framework is also important in order to get clues about the way of performing spatial analysis. In this sense, what are given in this chapter are the description of the overall analytical framework, and the introduction of techniques, indicators and methodological procedures.

The next chapter presents the case study aiming to understand the spatial organization of services in Ankara case. The main questions of the case study are: "What are the concentration and dispersion patterns of service activities of Ankara?" and "How can the relative cohesiveness of service activities in Ankara be spatially defined?". These questions will be answered by using these introduced techniques, indicators and methodological procedures in a relational manner.

CHAPTER 4

CASE STUDY: SPATIAL ORGANIZATION OF SERVICE ACTIVITIES IN ANKARA

As stated before, the existing theoretical frameworks about spatial organizations do not provide proper tools and advance conceptual considerations to analyze the spatial organization of services, and consequently, could not present extensive description and explanation about them. The inadequacy of their description and explanation is mainly related to four facts:

1. **Service activity systems are complex and complicated systems.** The theoretical frameworks generally depend on homogenous zonal definitions for these activity systems without considering the heterogeneous associations within them. This means to back out of the spatial organizations of service activities. The frameworks aiming to handle this complexity, on the other hand, focus *myopically* on the spatial and locational features of singular activities from which an overall conceptualization for spatial organizations of service activities could not be developed.

2. **Service activity systems are usually analyzed within limited and predetermined areas within cities.** The existing theoretical frameworks generally lean upon the monocentric modeling of cities. Although there exist the ones which are aware of deconcentration and decentralization processes, like multiple nuclei version of ecological approach and system approach, all of these frameworks conceptualize the central zones as the most dense service activity zones. It is true to some extent that most of the cities, independent of their sizes or geographical locations, continue their monocentric character, and most of the service activities are located within the central zones. Yet, the dispersion of activities is another fact which may change the activity compositions of central zones, and consequently, the spatial organizations of service activities. Due to the methodological limitations, however, all of the existing theoretical frameworks concentrate on central zones, instead of focusing on whole surface of the metropolitan areas, for any kind of spatial analysis about services. This means ignorance of possible activity clusters or different contextual patterns outside the central zones, which reduce comprehensiveness of explanation.

3. **Within the existing theoretical frameworks, the levels of spatial resolution in the analysis are too low and the sizes of spatial units of analysis are too big**, which results in distortions by descriptive and explanative theoretical efforts. According to Krätke (2000, 15), an analysis about the locational fabric, and consequently, the spatial organization of service activities can not be based on naïve use of administrative sub-regions or districts, because the artificial boundaries of them do not suit the functional totalities in the urban fabric, and cause generally vanishment of service activities in the residential patterns or blur the original spatial associations of services. The level of spatial resolution, therefore, becomes quite important in the spatial analysis. The higher the level of spatial resolution in the analyses is, the more appropriate results are derived for the explanation.

4. **The analysis of service activity system performed through limited and broad categories is another factor** that creates inadequacy in description and explanation of spatial organization of business activities.

This study aims to understand the spatial organization of services in Ankara case and discuss the possible policy system appropriate for the spatial organization. The first steps to fulfill this aim are:

- detection of the concentration and dispersion patterns of services,
- spatial description of relative cohesiveness of them.

In order to surpass the inadequacies of existing frameworks,

1. The methods of relational perspective will be used as the conceptual framework to cope with the complexity of the service system.

2. The frame of analysis will cover the whole surface of Ankara rejecting the assumption that the spatial patterning of services, mainly the producer services, is delimited in central zones.

3. Street will be chosen as the spatial unit of analysis.

4. Attributional data will be used in its most detailed form which, however, does not mean concentration on single activities in the spatial analyses.

4.1. The Pre-Analytical Studies

The pre-analytical studies include the preparation of the databases and the cartographic resources. The empirical study bases mainly on two databases and two cartographic resources. The databases, which are the *Business Records* and the *Enumeration Records*, are obtained from TURKSTAT (Turkish Statistical Institution); however, they are reorganized in order to be used in the empirical studies. The two cartographic resources, *district map* and *street map* of Ankara are self-produced in vector forms.

4.1.1. Databases

The databases used to perform the empirical studies cover the entire area of metropolitan municipalities of Ankara.

The first one is the Business Records, which is obtained from the Department of Business Recordings in TURKSTAT. It covers all tax-paying firms at street level (approximately 172.500 firms, in September 2005), from which four main contingency tables are produced at the street level:

1. Number of firms according to their economic activities[8]
2. Number of firms according to the employee size categories
3. Number of firms according to the firm types
4. Total number of employees

The second database is the Enumeration Records obtained from the Department of Geography of Enumeration in TURKSTAT. It contains all single units at building level (approximately 1.670.000 units, in September 2005), and includes the information whether the unit is occupied with residences, commercial activities or public institutions.

These databases obtained in row forms are not suitable for direct use in the empirical studies. They contain economic activities, or single units, outside the metropolitan area of Ankara which are out of the context. Moreover, in the Business Records, some of the activities are coded within public institutions, such as canteens in schools. For these

[8] All the economic activities are coded with NACE Rev. 1.1 (Statistical Classification of Economic Activities in the European Community).

cases, it is assumed that the dominant activities are those public institutions, not the service activities, at those locations. On the other hand, the address informations of some services activities are not coded in a standardized form. Therefore, a standard procedure is developed to transform the databases into a suitable form for analyses, which can be called as *initial data correction process*. The first phase of this process is the clearance of the out of context economical activities from the database. The second one is the standardization of the spatial units and recodification of them.

There are four types of economic activities subjected to clearance, the proportions of which are presented in table 4.1. These are:

a. The economic activities that are located outside the metropolitan area, namely in villages, towns and small municipalities far from Ankara.
b. The economic activities that are located within other land-use categories such as canteens in schools, buffets in hospitals or universities because of the fact that they are not considered as the dominant activities in their location.
c. The economic activities that do not present any quantitative concentrations in their spatial units (less than 3 economic activities in one spatial unit are excluded).
d. The economic activities, which cannot be located at the street level, due to the lack of address information.

Table 4.1: The Proportions of the Activities subjected to Clearance

	No.	%
Activities that are located outside the metropolitan area[9]	23.404	13,58
Activities that are located within other land-use categories	590	0,34
Activities that do not present quantitative concentration in their spatial units[10]	9.310	5,40
Activities that can not be located at street level	3.475	2,14
Activities that enter to the analysis	135.600	78,66
TOTAL	172.379	100,00

[9] Although the Municipality of Gölbaşı is within the metropolitan area, the economic activities located in Gölbaşı are excluded from the database, because the up-to-date street maps of Gölbaşı are not available.

[10] These activities compose 5,40 percent of all activities; however, they are dispersed to approximately 6.500 streets (the number of spatial units in the empirical studies is 2.945 in the analysis). Such an increase in the number of spatial units complicates the spatial analysis, and makes it technically impossible with the available hardware and software technology; therefore, they are excluded from the databases.

The second phase of the initial data correction is the standardization of the spatial units and recodification of them. This phase basically contains the process of making differently written addresses the same and linking them with unique spatial codes[11]. A sample of this phase is presented in table 4.2.

Table 4.2: A Sample from the Standardization Process of Spatial Units

1. making differently written addresses the same

2. linking them with unique spatial codes

Addresses			New Addresses	Spatial Codes
ÇANKAYA	MEBUSEVLERİ	M.FEVZİ ÇAKMAK CAD	ÇANKAYA_BAHÇELİEVLER__MAREŞAL FEVZİ ÇAKMAK C_	200157
ÇANKAYA	MEBUSEVLERİ	M.FEVZİ ÇAKMAK CAD.	ÇANKAYA_BAHÇELİEVLER__MAREŞAL FEVZİ ÇAKMAK C_	200157
ÇANKAYA	MEBUSEVLERİ	MARAŞAL FEVZİ ÇAKMAK	ÇANKAYA_BAHÇELİEVLER__MAREŞAL FEVZİ ÇAKMAK C_	200157
ÇANKAYA	MEBUSEVLERİ	MERAŞAL FEVZİ ÇAKMAK	ÇANKAYA_BAHÇELİEVLER__MAREŞAL FEVZİ ÇAKMAK C_	200157
ÇANKAYA	YUKARI AYRANCI	HOŞDERE	ÇANKAYA_AYRANCI__HOŞDERE C_	200093
ÇANKAYA	YUKARI AYRANCI	HOŞDERE CAD	ÇANKAYA_AYRANCI__HOŞDERE C_	200093
ÇANKAYA	AYRANCI	HOŞDERE CD.	ÇANKAYA_AYRANCI__HOŞDERE C_	200093

1 2

4.1.2. Cartographic Resources

There are two cartographic resources, *district map* and *street map* of Ankara, used in empirical studies. These maps are produced by the geographical information systems (GIS) with the exact geographical coordinates. These maps are produced with geographical coordinates so that different analytical maps can be overlapped in order to achieve comparison between them. It is obvious that these kind of comparative studies provide productive information-bases for any kind of explanatory efforts.

[11] The same process is valid for Enumeration Records.

Although these cartographic resources are produced within the same technological medium, the processes are different from each other. There are five important phases during the production of district maps:

1. First of all, a relatively actual map (July 2004) is obtained from the Directorate of Enumeration of the Municipality of Greater Ankara.
2. The second step is rasterization of this actual map (figure 4.1).
3. The next step is on-screen vectorization, which means redrawing of the map in GIS environment with exact coordinates (figure 4.2).
4. Each vector is concatenated with unique spatial codes produced during the data correction process.
5. Through these four steps, the basic district map, which consists of 400 districts with unique spatial codes, is produced.

This map allows achieving discrete space representation in the spatial analysis, and makes it easily to visualize dispersion indicators. After this map is produced, a second version of district map becomes available, especially for the analysis of point pattern distributions. This map contains centroids[12] of districts (figure 4.3), and can be used for visualizing concentration patterns of service activities.

On the other hand, there are basically two steps being followed in order to produce the street maps:

1. The first step is rasterization of existing street layout by using different up-to-date street maps. Because all of these maps are geographically coordinated, producing a seamless street map becomes possible (figure 4.4).
2. All the streets within the municipal boundaries are redrawn as single lines which is a kind of abstraction through on-screen vectorization. At the end of this phase, each unique street is represented with a single line[13] (figure 4.5).

The number of vectorized streets is approximately 3.000, and the street map consists almost 90.000 segments –parts of streets- (figure 4.6). After the main vectorized street map is produced, another map containing the centroids of streets is produced, which gives chance for spatial representations of point pattern distributions (figure 4.7).

[12] Centroid is a center of a body, or center of gravity.
[13] The streets within the industrial sites and wholesaling sites can not be abstracted as single lines because the street networks within them are too complex. Moreover, it is almost impossible to identify the exact locations of these firms from given address information.

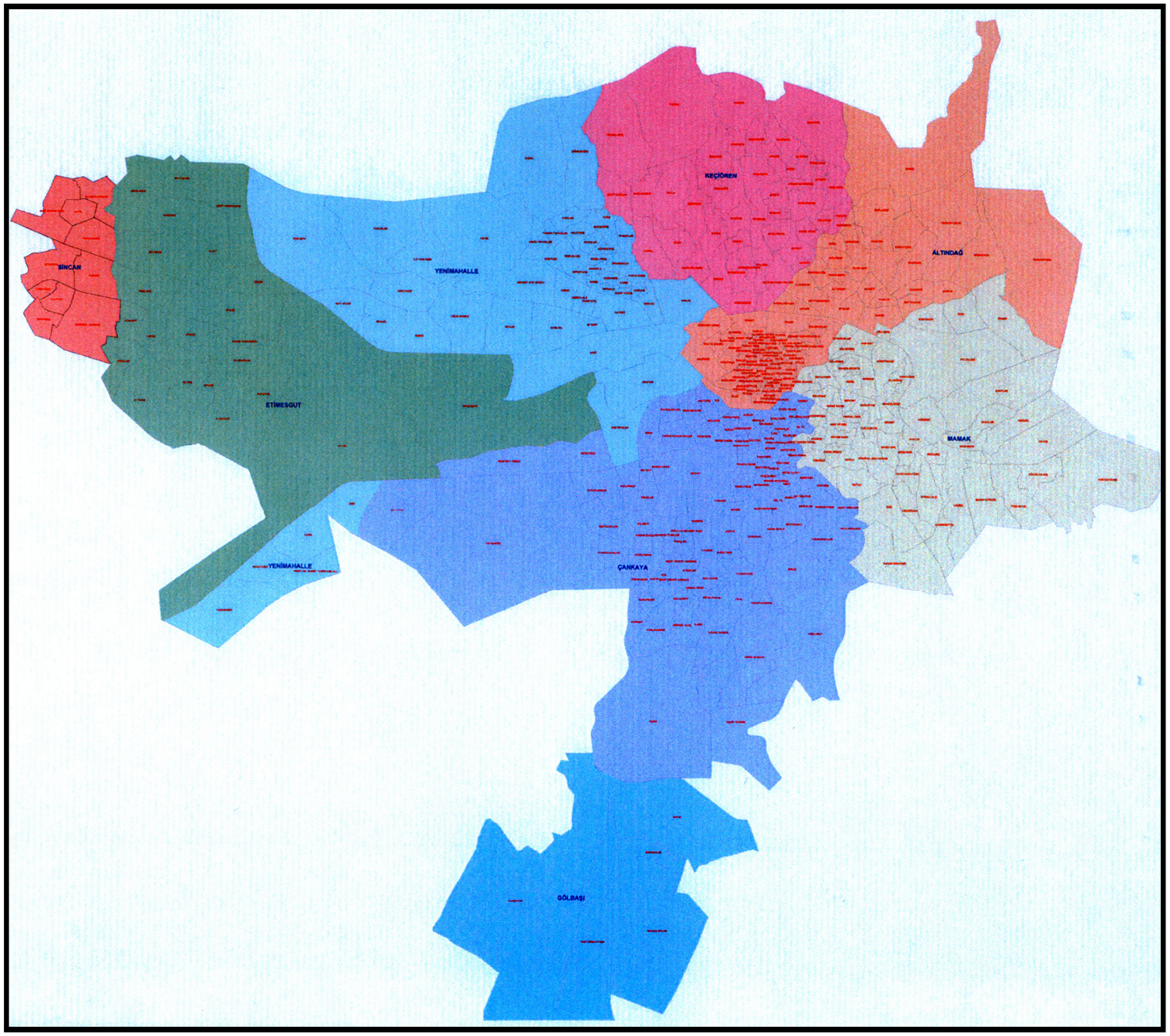

Figure 4.1: The Raster Image of District Map of Ankara

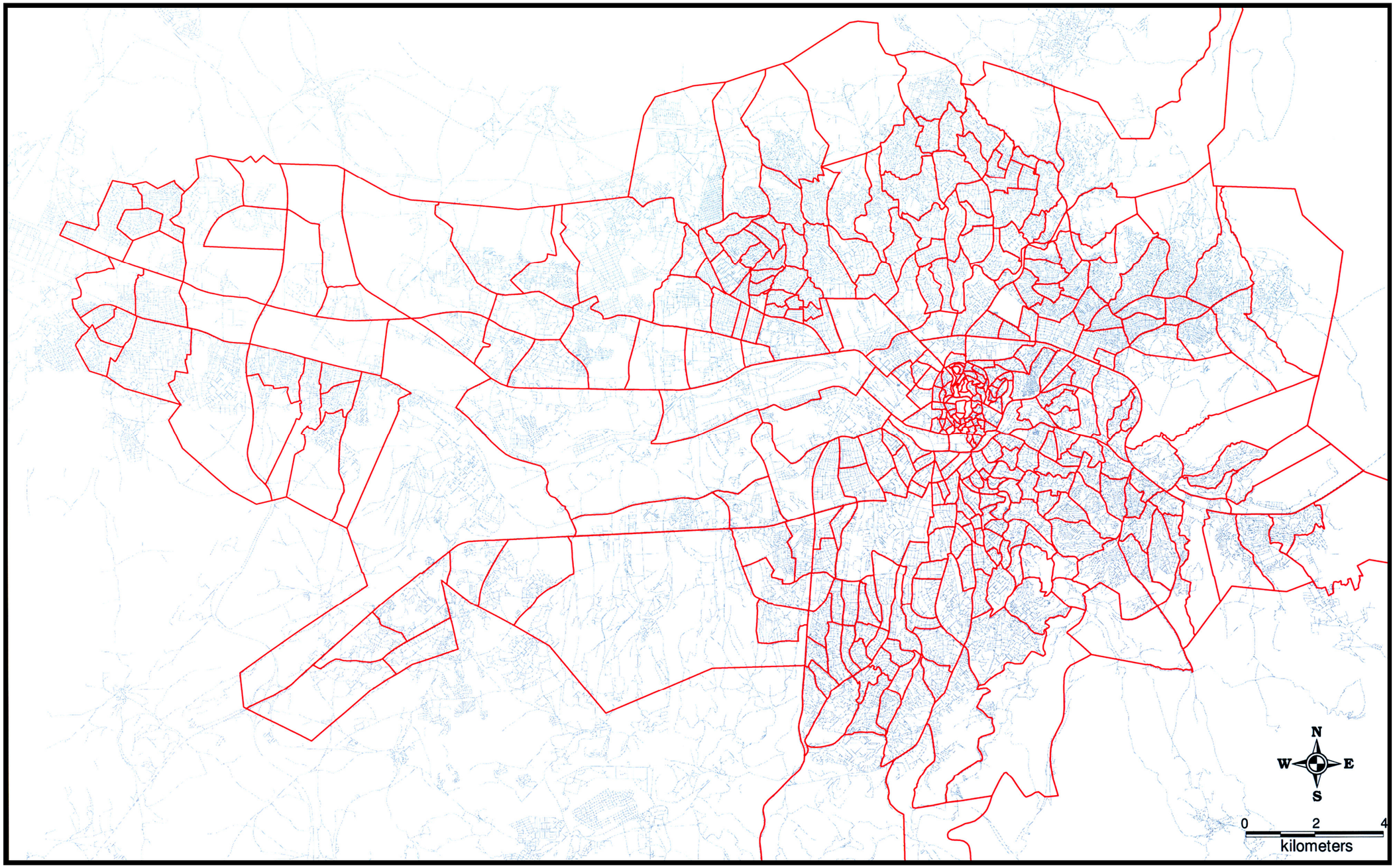

Figure 4.2: The Vector Map of Districts of Ankara

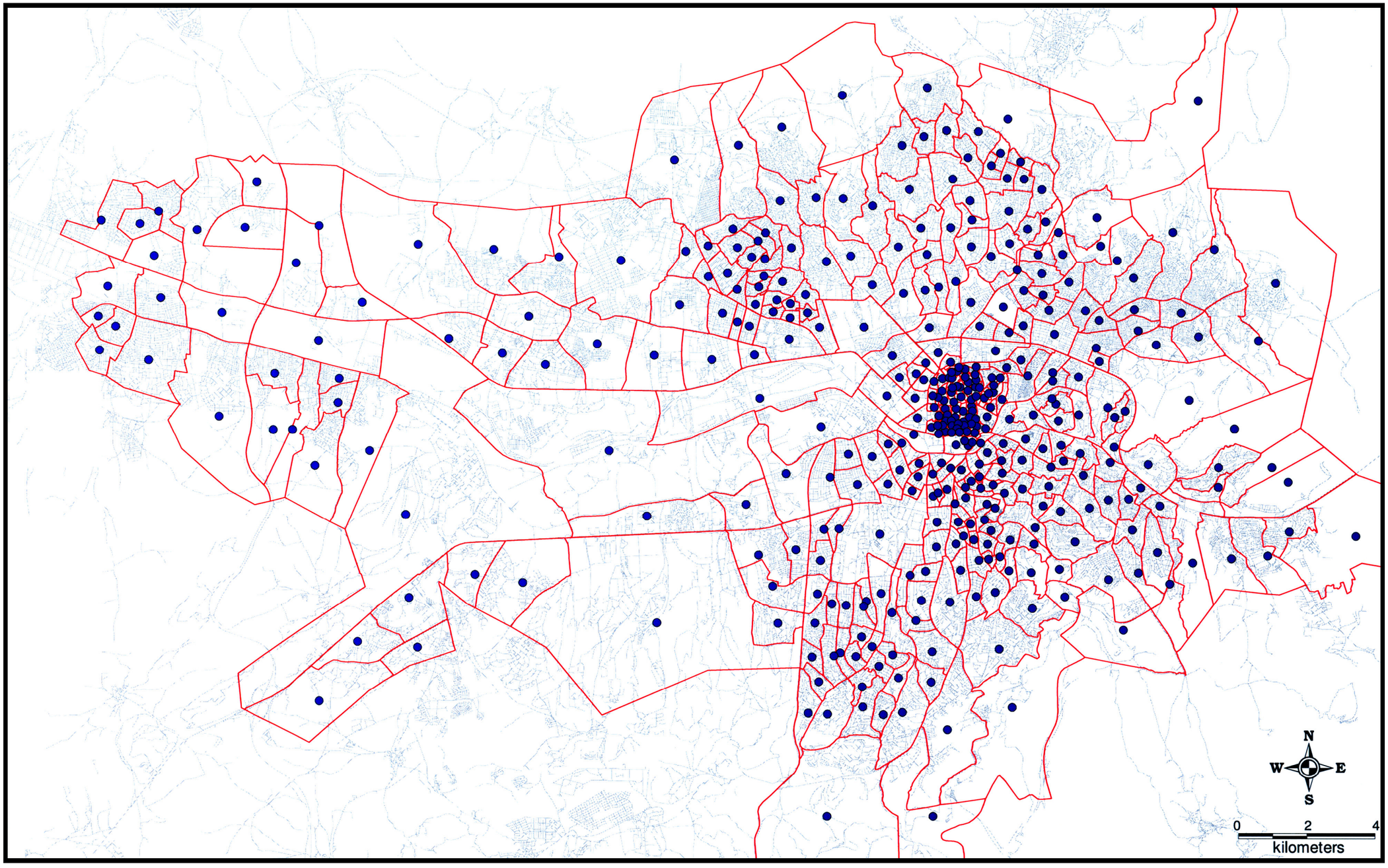

Figure 4.3: The Centroids of the Districts of Ankara

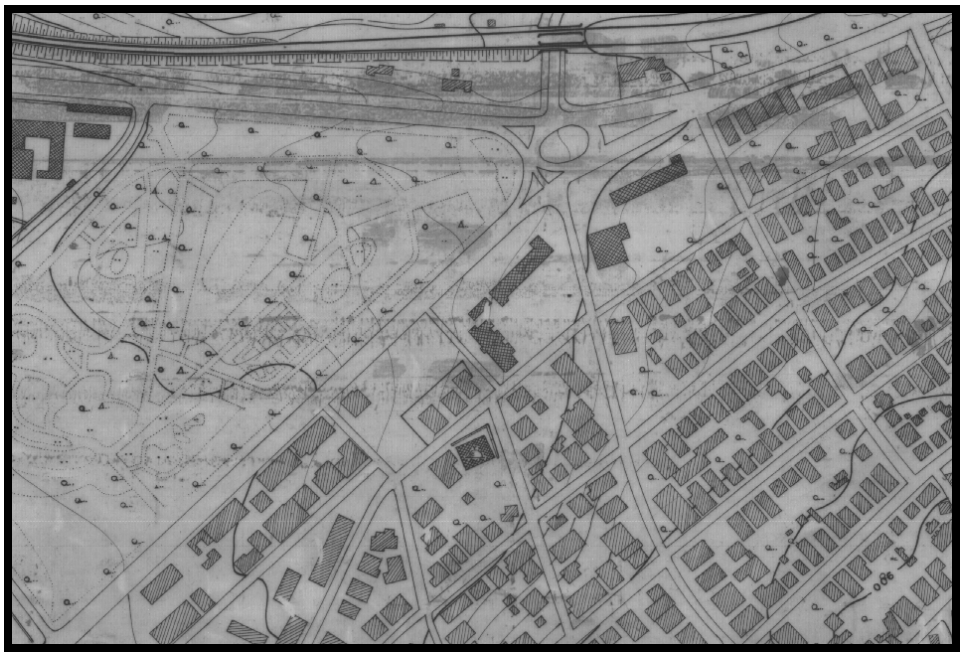

Figure 4.4: A Sample from a Rasterized Map

Figure 4.5: Redrawing the Streets in figure 4.4 as "Single Lines"

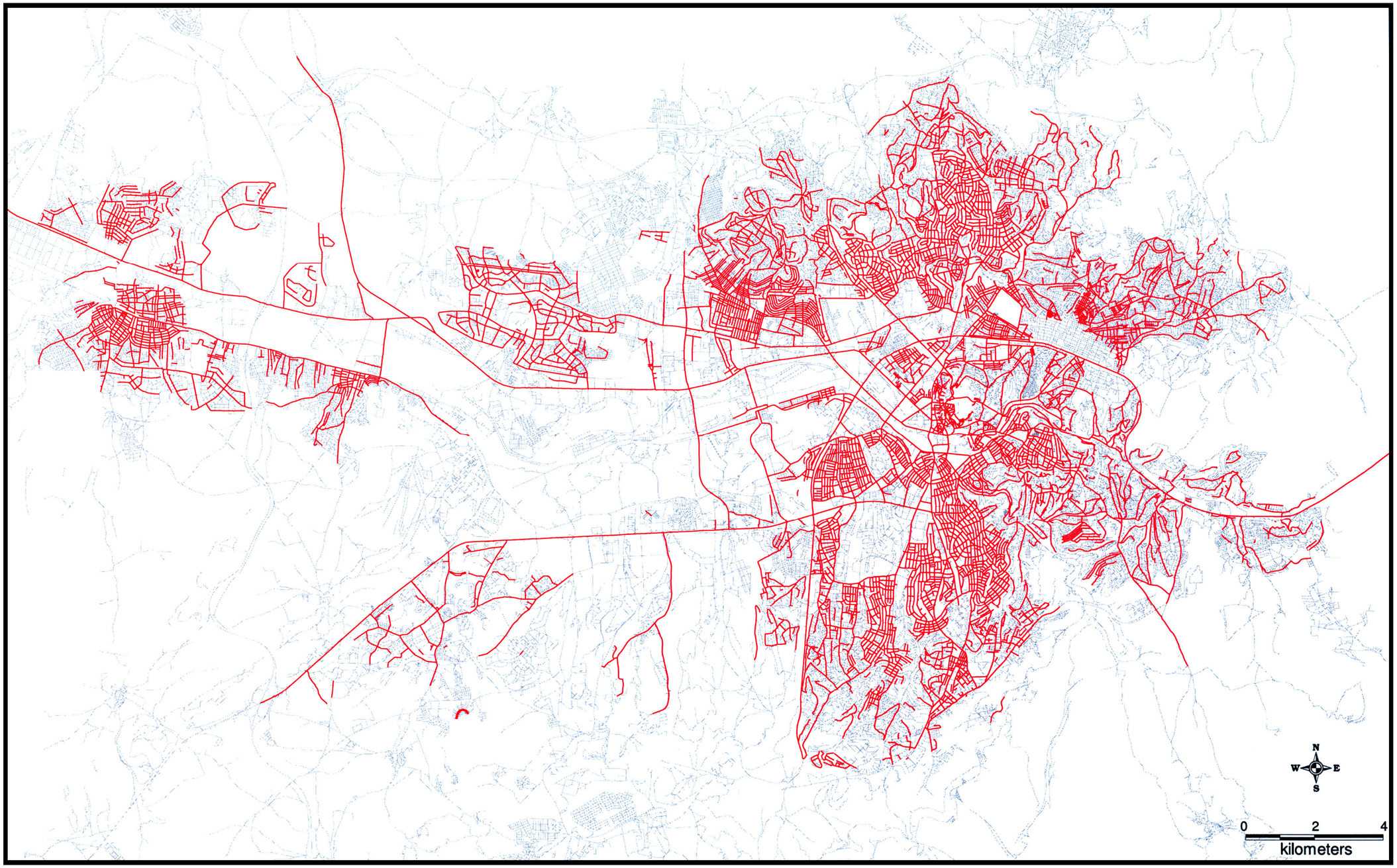

Figure 4.6: The Whole Street Network containing Economic Activities in Ankara

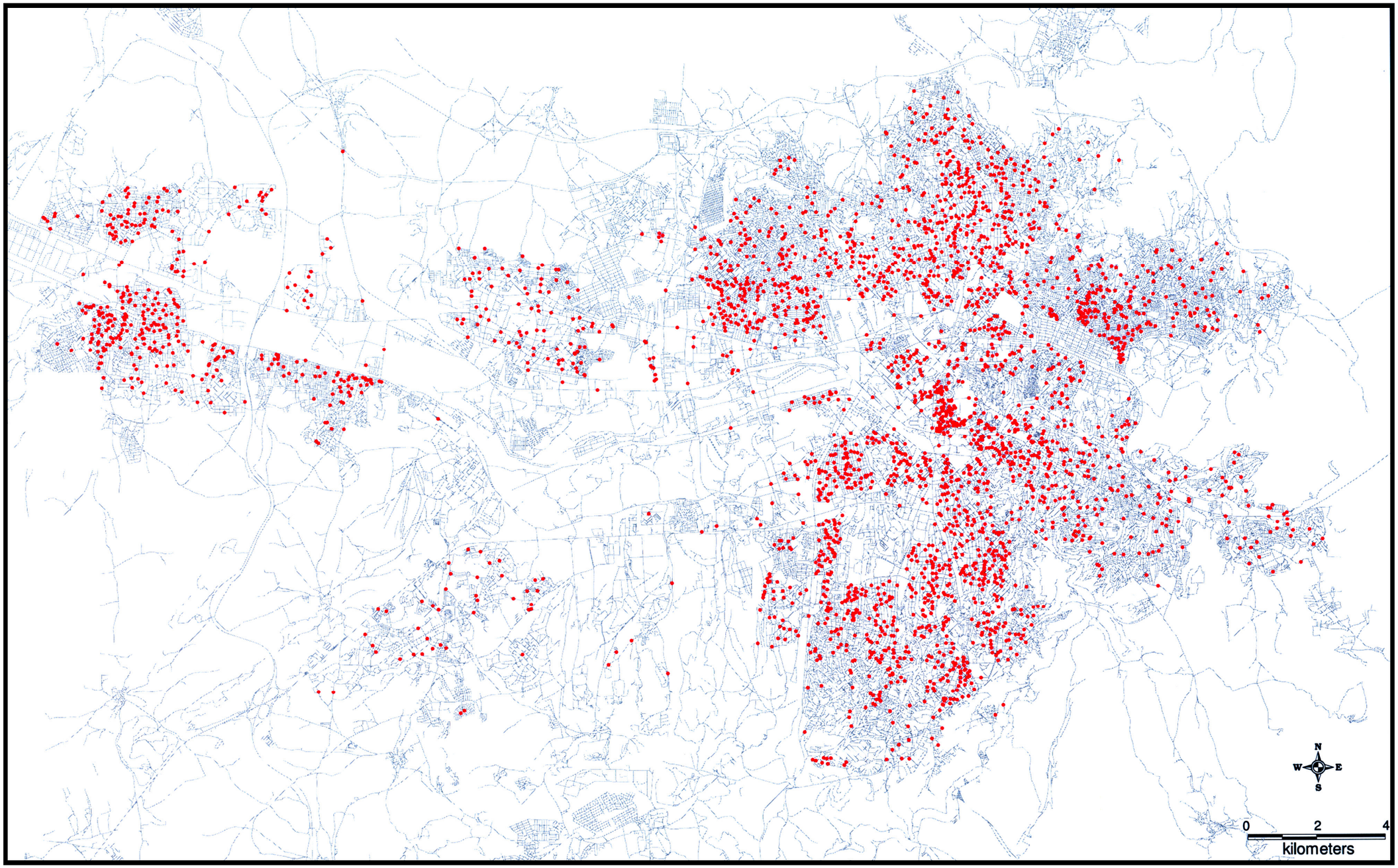

Figure 4.7: The Centroids of the "Street Map" in Ankara

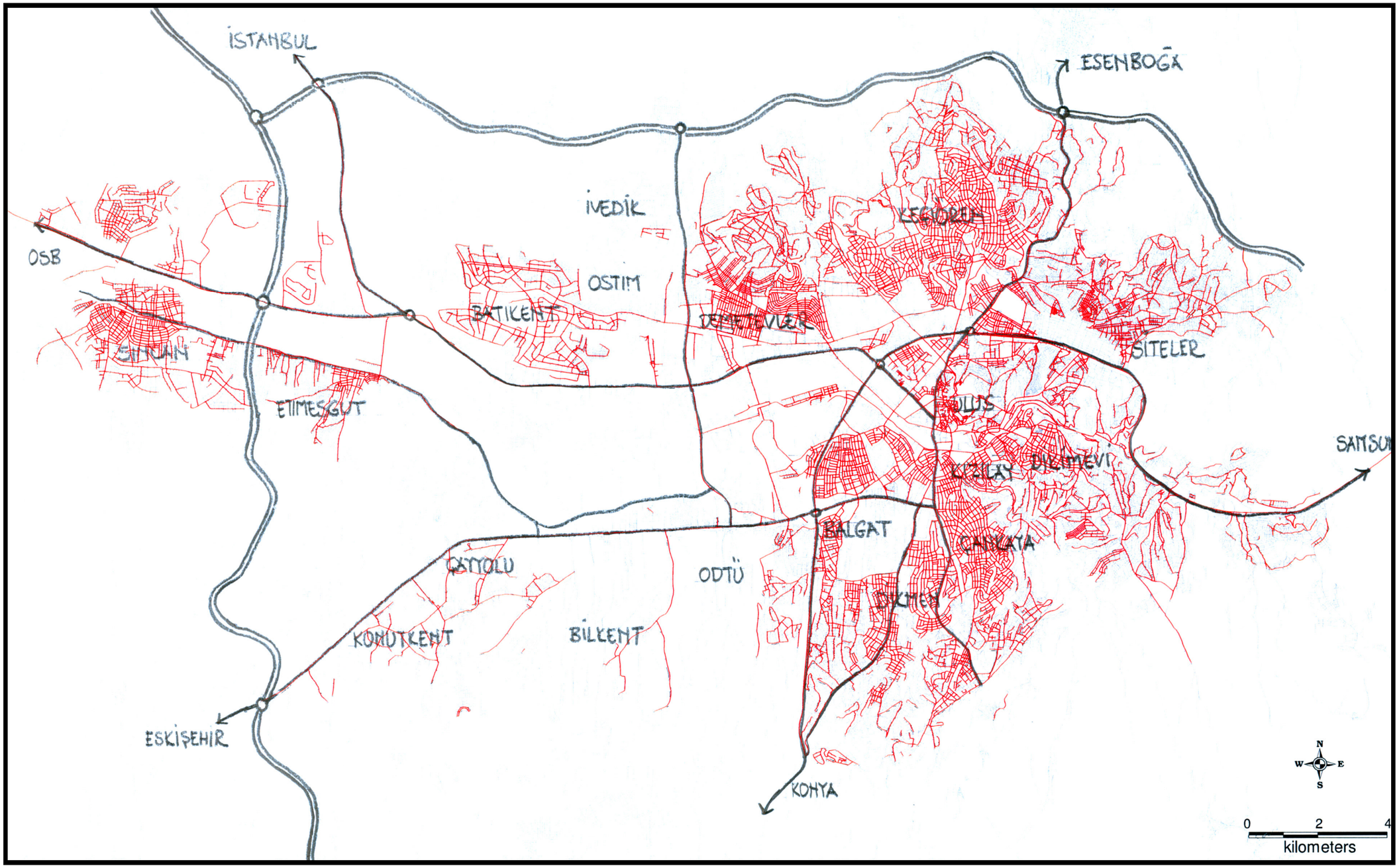

Figure 4.8: General Schema of Ankara (2005)

4.2. Case Study: Spatial Organization of Service Activities in Ankara

The spatial analysis of the case study basically aims to achieve a comprehension about existing spatial organization of service activities in Ankara case. Although each service category is subjected to spatial analyses, the focus of the forthcoming empirical studies are producer services, mainly the business services, such as legal consultancy, professional consultancy, computer related activities, and research and development activities, since they are considered as the main activity components of service system.

There are two dimensions of the empirical studies:

- Detection of the concentration and dispersion patterns of service activities,
- Spatial description of relative cohesiveness of service activities.

Detection of concentration and dispersion patterns of service activities mainly assists to understand the distributional patterns of services, and therefore, provides clues for the spatial organization of service activities. Spatial description of relative cohesiveness of service activities, on the other hand, is analyzed in order to understand the spatial coexistence of these service activities. The description of this cohesiveness, which refers to symbiotic relations of activities on the same locale, is important to define the functional parts of service system. However, the analysis about relative cohesiveness is fundamentally related to producer services, since consumer services usually have a dispersion tendency and do not present any cohesive behaviors.

It is clear that an analysis on these issues could provide an inclination to understand the spatial characteristics of the *whole and parts* of service activity system. The spatial redefinition of services, which is the basic aim of this study, may stand on this understanding.

4.2.1. The Spatial Patterns of Concentration and Dispersion

The databases and the cartographic resources concatenated together in the GIS environment provide a sufficient information-base for analyzing concentration and dispersion patterns of economic activities.

4.2.1.1. The Patterns of Concentration for Economic Activities

Analyzing the concentration patterns of economic activities is significant for understanding their spatial organization. With the help of N50% indicator introduced in the previous chapter, it becomes relatively easy to detect any kinds of concentrations, and to understand their locational patterns.

N50% indicator is applied, firstly, on the whole data without any *contentual* limitations in order to describe the overall concentration patterns within the city of Ankara through the centroids of the districts as the spatial units (figure 4.9).

The first outcome of this map is that the districts in which Siteler and Ostim-İvedik industrial sites are located have the highest concentration of economic activities. They contain 11.6 percent of all economic activities, which means approximately 15.750 firms. Additionally, OSB (Organized Industrial Site) and Şaşmaz industrial sites are the other significant concentration areas of economic activities. However, these so-called locations are basically dominated by non-service activities such as manufacturing and processing, or distributive services as it is observed in GİMAT (table 4.3).

Except for the concentration of economic activities in industrial and wholesaling sites, there are three basic results that should be emphasized for the spatial organization of service activities in Ankara.

The first one is the appearance of an area of linear concentration of economic activities from Ulus towards the south end of Ankara. Although this area is relatively small (3,8 percent of the spatial frame of analysis), it contains 24,5 percent of all firms, which makes approximately 33.250 firms. There is İskitler industrial zone at the north end of this concentration area including Büyük, Yeni, Demir and Ata industrial sites. Although they are named as industrial sites, services constitute the dominant activity category in this zone. Approximately 84 percent of all activities in this zone are services, most of which are repairing activities. Aziziye district stands at the south end of the above-mentioned area. This area seems like a zone of full concentration – a type of spatial distribution of services that is proposed by Shearmur and Alvergne (2002). Moreover, it is also possible to observe patterns of concentric diffusion at Emek, Aydınlar, Sancak and Büyükesat districts surrounding the area of full concentration.

Table 4.3: The Activity Composition in Industrial and Wholesaling Sites

	NAME	CONTENT	EXTRACTIVE ACTIVITIES	TRANSFORMING ACTIVITIES	SERVICE ACTIVITIES
Zone 1	Siteler	Siteler Sanayi Sitesi	**1**	**5.882**	**3.496**
Zone 2	İskitler	Büyük Sanayi Sitesi Demir Sanayi Sitesi Yeni Sanayi Sitesi Ata Sanayi Sitesi	**2**	**362**	**1.923**
Zone 3	Hal	Yeni Hal	**0**	**0**	**259**
Zone 4	GIMAT	Gimat Toptancılar Sitesi ATB (Ankara Ticaret Borsası) Özankara Toptancılar Sitesi	**1**	**71**	**828**
Zone 5	Ostim- İvedik	İvedik Sanayi Sitesi Ostim Sanayi Sitesi ATİSAN Yıldız Sanayi Sitesi	**3**	**3.095**	**3.009**
Zone 6	Hurdacılar	Hurdacılar Sitesi	**0**	**9**	**161**
Zone 7	İstanbul Yolu	Gersan Sanayi Sitesi Başkent Sanayi Sitesi Yıldırımlar Sanayi Sitesi Başkent Galericiler Sitesi	**1**	**201**	**394**
Zone 8	Şaşmaz	Birlik Sanayi Sitesi Dökmeciler Sanayi Sitesi Yeşilçam Sanayi Sitesi Otosansit Nakliyeciler Sitesi	**0**	**139**	**1562**
Zone 9	OSB	Ankara 1. Organize Sanayi Bölgesi Dökümcüler Sitesi	**4**	**566**	**372**
Subtotal of Zones			**12**	**10.325**	**12.004**
All Other Activities outside the Zones			**218**	**8.852**	**10.4189**
TOTAL			**230**	**19.177**	**116.193**

The second result is the appearance of a pattern at the northern part of the Ankara, which looks like a combination of structured dispersion patterns. A significant amount of firms, approximately 5.735 firms, are located only on 5 districts which are Demet, Ragıp Tüzün, Etlik, Ondokuz Mayıs and Kavacık Subayevleri districts, from west to east respectively. Nevertheless, the whole area contains approximately 17.500 firms, which means 13 percent of all activities.

Finally, the third result is Sincan that appears as a local concentration center outside the central zones. It includes approximately 3.300 firms. It can be easily predicted that some of these firms are occupied with transforming activities, especially the ones around the OSB.

As it is stated before, industrial and the wholesaling sites, which contain mostly transformative activities, dominate the map of overall concentration (table 4.4). These transforming activities generally necessitate special types of infrastructure, and therefore, locate themselves on specific sites providing these infrastructures. However, Stein (2002) mentions that these transformative activities are not service activities, and they should not be included in a spatial study about service activities. Although the industrial and wholesaling sites contain also service activities to a certain degree, it is important to see how the picture will change when the sites are excluded from the analysis[14].

Table 4.4: The Number of Economic Activities within Industrial and Wholesaling Sites

	Activities in the industrial and wholesaling sites	Activities outside them	TOTAL
no. of economic activities	22.341	113.259	135.600

The map that excludes the economic activities in industrial and wholesaling sites contains 113.259 firms (figure 4.10). The picture is similar to the previous ones. Nevertheless, there emerge three different features when compared with the previous map displayed in figure 4.9.

The first one is the spatial shrinkage of the area of main concentration. It is reduced to 2,9 percent of the spatial frame of analysis, yet it covers 30,6 percent of all firms outside the industrial and wholesaling sites, which is equal to 34.725 firms. Although the main concentration area gets smaller, the number of economic activities in this area increases both absolutely and proportionally. The reason of the increase in the absolute number of firms is the appearance of new concentration nodes in central zone of Ankara. In the southern end of the main concentration area, the concentration of

[14] The number of firms subjected to exclusion is 22.341.

economic activities becomes much more evident with the increase in the number of districts.

The second feature is that the patterns of concentric diffusion around the main concentration area becomes more obvious with Yukarı Bahçelievler, Aşağı Öveçler and Birlik districts added to previously standing Emek, Aydınlar, Sancak and Büyükesat districts. The area of concentric diffusion is almost the same; yet, the number of districts is increased.

The dispersion pattern in the northern part of the city becomes more noticeable as the *third* feature. Tepebaşı, Şenlik, Bağlarbaşı, İncirli, Demetlale districts are added to the Demet, Ragıp Tüzün, Etlik, Ondokuz Mayıs and Kavacık Subayevleri districts that are detected in the former map (figure 4.9). The number of the districts subjected to concentrations is doubled in this new map, whereas the increase in the number of activities is 60 percent. Although this pattern looks like similar to the main concentration area, it is impossible to state that it is a full concentration area because of the lack of spatial continuity among the concentration nodes. In this part of the city, there is not any primary transportation direction in the east-west direction on which these concentrations could hang on. Contrary, the system functions with the secondary north-south connections which prevents the formation of integrated pattern of concentration.

These two maps (figure 4.9 and figure 4.10) provide a general conception about the overall concentration patterns on economic activities, but it is not possible to bring out any comments about the activity content of the distributions through these maps. It is simply because the analysis for producing these maps is performed without any limitations on the content of economic activity. At this point, what has to be done is the examination of concentration patterns with reference to the activity categories.

As it is stated before, the classification of activities is a problematic issue. There are many studies about this classification, but no authoritive consensus about the boundaries of economic activity categories. This is especially true for service activities (Marshall et. al., 1987; Kellerman, 1985). Therefore, a simple, but effective classification proposed by Stein (2002) is used for the analysis aiming to determine the concentrations of different activity components.

For a study about the spatial organization of service activities, in the first step, the extracting and manufacturing activities has to be excluded, because these activities are not the parts of services and central systems. After the exclusion, the remaining activities are service activities. It is possible to define the overall concentration and dispersion patterns of service activities through these remaining activities. However, these service categories include dissimilar service categories (consumer services and producer services) and sub-categories (welfare services, household services, distributive services, financial services, business services) having differentiated locational preferences. Therefore, these categories and sub-categories have to be considered within the analysis in order to achieve more satisfactory assessments on the spatial organization of services.

In this framework, the classification, which is used in the spatial analysis, becomes as below (table 4.5):

Table 4.5: The Classification of Activities in the Analysis

Economic Activities						
Extracting Activities	Transforming Activities	Service Activities				
		Consumer Services			Producer Services	
		Welfare Services	Household Services	Distributive Services	Financial Services	Business services

Table 4.6: The Number of Activities with reference to Broad Categories

	All	**%**	**All (sites excluded)**	**%**
Extractive Activities	**230**	0,2	**218**	0,2
Transformative Activities	**19.177**	14,1	**8.852**	7,8
Service Activities	**116.193**	85,7	**104.189**	92,0
TOTAL	**135.600**	100,0	**113.259**	100,0

As it can be easily extracted from table 4.6 that the proportion of extractive activities is negligible whether the activities in the industrial and wholesaling sites are included in the analysis or not. It can also be assessed that the transformative activities are

generally located in the industrial sites. In the case when the activities in industrial and wholesaling sites are taken into consideration, transformative activities cover 14,1 percent within the overall activity composition. After the one in the sites are excluded, their percentage falls radically to 7,8 percent. From the previous maps (figure 4.9 and figure 4.10), it is understood that the industrial and wholesaling sites dominate the patterns of concentration of economic activities. However, their activity composition mainly depends on transformative activities. in this context, the exclusion of these sites means concentration on service activities. The number of activities of service categories and sub-categories are given at table 4.7.

Table 4.7: Basic Quantitative Information about the Service Activities

	Services (industrial and wholesaling sites excluded)				
no. of firms	104.189				
Class	**Consumer Services**			**Producer Services**	
no. of firms	85.738			18.451	
Category	**Welfare Services**	**Household Services**	**Distributive Services**	**Financial Services**	**Business Services**
no. of firms	5.597	29.549	50.592	6.030	12.421

The first concentration analysis for service categories is performed for consumer services which includes 50.592 single economic activities from welfare, household and distributive services (figure 4.11). The concentration pattern of consumer services is fairly similar to the one in figure 4.10, in which activities in industrial and wholesaling sites are excluded. This similarity is not surprising, because there is an obvious quantitative domination of consumer services on the general service activity system. They generally cover greatest percentages within service compositions. For instance, in Ankara case, 82,3 percent of all services outside the industrial and wholesaling sites are the consumer services. Therefore, they generate a direct influence on the overall spatial distributions and concentration patterns of economic activities with their own spatial characteristics.

The relevant literature expresses that the consumer services usually tend to follow the customers (Brown, 1987; Gilli, 2003, Stanback, 1991). In this framework, spatial distribution of consumer services should be assessed with reference to the spatial distributions of population. They may have concentration tendencies in the central zones, usually in the cases of compact cities. When there is residential decentralization,

the consumer services may also have a tendency to be dispersed. The spatial distributions of consumer services in Ankara case conform to the second assumption that the literature describes. They outspread on the whole Ankara due to the widespread residential decentralization. However, they are observed more frequently within the dense residential areas.

The dispersion of consumer services in the northern part of Ankara and the local concentration in Sincan is almost the same with the ones in the figure 4.10. The differentiated points with reference to the previous maps are:

- the increase in the expansion area of consumer services around the central concentration zone (the average distance becomes 2,5 km. to the main concentration zone, which was previously 1,4 km.),

- the increase in the number of districts in which consumer services are diffused (12 new districts are observed as a center of consumer services in the southern part of Ankara),

both of which make the spatial delimitation of monocenter with reference to consumer services difficult.

In the case of producer services, which include 18.451 economic activities, the spatial patterns of concentration and dispersion change radically (figure 4.12). Producer services are the main economic activity sets in business activity systems. Although the literature about the locational preferences of producer services claims that they usually tend to concentrate in central zones, the empirical studies prove that both concentration and dispersal of producer services may be simultaneously observable in different cities (Shearmur and Alvergne, 2002). The existence of these opposite trends at the same moment in time and at the same locale in space forms an opinion that the spatial distributions of these producer services activities mainly depend on the contextual conditions.

In Ankara Case, producer services are mainly concentrated in central zones. Almost 32 percent of producer services (approximately 5.900 producer service activities) are concentrated in 8 districts, namely Maltepe, Korkutreis, Eti, Kızılay, Kocatepe, Fidanlık, Sağlık and Meşrutiyet. These districts cover only 450 ha., and this area of concentration is smaller than 1 percent of the frame of analysis.

Except for this significant concentration, there are three different spatial formations related to producer services: linear and loose spatial development towards the south end of Ankara, a significant concentration in Ulus and a local concentration in Sincan.

The loose spatial development from the central concentration zone towards the south end of Ankara contains 2.500 producer firms within 5 districts. This means 13,5 percent of all producer services outside the industrial and wholesaling sites. The districts in which there exists significant concentration of producer services are Remzi Oğuz Arık, Aziziye, Büyükesat, Sancak and Çankaya districts.

There is also a significant concentration in Ulus region. This region contains exactly 368 producer service firms. The number of the producer services seems quite limited; yet, all of these activities are concentrated in a small single district, namely Fevzi Paşa district.

Both of these spatial developments can be defined as concentric diffusions of producer services, since they are located in the shadow of the central concentration area of Ankara.

Although the existence of producer services in Sincan is quite weak (1,8 percent of all producer services), it is significant; because, it points out that this region contains a mixture of consumer and producer services. It is quite different from Ulus, because it can be labeled as a centered outside concentration.

The concentration tendency in and around the central zones is quite high for producer services. However, it is known that subcategories in the producer services, namely financial services (FIRE) and business services may have differentiated spatial preferences (Stanback, 1991).

The main reason of this differentiation is functional organization of these activities. Most of the financial services contain routine works, and behave like a back unit function (Bryson, Keeble and Wood, 1993). Because of these characteristics, they tend to disperse. Moreover, they also include real estate services, the location of which is affected by the redevelopment patterns of residences. However, business services mainly depend on face-to-face contacts while accomplishing their tasks; therefore, they tend to cluster usually in central zones where the level of accessibility is extremely high.

The dispersion of financial services can be easily detected from the figure 4.13. The picture is quite similar to the one of consumer services. However, there appear two new locations that are not traceable in the concentration maps of consumer or producer services. The first one is the İlkyerleşim district that is spatially adjacent to Ostim and İvedik industrial sites. Both of these dense manufacturing sites seem as the reason of this financial service concentration in the periphery. The other newly appearing location is Buketkent district that mostly contains the residential areas of high-income groups. With these two new locations, financial services become a highly dispersed activity set in Ankara, although they form a subcategory of producer services.

Business services, which have to be considered as the major activity component for studies about the spatial organization of services, have quite distinctive spatial tendencies than any other activities. Because they necessitate intimate contacts to manage their works, they have a significant tendency to be clustered. The location of this clustering is usually the central zones in which the need for the face-to-face contacts can easily be satisfied due to their accessibilities (Aguilera-Belanger and Arabeyre-Petiot, 2001; Shearmur and Alvergne, 2002).

The number of business services outside the industrial and wholesaling sites is 12.421 in Ankara case. Approximately, 39 percent of all these services are concentrated in a very small area (figure 4.14). This area is the one defined in concentration map of producer services (figure 4.12). Except for this major concentration, there are three secondary concentration locations: Ulus, Remzi Oğuz Arık and Aziziye districts containing respectively 2,5, 6,0, and 2,8 percent of all business services outside the industrial and wholesaling sites. They identify a linear concentric diffusion in the north-south direction, because the distance between these districts and the main concentration area is relatively small (approximately 1,5 km).

Different from the other service categories, most of the business services are located in the area defined as main concentration zone. The area of full concentration and concentric diffusion contains almost 69,1 percent of all producer services (8.585 firms) when the spatial resolution of analysis is increased to street level.

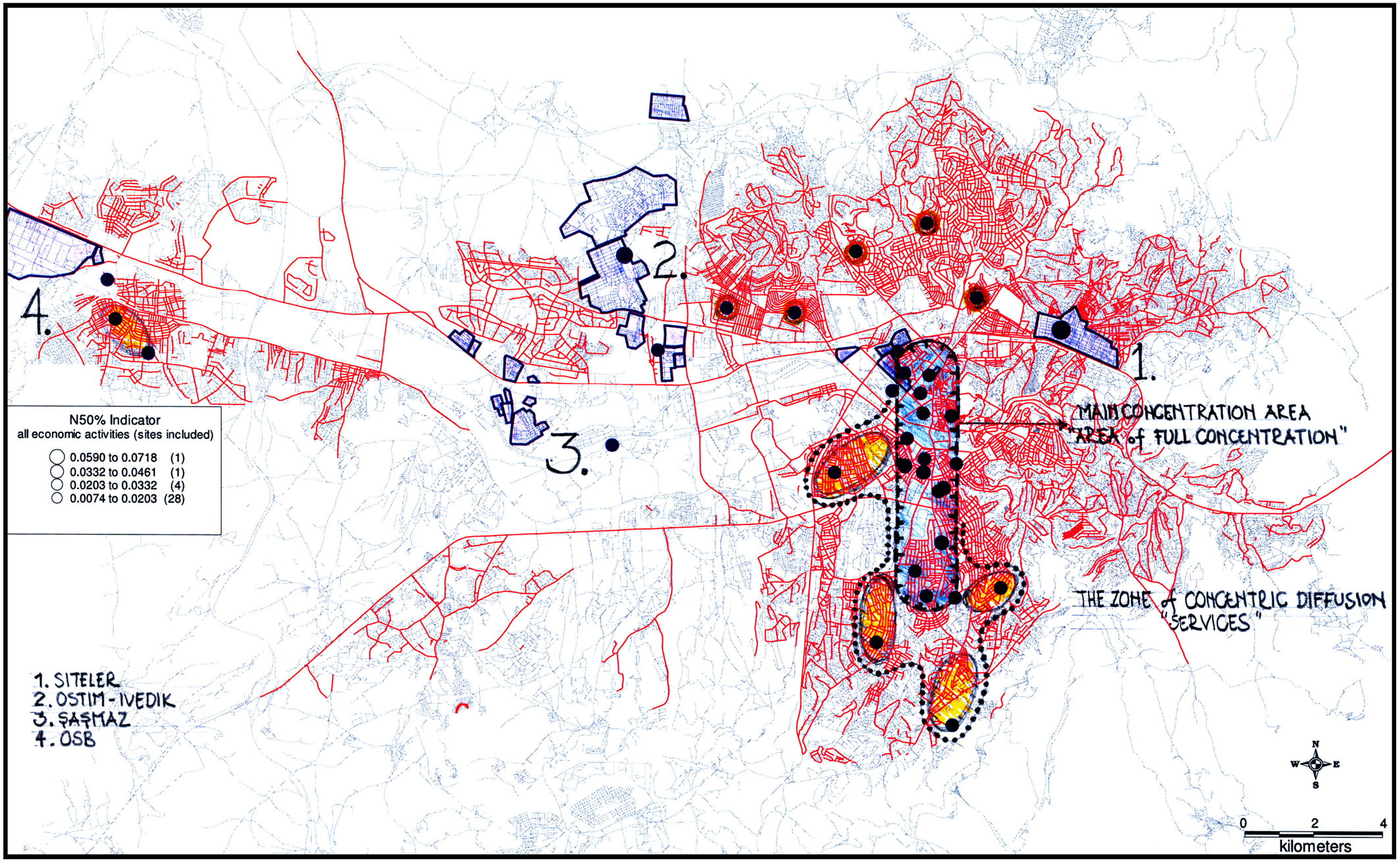

Figure 4.9: The Concentration for All Economic Activities (industrial and wholesaling sites included)

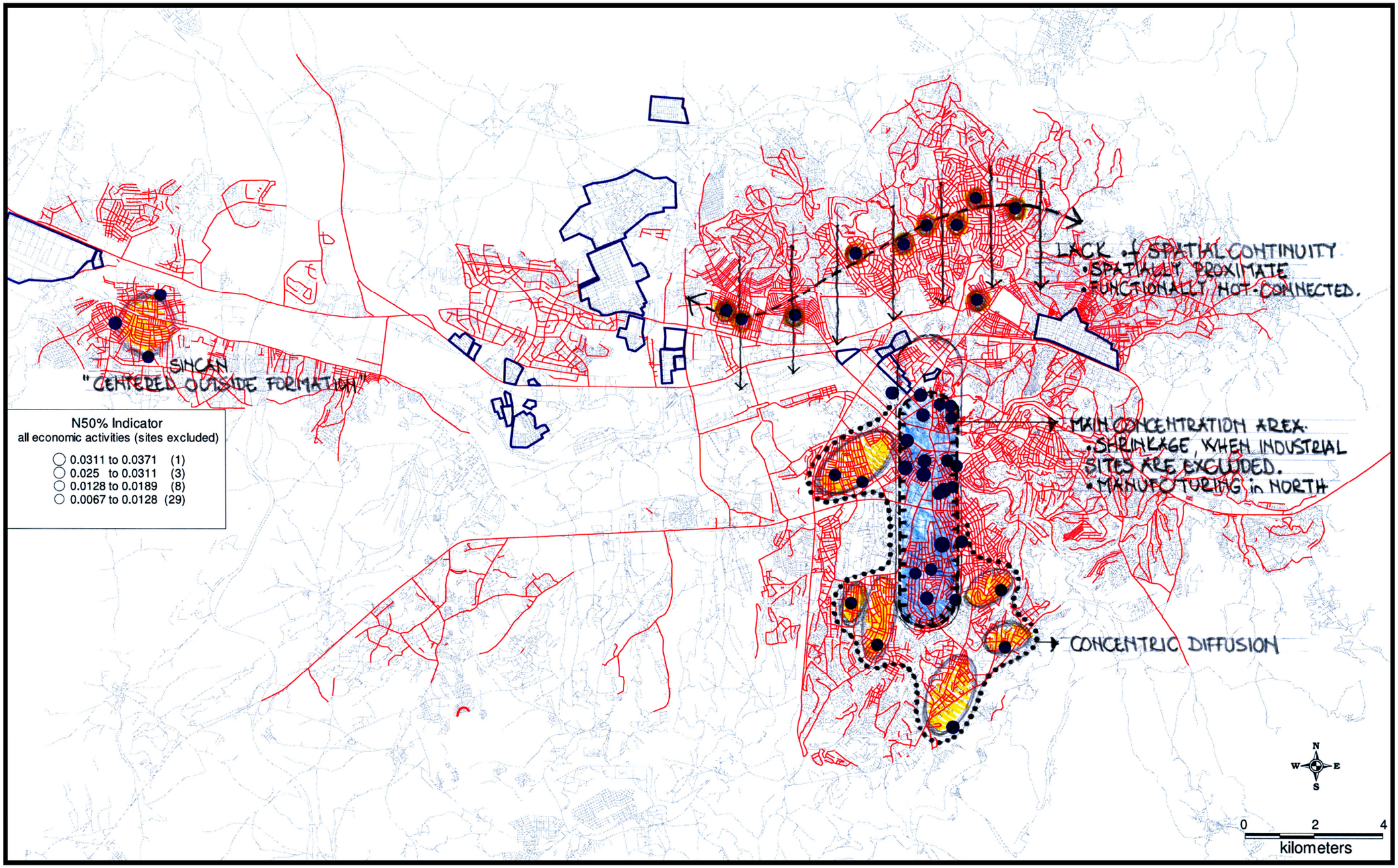

Figure 4.10: The Concentration for All Economic Activities (industrial and wholesaling sites excluded)

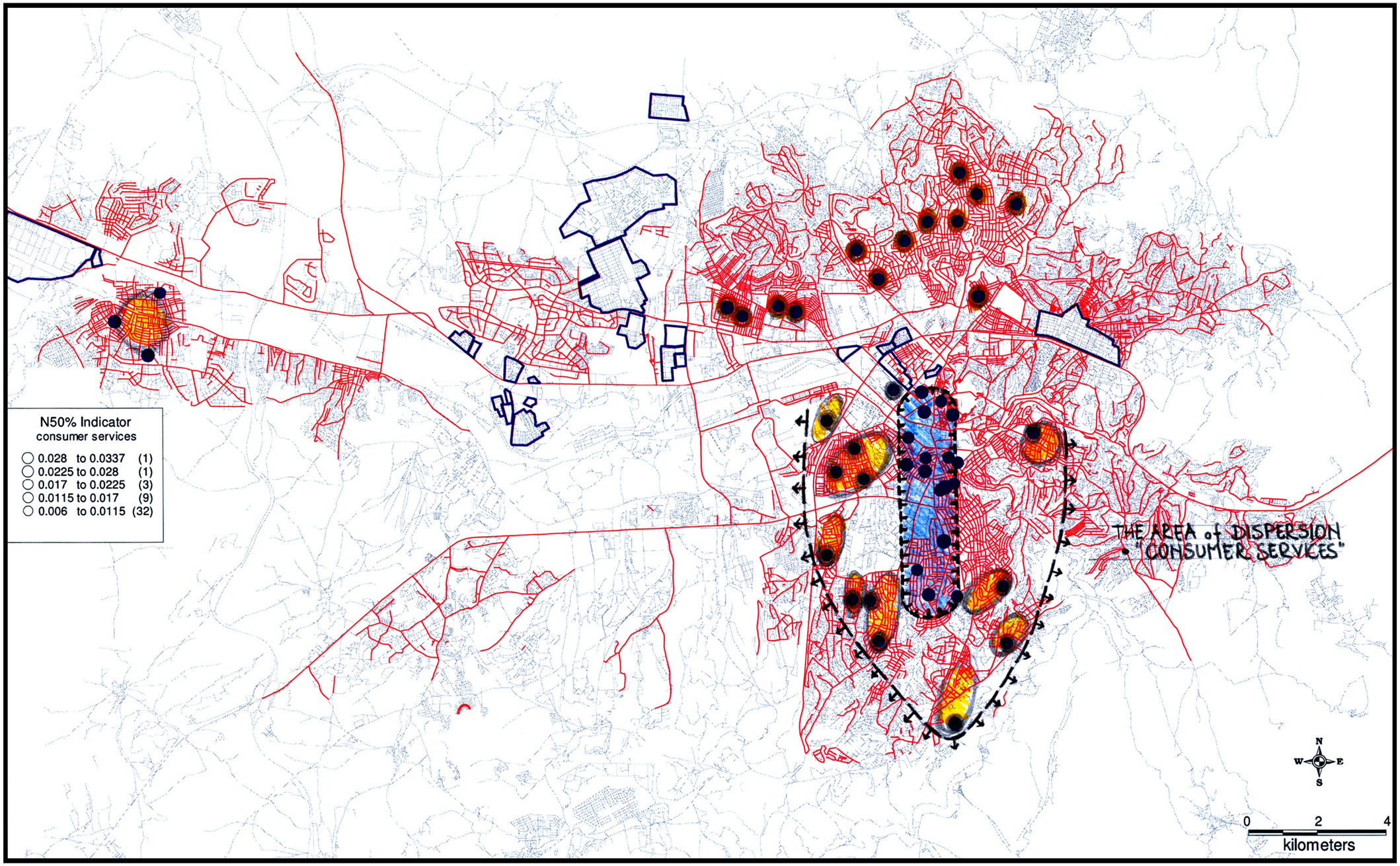

Figure 4.11: The Concentration of Consumer Services

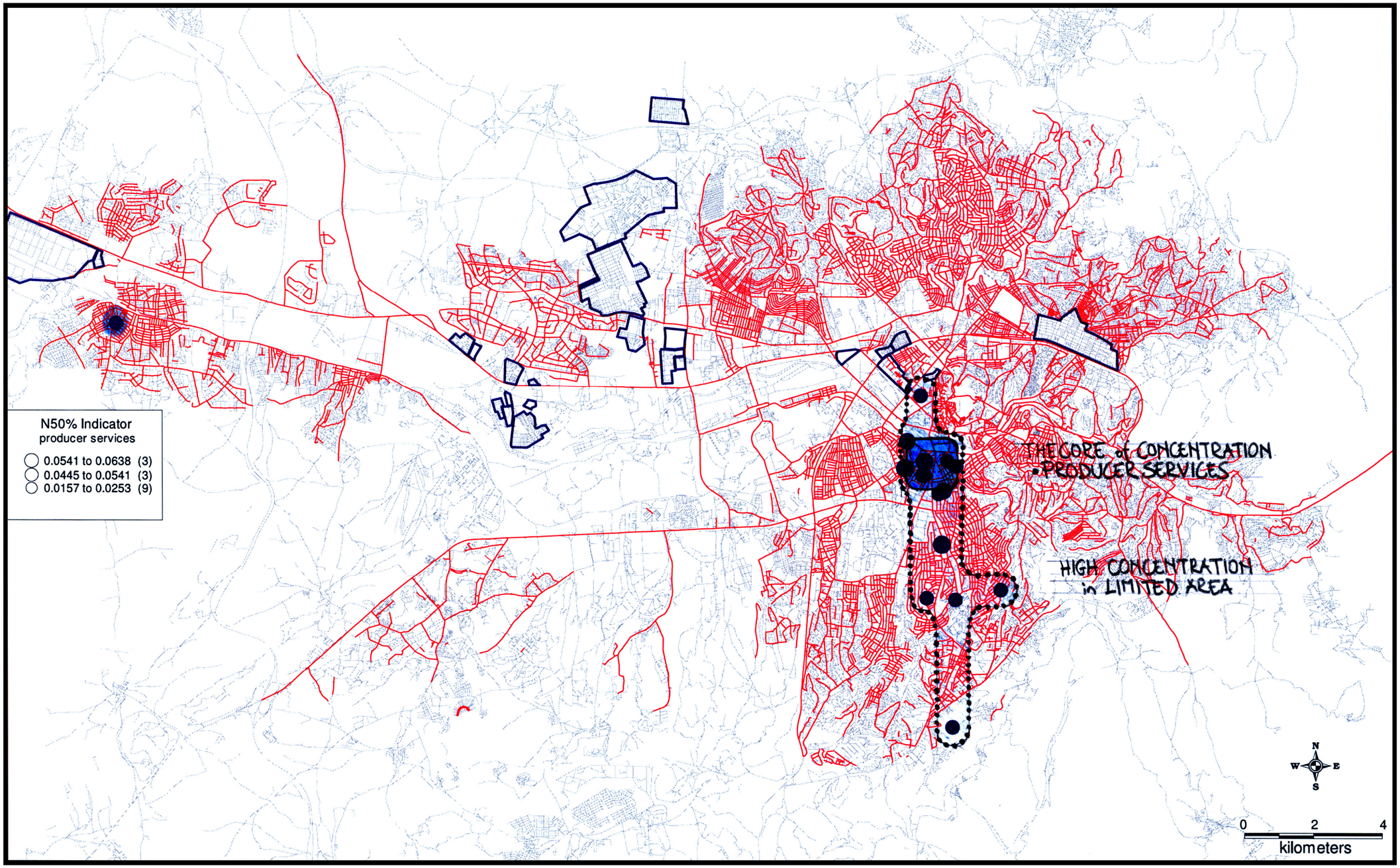

Figure 4.12: The Concentration of Producer Services

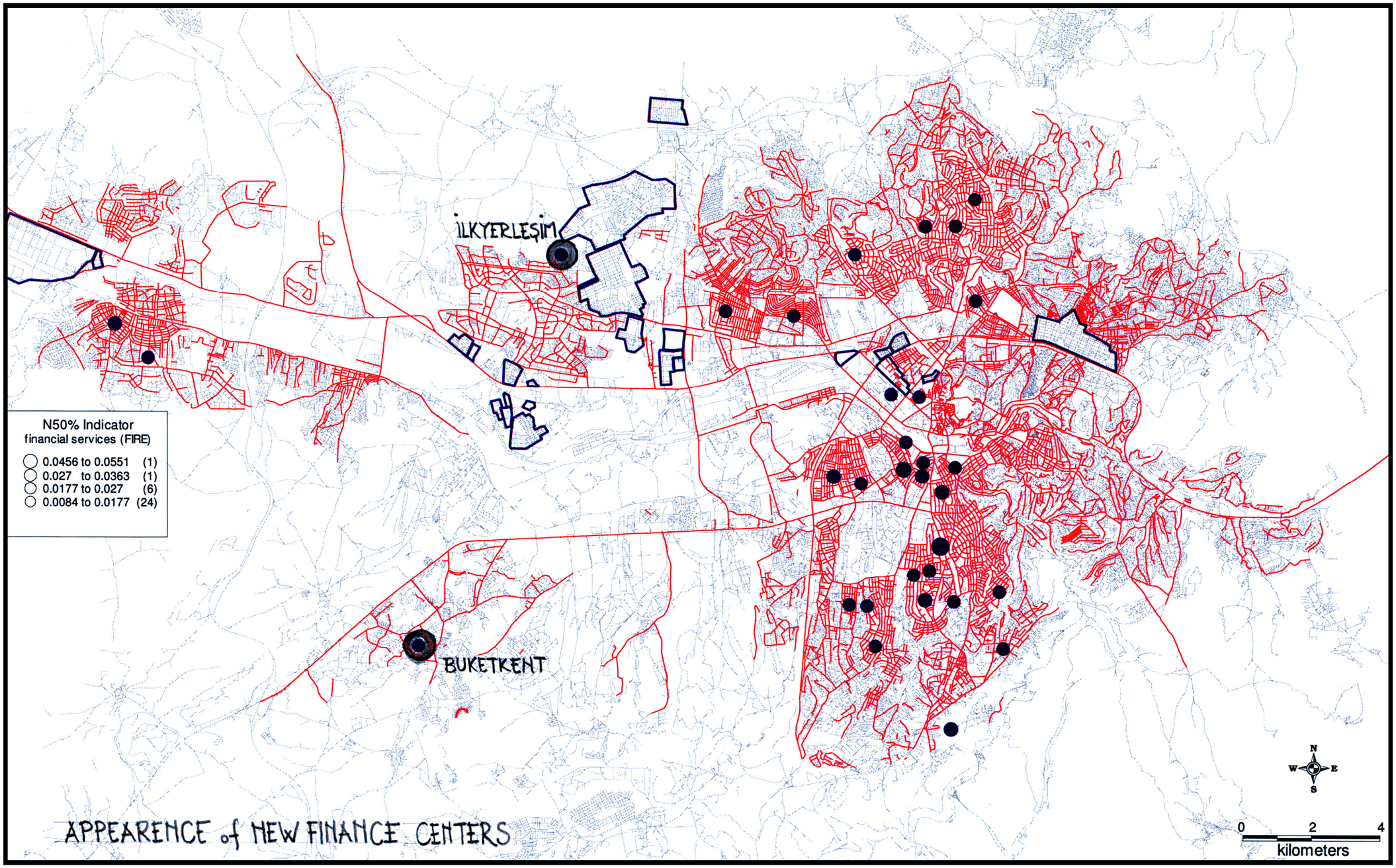

Figure 4.13: The Concentration of Financial Services

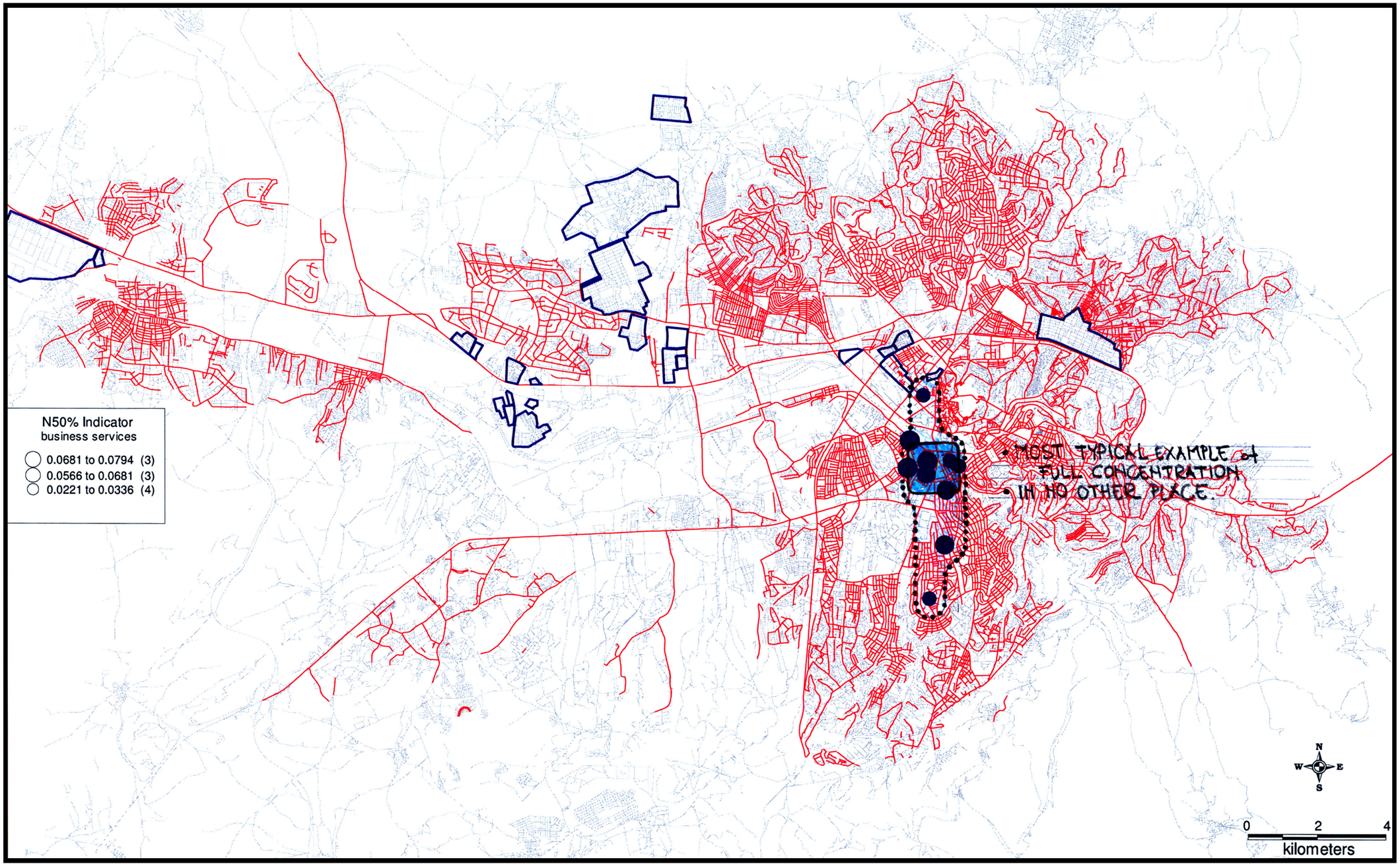

Figure 4.14: The Concentration of Business Services

4.2.1.2. The Patterns of Dispersion for Economic Activities

The detection of the patterns of dispersion is also important for understanding the spatial organization of service activities. The existence of dispersion does not usually create a physical difference on the spatial organization of business activities, especially in the case of deconcentration; yet, it influences the activity compositions of the functional parts of the spatial organizations. The results of the dispersion analysis and its visualization are given in the table 4.8.

Table 4.8: The Dispersion Indicators

Attributes: The Content of Dispersion	The Reference Map	Total Area of Dispersion of Last 10 Percent (ha)	Dispersion Indicator
All Firms (industrial and wholesaling sites included)	Figure 4.9	30.014	0,54
All Firms (industrial and wholesaling sites excluded)	Figure 4.10	31.850	0,57
Consumer Services	Figure 4.11	31.147	0,56
Producer Services	Figure 4.12	29.127	0,52
Financial Services	Figure 4.13	21.926	0,39
Business Services	Figure 4.14	11.519	0,21

The dispersion indicators, in general, can be considered quite high to a certain extent. The last 10 percent of all firms disperses to the half of the Ankara, which points out the fact that scatteration is an inevitable reality for the city of Ankara (figure 4.15a).

When the industrial and wholesaling sites are excluded from the analysis, indicator becomes much higher, which means that the last 10 percent of firms begin to disperse to a much wider area. This fact supports the idea that the industrial sites seem as important economic activity concentration centers. The number of firms is reasonably high in these sites; yet, they are usually non-service activities (figure 4.15b).

The dispersion indicator of consumer services is almost the same with the all firms outside the industrial and wholesaling sites. This means that their patterns of dispersion of consumer services are quite similar. It is not surprising because of the high number of consumer services, which dominates the overall service distributions (figure 4.15c).

The most interesting result is related to producer services. Although half of the producer services are concentrated in a relatively small central area, the last 10 percent of them reasonably dispersed to the whole surface of Ankara (figure 4.15d).
The value of dispersion indicator is relatively small for financial services. It is relatively easy to assess through a concurrent evaluation considering concentration and dispersion analysis that financial services in Ankara displays a spatial pattern of structured dispersion in Ankara case. This means that the financial services tend to cluster in the dispersed concentration nodes (figure 4.15e).

Business services have the lowest value in these analyses. This means that they do not tend to disperse as the literature states (figure 4.15f) (Airoldi et. al., 1997).

Figure 4.15a: The Dispersion Map of All Firms
(industrial and wholesaling sites included)

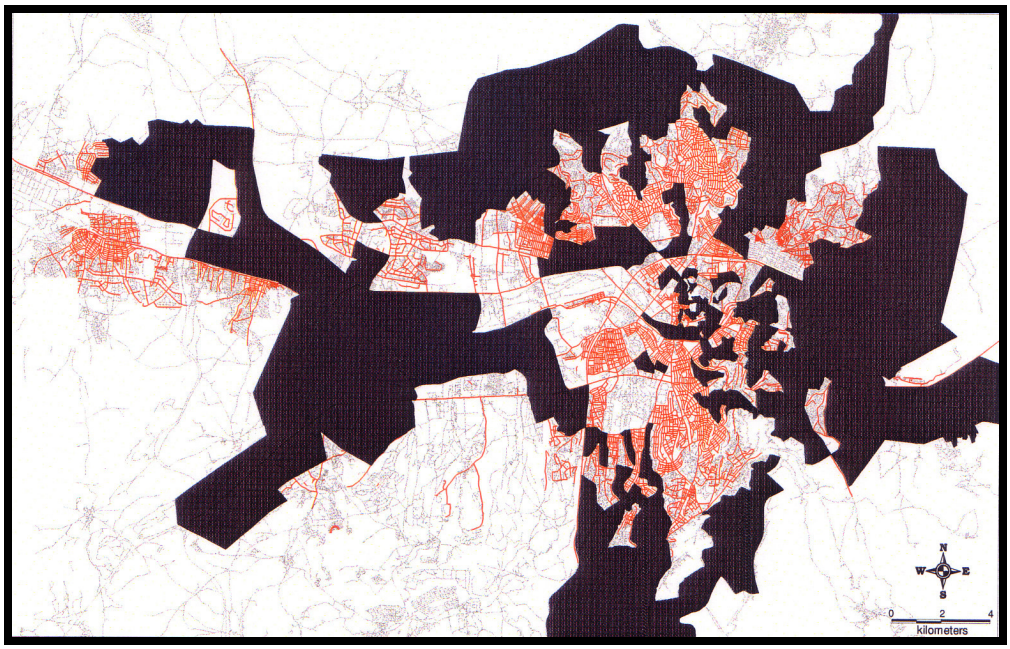

Figure 4.15b: The Dispersion Map of All Firms
(industrial and wholesaling sites excluded)

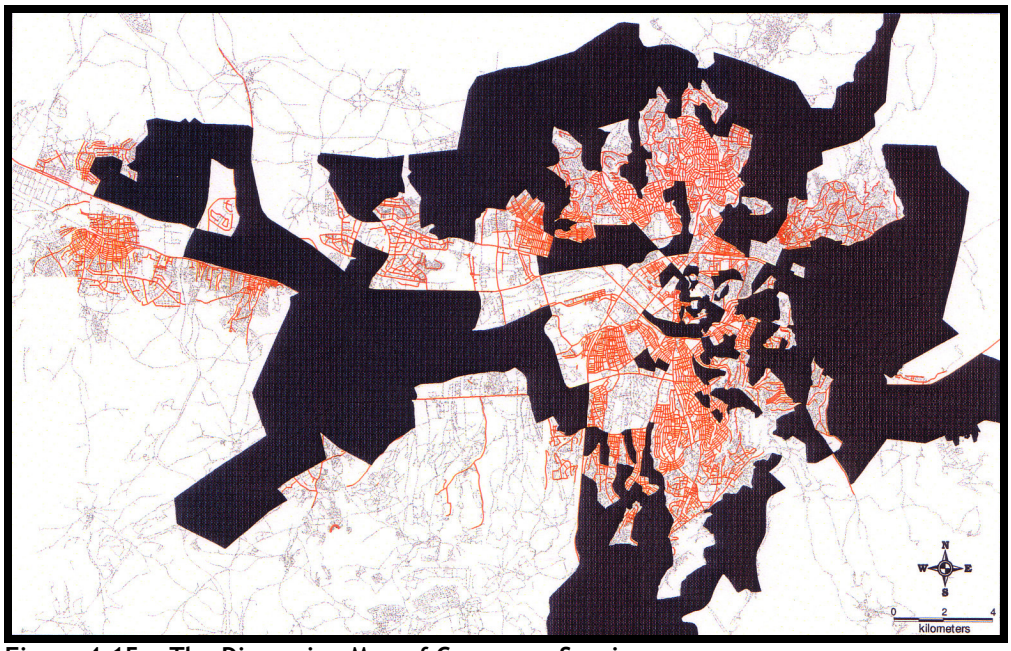

Figure 4.15c: The Dispersion Map of Consumer Services
(industrial and wholesaling sites excluded)

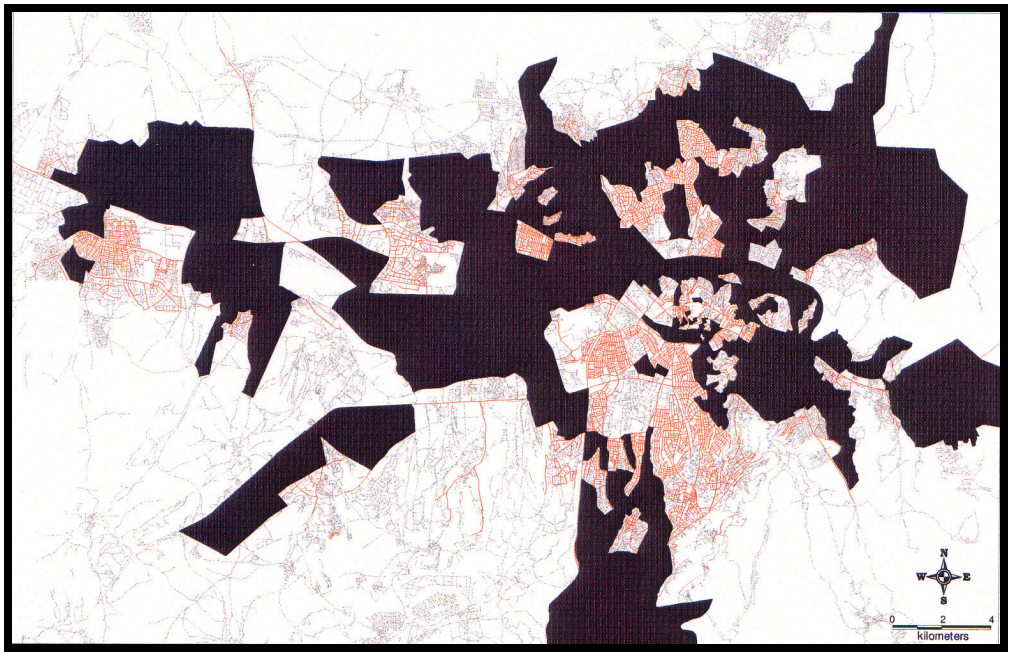

Figure 4.15d: The Dispersion Map of Producer Services
(industrial and wholesaling sites excluded)

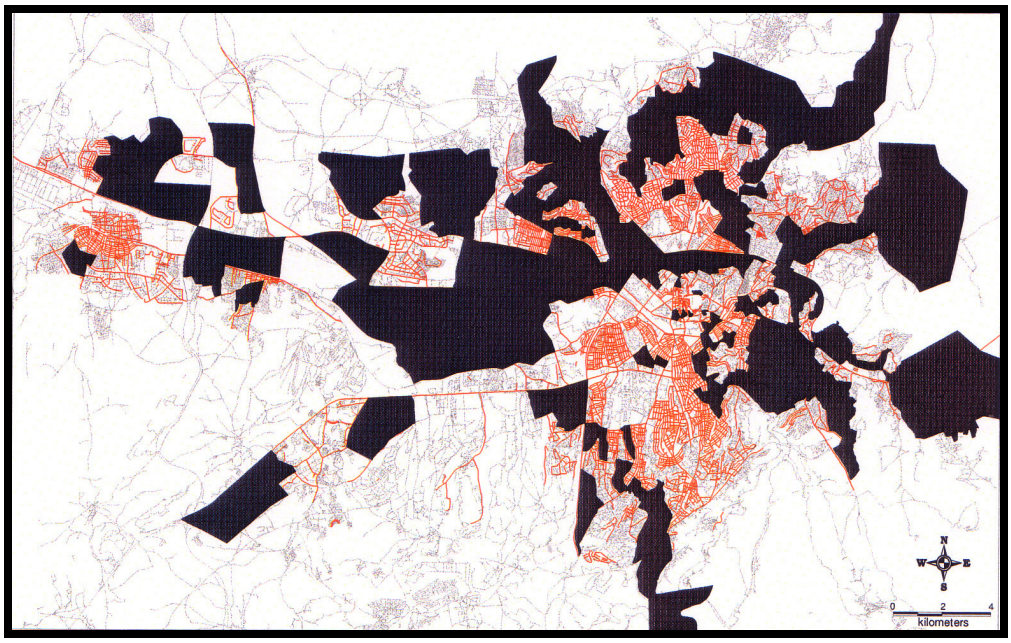

Figure 4.15e: The Dispersion Map of Financial Services
(industrial and wholesaling sites excluded)

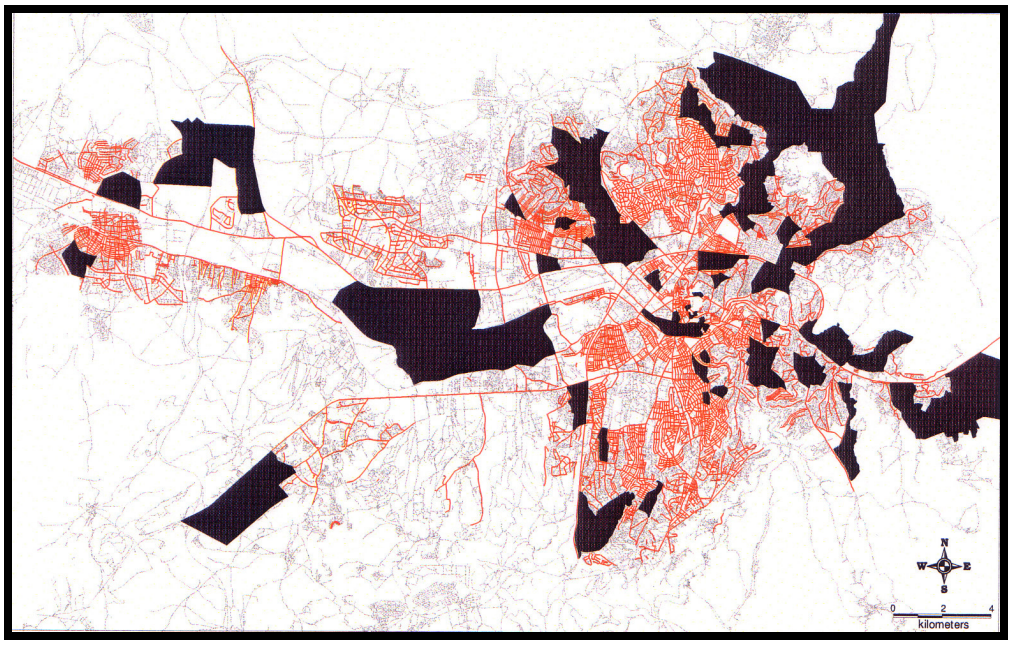

Figure 4.15f: The Dispersion Map of Business Services
(industrial and wholesaling sites excluded)

4.2.1.3. The Concept of Density for Economic Activity

The maps produced with concentration and dispersion indicators are helpful to understand the overall spatial patterns of economic activities. However, the only variable by forming these indicators is the absolute number of economic activities within the spatial units. This is a limited consideration to a certain extent. The limitation basically emerges with the ignorance of variation in sizes of spatial units. The variation in sizes of spatial units may point out different densities. Two streets that contain the same number of economic activities indicate two different densities with reference to the length of those streets. However, the concentration indicator assumes as if all the spatial units, namely districts or streets, are single points, more truly, centroids. For this reason, the density concept could not be handled in the analysis of concentration patterns of economic activities, the result of which creates distortions in scientific representation.

The overall service density[15] is presented in figure 4.16. With reference to this overall density map, Ulus and Kızılay appear as the significant nodes in which the densities of service activities are extremely high. In these nodes, there are streets on which there are up to 168 service firms per 100 meters.

The other distinctive aspect of this map is the sprawl of firms' density towards the south direction. There are streets in and around Dikmen, Balgat and Çukurambar districts, which do have high service densities as much as observed on the streets of central zones.

The map in figure 4.17 describes the densities of consumer services by considering variation in length of streets[16]. Similar to the previous map, the densest areas of consumer services are Ulus and Kızılay. These areas have an average of 55 consumer firms per 100 meter. However, this consumer service density is sprawled towards the southern direction, especially along Atatürk Boulevard, GOP, Tunalı Hilmi, Esat and Olgunlar streets. In these streets, there are 3.181 firms, which mean 34 consumer firms per 100 meters. When the physical distance between these streets are considered, it can be asserted that there appears a new node of consumer services in the southern part of Ankara, although it is not so powerful as the above-mentioned other nodes.

[15] It is obtained through dividing number of services on street i by length of street i.
[16] It is obtained through dividing number of consumer services on street i by length of street i.

Within the figure 4.18, the same density analysis is made for producer services[17]. The density patterns of producer services are like the ones of consumer services when the streets with lower densities are considered. However, different from the previous map, Kızılay seems exclusively as the densest area of producer services. It exceeds Ulus' position in the producer densities. There are 17 streets in Kızılay, namely Toros, Fevzi Çakmak, Menekşe, Şehit Adem Yavuz, İzmir, Necatibey, Selanik, Bayındır, İnkılap, Cihan, Hanımeli, İlkiz, Lale, Sezenler, Yeşilırmak, Strazburg and Konur streets, containing significant producer service densities. The total length of these streets is approximately 8,9 km. and they contain 3.702 producer services, which mean 42 producer services per 100 meters. Ulus' position is weakening when the producer services are concerned; yet, it still seems as a second node for producer services. The main street in Ulus that carries the producer services is Rüzgarlı Street and small streets perpendicularly connected to it.

The definition of the density with reference to geographical attributes, as length in the performed analysis, may also be sometimes misleading, because it ignores the existence of non-economic activities on the spatial units. Streets, however, could not be conceptualized as if their only components are economic activities. The street may be short, and the number of economic activities may be extremely high. However, for example, if residential units are more than the economic activities, then it becomes difficult to conceptualize that street as a powerful part of the spatial organization in the activity system. Thus, in order to achieve a proper assessment of densities, the functional character of the streets has to be considered which can be extracted through the analyses of the relative proportions of work units, residential units or the units of public institutions. This way of calculation of densities can be labeled as the functional densities, and it is like the central business index of morphological approach.

The map in figure 4.19 shows the main functional density zones of work units. These densities are extracted from the proportions of work units within the street profiles. The industrial and wholesaling sites are excluded from the analysis, because it is clear that they are composed of work units only.

[17] It is obtained through dividing number of producer services on street i by length of street i.

According to this map, Ulus and Kızılay are the most dense work unit zones. There are many streets in these regions having higher proportions of work units (more than 75 percent, or at least 50 percent). Another significant result of this map is the placement of work unit densities towards the south end of Ankara along the Atatürk Boulevard. This area approximately overlaps with the business service concentration area defined in figure 4.14. Moreover, there are work unit dense streets in Öveçler, Balgat, Çukurambar and Maltepe districts. However, they are not concentrated as it is observed in central zones.

In the northern part of city, there emerge three important results to be mentioned:

1. Sincan, which presents both consumer and producer service concentrations, contains also work unit densities. It has a center dominated by work units, and with these characteristics, this center goes beyond a sub center. The same tendencies are also valid for Etimesgut and Yenimahalle with lower densities.

2. There are streets surrounding Siteler, Ostim, İvedik and OSB industrial sites, and GIMAT wholesaling sites with higher work unit densities. These streets contain mainly manufacturing and wholesaling activities same as the nearby sites. This condition is especially valid for Siteler, around which there is no clear boundary of the industrial sites.

3. A special condition arises for Batıkent region. There are many work unit dense streets in Batıkent. However, they are short and dispersed in the area (figure 4.20). In this context, it is impossible to mention a concentration pattern of work unit densities for Batıkent.

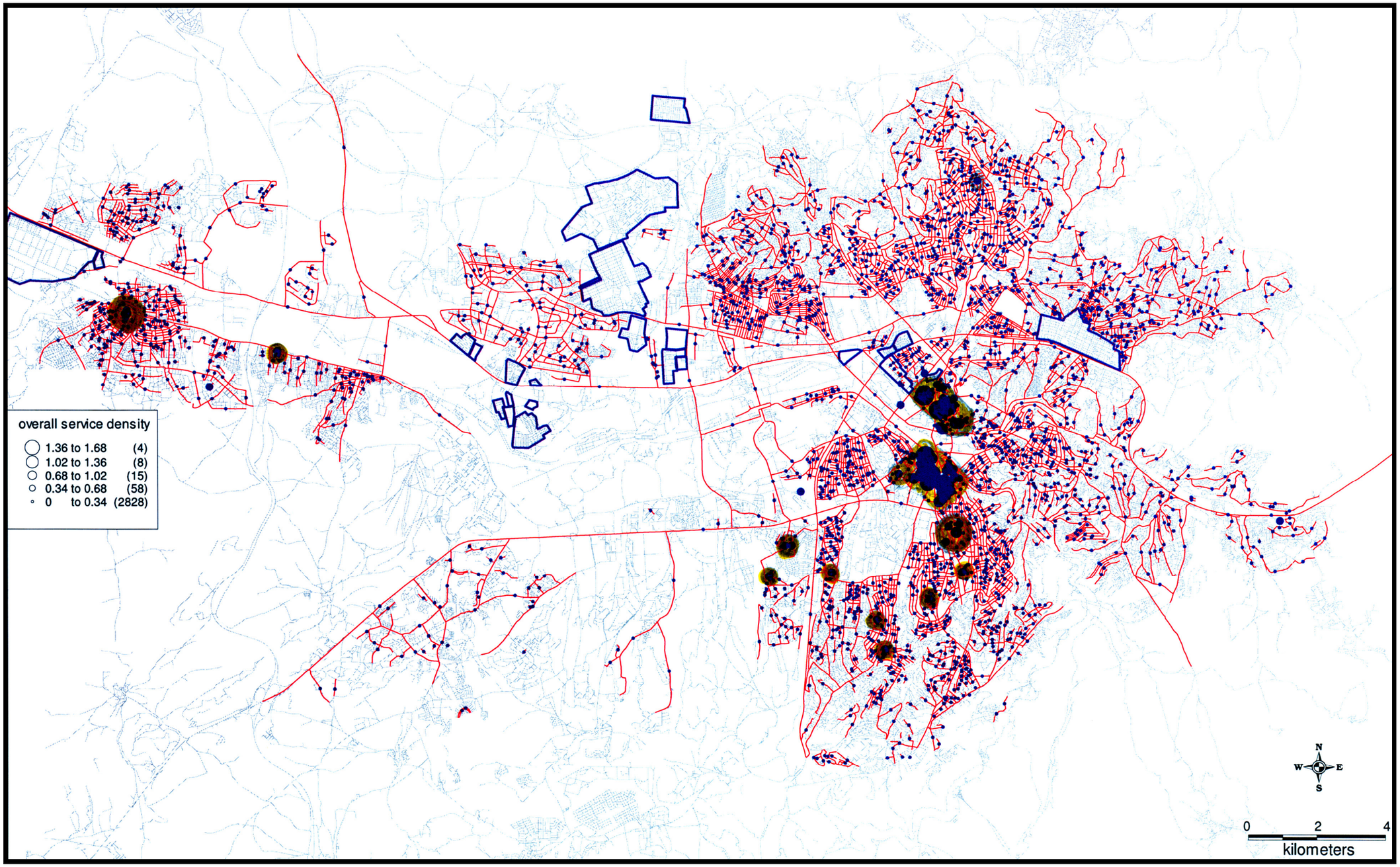

Figure 4.16: Overall Service Density (service firms per meter)

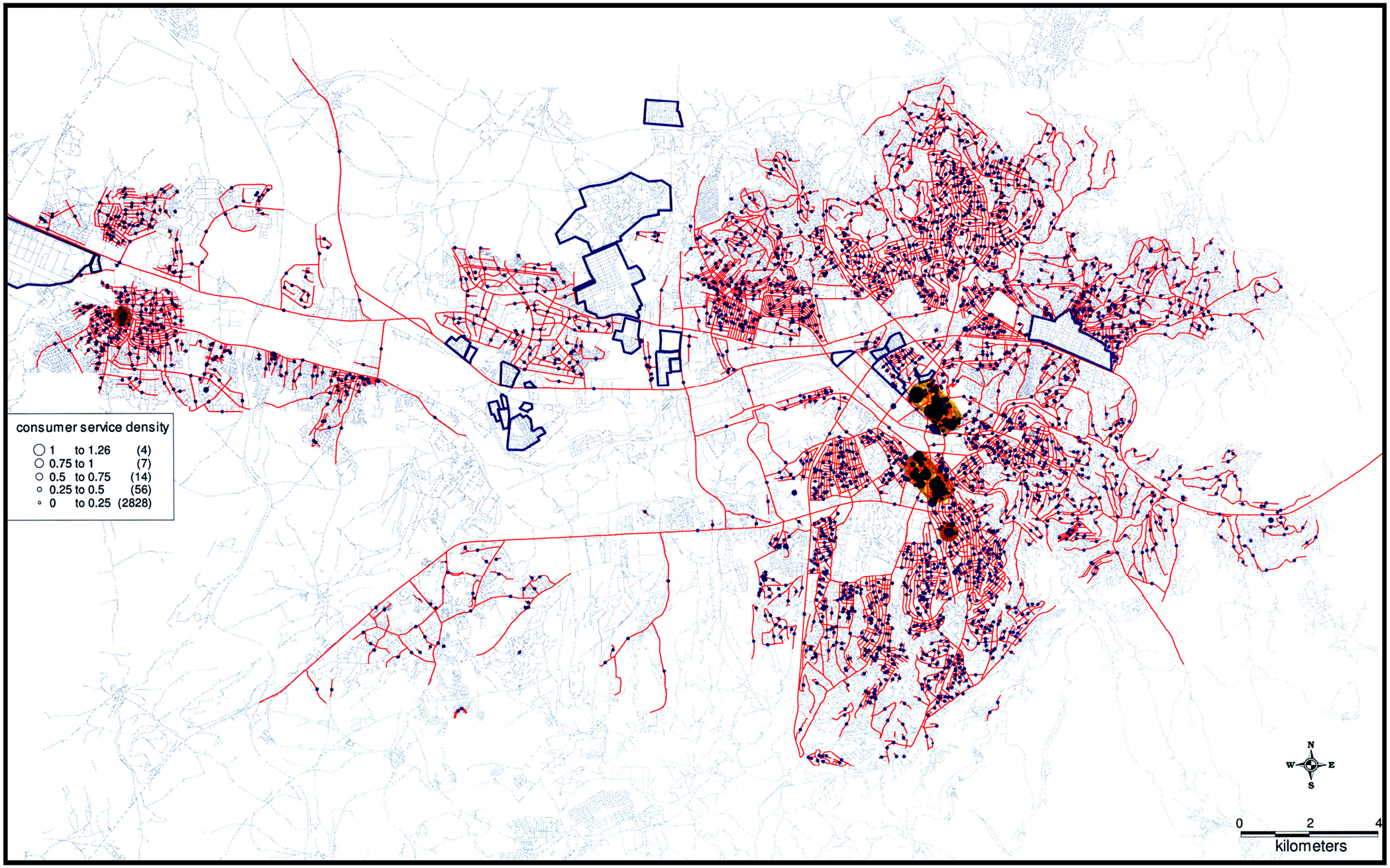

Figure 4.17: Consumer Services Density (consumer service firms per meter)

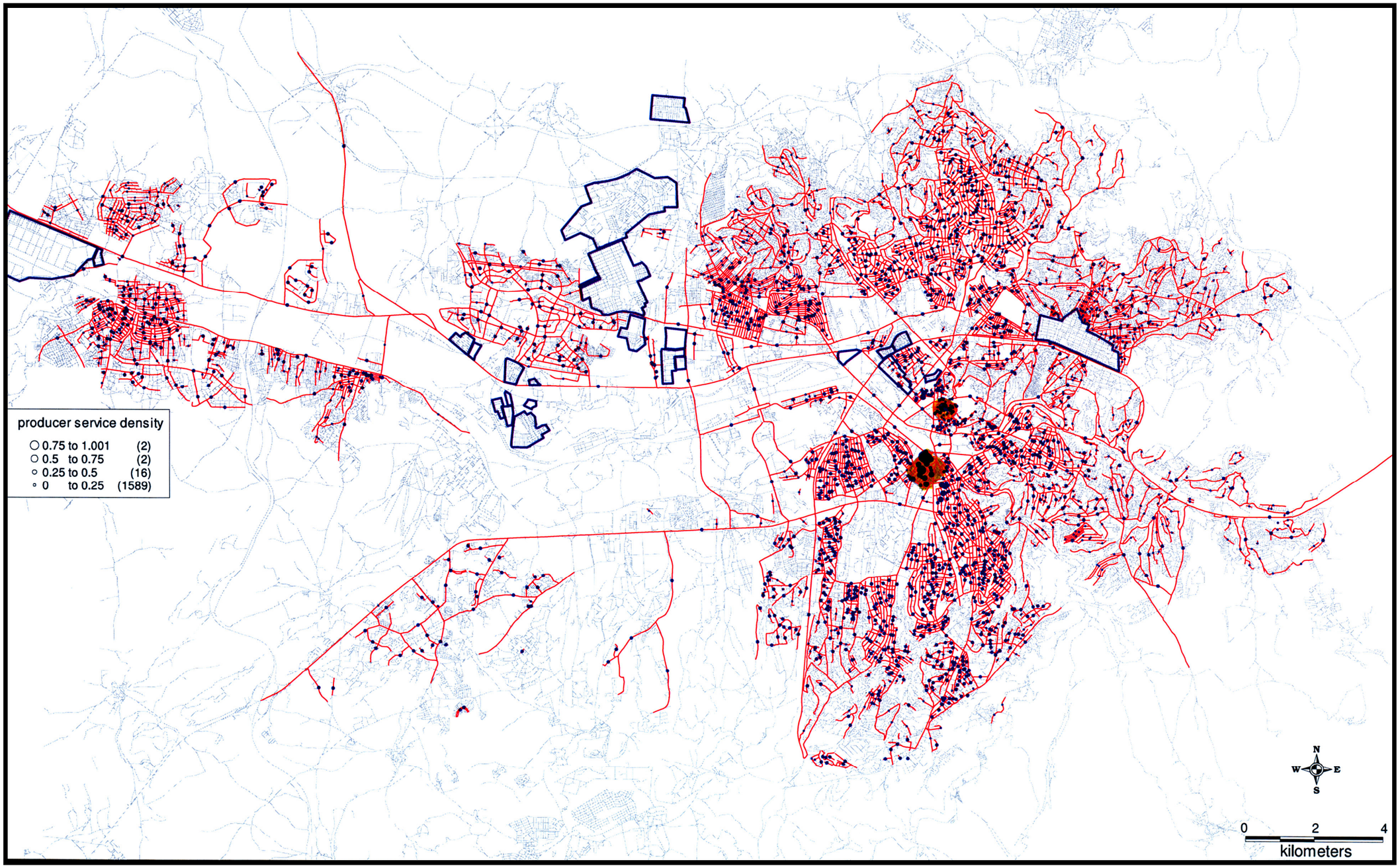

Figure 4.18: Producer Services Density (producer service firms per meter)

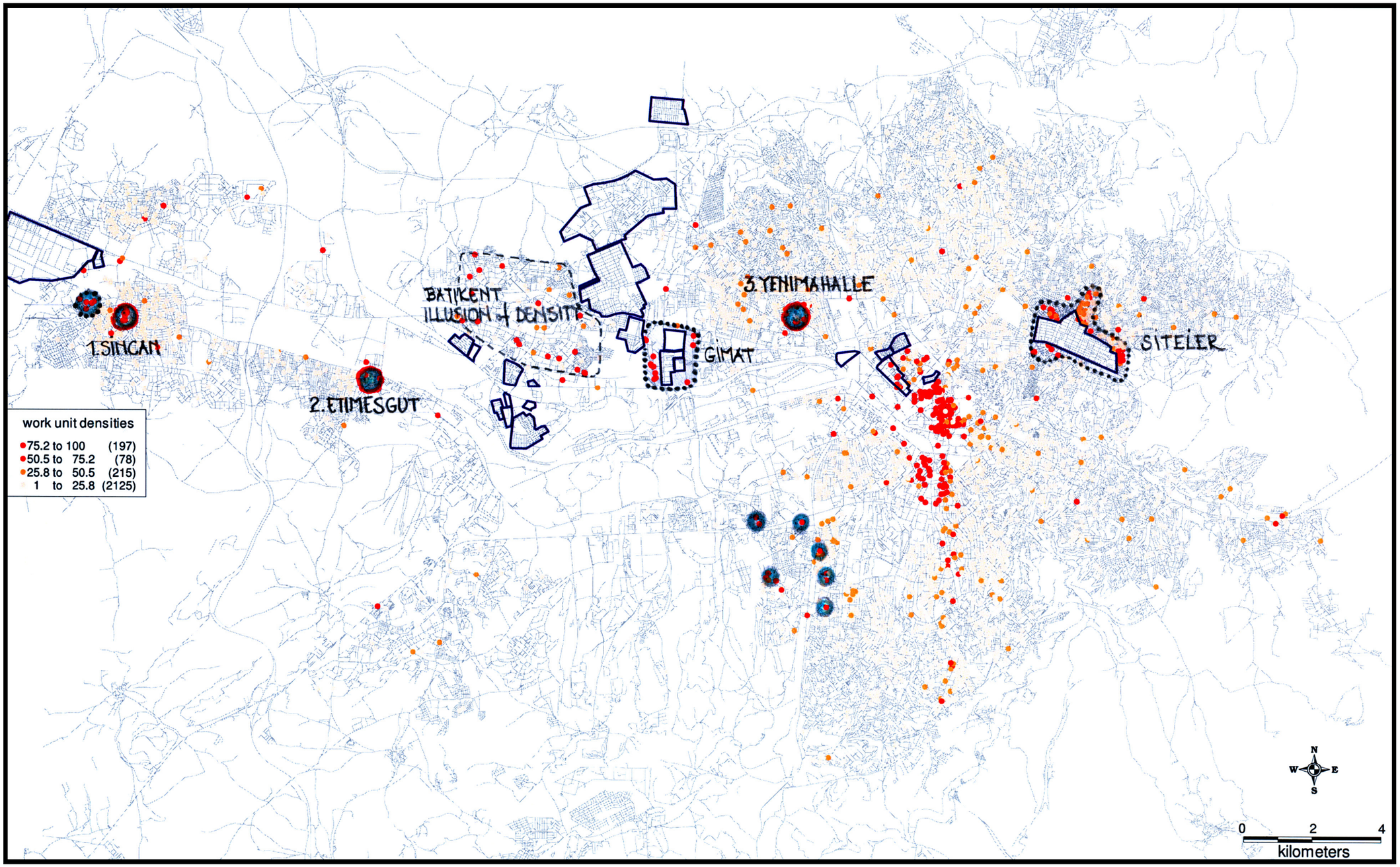

Figure 4.19: The Percentages of Work Units on the Street Profiles

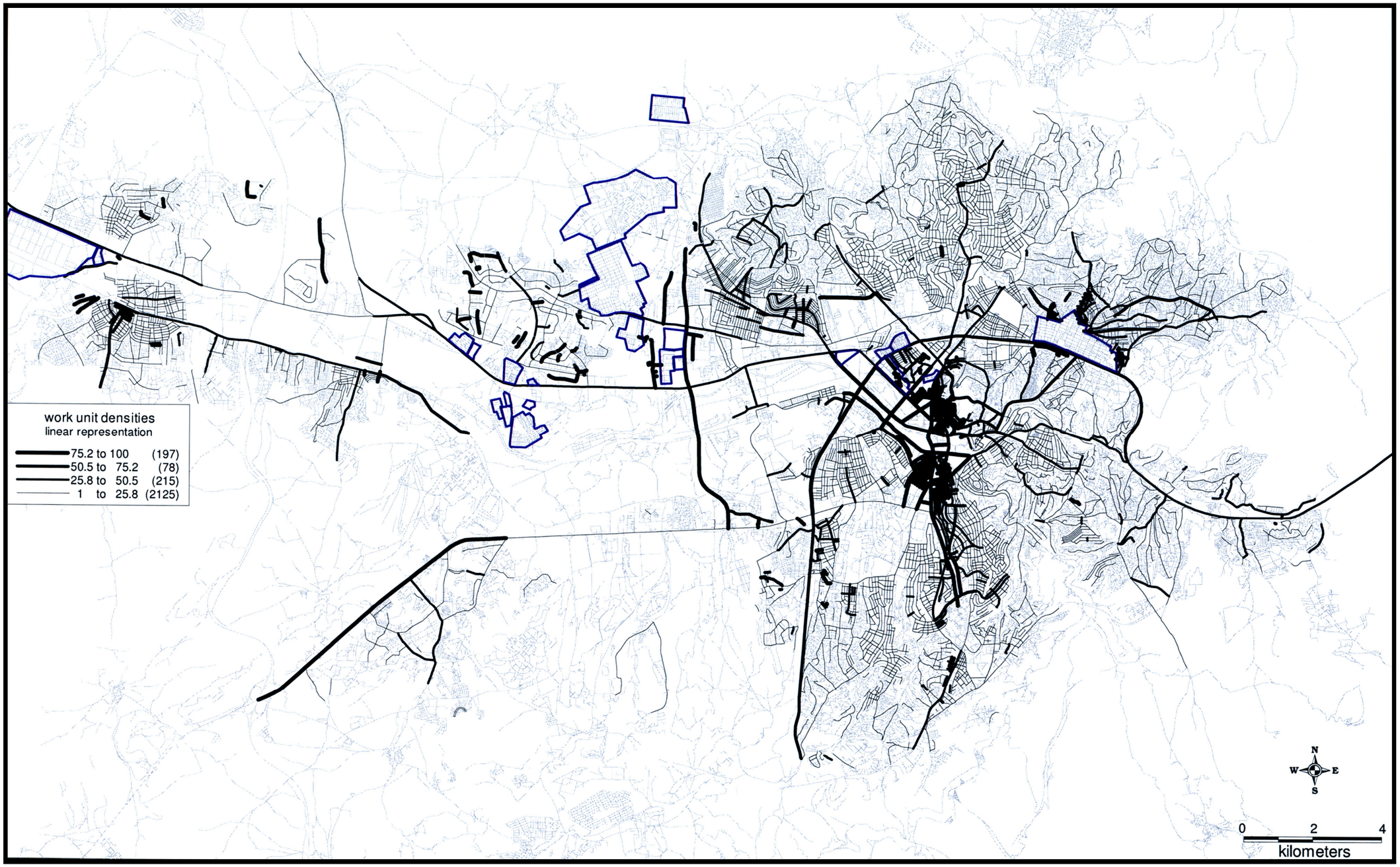

Figure 4.20: The Linear Representation of Work Unit Densities

4.2.1.4. The Concentration of Service Employment

The concentration of employment is also measurable with the available databases. The limitation of the employment data is that it cannot be evaluated with reference to economic activity categories. The only way of detailing data is differentiating them according to their locations.

Therefore, the analysis of the concentration of employment includes two steps:

1. Description of the employment located in the industrial and wholesaling sites.

2. Detection of the concentration of the employment outside the industrial and wholesaling sites.

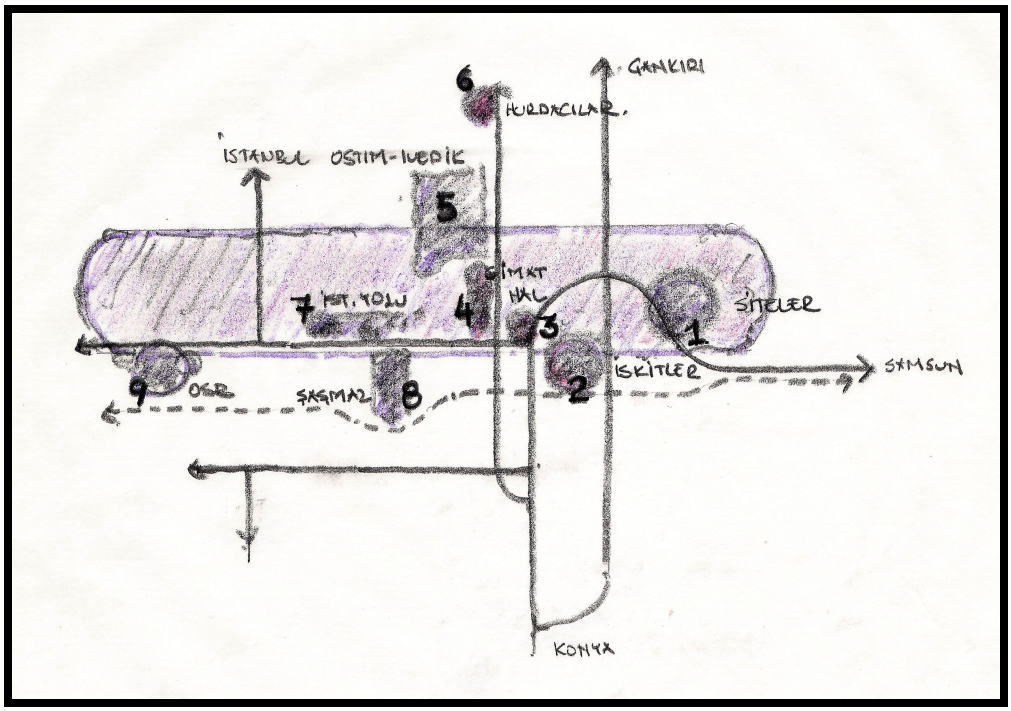

Figure 4.21: The Location of Industrial and Wholesaling Sites

All kinds of industrial and wholesaling sites are located in the northern part of Ankara (figure 4.21). In fact, they build a linear region along the main arteries, İstanbul road and Samsun road. This region can be spatially defined with Siteler industrial site at the east end, Ostim-İvedik industrial sites at the center and OSB at the west end.

With reference to location of these sites, this region can be divided into 9 zones (table 4.9). There are 22.341 firms and 82.132 employees within these 9 zones. However, with the 35.000 additional employees within the region drawn in figure 4.21, the region contains 20 percent of all employees in Ankara.

Table 4.9: The Quantitative Information about the Number of Firms and Employment in "Zones"

	NAME	CONTENT	FIRMS	EMPLOYMENT
Zone 1	Siteler	Siteler Sanayi Sitesi	**9.379**	**23.760**
Zone 2	İskitler	Büyük Sanayi Sitesi Demir Sanayi Sitesi Yeni Sanayi Sitesi Ata Sanayi Sitesi	**2.287**	**6.488**
Zone 3	Hal	Yeni Hal	**259**	**963**
Zone 4	Gimat	Gimat Toptancılar Sitesi ATB (Ankara Ticaret Borsası) Özankara Toptancılar Sitesi	**900**	**6.502**
Zone 5	Ostim-İvedik	İvedik Sanayi Sitesi Ostim Sanayi Sitesi ATİSAN Yıldız Sanayi Sitesi	**6.107**	**25.623**
Zone 6	Hurdacılar	Hurdacılar Sitesi	**170**	**283**
Zone 7	İstanbul Yolu	Gersan Sanayi Sitesi Başkent Sanayi Sitesi Yıldırımlar Sanayi Sitesi Başkent Galericiler Sitesi	**596**	**2.973**
Zone 8	Şaşmaz	Birlik Sanayi Sitesi Dökmeciler Sanayi Sitesi Yeşilçam Sanayi Sitesi Otosansit Nakliyeciler Sitesi	**1.701**	**5.063**
Zone 9	OSB	Ankara 1. Organize Sanayi Bölgesi Dökümcüler Sitesi	**942**	**10.477**
TOTAL			**22.341**	**82.132**

It is difficult to claim that all the manufacturing activities are decentralized in Ankara. The basic factor weakening this proposition is Siteler industrial site defined as Zone 1 in table 4.9. It has 9.379 firms at which 23.760 people work. It is located at almost 4 km. far to the main concentration zone defined in figure 4.9. In the case of residential sprawl with a radius of 30 km., the fact that Siteler is not decentralized is undeniable. The other important zones are Zone 5, namely Ostim-İvedik Zone with 6.107 firms and 25.623 employees; and Zone 9, namely OSB zone with 942 firms and 10.477 employees.

After the employments in the mentioned zones are excluded, it is not so misleading to assert that the remaining proportion of employment (80 percent of all employment) is associated mainly with the service activities, and the spatial distribution of this proportion of employment can be assessed as the one of service employments.

The above-mentioned employment is mainly concentrated within a narrow band (figure 4.22). This narrow band overlaps with the main concentration area of economic activities from Ulus to Çankaya Region. This means that 44 percent of employments are located where 24 percent of firms are concentrated. With reference to the employment concentration analysis together with the economic activity concentrations, it can be said that the city of Ankara still continues a monocentric character, not only with reference to the number of firms, but also with reference to the number of employments.

However, as claimed before, the data aggregation at the district level may prevent proper description of the existing reality, because the administrative boundaries of districts do not cover the functionalities of the cities (Krätke, 2000).

A spatial analysis at the street level, which may be called as a *fine-tuning* operation on the results of analysis performed at district level, may change the structured dispersion into a scatteration or the full concentration into a spatial illusion. However, the figure 4.23 displays that the concentration area of employment in the central zone also replicate itself at the street level.

The employment concentrations outside the main concentration area of services point out to long streets. Because the map in figure 4.23 is produced with reference to centroids, the length of the streets does not affect the result of analysis.

However, long streets are expected to have higher possibility to include more employment than short streets. Therefore, although this map provide a reliable picture for employment concentrations, another map (figure 4.24) is produced with “number of employment/distance of streets” instead of “absolute number of employment” in order to eliminate the possible representational distortions due to the geographical variations.

Within this map, the area of employment concentration overlaps with the main concentration area of services. However, there is an additional result, which can be drawn from this map, that Balgat and Öveçler districts have similar employment concentrations as central zones.

All of the spatial analysis of employment concentrations, whether they are performed in district level or street level, assert that Ankara can be labeled as a monocentric city with reference to service employment, as it can be observed in abstract figure 4.25.

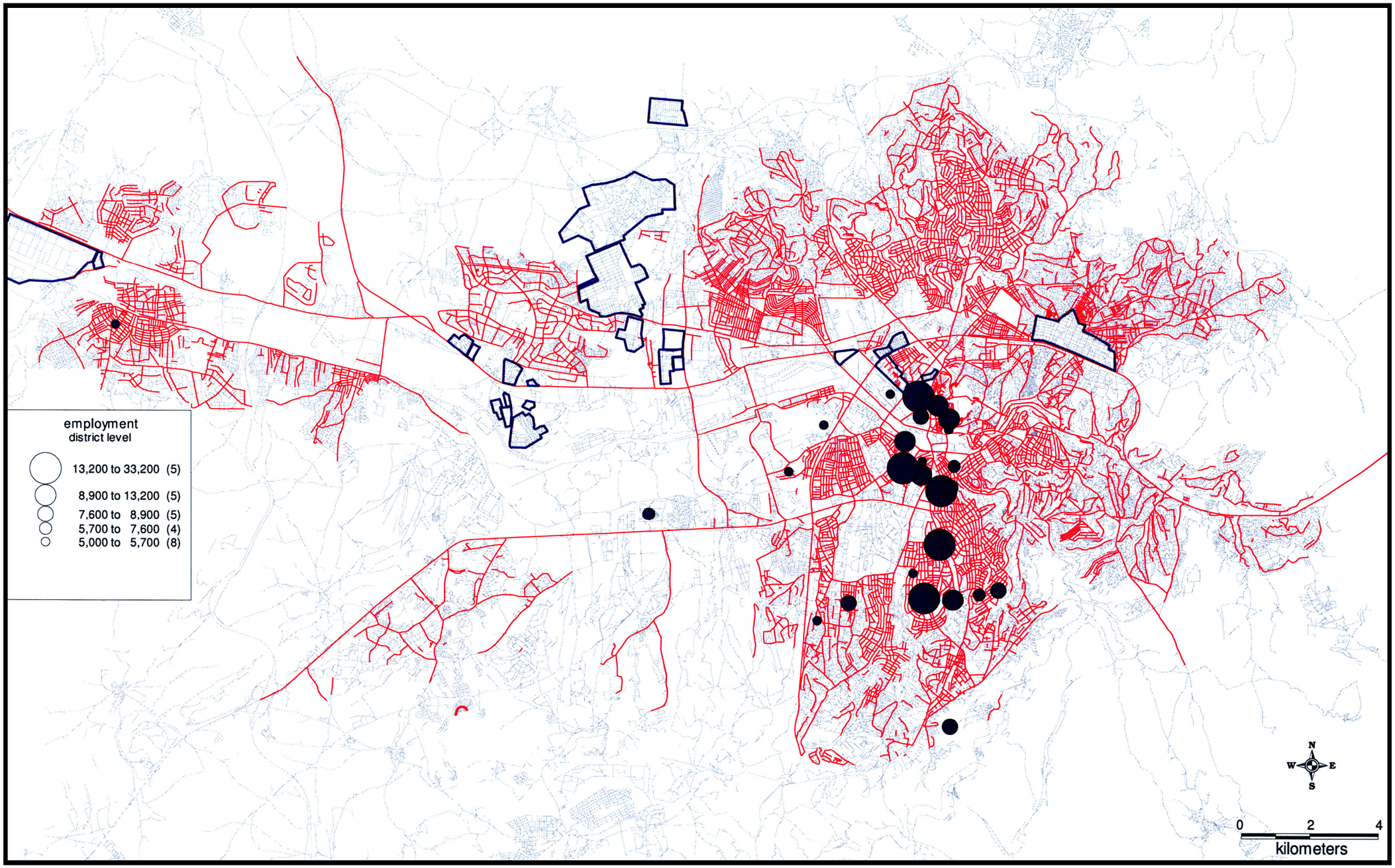

Figure 4.22: Employments outside the Industrial and Wholesaling Sites

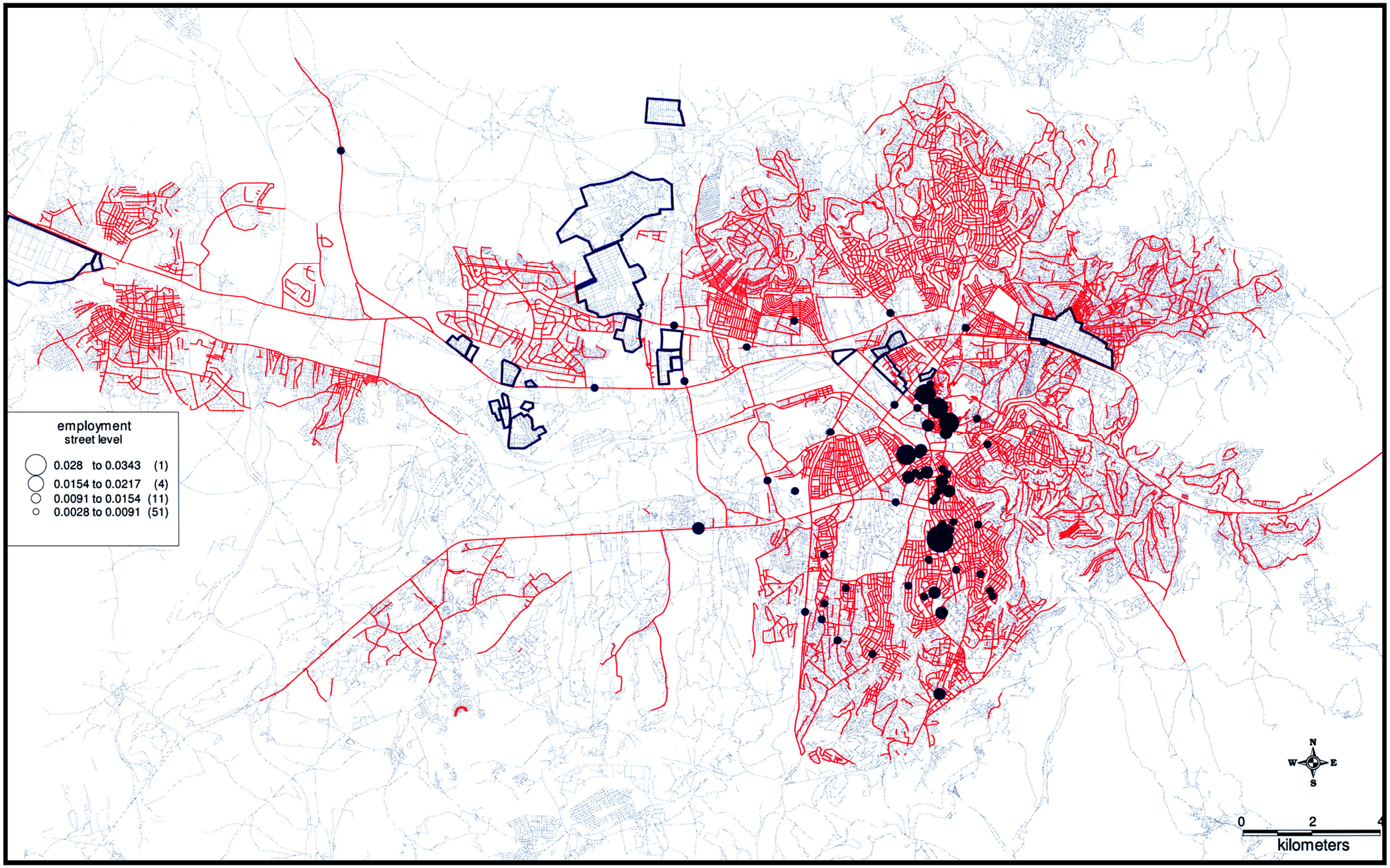

Figure 4.23: Employment Concentration I at Street Level (The indicator measuring the concentration of firms is used while producing this map)

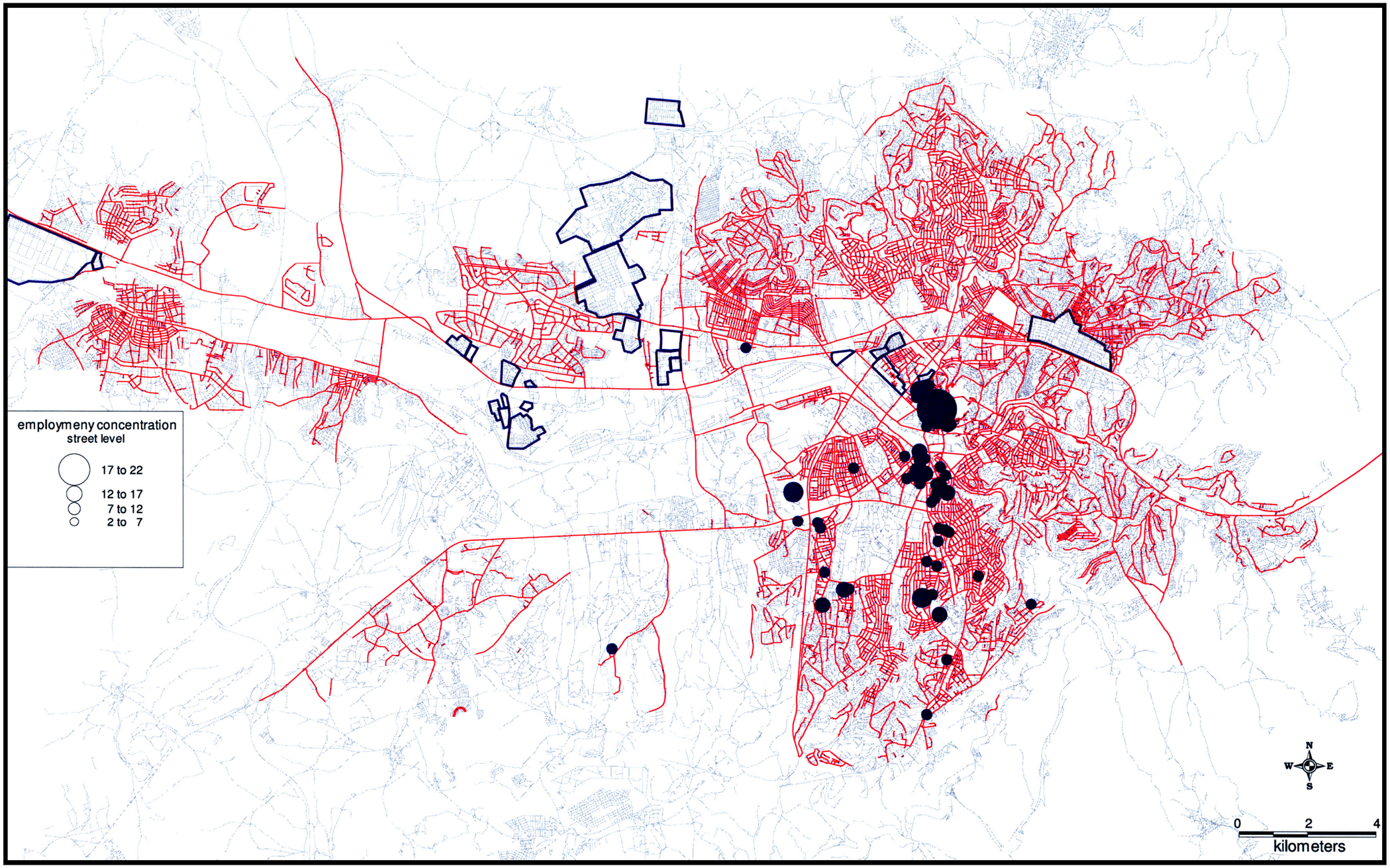

Figure 4.24: Employment Concentration II at Street Level (persons/meter - The values are obtained by dividing the total number of employment on street i to the total length of that street I)

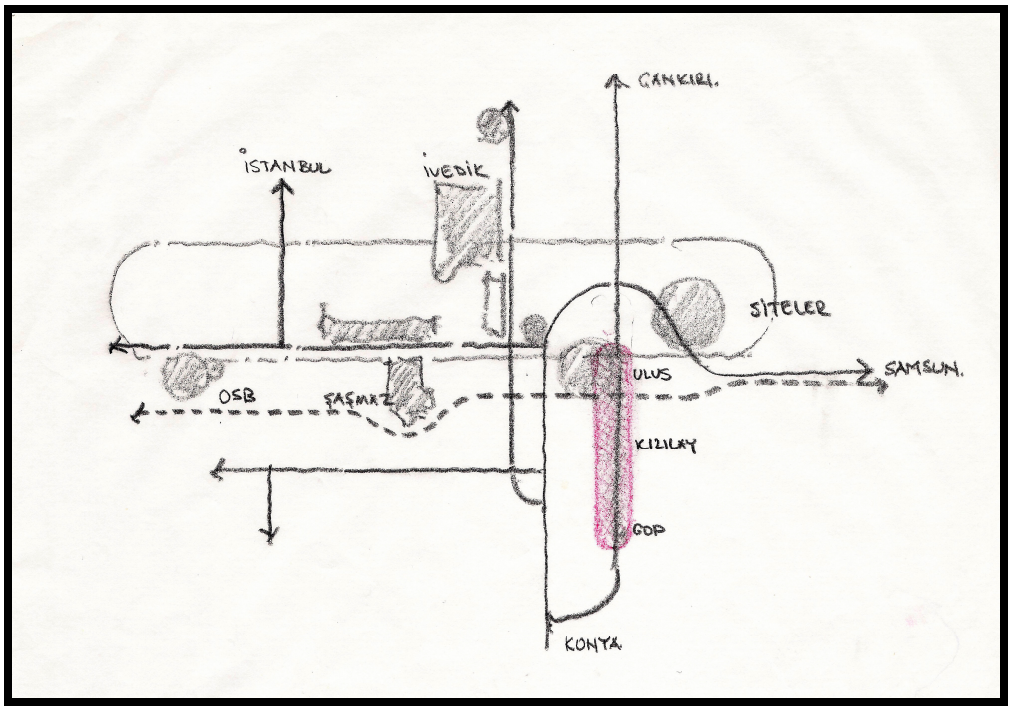

Figure 4.25: The Location of "Service Employment"

4.2.1.5. The Concentration with reference to the Types of Firms

The available data also allow analyzing the concentration of firms with reference to their types alongside to the activity categories of firms. There are six categories of firm types in the databases. These are joint-stock companies, limited companies, ordinary partnerships, cooperative enterprises and individualistic enterprises.

Most of the companies in Ankara are individualistic enterprises. There are 78.307 individualistic enterprises, which make 59 percent in the firm type composition. Limited companies also have a higher percentage (31 percent). However, other firm types are quite limited. Only, joint-stock companies have a significant percentage (4 percent) within the overall composition.

Through these types of firms, it can be understood whether a service activity produces high-order facilities or not. Because joint-stock companies in service sector are mostly interested in high-order decision-making processes, and the locations of their concentration refer to locations of concentration of high-order services.

It is not possible, however, to use the concentration indicator (N50%) due to the multivariate character of the data. Therefore, in order to detect the spatial patterning of concentration of the firm types, the procedure explained in chapter 3 is used. At the core of this part of the analyses, there are correspondence analysis and cluster analysis, both of which can be labeled as descriptive relational techniques (Greenacre, 1993; Greenacre, 1994).

The steps of the analysis are as below:

1. Performing the correspondence analysis by using districts as spatial units and firm types as attributes.
2. Clustering the coordinates of spatial units of correspondence map hierarchically in order to determine the groups of districts with reference to their similar associations with the firm types[18] .
3. Recoding of spatial units with reference to groups of districts.
4. Performing the second correspondence analysis by using the groups of districts and firm types of groups in order to detect the associations between groups of districts and the firm types.
5. Clustering the coordinates of both groups of districts and firm types of this second correspondence map, which determine the legend categories[19].
6. Mapping the groups of districts with reference to corresponding firm types or groups of firm types within a GIS environment.

The figure 4.26 is produced through the use of above-stated procedure. The spatial units are districts and the attributes are firm types. It can be traced from this map that the joint-stock companies are concentrated in the districts within the southern part of the city. These are namely Büyükesat, Çankaya, Aziziye, GOP, Güzeltepe, Kazım Özalp and Yüzüncüyıl districts. This area, which forms the south end of firm concentration area, contains 18,5 percent of all joint-stock companies. It is surprising that the area of main concentration of business activities do not exactly overlap with the main concentration area of joint-stock companies. They are mainly dispersed on the residential areas.

[18] Ward's method as the linkage method and the Square Euclidean Distance as the measure of proximity is used for clustering activity.
[19] Ward's method is again the linkage method of this cluster analysis; however, this time, Euclidean Distance is chosen as the measure of proximity of cluster analysis. The reason of choosing Euclidean Distance is the desire to understand the legend categories as detailed as possible.

Çukurambar, Kızılırmak, Ortadoğu, Mustafa Kemal and Nasuh Akar districts also have concentrations of joint-stock companies. These districts, which are spatially close to public institutions and located along the İnönü Boulevard, contain 3,2 percent of joint-stock companies.

It is difficult to define specific patterns for other districts in the northern part of Ankara that corresponds with joint-stock companies. Although there are limited numbers of joint-stock companies in this part of the city, it is thought that they are manufacturing activities. They are dispersed onto the districts along the İstanbul Road. Yet, two zones of loose concentration can be defined:

1. The first zone of the loose concentration covers Uğur Mumcu, Mehmet Akif Ersoy and Çamlıca districts.

2. The second one is the loose concentration zone in Şeker, Şehit Osman Avcı and Altay districts.

Although joint-stock companies are important for the assessment of spatial organization of services, figure 4.26 also displays the spatial distribution of other firm types. It is possible to observe that limited companies and individualistic enterprises have similar locational preferences. This means that it is a greater possibility to observe limited companies on the districts where there are individualistic enterprises. This combination is dispersed to all over Ankara, and 305 districts are represented by this combination, like the ordinary partnerships that disperse mainly on northern and eastern directions.

When the spatial resolution is increased to street level[20] (figure 4.27), the picture remains unchanged structurally, but it becomes detailed.

The locations of the streets corresponding with joint-stock companies begin to extend towards Turan Güneş boulevard. Additionally, there appear new concentration zones of joint-stock companies surrounding the zone of main concentration area of firms. Balgat and Çukurambar districts, as they are in the previous map, include streets having joint-stock companies concentrations. Moreover, for Maltepe, Mebusevleri and Bahçelievler districts, it is possible to mention joint-stock companies concentrations.

[20] The procedure by producing this map with a spatial resolution of streets is almost the same with the one used by producing map in the figure 4.26. The only exception is the spatial unit of analysis, which are streets in this map.

In the northern part of Ankara, the streets that correspond with joint-stock companies are usually located around the industrial sites. Although there is no exact information about them, it is thought that they are manufacturing activities because of these proximal relations. Moreover, it is not possible to observe specific patterns of concentration of joint-stock companies. The streets that correspond with joint-stock companies are dispersed within the linear region defined in figure 4.21.

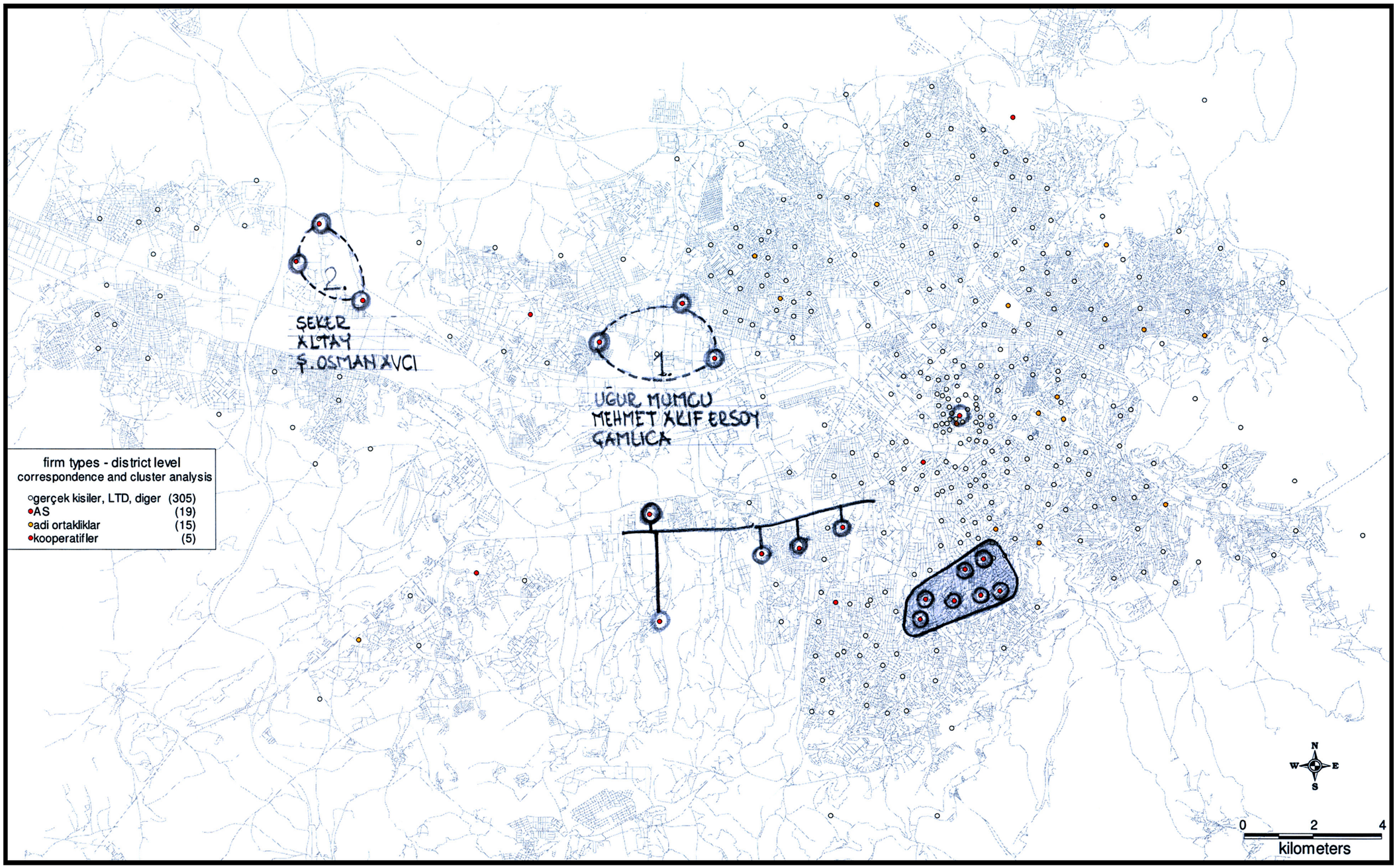

Figure 4.26: The Map of Firm Types produced by Complementary Use of Correspondence Analysis and Cluster Analysis at District Level

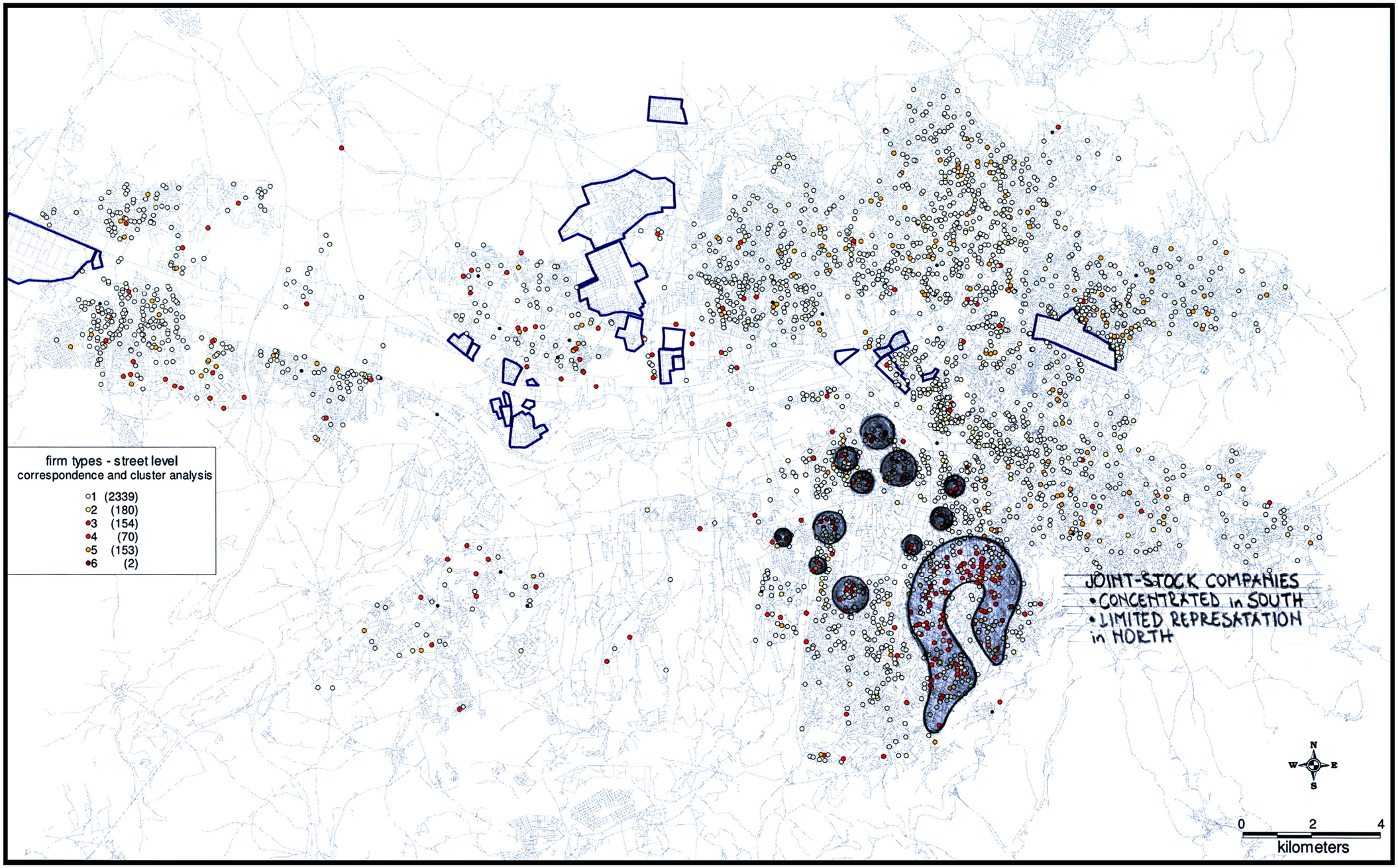

Figure 4.27: The Map of Firm Types produced by Complementary Use of Correspondence Analysis and Cluster Analysis at Street Level

4.2.1.6. The Concentration with reference to the Size of Firms

There are many criteria to define sizes of firms, such as production capacity, sales volumes, and the amount of value-added gained through the sales. Yet, employment intervals can be another criterion which can be defined as the number of employees within the firms.

There is a direct correlation between the number of employees and the firm sizes. As it can be easily assumed that the higher the number of employees is, the bigger the firm sizes are. Therefore, the analysis for detecting the concentration patterns of firms with reference to their sizes uses this criterion. The employment intervals in the database are as below:

- Firms which have 1-4 employees
- Firms which have 5-9 employees
- Firms which have 10-25 employees
- Firms which have 26-49 employees
- Firms which have 50-99 employees
- Firms which have over 100 employees

Before visualizing, the concentration patterns of firm sizes, it is useful to understand the composition of the firm sizes categories. As it is expected, when the industrial and wholesaling sites are excluded from the analysis, approximately 87 percent of firms seem as small-scale businesses having 1-4 employees. The percentage increases to 94,2, when the small-scale category is extended to 1-9 employees which means 101.102 firms out of 107.349 firms. The average firm size is 4,58 employees in Ankara (table 4.10).

Table 4.10: The Composition of Firm Size Categories

Categories with reference to Firm Sizes	Percentages (%)	Cumulative Percentages (%)
Firms having 1-4 employee	87,30	87,30
Firms having 5-9 employee	6,90	94,20
Firms having 10-25 employee	3,80	98,00
Firms having 26-49 employee	1,20	99,20
Firms having 50-99 employee	0,40	99,60
Firms having 100+ employee	0,40	100,00
TOTAL	**100,00**	**100,00**

The huge number of small-scale firms directly affects the spatial distribution[21] (figure 4.28). There is no significant spatial patterning at the district level when the distribution of the firm sizes is considered. Approximately 86 percent of all districts correspond with small-scale firms. However, in Küçükesat district, which is located in the south end of main concentration area, there is a firm concentration having 50+ employees. Similarly, Şenyurt district in Ulus and Koru districts have big firm concentrations. The other locations of big firms concentrations are Söğütözü and Kızılırmak districts along the Eskişehir Road, Yirmi Beş Mart district along İstanbul Road, and finally, Aşağı Dikmen district.

When the same analysis is performed at the street level[22] (figure 4.29), the picture remains structurally the same. However, the concentration zones of big firms begin to be traced much more easily. According to this map, there are 7 distinct locations of concentration of big firms.

1. 46th and 49th streets connecting to Birlik 5th street,
2. 18th and 22nd streets connecting to Yıldızevler 4th street,
3. İlkadım, Ilgaz, Çiçekdağı and Borazan streets in GOP district,
4. 2nd, 3rd, 14th and 39th streets connecting to Türkocağı street,
5. 4th and Arda streets in Çayyolu region,
6. Bilkent 5th street,
7. 10th and 41st streets connecting to Bahçelievler 7th street (Aşkaabat Street).

Other concentration areas of big firms are Abant street in Gazi district, 218th street in Kırkkonaklar district, 6th street in Mustafa Kemal district, Erguvan and Sincap streets in Ulus-İskitler, and Erkut streets in Sincan-İstasyon district.

[21] The procedure by producing this map is almost the same with the one used by producing map in the figure 4.26. The only exception is the attributes, which are firm sizes in this map.
[22] The procedure by producing this map is almost the same with the one used by producing map in the figure 4.27. The only exception is the attributes, which are firm sizes.

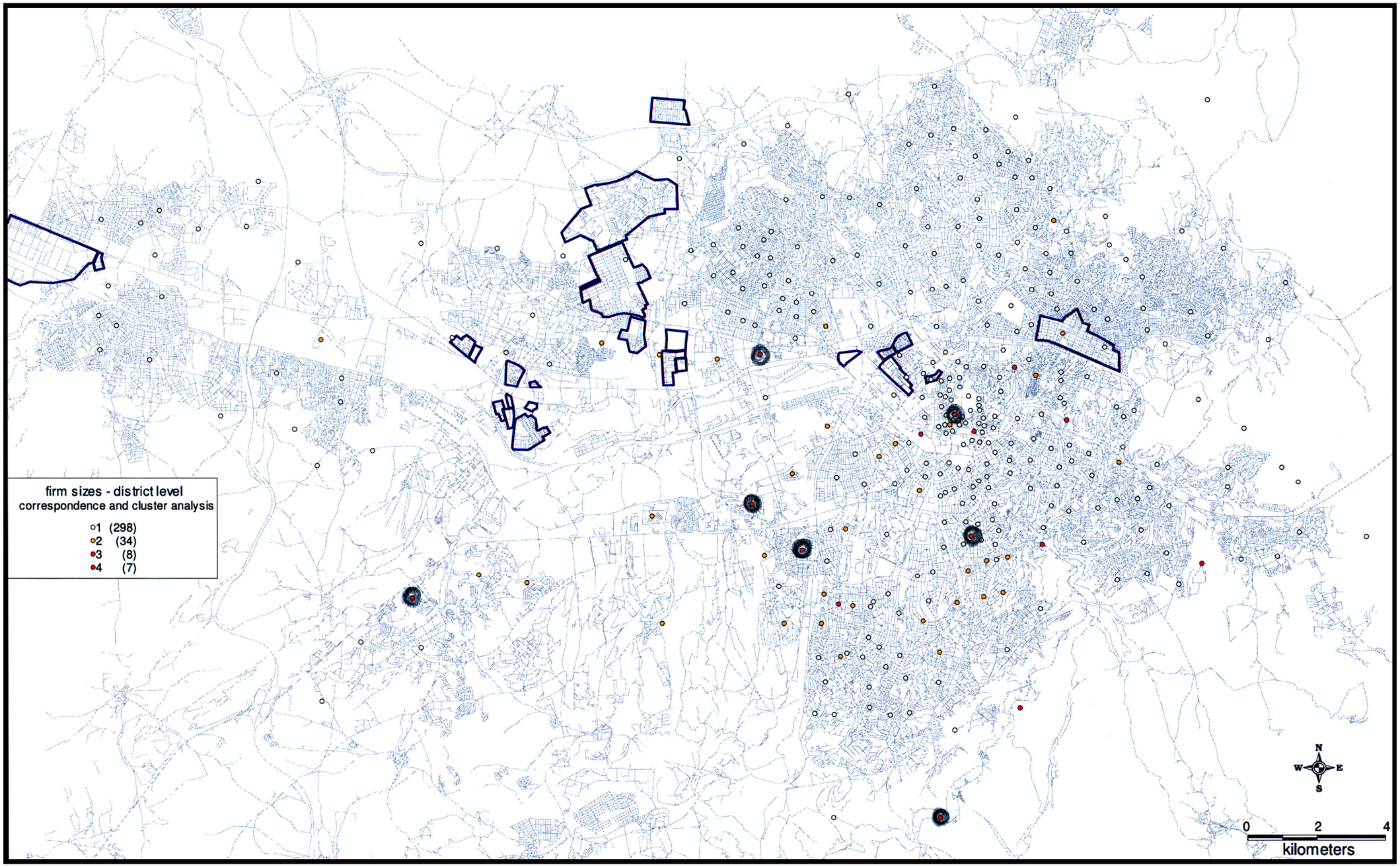

Figure 4.28: The Map of Firm Sizes produced by Complementary Use of Correspondence Analysis and Cluster Analysis at District Level

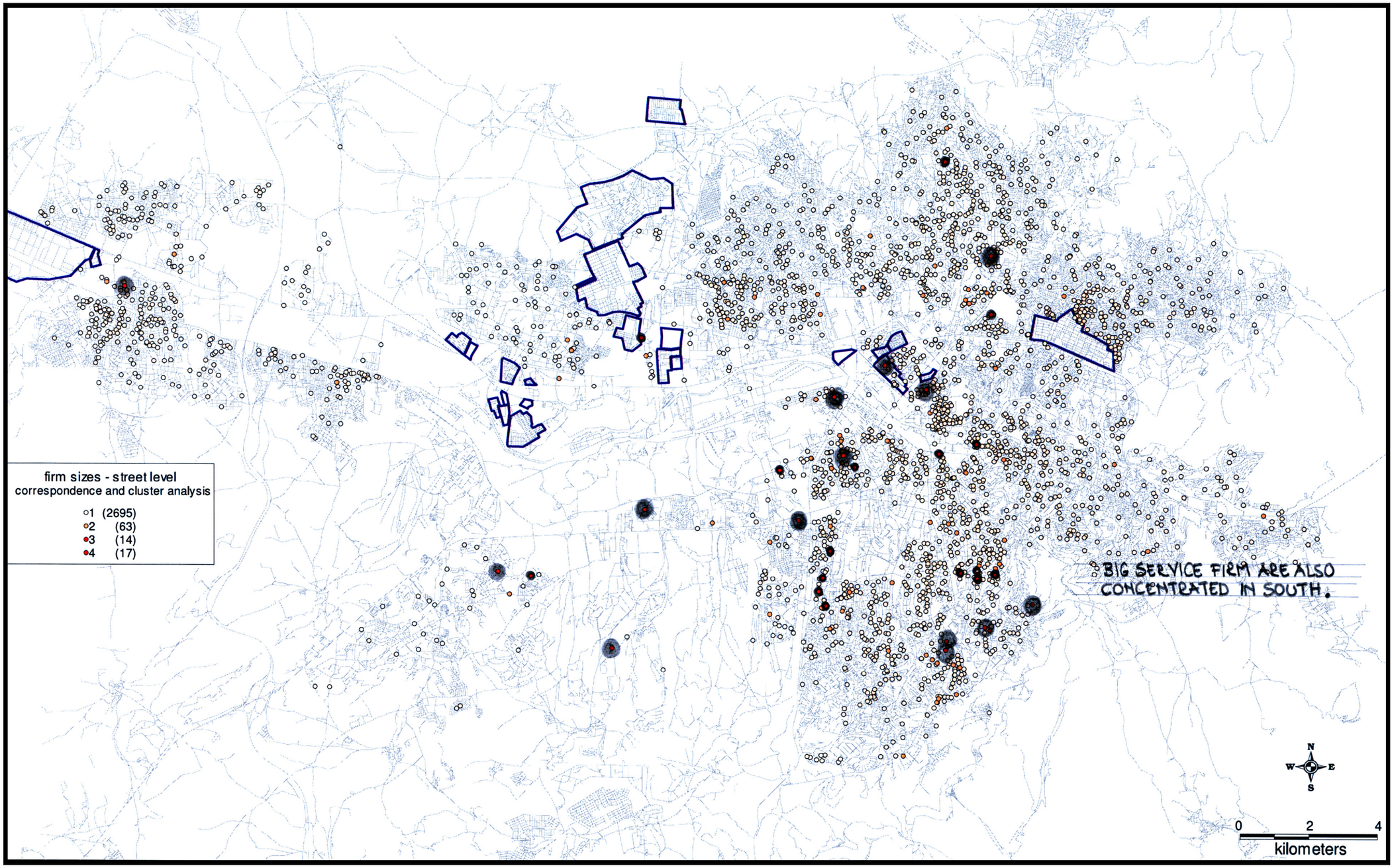

Figure 4.29: The Map of Firm Sizes produced by Complementary Use of Correspondence Analysis and Cluster Analysis at Street Level

4.2.2. Spatial Cohesiveness of Service Activities

The study of concentration and dispersion starts with the assumption that the same economic activity may present both concentration and dispersion patterns at the same time and in the same locale. The study of spatial description of relative cohesiveness of economic activities, on the other hand, depends on the idea that different economic activities may have similar spatial and locational preferences.

Analyzing the cohesiveness of economic activities brings up a new way of categorization of economic activities which bases on the similarity of their locational preferences. It is difficult to detect and name these categories, because they include different activities from different service categories and sub-categories. Yet, through this categorization, it is possible to define the functional parts of the service activity systems and to describe the spatial organization of services.

The basic difficulty in determining the patterns of spatial cohesiveness of economic activities is related with the dynamic nature of service activities. The ever-evolving functional organization of economic activities has an effect upon their spatial preferences, the changes of which alter their cohesive relations with other economic activities. Therefore, existing theoretical frameworks usually avoid investigating these relations, and conceptualize them as temporal and complex in essence.

Moreover, it is also difficult to grasp them with the conventional statistical techniques. In the conventional statistics, the main tool for understanding the cohesive relations is dissimilarity index. This technique simply measures the degree of mixture of any kind of attributes on urban space (Kestenbaum, 1980; Agresti, 1996). However, for understanding the spatial organization of service activities, beside the degree of mixture, it is also important to detect where these attributes are mixed and how they are spatially distributed on urban space.

4.2.2.1. The Overall Spatial Cohesiveness of Service Categories

With the available databases and cartographic resources, it is possible to describe the overall cohesive patterns of service categories. The analysis basically tries to correspond the service categories with the streets they are located on (figure 4.30), and assess the distributions of those streets.

The procedure of the analysis is almost the same with the one used by producing map in figure 4.26. However, instead of the types of firms, the service categories, presented in table 4.11, are used as the attributes.

Table 4.11: The Number of Firms in Service Categories

Services	Service Category	No. of Firms
Consumer Services	Welfare Services	5.597
	Household Services	29.549
	Distributive Services	50.592
Consumer Services (total)		85.738
Producer Services	Financial Services	6.030
	Business Services	12.421
Producer Services (total)		18.451

The main outcome of this map of overall spatial cohesiveness is a significant association of the business services with the streets in the southern part of the city. Business services are almost invisible on the streets of the northern part of the city. The streets associated with business services are mainly located between Sıhhiye and Kızılay (figure 4.31). This area presented in figure 4.31 is approximately 185,6 ha., which is smaller than 0,5 percent of all study area. There are 49 streets within this area, 36 of which directly correspond with business services. On these 36 streets, there are 3.841 business firms, which means 40,2 percent in the service activity composition.

Although the area corresponding business services is relatively small, it also contains streets associating with other service categories, namely welfare services. The streets, which keep up a noteworthy correspondence with welfare services, are Ziya Gökalp, Yüksel, Meşrutiyet, Selanik, Bayındır, Doktor Mediha Eldem and Mithatpaşa streets. These streets are located in the southeastern part of the area. They contain 965 welfare firms, most of which is private medical and private educational services. These 965 firms represent 17,2 percent of all welfare services, and at the same time, they form 27,2 percent of 3.525 firms located on these streets.

Except for the main concentration area of business services in Kızılay, there is a sprawl area of business services directed to southern part of Ankara (figure 4.31). This area is 1.045 ha., and contains 274 streets. It includes 31.092 firms which means 29,8 percent

of all firms. Within this area, 134 of all streets correspond directly with business services. On these 134 streets, there are 5.336 business service firms.

However, this does not mean that this area does not contain any other service categories. Within this area of sprawl of business services, 15 streets do correspond with financial services, 21 streets with welfare services, 81 streets with household services, and 23 streets with distributive services. In the light of this quantitative information, the service composition of this area of business sprawl is presented in table 4.12.

Table 4.12: Composition of Service Categories within the Area of Business Sprawl

	Welfare Services	Household Services	Distributive Services	Financial Services	Business Services
Area of Business Sprawl	3.306	7.982	9.611	1.977	8.216
The Whole Study Area	5.597	29.549	50.592	6.030	12.421
The Percentage of Service Categories (within the overall service composition)	59,1	27,0	19,0	32,8	66,1

***Business Services*:** As easily traced from table 4.12, the main activity set within the area of sprawl is obviously business services. This area has a share of 66,1 percent of all business services in Ankara. 32,8 percent of all financial services are located within this area. Although financial services stand within the category of producer services, this percentage indicates that financial services have a higher tendency to disperse than the business services. This tendency is mainly because of the activities like real estate agencies and banks that tend to be spatially proximate to their customers like the consumer services. Welfare services, as a category of consumer services, are highly represented in this area of business sprawl. Because of the functional organizations of welfare services, they have quite different locational preferences than any other categories of consumer services. They usually prefer accessible central locations, so that every customer of these services can easily reach to them. Within the area of business sprawl, 59,1 percent of all welfare services are located in the area determined in figure 4.31. Household services and distributive services are the least represented service categories in this area. The area contains only 27,0 percent of all household services and 19,0 of all distributive services. These percentages mean that the level of representation of these categories of consumer services within the area is extremely low compared to the business services and welfare services. These percentages also

indicate that these services are dispersed, more truly, scattered to all over the surface of Ankara.

Except for the main concentration zone and the area of sprawl, there are other streets that correspond with business services. They build small clusters in relatively limited areas in Beştepeler, Balgat and Öveçler districts. The absolute number of business services in these clusters is not so much; however, they are significant, because they contain approximately 10 percent of all business streets.

The most distinctive aspect of figure 4.30 is the limited representation of business streets in the northern part of the city. There are only 39 streets in the northern part of the city that correspond with business services. On these 39 streets, there are only 523 business firms.

Two locations in the northern part of the city are especially worth mentioning with reference to business services. The first one is Ulus in which the number of streets associated with business services is extremely low. There are only 10 streets in Ulus, which are not clustered spatially. They are located far from each other, and contain 386 business firms. The most important street is Rüzgarlı street with 209 business firms. Except for the Ulus region, there is only one other area which contains streets in association with business services. This area is in Yenimahalle, and includes Çınar, Cengiz, Narin, Taşkın and Bozkaya Streets around Ragıp Tüzün Street. Although the numbers of business services are relatively low on these streets, they are purely represented by business services. In fact, all of these streets contain only 25 business firms; yet, these 25 firms determine 20 percent of all firms in these streets.

Financial Services: As it is pointed out in the table 4.12, the area of business sprawl contains 32,8 percent of all financial services. The rest of them are dispersed to all over Ankara. However, this dispersion does not mean that there is no other financial service clusters in Ankara. These financial service clusters are outside the area of business service domination.

There are five clusters of financial services: Bahçelievler, Öncebeci, Kavacık Subayevleri, Sancak and Çayyolu districts (figure 4.31). The number of financial services in these clusters is absolutely low; however, financial service is the main category on these streets with an average percentage of 25.

The interesting aspect of the spatial distribution of these clusters is that three of the clusters are located in the periphery of the main concentration zone of business services. These are the ones in Bahçelievler, Öncebeci and Sancak districts. The most important one is the Bahçelievler financial cluster with 51 financial services out of 201 firms on 15 streets. Öncebeci and the surrounding districts do also contain streets that are represented with financial services. These 8 streets are Yargıç, Dirim, Sevil, Yazgan, Bahadırlar, Taşkent, Köylüler and Dumlupınar streets. These streets contain only 19 finance firms; yet, these firms have a higher percentage (19,8 percent) in the activity composition of these streets. Sancak financial cluster, on the other hand, have 6 streets, which are namely 206th, 209th , 211th, 212th, 219th, and 220th streets close to Turan Güneş Boulevard. Although the number of financial services is again relatively low, the density is quite high. On these streets, there are 8 financial service firms per 100 meter. The clusters in Kavacık Subayevleri and Çayyolu are distant from the area of business sprawl. The concentration of financial services in Kavacık Subayevleri is emerged with 25 financial firms; the one in Çayyolu, on the other hand, has 20 financial firms out of 41 firms.

Welfare Services: Except for the main concentration zone of welfare services in the central core, there are two zones significant with their streets associated with welfare services (figure 4.31). The first one is in Bahçelievler, and the second one is in Öncebeci region. The interesting aspect related to these regions is that they are located very close to the financial service clusters; yet, whole of these areas are dominated by residential uses.

Household services: Household services are mainly dispersed onto the northern part of the city. This is not surprising when the spatial distribution of population densities is considered. The only significant location of concentration of household services in the southern part of the city is on and around streets in Dikmen region (figure 4.31).

Distributive services: Distributive services are also distributed onto the northern part of the city. 32.764 distributive firms, which means 64,8 percent of all distributive firms, are in the northern part of the city. In the southern part of the city, there are three zones of distributive services. The first and the most important one is in Dikmen region. There are 47 streets associated with distributive services, and these streets contain 947 distributive service firms. The other one is in eastern site of the area of business sprawl around the Göktürk district. There are 35 streets and 837 firms. The third one exists in

Bahçelievler with 516 firms. Approximately 30 percent of distributive services are distributed in the southern part without presenting any kind of concentration pattern.

Beside the analytical procedure applied for detection of spatial cohesiveness of economic activities, another analysis through dissimilarity indexes is also performed with the same data. Although the results of dissimilarity indexes cannot be visualized, they can be used as the verification of the previously-acquired outcomes.

Due to the broad categories of services within this analysis, the matrice of dissimilarity indexes does not explain much about the relative existence-nonexistence of service categories on the same spatial units. However, the results of the dissimilarity indexes replicate, somehow, the findings that are achieved through the complementary use of correspondence analysis and cluster analysis. According to matrices of dissimilarity indexes[23] (table 4.13),

- Welfare service is the category having similar locational preferences with business services; thus, they also have a tendency to cluster in central zones.
- The locational preferences of distributive services are dissimilar with business services. They are seldom observed in central zones.
- The distribution of financial services is more similar to household and distributive services rather than business services. This means that financial services have a high tendency to be dispersed in Ankara case.
- There is a noteworthy similarity between the locational preferences of household and distributive services, which means they usually coexist together.

Table 4.13: The Matrices of Dissimilarity Indexes for Service Categories

	Welfare Services	Household Services	Distributive Services	Financial Services	Business Services
Welfare Services	0	0,469229	0,517603	0,448590	0,421860
Household Services		0	0,284615	0,326683	0,478351
Distributive Services			0	0,393086	0,579523
Financial Services				0	0,464615
Business Services					0

[23] The bottom level of dissimilarity index is 0, which means full integration. This means that the attributes are exactly coexist at every observation unit. The upper level of dissimilarity index is 1, which means full segregation. This means that the attributes are not observable at the indexed locations.

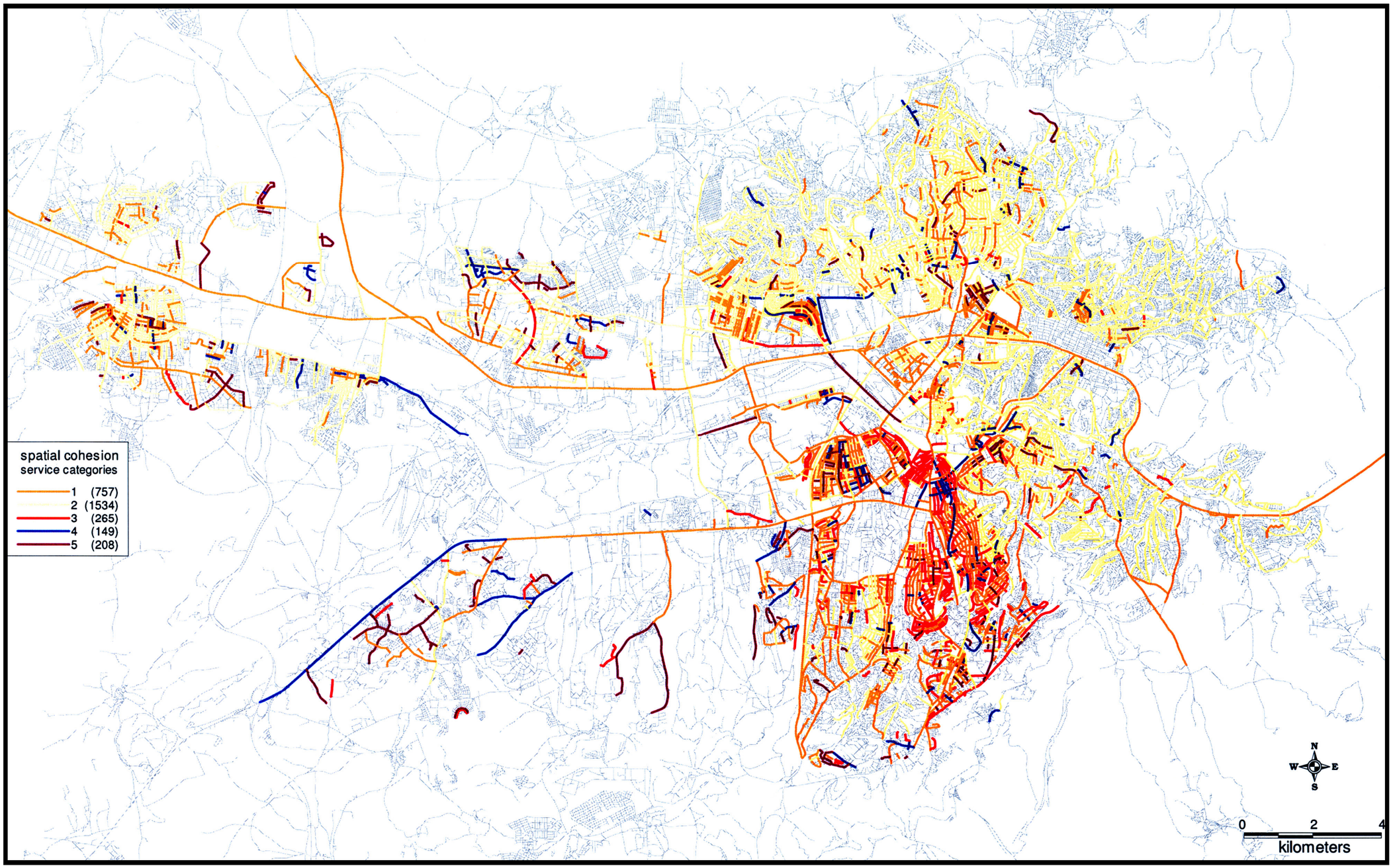

Figure 4.30: The Overall Spatial Cohesion of Service Categories in Ankara (2005)

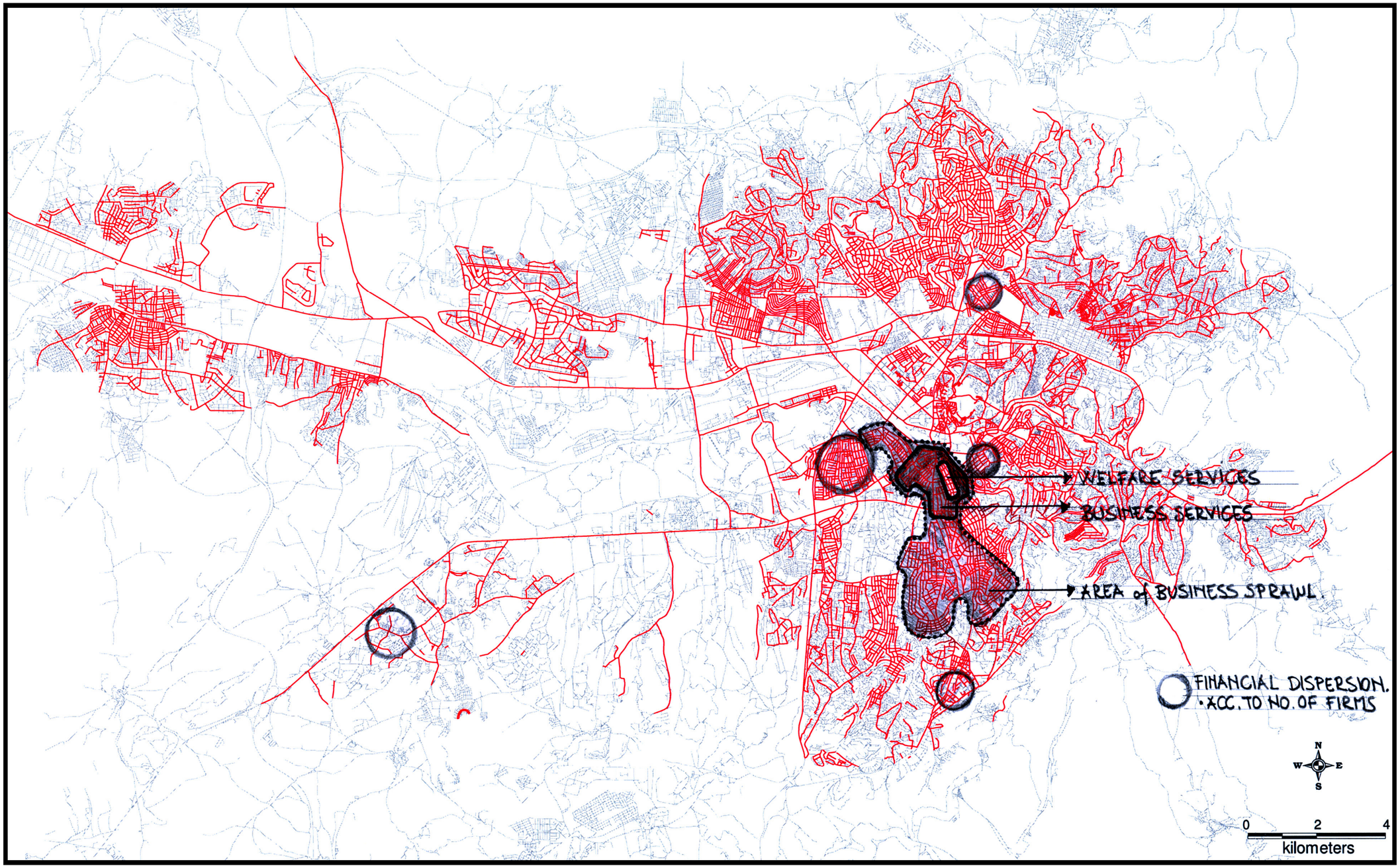

Figure 4.31: The Central Zone in which the Streets are mainly associated with Business and Welfare Services

4.2.2.2. The Overall Spatial Cohesiveness of Service Sub-categories

The figure 4.30 presents the general picture of the spatial cohesive relations among service categories. However, these categories are broad to describe the detailed cohesive relations related to sub-categories of business activities.

In this manner, there appears a need for another analysis performed with a detailed categorization of service activities. For this analysis, the service sub-categories are used as attributes (table 4.14). There are 23 service sub-categories. Since the number of attributes is too much for a readable map, first of all, the dissimilarity index is performed in order to group the service sub-categories with reference to the similarities of their locational preferences.

Through the application of dissimilarity index, and then, cluster analysis on the matrice of dissimilarity indexes[24], 8 groups of service sub-categories is obtained (table 4.15). Although it is difficult to name these groups, the content of these groups is in the table 4.15.

The spatial distribution of these service sub-category groups is presented in figure 4.32. In order to obtain this map, the correspondence analysis procedure explained in chapter 3 is used. The attributes are service sub-category groups obtained by cluster analysis of dissimilarity indexes matrice, and the spatial units are the streets.

[24] Ward's method is the linkage method and Euclidean Distance is the proximity measure for this cluster analysis.

Table 4.14: Service Sub-Categories

Services	Service Category	Service Sub-Categories	No. of Firms	Code
Consumer Services	Welfare Services	Private medical services	2.797	11
		Educational services	909	12
		Social services	215	13
		Others (like chambers, unions, organizations, etc.)	1.676	14
	Welfare Services (Total)		**5.597**	
	Household Services	Restaurants and hotels	7.080	21
		Recreational and cultural services	1.634	22
		Repairing services	5.941	23
		Constructive services	8.805	24
		Travel agencies	655	25
		Communication services	314	26
		Others	5.120	27
	Household Services (Total)		**29.549**	
	Distributive Services	Retailing activities	32.579	31
		Wholesaling activities	7.474	32
		Transportation activities	10.539	33
	Distributive Services (Total)		**50.592**	
Consumer Services (Total)			**85.738**	
	Financial Services	Finance and insurance activities	3.091	41
		Real estate activities	2.774	42
		Others (like leasing, etc.)	165	43
	Financial Services (Total)		**6.030**	
	Business Services	Legal consultancy	6.295	51
		Professional consultancy	2.024	52
		Computer related activities	694	53
		Advertisement	609	54
		R & D	42	55
		Others	2.757	56
	Business Services (Total)		**12.421**	
Producer Services (Total)			**18.451**	
Grand Total			**104.189**	

Table 4.15: The Compositions of the Groups of Service Sub-categories

Sub-categories	Code	Service Groupings								
		1	2	3	4	5	6	7	8	Total
Retailing activities	31	32.579								32.579
Restaurants and hotels	21	7.080								7.080
Repairing services	23	5.941								5.941
Other household services	27	5.120								5.120
Real estate activities	42	2.774								2.774
Recreational and cultural services	22	1.634								1.634
Constructive services	24		8.805							8.805
Wholesaling activities	32		7.474							7.474
Transportation activities	33			10.539						10.539
Private medical services	11				2.797					2.797
Educational services	12				909					909
Legal consultancy	51					6.295				6.295
Finance and insurance activities	41					3.091				3.091
Other business services	56					2.757				2.757
Others welfare services	14					1.676				1.676
Professional consultancy	52						2.024			2.024
Computer related activities	53						694			694
Travel agencies	25						655			655
Advertisement	54						609			609
Communication services	26							314		314
Social services	13								215	215
Other financial services	43								165	165
R & D	55								42	42
Total		**55.128**	**16.279**	**10.539**	**3.706**	**13.819**	**39.82**	**314**	**422**	**104.189**

Legend Category 1: The first group contains primarily different sub-categories of household services. It includes restaurants, hotels, repairing activities, recreational and cultural services, and the other household services categories. However, this group is mainly dominated by retailing activities, and also has real estate activities in it.

The fact that these activities are clustered according to their values gained in the matrice of dissimilarity index points out that they have quite similar locational preferences within the case of Ankara. In other words, the possibility of observing them in the same spatial unit is extremely high.

This group mainly contains retailing activities, household service activities and real estate activities. As stated in literature, all of these activities have high tendencies to be close to their costumers. They generally illustrate "jobs follow people" principle in their locational preferences (Aguilera, 2003; Gilli, 2003). Therefore, they are extensively dispersed almost all over Ankara. However, 11 distinct locations of concentrations for this group are detectable, when the number of firms and the street geometry of dispersion is considered (table 4.16). As expected, most of these locations are in the northern part of the city. In fact, only Bahçelievler and Dikmen concentrations are located in the southern part of the city. Additionally, Sincan, Dikimevi and Demetevler are the most significant locations for this group according to the number of service activities they contain (figure 4.33).

Table 4.16: The Quantitative Information of Group 1

	LOCATION	NO OF FIRMS
1	Sincan	2.956
2	Dikimevi	1.994
3	Demetevler	1.879
4	Bahçelievler	1.765
5	Dikmen	1.342
6	Kavacık Subayevleri	1.342
7	İncirli	1.202
8	Aşağı Eğlence	1.154
9	Şenlik	690
10	Aktepe	386
11	Etimesgut	345

Legend Category 2: This group contains wholesaling activities and constructive service activities. It is known that the wholesaling activities are significantly concentrated in Gimat, ATB and Özankara wholesaling sites. These three wholesaling sites contain almost 87 percent of all wholesaling firms. However, this legend category 2 does not cover the wholesaling activities located in these three wholesaling sites. Therefore, the spatial distribution of this group is dominated by the locational preferences of constructive service activities, most of which are small-scale subcontractors.

There are no significant patterns of concentration for this group. They are widely dispersed, similar to the household services, but especially to northern part of Ankara.

Legend Category 3: This group include certain central business activities such as legal consultancy, finance and insurance activities, the other categories of business services (like security and cleaning services), and welfare services (like chambers, unions, and organizations). Therefore, this group can be labeled as a CBD component. The included activities have almost the same locational preferences in Ankara case. Put another way, there are almost always finance and insurance activities on the streets where legal consultancy activities are observed.

The cluster of these activities presents the most distinct spatial pattern. It is located in a very small area in Sıhhiye region. The reason of this locational preference is that the number of legal consultancies, which tend to be spatially proximate to the main Courthouse of Ankara, dominates this group.

Another interesting aspect of this concentration is that, within the area, in which this activity composition is represented, it is impossible to observe any other street corresponding to other service groups. In other words, this spatially-limited zone contains only the above-mentioned CBD component. Moreover, there is no spatial extension of this activity composition. The map, which presents the spatial cohesiveness through broad service categories, asserts that a part of this area is the main concentration area of business services (figure 4.31). However, it is now understood that this area contains only certain types of business activities as stated before.

Legend Category 4: Another significant cohesion can be observable between private medical and educational service activities. They are highly concentrated in a very small area, as it is stated in figure 4.34. In this area, composed of by 10 streets, there are 903 medical and educational services, which makes one fourth of all such activities. This

high percentage also means that the locational preferences of these services are quite similar with the ones of other CBD components.

Legend Category 5: This cluster contains other central business activities like professional consultancy, computer related activities, advertisement, and travel agencies. In fact, it can be labeled as the main CBD component, although the number of activities of this group is relatively small (approximately 4.000 firms). The fact that they are grouped in the same cluster indicates the similar locational preferences of these activities.

The spatial distribution of the main business activities is quite interesting (figure 4.35). They are primarily located in the southern part of the city. However, they are not powerfully represented along the streets on which high degrees of geographical and functional service densities are observed. This distribution points out the fact that these activities begin to infiltrate into the residential areas. In other words, the main core of the service activities is not the location of this high-order business component.

Additionally, the only location in the northern part of Ankara is the close environs of Ragıp Tüzün Street. Although the number of these activities is relatively small in this area, there are streets represented only with these activities remains unchanged.

Legend Category 6: This group is made up of only by transportation activities. The reason of singularity of transportation activities in a group is their dissimilarity in their spatial distributions. The transportation activities are distributed to all over Ankara, except for the area of business concentration, and present a strong correlation with the residential densities.

Legend Category 7: This group contains only 314 communication activities, and as being the smallest cluster, it does not present a specific spatial patterning in its spatial distribution.

Legend Category 8: Social services and the other activities in FIRE category, like leasing and the research and development activities determine the content of the last cluster. The number of activities in this cluster is 422, and similar to the legend category 7, it is difficult to mention about a specific patterning of spatial distribution for this category.

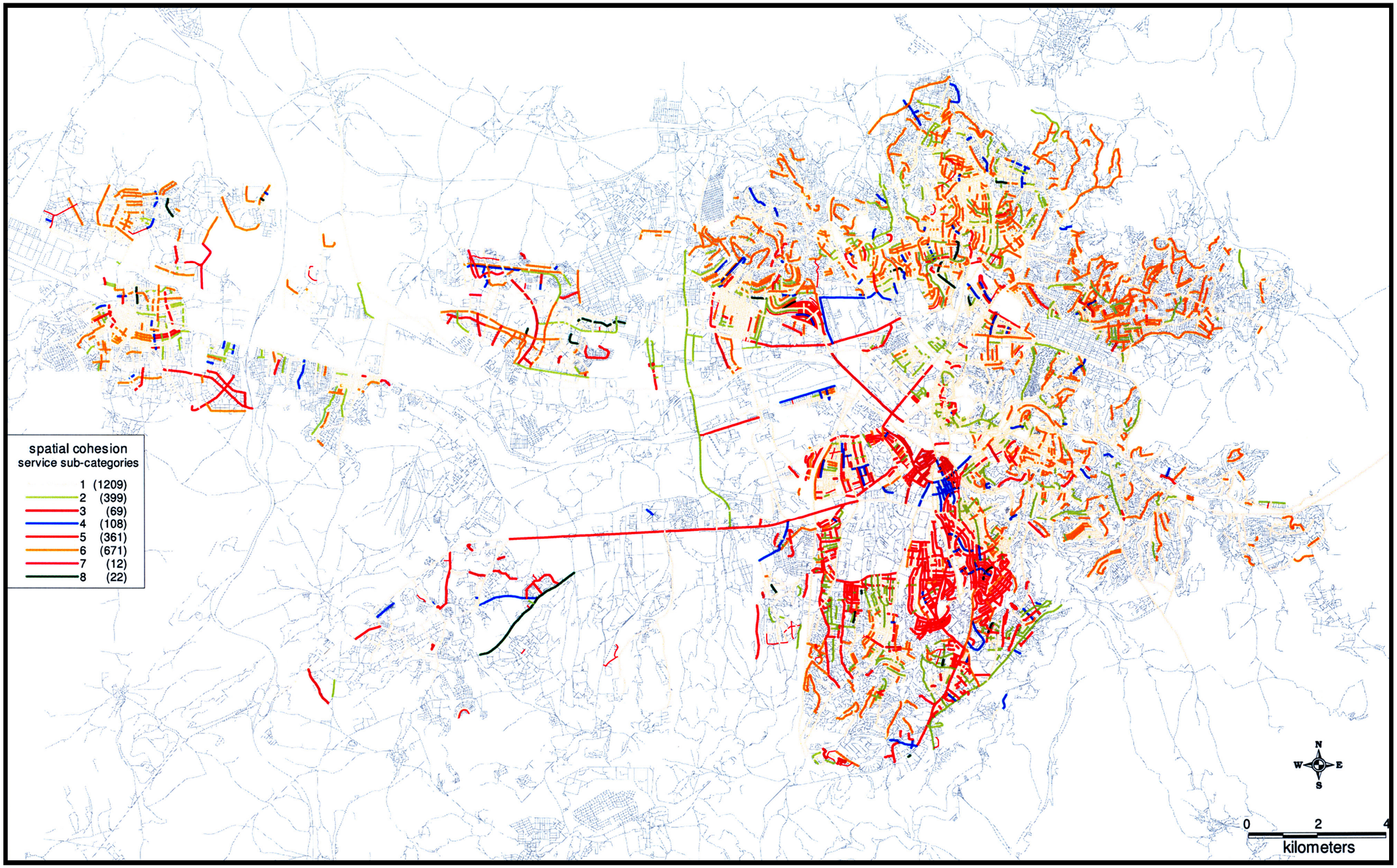

Figure 4.32: The Overall Spatial Cohesion of Service Sub-Categories in Ankara (2005)

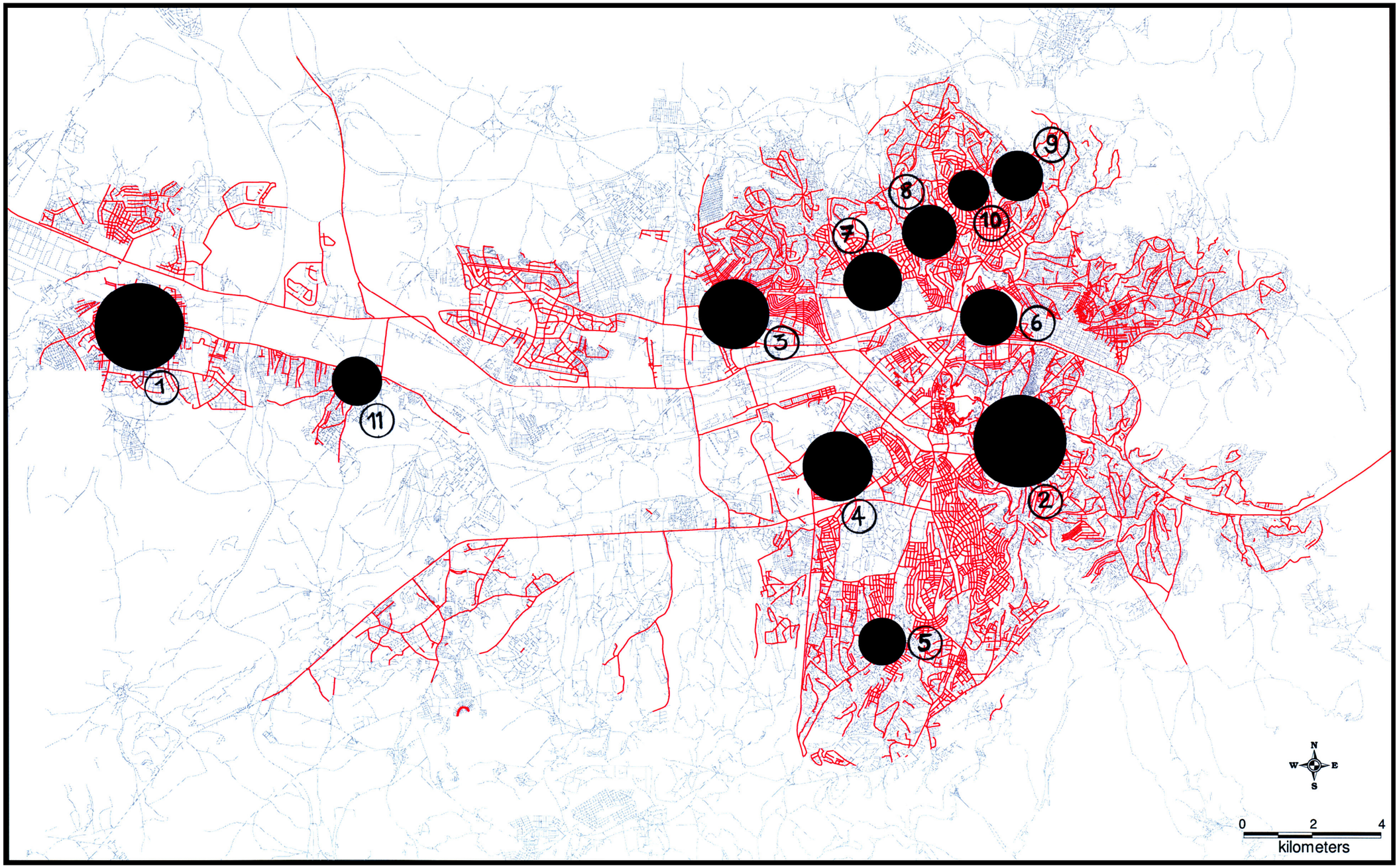

Figure 4.33: The Household Services

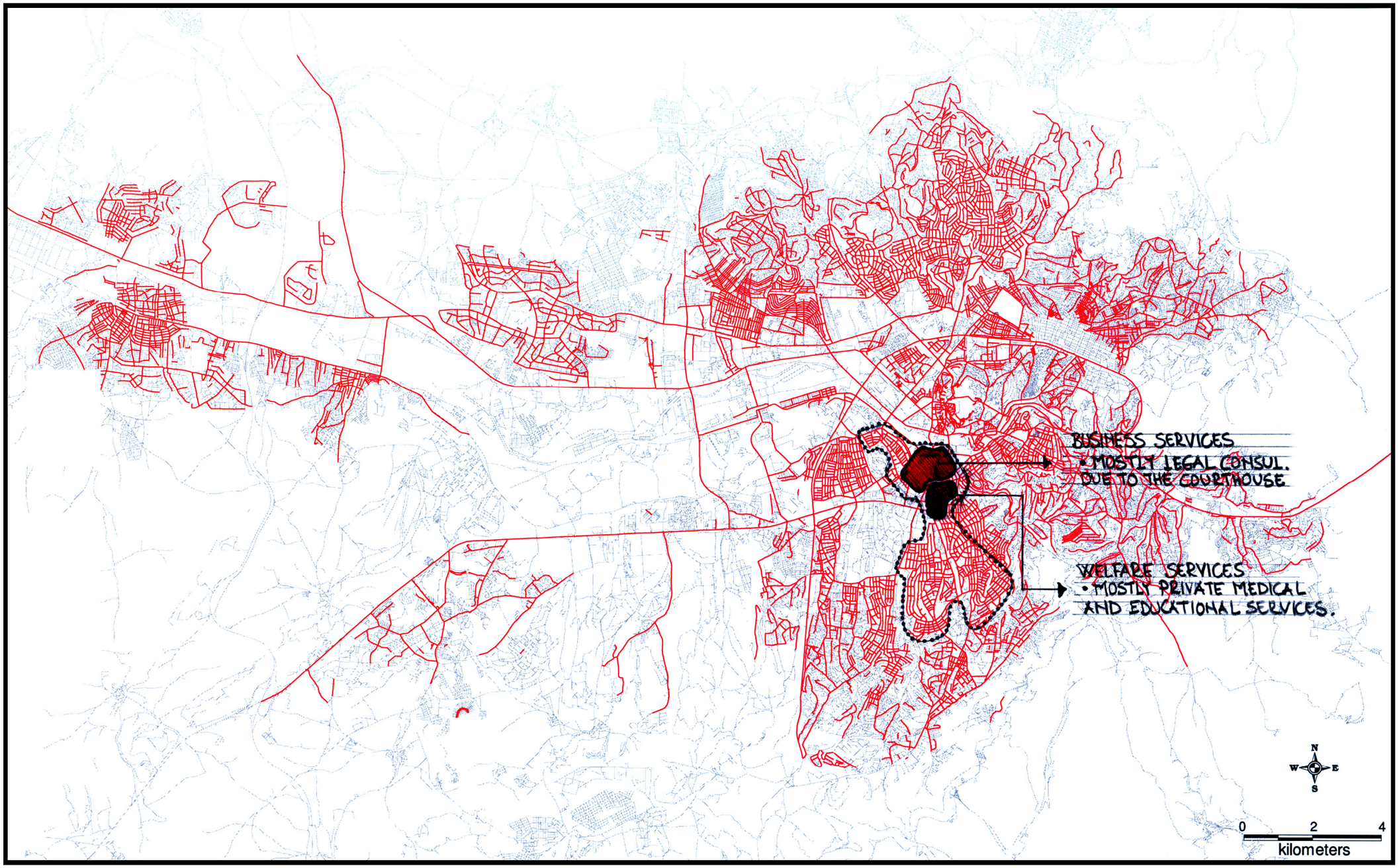

Figure 4.34: Fine Tuning – The Main Core of Business Services

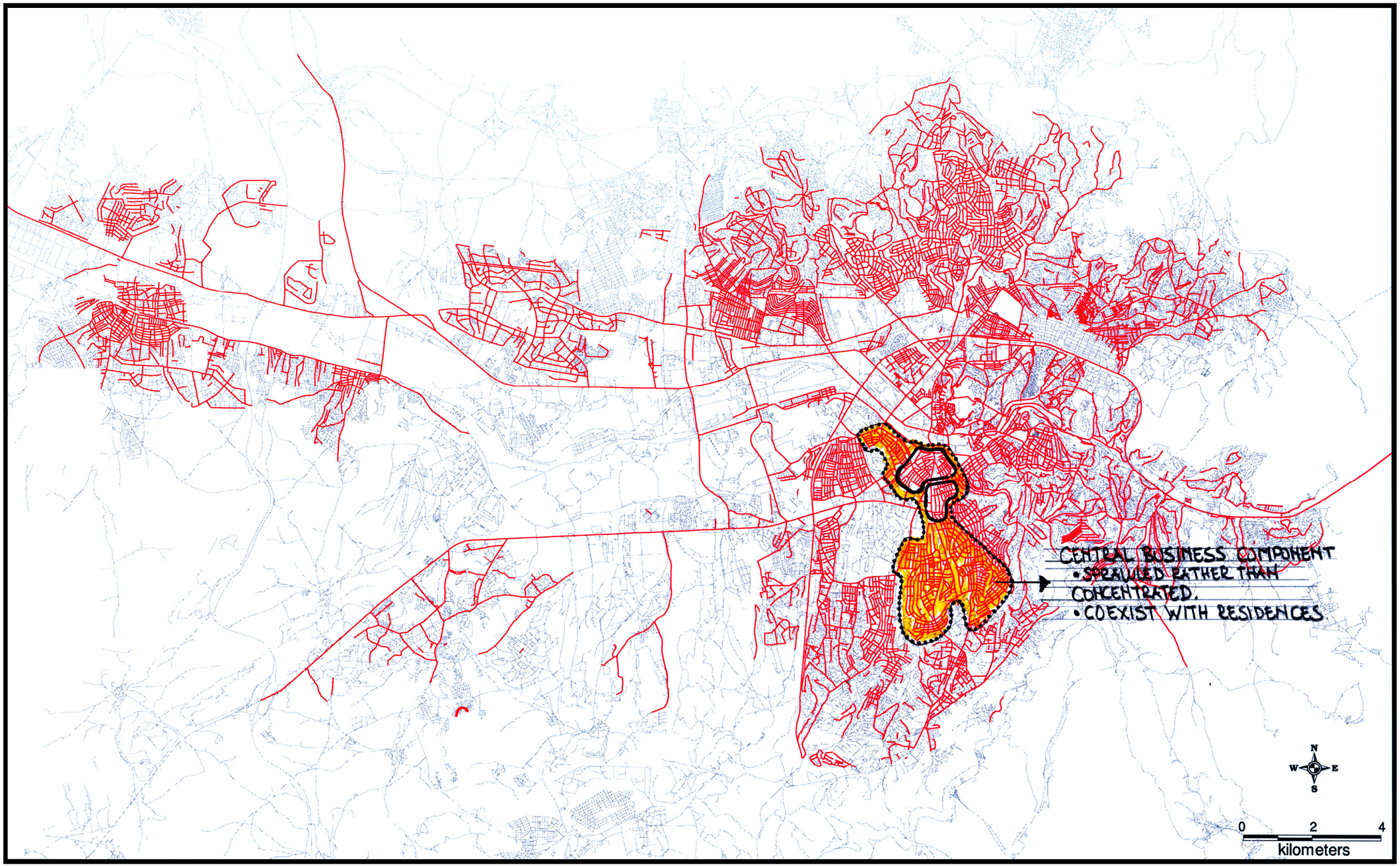

Figure 4.35: Central Business Component (Professional Consultancy, Computer related Activities, Advertisement, Travel Agencies)

4.3. The Spatial Organization of Service Activities

Up to this point of the case study, what has been achieved is the detection of spatial patterns of concentration and dispersion of service activities and the spatial cohesiveness of services. However, in order to assess the spatial organization of services, these informations have to be synthesized, or in other words, overlapped. Aiming this, the overall picture about the spatial organization of services can be achieved as represented in the figure 4.36.

As it can be easily observed in figure 4.36, the city of Ankara is a monocentric city, and the spatial organization of service activities is monocentric in essence. However, there are other interesting aspects of the monocenter.

The first interesting aspect to be mentioned about the monocenter is related to its spatial delimitation. There are many criteria to delimit and delineate CBDs spatially. These criteria, mostly developed by morphological approach, vary from urban rents to traffic counts, or from building heights to land-use categories. However, as the literature of urban studies mentions, the main activity set to define the CBD spatially has to be the business services (high-order activities accomplishing supervisory non-routine works), not the categories and sub-categories of consumer services. This means the city center has to be defined with reference to business services, also by considering the functional and geographical densities.

From this perspective, the main core of the central business district seems to be located on the streets within a very limited area. It is 180 ha., which means 0,45 percent of the frame of analysis. The main street of this core is the segment of Atatürk boulevard from Sağlık to Kavaklıdere districts. This core also includes almost all streets of Namık Kemal, Kızılay, Korkutreis, Sağlık, Cumhuriyet, Kültür, Kocatepe and Meşrutiyet districts. The reason of labeling this site as the main core of central business district depends on the fact that 46 percent of all business firms in Ankara are located on 50 streets in this area.

Although this area is mainly defined with reference to business services, it also includes most of the welfare services (approximately 43 percent of welfare services). Welfare services determine a category of consumer services; yet, their locational preferences are quite different from the household and distributive services. These welfare services,

most of which are private medical and health services, are concentrated in a reasonably limited area around the Meşrutiyet street.

Except for the business and welfare services, there are also other services within this area. There are 18.021 service activities; 12 percent of which are household services, 11 percent of which is distributive services, and 17 percent of which is financial services.

However, the concentration of business and welfare services is not the only factor for labeling this area as the main business core. The other characteristic of this site is the relative non-existence of residential or industrial units, which can be derived from the empirical studies about geographical and functional densities.

Another important characteristic of this monocenter is the secondary business concentration sites locating in the southern and northern part of the main business core. The first secondary business concentration site is in Ulus. It is considerably small in size. Although it includes more streets than the main business core, it contains only 468 business firms. The number of business services seems quite limited; yet, their percentage in the activity composition is extremely high. This is the main reason of labeling this area as the second business concentration site. The scarce representation of residential units also strengthens this idea. Within the area, except for the business services, there are also other categories of services. However, different from the main business concentration zone, the percentage of welfare services is limited, and the one of household services is extremely high.

The other secondary business concentration site is present in the southern part of the main business core, in Çankaya. It covers an area from Kavaklıdere to Güzeltepe districts. This site includes only 721 business service activities, mostly located in the western part of the Atatürk boulevard. These business services are approximately 20 percent of all activities located in this site. Although this site exhibits a high level of service concentrations, it also contains residential units different from the other secondary business concentration site.

Except for these concentration areas, there are areas of business service and producer service sprawls, principally towards the southern end of Ankara. The area of business sprawl is only 4 percent of the frame of analysis, but contains additional 20 percent of all business service activities. The area of producer sprawl, on the other hand, is larger than the area of business sprawl. However, the main characteristic of this area is the

relatively high number of producer services. This area contains approximately 10.200 producer service firms, and in total, this means 55 percent of all producer services.

The interesting aspect of the monocenter is neither the concentration areas nor the areas of sprawl, but the extensions of the consumer services. There are three main consumer service extensions. Two of these extensions are located in the western section of city center reach up to until the Konya road. The third one is located in the eastern part of the city center. The first, and spatially most expanded, consumer service extension is located along the Çetin Emeç boulevard. In fact, the Çetin Emeç boulevard can be considered as the spine of this extension. There are secondary extensions on Ceyhun Atıf Kansu, Türkocağı, Çetin Emeç 8th, and Sokullu Mehmet Paşa streets. The other extension on the western side of the city center is located along the GMK boulevard, and it covers almost all Maltepe, Mebusevler, Bahçelievler, Yukarı Bahçelievler and Emek districts. The last extension on the eastern section of monocenter is located along the Ziya Gökalp street until the Dikimevi. All of these extensions contain also streets associated with business services; yet, most important business service concentration is observed on Çetin Emeç extension.

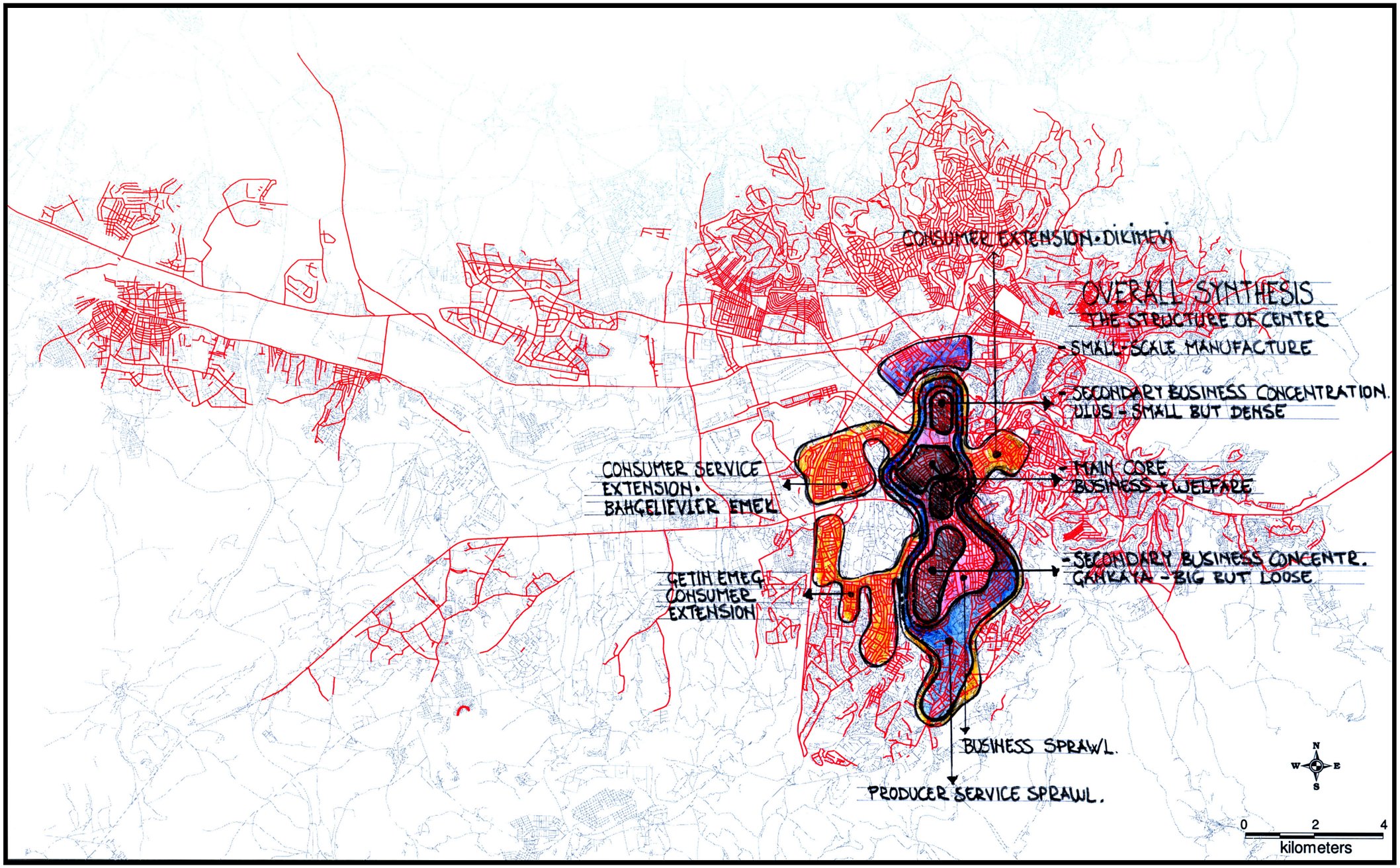

Figure 4.36: The Overall Schema for Service Activities in Ankara (2005)

4.4. Historical Evolution of Services and the Structural Transformation in the Central Zones

All the analyses performed in the previous parts of the chapter take an overall picture of the existing spatial organization of service activities. With the databases used in the spatial analysis, it is not possible to achieve a proper representation about the changes of spatial organization of services in time[25]. These changes, however, are important for understanding the existing spatial organizations; since the intentions of spatial growth of service activities can be easily grasped through examination of changes.

Aiming to examine the changes, the basic descriptive studies, through which a historical comparison with the existing organization can be achieved, are the monographic study of Akçura (1971) and the morphological study of Bademli (1987b). In both of these studies, there are detailed descriptions about the concentration patterns of services, the structural sections of the city center of Ankara, and the delimitational features of them. Although there exist significant time gaps between the study of Akçura, the one of the Bademli, and the descriptions of this study, a concurrent analysis of these three studies can provide an insight about the change of spatial organization of the services in Ankara.

In his monographic study (figure 4.37), Akçura (1971) allocates an important place for the study of city center of Ankara, since he conceptualizes the city center as one of the most important elements for understanding urban phenomena. The main emphasize of his observations is that the city center of Ankara had two fragmented sections, Ulus and Kızılay, with different activity compositions in 1970.

The distinctive aspects of the Ulus section of the city center were the Directorate General of various banks, Central Post Office and the Ministry of Finance in 1970.

[25] The database include all active taxpaying firms at September, 2005. Since the firms that were closed before that time do not exist in the databases, it is not possible to perform analysis about the historical evolution of the spatial organization of services through those databases.

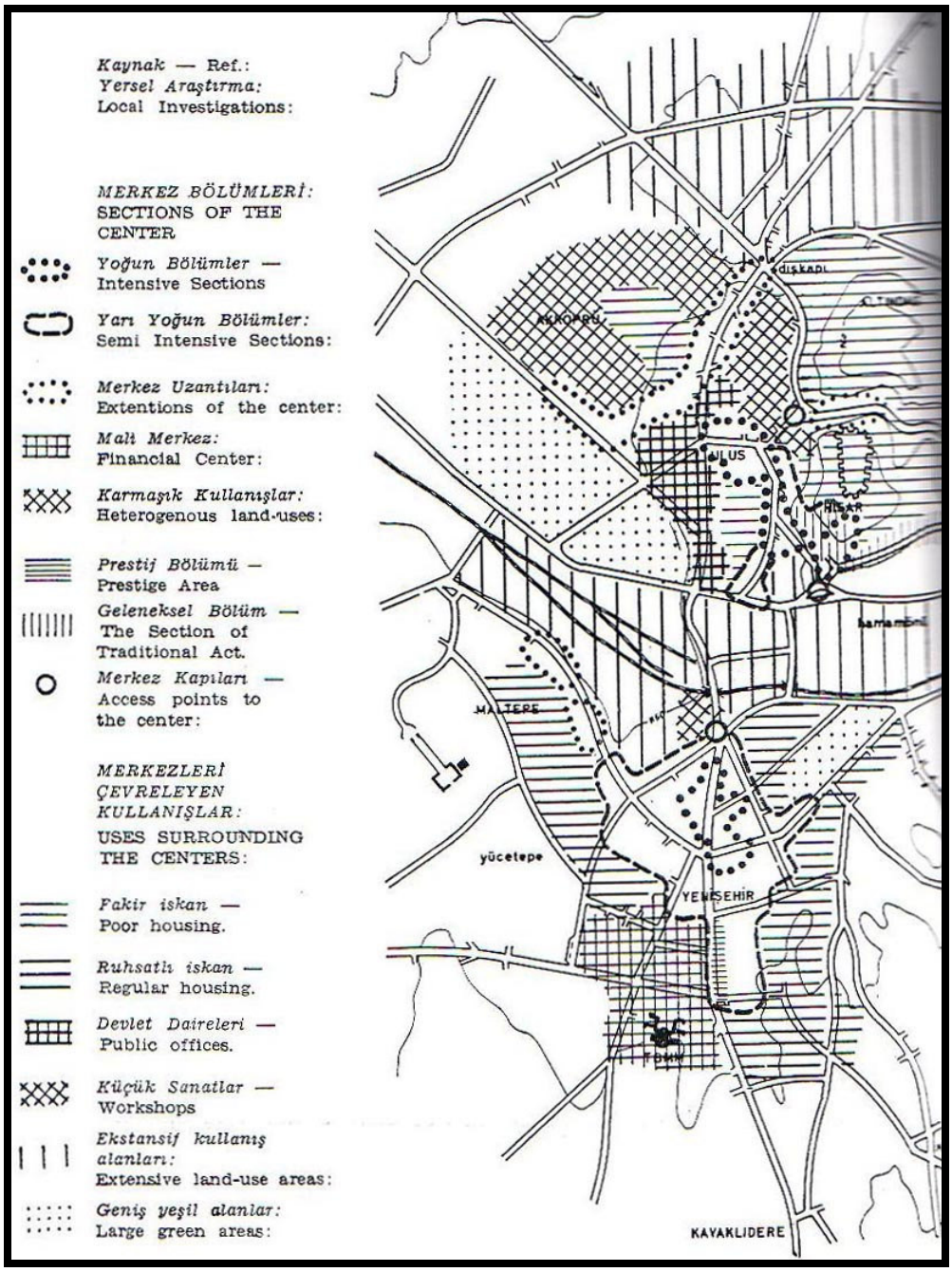

Figure 4.37: The Structure of the Center of Ankara (1970)

Source: Akçura, 1971, 120

Because of these institutions, the financial decision-making and public administration activities were mainly concentrated in this area. However, the decision-making services of private sector was not represented as much as the ones of public sector in Ulus. In 1970, there were only few technical and professional consultancy services. Legal consultancy activities, however, were concentrated in Ulus. The reason of this concentration was their demand to be close to the Courthouse, which was located in Ulus at that time. In this sense, it is difficult to claim that Ulus was a finance and business center in 1970. The main activity sets were distributive services and household services. The area of distributive services could be divided into two spatial parts, when the types of products, their qualities and principal customers were considered. The distributive services along Anafartalar street had mainly served for middle and high-income groups, while the ones in Samanpazarı were for low-income groups (Akçura, 1971, 119).

In 1970, the spatial boundaries of Ulus service concentration site were easily detectable. In the southwestern part, there was Central Station and Gençlik Park. The small-scale manufacturing and the related services determined the boundary in the northwestern part. There were university, health and public administration facilities in the northern part, and residential areas, squatters and hospitals surrounded the eastern part (Akçura, 1971, 122).

According to Akçura (1971), the spatial structure of Kızılay was much easier to be understood. However, since the service concentration site was too small, it was difficult to detect its homogenous parts. The densest part of Kızılay section was between Sıhhiye and the Lozan Square. However, this area was mostly covered with high-quality products serving distributive services and household services. These distributive services, mostly retailing, were on the ground floors. In the upper floors, there were certain welfare services and business services. However, business service densities, even along the Atatürk boulevard, were lower than Ulus (Akçura, 1971).

Another different characteristic of Kızılay had appeared with the spatial boundaries delimiting this section. It was not easy to describe the boundaries as it was in Ulus. The service activities had expanded up to Kolej and Kurtuluş Park in the eastern direction. There were no buffering land-uses in the western direction; therefore, the services had freely developed in the western part along the GMK boulevard. In the southern part, however, due to the rapidly developing residential areas, there had appeared subcenters in Kavaklıdere, Güvenevler and Çankaya districts (Akçura, 1971, 125).

Akçura (1971, 126) gives also quantitative comparisons between Ulus and Kızılay in his study (table 4.17). As it can be followed from the table 4.17, Ulus had contained almost all of the distributive services, both retailing (food and clothing) and wholesaling activities. Similarly, hotels were also concentrated in Ulus[26]. Because of the location of Courthouse in Ulus, most of the legal consultancy services were located in Ulus, too. With reference to real estate services and doctors as private welfare service, there was equality between Ulus and Kızılay. However, Kızılay was superior to Ulus, when certain welfare services and business services were considered.

Table 4.17: The Comparison of Ulus and Kızılay (1970)

Source: Akçura, 1971, 126

BAZI FAALİYET KOLLARINDA ULUS - KIZILAY KIYASLAMASI

Kaynak : 1969 Telefon Rehberi, Mimarlar Odası, Turistik Oteller Listesi

İşkolu	İncelenen Sayı	Ulus %	Kızılay %
Perakende tuhafiyecilik	203 Dükkân	78.3	21.7
Avukatlar	740 Büro	81.7	18.3
Emlâk komisyoncuları	113 Büro	51.5	48.5
Dahiliyeci doktorlar	105 Muayenehane	52.3	47.7
Sinir doktorları	24 »	45.7	54.3
Kadın kuaförleri (1)	57 Kuaför	33.3	66.7
Dernek ve cemiyetler	170 Dernek	34.1	65.8
Oteller	176 Otel	95.3	14.7
Turistik oteller	1850 Yatak	27.0	73.0
Toptancı bakkallar	116 Dükkân	98.1	1.9
Canlı hayvancılar	24 Komisyoncu	100.0	0.0
İthalât mümessillikleri	58 Mümessillik	29.5	70.1
Gazete mümessillikleri	24 Mümessillik	12.5	87.5
Mimarlar (2)	72 Büro	12.5	87.5

Not : (1) Şehrin güneyindeki alt - merkezlerde de 18 kuaför tespit edilmiştir. Bunlar hesaba katıldığında incelenen sayı 75, Ulus'un payı % 25.2, Kızılay'ın % 50.4 olmaktadır.

(2) Kavaklı ve civarında da 43 organize mimarlık bürosu vardır. Bunlarla beraber incelenen büro sayısı 115, Ulus'un payı % 7,8. Kızılay'ın payı % 54.9 olmaktadır.

[26] The touristic hotels were, however, concentrated in Kızılay. In 1970, 73 percent of the beds in touristics hotels were in Kızılay according to Akçura's study (1971).

Bademli (1987b, 156) states that, in 1970, Kızılay could be considered as a secondary business center. According to studies of AMANPB (1977), there were 17.140 firms in Ankara in 1970, 31,88 percent of which were concentrated in Ulus, and 14,11 percent of which were in Kızılay. Approximately 20 percent of firms were concentrated in Cebeci, Küçükesat, Maltepe, Bahçelievler and Yenimahalle. The rest had dispersed to all over Ankara. Although Kızılay had seemed smaller than Ulus with reference to firm numbers, employment numbers and total turnovers per single firm were considerably high in Kızılay (figure 4.38).

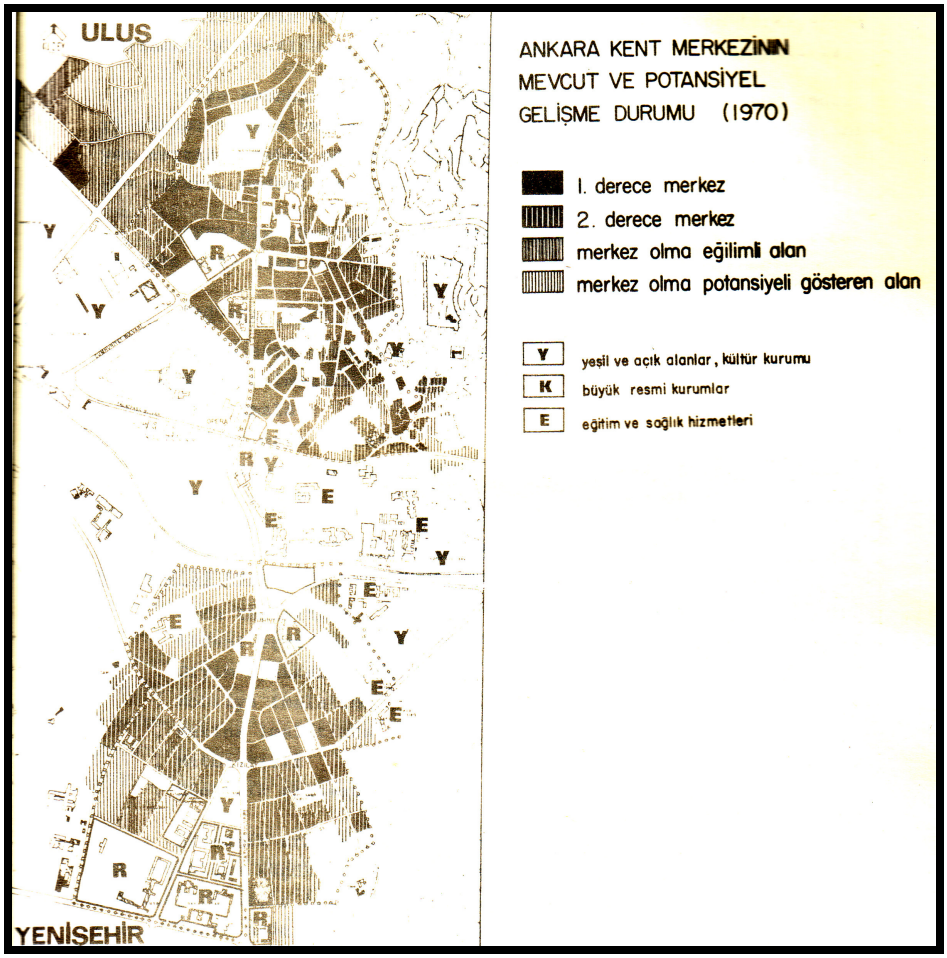

Figure 4.38: The City Center of Ankara in 1970

Source: AMANPB, 1977, 330

According to Bademli (1987b, 157), there were not any comprehensive studies about the spatial structure of the center of Ankara until 1985. In 1985, he had performed a study aiming to describe the city center of Ankara, and compared the picture with the 1970 description of AMANPB and Akçura. The basic difference within this period was the spatial growth of economic activities in Kızılay, which was mainly on the southern direction along the Atatürk boulevard. In Ulus, on the other hand, the direction of the spatial growth of economic activities was northwest, especially on and around Rüzgarlı street. However, the spatial growth patterns of service activities in these two sections of the city center were different. In Ulus region, the area covered by service activities did not increase too much in size, but it was intensified when the period between 1970 and 1985 was considered. On the contrary, the service activities were radically outspread in Kızılay region (figure 4.39).

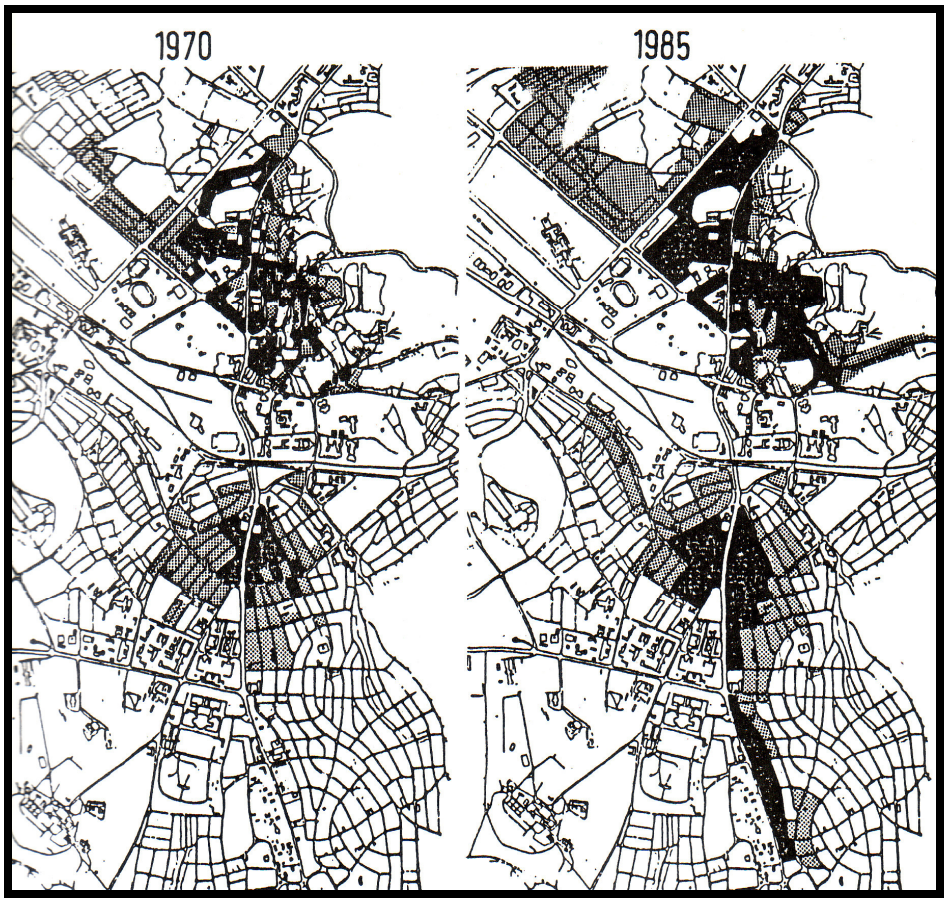

Figure 4.39: The Comparisons of City Centers of Ankara in 1970 and 1985
Source: Bademli, 1987b, 161

There are certain similarities and differences between these studies and the existing spatial organization of services of 2005 described in this study. The basic similarity is the spatial delimitation of Ulus service concentration site. The existing service concentration could not exceed the spatial limits of 1970 and 1985, since the delimiting thresholds such as the residential areas in the eastern side and the small-scale manufacturing and repairing activities in the northwestern side have still resisting characters to be invaded by service activities. The spatial qualities of their physical patterns are not suitable for the development of service activities, especially fro producer services. The university, health and public administration facilities in the south, and Central Station and Gençlik Park in the southwest still block the spatial developments of all kind of services.

Although the spatial boundaries of Ulus remain almost the same, the service compositions and the activity contents have fundamentally changed. The indicator of this change is the downfall of the relative percentages of producer services. Some of the public institutions are still in Ulus; yet, the producer services, especially the business services, tend to locate in Kızılay, or to develop towards the southern direction. The location decision of main Courthouse in Sıhhiye and the new locations of ministries in İnönü boulevard can be seen as the causes of spatial development of producer services in the southern parts of the city.

The spatial boundaries of Ulus do not change fundamentally; yet, the ones in Kızılay have changed due to the enormous growth of services since 1970, the clues of which are traceable in Bademli's study (1987b). The main core of the spatial organization of services becomes Kızılay without arguing. Although the population has increased more than 3 times since 1970, the producer services do not have any tendency to disperse onto the Ankara, but continue to concentrate in Kızılay. The concentration within the main core is not only relevant for distributive services as it was in the past, but also for business services, especially legal consultancy and the related services. Except for this high dense concentration in Kızılay, the spatial development of services is evident in almost all direction. In the eastern direction, Kurtuluş Park, which is the eastern buffer for services in 1970 and 1985, is exceeded. The services, especially distributive services, are reached up to the Dikimevi square. In the western part of Kızılay, there is a spatial development of services until the main streets of Bahçelievler, Yukarı Bahçelievler and Emek districts. Although there are pure residential streets along both of these directions, they can be defined as consumer service extensions. The subcenters of 1970 in the southern part of Ankara are now spatially combined, and can be determined as a

secondary concentration site of business services. The area of sprawl of producer services and business services indicates that the growth tendencies of services is towards the southern direction, as it was also emphasized in Bademli's study in 1985 (Bademli, 1987b, 160). Such a spatial growth towards south creates new consumer extension areas, as it is observed in Maltepe-Emek and Dikimevi directions. The most important one appears along Çetin Emeç boulevard which was pure residential area (more truly, squatter area) in 1970 and 1985.

4.5. The Contextual Factors influencing the Spatial Organization of Service Activities

There are several contextual factors affecting the spatial distributions, and consequently, spatial organizations of service activities. These factors can mainly be grouped under four categories: social factors, morphological factors, geomorphological factors and planning decisions.

The distribution of social elements has a direct influence on the distribution of service activities (Gilli, 2003). Therefore, the contextual social factors influencing the distribution of services mainly refer to causal relations between the distributions of social elements (embedded in the residential distributions) and the services. According to Gilli (2003), the analyses of these causal relations have to be based upon descriptions of principal customers for specific goods or services, and include a specific examination of location of principal customers. It is relatively easy to determine the principal customers and their relations with the service providers with reference to consumer services. However, it is difficult to determine those for producer services. Moreover, determination of the location of the customers for producer services is difficult. Some of these customers may locate themselves outside the metropolitan area, while some others may be the neighboring firms. Because of these difficulties, the social factors can be a subject of another study, which approaches to the spatial organization of services from the consumer (demand) side.

Morphological factors, on the other hand, have also profound effects on the spatial distributions and organizations of service activities. These morphological factors are basically related to the physical characteristics of the built-up environment[27]. It is a fact that certain types of services necessitate specific types of physical patterns or

[27] At the beginning of the study, the influence of the built-up environment on the spatial distribution of services is determined as an objective of the case study. However, no up-to-date statistical information is available on the built-up environment. Therefore, this objective is eliminated within the process of the study.

architectural features to be located. For instance, retailing activities usually prefer urban patterns composed of attached buildings, whereas wholesaling activities choose work units having immense floor spaces. Most of the business services desire to be located in building in which ICT infrastructure is available. In this framework, it is obvious that the examination of the influences of morphological factors on spatial distribution of services depends on determination of urban zones with homogenous morphological character, and analyses of the correlation between these zones and the distribution of services. However, this is also a subject of another study.

Different from the social and morphological factors, an interrogation of distribution of service activities in Ankara as related to its geomorphological structure and planning decision is performable.

As it is clearly observable in many cases, geomorphological structure is one of the main determining factors of the intra-metropolitan spatial organizations. It does not only affect the spatial distributions of any kind of urban elements, but also imposes a new order on the organizational principles. Although the literature about the urban spatial organization is mainly developed with the search of universal principles affecting the spatial organizations, all of these studies are aware of the fact that geomorphological structures on which cities are located have a power on transforming these organizations. However, the impact of geomorphology on the urban spatial organization is difficult to be generalized. Since geomorphology is unique at every single location, the existing theoretical frameworks generally omit its impacts, and base their assumptions about spatial organization as if the urban plain is uniform, and as if there exists no geomorphological variations.

The relation between geomorphological context and the spatial distribution of services, is clearly observable in the city of Ankara. According to Altaban (1987, 7), in Ankara Case, the natural assets have a restrictive and influential character on the spatial structure. Altaban (1987, 7) claims that the influences of geomorphological assets on the spatial organization have to be considered within this framework of assumptions.

There are certain structural features of geomorphology around the city of Ankara. Ankara is located in between Çubuk plain in the north, Mürted and Engürü plains in the west, and Mogan plain in the south. The land on which Ankara is located is undulating to a certain degree; yet, most of its sections are suitable for settling between 800 and

1200 m. above the sea level. According to Akçura (1971), these geomorphological elements form a horseshoe shape oriented to the western direction.

According Erol (1973), the land on which the city of Ankara is located includes different geomorphological units such as valley floors, lower terraces, higher terraces, lower and middle plateaus and higher plateaus. The main **valley floor** in Ankara is positioned in the east-west direction broadening in the western direction. Ankara creek, which comes into being by joining the İncesu, Hatip and Çubuk creeks, separates the valley floor as north and south sections. **Lower terraces** designate older alluvial basins fragmented by valleys smaller than 30 m. high. Although there exists physical interruptions, these old plains have smooth surfaces with a width of a few kilometers. **Higher terraces** are principally similar to lower ones. The only difference is that they are located on higher elevations, and are much more fragmented. A big portion of the city is on the higher terraces fragmented by rift valleys, which have 30-80 m. depth and 1-2 km. width. **Lower and middle plateaus** are also fragmented by rift valleys and surrounded by steep slopes. **Higher plateaus** are located on the upper limits of the city on which construction is extremely difficult. The composition of these geomorphological units is presented in figure 4.40 (Erol, 1973).

In this geomorphological context, the most suitable lands for urban development are on terraces. They have relatively smooth surfaces, high levels of carrying capacities, and positive drainage characteristics. The discontinuities due to the small and rift valleys are relatively limited in number. Although valley floors are most smooth areas, their carrying capacities and negative drainage characteristics do not permit heavy and high-dense urban developments. The plateaus formations are not very suitable for urban developments. Although the carrying capacities and drainage characteristics are quite positive on these formations, they have discontinuous character due to the surrounding steep slopes. This discontinuous character does not only result in difficulties in designing transportation networks perpendicular to these formations, but also constrains sprawl type of urban patterns (Erol, 1973).

These geomorphological formations have quite determining role on the overall spatial distribution through the geomorphological thresholds in the north, east and south directions and the threshold-free geomorphological formations in the western direction relatively suitable lands for urban development. Within this geomorphological context, the residential areas are sprawled with a radius of approximately 26 km., especially in the western direction in Ankara.

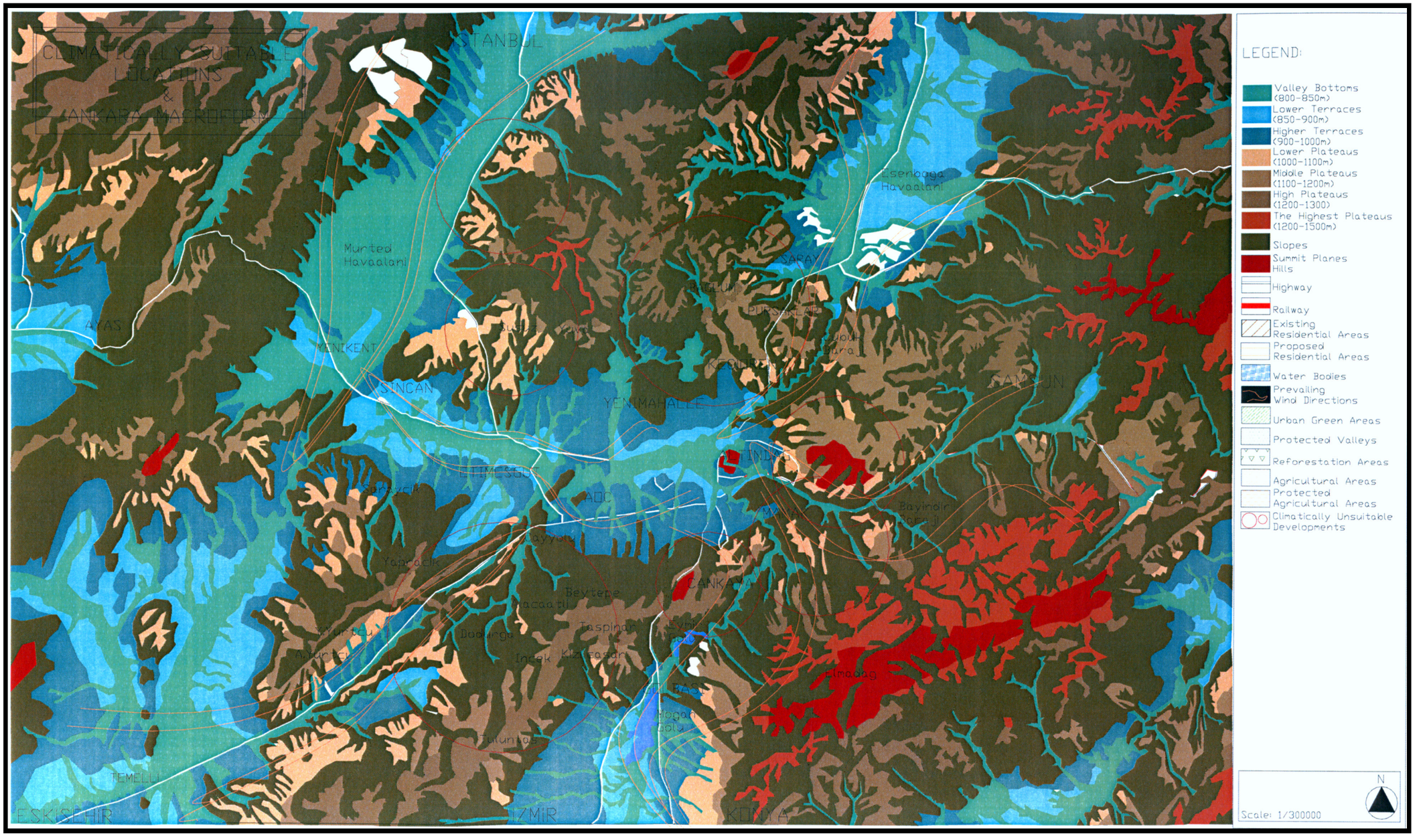

Figure 4.40: Geomorphological Structure of Ankara

Source: Erol, 1973

The basic density surfaces, however, are concentrated within a circle with a radius of 10 km. (figure 4.41). These residential densities are on the lower and higher terraces, and the lower and middle plateaus abutting on the high plateaus. In this sense, although there exists a high degree of residential dispersion, especially in the western direction, the main element determining the residential structure becomes the horseshoe-shaped geomorphological structure.

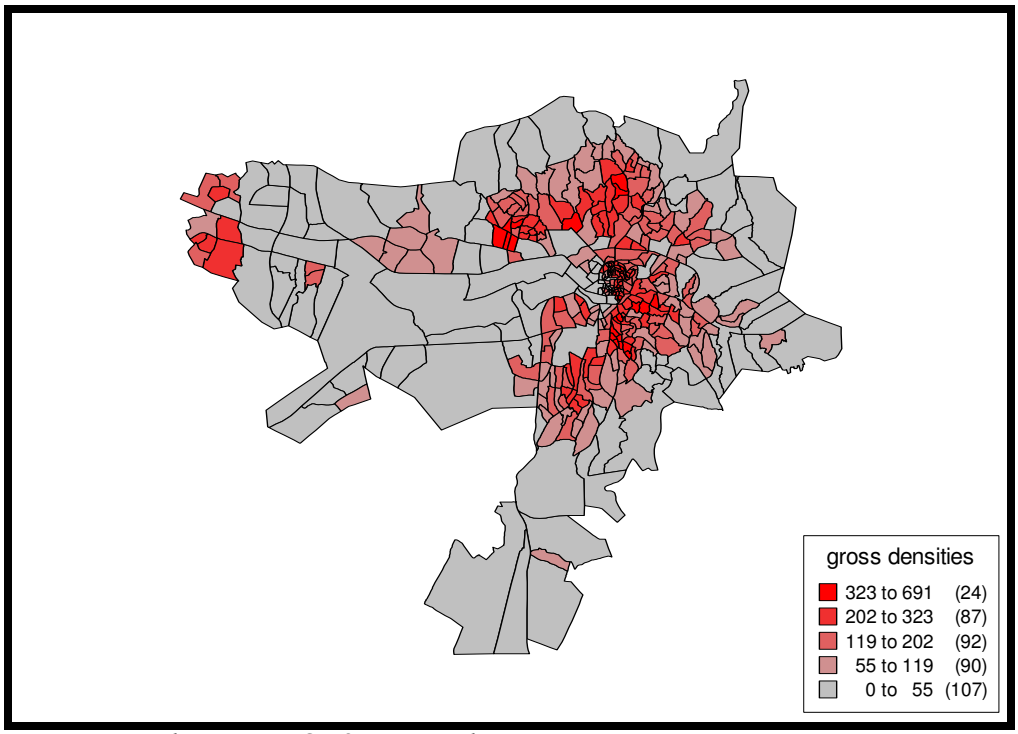

Figure 4.41: The Density Surfaces in Ankara

Under these conditions, it can be also claimed that the spatial distribution of service activities, their spatial concentrations, and their spatial organizations are open to be influenced by the geomorphological context.

Same as the residential areas, services also demand suitable lands for spatial development. Therefore, the lands inside the high plateaus can be considered as the potential service development sites. Since the residential densities are placed close together in limited areas and the accessibility patterns are formed with reference to this configuration, the geographical center of these density surfaces, namely Kızılay,

appears as the most suitable area for service developments in which there is the main core of business services.

However, there are other influences of the geomorphological context on the spatial organization of services. Since the spatial continuities are important for spatial development of service activities, the continuities within geomorphological structures becomes extremely important to understand the spatial organizations of services. This proposition can be traced easily in the areas of sprawls and the consumer service extension of the monocenter, which usually developed on the low plateaus and the small valley basins around the city center.

As the geomorphological context, planning decisions have also influences on the spatial distribution and organization of service activities. Since 1970s, the city of Ankara has experienced three different development plans[28]. The first one of the development plans is known as the **1990 Plan**. This plan was prepared by the AMANPB (Planning Office for Metropolitan Area of Ankara), established as a Department of the Ministry of Development and Housing in 1969. The second one is the **2015 Structure Plan**, which was prepared by a study group from the Department of City and Regional Planning, in Middle East Technical University (METU). It was not an approved document, and mainly proposed to direct the investments of public transportation. The third one, the **2025 Plan**, also, was not approved. Yet, different from the 2015 Structure Plan, it was produced by the planning office of the Municipality of Greater Ankara in 1997 (Bademli, 1987a; Çalışkan, 2004).

The main objective of the **1990 Plan** is to direct the urban development outside the borders of the previous Yücel-Uybadin Plan by providing proper urban standards. With this objective, it aims to resolve the spatial development problematics of the city of Ankara. It also concentrates on the inner city problems (such as increasing densities, and the scarcity of technical and urban services in the existing urban formations) resulted from the partial plans and continuously-changing District Height Regulation until 1970s (Altaban, 1998; Bademli, 1987a).

This plan has a 20 years time perspective. With its flexible principles and policy statements, it is like a structure plan rather than a development plan (Altaban, 1998,

[28] The planning office of the Municipality of Greater Ankara have prepared another plan, named as the 2023 Plan, and presented it on the last days of this study. However, the analytical studies and the plan report were not available in those days. Therefore, the 2023 Plan could not be used for the evaluation within this study.

59). It provides a new understanding for planning profession in Turkey; however, its implementation is dependent on the limitations of the existing planning system and the planning tools (Bademli, 1987a, 109).

This plan proposes two development corridors for the city, one in north-west and one in south-west in order to form a new urban system. This main proposition is quite consistent within the conditions of 1970s. It has also consistent planning proposals for urban centers (Bademli, 1987a, 109). This plan accepts the dominancy of the city center (AMANPB, 1977, 376). However, according to the analytical studies of the plan, Ulus section of the city center is conceived more important than Kızılay. It is conceptualized as the main core of the city center, and it is considered more fortunate to take up future spatial developments of services (Bademli, 1987b, 158). In this framework, Kazıkiçi Bostanları in the northwestern part of Ulus is proposed as the development area for the city center, which covers 300 ha. In the Kızılay section, the development proposal for service activities is only 20 ha., and it is in Maltepe direction (AMANPB, 1977, 378). Although the AMANPB is aware of the fact that service activities have a tendency to develop along the Atatürk boulevard, they do not propose any development for services in the southern direction because of the topographical constraints, scarcity of suitable lands for urban (re)development, high levels of land prices and urban rents, low levels of accessibility, and being on the opposite direction of the major urban development corridor (Bademli, 1987b, 158).

Beside these propositions towards the city center, AMANPB also produces principles and policies about the spatial organization of subcenters. Their propositions about the subcenters directly match with the idea of achieving urban development in the periphery of the city (AMANPB, 1977, 377; Günay, 2005, 97). The subcenter propositions are related to the important residential development zones in Sincan, Eryaman, Batıkent, and Çayyolu. It is assumed that these subcenters would be mainly dominated by retailing activities. According to AMANPB (1977), most of the retailing activity (65 percent of all) would be in those subcenters outside the city center. Under these conditions, the city center would be an administrative and cultural center, including also specialized business services.

According to Bademli (1987a, 109), the 1990 Plan can be considered as a successful plan with its high level of analytical capacity and problem definition ability, consistent projections, and realistic propositions. The real successes of this plan are Squatter Prevention Zones in Sincan, New Residential Development Zones such as Batıkent and

Eryaman, and Organized Industrial District in Sincan (Bademli, 1987a, 110). However, the proposals about the spatial organizations of services and centers are not so much consistent unlike the residential developments. In 1985, there were no service activity developments in Kazıkiçi Bostanları, although it has been proposed for CBD development. Maltepe, as the other development site for CBD, has become the CBD extension, mainly containing consumer services. However, the main developments related to the services have been observed in Kızılay and Çankaya regions. Kızılay was intensified within this period, and there has emerged an important spatial growth of services along the Atatürk boulevard. The sub center proposals, in both Batıkent and Çayyolu, have also failed. According to Günay (2005, 101), because of these failures, Batıkent have become an unintegrated residential whole, and the trends of scattered urban developments have continued in Çayyolu.

The **2015 Structure Plan** is not an approved plan. It is prepared by a study group in the Department of City and Regional Planning in 1985 with a 20 years projection period. It mainly contains an urban macroform analysis and advisory principles for directing the investments of public transportation (Altaban et. al., 1987).

The main strategy of this plan is decentralization. It aims to decentralize not only residences, but also industrial sites and service sites. Through this decentralization, it is aimed to develop of self-sufficient urban parts in which a balance between residences and work places could be achieved. Employment decentralization is used as a tool to achieve a star-shaped macroform, each corridor of which is supported by public transportation modes (Altaban, 1998, 62; Altaban et. al., 1987).

The 2015 structure plan continues the propositions about the city centers and spatial organization of services of the 1990 Plan. Although there had not emerged any kind of developments in Kazıkiçi Bostanları, the 2015 Structure plan insists on the same site for CBD development. The plan does not prefer spatial developments of services in the southern part of Kızılay due to existing morphological and geomorphological conditions, although it points off the service areas, which are not proposed within the 1990 Plan, but developed by the market mechanisms in the southern part of Kızılay.

The **2025 Plan** is prepared by the planning office of the Municipality of Greater Ankara in 1997. It has a population projection of 7.200.000. It is mainly for directing and organizing the scattered residential areas. Therefore, it is like an amalgam of previous partial developments.

Çalışkan (2004) states that this plan, which pairs itself with *formlessness*, is criticized being inconsistent in projections and propositions. Since the main focus of this plan is the residential areas, it does not develop any noteworthy propositions for the city center and the spatial organization of services, but continues the ones of the 2015 plan.

All of these plans have significant influences on the existing spatial organization of services, and consequently, monocentric structure of Ankara. These influences are rather indirect, since the propositions related to spatial organization of services and central system could not be realized or implemented. In other words, the planning decisions become pull or push factors for the spatial organization of services in Ankara.

One of these indirect influences is generated with reference to the main development decisions of the city. All of these plans point out the western direction for residential development. However, these residential developments do not display continuity in space. Between the nucleus of the city and these developments, there exist important urban open spaces like METU Campus (Middle East Technical University) and Atatürk Orman Çiftliği, which behave like barriers preventing continual spatial developments of services. Service activities, especially producer services, could not jump over these barriers. Moreover, the potential areas for spatial development of services are filled up with public institutions, and no space is left for services on these potential sites. In this sense, these open spaces put pressure on services to be intensified on their existing locations, and they become the main factors that force service activities to be developed in the southern directions.

Moreover, the transportation networks evolved with reference to the general planning decisions generally promote the accessibility in central zones. Besides, the transportation planning experiences ignore the existence of periphery-periphery commuting relations, and do not achieve propositions suggesting out-of-center accessibilities. Under these conditions, the service activities could not move away from those locations in which they can meet with all of their customers easily.

Another indirect influence is related to the development ideology proposed by the development and the implementation plans. These plans continuously increase the development rights and promote redevelopment in central zones, which prevent the achievement of ossified built-environments. Thus, the scarcity of the available spaces does not create a problem for the development of services in the central zone, and the services are not forced to be *pushed* from the central zones.

CHAPTER 5

FROM DESCRIPTION TOWARDS PRESCRIPTION: PLANNING FOR SPATIAL ORGANIZATION OF SERVICES

Within the previous case study chapter, the spatial organization of service activities in Ankara case is described. The key components by this description are the concentration and dispersion patterns of service activities and the spatial patterns of their cohesiveness. The first outcome of that chapter is the introduction of the monocenter and the monocentric structure of the city of Ankara. Following this introduction, the existing monocenter of Ankara is compared with the city center of 1970 described by Akçura and the one of 1985 analyzed by Bademli in order to understand the general changes in the spatial organization of services. The last part of the case study focuses on an interrogation of distribution and organization of services in Ankara as related to its geomorphological structure and the general planning decisions.

With these achievements, the case study chapter can be considered as a section of extensive descriptions and explanations within the whole study. This chapter, however, tries to go beyond those descriptions that do not mean much solely. The question arising at this point is: "How these descriptions can be used in the planning and policy-making process?".

The basic aim of this chapter is to achieve an opening out towards the field of planning interventions, and to discuss the prospective policy base for the spatial organization of services. Such a planning approach and policy-base has to be developed by relating the spatial analysis and policy-making processes in order to free urban planning from the market forces by determining future spatial organizations of services[29], and to build a relative balance between these two in a radically changing context (Chapin, 1965; Allen, 1997).

[29] There are two results when the process from analysis to implementation is not properly considered. The first one is the domination of market mechanisms on urban planning due to the low level of legitimacy generated by informational paucities. The other result is the "trend planning" for urban spatial systems (Chapin, 1965).

Within this framework, the first part of this chapter contains the examination of planning systems of different countries. This examination is necessary to discuss the effectiveness of different planning systems for the intervention of the spatial organization of services. Throughout this examination, different planning policies and strategies in order to intervene the spatial organization of services are revealed in order to understand if there could be any lessons for Turkish case. Aiming this, two basic planning systems are examined: planning system of the United States (US) and the British planning system. Besides, the planning systems (mostly their relevant parts with service activities) of certain countries in continental Europe are also discussed. The second part of this chapter concentrates on the Turkish planning and legislative system, and aims to display its successful and unsuccessful aspects for intervening the spatial organization of service activities. The last part of this chapter is about making inferences for a new formulation of urban planning approach for Turkish case by keeping the question: "*how might planners translate the new understanding of spatial organization of services into their practices?*" in mind.

5.1. Planning Interventions for the Spatial Organization of Services

For many years, it has been difficult for urban planners to understand the complex dynamics of spatial organizations of service activities at intra-metropolitan level. There are two basic reasons of this difficulty:

- These spatial organizations contain numerous service activities having differentiated and dynamically-changing locational preferences and spatial strategies,
- There are different organizational principles ordering the urban space depending on the sizes and locations of metropolitan areas, which are difficult to be understood with reference to universal rules and principles.

These two features attach complex and contextual character to spatial organization of service activities at the intra-metropolitan level, and coerce them to be dynamic in nature.

There is, however, another difficulty by understanding the spatial organization of services, which are the changes and transformations in the urban context, especially observed in the western cases. Although they complexify the process of understanding the spatial organizations, they also foment the studies about spatial organizations.

The first change in the western urban context is related to the processes of decline of inner cities. Inner city decays and deteriorations have started to be observed since the end of 1960s, and generated mainly by the dispersion of the residential units, and consequently, the work units from the central zones. According to Grant (2002, 74), in this period, the inner city districts have suffered decline as suburban areas have been growing[30]. Demographic changes and new living standards combined with the high cost of energy have directly influenced the requirements of housing conditions and their distribution. There have emerged new forms of travel behaviors as shorter distance for provision of services. The response of the work units to these changes has been as to follow the customers in the peripheral areas (Davies and Champion, 1983). That has been the main result of the decline of inner cities, which has changed economic, social and physical aspects of central zones. With these changed characteristics, city centers have drawn special interests as being the main spatial context within which all the contemporary processes are manifested, especially in the US case. The spatial organizations of services have become one of the main issues for both planning theories and practices since that period.

The second contextual change is the appearance of new spatial formations such as polycentric ones at the intra-metropolitan level. It becomes strongly inevitable with the growth of cities and with the development in communication and transportation technologies, especially for the US cases. The existing theoretical frameworks have become insufficient to represent these polycentric cities. The polycentricity, which pairs itself with the deconcentration and decentralization processes, has increased the theoretical interests in the analysis of spatial organization of services, not only for the cases of developed countries, but also for the ones in developing countries due to the partial polycentricity evidences (Griffith, 1981; Kumar, 1990; Fujita and Ogawa, 1982; Greene, 1980; Getis, 1983).

What can be easily claimed with reference to the changes of the urban context is that understanding the spatial organization of services is difficult, but is essential under these conditions.

[30] According to Ewing (1997), there are two theories of suburbanization, both based on the changing locational preferences (Mieszkowski and Mills, 1993; Adams et. al., 1996). The **natural evolution theory** explains the decentralization of the firms and households in terms of changes in demand for land, due to changes in technology and incomes. Consumers are attracted to cheap lands in the suburbs. The **flight-to-blight theory** explains the same phenomenon in terms of residential amenities. Consumers are driven form cities due to high taxes, low quality schools, crime, and racial tensions.

The primary field that faces up to this difficulty and necessitates a new understanding for the spatial organization of services is the field of urban policy-making. In the context of services, policy perspective principally relates itself with the spatial distribution and development of service activities. It is obvious that understanding the existing spatial organization of services can be conceptualized as an initial step for determination of future spatial organizations, since it is like a spatial groundwork for future prospects.

There are several sub-reasons why the policy makers try to understand the spatial organization of service activities (Daniels et. al., 1991, 13),

1. in order to calculate the demand for physical infrastructure and technical services, such as office floor space, modes of public transportation, transportation infrastructure, and communication facilities.

2. in order to understand commuting relations within the cities.

3. in order to grasp the multiplier effects on the demand for other specialized services such as retailing, housing, and social services, both in quality and quantity.

4. in order to understand the relations between the spatial patterns of services and the changing attributes of consumers, or in order to understand the increasing expectations about the quantity and quality of services available.

5. in order to comprehend the differentiated servicing costs of dispersed or concentrated patterns, since being located in any part of the metropolitan areas is influenced by these costs.

5.2. Different Planning Approaches

Urban planning is a process including the practices and efforts that concern with shaping the future (Ward, 2004, 1). It is a normative activity in its essence, and by shaping the future, it pairs itself not only with solving the problem(atic)s, which come out within the context of market mechanisms and the property relations (Tekeli, 2001), but also with proposing new spatial organizations.

One of the important aspects within this part of the study is the examination of different planning systems according to their attitudes for intervening the spatial organization of services. There are different planning systems aiming to manage, control, and reproduce the spatial organization of services through different priorities. Two planning systems can be seen as overrated in the planning literature, namely the US planning system and the British planning system. There are also other planning systems, such as the ones in France, Sweden and the Netherlands, having different visions and missions about the spatial organization of services.

These planning approaches do not have only different priority systems, analysis-synthesis techniques, problem definition capabilities and planning tools, but also different intervention considerations by carrying service systems to the future.

5.2.1. Planning System in the United States

It is not so easy to talk about the existence of an institutionalized planning system in the United States when compared to the European cases. What exists in US is a well-developed legislation system, which is basically constituted around the idea of zoning and related regulatory mechanisms.

Although zoning is a limited and negative system of spatial control, it can be named as the main planning tool for controlling the urban space and for (re)producing overall urban spatial organization in the US case[31] (McClure, 2001; Hall, 2002, 205).

Zoning is essentially an urban co-operation, although it does not come out as a voluntary plan readily accepted by the city as a whole. It is, however, a necessary step to prevent the potential chaos emerged within the urban life (Baker, 1927).

In the period of the appearance of zoning legislations, zoning had conceptualized as an exercise of the community-right to control the use of buildings and land, the height of buildings in physical distance or the number of stories, and the area of lots which may be occupied by buildings (Baker, 1927). In the later periods, however, it is firmly entrenched as a basic strategy for separating urban land-uses thought to be

[31] Although provision of financial assistance for development is another widely-used planning tool in the US case, it is limited in nature, since it is not available on all over the urban space (McClure, 2001).

incompatible in proximity; and also, considered as a form of growth management (Grant, 2002, 72; Hall, 2002, 205; Cullingworth and Caves, 2003, 4).

Zoning is administrated by separate zoning commissions from each local authority area. It represents the division of urban areas into districts with different regulations in general. It does not permit to be done everything in every location. Due to these characteristics, it is formally separated from planning systems of European tradition (Hall, 2002, 205; Cullingworth and Caves, 2003, 63).

Zoning is also a tool to overcome possible uncertainties. Although it is criticized a lot, as a land-use control, it remains as the most important tool available for local governments by determining the location, design, and the functional character of urban growth, and consequently, the spatial structures (Bourne, 1976, 533).

According to Berke et. al. (2006, 453), there are three types of zoning codes in the US case: used-based zoning codes, form-based design codes, and hybrid codes (parallel codes or modern unified development codes).

Traditional *used-based zoning codes* regulate primarily urban land-uses. They are proscriptive in essence, and prohibit developments that are not consistent with the zoning regulations declaring what uses are not allowed. *Form-based design codes*, on the other hand, regulate building types, design and the spatial aspects of the public realm. These form-based codes are prescriptive in essence. That is, they require spatial developments to be laid out according to their design standards declaring how the design has to be done. *Hybrid codes*, as the name implies, are like combination of use-based and form-based design codes. They add special design-based districts, either in permissive floating zones or in mapped mandatory districts, to operate parallel with use-based zoning regulations (Berke et. al., 2006) (table 5.1).

According to Hutton (2004, 1953), the whole zoning legislation is made for managing and controlling urban developments where the market forces continuously reshape the cities. However, they are not only related to the overall urban development, but also to the spatial growth and organization of service activities.

Table 5.1: Comparison of Different Types of Zoning Approach

Source: Berke et. al., 2006, 453

Traditional zoning codes	Form based codes	Hybrid codes
Regulate uses	Regulate designs of buildings and public realm	Regulate both uses and designs
Proscriptive (prevent harms and uncertain outcomes)	Prescriptive (specify form and mandate outcomes)	Both proscriptive and prescriptive
Legalistic text format	Design oriented graphic format	Text and graphic
Inflexible on prohibited uses, flexible in design	Inflexible on design standards	Flexibility depends on applicable code
Not always linked to land use plans	Linked to regulating plans	Linked to land use plan and regulating plan
Based on use zone districts	Based on urban transect zones	Based on both use zones and transect zones
Zoning change and project approval decisions made by elected bodies	Approval decision made by town architect (administratively)	Depends on applicable code
Changes occur incrementally	Once enacted, changes are not anticipated	Combination of changes and processes

In the US context, market forces are generally conceptualized as self-correcting mechanisms emphasizing the spatial competition by formation of spatial organization of services (Berke et. al., 2006). These self-correcting mechanisms continuously change the locations of service activities, when the revenues of service provider from exploitation of the location stand below the expected level. As a matter of fact, since the public investments for different urban infrastructure within the cities directly influence the distribution of urban rents, the above-mentioned relative revenues continuously change, which results in new demands for relocation of services.

The demand for new locations of service activities appears usually outside the monocenter in the US case, falling out in the form of sprawl. The reasons of these sprawls can be tied to the non-existence of powerful traditional CBDs and the suburbanization of population. These dual reasons refer to the weaknesses of

centripetal and the strength of centrifugal forces in the US cities. The whole bundle of phenomena not only increases the costs of provision of infrastructure amenities (Burayidi, 2001), but also transforms the spatial organizations of services continually.

Within this framework, the spatial organization of services are achieved by either promoting/prohibiting certain service activities at certain urban location or specifying the designs of the physical setting on which service activities voluntarily locate themselves. All of these interventions to spatial organizations are achieved through zoning implementations.

In recent decades, zoning is used as a tool to permit, encourage and intensify the mixed use, especially in the central zones (Grant, 2002, 74). Nevertheless, it is also used for preventing sprawl and promoting higher densities and more-orderly form of urban development. Since sprawl is defined as the lack of continuity in spatial development that generates low-density developments where undeveloped tracts are interspersed among developed subdivisions, they are generally labeled as inefficient formations. In this framework, planners usually opt for continuous rather than discontinuous urban patterns by using zoning not only for residences, but also for services (Clawson; 1962; Mill, 1981; Heikkila and Peiser, 1992).

Although zoning is a direct way of intervening the spatial organization of services, there are also indirect ways institutionalized within the US system. They are mainly embedded into the redevelopment schemes. According to Robertson (1995), since the city centers, or downtowns in US jargon, are seen as definitive factors for overall city identity, the cities of all sizes and in all locations are committed to successful redevelopment schemes for city centers. There are seven widely-used strategies for city center redevelopment in US. These are pedestrianization, downtown malls, historic preservation, waterfront development, office development, special activity generators such as proposal of convention centers, and transportation enhancement. These strategies, indirectly, influence the spatial context on which services can be located and strengthen the centripetal forces, so that the services activities (mostly producer services) are oriented to central zones.

These zoning implementations and the spatial strategies in the context of city center redevelopment schemes are essentially concerned with the built-up area. However, in the US case, the planning interventions directed towards spatial organization of services are not always performed in and around the central zones. Another way of planning

interventions is the proposition of special service sites that are rooted from the typology of business areas (Berry, 1967). This can be named as another type of planning intervention by reproducing the future spatial organizations of services in the US case. These special service sites vary from corner shops to secondary business centers, but also include business improvement districts (or areas), generally in the form of ribbon developments.

In fact, the structure of above-mentioned planning interventions in the US case is weak of purpose in essence. From one side, the planning interventions aim to overcome the problems of downtowns generally with the revitalization strategies intending fine-grained mixing of diverse uses. From the other side, the dispersion of service activities is managed by proposition of *specialized areas* outside the central zones. The reason of being weak of purpose is related to the fact that the spatial system of services is generated principally by zoning legislations. The idea of zoning does have inherent problems of being gathered around the crudeness by allocating the land-uses over the available lands (McClure, 2001). It is not able to consider the spatial cohesion tendencies of activities properly. However, the basic problem is not this crudeness, but the absence of comprehensive planning framework by the implementation of zoning regulations. This lack creates a context in which it is not possible to control the spatial system of services in a proper way (Cullingworth and Caves, 2003, 319). Although planners' responsibility for zoning and land-use clearly give them obvious influences over the built environment in US case, many planners become disillusioned when they realize how peripheral their roles are, unlike the British planners who have a genuine power over the urban landscape (Preiser, 1990).

5.2.2. The British Planning System

Different from the US planning system, the British planning system is positive in essence. This means that it is not restrictive, but much more permitting and flexible. According to Booth (2003,1), the British planning system has centered on the need of flexibility and pragmatic vagueness, and basically searches how the flexibility in urban planning might be achieved[32]. The discussions about flexibility have earnestly emerged with the anti-interventionist wave of neo-liberalism after 1980s, which have also

[32] Until 1980s, the British planning system can not be labeled as flexible, but as conservative and strict. Before the wave of Thatcherism neo-liberalism, the planning system basically had aimed to maintain the existing spatial patterns of service activities and hierarchies, and had eliminated the danger of overprovision of service activities at any location (Adams et. al., 2002).

changed the urban planning intentions, not only at the regional level, but also at the urban level (Hall, 2002).

This permitting and flexible system has two main motives behind: 1.- the dominance of the idea "let the market decide" by controlling the urban space; and 2.- the proactive role of local authorities within the urban planning practices, although the system of legislation seems extremely centralized (Cullingworth and Nadin, 2006; Hall, 2002).

British planning system basically depends on the *development plans* and the *policy guidance* including policy statements, strategical orientations, and evaluative generalizations (mainly drawn from different cases) under the frame of (local) *commissionary control mechanisms*. The development plans are indicative statements of policies rather than prescriptive body of rules. The guidances, on the other hand, are written materials that describe basically the form and the process of development. However, there is another component of British planning system that is commissionary control mechanisms. These mechanisms cross-examine the contextual changes and the planning proposals through case-by-case evaluations (Cullingworth and Nadin, 2006).

The spatial organizations of services are handled and reproduced under such a framework. The main problem of the British cities related to services is the inner city problems caused by decentralization of population and jobs (Hall, 2002, 131). Although the problem is similar to the US cases, the ways of planning intervention are quite differentiated in the British planning system.

As it is mentioned before, the development plans seems as the main tools that aiming to reproduce the spatial organizations of services. This means that the size and the location of the service sites are determined by these plans prepared by local authorities. The unique aspect of these plans for intervening the spatial organization of services is the proposition of differentiated planning zones.

There are three categories of planning zones in the British planning system. These are *enterprise zones*, *simplified planning zones*, and *business planning zones*. All of them can be strategically used for determining the future spatial organization of services. Cullingworth and Nadin (2006, 140) mentions that the enterprise zones are generally proposed for the liberalization and deregulation of land-use planning controls. These enterprise zones are the areas of development in which service firms are free of normal planning controls and enjoy a 10-years freedom from the local rates and certain fiscal

concessions (Hall, 2002, 133). Simplified planning zones are the local equivalent to a development order, and replace normal discretionary planning system with the advance permissions for specified types of development. Business planning zones, on the other hand, are more related with the spatial organizations of consumer and producer services. They are generally designated where no permission would be necessary for development if it is in accordance with tightly defined parameters. Although they are usually used for the firms using advance technologies, it is also possible to be proposed for other categories of services (Cullingworth and Nadin, 2006).

The planning zones embedded in development plans are not the only way of intervening the spaces of services in the British case. The planning guidance does also take an active part in the formation of spatial organization of services.

The primary planning policy guidance for spatial organizations of services is PPG6, "Town Centres and Retail Development" that is first proposed in 1993, and improved in 1996. It basically promotes and enhances vitality and viability of the existing centers of retail and businesses by focusing on the development in such centers from which all consumers are able to benefit, and encourage the availability of a wide range of services in a good environment, accessible to all. Through the PPG6, it becomes possible to provide opportunities for the market to develop in and around the existing centers, and to extend the centers as well as refusing the developments elsewhere outside the central zones (Cullingworth, 2006, 239). With this guidance, priority is given legally to the enhancement of the city centers. Therefore, it means a shift from out-of-town and out-of-center developments toward central developments. Off-center locations for services are permitted only after all central and edge-of-center sites have been sequentially investigated and ruled out (DoE, 1996; Cullingworth and Nadin, 2006, 240; Adams et. al., 2002; Ward, 2004, 254).

After the improvements in PPG6 in 1996, the location of services, especially retailing activities, began to be determined by the public sector, not by the entrepreneurs and developers. Thus, it becomes theoretically possible for urban planners to propose service development in the existing zones and to prevent any major retail decentralization in order to preserve the retail hierarchies[33]. Aiming to control negative

[33] In year 2000, the amount of new retail floorspace developed in town centers exceed the amount of out-of-town shopping centers and retail parks for the first time since 1990 (Cullingworth and Nadin, 2006, 239).

externalities, they use land-use planning, and restrict new forms of retailing at certain locations with reference to PPG6.

This way of propositions seems as a deviation from the idea of flexibility and vagueness, but, in fact, it is not. According to PPG6, the role of planning is not restrictive for the market competition (DoE, 1996; Adams et. al., 2002, 142). It is flexible enough for both developers (by undertaking the risk of increasing costs) and the local authorities (by overriding the existing development plans) to create variations within the service geography (Guy, 1998). It only tries to improve the productivity of the existing service activities, increase the efficiency of the market, and achieve manageable patterns of services by high-dense and mixed-use spatial developments (Cullingworth and Nadin, 2006, 239; Guy, 1998, 964).

However, different from the local authorities aiming to control the overall process of service growth through development plans and planning policy guidance, there are other institutions that influence the spatial organization of services in the British planning system, especially in the major metropolitan areas. One of these significant institutions is the **urban development corporations**. The idea of these corporations is rooted from neo-liberal understanding of 1980s. They mainly aim to assemble sites, reclaim land, and provide land for urban developments, especially for business service development. They also try to provide necessary urban infrastructures for the development, such as transportation infrastructures. The urban sites they redevelop are mostly subjected to deregulation of planning controls, and generally become major nodes of (business) service growths. London Docklands Development Corporation and the Merseyside Development Corporations in Liverpool are two significant examples. The works carried by these development corporations directly change the spatial distributions of services. The sites they redevelop become the focal points of services without rethinking about the relationship of these developments to the existing spatial organization of services[34].

[34] For instance, Canary Wharf, which contains the largest office development in Europe, is the most striking showpiece of London Docklands Development Corporation (Hall, 2002, 134; Ward, 2004, 216). However, its spatial and functional relations with the existing traditional city center are not set properly. According to Ward (2004, 215), the inspiration for Canary Wharf is the Battery Park in New York.

5.2.3. Other Planning Systems of the Continental Europe

There are other planning systems in the Europe that are differentiated than the ones in US and Britain. French planning system, Swedish planning system and the planning system of the Netherlands are worth to be mentioned. Although these planning systems have major or minor differences from the above-explained planning systems, they have generally started from the same point or problem that is the decentralizations of services under the pressure of market conditions, usually in the form of retail outlets, regional shopping centers, and business parks, and consequently, the decline of the inner cities. Therefore, their planning policy formulations are directed towards the prevention of out-of-center retailing and service decentralization, which are conceptualized as the clear threats and the sources of deteriorations for the traditional CBDs (Guy, 1998, 953).

The French planning system is similar to the British planning system because of the centralized planning administration. However, flexibility and vagueness are not the characteristics of the French planning system. In France, the planning discourse has focused on the forms of (legal) security and certainty, as test for good planning, which pair themselves with clarity and precision (Meller, 1997). These characteristics of planning system replicate themselves in the planning intervention towards the spatial organization of service activities, which can be easily observed in the Paris case. Paris has never been a polycentric city, but rather a city polarized between centralized business city and the suburban dormitories. The central Paris has the significant service firm concentrations on the historical center. This does not mean, however, that the spatial organization of service activities remains intact in the Paris case. La Defense, just outside the limits of historic city of Paris, is the main planning intervention of the spatial organization of business activities[35]. It is a kind of materialization of the demand of security and certainty of French planning system, since it could legally direct the predicted spatial growth of business services. It was one of the biggest pieces of reconstruction in Europe in the 1960s and 1970s, and today, it is the most significant business complex of Paris. It absorbs a considerable amount of business activities; however, different from the Canary Wharf in London, it is connected to the other parts of the city through advance transportation facilities (Hall, 2002).

[35] According to Freestone and Murphy (1998), La Defense can also be conceptualized as a need to avoid the damage to the historic core.

The Swedish experience is also interesting in the context of spatial organization of service activities. Stockholm, as London and Paris, is the best example from which the strategies in Swedish planning experience for intervening the spatial organization of services can be extracted. The planning intervention for spatial organizations of services is directly related with the ones of residential areas, especially the suburbanized areas. Stockholm's suburbs are seen as the most important achievements in the mid-twentieth century in Sweden. However, unlike the British new towns, they do not guarantee large-scale decentralization of service activities. In this context, the process has resulted in a failure to have self-contained towns for working and living, and consequently, intensification of service densities in and around central cores (Hall, 2002). In this sense, the Swedish planners aim to build a proper hierarchy of centers that reorganize services spatially. The main strategy becomes the proposition of business improvement districts, as it can be observed in the US case, and the future spatial organizations of services are reproduced by these business improvement districts.

The same problem is solved in the Netherlands by achieving concentrated decentralization. Planning experience in the Netherlands aims to stimulate the concentrated decentralization not only to solve the problems of intensification in the central zones, but also to achieve physical and functional polycentric urban formations. In other words, concentrated decentralization becomes a preferred solution in the Netherlands case to arrange the inter- and intra-metropolitan spatial organization (Hall, 2002).

5.3. The Overall Evaluation of Planning Systems

The restructuring of urban economies from manufacturing to service industries has been a feature of major western metropolitan areas in the last decades. According to Daniels et. al. (1991, 3), because of the important role of services in metropolitan restructuring processes, the service sector has started to reshape urban planning approaches and public policy agendas.

In the US case, the policy response to this new milieu in the early phase of transformation has tended to focus on the problematic aspects of spatial development of services and development controls (Daniels et. al., 1991, 4). Until 1950s, managing the spatial organizations of services with zoning measures and development control had been the major priority of the planning institutions. In this period, what had been aimed is to continue the monocentric character of cities as much as possible. This aim is not

surprising in an era in which the planning practices have been focusing on the long-term physical development. From the early 1960s to late 1980s, decentralization policies and metropolitan multinucleation strategies usually embedded in regional plans were added to policy formulation agendas. In this period, polycentric urban formations had become a main intention of the urban planning practices. Finally, after 1990s, corporate approaches to metropolitan planning that integrate economic, social and land-use components become quite popular. These corporate approaches generally propose joint programs with the central governments and private sectors on infrastructure provision and marketing of services, and have a policy perspective based on growth management approach. The growth management approach is rooted from the idea that design and policy are not sufficient enough to determine the future prospects of the urban spatial organizations. Therefore, it tries to combine planning policies with the urban management policies (Daniels et. al., 1991, 3). During the implementation of the growth management approach, there are necessary steps such as determination of the urban areas that demands rezoning or proscription, downzoning of densities, phased (or staged) zoning or planning tools such as development moratoria, land-use moratoria, imposition of development levies, and possible use of fiscal incentives for attracting service firms at certain sites (Kaiser and Godschalk, 1995; Daniels et. al., 1991).

As it can be easily understood from the above-mentioned stages and planning tools, the application of growth management approach is relevant for the US case. In European cases, however, the same objectives are accomplished with different planning mechanisms and tools since European cases has a significant difference from the US cases that is the influential existence of the traditional CBDs. Britain has solved the problems of spatial development of service with of development plans and policy guidance under the influence of flexible local commissionary mechanisms. In the periods, in which they had become insufficient, they have put new institutions like urban development corporations in circuit. France, on the other hand, has focused security and certainty, and has proposed important urban projects to solve the problem of the spatial development of services.

5.4. The Turkish Case: Illusion of Control

The development of planning policies for the future spatial organization of service activities is quite difficult, since the complexity and contextuality of services create a context in which all problems are interconnected and intertwined. It is almost impossible to isolate the problems related to the spatial organization of services, and

sequentially, to examine the nature of these problems in order to develop planning policy backgrounds for them.

These conditions are not observed only for the western cases. The urban redevelopment processes in the Turkish case stimulate similar, in fact, more complex[36], dynamics for the spatial organization of service activities. It is difficult to claim that the Turkish planning system is successful in (re)producing planning policies for the spatial organization of services, and is competent by controlling the spatial development of service activities. This ill-success and incompetence is basically related to the features of Turkish legislative frameworks.

The basic problem by proposition of planning policies for the spatial organization of services in the Turkish case is the lack of spatial control mechanisms. The legislative framework does not provide legal mechanisms by controlling the locational, distributional and organizational aspects of service activities. However, according to Daniels (1987, 280), the legislative frameworks are significant for the spatial organization of service activities, and the significance is originated from the fact that they are not only affecting the existing configurations, but also determining the future plans, since these frameworks determine the legal boundaries in which land-uses are distributed by development plans.

In the Turkish planning legislations, spatial organization of service activities at the intra-metropolitan level is mainly controlled through *development plans* and *implementation plans*. The **development plans** primarily emphasize future prospects of the land-use compositions and the overall population densities. In addition, they include the proposition of the sites for the development of service activities. Within the development plans, urban planners propose these sites usually in the form of typology of centers at different hierarchies. The **implementation plans** concentrate on the physical configuration and building densities, and aim to design the physical settings on which the service activities can be located.

These plans are able to put forth the future prospects of the spatial organization of services through their planning decisions; yet, they do not opine about the realization of these planning decisions. The only legal arrangement in the Turkish planning system aiming to control the location and distribution of services is the *business establishment*

[36] One of the main reasons of this complexity in the Turkish case is rooted from the dual character of Turkish cities.

authorizations which given by the offices of municipalities. Although these offices do have public considerations such as public health, they do not work in coordination with the planning offices; therefore, they do not consider the planning decisions about the future spatial organization of services.

Due to this legal loophole, it is not possible to constrain obligations on service activities during the process they choose their locations. Service activities feel relatively free by choosing their locations and consider only the market context by their location decisions. In most cases, they may prefer to outspread and obtrude into residential areas instead of locating in the proposed sites of development for services. The whole process of determination of the spatial organization of services through development and implementation plans, in such a system of legal arrangements, becomes an **illusion of control** that demands a reformulation of planning policy base. In other words, urban planning asserts a claim that it can control the spatial organizations of services; yet, the legislative framework is inadequate to realize and control these spatial organizations in practice.

5.5. What ought to be done?

The Turkish planning system is basically concerned with the development rights. The main interest of this system is the (re)production and (re)configuration of physical space. Although it develops decisions about the spatial distribution of urban functions through development and implementation plans, it is difficult to claim that the Turkish planning system properly reinforces the spatial organization of service activities. One of the main reasons of this inability is that there are no mandatory legal arrangements in order to form future spatial organization of service such as zoning regulations in Turkish Case. Due to the lack of arrangements, the spatial control capacity of the development plans becomes moderately limited. Moreover, the management of the urban development is also missing in the Turkish legislation connoting that the market force is a cut above the planning mechanisms.

There is a need to reformulate the planning system, especially for intervening the spatial organizations of services. Hybrid planning may provide an opening out in the case of spatial organization of service activities.

According to Kaiser and Schalk (1995), the advantage of hybrid planning is its intention to integrate design, policy and management. Hybrid plans do not only map and classify

the land-uses both in specific and general ways, but also propose policies and management measures. They are like an amalgam of land-use plans, verbal policy plans and development management plans. This is why they are called as hybrid plans.

Within this framework, **land-use plans** may contain statements of the objectives, a description of existing conditions, future needs for space, and finally a mapped proposal for the future development of land-uses. They may specify locations for particular land-uses. These land-use plans can be enriched through the involvement of differentiated planning zones derived from the British planning system. **Verbal policy plans** can also be called as policy framework plans. They are flexible in essence; yet, they provide too little spatial specificity to guide implementation decisions. With the involvement of zoning and related regulatory mechanisms, the capacity of spatial control may be increased. **Development management plans**, finally, may contain a coordinated program of actions, supported by analysis and goals. It may emphasize a specific course of action, not general policy, and it incorporates implementation measures so that the plan becomes a part of regulative ordinances. They provide standards and procedures for guiding growth (Kaiser and Godschalk, 1995).

In the context of spatial organization of services in Turkish case, hybrid planning can provide certain advantages that the existing planning framework cannot serve. With the hybrid planning, it is easy,

- to develop urban policies for the problems generated from the coexistence of residential and service activities in the urban environment,

- to develop planning intervention towards the urban zones in which similar urban problems are concentrated,

- to consider the qualitative aspects of urban environment since hybrid planning does not solely focus on dividing urban areas with reference to land-uses, densities or the development rights, and

- to determine the future prospects of the spatial organization of service activities, because design, policy and management is inherently combined in this planning understanding.

The hybrid planning proposition, however, is a quite general proposition.

It is both impossible and meaningless to decide the future spatial organization of services by only analyzing the existing spatial organization of services. This intention can only be satisfied within a general urban planning framework that has to consider all the physical, natural, social, economical and cultural assets within the city concurrently. In other words, the continuation of the monocentric structure of Ankara or the dissolution of it in favor of polycentricity can only be decided within a general planning process.

However, more specific propositions are available within the analyses performed in this study. These propositions suggest the use of these analyses as a planning and regulation tool. Because it becomes possible to define the functional parts of the spatial organization of service with these analyses, the regulation towards these parts can be delineated. In these regulations, standards for physical and functional parts can be defined. The increase in the urban quality through the provision of them is also a problem urban planning has to deal with.

Before introducing these regulations, the first thing to mention is that such kinds of analyses provide municipalities the possibility to offer choices for service providers. In Turkish case, the (re)location process starts with location decision of services providers and continues with the submission of an application to municipalities for *business establishment authorizations*. Since the municipal offices accepting these applications do not work in coordination with municipal planning offices, the whole process is under the control of market mechanisms. If these applications are accepted by planning offices, which are aware of these spatial organizations of services and the planning decisions related to the distributions and organizations of services, then these offices could offer locational choices for service providers according to their activity. Consequently, this may decrease the locational costs through taxes and subsidies, when these offers are accepted.

However, the main contribution of the analyses of the spatial organizations of services is that they could broaden the horizons of the regulation dimension of urban planning, which may be about the future functional and physical characters of the differentiated parts of the spatial organization of services (table 5.2). As described in case study, there are three main parts of the spatial organization of services, which has to be considered. These are business core, areas of sprawl and the consumer service extensions of the city center.

Table 5.2: Regulation Bases for Different Parts of Spatial Organization of Services

	FUNCTIONAL ASSETS	PHYSICAL ASSETS
Business Core	A_1	A_2
Areas of Sprawl	B_1	B_2
Consumer Service Extensions	C_1	C_2

A_1: These areas are the business service concentration sites. However, the presence of other activities and functions, such as administrative institutions, cultural and recreational facilities, and certain degrees of household and distributive services are important for the well-being of the business services. Fine-grained mixed use has to be aimed for the future distributions of these activities.

A_2: It is difficult to change the physical and morphological characteristics of these areas because of the factors such as fragmented geometry of properties, high level of urban rents and high densities of built environment. However, it is known that planning and design interventions increasing physical quality, such as pedestrianization, results in site attraction, so that business services can concentrate in these areas.

B_1: These areas of sprawl contain different kinds of activities, facilities and urban functions. For these areas, the proposition of urban regeneration projects, in which sprawled service activities could be clustered, is quite meaningful. With these concentrations, the costs of specialized infrastructure supply, which are necessitated by the service activities, could be reduced. The presence of residences should also be promoted within these areas in order to prevent the possible desert-like conditions during night times.

B_2: In the areas of regeneration projects, the provision of technical standards is extremely important. Moreover, the design of these areas should be flexible enough to satisfy the differentiated physical needs of different service activities. Pedestrian streets and downtown malls packaging certain service activities are suitable propositions for these areas.

C_1: These consumer extension areas have to be open to all kinds of activities, facilities and urban functions. Due to the relatively low level of urban rents, special activity generators, such as convention centers, should be promoted in these areas, especially at the locations where transportation facilities are high and suitable lands are available.

Residential uses are also crucial for the future well-being of these areas. The main criterion for the future distributions of activities and functions should be the functional continuity.

C_2: Beside the functional continuity, spatial continuity is also important for these areas. Each kind of intervention of urban planning and design should consider this continuity. These areas should be approached as the service corridors. However, they have to be delimited precisely, because they could put on important loads on transportation networks.

As it can be easily understood from these preliminary regulatory propositions, the regulations for business core are similar to use-based, the ones for the areas of sprawl is similar to hybrid, and the ones for the consumer service extensions are similar to design-based codes of the US system in essence. What should not be forgotten is the comprehensive framework considering the areas of these regulations, which is missing in the US case.

5.6. Evaluation

From the early 1970s, Turkish planners have desperately demanded information on Turkish cities in order to achieve spatial synthesis to discuss urban problems. They thought that, they could free themselves from the foreign best practices and eliminate the dangers of being theoretically speculative with these informations (Akçura, 1971). Since those periods, the demand for this information has been continuously increased because of the complexification of the urban problems. Although analytical frameworks to understand the existing patterns have been improved within this period, there has been an obvious lack in the field of urban policy, which is especially valid for the spatial organization of services.

However, since these organizations are extremely influential on the overall urban structure, the formation of them should not be left solely to the market initiatives. As Richardson (1977, 39-40) states, the planning authority has to control the framework of competitive mechanisms, and consequently, direct and manage the spatial organization of service activities with the well-developed planning systems and legislative frameworks, which is essentially needed for Turkish case. In this framework, hybrid planning can be the answer of this need, not only for intervening the spatial organization of services, but also by intervening the whole city.

CHAPTER 6

CONCLUSION

This chapter is about the conclusions of the study. After a short synopsis in the beginning, there is a discussion about the theoretical contributions of the study in the second part. These contributions are introduced into two main categories: methodological and contentual contributions. Within this part of the chapter, the concluding remarks of each chapter of the study are re-emphasized. The last part of this chapter will discuss the possible further studies that can be originated from this study.

6.1. Synopsis

The spatial organizations of services are difficult to be intervened. This difficulty is basically related to the attributional diversity of economic activities (mostly service activities) within them, the differentiated locational preferences of these activities and the overt domination of market mechanisms that imposes an off-plan spatial order on these activities, at least in the Turkish case.

This study, basically, aims to describe and understand the spatial organization of service activities in Ankara case. This description can be used as the initial information-base for proper planning interventions directed towards the spatial systems of services.

As it is also mentioned several times in this study, an analysis of spatial organization of service activities has to include the diversity of service activities and their locational attributions. This analysis develops on the concentration-dispersion patterns and the spatial cohesiveness both for consumer services and producer services. However, the emphasis given to these activities is not equal in this study. Producer services, especially high-order business activities accomplishing supervisory non-routine works is chosen as the key activity set for answering the question of the study.

The introductory chapter, firstly, asserts the aim and the problem of the study, and then, concentrates on investigating different theoretical frameworks about spatial organizations. In this part of this chapter, there are mainly the analyses focusing on the inabilities of these frameworks. The theoretical frameworks that are subjected to investigation are ecological approach, utility-maximization approach, morphology approach and the system approach. They are investigated according to their concepts, conceptualizations, assumptions, units of analysis, methodological concerns, and weaknesses in explanations. The basic result of this part is that each of these frameworks provides, somehow, a certain level of theoretical opening out for explaining the spatial organization of services; yet, they are unable to develop a proper explanation about the spatial organization of service activities. Because, they concentrate either on the overall urban spatial structure or on the atomistic locational notions of service activities, instead focusing on the spatial organization of services at the intermediary level.

Due to these theoretical inabilities, the focus of the second chapter becomes the main concepts and the fields of concepts of spatial organization of services. Two set of concepts are considered as significant variables for theoretical operations: the spatial patterns of concentration and dispersion, and the spatial cohesiveness of service activities. The spatial patterns of concentration pair themselves with the geographical positioning of cumulative percentages of services in the urban context, and present the patterns of dominances on them. A typology is also introduced in order to assess these concentration patterns. The spatial patterns of cohesiveness, on the other hand, bases on the fact that different economic activities may have similar locational preferences. They are, therefore, helpful for detecting and describing the functional differentiation within the spatial organization of services. The bottom line of this chapter is that the first step for a proper description about the spatial organization of services can be achieved by concurrent evaluation of these two concept sets.

The next chapter is about the analytical framework. This chapter searches the possible ways how the predetermined sets of concepts could be analyzed. The emphasis of this chapter, therefore, becomes the techniques, indicators and methodological procedures that assist to understand the spatial organization of service activities, in general. These techniques and procedures are produced with reference to *relational perspective* and the *relational space conception*. In the following parts of the chapter, the advantages of the relational perspective are given. Then, the techniques, indicators and methodological procedures for detecting and describing the spatial organizations of

service activities are introduced by also referring to limitations of the existing analytical frameworks.

Within the case study chapter, the spatial organization of service activities in Ankara case is described through the concepts introduced in chapter 2, and the techniques, indicators and procedures explained in chapter 3. There are three main types of analyses in the case study: measuring the concentration and dispersion of service activity categories and sub-categories, employment, firm types and firm sizes; measuring the geographical and functional densities; and detection of spatial cohesion of service activity categories and sub-categories. The monocentric structure of Ankara is the basic outcome of synthesizing (overlapping) the whole visual results of the analyses. In the following parts, the introduced city center is evaluated with regards to the description of city center of 1970 (Akçura, 1971) and the one of 1985 (Bademli, 1987b) in order to understand the changes in the spatial organization of services in time. Finally, the geomorphological context and the general planning decisions are examined in order to interpret their influences on the spatial distribution and organization of services in Ankara case.

The focus of last chapter before the conclusion is about the possible planning interventions for spatial structure of service activities in the Ankara case. It basically discusses how the analyses of the study can be used as a planning tool. Within the overall structure of the study, this chapter can be considered as a conceptual movement from description to prescription. After giving emphasis to planning systems of different countries, namely the United States, Britain and other examples from continental Europe (France, Sweden, and The Netherlands), the planning system and legislations that influence the spatial organization of services in Turkish case is opened into debate in a comparable manner with different countries' planning systems. The last part of this chapter is about the possible improvements in the Turkish planning system by taking the spatial organization of services in the center of the discussions.

6.2. Contributions

The interesting point related to the studies about the spatial organization of services in Turkish case is that such studies are limited in number compared to the Western case. Due to the heavy workload of the analyses, there are only a limited number of studies, most of which investigate this subject on the leading metropolitan areas, such as İstanbul.

The reason of this inadequacy is mostly pragmatical, and is essentially due to the difficulties in obtaining systematical data for those studies aiming to describe and explain the spatial organizations of service activities. Because of the absence of the systematical data, *over-reductionism* and *radical theoretical abstractions* become inevitable for those studies. Both of these features decrease the capacity of theoretical explanations, and consequently, could make any kind of preassumptions illusionary legitimate.

However, this study performing an analysis about the spatial organization of services in Ankara case proves that the data needed for a proper analysis on spatial organization on services could be obtainable, and sequentially, the problems of informational paucities could easily be solved.

In this sense, obtaining the data for analysis and the production of the geographical data are the contributions of this study. However, there are more significant contributions, both methodological and contentual, which may broaden the horizons the Turkish literature for further studies.

6.2.1. Methodological Contributions

As stated before, a proper theoretical representation of spatial organization of service activities is not possible with the existing theoretical frameworks, since they are not capable of understanding these organizations with all dimensions. Some of them, like ecological approach and system approach, focus on overall urban spatial organizations and discuss the spatial existence of business district within the urban structure. The others, such as the versions of utility-maximization approach, only consider the atomistic notions of location without considering the web of relationships affecting the process of locational decisions-making processes. Morphological approach, on the other hand, emphasizes the relations between physical settings and the activity systems; yet, when the content becomes the service activities and the CBDs, it generally focuses on limited and predetermined urban sites to understand those relations. In short, they all have limitations and weaknesses in understanding the spatial organizations of services at the intra-metropolitan scale.

However, this does not mean that a proper analysis about spatial organization of services is impossible. This study demonstrates that a detailed study about the spatial organization of services considering the diversity of service activities and every single

location of those services with all complexity is possible, and the method of the analysis of this study provides an opening out to understand the spatial organizations of services.

The main idea that generates methodological contributions in this study is the unfamiliar conceptualization of the urban phenomenon. The theoretical background of this conceptualization depends on the relational perspective. Within this conceptualization, urban spaces can be considered as the spaces of heterogeneous associations (Murdoch, 1997), which could not be observed in the existing theoretical frameworks. This kind of conceptualization is rooted from an inference that the urban spatial distributions are not even or random in essence, and formed around certain rationalities, which generally cause spatial coexistence of urban elements, functions or any kind of activities on the limited urban spaces. The examination of these heterogeneous associations, therefore, depends on concurrent analysis of physical and economic spaces, which helps to detect and understand the spatial cohesiveness of economical activities on urban space.

The significant methodological difference appeared through this conceptualization is the consideration of the analytical framework. The analytical used in this study is extremely different from the conventional ones, which generally search homogeneities in urban space. The conventional ones proceed on the dominant attributes within the spatial units and have a tendency to exclude the other attributes. Due to these characteristics, the representational capacities of these conventional analytical frameworks are usually limited. However, the spatial analyses of this study do not develop in order to search the homogeneities in urban space, but to detect the heterogeneities within them.

Within the analytical framework of this study, certain quantitative techniques (correspondence analysis and cluster analysis), indicators (N50% concentration indicator and N100%-N90% dispersion indicator), and methodological procedures (complementary use of correspondence analysis and cluster analysis) are used in spatial analysis in order to increase the representation possibilities. This study proves that although they are not very common, these techniques and procedures provide certain methodological contributions related to spatial organizations of service activities.

One of the main methodological contributions of this study is the selection of the *unit of spatial analysis*. Streets are chosen as the spatial units, since it is difficult to detect heterogeneous associations in large and naïve spatial units. The outcomes of the

analysis corroborates that streets can be considered as operative and functional spatial units because of the high level of spatial resolution they provide. They increase the possibility of proper theoretical representation, and sequentially, of explanations and assessments, although the high level of spatial resolution they cause complicates the spatial analysis procedures.

Explanations based on the spatial analysis performed at street level resolutions, in fact, are not crude as the ones derived from macro studies, which proceed generally with discrete space representation and predetermined broad attributional categories. The use of discrete space representation by the analysis of spatial organization means choosing *districts* or *sub-regions* as the spatial units. Since these units do not overlap with the functionalities in urban space, they create generally a homogenizing effect and prevent to detect the existing minor, or sometimes major, substantial heterogeneities, which, in return, reduce the representational capacity of the spatial analysis in macro studies. On the other hand, using streets as spatial units in the quantitative analysis does not mean performing exhaustive micro studies through street segments or buildings in limited areas, which generally limits to understand the whole and part relations, and blurs the *big picture* in the urban context. In fact, using streets in the spatial analysis provides mid-range explanations bridging macro and micro studies through the street profiles of any kind of attributes. Therefore, it is easy to mention that it forms a platform on which macro and micro studies come together (Güvenç, 2004).

Similar to the increase in the spatial resolution, the attributional data is used in the most possible detailed form within the analyses of this study. The aim of detailing the attributional is with the keen interest for proper identification of locational preferences of every single service activity. With the assistance of this detailed data, the spatial analyses of the study could be developed on relational categories established from *locational* and *spatial characters,* not through the predetermined categories according to the *functional character* of economic activities. Using the attributional data in this way can be considered as an effort to eliminate the distortions in theoretical representations caused by the ambiguity among the predetermined categories, since the predetermined categories directly influence the assessment of concentration and dispersion patterns of economic activities due to the amalgamization of locational preferences[37].

[37] For instance, business service category may present a dispersive character in Ankara case with reference to its activity composition if it includes any kind of FIRE activities, or vice versa.

The use of high level of spatial resolution and the detailed attributional data in a relational manner complicates, in fact, the processes of spatial analyses; but, at the same time, provides a suitable theoretical base for representing complexities and contextualities. The (relatively) limitation-free characters of the techniques such as correspondence analysis and cluster analysis become the key-factor in understanding the complexities, while their descriptive characters support the process of detecting the contextualities by spatial distributions and cohesions with reference to the concurrent reconsideration of physical and economical space.

Selection of the frame of analysis also provides certain methodological contributions. As it is mentioned before, the frame of analysis covers the whole Ankara in this study. In other words, the spatial analysis that aim to understand the spatial organization of service activities include all the services spreading all over Ankara without accepting any kind of spatial preconceptions about the urban locations in which the service activities are concentrated. This way of handling the frame of analysis is out of the common in similar spatial studies about CBDs, so it can be conceived as another methodological contribution.

6.2.2. Contentual Contributions

There is a common point in almost all of the studies about spatial organization of service activities. The researchers of these studies generally begin their analyses with prejudgments about the spatial distributions of service activities. They have a tendency to take either the concentration/centralization or the deconcentration/decentralization sides. Some of the researchers believe that deconcentration/decentralization is an inevitable process that dominates the spatial organization of services by trivializing the CBDs, while the others advocate concentration/centralization and put emphasize on the significance of traditional CBDs whether there exist dispersion or not. These theoretical tendencies can be regarded as insignificant, if they do not create differences in the methodological frameworks of the studies. Yet, the state of taking any side directly influences not only the methodological procedures, but also the outcomes of the spatial analysis.

This study, however, does not start with such a prejudgment. It assumes that concentration/centralization and deconcentration/decentralization can coexist at the same time, even for the same service activity. It aims to describe and explain the spatial organization of service activities in Ankara case as *objective* as possible by

denying to take any of the above-mentioned sides, and objectifies the contentual results of the study as much as possible.

Although this study starts from a relatively neutral position, this does not mean that it gives the same emphasizes to all service functions. The main focus of this study is producer services, especially the business services, within a diverse composition of service activities. They are limited in number; yet, they are considered as the leading activity set of the spatial organization of services.

From this framework, the basic contentual contribution of the study becomes *the detection and the description of the monocentric structure* of the city of Ankara with reference to service activities.

Although there are theoretical assertions claiming that the city of Ankara begins to get a polycentric character with reference to the appearance of certain producer and consumer service streets in the peripheral areas, it is understood with the help of spatial analyses of this study that the polycentricity in Ankara case is an overstatement.

Through all the quantitative and qualitative analyses, it is proven that the city of Ankara still continues the monocentric urban structure. This does not mean, however, that there is not any kind of dispersion of service activities in Ankara case. Contrarily, there exists an overt dispersion of service activities, but it is not in an adequate quantity for transforming the urban structure of Ankara into a polycentric form. The reason of this inadequacy is related to the type and the content of dispersion.

In Ankara case, what are observed are not the patterns of structured dispersion of service activities, which could be a tendency of services to be clustered in out-of-central locations, and consequently, cause polycentricity[38], but scatteration, which is related to deconcentrative processes of service activities. Since a high percentage of the dispersion is in the form of scatteration in Ankara, out-of-central services do not couple with particular urban locations. Furthermore, the absolute numbers and the relative proportions of dispersed services are quite limited to transform the spatial

[38] There are certain locations on which business services are concentrated. Teknopark in METU Campus or Cyberpark in Bilkent University are such examples, which may be evidences of concentrated dispersion. For instance, in METU Teknopark, there are 194 business services and 3.000 employees (Available in Internet: http://metutech.metu.edu.tr, Last accessed date: March, 2007). However, the legal context of these areas are different. The business firms in these areas do not pay any tax; therefore, they do not exist in the databases.

structure into a polycentric one. Therefore, scatteration can be seen as the main reason of the continuation of monocentric structure[39].

Another feature of this scatteration is that it is mainly related to the consumer services. It is quite normal to observe scatteration of consumer services in a city like Ankara where there is a high level of residential decentralization. However, it is not possible to claim that this scatteration trivializes the city center in Ankara. It only changes the activity composition in the central zone, not the spatial organization of the services.

Because of these features of dispersion, it can be easily claimed that the city center of Ankara continues its determining power by the formation of the spatial organization of service activities. However, this city center has differentiated sections with reference to the activities it contains.

The core of the city center of Ankara is located on the streets in and around Kızılay district. This main business core covers most of the business services and welfare services, although it covers relatively small area within the frame of analyses. This site is the densest part of the city center. Except for this high density of services, the non-existence of residential or industrial units is another main feature of this site.

There are also secondary business concentration sites locating in the southern and northern part of the main business core. They differentiate from each other according to size and the activity composition. The first secondary business concentration site is in Ulus. Although the number of business services is limited in Ulus, their percentages in the activity composition are extremely high. The other secondary business concentration site is in Çankaya. It contains more business services than Ulus; yet, it also includes residential units.

Apart from these secondary business concentration sites, there are areas of business service and producer service sprawls, directed towards the southern end of Ankara, on the both sides of Seğmenler Park. Most of the streets in these areas are associated with business services; yet, they are, at the same time, residentially dense streets.

[39] The only exception within this monocentric structure is Sincan. The service activity composition of Sincan seems quite similar to the one of central zones. However, when the absolute number and the densities of these service activities are considered, Sincan can be labeled more likely as a nucleus of subcenter, not a secondary business center.

However, the interesting aspect of the city center is neither the concentration areas nor the areas of sprawl, but the extensions of the consumer services. The representation of consumer services are limited on and around the business core, whereas, they are mostly concentrated in these extensions. There are three consumer service extensions, two of which are in the western direction. The first one is located along the GMK boulevard, the other one is along the Çetin Emeç boulevard, both of which extends up to the Konya road and contains streets corresponding with business services. The third extension is in the eastern direction, along the Ziya Gökalp street up to the Dikimevi, and contains only household and distributive services.

There are *three* significant aspects related to the city center of Ankara. The first one is that it is relatively different from the descriptions made in the previous studies. The second aspect points out the obvious market domination on the spatial organization of the city center. Since this market domination appears due to the deficiencies in planning legislations, it is not a specific problem of Ankara, but the problem of all cities in Turkey. The third and the last aspect are the factors and the spatial trends, which assist the continuation of the monocentric structure of Ankara.

1. *The city center of Ankara has gained a different spatial structure than the ones described in the former studies*. Although there are limited numbers of studies about the spatial structure of the city center of Ankara, all of them emphasize the dual structure of it[40]. This duality is usually paired with a fragmented spatial structure which is composed of by two sections in those studies. The first section is Ulus, the historical center. It mostly contains the traditional consumer service activities. The northern part of this traditional center is surrounded with small-scale industrial sites, which are dominated by repairing activities and small-scale production activities. On the other hand, the second section, Kızılay contains the modern functions of the CBD, namely business activities such as insurances and consultancy activities. The physical settings on which these business activities are located are relatively modern and new-built. This simply-described spatial structure can also be considered as a repercussion of the dual character of the city of Ankara.

[40] In those studies, Ulus was conceived as the historical core and the only business center of Ankara until 1970s. With the growth of city in the southern part, Kızılay, which had planned as a subcenter, began to be a secondary business center. In 1985, Ulus and Kızılay became two almost identically-weighted sections of the city center. Although Kızılay had gained importance in the spatial organization of services and became the main section of the city center, the emphasize on the dual structure of the city center continue in the studies (Akçura, 1971; Bademli, 1986b; Osmay, 1998).

The discourse that the city center of Ankara has also a dual character is true to some extent, when it is defined with reference to the consumer services or to the characteristics of the physical context. However, when the spatial definition of the CBD is made with reference to the spatial distribution of business services, as it is defined in this study, this dual character of the city center has changed, and the city center of Ankara gains a threesome character.

These three parts have different business concentrations, and they cannot be taken as equally-weighted parts. The most important one is the Kızılay as the main business concentration site. The others are Ulus and Çankaya secondary business concentration zones. They do not only contain different amount of business services, but also have different qualities. Ulus includes only a limited number of business services on a very limited number of streets, in which there are not any residential units. The dominant urban function of Çankaya, on the other hand, is almost residential units. However, this secondary concentration site is also the location of high-order business services, namely the joint-stock companies, and the service firms with a high number of employees.

Although these business concentration sites seem spatially fragmented, the locational preferences of producer services tie these parts together. The area of their sprawl surrounds these business concentration sites. The distribution of consumer services in and around the central zone is similar to producer services. They also encircle these business concentration sites, although it has extensions on Çetin Emeç boulevard, GMK boulevard and Ziya Gökalp street. Moreover, the public institutions and the cultural facilities located between these concentration sites support congregating relations between these sites. In this sense, it can be easily stated that this structure is not a fragmented dual structure, but a monocenter gathering around three business nuclei.

2. There is an obvious domination of market mechanisms on the formation of spatial organization of services in Ankara case. In fact, this is not only the problem of Ankara, but also the one for all major metropolitan areas .Because the reason of this domination is related with the deficiencies of the planning legislation that aims to control the location decisions of the service activities.

In Turkish planning legislations system, the only legal mechanism that controls the locations of services is the *business establishment authorizations*, given by the offices of municipalities. Although these offices do have public considerations while giving these authorizations such as the protection of public health, they do not work

coordinately with other municipal offices that are responsible with planning and implementation. In other words, they do not consider the planning decisions where the future locations of services are proposed.

For impeding these two aspects, the proposition of the development sites for service activities becomes meaningless, since they are not considered in the implementation process of the development plans. This generalized process presents not only the fact that the spatial developments of service activities are being directed mainly by market-led decisions, but also the fact indicating the incapability of the legislative framework in which business districts are developed.

This study asserts several times that the success of the implementations of the planning decisions about the spatial organization of services depends on proper analyses about them, since these analyses provide an information-base for the planning decisions.

These analyses, in fact, are helpful in determining the boundaries of the spatial control and planning intervention, because the outcomes of such analyses make it easy to understand the relations between the market-led and plan-led spatial developments of service activities, and their spatial trends generated by market mechanisms.

However, this does not mean, that that analyses about the city center and spatial organization are not performed within the planning experience of Ankara, namely the 1990 Plan, the 2015 Plan, and the 2025 Plan. Especially, the first two of these plans base on comprehensive analyses about this subject. However, it is difficult to claim that the market-led spatial developments of services and their trends are well understood in those analyses. This can be easily conceived when the overall planning decisions and the spatial development of services are examined in a comparative manner.

Within the last decades, the basic tendency of the planning practices related to the spatial development of services in Ankara is easy to be identified. The planning efforts of this period basically aim to continue the monocentric structure[41]. These planning efforts put emphasize on the city center, and propose articulative developments around the city center. Kazıkiçi Bostanları, which is a small-scale manufacturing area in the

[41] There are other planning proposals for spatial development of services in the Ankara case. The proposition of the Batıkent and Çayyolu subcenters in 1990 Plan is especially significant. It is though that these subcenters would have a mixture of consumer services. Yet, neither of them is developed in the way it was proposed.

northern part of Ulus, is determined as the main spatial development site for service activities, or as the site for city center development. However, the property relations in this area could not be solved within the market mechanisms, which ossifies the physical setting with reference to small-scale manufacturing activities and prevents the spatial development of decision-making functions on this area. Instead of facing up to these problems, the market mechanisms direct the business activities towards the opposite direction, in the southern part of the city center, which are marked as residential areas in the development plans. In this framework, it is not possible to claim that the existing spatial organization of services in Ankara is reproduced with the planning initiatives.

3. The third aspect is that there are the factors assisting to continue the monocentric character of the city. In Ankara case, the geomorphological context and the general planning decisions are the main factors influencing the spatial distribution and organization of service activities.

As is it mentioned before, analyzing the spatial organization of service activities is an important prerequisite for developing planning interventions directed towards them. However, the factors affecting these spatial organizations have to be considered, also, carefully. These factors can be considered as the variables that influence the base of spatial patterning of service activities within the urban context.

In Ankara case, the geomorphological context is one of the most significant determinants of the spatial organization of the city and service activities. The geomorphological thresholds in the northern, eastern and southern parts of the city, and relatively suitable lands for urban redevelopment in the western direction have a quite determining role on the overall urban structure. Within this geomorphological context, the residential areas in Ankara are sprawled with a radius of approximately 26 km. in the western direction. The basic density surfaces, however, are concentrated within a circle with a radius of 10 km., the center of which is approximately Sıhhiye. They are mainly on the lower and middle plateaus abutting on the high plateaus. In this sense, although there exists a high degree of residential dispersion, especially in the western direction, the main element determining the residential structure is the horseshoe-shaped geomorphological thresholds[42].

[42] There are two reasons of the low residential densities at the centeral zones of this horseshoe-shaped form. The first one is related to the relatively high amount of the valley floors, and inversely, the paucity of suitable lands for urban development in this area. The second one is related to the distribution of the land-uses. Since the central zone is mostly dominated by service activities, there are limited amount of residences on this area.

Beside these influences on the overall urban structure, the spatial distribution of service activities, their spatial concentrations, and their spatial organization are open to be influenced by the geomorphological context. As the residential areas, services also demand suitable lands for spatial developments. Therefore, the lands inside the high plateaus can be seen as the potential service development sites. However, this comment does not say much about the influences of geomorphological context of the spatial organization of services. There are direct and indirect influences. The indirect influences on the spatial organization of services can be traced through the overall urban structure in Ankara. Since the residential densities are placed close together in a limited urban area and the accessibility patterns are formed with reference to this configuration, the geographical center of these density surfaces appears as the most suitable area for the service development. This assessment is true to a certain extent. However, with this relation, it is not possible to explain the spatial developments of services on the geomorphologically-problematic areas, especially on and around Çankaya district. Although this area is fragmented with rift valleys, there are suitable lands along these valleys and step slopes. These parts of the geomorphological context, with the help of transportation network, provide spatial continuities which are important for spatial development of service activities. These influences can be named as the direct geomorphological influences, and can be easily traced in the areas of sprawls and the consumer service extension of the city center. The secondary additions to Çetin Emeç consumer service extensions are good examples of these influences. The break of the spatial continuity of services at the end of Köroğlu street can be given as a negative example, where the geomorphological structure radically changes.

Another factor that influences the spatial organization of services is the general planning decisions since 1970. The planning experiences fail to achieve both business nuclei and development corridors of service activities around the city center of Ankara. The potential areas for spatial development of services, such as İnönü boulevard, are filled up with public institutions without leaving any space for service activities. Furthermore, the urban open spaces such as METU Campus and Atatürk Orman Çiftliği around the center behave like barriers preventing continual spatial developments of services in the western direction, and putting pressures on services to be intensified in their existing locations. Additionally, the overall urban structure and the related transportation network promote the accessibility of the central zones, which is an important pull factor for service activities to be clustered at the central locations. Moreover, the development ideology of the plans encourages redevelopment efforts around the central zones, which provide suitable lands for services to be located.

It is concluded up to now that the city of Ankara has a monocentric character under the existing domination of market mechanisms, and seems to continue this character with reference to the geomorphological context and the existing planning proposals promoting monocentricity either consciously or unconsciously. However, it is pendent whether this monocentricity has a cost to the city or not.

Under these conditions, the planning ideology aiming to intervene the spatial organization of services has to be reformulated. The main problem of the existing planning ideology is the conceptualization of the city center. The planning intervention towards the city center has to consider, somehow, the existing mixture of locational diversity, so that the information-base of policy-making processes can be properly formed. However, the planning practices in Turkish case are far from achieving this conceptualization.

As it is stated in chapter 2, the service activities have quite differentiated locational preferences. However, conceptualization of the city center as homogenous zones means neglecting every kind of functional internal differentiations. This homogenous conceptualization prevents to understand how the components of the city center react to planning interventions. Moreover, each kind of service activities necessitates different kinds of urban physical characteristics to be located. In this framework, the homogenous conceptualization, which is meaningful within the overall urban structure, becomes non-operational in the context of planning interventions directed to spatial distribution and organization of services. It creates a *black-box effect* that makes the outcome of intervention and the overall system unpredictable and the implementation of planning decisions *aleatory*.

Additionally, the planning tradition in Turkish system does not consider the invasion-succession processes that (re)locate the service activities on and around the city center. Thus, urban planning becomes a bundle of momentary actions without considering the notion of predictability. When the prediction is non-existent, urban redevelopment or urban regeneration projects around the city centers become major planning procedures for developing services. In the planning experience of Ankara, all the redevelopment actions on squatter areas around the city center can be considered as such procedures. These actions densify and intensify service activities around the central locations, which necessitate an increase in accessibility of central zones through the investments on transportation infrastructure. However, such investments are costly works, since the residential areas are widely dispersed, especially in Ankara case.

Managing the center-periphery relations is not so easy, especially within the rapid growth periods of the cities. During these periods, it becomes meaningless to develop transportation planning decisions to manage these relations, since the problem of commuting relations directed towards the central zones grows continuously and rapidly. The solution for this problem can be the dissolution of monocentricity and the promotion of polycentricity through which the periphery-periphery relations becomes possible. In Ankara case, however, planning practices have achieved only widespread residential decentralization and the population was extremely spread out. The monocentric structure of Ankara, on the other hand, has continued depending basically on the dominancy of center-periphery commuting relations. The surfaces of accessibilities have not expanded relative to the residential areas, which prevent to achieve polycentric urban structure.

6.3. Further Studies

This study extends the limits of spatial analysis in Turkish literature with reference to services, and opens up new theoretical frontiers to a certain extent. Due to these characteristics, it can be considered as a starting point for other possible studies. These possible studies can be explicated under four groups.

The first group of studies can be generated from the methodology of the study. This study concentrates on spatial organization of service activities in Ankara case. It examines this organization with reference to spatial distributions and relative cohesiveness of services. For these examinations, however, original methodological procedures are developed as it is explained in chapter 3. With these procedures, it would be possible to achieve similar studies for any kind of spatial distribution and spatial cohesiveness in any city.

The second group of studies is basically correlational studies. Since the description of spatial organization of service activities are properly achieved for Ankara case in this study, it would become easy to examine the spatial correlations between spatial distributions of services and populations (with its all social characteristics), transforming activities, even the morphological characteristics of the city of Ankara in a comprehensive manner, which, in general, would give way to understand the actual relationships between the social, economical and physical geographies.

This study basically describes the overall spatial organization of service activities. Therefore, it becomes relatively easy to focus on any part of this spatial organization, and to achieve comprehensive micro studies on them. These micro studies can be named as the third group of possible studies. However, the parts of spatial organization does not only refer to the physical parts. It is also possible to study certain activity categories or the spatial behaviors of individual activities. Performing such micro studies that would base on description achieved in this study would be advantageous, since this study could have drawn a frame of reference for those studies, and might enrich the explanation possibilities.

The last, but the most significant, group of studies can be categorized as the studies of structural transformations. The data used in the analysis of this study are obtained from a continuously updated database. Therefore, it is impossible to detect and analyze the structural transformations in time and space. However, after this study, which draws an overall picture of the spatial organization of service activities for the year 2005, it would be possible to understand the structural transformations when the same data is obtained in the future and a similar study is performed with those data. By the help of such a study about the structural transformation, it would be easy to detect the spatial trends of service growth properly, and to develop planning proposition that could control the spatial organization of services effectively.

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APPENDIX A

THE DELIMITATION OF CBD

There are various efforts to delimit the CBDs. These delimitations are explained below in brief, based on the study of Murphy and Vance (1954).

The first delimitation effort had emerged in Sweden and Norway in 1950s. These are **shop-rent index**, which is the total shop rents of a building divided by the length of its frontage and **trade index**, which is the total trade or turnover of a building divided by the length of its frontage. However, in a short period, they are removed from the morphological agenda, because the data for these indexes are difficult to obtain, and these indexes are applicable only for retailing and wholesaling activities.

Another category of delimitation tries to use physical characters in CBDs as delimitation variables. **Building height index** is the result of this effort. This index depends on the idea that CBDs have, on the average, higher buildings than the other parts of cities. **Floor space index** is somehow similar with building height index, but both of these techniques are criticized because of not considering the land-uses.

Indexes depending on population distributions, traffic flows and pedestrian counts are also used for delimitation. Using population data is based on the assumption that CBDs are essentially lacking in permanent residence, and using traffic data depends on the fact that CBDs are most important traffic generators in cities, and finally using pedestrian counts assume that most of the pedestrian traffic emerges in and around the CBDs, however, all these categories have difficulties in obtaining and producing the relevant data.

Land value index, which is the total land value of a building divided by the length of its frontage, is another index for delimitation. It gives a more promising and applicable basis for delimitation, but it is not sensitive to urban land-uses, too.

Land-use index, on the other hand, is a more realistic index. It basically depends on percentage of block frontage occupied by central business uses and is criticized because it considers only ground floor land-uses.

The most meaningful indexes for delimitation of CBDs are **central business indexes**. Although they require a distinction between central business uses and other urban land-uses, they depend on the relationships between central business uses and total space. There are two different types of central business indexes. **Central business height index** is the number of floors occupied by central business uses and obtained by dividing the total floor area of all central business uses by total ground floor areas. **Central business intensity index** is the percentage of the floor area of all central business uses in the block within the total floor area at all levels. These business indexes are much more successful than the others, but this fact does not eliminate the critics basing upon the relation between scale of cities and CBDs.

APPENDIX B

THE BASIC STAGES IN PERFORMING THE TECHNIQUES

As it is explained in chapter 4, correspondence analysis and cluster analysis are descriptive mathematical techniques, the introduction of which is given in that chapter. In this appendix, there is a diagrammatic presentation about how these techniques are performed in the analyses.

CORRESPONDENCE ANALYSIS

Correspondence Analysis (Two Dimensions in Solution)

The diagrammatic presentation of correspondence analysis[43] with two dimensions in solution bases on a relatively simple categorical data, which is a cross-tabulation of intra-metropolitan municipalities and economic activity categories[44]. The aim of this analysis is to introduce the association between the spatial variables (intra-metropolitan municipalities) and attributional variables (economic activity categories).

The simple use of correspondence analysis chooses Chi-Square Distance as a distance measure instead of Euclidian Distance. As a normalization method, symmetrical normalization is used although there are principal, row principal and column principal normalization methods. In the simple use, correspondence analysis is performed with two dimensions in solution. The basic reason of using two dimensions is the ease of interpretation through graphical medium.

The main tables of the output of simple correspondence analysis and the clues by interpretation of these tables and figures are given below:

[43] Although there are many softwares through which correspondence analysis could be performed, SPSS version 11.5 is used in the analytical studies.
[44] These economic activity categories include service categories plus manufacturing activities.

Correspondence Table

V1	V2						
	manufacture	welfare	household	distributive	finance	business	Active Margin
ALTINDAG	8957	477	6724	12566	614	1632	30970
ÇANKAYA	3219	3901	14063	17487	3334	9709	51713
ETIMESGUT	303	93	1950	1407	192	103	4048
KEÇIÖREN	754	440	3518	8537	741	264	14254
MAMAK	504	173	1670	3855	220	120	6542
SINCAN	957	179	1836	3376	341	319	7008
YENIMAHALLE	4483	393	5292	8965	832	870	20835
Active Margin	19177	5656	35053	56193	6274	13017	135370

Table 1

Summary

Dimension	Singular Value	Inertia	Chi Square	Sig.	Proportion of Inertia		Confidence Singular Value	
					Accounted for	Cumulative	Standard Deviation	Correlation 2
1	.347	.120			.703	.703	.002	.187
2	.205	.042			.246	.949	.002	
3	.091	.008			.048	.997		
4	.023	.001			.003	1.000		
5	.003	.000			.000	1.000		
Total		.171	23201.815	.000[a]	1.000	1.000		

a. 30 degrees of freedom

Table 2

The important aspect of this table 2 is the cumulative proportion of inertia. It is like the level of description. The higher the value of cumulative proportion of inertia, the better descriptive capacity of the analysis.

Overview Row Points[a]

V1	Mass	Score in Dimension		Inertia	Contribution				
					Of Point to Inertia of Dimension		Of Dimension to Inertia of Point		
		1	2		1	2	1	2	Total
ALTINDAG	.229	-.702	.444	.049	.325	.220	.806	.191	.996
ÇANKAYA	.382	.709	.178	.069	.553	.059	.963	.036	.999
ETIMESGUT	.030	.013	-.520	.009	.000	.039	.000	.188	.188
KEÇIÖREN	.105	-.126	-.967	.021	.005	.480	.027	.942	.969
MAMAK	.048	-.233	-.851	.008	.008	.171	.108	.850	.958
SINCAN	.052	-.232	-.344	.002	.008	.030	.425	.551	.976
YENIMAHALLE	.154	-.481	.043	.013	.103	.001	.967	.005	.971
Active Total	1.000			.171	1.000	1.000			

a. Symmetrical normalization

Table 3

The scores in dimension are the coordinates of spatial variables in the figure 1. The first scores in dimension are the x coordinates, and the second scores in dimension are the y coordinates.

The total contribution of dimension to inertia of point in the table "Overview Row Points" presents the described level of spatial variables. In this example, Çankaya is the most described municipality, while Etimesgut is the least described one. This low level of is not sufficient to describe the profile of Etimesgut. As it is seen in table 2, four dimension is needed for perfect description.

Overview Column Points[a]

V2	Mass	Score in Dimension 1	Score in Dimension 2	Inertia	Contribution: Of Point to Inertia of Dimension 1	Contribution: Of Point to Inertia of Dimension 2	Contribution: Of Dimension to Inertia of Point 1	Contribution: Of Dimension to Inertia of Point 2	Contribution: Of Dimension to Inertia of Point Total
manufacture	.142	-.990	.788	.066	.400	.429	.727	.272	1.000
welfare	.042	1.072	.207	.017	.138	.009	.966	.021	.987
household	.259	.121	-.104	.008	.011	.014	.172	.076	.248
distributive	.415	-.178	-.377	.019	.038	.287	.246	.652	.898
finance	.046	.602	-.170	.007	.048	.007	.887	.042	.929
business	.096	1.147	.738	.055	.364	.255	.796	.195	.991
Active Total	1.000			.171	1.000	1.000			

a. Symmetrical normalization

Table 4

The scores in dimension are the coordinates of attributional variables in the figure 1. The first scores in dimension are the x coordinates, and the second scores in dimension are the y coordinates of each attributes.

The total contribution of dimension to inertia of point in the table “Overview Column Points” presents the described level of attributional variables. In this example, manufacture is perfectly described, while household services are not properly described.

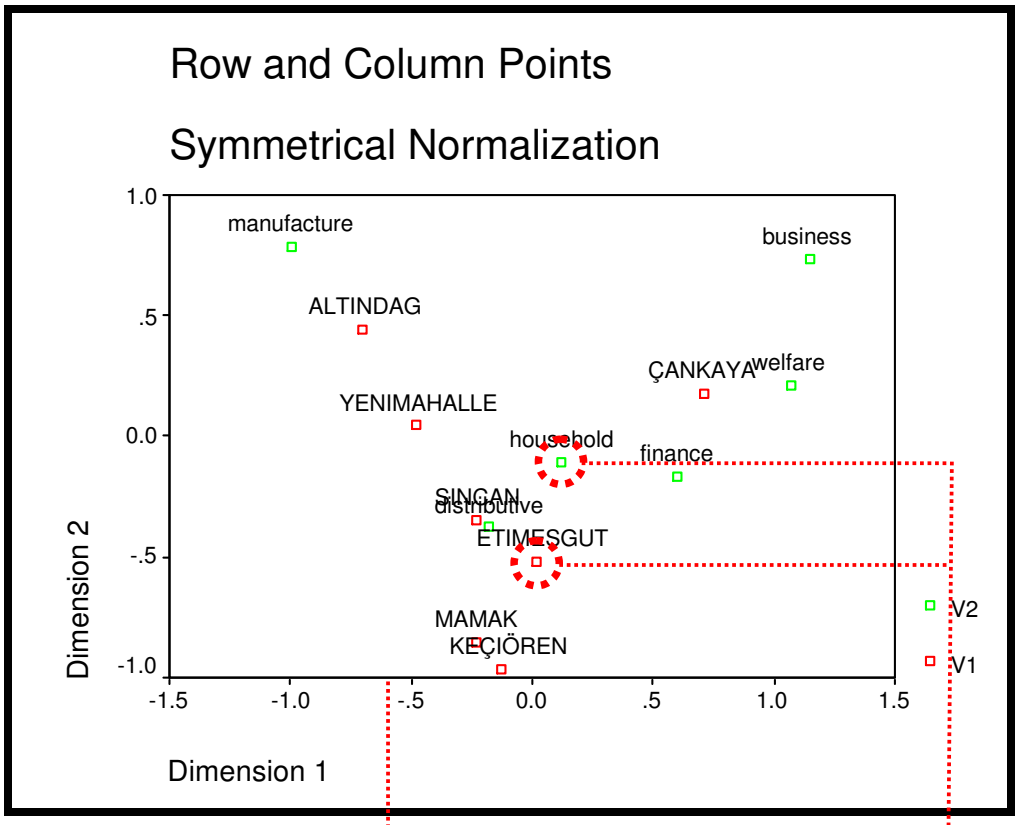


Figure 1

The interpretation of the correspondence map basically depends on the proximal positions in the figures. The closer the position, the higher level of association between the variables, spatial or attributional. What can be extracted from figure are:

1. Altındağ is the municipality basically associated with manufacturing activities due to the transforming activities in Siteler. If table 1 (correspondence table) is examined, the high level of share of Altındağ from manufacturing activities is easily observable.

2. Yenimahalle stands in between manufacture and distributive services.

3. Sincan is basically represented with distributive services since almost half of activities is distributive activities.

4. The profiles of Mamak and Keçiören are extremely similar to each other. And their compositions are dominated by distributive services, but not as much as the composition of Sincan.

5. Çankaya is primarily associated with business, welfare, and financial services. 75 percent of business services, 68 percent of welfare services, and 53 percent of the financial services are in this municipality.

As it is explained in the explanations of table 3 and 4, household services and Etimesgut are not properly described with two dimensions in solution. Therefore, the x and y coordinates are accurate.

Correspondence Analysis (Multi-Dimensions in Solution)

Since there appear problems by descriptive representation of correspondence analysis with two dimensions in solution, within the analysis of case study multi-dimensions in solutions are preferred. This way of performing correspondence analysis is not common in practice since it prevents to achieve simple correspondence maps for rapid interpretation of the categorical data. However, it also promotes perfect descriptions.

The number of dimensions in solution is determined with reference to number of variables. As the literature implies, (n-1) dimensions of the smallest variable set is sufficient for perfect description[45]. In some cases, however, the smaller number of dimensions may be sufficient where the profiles are similar to each other.

The main tables of the output of correspondence analysis with multi-dimensions in solution and the clues by interpretation of these tables and figures are given below:

Correspondence Table

	V2						
V1	manufacture	welfare	household	distributive	finance	business	Active Margin
ALTINDAG	8957	477	6724	12566	614	1632	30970
ÇANKAYA	3219	3901	14063	17487	3334	9709	51713
ETIMESGUT	303	93	1950	1407	192	103	4048
KEÇIÖREN	754	440	3518	8537	741	264	14254
MAMAK	504	173	1670	3855	220	120	6542
SINCAN	957	179	1836	3376	341	319	7008
YENIMAHALLE	4483	393	5292	8965	832	870	20835
Active Margin	19177	5656	35053	56193	6274	13017	135370

Table 5

Summary

					Proportion of Inertia		Confidence Singular Value				
								Correlation			
Dimension	Singular Value	Inertia	Chi Square	Sig.	Accounted for	Cumulative	Standard Deviation	2	3	4	5
1	.347	.120			.703	.703	.002	.187	.019	-.040	.013
2	.205	.042			.246	.949	.002		.046	-.015	-.012
3	.091	.008			.048	.997	.003			.024	-.002
4	.023	.001			.003	1.000	.002				-.010
5	.003	.000			.000	1.000	.002				
Total		.171	23201.815	.000[a]	1.000	1.000					

a. 30 degrees of freedom

Table 6

Performing correspondence analysis with multi-dimensions in solution increases the level of descriptive capacity of the analysis.

[45] In the example, there are seven spatial units and six attributional categories. Therefore, five dimensions in solution provides a perfect description.

Overview Row Points[a]

V1	Mass	Score in Dimension					Inertia	Contribution									
								Of Point to Inertia of Dimension					Of Dimension to Inertia of Point				
		1	2	3	4	5		1	2	3	4	5	1	2	3	4	5	Total
ALTINDAG	.229	-.702	.444	-.073	-.110	.012	.049	.325	.220	.013	.121	.011	.806	.191	.002	.001	.000	1.000
ÇANKAYA	.382	.709	.178	-.035	-.006	.002	.069	.553	.059	.005	.001	.000	.963	.036	.001	.000	.000	1.000
ETIMESGUT	.030	.013	-.520	1.619	-.173	.034	.009	.000	.039	.860	.040	.011	.000	.188	.809	.002	.000	1.000
KEÇIÖREN	.105	-.126	-.967	-.262	.061	.076	.021	.005	.480	.080	.017	.199	.027	.942	.031	.000	.000	1.000
MAMAK	.048	-.233	-.851	-.193	-.413	-.080	.008	.008	.171	.020	.363	.102	.108	.850	.019	.022	.000	1.000
SINCAN	.052	-.232	-.344	.027	.195	-.198	.002	.008	.030	.000	.087	.669	.425	.551	.001	.020	.003	1.000
YENIMAHALLE	.154	-.481	.043	.112	.234	.011	.013	.103	.001	.021	.372	.006	.967	.005	.014	.015	.000	1.000
Active Total	1.000						.171	1.000	1.000	1.000	1.000	1.000						

a. Symmetrical normalization

Table 7

As it is seen in figure 2, it is not easy to interpret the correspondence maps with multidimensions in solution. However, the "Overview Row Points" output still continues to give coordinates, not for two dimensional space, but five (n-1) dimensional space.

The total contribution of dimension to inertia of point in the table "Overview Row Points" presents the described level of attributional variables. In this way of using correspondence analysis, the description level of spatial variables are perfect.

Overview Column Points[a]

V2	Mass	Score in Dimension					Inertia	Contribution									
								Of Point to Inertia of Dimension					Of Dimension to Inertia of Point				
		1	2	3	4	5		1	2	3	4	5	1	2	3	4	5	Total
manufacture	.142	.990	.788	-.026	.048	.017	.066	.400	.429	.001	.014	.014	.727	.272	.000	.000	.000	1.000
welfare	.042	.072	.207	-.234	-.080	.237	.017	.138	.009	.025	.012	.774	.966	.021	.012	.000	.000	1.000
household	.259	.121	-.104	.492	-.049	-.002	.008	.011	.014	.688	.028	.000	.172	.076	.750	.002	.000	1.000
distributive	.415	.178	-.377	-.223	-.033	-.010	.019	.038	.287	.227	.019	.013	.246	.652	.102	.001	.000	1.000
finance	.046	.602	-.170	.026	.663	-.004	.007	.048	.007	.000	.898	.000	.887	.042	.000	.071	.000	1.000
business	.096	.147	.738	-.234	-.082	-.079	.055	.364	.255	.058	.029	.198	.796	.195	.009	.000	.000	1.000
Active Total	1.000						.171	1.000	1.000	1.000	1.000	1.000						

a. Symmetrical normalization

Table 8

The coordinates of five (n-1) dimensional space are given in the "Overview Colum Points" output of SPSS version 11.5.

In this way of using correspondence analysis, the description level of attributional variables are also perfect.

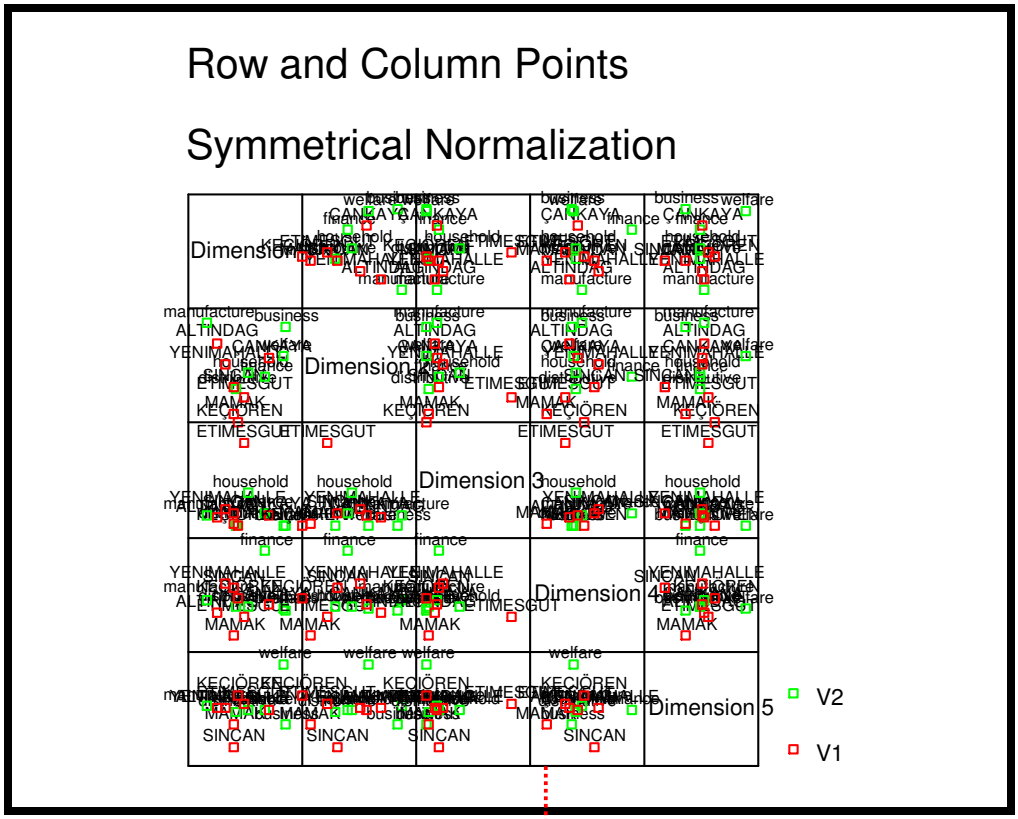


Figure 2

As it is mentioned in the explanation of table 6, the rapid interpretation of correspondence map with multidimensions in solution is not possible. Yet, the coordinates are available from the "Overview" outputs. For the interpretation of correspondence outputs, the main determinant is proximal positions and the proximities in positions can be detected by through cluster analysis, which can group the spatial and attributional variables according to the similarity of their coordinates. For this cluster analysis, the coordinates of spatial and attributional variables has to be collected in the same cross-tabulation, which is presented in table 9.

	Score in Dimension				
	1	2	3	4	5
ALTINDAG	-.702	.444	-.073	-.110	.012
ÇANKAYA	.709	.178	-.035	-.006	.002
ETIMESGUT	.013	-.520	1.619	-.173	.034
KEÇIÖREN	-.126	-.967	-.262	.061	.076
MAMAK	-.233	-.851	-.193	-.413	-.080
SINCAN	-.232	-.344	.027	.195	-.198
YENIMAHALLE	-.481	.043	.112	.234	.011
manufacture	-.990	.788	-.026	.048	.017
welfare	1.072	.207	-.234	-.080	.237
household	.121	-.104	.492	-.049	-.002
distributive	-.178	-.377	-.223	-.033	-.010
finance	.602	-.170	.026	.663	-.004
business	1.147	.738	-.234	-.082	-.079

Table 9

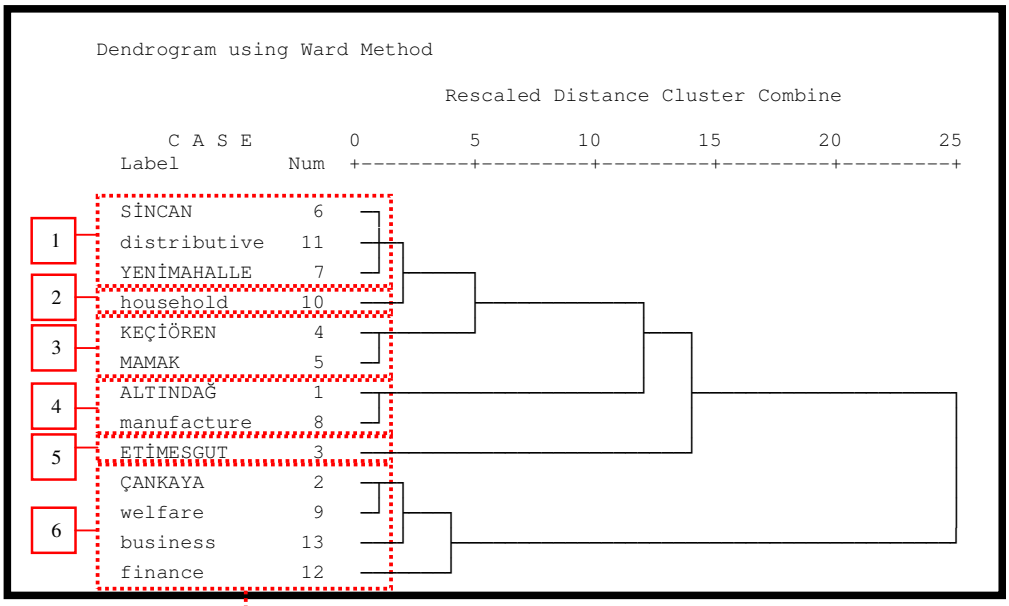


Figure 3

The dendrogram output of table 9 by using Ward's Method (and square Euclidean distance as the distance measure) is presented in figure 3. This dendrogram, which clusters the coordinates of spatial and attributional variables, gives a chance to interpret the output of correspondence analysis for achieving the description of the complex data. From this dendrogram, it can be understood that:
1. The coordinates of Sincan, Yenimahalle as the spatial variables and distributive services as the attributional variable are quite similar. This means, Sincan and Yenimahalle basically associate with distributive services.
2. These two municipalities also have associations with household services, yet this association is not strong as the one with distributive services.
3. The coordinates of Keçiören and Mamak seem similar, these two municipalities have associations with distributive and household services, but not so strong as Sincan and Yenimahalle.
4. Altındağ is directly related with manufacturing activities as it is observed in figure 1.
5. The activity composition of Etimesgut is quite different than the other municipalities. However, it is more close to distributive and household services, and manufacturing activities than the welfare, business and financial services.
6. Çankaya basically corresponds with -firstly- welfare services, -secondly- business services, and -finally- financial services.

CLUSTER ANALYSIS

Cluster analysis is another descriptive mathematical technique. In this study, however, there is generally a complementary use of correspondence analysis and cluster analysis.

Table 10

districts	manufacture	welfare	household	distributive	finance	business
1	13	10	64	143	20	10
2	2	2	2	9	0	1
4	367	6	480	408	80	142
6	36	6	32	121	2	1
7	137	1	16	53	0	3
9	13	1	56	41	2	0
10	3	2	32	46	3	3
11	2	0	9	24	0	0
12	72	7	88	495	19	93
15	45	26	185	223	38	19
16	0	0	1	5	0	0
17	7	4	23	95	1	1
19	33	19	117	318	13	7
20	6	2	10	41	1	1
21	4	2	28	95	6	2
22	1	1	15	32	0	1
23	99	30	522	252	42	147
24	1	0	3	19	0	0
25	101	0	24	129	1	0
26	26	4	51	141	4	3
28	0	0	0	5	0	0
30	4	0	1	6	0	0
31	9	1	9	11	0	2
32	0	1	1	1	0	1
33	193	15	249	842	42	136
35	30	7	51	220	0	3
36	4	0	20	57	1	1
38	1	0	6	7	0	0
39	205	5	589	227	24	56
42	10	8	52	61	3	5
43	0	0	3	9	0	0
44	6	2	20	141	0	1
45	94	33	345	904	55	313
47	6	4	39	86	0	2
48	50	5	91	94	11	20
49	13	3	57	30	2	2
50	7	2	32	78	2	1
51	50	12	98	217	3	8

Table 10 continued

55	27	12	169	91	11	20
56	20	1	66	89	2	30
57	0	0	3	5	0	0
58	1	1	2	23	0	0
59	4	5	21	76	6	4
62	10	0	23	96	0	1
63	172	36	152	846	42	94
64	34	1	23	405	1	2
65	13	3	71	37	3	22
66	2	0	19	14	0	2
67	36	0	20	37	0	0
68	46	12	40	250	4	7
69	248	31	149	305	12	95
72	16	0	59	76	1	2
73	92	3	22	61	2	1
74	7	14	55	133	9	2
75	3	0	21	24	0	0
76	4	0	3	7	0	0
78	22	1	31	37	0	0
80	16	9	109	184	6	12
81	46	68	137	299	18	45
82	9	3	19	31	5	3
83	1	0	2	11	0	0
84	5	1	13	57	4	0
85	3	0	0	1	0	0
87	5903	24	769	2662	88	278
89	4	0	1	0	0	0
91	18	3	1	10	0	1
92	2	1	4	40	0	0
93	0	0	29	3	0	0
94	3	0	15	22	0	0
95	9	0	19	39	0	0
97	320	7	65	151	1	2
98	0	2	1	2	0	3
99	0	0	0	4	0	0
100	0	0	5	10	0	0
102	4	0	23	30	0	0
103	18	4	66	306	1	2
104	0	0	7	11	0	0
105	9	0	83	22	0	0
106	1	1	18	6	1	3
107	1	0	1	35	0	0
110	0	0	1	4	0	0
111	11	8	51	126	10	4
112	167	5	915	183	12	12
113	0	0	0	19	0	0
114	5	0	10	16	3	1

Table 10 continued

115	21	14	103	68	11	46
116	29	7	111	188	12	5
117	0	2	16	8	2	0
119	57	12	321	300	59	150
120	0	0	2	4	0	0
121	18	9	59	129	12	12
122	50	33	282	519	73	55
123	76	57	442	449	97	178
124	79	110	571	384	114	350
127	20	29	247	305	46	34
128	23	17	181	173	32	70
129	54	103	220	184	49	150
130	14	1	52	96	15	15
131	38	30	254	305	58	76
132	1	0	4	5	0	0
133	37	64	371	272	97	242
134	21	6	108	116	24	10
135	85	15	173	289	46	71
136	30	21	73	87	13	35
137	3	0	28	22	9	6
138	59	82	306	498	75	224
139	2	2	12	11	5	15
140	1	5	26	22	5	6
141	10	11	143	151	32	39
143	41	12	196	288	35	35
144	8	1	25	30	5	9
145	3	1	4	13	0	0
146	34	43	442	493	130	82
147	7	0	27	55	5	5
148	12	8	62	56	3	7
149	48	46	203	253	47	99
150	66	60	168	481	51	847
151	30	15	124	172	26	29
152	98	197	210	434	59	339
153	37	46	213	159	47	99
154	0	0	9	25	2	4
155	15	1	40	89	8	5
156	45	40	259	216	58	171
157	19	15	172	60	18	72
158	54	13	221	276	38	41
159	23	7	136	147	18	34
160	35	8	117	178	31	41
161	6	0	14	37	2	2
162	7	4	31	64	13	10
163	1	0	0	8	0	0
164	26	3	51	79	9	4
165	14	14	122	174	23	16

Table 10 continued

166	27	10	103	81	27	18
167	0	0	0	1	2	0
168	33	52	224	142	41	157
169	30	20	245	157	47	125
170	0	0	4	22	0	2
171	8	12	65	89	17	15
172	311	299	556	893	144	736
173	4	2	18	35	6	2
174	155	831	715	630	151	715
175	106	89	239	356	103	957
176	5	0	9	8	3	9
177	64	147	172	196	46	169
178	0	0	1	2	0	3
179	258	257	658	802	191	985
180	27	28	180	164	40	88
181	66	172	282	344	45	246
182	3	0	7	15	1	2
183	5	0	15	32	1	2
185	8	2	26	53	1	2
186	9	7	42	50	4	8
187	12	8	106	111	11	43
188	19	4	89	172	29	12
189	12	3	43	81	16	6
190	3	13	15	9	5	7
191	18	13	69	56	12	32
192	54	30	213	310	32	72
193	2	9	42	51	16	10
194	15	14	80	75	43	51
196	7	2	35	64	8	3
197	19	3	66	71	11	9
198	34	18	201	387	53	26
199	228	442	864	1576	332	749
200	57	80	158	379	31	275
201	91	44	529	489	157	152
202	1	0	6	9	2	1
203	7	2	25	54	7	4
204	3	1	16	9	0	4
205	0	0	0	6	1	0
206	11	5	33	83	7	8
207	36	16	191	193	33	54
208	1	0	2	0	0	0
209	6	3	33	87	3	7
210	1	2	1	4	0	0
211	26	12	187	150	33	66
212	39	55	280	394	65	45
213	2	3	39	37	8	6
214	2	0	2	5	1	1

Table 10 continued

215	11	7	63	52	8	10
216	21	20	153	110	23	74
217	0	0	0	3	0	0
218	12	11	51	124	18	22
219	28	10	73	101	21	7
220	142	2	1302	233	18	11
222	4	1	28	76	7	8
223	7	0	9	20	2	0
224	17	20	66	128	16	13
225	11	6	57	87	11	7
226	15	3	53	112	5	0
227	11	4	59	93	9	3
228	18	14	109	173	14	9
229	23	2	18	24	8	2
230	3	0	6	7	0	0
231	1	3	13	25	11	1
232	10	16	98	191	40	18
233	0	0	4	12	12	2
235	1	1	4	1	0	0
241	9	8	56	124	13	1
242	16	9	82	145	8	2
243	47	29	192	436	40	15
244	7	2	26	107	5	3
245	9	10	54	170	6	2
246	17	5	62	158	8	0
247	35	25	201	521	44	19
248	21	8	119	260	22	10
249	11	2	45	75	9	2
250	8	6	29	62	6	4
251	18	12	151	316	30	11
252	8	3	20	53	2	0
253	65	34	211	637	69	10
254	17	11	45	151	8	15
255	0	0	1	3	0	0
256	0	0	1	3	0	0
257	5	4	24	39	5	1
258	52	45	205	647	42	17
259	26	16	151	338	50	20
260	17	14	76	216	13	4
261	2	3	17	36	0	0
262	3	5	29	44	11	5
263	28	36	415	572	53	27
264	3	3	28	87	4	3
265	14	4	76	160	8	7
266	56	34	206	640	65	18
267	8	8	55	156	9	1
268	0	0	4	10	0	0

Table 10 continued

269	58	26	143	449	39	21
270	8	3	26	60	2	1
271	14	8	39	114	3	1
272	53	11	202	475	52	11
273	2	0	2	24	1	2
274	11	8	53	140	9	7
275	39	22	227	496	72	14
276	7	2	24	46	4	0
277	6	3	30	46	3	2
278	22	5	70	147	11	3
279	13	10	69	243	11	4
280	13	2	13	39	1	1
281	1	0	15	34	0	0
282	3	1	9	16	3	0
283	2	3	15	42	0	0
284	30	3	107	224	20	7
285	17	2	108	203	15	4
286	0	0	11	31	3	1
287	4	0	6	31	0	0
288	4	2	4	27	2	1
289	0	0	13	14	0	0
290	9	2	26	92	10	2
291	0	2	4	21	0	1
292	7	0	33	75	2	0
293	40	24	193	405	36	24
294	3	0	8	26	1	0
295	0	0	5	17	0	0
296	1	1	0	12	0	0
297	11	11	110	187	26	13
298	15	19	97	170	10	6
300	52	12	128	257	25	9
301	4	3	1	37	1	2
302	7	1	14	55	0	1
303	2	2	13	50	1	0
304	1	0	7	19	0	0
305	0	2	2	33	0	0
306	1	1	6	39	0	0
307	13	9	51	142	5	4
308	7	0	28	74	3	3
309	14	4	47	96	0	3
310	1	0	4	25	0	0
312	2	1	8	14	0	0
313	7	0	26	53	4	4
314	1	2	4	19	1	0
315	11	12	38	92	1	4
316	28	11	101	164	4	4
317	6	0	35	64	2	1

Table 10 continued

318	8	2	20	44	1	1
319	15	6	53	121	10	1
320	1	2	14	47	1	0
321	5	1	41	74	4	2
322	0	4	6	17	1	0
323	6	5	29	103	1	0
324	2	1	16	34	1	2
325	110	0	7	11	0	0
326	5	2	28	68	7	0
327	2	1	9	57	5	0
328	2	0	15	32	0	0
329	3	2	22	52	2	2
331	6	5	40	80	5	3
332	1	2	4	11	0	0
333	3	5	17	41	5	4
334	11	5	66	151	3	8
335	1	0	0	7	0	0
336	16	1	6	34	0	1
337	7	0	8	29	1	1
338	2	3	31	74	1	1
340	122	66	464	963	143	182
341	7	3	37	78	2	3
342	19	12	89	230	16	6
343	647	11	379	421	24	27
344	73	54	362	762	83	47
345	7	2	73	135	10	1
346	56	13	281	491	29	9
347	14	8	89	107	19	42
348	8	4	27	107	7	0
349	4	6	35	82	8	2
350	1	1	9	44	0	0
351	0	0	1	3	0	0
352	6	1	23	68	0	0
353	1	2	0	2	1	0
354	2	0	5	15	1	0
355	163	5	115	150	10	18
356	13	7	110	161	17	34
357	12	8	53	103	1	2
358	18	3	33	92	9	4
359	11	5	41	92	10	4
360	1	2	11	56	2	0
361	114	33	366	607	59	34
362	131	8	167	303	41	20
363	89	14	178	447	40	23
364	22	13	184	443	20	30
365	11	3	27	63	4	4
366	20	6	80	217	19	6

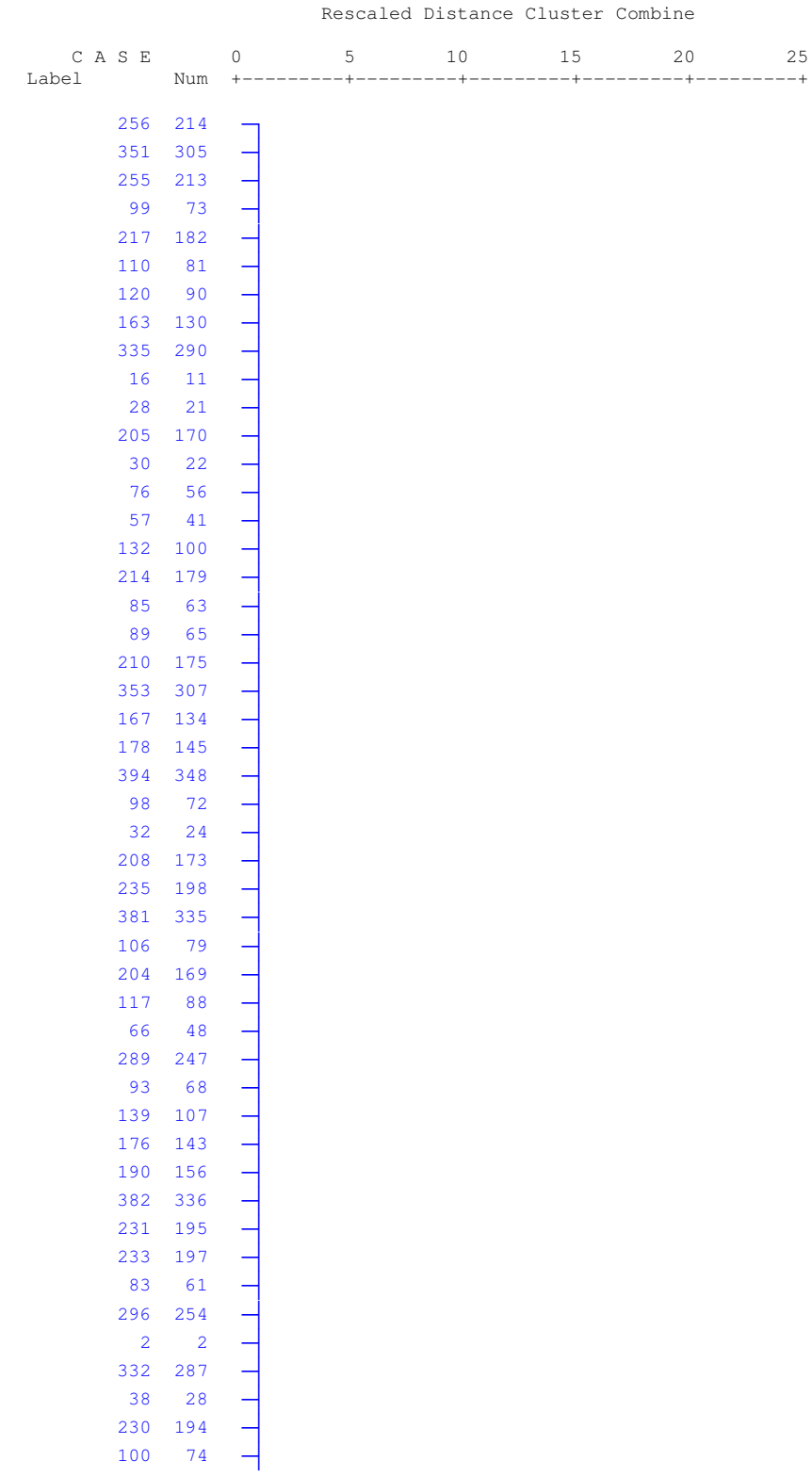
Table 10 continued

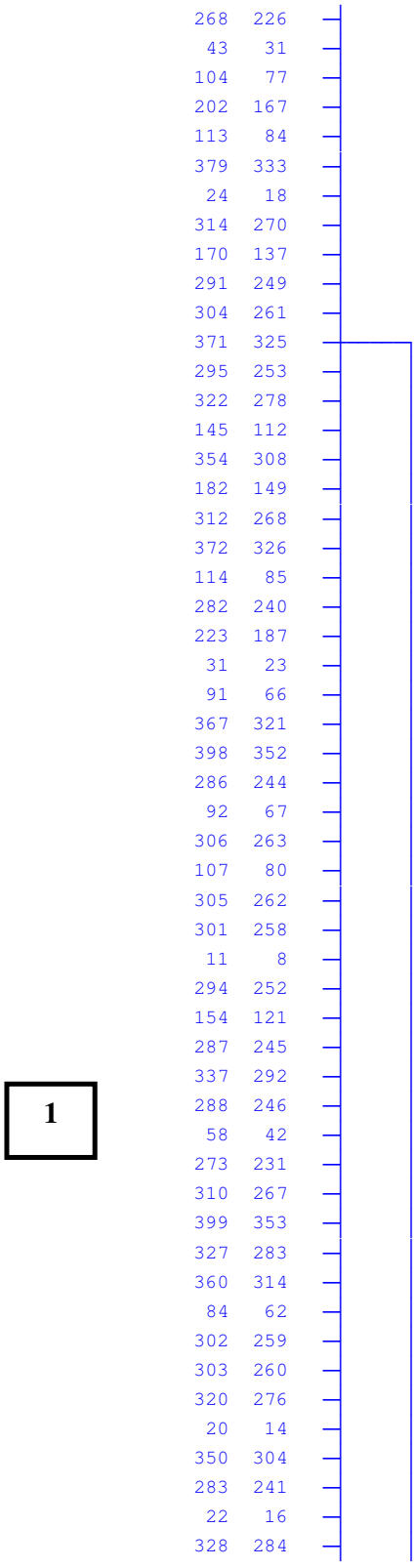
367	1	3	7	37	3	1
368	0	0	31	43	1	3
369	13	4	101	330	11	15
370	3	4	30	61	1	0
371	1	0	6	18	1	0
372	4	3	8	15	0	1
373	16	26	91	232	53	23
374	100	5	367	169	15	26
375	10	0	24	140	0	0
376	3	3	30	84	2	0
377	6	10	35	78	8	6
378	31	8	114	215	11	7
379	0	0	0	15	0	0
380	21	5	113	204	31	60
381	1	0	7	3	4	1
382	1	6	11	9	14	11
383	130	4	179	904	19	55
384	23	3	98	142	13	6
385	3081	22	1385	1213	112	220
386	35	6	39	92	7	1
387	4	4	34	118	1	3
388	13	28	138	203	64	34
389	165	56	282	694	68	76
390	29	34	169	314	49	48
391	95	9	198	217	19	16
392	0	4	28	22	16	13
393	2	0	31	39	5	2
394	0	0	2	1	1	2
395	17	11	109	193	37	15
396	14	11	84	38	10	29
397	20	10	71	137	5	6
398	1	0	6	33	5	1
399	11	0	2	22	0	0
400	17	3	59	64	12	10

Table 10

This table is a cross-tabulation of districts and economic activity categories.

Dendrogram using Ward Method

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182 149
312 268
372 326
114 85
282 240
223 187
31 23
91 66
367 321
398 352
286 244
92 67
306 263
107 80
305 262
301 258
11 8
294 252
154 121
287 245
337 292
288 246
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20 14
350 304
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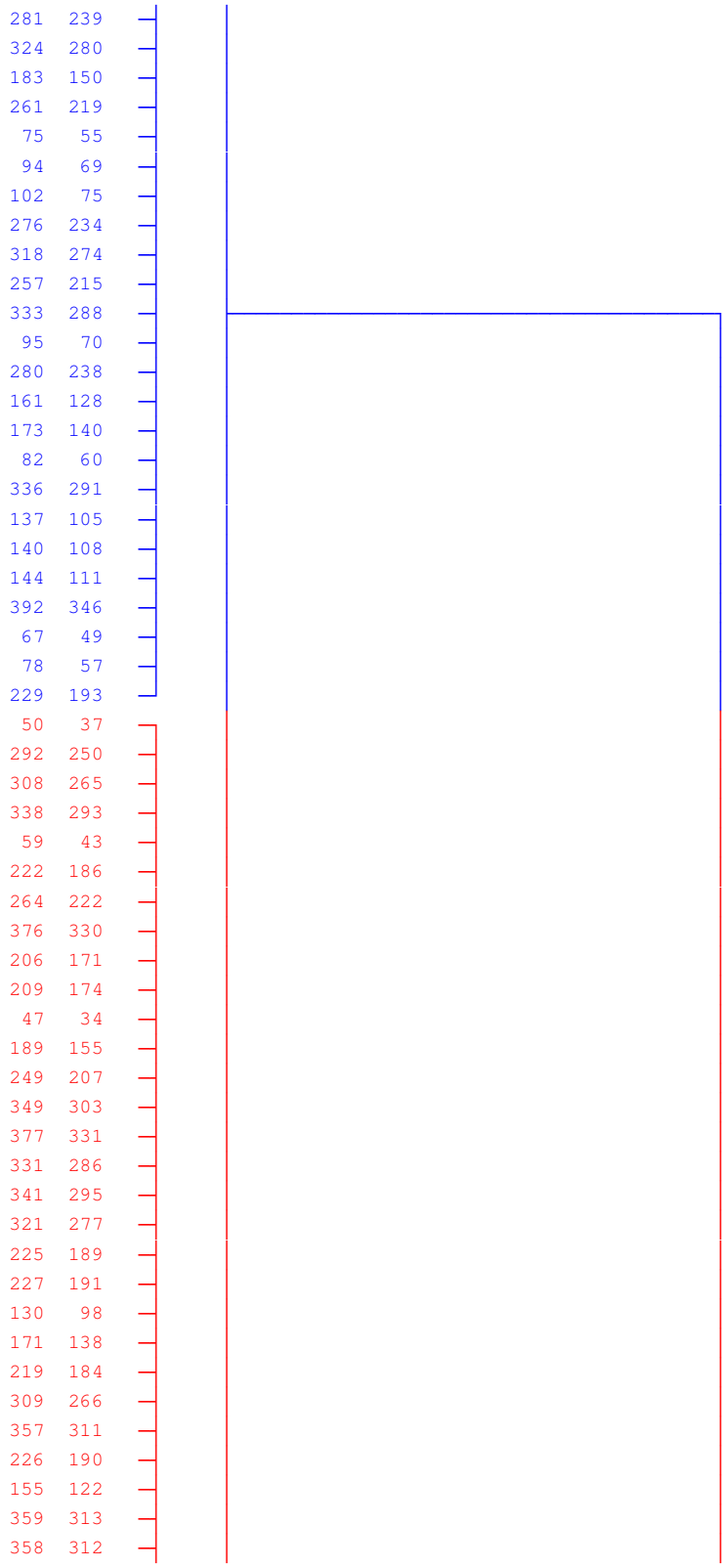
22 16
328 284
1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336 291
137 105
140 108
144 111
392 346
67 49
78 57
229 193
50 37
292 250
308 265
338 293
59 43
222 186
264 222
376 330
206 171
209 174
47 34
189 155
249 207
349 303
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226 190
155 122
359 313
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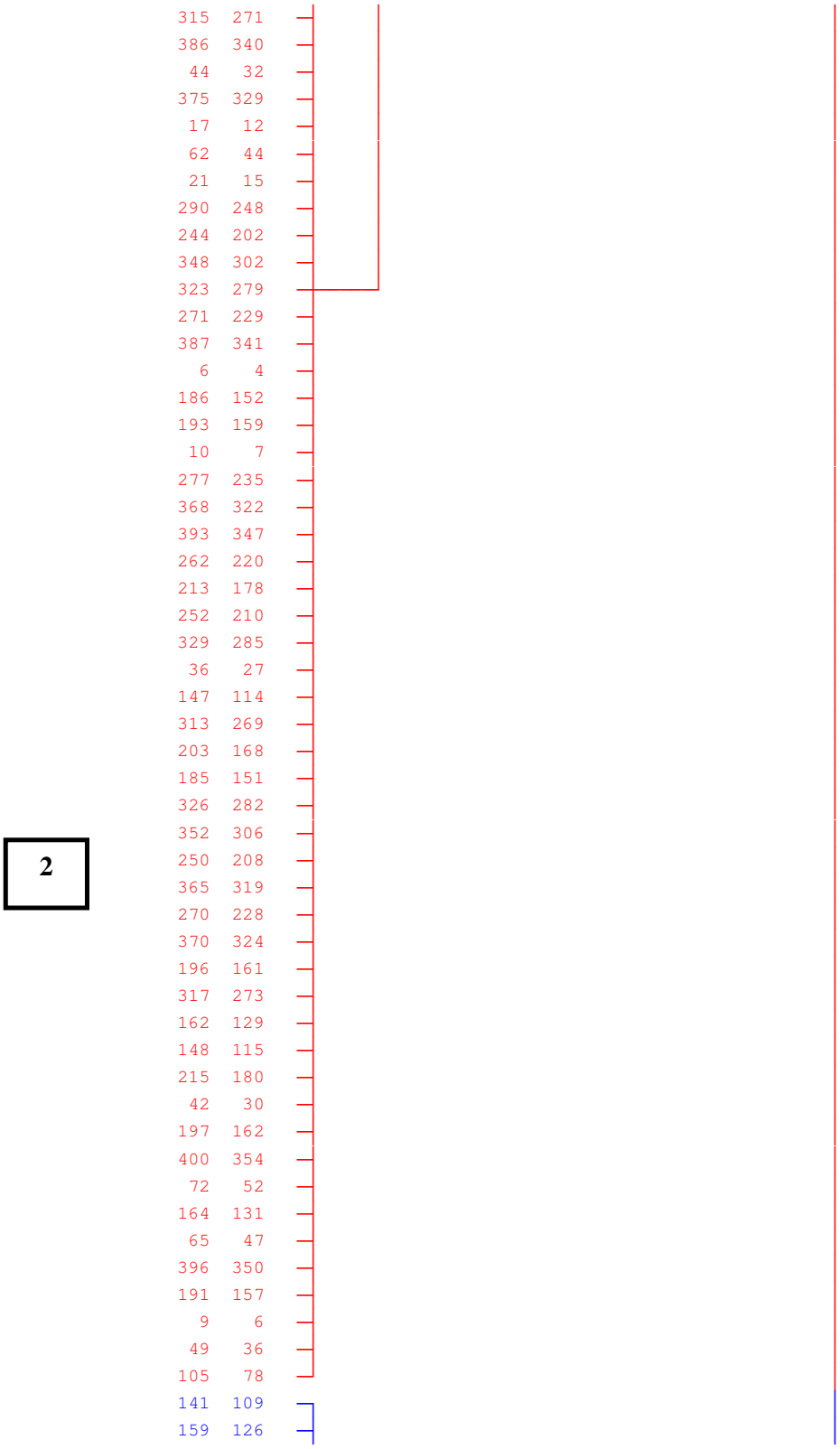
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10 7
277 235
368 322
393 347
262 220
213 178
252 210
329 285
36 27
147 114
313 269
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162 129
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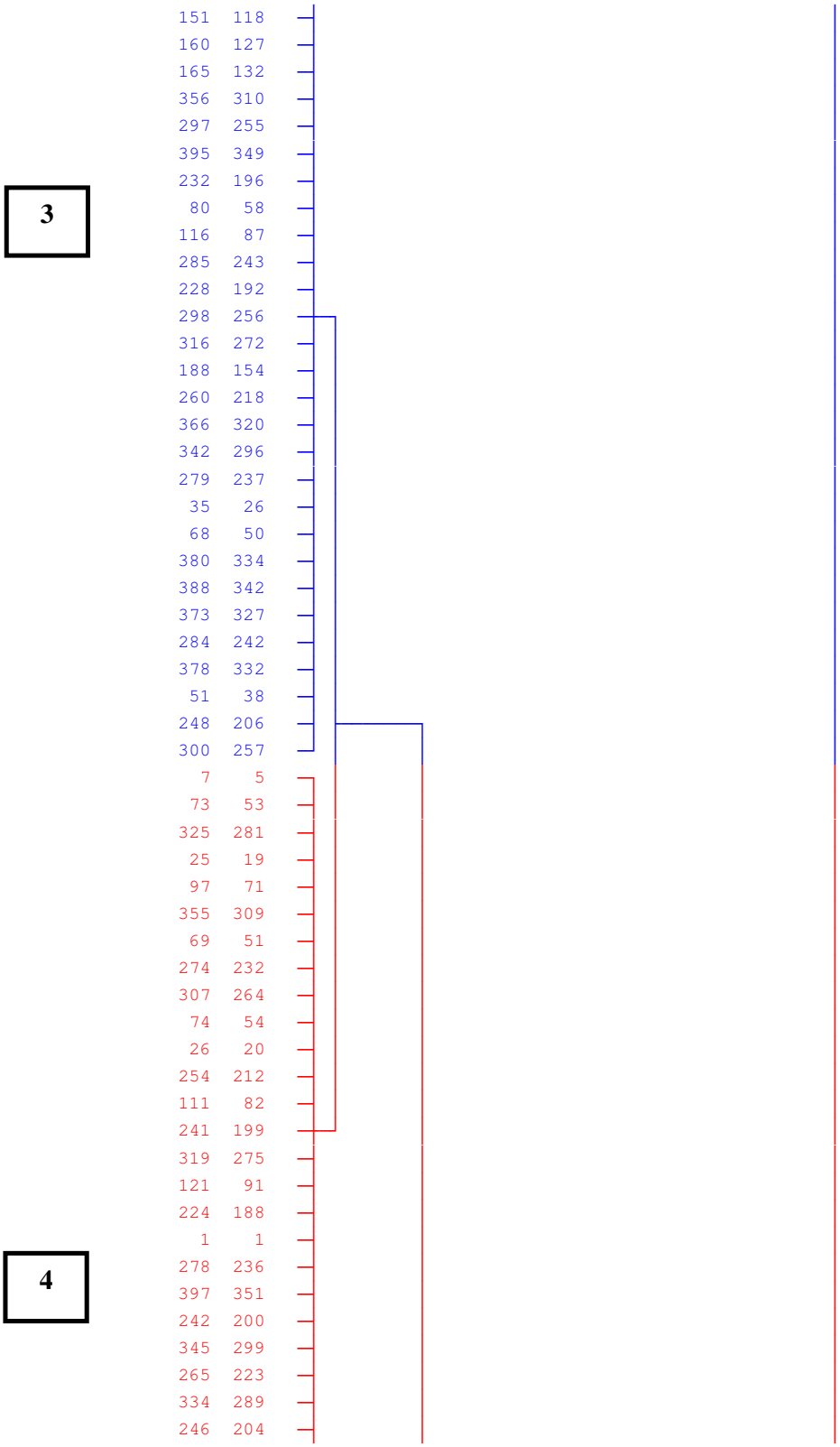
159 126

2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366 320
342 296
279 237
35 26
68 50
380 334
388 342
373 327
284 242
378 332
51 38
248 206
300 257
7 5
73 53
325 281
25 19
97 71
355 309
69 51
274 232
307 264
74 54
26 20
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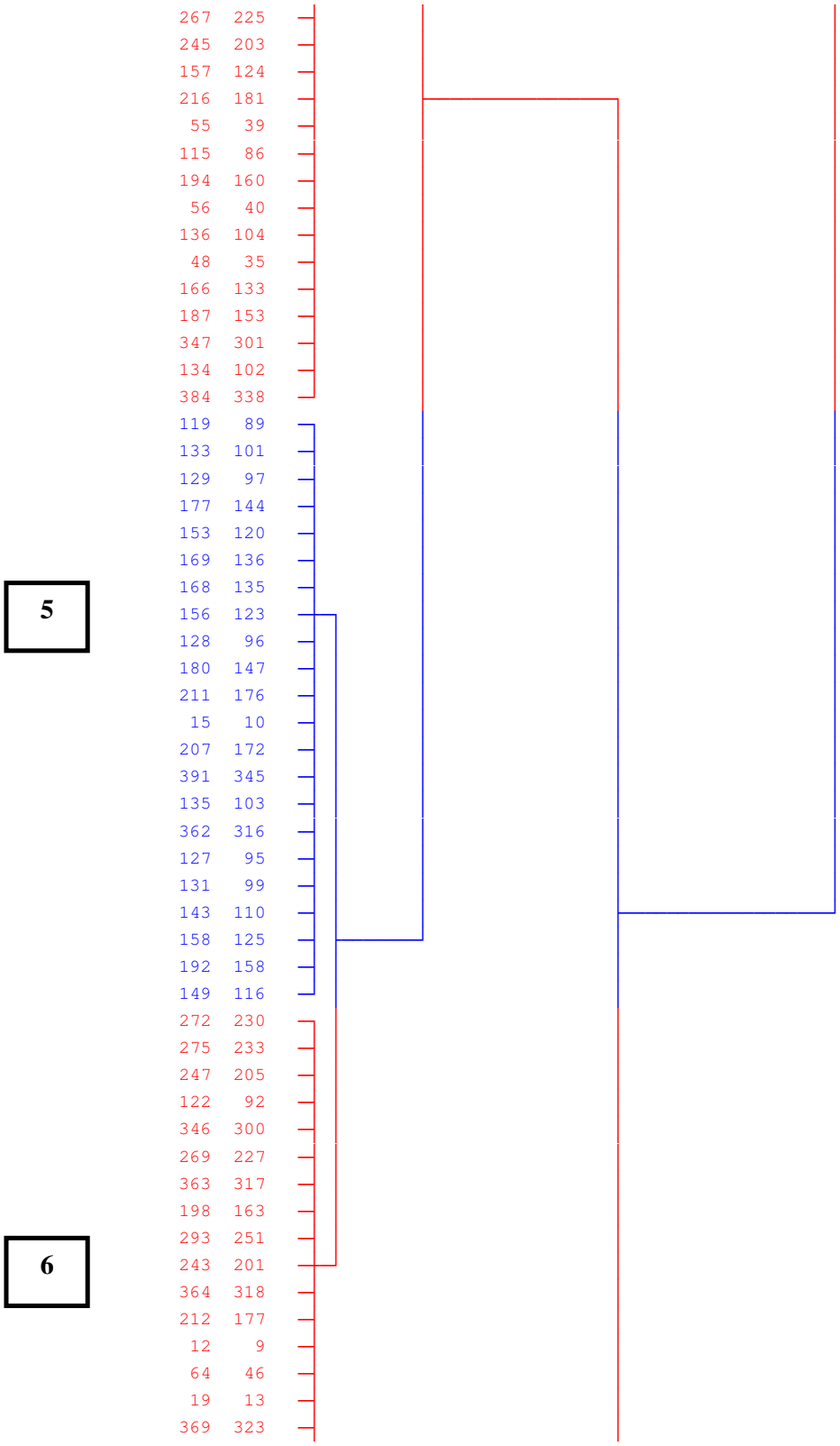
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194 160
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166 133
187 153
347 301
134 102
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133 101
129 97
177 144
153 120
169 136
168 135
156 123
128 96
180 147
211 176
15 10
207 172
391 345
135 103
362 316
127 95
131 99
143 110
158 125
192 158
149 116
272 230
275 233
247 205
122 92
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269 227
363 317
198 163
293 251
243 201
364 318
212 177
12 9
64 46
19 13
369 323
5
6

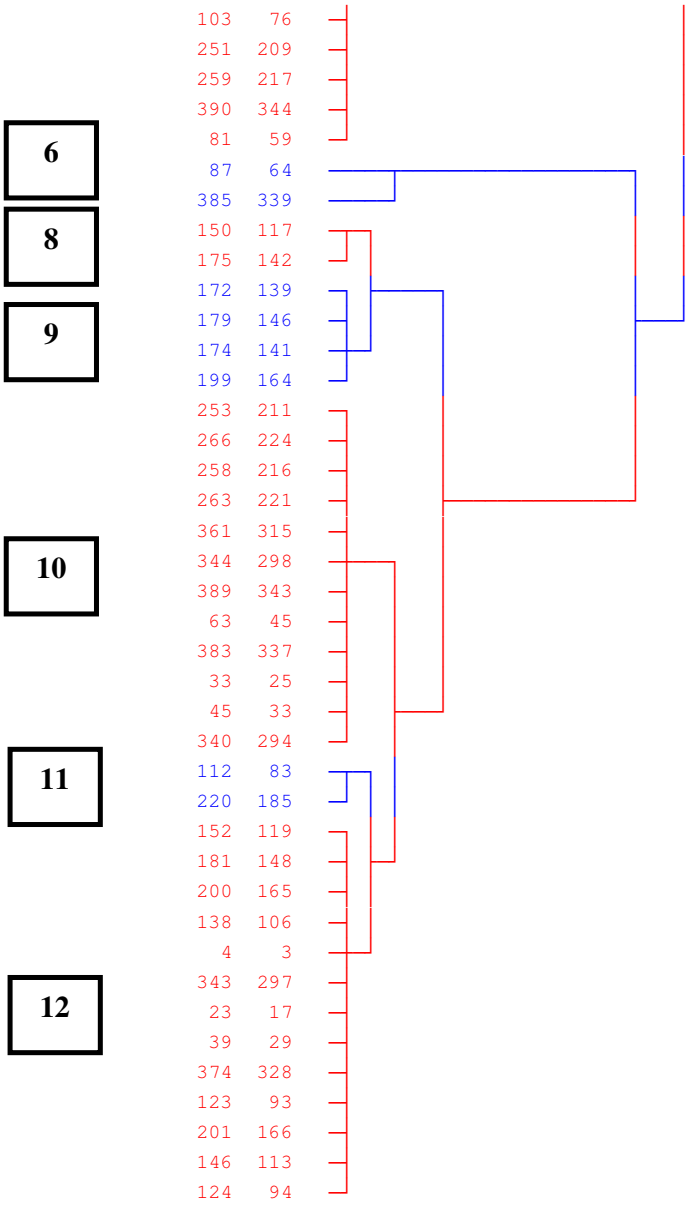

Figure 4

The hierarchical cluster analysis is performed by using Ward's Method (and Euclidean distance as the distance measure). This dendrogram clusters the districts according to the similarities of profiles and there appears 12 clusters.

V1 * V2 Crosstabulation

Count

		V2						
		business	distributiv	finance	household	manufacture	welfare	Total
V1	1	148	2511	185	1071	381	126	4422
	2	358	5981	431	3131	758	299	10958
	3	479	5996	632	3106	684	329	11226
	4	710	5052	454	3073	1764	360	11413
	5	2024	5075	982	4821	1080	775	14757
	6	535	8584	755	3567	851	448	14740
	7	498	3875	200	2154	8984	46	15757
	8	1804	837	154	407	172	149	3523
	9	3185	3901	818	2793	952	1829	13478
	10	1009	9018	740	3436	1264	446	15913
	11	23	416	30	2217	309	7	3002
	12	2244	4947	893	5277	1978	842	16181
Total		13017	56193	6274	35053	19177	5656	135370

Table 11

This table presents the congregated data according to the clusters.

	manufacture	welfare	household	distributive	finance	business
1	-96.2	-18.7	-4.8	**248.5**	-1.9	-180.7
2	-406.5	-55.1	**30.4**	**451.0**	-11.6	-459.3
3	-516.5	-41.8	**13.6**	**383.0**	**24.0**	-334.0
4	**13.4**	-28.6	**4.7**	**20.9**	-10.6	-136.8
5	-488.5	**40.7**	**261.6**	-180.2	**129.9**	**257.9**
6	-732.9	-45.8	-16.3	**993.3**	**7.6**	-549.3
7	**20422.5**	-569.6	-909.3	-1086.5	-385.1	-682.9
8	-214.4	0.0	-279.8	-267.5	-0.5	**6337.4**
9	-480.0	**2845.5**	-139.2	-512.8	**59.8**	**2753.2**
10	-435.0	-72.1	-113.7	**881.0**	0.0	-177.5
11	-31.8	-111.8	**2666.3**	-553.0	-85.6	-244.5
12	-43.1	**40.7**	**282.0**	-466.3	**27.3**	**304.3**

Table 13

When the congregated data is processed with signed chi square technique, it can be seen that certain attributes are concentrated in certain district clusters. For example,

1. and 10. district clusters: distributive service concentration
2. district cluster: distributive services and household services.
3. district cluster: distributive services, finance and household services.
4. district cluster: distributive services, manufacturing activities and household activities.
5. and 12. district clusters: household services, business services, financial services, welfare services.
6. district cluster: distributive services and financial services.
7. district cluster: only manufacturing activities.
8. district cluster: only business services.
9. district cluster: welfare services, business services and financial services.
11. district cluster: only household services.

1. and 10. clusters and 5. and 12. clusters have similar activity compositions. The reason of being separated by cluster analysis is not “differences of kind”, but “differences of degree”, which connotes itself with different concentration values.

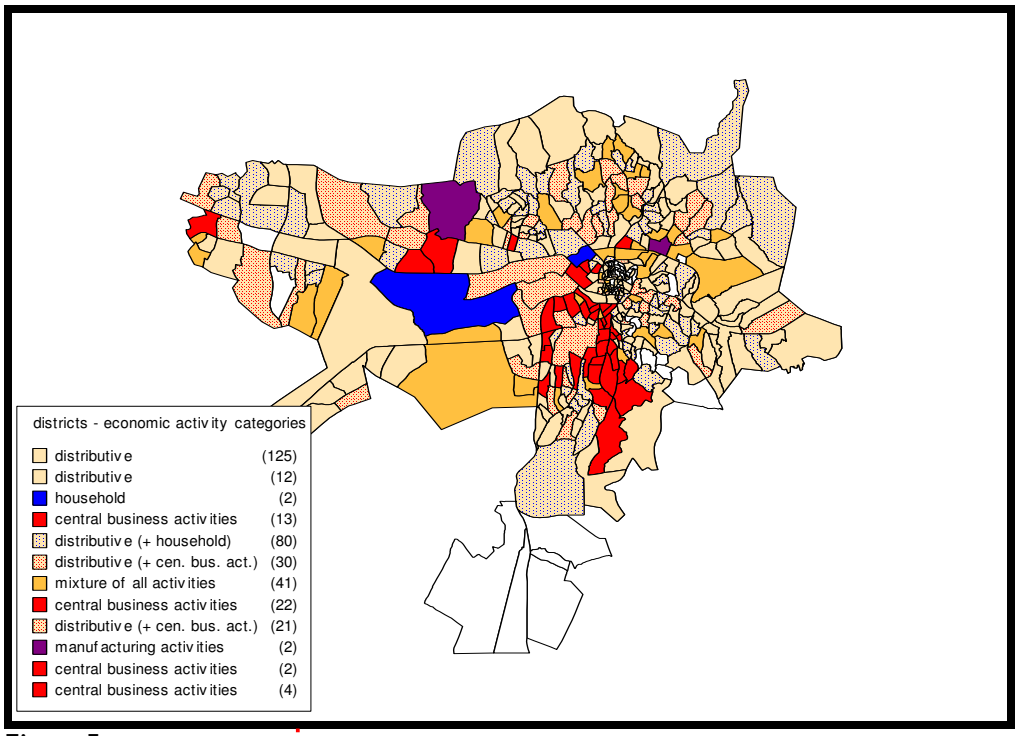

Figure 5

Visualization of cluster analysis

CURRICULUM VITAE

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Ünlü, T. and Levent, T., 2005, "Mersin'de Kentsel Mekanın Biçimlenmesinde Jansen Planı'nın Etkileri", in Kara M., Selvi Ünlü T., and Yılmaz Y.S. (compiled by), *Tarih İçinde Mersin, Kolokyum II*, Mersin Üniversitesi Yayınları, Selim Ofset, Mersin

Tankut, G., Çalışkan, O., Levent, T. and Zorlu, F., 2002, "Yeni Ufuklara: Kentler", Bilim ve Teknik Dergisi eki, Ocak

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