LOCATION CHOICE OF FOOD INDUSTRY IN İZMİR

A Thesis Submitted to
the Graduate School of Engineering and Sciences of
İzmir Institute of Technology
in Partial Fulfilment of the Requirements for the Degree of
MASTER OF SCIENCE
in City Planning

by

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December 2019

İZMİR

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ACKNOWLEDGMENTS

I received a significant amount of support from many people for the composition of this thesis. Firstly, I must express my gratitude to my supervisor, Assoc. Prof. H. Engin Duran, for his invaluable suggestions and recommendations. Additionally, I would like to thank those who did not spare any effort to support me during my education life. Finally, I would like to express my sincere thanks to my parents who have always provided me with all sorts of assistance and advice.

ABSTRACT

LOCATION CHOICE OF FOOD INDUSTRY IN IZMIR

In this study, the spatial distribution of the food companies registered in the Aegean Region Chamber of Industry in İzmir has been investigated and the causality of the site selection has been reviewed. The empirical studies conducted in the literature so far does not include a detailed study on the choice of location of the food industry, a factor that adds strength to this study.

The purpose of the current study is to analyse the determinants of firm location in Izmir's food industry. It particularly focuses on the impact of experience and size of the firms.

In this study, we examined, through statistical methods (such as descriptive statistics, maps, cross sectional linear regressions, spatial autocorrelation analyses), 734 companies. The following variables were empirically analysed, firms' establishment dates, sub-sectors, number of employees, capital assets, locations, distances from the centre of Izmir, distances from the centre of the sub-province that the establishment belongs to and the distance from each other.

As a result of the empirical analyses and spatial data evaluation, companies' choice of location in the food industry can be summarized as follows; Experience plays a very significant role, which means that experienced companies are located in the centre or close to the centre because they have already been well-established in that place. The choice of location does not have any bearing upon the size of the firm.

ÖZET

İZMİR'DE GIDA SANAYİSİNİN YER SEÇİMİ

Bu çalışmada gıda sanayi özelinde, İzmir genelinde, Ege Bölgesi Sanayi Odası'na kayıtlı firmaların mekansal dağılımlarına bakılarak, yer seçimlerinin nedensellikleri araştırılmıştır. Şimdiye kadar yapılan empirik araştırmalar arasında Kent Ekonomisi literatüründe yer alarak, gıda sanayinin yer seçimi özelinde yapılan detaylı bir araştırma bulunmaması bu çalışmayı güçlü kılmaktadır.

Çalışmanın amacı, İzmir'deki gıda sanayi firmalarının yer seçim davranışını ampirik olarak incelemek ve yer seçimi belirleyicilerini tespit etmektir. Özellikle, firmaların büyüklüğü (istihdam ve sermaye bakımından) ve deneyimi odak değişkenler olmuştur.

Çalışma alanı olarak 734 gıda firmasının kuruluş tarihleri, alt sektörleri, çalışan sayıları, sermaye miktarları, konumları, İzmir merkeze uzaklıkları, bulunduğu ilçe merkezine olan uzaklıkları ve birbirlerine olan uzaklıkları gibi değişkenler çeşitli istatistiksel yöntemlerle (betimleyici istatistikler, haritalar, yatay kesit lineer regresyon analizleri, mekansal korelasyon analizi) incelenmiştir.

Elde edilen empirik analizler ve mekansal veriler sonunda; gıda sanayinin yer seçiminde firmaların; deneyimlerine göre konumlandıkları görülmüştür. Bunun anlamı, deneyimli firmalar daha önceden yer aldıkları için merkeze yakın ya da merkezde bulunma şansını elde ederler. Deneyim ile merkeze uzaklık arasında istatistiki olarak anlamlı ve negatif bir ilişki saptanmıştır. Yer Seçimi firmanın ölçeğine ve büyüklüğüne bağlı değişmemektedir. İlgili değişken istatistiki olarak anlamlı bulunmamıştır.

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LIST OF ABBREVIATIONS

CBD	Central Business Distance
OIZ	Organized Industrial Zones
OLS	Ordinary Least Squares
EBSO	Aegean Region Chamber of Industry

CHAPTER 1

INTRODUCTION

In the literature on urban economics, location choice of industries is increasingly becoming a subject of substantial interest. Although there exist a number of theories, empirical studies investigating the location preferences are rather limited. In fact, these location choices are quite crucial for the performance, productivity and growth of the firms as they are directly related to the transportation costs of procurement and product distribution.

Proximity to big markets, accessibility, availability of qualified labour force nearby (human capital), closeness to raw materials are referred to as important drivers of location choice in the literature on this field (Tümertekin and Özgüç, 2016).

Furthermore, the size and experience of the firms have yet to be adequately analysed in this manner. On the one hand, one might expect that bigger firms might locate far away from the city centre (market) as they need large production spaces and low cost of site(O'Sullivan, 2012). On the other hand, big firms may use the power of having extensive capital structure and locate just in the periphery of the cities. Actually, there is scant empirical evidence on this issue. Similarly, experience of firms is another explanatory factor that may influence the location choices. The more experienced firms are those which were founded earlier, and thus they are expected to choose their location close to the market.

Overall, all these variables need to be empirically verified but they are paid less attention compared to the traditional variables in the literature.

Hence, the purpose of the current study is to analyse the determinants of firm location in Izmir's food industry. It particularly focuses on the impact of experience and size of the firms.

The food industry is a special sector where inhabitants consume frequently and its quality must always be high for the health and well-being of the society. Izmir is also a relevant place for study as food products have been traded massively throughout its history. Indeed, there is an extensive number of food manufacturers around the port of Izmir. All these make our study more interesting.

In terms of empirical methodology, this study follows several steps. Firstly, dataset covering location, firm size, experience and firms' surrounding population is collected for 734 firms (for the year 2018) in Izmir's food industry by using the registry dataset of EBSO (Aegean Region Chamber of Industry). Second, the location of firms on maps is illustrated as an explorative analysis. Third, descriptive statistics are provided. Fourth, simple linear regression analyses are performed that investigate the location choice determinants in the food industry. Fifth, it also analyses the determinants of location of firms in 5 sub-sectors (Bakery Food, Animal Food, Packaged Food, Herbal Food sectors, Drink and Tobacco Sector) and for urban and rural areas separately. Sixth, to ensure inferential reliability, spatial autocorrelation is tested by calculating a 734x734 spatial weight matrix and Moran's I test.

The rest of the thesis is organized as follows: In the second part, the existing theories behind location choice is explained; in the third part, empirical literature is surveyed; in part 4, empirical analyses and results are presented and in section 5, the study is concluded.

Because data were gathered from the EBSO website, some limitations to this study have emerged. This results from the fact that the EBSO publishes statistics in ranges, not in numbers, for reasons of data safety. In addition, as tha data are static, there is a lack of information on issues such as the education level of the workforce and their status, like whether they are blue-collared or white-collared. The fact that there is a huge number of firms addressed in the study has made surveys out of the question.

1.1. Problem Definition

Land is perhaps the most important and the most valuable asset in an urban setting. It is almost always seen as a commodity that causes controversy among investors, politicians, and urban dwellers. Because of the land's high value, it is of great interest to all parties that are included in the use of it. Therefore, the location choice of any industry has a significant part to play in city planning. Unlike other sectors, the food industry has a high priority for human beings. With the world's population growing at an exponential rate, the challenge of feeding the increasing population is becoming a pressing issue for the governments of the world. This is in direct relation with the production capacities of the food industry. The location choice of the food industry, therefore, has gained great

importance in the past few decades. Selected as a case study for this thesis, Izmir, a port city located on the west coast of Turkey, bears significance both economically and agriculturally. Izmir is not different from other parts of the world where land use by industries, particularly the food industry, has a major importance in their location choices.

The literature on the location choice determinants, however, have fallen short of analysing the impact of firm size and experience on the locational choice of firms. Indeed, both variables might be important. Larger firms might systematically locate away from city centers as the land cost is very high in urban areas. In contrast, they might want be closer to the market to minimize distribution costs. Empirically, this is an open question that needs to be formally examined.

1.2. Aim of Study

The aim of this study is to analyse the determinants of the location choice of firms in Food industry and its sub-sectors. It pays particular attention to the firm size and experience variable as determinants.

1.3. Research Questions

This study seeks answers to the following questions:

- What are the empirical determinants of the location choice of food industry?
  - Does the firm size matter for location choice?
  - Does the experience of firms' matter?
  - How do these patterns change in sub-sectoral groups and in urban/rural division?
  - Is the food industry in Izmir located in the urban centre or in the periphery?
    - Do the companies choose a place close to the market?
    - Do the companies choose a place close to rural or urban areas?
  - Do the companies take population into consideration when selecting location?

1.4. Methodology

In this study, quantitative research, to a large extent, was performed. The methodology for the quantitative part of this study can be categorized under six headings:

- Data Collection: Collecting data from Aegean Region Chamber of Industry for 734 firms in Food Industry and processing them through Excel
- Descriptive Statistics: Creating Descriptive Statistics on Excel
- Explorative Analysis: Transferring the data to ArcMap and creating explorative maps
- Regression Analysis: Implementation of writing codes for regression analysis in R 3.5.2 program and reporting results
- Testing the spatial dependence: Calculation of 734X734 spatial proximity matrix and pursuing Moran's I test in R 3.5.2.
- Reporting results and drawing conclusions

CHAPTER 2

LOCATION CHOICE THEORIES

Most researchers in the field of urban economics have sought to answer this particular question: What are the factors that affect location choices of firms? It is well known in this field that when choosing their location, firms focus on raw materials, proximity to the market, availability of capital, distance from transportation networks, accessibility to qualified and low cost workforce, etc. This chapter seeks to explain main location choices and their main messages.

2.1. Resource-oriented Firms

O'Sullivan (2012), an urban economist, published a book that provides quite useful information on the type of firms and their location choices. It is suggested in the book that transporting or transferring resources is extremely important for these firms. As it is known, some products are categorized as perishable and others are categorized as durable. Moreover, some input becomes heavier after the production process while other input will become lighter after the production process and this has a profound effect on the cost. Therefore, the firm chooses its location keeping all these in mind. Hence, their choice of location depends largely on whether the firm is resource- or market-oriented (O'Sullivan, 2012).

Resource-oriented firms are the ones for which transferring the input is more costly than transferring the output. Resource-oriented firms are usually located close to input resources. For example, a meat processing firm cannot locate its premises very far from a farm where animals are bred because meat is a perishable product and it has the risk of going bad during transportation. Even though this risk can be minimized by modern technology, the cost of transportation will be higher. In a study conducted by Holmes and Stevens (2004), firms involved in the beet-sugar industry choose their locations close to where beets are grown. Sukkoo (1999) puts forward the same idea, demonstrating leather industry as an example. Furthermore, O'Sullivan (2012) refers to water power generating factories which choose locations close to streams and rivers. This

phenomenon, regarding rivers and streams as potential sources, has been of great interest to many urban scientists, with particularly Mumford (1961) emphasizing the significant role of streams and rivers in the foundation of the first cities.

2.2. Market-oriented Firms

Market-oriented firms are the ones for which transportation of output is more costly than transportation of input.

As O'Sullivan (2012) suggests, market-oriented firms are usually located close to market because after the production process, distributing their output is harder than transferring the input. For instance, a firm involved in fruit juice production will buy fruit from a nearby farm but it will need extra ingredients such as sugar, water, sweetener etc. in order to produce its fruit juice. Besides, it will use bottles for packaging purposes. Therefore, its final output will be much heavier and more fragile than the input. That's why this firm must be located near the market so that it can reduce transportation costs.

In cases where there is more than one location where resources are found, firms may choose to establish their factories at an almost equal distance to these locations. By doing so, firms

- reduce transportation costs,
- minimize labour-related costs, and
- keep a standard price strategy.

In addition, in cities, demand for certain products are concentrated in certain areas of the city. Therefore, firms choose their location between these concentration areas so that they can ease transportation. Furthermore, they can maximize their profits and satisfy the demand in this way.

2.3. Agglomeration Economies

Companies that produce goods which have similar qualities are generally located not far from each other.

This situation is typical all around the world. For instance, carpet producers in Georgia, USA or textile companies in Tekirdağ, Turkey are situated close to one another. This is known as agglomeration in literature. In agglomeration economies, localization is

the main focus, which means that industries choose a shared location for production. However, in some cases, these industries may cross boundaries. O'Sullivan (2012) explains this: "When agglomeration economies cross industry boundaries, they are called urbanization economies." An example to this is firms that produce biopharmaceuticals cluster in New York, Chicago, Philadelphia and San Francisco.

However, it is important to note that not all clusters of industries can be described as agglomeration economies. The location of the crop may determine the location of the industry. For example, tobacco-related industries are generally found in tobacco growing areas. There are several reasons why this happens:

- Capital
- The desire to be close to the raw materials
- Lower transportation costs
- Workforce availability
- Equipment

Another cluster in agglomeration economies occurs because of a need to be close to the supplier. For example, as stated in a study by Vernon (1972), firms may mutually benefit from each other if there is an intermediate input. One firm's (e.g. a dressmaker) production can only take place with the input of another firm (e.g. a button maker). In another example, a food processing company chooses a location where there is a packaging company nearby. This is a logical approach because a company cannot produce all the items that are related to the business itself. A baker cannot produce bread and plastic bags at the same time. This is neither beneficial nor cost-effective because in economics, there are axioms that determine the success of an industry:

1. "Production is subject to economies of scale": If a company produces more of a certain product, it will decrease production costs (O'Sullivan, 2012, p. 20).
2. "Self-reinforcing changes generate extreme outcomes": If several companies from the same sector are located close together, they observe one another and exchange information. This helps the companies to realize their own weaknesses and therefore try to strengthen themselves (O'Sullivan, 2012, p. 74).
3. "Price adjust to generate locational equilibrium": If there are more than 10 companies from the same sector in a specific region, this helps to keep the prices at an equilibrium (O'Sullivan, 2012, p.22).

2.4. The Central Place Theory

The central place theory, formulated by Walter Christaller (1966), suggests that

- a specific amount of surrounding land supports the urban centre
- the urban centre provides the essential services for the surrounding land.

Christaller (1966) defines these service-providing areas as "central" places. Thus, if an industry uses raw materials that come from outside the local region and if it sells them out of the local area, it cannot be said to be a central service.

Christaller's theory is an extension of Von Thünen's (Von Thünen, 1966) and it provides better services than Thünen's. When compared to Thünen's concentric theory, Christaller (1966) argues that hexagonal shapes will better fill an area. This is important when categorizing settlements by population. This way, he argues, the population of the area will have better access to the services. These hexagonal shapes start as small settlements and by adding to each other, they begin to form larger and larger hexagons. So, the supply of central goods takes place more uniformly.

However, population alone does not play a role in the scale of a city centre. There are other factors as well:

- **Telephones:** The number of telephones in a specific area, as suggested by Christaller (1966), determines the central importance of that area.
- **Retail trade:** The inhabitants of a region have to receive services to meet their daily needs. Therefore, when designing these urban centres, planners must take this into consideration.

One remarkable feature of this system is that it is open to change; in other words, it is flexible. In a given area, transportation needs may change over time and thus the number of cars may increase and also the location of shopping centres.

As this flexible theory was developed, urban centres began to be linked by transport networks. So, services were provided more homogeneously. Recent studies on this theory shows that central place theory

- is simple, feasible and flexible;
- can be applied to areas both within the city and in the periphery of the city

In this model, firms' choice of location depends on the closeness to market, accessibility to transportation networks and costs. Firms will prefer to locate close to one big city and then consumers and labourers will relocate towards this big city. City sizes

will follow a certain hierarchy as most of the firms will locate around the biggest city and others locate around surrounding smaller cities.

2.5. Bid-Rent Theory

Bid-Rent Theory was formulated by Alonso (1920), an urban geographer. The idea of rent has its roots in agriculture because only agricultural land was rented in the past but as cities grew, the idea of rent began to be used in the urban land market, as well. Rent is the central variable in location choices and land value according to this model.

In this model, firms want to locate in CBD (close to market and transportation routes) as long as they can cover the rent costs.

Proximity is also a factor for firms. According to von Thünen, land that is close to the market will be more desirable because transportation costs will be lower. Baudewyns (1999) also underlines this phenomenon and refers to urban transportation networks and agglomeration economies as statistically significant variables. Another important point when comparing agricultural and urban land is that while land devoted to the production for an agricultural crop is large, the area where the produce is sold need not be as large.

According to the Agricultural Model, farmers are located close to the market where they can sell their produce. In this way, they can maximize their profits by not having to pay for extra transport and rental costs. This phenomenon is emphasized by Thünen, who suggests that the main reason agricultural production areas differ from each other is the distance from the urban centres. Those who are close to the market have a competitive locational advantage.

So, the bid rent theory can be summarized like this:

- Land values are determined by the use of that land.
- Land values are closely connected to their location.

According to the Business Model, the cost of rent is not directly proportional to the location of the space where business is done. Instead, it is the type of the business that has an effect on the cost of the rent.

According to the Residential Model, the resident of the space does not get a direct income or profit from the space that he or she rents as opposed to the former two models. However, as there is more demand for land in the city centre, space is more expensive

and for this reason, residences located in the city centre are more expensive than the residences located in the periphery of the city.

On the other hand, according to the Individual Equilibrium Model, the price of rent is more linked to individual preferences and personal tastes than to locational or economic factors.

As for the Market Equilibrium Model, the poor and the rich may have similar tastes and preferences in terms of living quarters. However, the poor have to stay close to the market for several reasons such as reducing transportation costs and the rich can choose to live outside the city centre. This difference in purchasing power has also a direct influence on the value of the land.

2.6. Growth of Concentric Zones and Multiple Nucleation

Growth of Concentric Zones and Multiple Nucleation is formulated by Burghess (1952), who was well aware of the relationship between the form and growth in his concentric zone theory. According to him, as cities grow, the number of concentric zones increases and one zone that is abandoned is occupied by others coming from another zone. In time, land in that specific zone begins to be used for different purposes and the structure of the city changes. As it is known, transportation routes generally spread from a main hub to the outer parts of a circle and people usually settle around these routes. As the number of zones increases, these settlements get farther from the hub and new sub-hubs begin to form across an urban area. This type of re-structuring creates multiple centres, which is known as multiple nucleation.

According to this theory, firms tend to locate in multiple growth poles as economy is growing there with potential of customers, infrastructure facilities etc.

2.7. The von Thünen Model

According to The von Thünen Model, there is a significant relationship between location and land use. The type of the crop to be produced determines how much land will be used and how much rent will be paid. For example, the production costs of wheat and barley may be the same but their market price may have significant differences. For

this reason, farmers will choose to produce the more profitable one. This will also affect their rental payments.

Besides, transportation costs are a major issue in productive activities. If the location is far from the market, this will increase the price of the product, which causes a chain reaction: an increase in the market price will lead to an increase in the size of the land used for cultivation; similarly, an increase in the size of the land will lead to an increase in the quantity of products and therefore the producer will begin to sell more.

However, one criticism about this model is that von Thünen (1966) assumes that the distance between the location of production and the market has similar features. Yet, some distances may involve slopes while others are more even. This difference can affect transportation costs significantly.

2.8. The Weber Location-Production Model

According to The Weber Location-Production Model (1929), the industrial location of a firm has a direct effect on how much profit that firm will make. In order to explain this model, Weber (1929) presents a figure called location-production triangle. The formation this triangle is due to transportation costs. In his triangle-shaped model, the firm is at an equal distance to raw materials and the market. Such a model will help the firm to decrease its transportation costs. However, depending on the difference in weight of the raw material after production, the location of the firm may change in the triangle. But, it is important to note that as labour and capital are readily available everywhere in this model, their qualities do not vary with location. This view is criticized because both labour and capital are prone to show variations according to location.

2.9. Sector Theory

Sector theory, formulated by Hoyt (1950), suggests that the way land is used and its dynamics have an important role in the value of that land. As the value of land grows, investment opportunities increase, too. According to Hoyt (1950), investors evaluate the direction and location of the growth and so they try to make the best decision in order to maximize their profits. This decision has an effect on the functions of space. If certain firms or investors are concentrated in an area, that area begins to expand. Hoyt (1950)

believes that this expansion is not concentric but it must be considered like the spokes of a wheel.

According to this view, there is one central business district and all the other locations which have connections with this centre are spread around this hub and therefore spokes form. These spokes serve various functions such as residential areas for lower, middle and upper classes, industrial areas and transaction zones. When seen together as a circle, these spokes form wedges. These wedges have various functions and depending on their functions, they vary in value. For example, high-rent areas exist along transportation routes and they are located at the outer edges of the wedge. There is no doubt that this pattern of wedges causes filters in the urban area; in other words, class distinctions. Part of the workforce that live in low-rent areas choose locations close to the central business district while most of the high-rent areas are located around the edges.

2.10. Filtering Down Theory

The Filtering Down Theory was put forward by Burgess (1952). It suggests that every product has a certain phase such as development-maturity-decline. During these processes, firms continuously seek the best place for location. In the first stages, firms want to stay close to the market and customers. However, when the product becomes standard, cost minimization will be more important as competition will be higher in that product group.

This theory also discusses the occupational history of a typical housing unit. Burgess suggests that people from diferent socio-economic backgrounds come to occupy the same housing unit at different times. As people in the high income group want to satisfy their increasing demands for housing, they tend to move away farther from the city centre because there is more vacant land outside of the city centre. The vacated housing is then occupied by other people from other socio-economic levels. The durability of the housing unit allows for it to be occupied by different inhabitants over the course of its lifetime.

2.11. Summary of Location Choice Theories

As it is known, there are a number of location theories and they focus on different factors that affect location choice of firms. Some theories refer to reduced tranportation cost, proximity to market or to resource as the main determinant of location choice while others maintain that such factors as population concentration, lower labour-related costs and land cost have a significant role in location choice. According to location theories, costs of all kinds play a significant role in firms' location choices. Yet, size - one of the factors depending on cost - is also expected to play a part in firms' location choices. In fact, size bears significant weight in Christaller's Central Place Theory (1966), which emphasizes the location choices of firms, proximity to market, accessibility to transport networks and costs. In hexagonally shaped settlements, firms will choose to locate close to a metropolitan area of each hexagon and thus workers will be attracted to these areas. A significant portion of the firms will target the largest city, with the others locating in the peripheries of smaller cities, which means that the size of the cities will be determined under a hierarchical scheme.

CHAPTER 3

EMPIRICAL LITERATURE

There are numerous factors that play a role in the location choices of industry. These factors range from proximity to raw materials, popular demand, workforce to investors. This chapter explains the results of various researchers performing studies on the location choices of the industry. There are various empirical studies undertaken for different sectors. In the year 2004, for example, Acidi examined the factors that determined the location choice of textile industries as the subject of his doctoral thesis.

A study conducted by Carlton (1982) focuses on a firm's simultaneous decision of where to establish the Herbal Food and how many people to employ. According to this, not only where firms should be located but also how many people will be employed are equally important. Also, employment determines how large the Herbal Food will be. In short, location has an important role in the size of the workforce. Similarly, the size of the workforce has an effect on the size of the firm.

Another study is by Wu (1998), who suggests that foreign investors are the major driving force behind the urban structure in the Chinese city of Guangzhou. With the arrival of foreign investors, this city began to change and expand. This expansion is closely related to the location preferences of the foreign investors. In time, new roads have been built, existing roads have been widened, new railway links have been created and new housing has been constructed. For all this to happen, the most significant factor, capital, must be taken into consideration. Foreign investors, who have the necessary capital, are given locational opportunities by the local government. In short, the existence of foreign investors and the capital they bring with them play a significant role in the location choices of the industry.

Head, Ries and Swenson (1993) discuss the relationship between agglomeration and the geographical location. Their paper analyses the location choices of more than 751 Japanese companies. Firms that are involved in the same industry are generally concentrated in the same region. This phenomenon, according to the writers, is more important than being close to raw materials and the existence of the workforce. One effect of this type of clustering is that new Japanese investors will be attracted to this

place and so the agglomeration will get bigger and bigger. As a result, it is obvious that the way Japanese investors are distributed geographically in the form of agglomerations will affect the location decisions of potential other Japanese investors.

There are several ways in which a firm's behaviour is influenced by agglomeration economies. For example, according to Rosenthal and Strange (2003), an agglomeration economy will have an impact on a firm's productivity, its employment size and the amount of wages it pays to its workforce. Another effect is that firms in this agglomeration will exchange technological expertise and information, which is known as technological spill-overs. According to Dumais, Ellison and Glaeser (2002), knowledge spill-overs play a significant role in the establishment of new plants. This is especially true if the workforce of an industry is composed mostly of university graduates.

In another empirical study by Carod and Antolin (2004), firms consider several factors such as human capital, population and proximity to raw materials when choosing their locations. However, these factors show variations according to the scale of firms. For instance, when choosing their location, large firms give objective decisions and evaluate pros and cons of a specific location. On the other hand, small firms may make more subjective decisions because they are generally managed by one person and this person may use his or her own experiences and preferences during location choice. In addition, Callejon and Costa (1996) suggest that as far as location choice is concerned, larger firms have more opportunities than smaller ones since they have more available capital.

Because large firms possess large capital and a significant amount of information about raw materials and alternative sites, they have the capacity to spend both time and money in order to maximize their profits. This shows that the size of the firm is an important factor. In their study, they specified 942 municipalities where firms wanted to establish businesses. Among these municipalities, Barcelona was the most popular one. Most firms were concentrated around Barcelona. The writers realized that there was a positive relationship between the size of the firm and the population of the area.

In another article penned by Coughlin and Segev (2000), writers analyse the foreign-owned firms manufacturing Herbal Foods in the USA and they look at factors why they are located in specific areas of the country. According to them, there is a significant relationship between economic size, education level, existing production of Herbal Food, transportation network and larger number of new foreign-owned firms manufacturing Herbal Foods. On the other hand, low taxes and labour-intensive work are

related to a smaller number of foreign-owned firms manufacturing Herbal Foods. The writers of the article identified 380 new foreign-owned firms manufacturing Herbal Foods and they tried to analyse their choice of location. These 380 firms were involved in various businesses ranging from food and kindred products to furniture manufacturing. Their location choices were mainly due to economic factors but these factors varied from state to state and from urban areas to rural areas. Regions where there is high demand for manufactured goods (urban areas) bring more profits to the firms. In short, the economic size determines the location choice of firms. Firms with a great economic size usually prefer urban areas while firms with smaller economic size prefer rural areas.

According to Arauzo and Marsal (2007), certain industries localize in one geographical region. Although the concentration levels of industries show variations, industries that are involved in similar manufacturing activities are generally found close to each other. The writers of the article suggest several factors that play a role in this situation: input costs, accessibility to raw materials, infrastructure inventory, tax structure, government incentives and even weather conditions. Their paper focuses on 13 largest metropolitan areas in Spain and notes that agglomeration economies are generally located close to the city centre. One advantage of choosing such a location is that these agglomerations want to benefit from communication infrastructures. Focusing on 6 different industries, the writers specified the workforce needs of these industries. While some industries are in need of qualified workforce, some others can do with workers with moderate-level education. For example, a textile industry, does not need workers with a high level of education, so it hires people with moderate-level education. This way, they avoid paying large wages. This is also an important factor when choosing their location because if they localize in an area where the workforce has a high level of education, they cannot hire them. People with a high level of education will work for larger wages, so it is not a good idea for industries to localize in these areas.

According to Marshall (1920), there are three basic reasons why localization is important: being concentrated in a specific area creates a pool for workers that have specialized skills; it facilitates inputs and services and it paves the way for firms to exchange information among themselves by means of technological spill-overs.

In short, depending on their production capacity and workforce requirements, industries may choose to localize either close to the centre or in the periphery of an urban area. This choice is affected partly by economic conditions and partly by the type of the industry.

CHAPTER 4

EMPIRICAL ANALYSIS AND RESULT

This section is devoted to explaining firstly the economic structure of Izmir and secondly the empirical methods, analyses and results that have been implemented throughout the process. Initially, Section 4.1. gives an overall account of the Economic Structure in Izmir. Section 4.2. deals with the explorative analyses performed over the course of a year. These analyses are accompanied by maps that illustrate the distribution of related firms in Izmir. Afterwards, Section 4.3, provides the regression analyses that have been performed in order to test the significance of the reasons that underlie the location choice of firms.

4.1. The Economic Structure in İzmir

Izmir is a port city that functions as a gate opening to the Aegean Sea. Thus, it is regarded as a bridge between Anatolia and the rest of the Western world. Izmir is among the cities that play a key role in contributing largely to the size of Turkey in economic terms. The city of Izmir is of great significance to Turkey's economic growth. According to figures released in 2018 (TURKSTAT, 2018), with a population of 4.320.519, Izmir is Turkey's third largest city after Istanbul and Ankara. Data released by TURKSTAT suggest that Izmir's annual population growth rate is 9.5 per thousand. According to 2017 data, the gross domestic product per capita of Izmir is 12.344 dollars. Izmir has 30 districts, with the most populous districts being Buca, Karabaglar and Bornova with 499.325, 479.986 and 445.232 inhabitants, respectively. The least populated districts are Karaburun with 10,603, Beydag with 12,507 and Kınık with 29,803 inhabitants.

İzmir's economy rely largely upon services sector. According to Turkstat's 2018 statistics the share of industry is 32,4% share of agriculture is 8,5%, and share of services is 59,1% in total provincial employment (IZKA, 2019). Within the services sector, whole sale and retail trade is one of the leading activities, followed by tourism, transportation, logistics and other services.

The economic and industrial activity within the borders of Izmir occurs largely under the supervision of the Izmir Chamber of Commerce. While trade, industry and tourism are mostly concentrated in central districts where there is a high population density, agriculture and animal husbandry are more common in sparsely populated regions, with tourism being more common in coastal areas. While the urban centre is active in terms of trade, small industrial estates, organized industrial zones, free zones and techno parks also contribute to the development of urban industry. There are 13 Organized Industrial Zones and 2 Free Zones in İzmir, with each contributing largely to the economic and industrial activities in the city. In addition, the existence of different international exhibition centres helps to attract international investors to the city, thereby contributing to its economic importance not only in Turkey but also across the globe.

Food exports are in the top three of İzmir's exports. According to 2016 Data, Food and beverage export's share is 12.7% (TURKSTAT, 2016). Food industry employs more workers when compared other sectors in İzmir. According to 2017 TOBB data, there are 26 foreign-capital firms (EGIAD Report, 2017).

4.2. The Spatial Structure in İzmir

With the development of the industry comes economic growth, which brings about a change in the structure of the urban land. It is this change that determines the direction of the urban sprawl. As a result of the changing industrial policies from the Ottoman era up to now, industrial zones that were once located in the urban centers came to occupy the land in the peripheral land. Izmir is a case in point. Industry has always played a central role in Izmir largely because it is a port city. Thanks to a large web of railroads and motorways, the port is easily accessible from all directions (Karataş, 2006).

Yellow circles are sub-provincial centers; red lines are motorways; green lines are dual carriageways; blue lines are for main roads and the black line is the regional railway line called Izban.

Industrial establishments are located particularly on 3 axes, which are OIZs and free zones. Pınarbaşı-Işıkkent Industry axis extends from Belevi through Kemalpaşa, forming the east-west axis of Izmir.

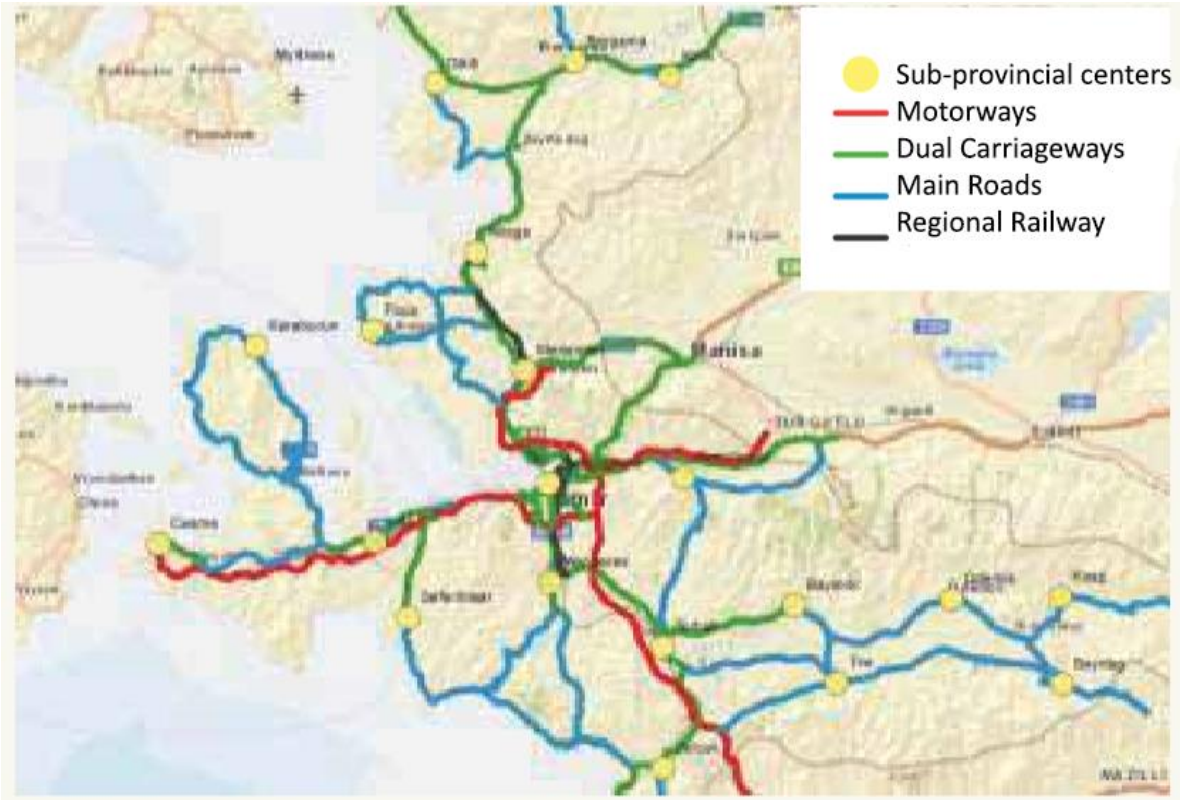

Figure 1. Transportation Map (Source: IZKA, 2013)

The land choices of industrial establishments on this axis are concentrated in the OIZ in Kemalpaşa as well as northern and southern areas along the Izmir-Ankara road. The second industrial axis in Izmir is the Karşıyaka-Çiğli-Menemen-Aliağa or the Northern Axis, which is an important concentration zone for Atatürk OIZ and other industrial establishments. The third industrial axis is the İzmir-Menderes-Torbalı axis.

Industrial establishments are expected to choose a location under a given framework specified in the planning literature. For example, the OIZs are the products of a master plan which aims to control and minimize the environmental effects of the industry.

In reality, however, this situation shows variations, with some firms choosing locations outside OIZs for several reasons, particularly land costs.

The map shows the city's growth from 1930 to 2000, during which the expansion was in the direction from the darkest areas to the lightest.

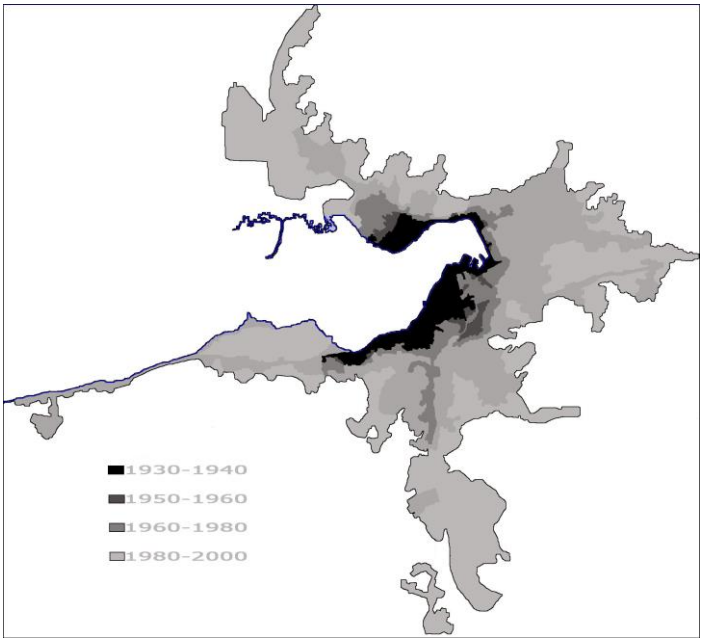

Figure 2. The Growth of Izmir During the Republican Period (Courtesy of Prof. Sezai GÖKSU)

Red circles in the map below show OIZs in Izmir. These are: Aliağa OIZ, Kemalpaşa OIZ, Ödemiş OIZ, Kiraz OIZ, Torbalı OIZ, İzmir Atatürk OIZ, İzmir Kemalpaşa OIZ, Tire OIZ, Bayındır OIZ, Kınık OIZ, İzmir Pancar OIZ, Ödemiş OIZ, Bergama OIZ, Menemen OIZ, Bayındır OIZ, Aliağa 2.OIZ, Kiraz OIZ and Aegean Free Zone.

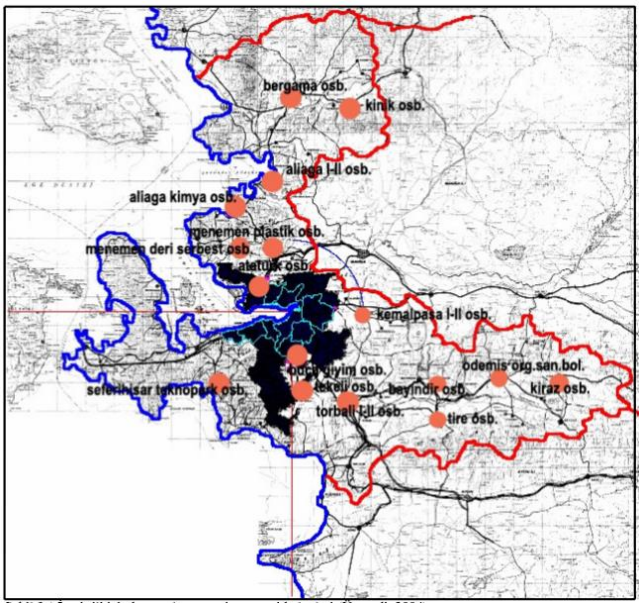

Figure 3. OIZs in İzmir (Source: Ünverdi, 2004)

4.3. Explorative Analyses

In this study, 734 member firms under the Aegean Region of Chamber Industry are analysed. These firms generally are divided into 5 sub-sectors. These are Bakery Food, Herbal Food, Animal Food, Packaged Food, Drink and Tobacco Food. Illustrated maps display 734 food firms' geographical distribution. Provincial City centres are determined with Google Maps. Neighbourhood population data comes from TURKSTAT 2018 database.

The first map (Figure 4) presents the distribution of all firms around Izmir that are involved in the food industry. Red spots represent the city centres whereas gray spots represent the firms. The map displays a geographical concentration of most firms in the hinterland of Izmir Port, which plays a significant role in foreign trade. The rest of the firms mostly cluster around organized industrial zones, district centres and transportation networks.

The second map (Figure 5) demonstrates the major characteristics of the food firms and their geographical distribution. It shows firms in terms of their employment size. The employment size of the firms is indicated with different sizes of red spots, with the biggest one representing the firms with the highest number of employees (above 200 workers) and the smallest one representing the lowest number of workers (5-24 workers). Similar to what can be observed in Figure 2, the firms with a larger number of workers are concentrated around the Izmir port and Organized Industrial Zones.

Table 1. Firms by Employment Size, 2019 (Source: Own calculation using EBSO data)

Workforce	**Number of Firms**
200+	36
50-199	132
25-49	150
5-24	418

The third map (Figure 6), gives information about the major characteristics of the food firms and their geographical distribution. It features firms by their capital size. The biggest blue spots represent the firms with the highest capital: more than ₺1.000.000 . The next bigger blue spot features firms with a capital size between ₺250,000 and

₺999,999 . The following blue circle represents food firms that have a capital size between ₺100,000 and ₺249,999 . In this figure, the number of capital decreases as the point becomes smaller. Food firms that have a capital size between ₺25,000 and ₺99,999 are indicated with a gray hollow circle. The firms with the smallest capital size (₺1-24,999) are shown with a black circle. Food firms with a larger capital size tend to cluster around the port and OIZ.

Table 2. Firms by Capital Size, 2019 (Source: Own calculation using EBSO data)

Capital	**Number of Firms**
More than ₺1.000.000	360
₺250,000 - ₺999,999	132
₺100,000 - ₺249,999	95
₺25,000 - ₺99,999	71
₺1-24,999	76

The fourth map (Figure 7) features the distribution of all the food firms on the basis of their establishment dates. The larger the red circles, the longer the firms have been in operation in the city, showing how much experience they have in the industry. The map displays a geographical concentration of most firms in the hinterland of the Izmir Port, which plays a significant part in foreign trade. In addition, most of these firms are located along major transportation networks.

Table 3. Firms by Experience, 2019 (Source: Own calculation using EBSO data)

Years	**Number of Firms**
More than 10 (Max)	374
6-10 (Mid)	127
0-5 (Min)	233

The fifth map (Figure 8) shows the correlation between the size of the neighbourhood population and the location choices of the industry. Red colours represent neighbourhoods with a population of between 20,000 and 40,000. Orange colours feature neighbourhoods which have between 10,000 and 20,000 inhabitants. Neighbourhoods

with 3,000 to 10,000 residents are shown with yellow colours. Green colours represent neighbourhoods with 0 to 3,000 inhabitants. Black colours, on the other hand, represents firms. Red-coloured areas have been observed to be the preferred areas of large-scale industries, a decision which is thought to be closely connected with the availability of the workforce. This availability of workforce is also a matter of location choice for small-scale firms, which seek both market where they can sell their goods and employees whom they can hire for their business.

Explorative tools have been used to introduce the data and geography under analyses. However, a formal statistical analysis is needed to investigate the location behaviour of the firms which is the task of the next section.

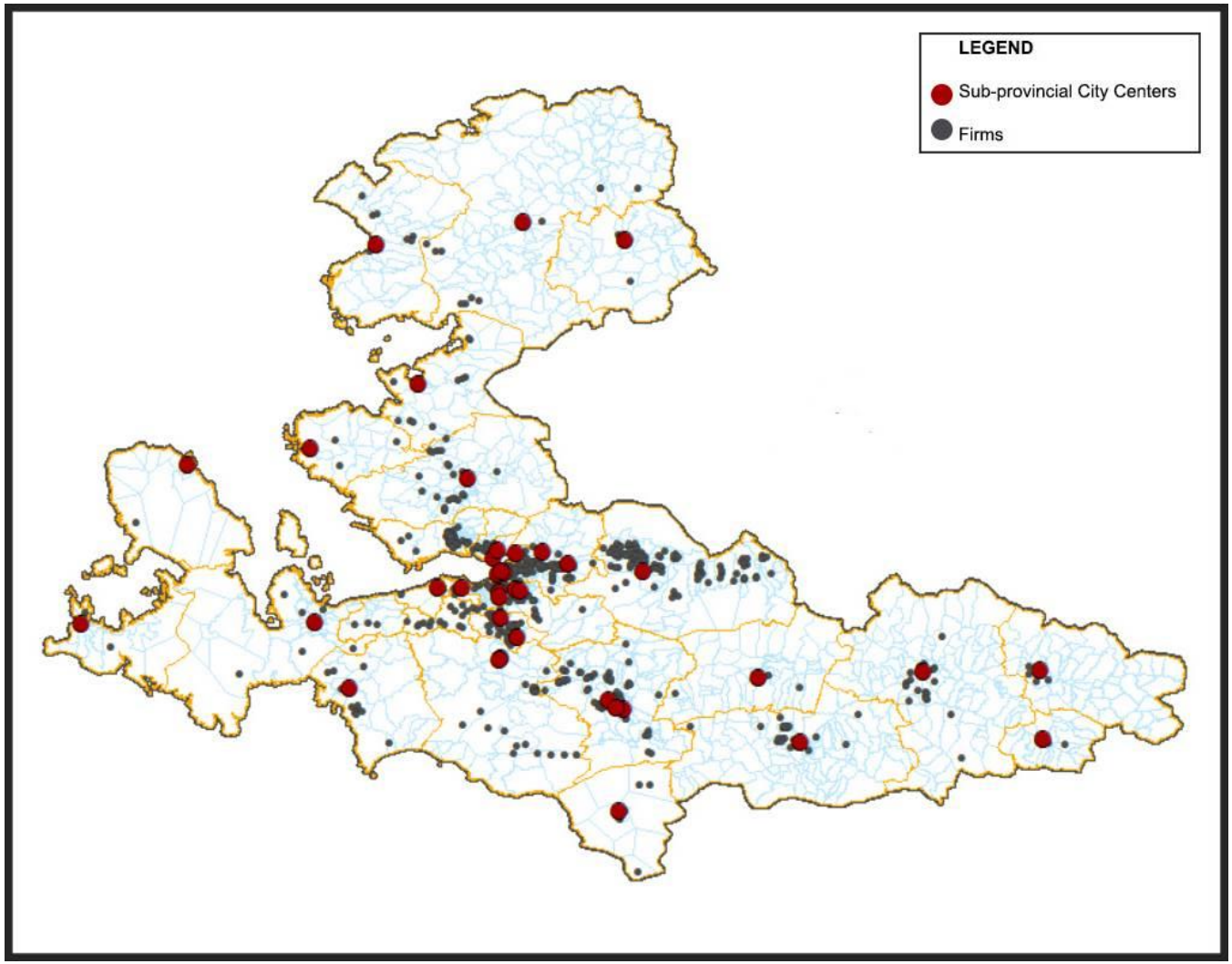

Figure 4. Geographical Distribution of Firms and Sub-provincial City Centres, 2019 (Source: Own map using EBSO data)

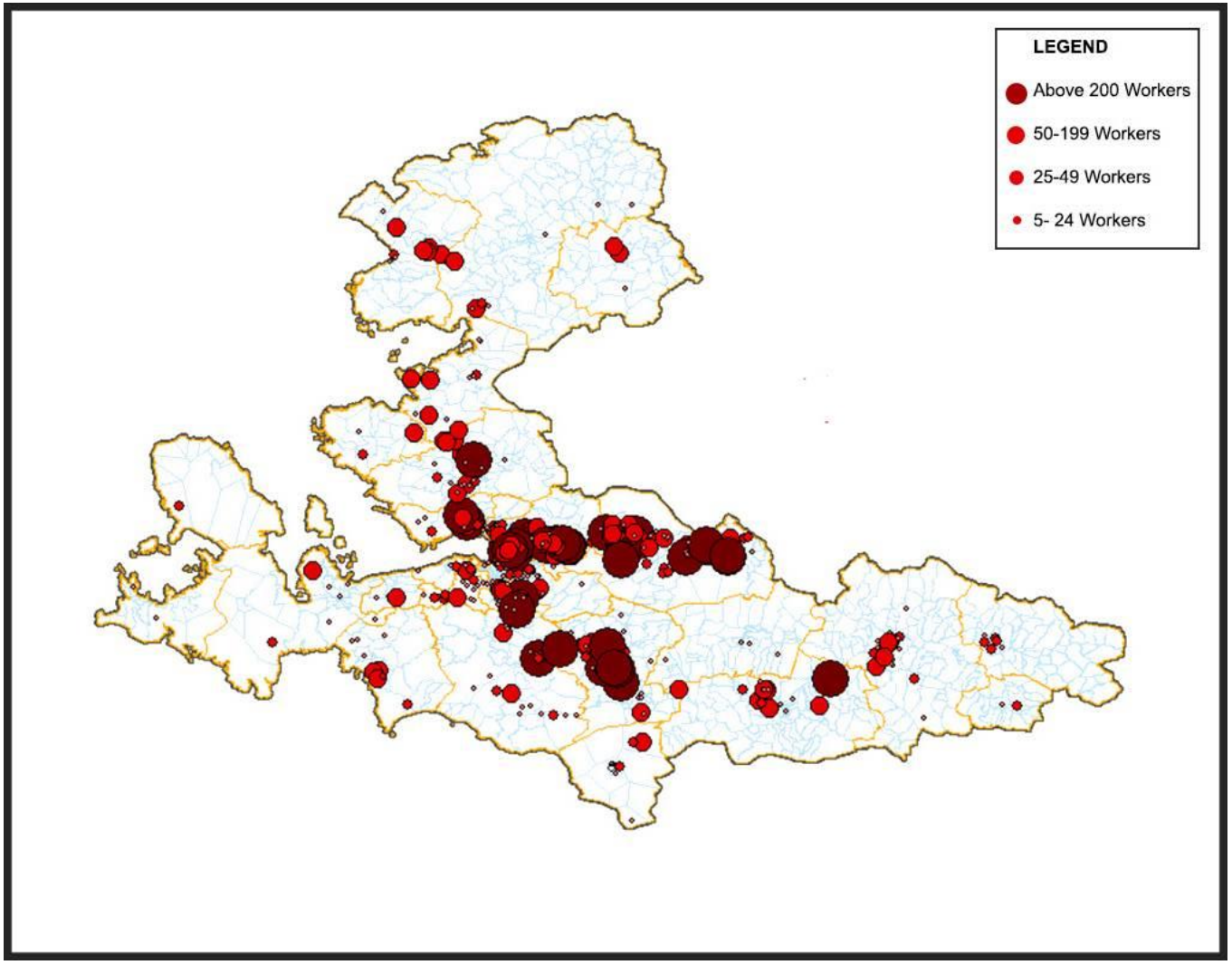

Figure 5. Geographical Distribution of Firms by Employment Size, 2019

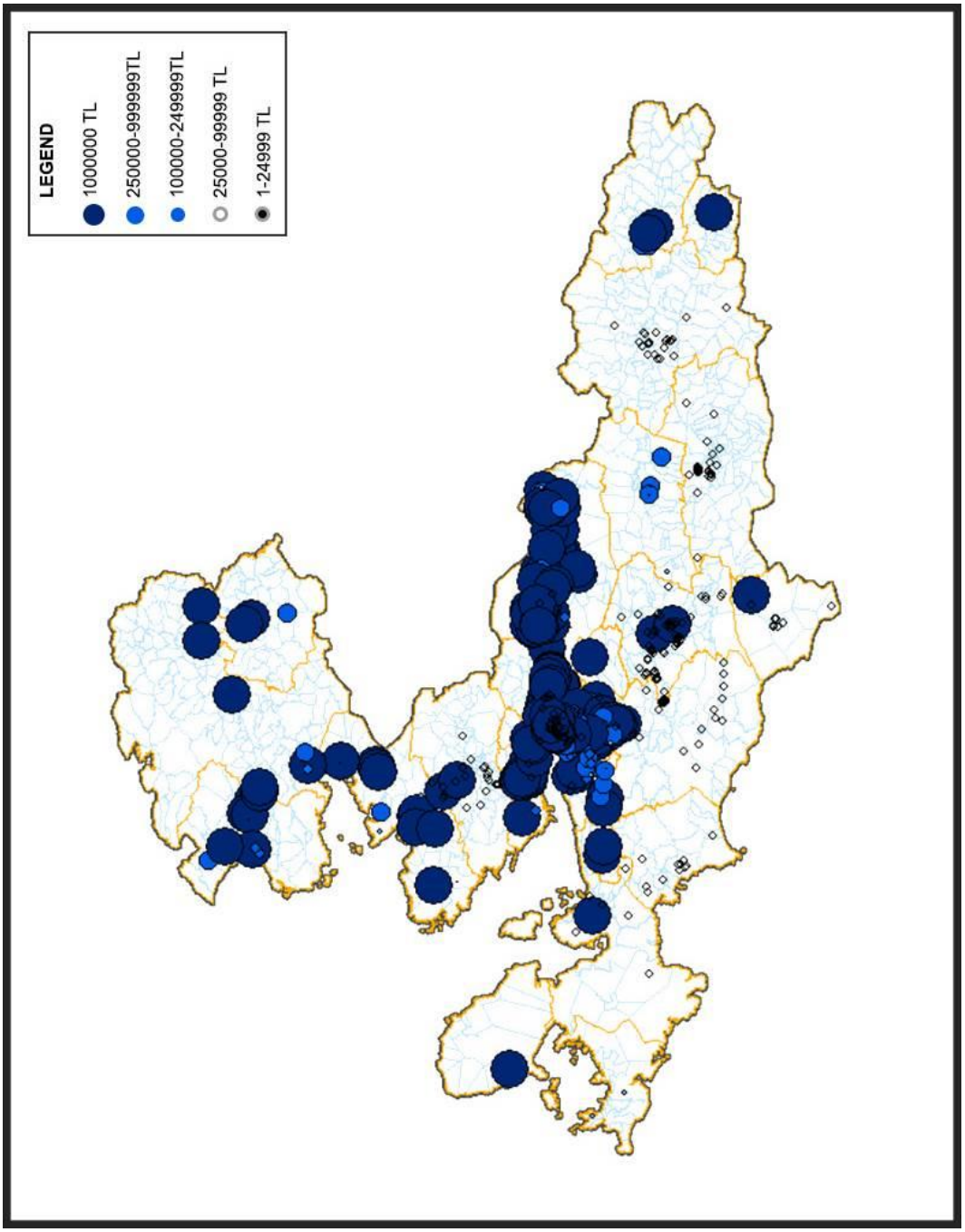

Figure 6. Geographical Distribution of Firms by Capital Size, 2019

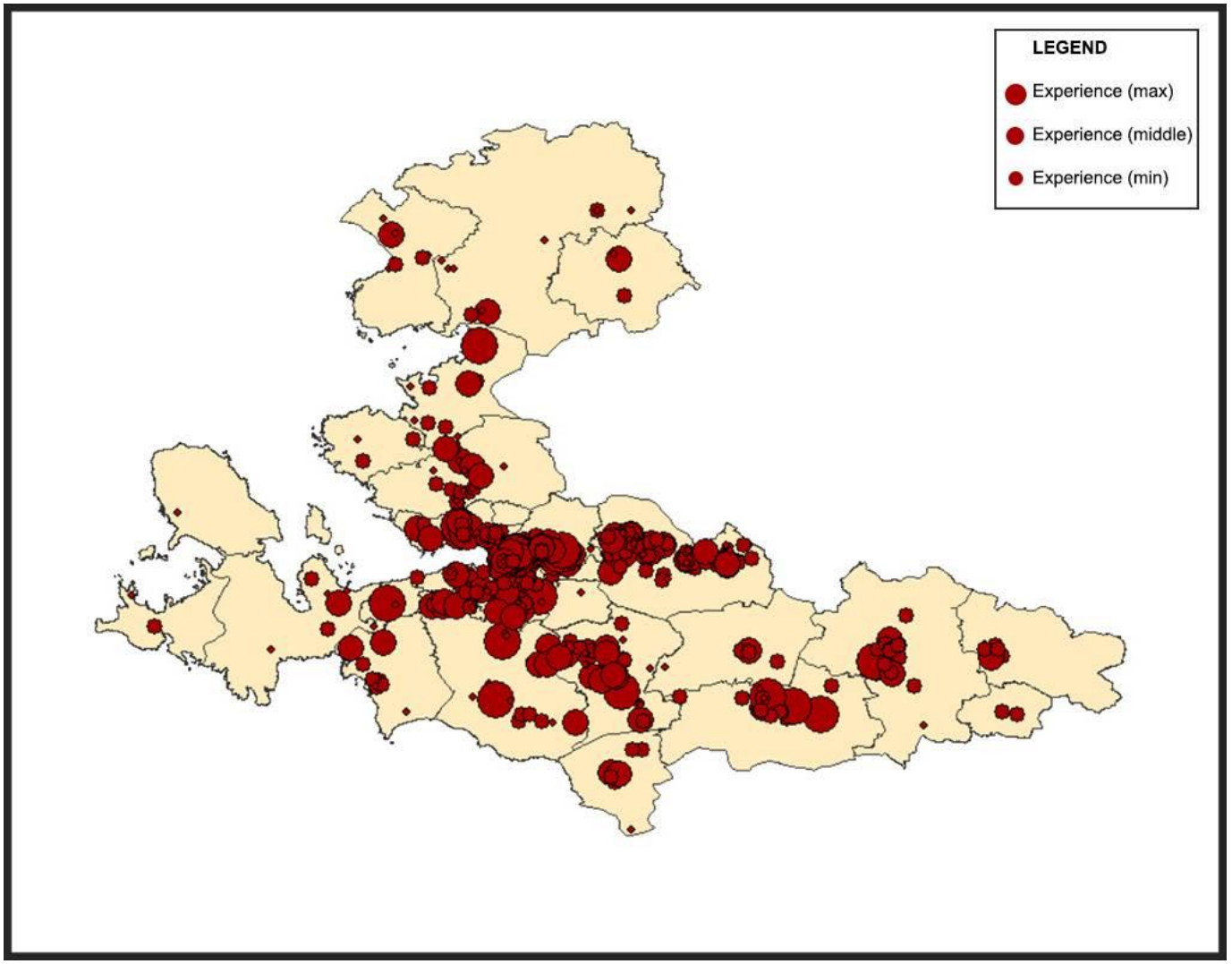

Figure 7. Geographical Distribution of Firms by Experience, 2019 (Source: Own map using EBSO data)

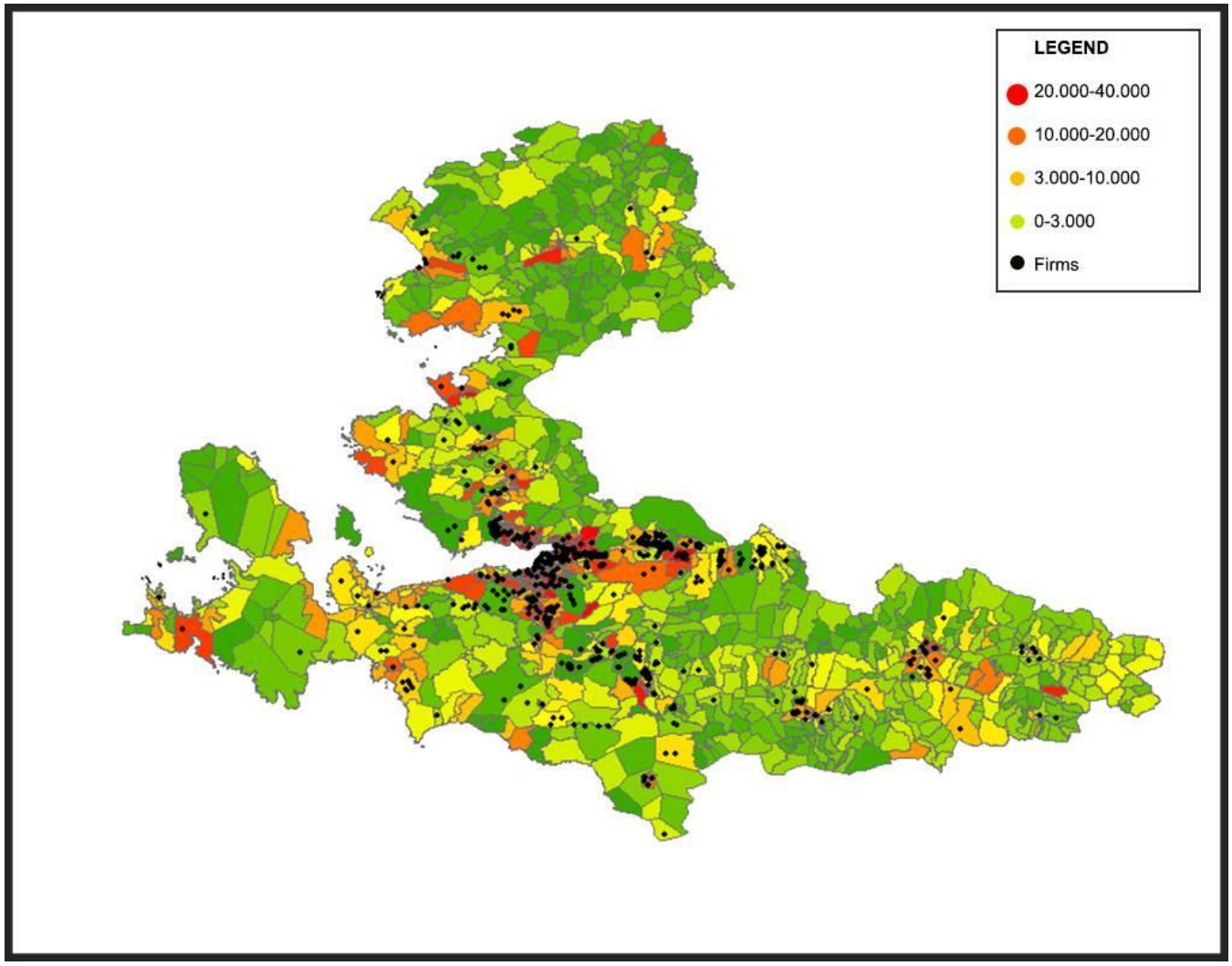

Figure 8. Geographical Distribution of District Population and Firm, 2019 (Source: Own map using EBSO data)

4.4. Regression Analyses

In this section, the determinants of the location of firms are analysed. Cross sectional regression analyses are implemented. The general specification of regression equation is expressed below:

$$Distance_i = \partial + \beta 1 size_i + \beta 1 experience_i + \beta 1 population_i + \epsilon_i \quad \text{i=firms, 1….,734} \quad (1)$$

The dependent and independent variables are explained in detail in the Table 4 below. The dependent variable is the *distance* of a firm either from the local city centre CBD (sub-provincial CBD) or from Izmir's main CBD (Konak). *Size* is the first independent variable. It has two forms. The first one is measured by the employment size of the firms. It takes values 1 to 4. While 1 represents the smallest firms that have workers between 5 to 24 people, category 4 represents the largest firms which have more than 200 workers. Following a similar logic, capital size is also analysed in detail, which is given in the Table 4. Experience variable is another explanatory factor that indicates the number of years that the firm operates. Finally, the last independent variable is the population of sub-province which the firms belongs to. It measures the impact of being close to a market.

In regression equation (1), i denotes the firms (1….734) and $\boldsymbol{\epsilon_i}$ are the error terms that represent the identically and independently distributed variables with normal distribution and constant variance.

The regression analyses are implemented for the aggregate food industry and also sub-sectors separately (Herbal Food, Animal Food, Bakery Food, Packaged Food, Drink and Tobacco). Similarly, the analyses are separately implemented for urban and rural areas as well.

The variables *capital size, employment size* and *distance to local CBD, distance to Izmir CBD* are not simultaneously added to the regression in order to avoid multicollinearity problem but rather they are included one by one.

In Table 5, the descriptive statistics of the variables analysed is shown. Mean, median, maximum, minimum, SD and SD/Mean indicators are provided.

Some variables are shown to have quite high heterogeneity across firms as shown by SD/Mean.

Table 4. Definition of Variables (Source: Own calculation using EBSO data)

Variable Definition	Definition	Measure	Spatial Units	Data Source
Experience	Experience of firms since foundation	years	734 firms	Aegean Region of Chamber Industry database
Employment Size	Firms in which 5- 24 workers employed take value (1), 25-49 workers employed take value (2), 50-199 workers employed take value (3), above 200 worker employed take value (4)	Intervals	734 firms	Aegean Region of Chamber Industry database
Capital Size	Firms which have capital size between 1-24.999₺ take value (1), capital size between 25.000-99.999₺ take value (2), capital size between 100.000-249.999₺ take value (3), capital size between 250.000-999.999₺ take value (4), capital size above 1.000.000₺ take value (5)	Intervals	734 firms	Aegean Region of Chamber Industry database
Population	Population of districts in which the firm is located	number of people	734 firms	Aegean Region of Chamber Industry database
Distance to Izmir CBD	Linear Distance to Konak (centre of Izmir)	kilometres	734 firms	Aegean Region of Chamber Industry database
Distance to local CBD	Linear Distance to Sub-provincial Centre	kilometres	734 firms	Aegean Region of Chamber Industry database

For instance, distance of local CBD is very heterogeneous across firms. Similarly, populations of sub-provincial cities have high dispersion as well.

Table 5. Descriptive Statistics (Source: Own calculation using EBSO data)

All Sectors	**Experience**	**Employment size**	**Capital size**	**Population**	**Distance to Izmir CBD**	**Distance to local CBD**
Mean	14,0	2,0	4,0	5676,0	22,0	6,0
Median	11,0	1,0	5,0	2900,0	14,0	3,0
Max	67,0	4,0	5,0	36012,0	103,0	107,0
Min	1,0	1,0	1,0	0,0	0,0	0,0
SD	13,1	0,9	1,4	7236,2	21,0	12,1
SD/mean	0,9	0,5	0,4	1,3*	0,9	1,9
Packaged Food	**Experience**	**Employment size**	**Capital size**	**Population**	**Distance to Izmir CBD**	**Distance to local CBD**
Mean	8,1	1,7	3,7	6035,6	13,3	3,8

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Median	6,0	1,0	4,0	3803,0	10,8	2,6
Max	46,0	4,0	5,0	35318,0	58,7	37,0
Min	1,0	1,0	1,0	0,0	0,3	0,3
SD	7,2	0,9	1,4	7390,4	11,1	4,7
SD/mean	0,9	0,6	0,4	1,2*	0,8	1,2*
Herbal Food	**Experience**	**Employment size**	**Capital size**	**Population**	**Distance to Izmir CBD**	**Distance to local CBD**
Mean	17,2	1,8	4,1	3922,8	22,2	6,6
Median	14,0	1,0	5,0	2185,0	19,6	3,7
Max	67,0	4,0	5,0	35318,0	99,6	92,9
Min	1,0	1,0	1,0	0,0	0,3	0,2
SD	14,8	1,0	1,3	5948,7	19,4	11,2
SD/mean	0,9	0,5	0,3	1,5	0,9	1,7*
Animal Food	**Experience**	**Employment size**	**Capital size**	**Population**	**Distance to Izmir CBD**	**Distance to local CBD**
Mean	11,2	1,6	3,9	5403,1	30,7	5,2
Median	9,0	1,0	5,0	2853,0	24,5	3,7
Max	58,0	4,0	5,0	36012,0	102,6	24,7
Min	1,0	1,0	1,0	0,0	0,3	0,1
SD	10,6	0,8	1,5	6791,2	26,1	5,0
SD/mean	0,9	0,5	0,4	1,3*	0,8	1,0
Drink and Tobacco	**Experience**	**Employment size**	**Capital size**	**Population**	**Distance to Izmir CBD**	**Distance to local CBD**
Mean	22,2	2,3	4,2	3965,4	25,4	21,5
Median	19,0	2,0	5,0	1941,0	24,9	3,2
Max	57,0	4,0	5,0	20442,0	57,1	106,8
Min	1,0	1,0	1,0	0,0	0,3	0,2
SD	17,0	1,2	1,3	4740,7	15,5	38,7
SD/mean	0,8	0,5	0,3	1,2	0,6	1,8*
Bakery Food	**Experience**	**Employment size**	**Capital size**	**population**	**Distance to Izmir CBD**	**Distance to local CBD**
Mean	12,0	1,4	3,3	11405,2	11,9	3,9
Median	11,0	1,0	4,0	10975,5	7,3	2,6
Max	67,0	4,0	5,0	35318,0	73,6	16,8
Min	1,0	1,0	1,0	0,0	0,2	0,1
SD	9,8	0,7	1,3	8801,1	13,8	3,6
SD/mean	0,8	0,5	0,4	0,8	1,2*	0,9

The aggregate results of regression analyses are summarized in the Table 6 below. Distance to Izmir CBD is the dependent variable. It is also presented as a sub-sectoral evidence by adding them with a dummy variable. As a result, it has been found that size variable (regardless of employment or capital) does not have a significant impact on the location choice. But the experience and population both have negative and significant impacts. So, the more experienced firms tend to locate more close to CBDs. This seems plausible as they were one of the firsts to select locations in the past. The firms which

belong to a more populated sub-province tend to locate more close to Izmir CBD. In terms of sub-sectors, bakery food and packaged food sectors tend to locate close to CBD whereas Animal food sector locates significantly far from Izmir CBD.

The other aggregate results of regression analyses are summarized in the Table 7 below. Distance to Local CBD is the dependent variable. It is also presented as a sub-sectoral evidence, with a dummy variable added. As a result, it has been found that size variable (regardless of employment or capital) does not have a significant impact on the location choice. But the experience has both negative and significant impacts.

In terms of the results regarding subsectors, drink and tobacco, herbal food sectors locate significantly far from CBD whereas bakery food, packaged food and animal food sectors tend to locate close to Local CBD. The results in Table 6 and 7 are consistent with each other. In both tables, regardless of whether the dependent variable is the distance to local or global CBD, the firm size does not have any influence on location choice. Theoretically, this result is plausible. Bigger firms want to locate nearby the cities as they want to minimize the transportation costs, procurement and distribution costs. In the meantime, they are likely to choose nearby areas to be able to attract the human capital as well. However, a contradicting impact is driven by high land costs and rents in urban areas. Hence, to minimize them, big firms may want to locate distant from the city centers. None of the two contradicting impacts are dominant, so, an ambiguous impact on location choice is observed. The impact of experience is straightforward. The more experienced firms naturally have an earlier establishment date in city centers.

Table 6. Regression Results, OLS (Source: Own calculation using EBSO data)

Dependent Variable: Distance to Izmir CBD										
Independent Variables:	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**	**Model 9**	**Model 10**
Constant	2,92E+01***	2,88E+01***	28,34***	2,72E+01***	23,92***	23,23771***	27,98***	26,84***	29,28***	28,93***
Employment Size	6,68E-01		0,47		0,62		0,36		0,10	
Capital Size		4,54E-01		5,81E-01		0,46		0,52		0,23
Experience	-2,27E-01***	-2,27E-01***	-0,17***	-1,79E-01***	-0,13**	-0,13**	-0,18***	-0,19***	-0,19***	-0,20***
Population	-7,16E-04***	-7,14E-04***	-0,00***	-7,37E-04***	-0,00071***	-0,0007***	-0,00***	-0,00***	-0,00***	-0,00***
Dummy Packaged Food	-1,09E+01***	-1,10E+01***								
Dummy Herbal Food			-1,11239	-1,19E+00						
Dummy Animal Food					11,09***	11,23***				
Dummy Drink and Tobacco							3,62	3,53		
Dummy Bakery Food									-9,09***	-9,57***
R-Square	0,1	0,1								
N=734	734	734	734	734	734	734	734	734	734	734

*** denotes 1 % statistical significance, ** at 5 %, * at 10 %.

Table 7. Regression Results Distance to Local CBD (Source: Own calculation using EBSO data)

Dependent Variable: Distance to local CBD										
Independent Variables:	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**	**Model 7**	**Model 8**	**Model 9**	**Model 10**
Constant	7,85E+03***	8,13E+03***	7,22E+03***	73,57***	8,08E+03***	8,15E+03***	7,74E+03***	7,42E+03***	7,79E+03***	8,07E+03***
Employment Size	5,25E+02*		4,59E+02*		4,41E+02		-3,16E-01*		3,75E+02	
Capital Size		1,27E+02*		0,13*		1,67E+02*		8,38E+01		7,64E+01*
Experience	-9,50E+01***	-8,09E+01***	-8,69E+01**	-0,07**	-8,94E+01**	-7,80E+01**	-1,12E+02***	-1,11E+02***	-8,52E+01**	-7,43E+01**
Population	-1,43E-01**	-1,45E-01**	-1,37E-01**	-0,00**	-1,49E-01**	-1,50E-01**	-1,26E-01**	-1,21E-01**	-1,10E-01*	-1,08E-01*
Dummy Packaged Food	-3,29E+03**	-3,26E+03**								
Dummy Herbal Food			6,18E+02*	0,70*						
Dummy Animal Food					-1,74E+03*	-1,86E+03*				
Dummy Drink and Tobacco							1,68E+04***	1,67E+04***		
Dummy Bakery Food									-2,26E+03*	-2,43E+03*
R-Square	0,0	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,0	0,0
N=734	732	732	732	732	732	732	732	732	732	732

*** denotes 1 % statistical significance, ** at 5 %, * at 10 %.

The results with regard to sub-sectoral dummies, in Table 6, show that packaged food and bakery food firms tend to place nearby İzmir's CBD, whereas animal food firms locate far away. In Table 7, the corresponding results are somewhat different. Firms in packaged, bakery and animal food sector tend to locate nearby local city centres whereas firms in drink and tobacco and herbal food firms locate far away.

The regressions are run for each sub-sector as well (Tables 8- 12). It is initially presented as a packaged food evidence. Distance to İzmir CBD and Local CBD are the dependent variables. The capital size, experience and population have both negative and significant impacts. Hence, the bigger firms, the more experienced ones and the ones surrounded by higher population tend to locate nearby Izmir City Center.

Table 8. Regression Results Packaged Food
(Source: Own calculation using EBSO data)

Dependent Variable	**Izmir CBD**	**Izmir CBD**	**Local CBD**	**Local CBD**
Independent Variables:	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Constant	7,18E-11	1,10E-10	7,76E-12	8,70E-12
Employment Size	2,94E+03***		8,22E+01	
Capital Size		-6,02E+02**		9,85E+01
Experience	-5,04E+02***	-3,54E+02***	-3,90E+01	-2,78E+01
Population	-1,88E-01***	-1,94E-01***	8,63E-02***	8,36E-02***
R-Square	0,6	0,6	0,4	0,4
N=734	73	73	73	73

Similar regression was performed also for Herbal Food sector. Distance to İzmir CBD and Local CBD are the dependent variables. The experience and population have both negative and significant impacts. So, location behaviour is independent of the firm size. However, the more experienced ones and the ones surrounded by higher population tend to locate significantly nearby Izmir City Centre.

Another regression was performed regarding the Drink and Tobacco Sector. The results are presented in the Table 10 below. Distance to İzmir CBD and Local CBD are the dependent variables. But the employment size, capital size, experience and population have both negative and significant impacts. Hence, for this sector, the bigger firms, the more experienced ones and the ones surrounded by higher population tend to locate nearby Izmir City Center.

Table 9. Regression Results Herbal Foods
(Source: Own calculation using EBSO data)

Dependent Variable	Izmir CBD	Izmir CBD	Local CBD	Local CBD
Independent Variables:	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Constant	-2,29E-11	5,12E-11	-1,20E-12	1,95E-11
Employment Size	-3,93E+02		1,59E+03	
Capital Size		4,15E+01		2,09E+02
Experience	-1,77E+02**	-2,08E+02***	-1,06E+02**	-7,32E+01
Population	-3,39E-01**	-3,33E-01**	-1,11E-01	-9,69E-02
R-Square	0,4418	0,45	0,1854	0,1722
N=734	310	310	310	310

Table 10. Regression Results Drink and Tobacco
(Source: Own calculation using EBSO data)

Dependent Variable	Izmir CBD	Izmir CBD	Local CBD	Local CBD
Independent Variables:	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Constant	9,41E-12	-1,12E-12	2,72E-11	9,15E-12
Employment Size	-1,80E+03***		-1,17E+04***	
Capital Size		2,02E+03***		-5,13E+03***
Experience	-2,96E+02***	-3,69E+02***	-4,29E+02***	-7,18E+02***
Population	-1,14E+00***	-9,40E-01***	-1,64E+00***	-1,13E+00***
R-Square	0,8	0,8	0,4	0,4
N=734	35	35	35	35

Another regression was performed regarding the Bakery Food Sector. The results are presented in the Table 11 below Distance to İzmir CBD and Local CBD are the dependent variables. Only the population variable has both negative and significant impacts.

Another regression was performed regarding the Animal Food Sector. The results are presented in the Table 12 below. Distance to İzmir CBD and Local CBD are the dependent variables. But the employment size, capital size, experience and population have both negative and significant impacts. Hence, for this sector, the bigger firms, the more experienced ones and the ones surrounded by higher population tend to locate nearby Izmir City Center.

Table 11. Regression Results Bakery Food (Source: Own calculation using EBSO data)

Dependent Variable	**Izmir CBD**	**Izmir CBD**	**Local CBD**	**Local CBD**
Independent Variables:	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Constant	5,13E-11	2,35E-11	1,66E-11	-1,28E-11
Employment Size	1,10E+03		3,07E+01	
Capital Size		-1,94E+02		1,60E+02
Experience	-4,92E+01	9,88E+00	2,77E+01	2,91E+01
Population	-3,96E-01***	-4,02E-01***	-5,70E-02***	-4,99E-02***
R-Square	0,4366	0,4252	0,5079	0,5022
N=734	113	113	113	113

Table 12. Regression Results Animal Food (Source: Own calculation using EBSO data)

Dependent Variable	**Izmir CBD**	**Izmir CBD**	**Local CBD**	**Local CBD**
Independent Variables:	**Model 1**	**Model 2**	**Model 3**	**Model 4**
Constant	-6,80E-12	4,97E-11	-5,61E-12	4,60E-12
Employment Size	8,12E+01		4,31E+02	
Capital Size		3,08E+02		1,89E+02
Experience	-1,97E+02**	-1,93E+02**	-8,20E+01***	-7,90E+01***
Population	-1,18E+00***	-1,16E+00***	-2,62E-02	-1,80E-02
R-Square	0,5	0,6	0,5	0,5
N=734	198	198	198	198

One empirical concern about the accuracy of the estimations is the possibility of spatial dependence in the data. So, in order to clarify this, we implement a Spatial dependence Moran's I (test on important variables (experience, employee, capital, population). Anselin (1988) suggests spatial weight matrix is defined by taking the inverse of the distance between the regions (1/dij) where dij is the distance between two firms.

The Moran's I test examines the following hypotheses:

Ho: The variable is randomly distributed across the space

Ha: The variable is spatially correlated

Moran's I formula (2019):

$$I = \frac{1}{s^2} \frac{\sum_i \sum_j (y_i - \bar{y})(y_j - \bar{y})}{\sum_i \sum_j w_{ij}}$$

The results of spatial autocorrelation test are summarized in Table 13. It is clearly seen that none of the variables analysed are subject to spatial autocorrelation as the p-values of test statistics are above 0.1. Hence, it is found safe to use the OLS regressions without spatial components.

Table 13. Spatial Dependence Test (Source: Own calculation using EBSO data)

	Test	**Variance**	**P Value**
Experience	-1,74E+03	2,44E+01	0,5302
Employee	-2,65E+03	0,6021	2,45E+01
Capital	-1,11E+03	2,45E+01	0,4792
Population	2,24E+03	2,44E+01	0,2325

A final step in our empirical analysis regards the possibility of running the regressions only for urban areas as the dynamics of location decisions which may be different from the dynamics of rural areas. The area surrounding the firm with a radius of 5 km was determined and then the number of people living in that area was calculated. According to Municipal Law no. 1580, regions with a population of less than 2000 are categorized as rural areas, while regions with more than 2000 inhabitants are classified as urban areas. Tables 14-23 present the results. In these tables, the results are for aggregate level, not for sub-sectors. However, sub-sector's dummy is included to see the differences in location behaviour of firms in different sectors. Capital size and employment size have been used alternatively to avoid multicollinearity.

Table 14. Packaged Food-Employment Size Regression
(Source: Own calculation using EBSO data)

	Estimate
(Intercept)	22.31***
Employment Size	-0.62
Experience	0.28*
Population	-0.01***
Dummy Packaged Food	1.77

With regard to results, related to Tables 14-23, it is once more confirmed that firm size is not an influential variable in location choices. It holds true regardless of

whether employment or capital size has been used. Thus, location choice is independent of firm size.

Table 15. Packaged Food-Capital Size Regression
(Source: Own calculation using EBSO data)

	Estimate
(Intercept)	21.80***
Capital	-0.02
Experience	0.27*
Population	-0.01***
Dummy Packaged Food	1.56

Table 16. Herbal Food-Employee Regression (Source: Own calculation using EBSO data)

	Estimate
(Intercept)	21.40***
Employment Size	-0.73
Experience	0.28*
Population	-0.01***
Dummy Herbal Food	1.66

Table 17. Herbal Food-Capital Regression (Source: Own calculation using EBSO data)

	Estimate
(Intercept)	19.64***
Capital	-0.32
Experience	0.26*
Population	-0.01***
Dummy Herbal Food	1.69

Table 18. Animal Food-Employee Regression (Source: Own calculation)

	Estimate
(Intercept)	17.29***
Employment Size	-1.18
Experience	0.32**
Population	-0.01***
Dummy Animal Food	0.73

Table 19. Animal Food-Capital Size Regression (Source: Own calculation using EBSO data)

	Estimate
(Intercept)	16.28***
Capital	-0.42
Experience	0.30**
Population	-0.01***
Dummy Animal Food	0.85

Table 20. Drink and Tobacco- Employment Size Regression

(Source: Own calculation using EBSO data)

	Estimate
(Intercept)	20.51***
Employment Size	-0.65
Experience	0.29*
Population	-0.01***
Dummy Drink and Tobacco	-3.09

Table 21. Drink and Tobacco-Capital Size Regression
(Source: Own calculation using EBSO data)

	Estimate
(Intercept)	18.90***
Capital	-0.25
Experience	0.28*
Population	-0.01***
Dummy Drink and Tobacco	-3.40

Table 22. Bakery Food- Employment Size Regression

(Source: Own calculation using EBSO data)

	Estimate
(Intercept)	21.48***
Employment Size	-1.20
Experience	0.29*
Population	-0.01***
Dummy Bakery Food	5.24

Experience variable has a positive and significant coefficient indicating the fact that the more experienced firms tend to locate far from the city. This is in contrast to what we have observed previously when all firms are included in the dataset.

Table 23. Bakery Food-Capital Size Regression (Source: Own calculation using EBSO data)

	Estimate
(Intercept)	20.34***
Capital	-0.45
Experience	0.27*
Population	-0.01***
Dummy Bakery Food	5.36

Population has often a negative and significant coefficient. It thus indicates the fact that firms tend to locate nearby market and high population density.

CHAPTER 5

CONCLUSION

Location Choice of Food Industry, which is the main scope of this thesis, is but a small part of the larger food policy.

Food production policies include topics as diverse as sustaining economic development, creating export opportunities, attracting foreign investment, creating new jobs, offering jobs to the new generations, developing novel business ideas and innovations, preventing such diseases as obesity and diabetes through food safety, combatting climate change, forming intercultural ties and preserving local production methods.

This thesis investigates firms' location choices in Izmir's food industry (in 2018), its spatial pattern and underlying determinants of such location behaviour. Providing profound insights into the location choices of food firms in İzmir, this thesis is expected to impart valuable information to policymakers and academics, thus creating a common ground where food policies can be discussed and established. Our findings can be summarized in three major conclusions:

First, there is evidence that the firm location behaviour is not related to the firm size. This result is consistent regardless of whether the firm is located in an urban or rural area and regardless of whether the distance to local CBD (sub-provincial city centre) or global CBD (Izmir Port) is used as the dependent variable. Theoretically, this result is plausible. As stated by the Christaller in his Central Place Theory (1966), large firms are expected to choose locations under a certain hierarchical scheme in terms of size. Instead, our findings reveal that no such hierarchy exists in reality. Bigger firms want to locate nearby the cities as they want to minimize transportation costs, procurement costs and distribution costs. They are likely to choose nearby areas to be able to attract the human capital as well. However, a contradicting impact is driven by high land costs and rents in urban areas. Hence, to minimize them, big firms may want to locate far from the city centers. None of the two contradicting impacts are dominant, so, an ambiguous impact on location choice is observed.

However, as far as location is concerned, remarkably different results have been obtained across sub-sectors. It is observed that packaged food and bakery food firms, regardless of size, tend to locate nearby İzmir's CBD, whereas animal food firms locate far away. In Table 7, the corresponding results are somewhat different. Firms in Packaged, Bakery and Animal food sector tend to locate nearby local city centres whereas firms in Drink and Tobacco and Herbal Food sector locate far away.

Second, there is strong evidence to suggest that more experienced firms choose their locations nearby the CBDs. This result is plausible as experienced firms have chosen their location earlier and preferred the places close to the markets. On the other hand, younger firms have been found to be located in the periphery of the city, which causes certain problems for them such as being far from the market, incurring huge transportation costs and hiring qualified workforce.

Third, there is ample evidence that firms tend to locate in the places where surrounding population (population of sub-province which they belong to) is higher. This is reasonable considering that food is a perishable consumer good item which must be transported and consumed not far from where it is produced. Moreover it is reasonable to assume that every firm finds it in their interest to be close to the market where they can sell their products.

In our analyses, spatial dependence is not found to be statistically significant, which shows the validity of our analyses and objectivity.

All these results have some policy implications for firms and city/regional planning. Firms choose locations independent of their sizes. Next to the ones that prefer rural areas, it is frequently observed that big firms choose locations also close to the city centre. Although this phenomenon may be economically feasible, it brings about various environmental implications. Hence, when firms choose their location, they must be subjected to the supervision of policymakers (planners). Due to the fact that more experienced firms are located close to CBD, younger firms are forced to choose locations far from CBD, which increases their transportation costs, thereby deteriorating their capital structure. Policy makers / planners should pay close attention to this fact.

The fact that the size of the firm does not have a significant bearing on location choice leads us to assume that larger firms may and do want to choose locations in urban centers, which brings with it serious problems regarding environment, transportation and growth, to name but a few. Therefore, new policies should be established by bearing these points in mind.

Additionally, as city planners and policy makers, we should encourage the industry to choose locations far from the city centers. In fact, land incentives can be given by the government to big industrial establishments. By doing so, the effects of the industry on the environment can be reduced, transportational problems may be relieved, problems concerning infrastructure may be minimized. Environmental Plans and Master Plans should be drawn in light of these suggestions.

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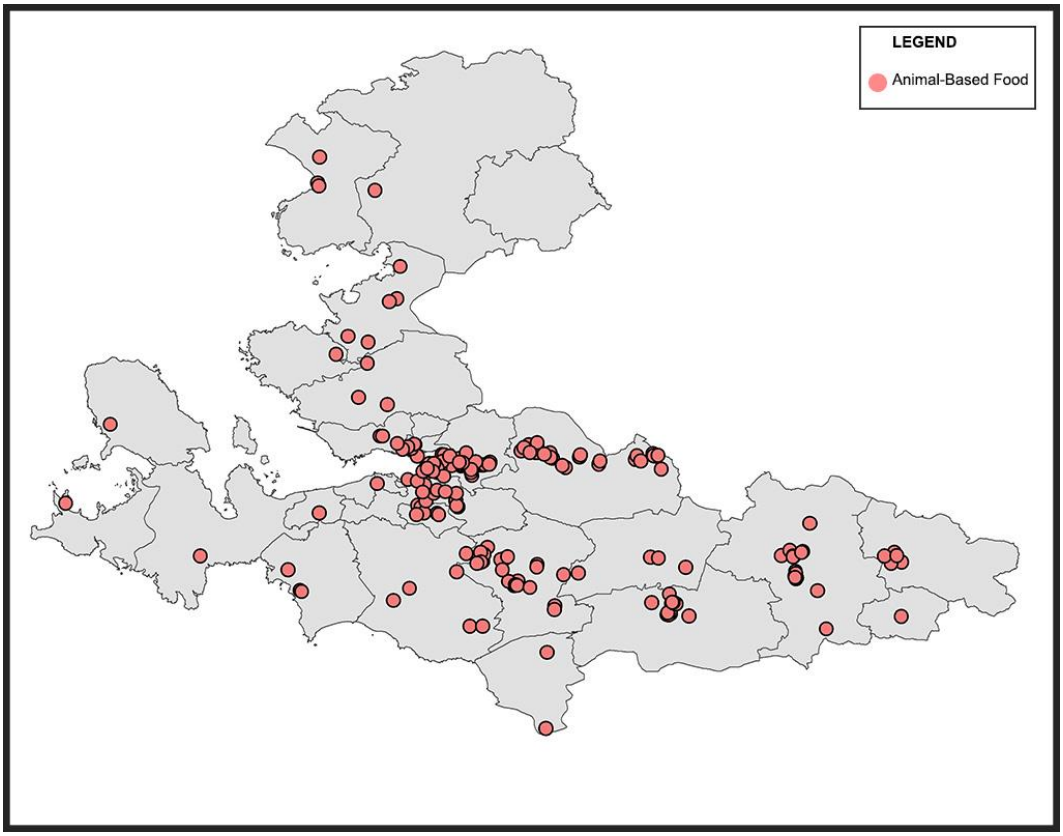
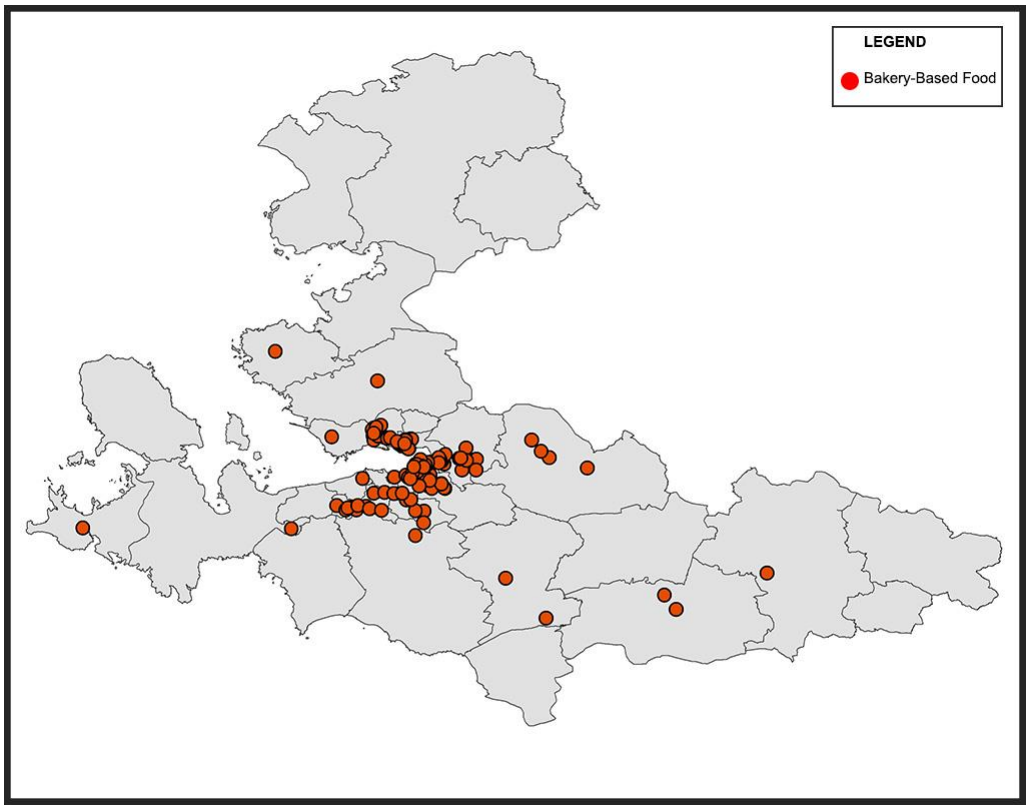
APPENDIX A

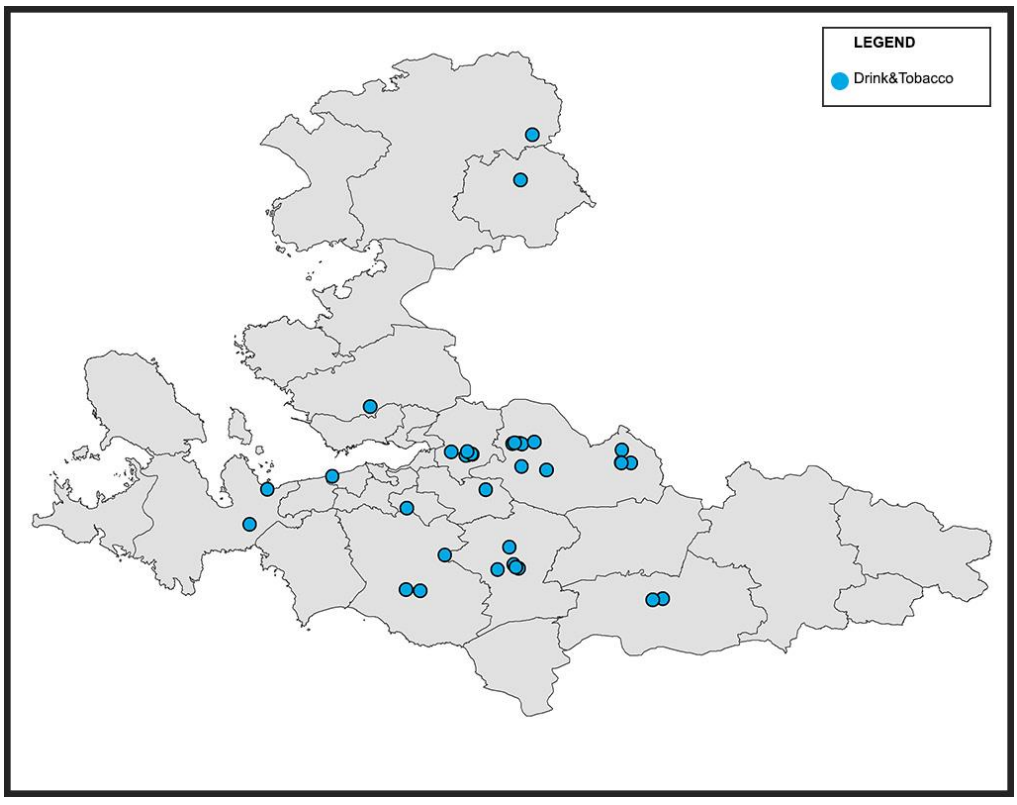
SUB-SECTORS



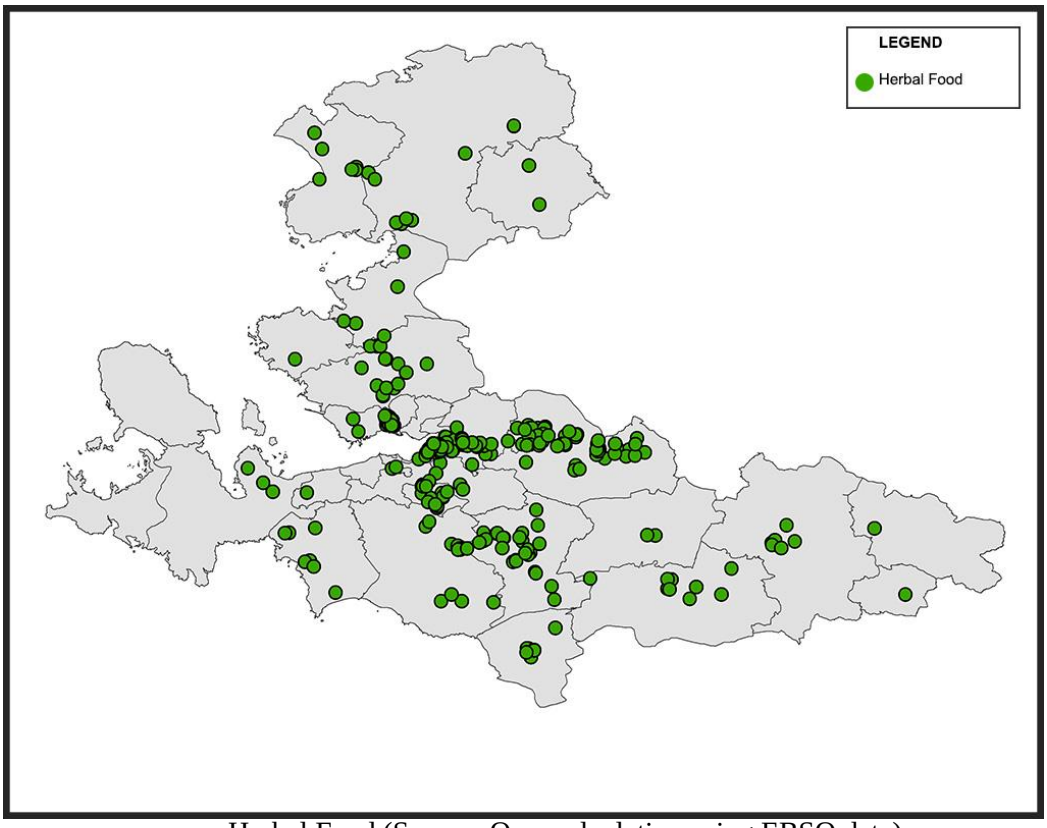
Animal Food (Source: Own calculation using EBSO data)



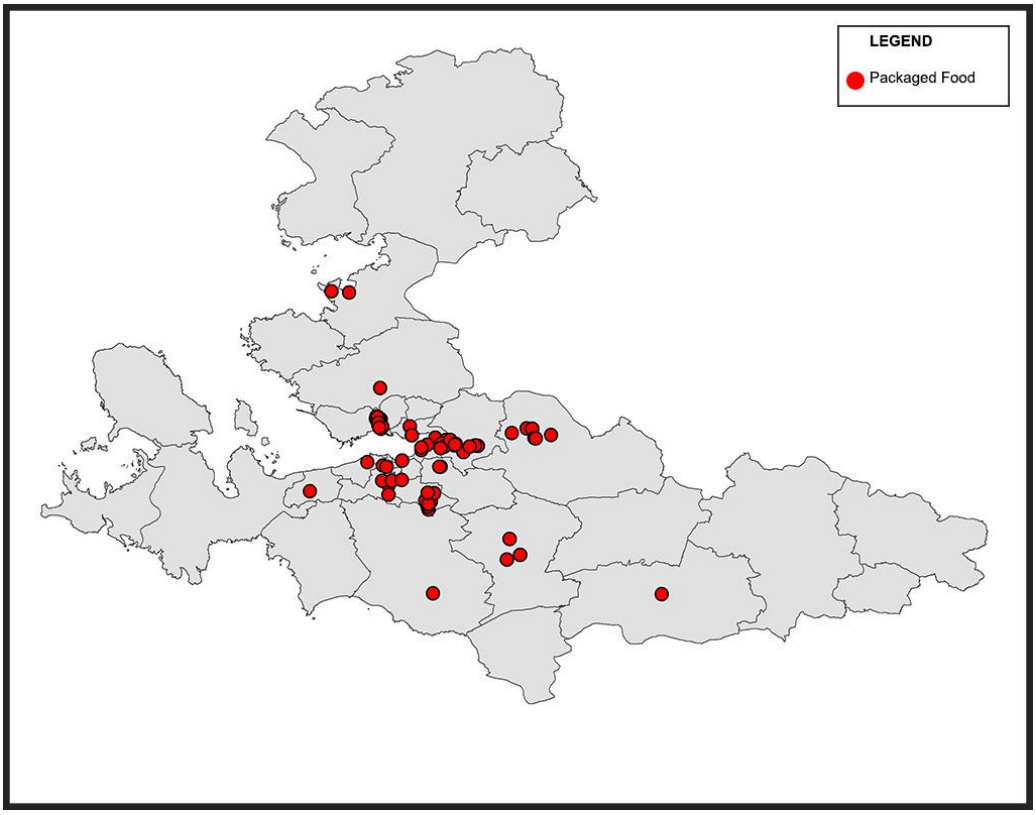
Bakery-Based Food (Source: Own calculation using EBSO data)



Drink and Tobacco (Source: Own calculation using EBSO data)



Herbal Food (Source: Own calculation using EBSO data)



Packaged Food (Source: Own calculation using EBSO data)

APPENDIX B

DATA

FIRMS	DISTRICT	WORKFORCE	SUB-SECTORS	ESTABLISHMENT DATE	NACE CODE
FIRM01	ALIAGA	50-199	PACKAGED FOOD	8.09.2015	108501
FIRM02	ALIAGA	50-199	PACKAGED FOOD	16.01.2013	108501
FIRM03	ALIAGA	25-49	ANIMAL FOOD	13.09.2013	101101
FIRM04	ALIAGA	5-24	ANIMAL FOOD	2.08.2016	14703
FIRM05	ALIAGA	50-199	HERBAL FOOD	11.10.2013	104101
FIRM06	ALIAGA	5-24	HERBAL FOOD	14.01.2016	104102
FIRM07	ALIAGA	5-24	HERBAL FOOD	20.10.2016	104102
FIRM08	ALIAGA	5-24	HERBAL FOOD	10.12.1963	104102
FIRM09	ALIAGA	5-24	ANIMAL FOOD	23.09.2003	105102
FIRM10	ALIAGA	5-24	ANIMAL FOOD	6.09.1996	14901
FIRM11	BALCOVA	5-24	HERBAL FOOD	15.12.1999	107101
FIRM12	BALCOVA	5-24	PACKAGED FOOD	12.11.2010	108501
FIRM13	BALCOVA	25-49	HERBAL FOOD	22.02.2010	108906
FIRM14	BAYINDIR	50-199	HERBAL FOOD	18.09.2015	103905
FIRM15	BAYINDIR	5-24	HERBAL FOOD	19.01.1984	104107
FIRM16	BAYINDIR	5-24	HERBAL FOOD	13.11.2000	104107
FIRM17	BAYINDIR	5-24	ANIMAL FOOD	8.06.1999	105102
FIRM18	BAYINDIR	5-24	ANIMAL FOOD	18.12.2017	105102
FIRM19	BAYINDIR	5-24	ANIMAL FOOD	2.07.2013	105105
FIRM20	BAYINDIR	5-24	ANIMAL FOOD	22.05.2018	105102
FIRM21	BAYINDIR	5-24	HERBAL FOOD	8.11.2004	109101
FIRM22	BAYRAKLI	5-24	ANIMAL FOOD	3.09.2004	32101
FIRM23	BAYRAKLI	5-24	ANIMAL FOOD	18.07.2017	101302
FIRM24	BAYRAKLI	50-199	HERBAL FOOD	20.11.1974	103905
FIRM25	BAYRAKLI	200 and above	HERBAL FOOD	7.02.1986	103905
FIRM26	BAYRAKLI	5-24	HERBAL FOOD	27.08.2008	107101
FIRM27	BAYRAKLI	5-24	HERBAL FOOD	17.02.1993	107101
FIRM28	BAYRAKLI	50-199	BAKERY FOOD	26.08.1977	107102
FIRM29	BAYRAKLI	25-49	PACKAGED FOOD	18.01.2013	108501
FIRM30	BAYRAKLI	200 and above	PACKAGED FOOD	17.04.2007	108501
FIRM31	BAYRAKLI	5-24	DRINK AND TOBACCO	18.11.1996	120004

FIRM32	BERGAMA	5-24	HERBAL FOOD	29.06.2017	103901
FIRM33	BERGAMA	5-24	HERBAL FOOD	1.06.2018	103904
FIRM34	BERGAMA	5-24	HERBAL FOOD	4.07.2011	103901
FIRM35	BERGAMA	5-24	HERBAL FOOD	11.05.2017	103901
FIRM36	BERGAMA	50-199	HERBAL FOOD	25.10.2017	11320
FIRM37	BERGAMA	50-199	HERBAL FOOD	8.12.2016	103990
FIRM38	BERGAMA	50-199	HERBAL FOOD	22.12.2017	11320
FIRM39	BERGAMA	50-199	HERBAL FOOD	7.06.2010	11320
FIRM40	BERGAMA	25-49	HERBAL FOOD	24.08.2016	103905
FIRM41	BERGAMA	50-199	HERBAL FOOD	29.07.2016	103905
FIRM42	BERGAMA	5-24	HERBAL FOOD	10.01.1973	104107
FIRM43	BERGAMA	5-24	HERBAL FOOD	8.10.2002	104107
FIRM44	BERGAMA	50-199	HERBAL FOOD	12.09.2011	104105
FIRM45	BERGAMA	25-49	ANIMAL FOOD	24.07.2017	105102
FIRM46	BERGAMA	50-199	ANIMAL FOOD	28.02.2017	105102
FIRM47	BERGAMA	5-24	HERBAL FOOD	9.08.2016	109101
FIRM48	BEYDAĞ	5-24	HERBAL FOOD	28.01.2005	104107
FIRM49	BEYDAĞ	25-49	ANIMAL FOOD	9.01.2009	105102
FIRM50	BORNOVA	5-24	ANIMAL FOOD	4.08.2016	101201
FIRM51	BORNOVA	5-24	ANIMAL FOOD	23.05.2017	101304
FIRM52	BORNOVA	5-24	ANIMAL FOOD	25.01.2005	14701
FIRM53	BORNOVA	5-24	ANIMAL FOOD	22.08.2014	101101
FIRM54	BORNOVA	5-24	ANIMAL FOOD	18.12.2014	101202
FIRM55	BORNOVA	5-24	ANIMAL FOOD	5.04.2007	101201
FIRM56	BORNOVA	5-24	ANIMAL FOOD	20.12.2016	102003
FIRM57	BORNOVA	5-24	ANIMAL FOOD	12.07.2016	101301
FIRM58	BORNOVA	5-24	ANIMAL FOOD	1.08.2016	14703
FIRM59	BORNOVA	25-49	ANIMAL FOOD	18.05.1984	14701
FIRM60	BORNOVA	25-49	ANIMAL FOOD	28.01.2005	102003
FIRM61	BORNOVA	25-49	ANIMAL FOOD	13.06.2014	101304
FIRM62	BORNOVA	25-49	ANIMAL FOOD	28.01.2005	32101
FIRM63	BORNOVA	50-199	ANIMAL FOOD	10.04.2018	102003
FIRM64	BORNOVA	5-24	HERBAL FOODS	25.09.1992	103902
FIRM65	BORNOVA	5-24	HERBAL FOODS	20.10.2003	103902
FIRM66	BORNOVA	5-24	HERBAL FOODS	8.10.1996	103904
FIRM67	BORNOVA	5-24	HERBAL FOODS	13.12.2013	103990
FIRM68	BORNOVA	25-49	HERBAL FOODS	9.08.2017	103990
FIRM69	BORNOVA	50-199	HERBAL FOODS	17.01.2012	103990
FIRM70	BORNOVA	5-24	HERBAL FOOD	10.10.2016	103905

FIRM71	BORNOVA	5-24	HERBAL FOOD	18.10.2016	103905
FIRM72	BORNOVA	5-24	HERBAL FOOD	4.05.2017	103905
FIRM73	BORNOVA	5-24	HERBAL FOOD	11.11.1988	103905
FIRM74	BORNOVA	5-24	HERBAL FOOD	11.11.2003	103905
FIRM75	BORNOVA	50-199	HERBAL FOOD	20.04.1998	103905
FIRM76	BORNOVA	50-199	HERBAL FOOD	23.09.1974	103905
FIRM77	BORNOVA	50-199	HERBAL FOOD	6.01.1987	103905
FIRM78	BORNOVA	200 and above	HERBAL FOOD	9.04.2009	103905
FIRM79	BORNOVA	5-24	HERBAL FOOD	19.01.2009	104107
FIRM80	BORNOVA	50-199	HERBAL FOOD	28.01.1952	104107
FIRM81	BORNOVA	200 and above	HERBAL FOOD	31.01.1979	104106
FIRM82	BORNOVA	5-24	ANIMAL FOOD	23.01.2009	105102
FIRM83	BORNOVA	25-49	ANIMAL FOOD	2.11.1972	105201
FIRM84	BORNOVA	25-49	ANIMAL FOOD	26.04.1995	105102
FIRM85	BORNOVA	200 and above	ANIMAL FOOD	21.04.1973	105101
FIRM86	BORNOVA	5-24	HERBAL FOOD	12.01.2005	106102
FIRM87	BORNOVA	5-24	HERBAL FOOD	4.04.2017	106102
FIRM88	BORNOVA	5-24	HERBAL FOOD	6.01.2017	107101
FIRM89	BORNOVA	5-24	HERBAL FOOD	25.05.2016	107101
FIRM90	BORNOVA	5-24	HERBAL FOOD	14.02.2018	107103
FIRM91	BORNOVA	5-24	HERBAL FOOD	1.02.2011	107303
FIRM92	BORNOVA	5-24	HERBAL FOOD	24.10.2017	107101
FIRM93	BORNOVA	25-49	HERBAL FOOD	26.11.1982	106102
FIRM94	BORNOVA	25-49	HERBAL FOOD	21.01.2014	107101
FIRM95	BORNOVA	50-199	HERBAL FOOD	10.02.2016	107303
FIRM96	BORNOVA	50-199	HERBAL FOOD	28.01.2005	107101
FIRM97	BORNOVA	5-24	BAKERY FOOD	8.09.2014	107102
FIRM98	BORNOVA	5-24	BAKERY FOOD	11.09.2007	107102
FIRM99	BORNOVA	5-24	BAKERY FOOD	16.01.2008	107102
FIRM100	BORNOVA	5-24	BAKERY FOOD	22.09.2004	107102
FIRM101	BORNOVA	5-24	BAKERY FOOD	20.06.2013	107102
FIRM102	BORNOVA	5-24	BAKERY FOOD	8.11.2006	107102
FIRM103	BORNOVA	5-24	BAKERY FOOD	24.02.2005	107102
FIRM104	BORNOVA	5-24	BAKERY FOOD	29.03.2005	107102
FIRM105	BORNOVA	5-24	BAKERY FOOD	22.03.2010	107102
FIRM106	BORNOVA	5-24	BAKERY FOOD	1.03.2018	107102
FIRM107	BORNOVA	5-24	BAKERY FOOD	3.01.2017	107102
FIRM108	BORNOVA	25-49	BAKERY FOOD	7.09.2001	107102
FIRM109	BORNOVA	50-199	BAKERY FOOD	28.10.2003	107102

FIRM110	BORNOVA	50-199	BAKERY FOOD	22.10.2001	107102
FIRM111	BORNOVA	5-24	HERBAL FOOD	13.07.2017	108204
FIRM112	BORNOVA	5-24	HERBAL FOOD	3.12.2004	108101
FIRM113	BORNOVA	5-24	HERBAL FOOD	11.11.2016	108101
FIRM114	BORNOVA	5-24	HERBAL FOOD	10.09.1999	108401
FIRM115	BORNOVA	5-24	HERBAL FOOD	6.06.1995	108405
FIRM116	BORNOVA	50-199	HERBAL FOOD	26.12.2014	108304
FIRM117	BORNOVA	5-24	PACKAGED FOOD	21.09.2017	108501
FIRM118	BORNOVA	5-24	PACKAGED FOOD	10.12.2012	108501
FIRM119	BORNOVA	5-24	PACKAGED FOOD	25.06.2018	108501
FIRM120	BORNOVA	5-24	PACKAGED FOOD	28.03.2013	108501
FIRM121	BORNOVA	5-24	PACKAGED FOOD	14.03.2013	108501
FIRM122	BORNOVA	5-24	PACKAGED FOOD	28.01.2005	108501
FIRM123	BORNOVA	5-24	PACKAGED FOOD	1.12.2017	108501
FIRM124	BORNOVA	5-24	PACKAGED FOOD	17.05.2010	108501
FIRM125	BORNOVA	25-49	PACKAGED FOOD	15.10.2003	108501
FIRM126	BORNOVA	25-49	PACKAGED FOOD	21.05.2015	108501
FIRM127	BORNOVA	50-199	PACKAGED FOOD	25.12.2000	108501
FIRM128	BORNOVA	50-199	PACKAGED FOOD	21.09.2016	108501
FIRM129	BORNOVA	200 and above	PACKAGED FOOD	6.04.2004	108501
FIRM130	BORNOVA	5-24	HERBAL FOOD	31.03.2017	109101
FIRM131	BORNOVA	5-24	HERBAL FOOD	21.03.2008	109101
FIRM132	BORNOVA	5-24	HERBAL FOOD	17.11.1992	108602
FIRM133	BORNOVA	50-199	HERBAL FOOD	21.08.1987	109201
FIRM134	BORNOVA	50-199	HERBAL FOOD	21.10.1992	109101
FIRM135	BORNOVA	5-24	DRINK AND TOBACCO	11.12.1985	120004
FIRM136	BORNOVA	5-24	DRINK AND TOBACCO	19.02.1979	110101
FIRM137	BORNOVA	25-49	DRINK AND TOBACCO	11.01.1962	110201
FIRM138	BORNOVA	50-199	DRINK AND TOBACCO	31.08.2000	110501
FIRM139	BORNOVA	200 and above	DRINK AND TOBACCO	11.12.1974	120004
FIRM140	BORNOVA	200 and above	DRINK AND TOBACCO	7.03.1985	120004
FIRM141	BORNOVA	200 and above	DRINK AND TOBACCO	31.08.1967	110501
FIRM142	BUCA	5-24	ANIMAL FOOD	28.10.2016	102003
FIRM143	BUCA	5-24	ANIMAL FOOD	17.01.2017	102003
FIRM144	BUCA	5-24	ANIMAL FOOD	15.05.2015	102003

FIRM145	BUCA	50-199	ANIMAL FOOD	9.02.2017	101101
FIRM146	BUCA	5-24	HERBAL FOOD	20.04.2016	103902
FIRM147	BUCA	50-199	HERBAL FOOD	29.05.1962	103990
FIRM148	BUCA	5-24	ANIMAL FOOD	16.12.1996	105102
FIRM149	BUCA	5-24	HERBAL FOOD	8.09.2017	107103
FIRM150	BUCA	5-24	HERBAL FOOD	14.09.2012	107101
FIRM151	BUCA	5-24	BAKERY FOOD	7.10.2005	107102
FIRM152	BUCA	5-24	BAKERY FOOD	14.02.2018	107102
FIRM153	BUCA	5-24	BAKERY FOOD	3.09.2009	107102
FIRM154	BUCA	5-24	BAKERY FOOD	29.09.2010	107102
FIRM155	BUCA	5-24	BAKERY FOOD	5.04.2017	107102
FIRM156	BUCA	5-24	BAKERY FOOD	9.02.2017	107102
FIRM157	BUCA	5-24	BAKERY FOOD	17.10.2011	107102
FIRM158	BUCA	5-24	BAKERY FOOD	20.11.2013	107102
FIRM159	BUCA	5-24	BAKERY FOOD	30.11.2015	107102
FIRM160	BUCA	5-24	BAKERY FOOD	12.06.2003	107102
FIRM161	BUCA	5-24	BAKERY FOOD	20.02.2007	107102
FIRM162	BUCA	25-49	BAKERY FOOD	14.02.2018	107102
FIRM163	BUCA	25-49	BAKERY FOOD	29.02.2008	107102
FIRM164	BUCA	25-49	HERBAL FOOD	3.11.2003	108204
FIRM165	BUCA	5-24	PACKAGED FOOD	12.12.2014	108501
FIRM166	BUCA	25-49	PACKAGED FOOD	5.06.2002	108501
FIRM167	BUCA	25-49	HERBAL FOOD	16.03.2006	108904
FIRM168	CESME	50-199	ANIMAL FOOD	23.07.2014	32101
FIRM169	CESME	5-24	BAKERY FOOD	9.05.2018	107102
FIRM170	CESME	5-24	BAKERY FOOD	16.02.2004	107102
FIRM171	CESME	200 and above	PACKAGED FOOD	27.09.1973	108501
FIRM172	CIGLI	5-24	HERBAL FOOD	9.02.2000	103990
FIRM173	CIGLI	5-24	HERBAL FOOD	16.12.2010	103902
FIRM174	CIGLI	5-24	HERBAL FOOD	14.07.1995	103990
FIRM175	CIGLI	5-24	HERBAL FOOD	5.09.2012	103903
FIRM176	CIGLI	25-49	HERBAL FOOD	16.08.2004	103990
FIRM177	CIGLI	25-49	HERBAL FOOD	21.09.1994	103990
FIRM178	CIGLI	25-49	HERBAL FOOD	31.05.1982	103904
FIRM179	CIGLI	25-49	HERBAL FOOD	17.11.2016	103904
FIRM180	CIGLI	50-199	HERBAL FOOD	31.10.1996	103905
FIRM181	CIGLI	50-199	HERBAL FOOD	27.05.1986	103905
FIRM182	CIGLI	5-24	HERBAL FOOD	22.05.2015	104107
FIRM183	CIGLI	5-24	HERBAL FOOD	30.11.1983	104101

FIRM184	CIGLI	25-49	HERBAL FOOD	28.01.1952	104107
FIRM185	CIGLI	50-199	HERBAL FOOD	8.08.2014	104102
FIRM186	CIGLI	50-199	HERBAL FOOD	15.09.1962	104101
FIRM187	CIGLI	50-199	HERBAL FOOD	10.07.2009	104101
FIRM188	CIGLI	50-199	HERBAL FOOD	23.12.2008	104107
FIRM189	CIGLI	5-24	ANIMAL FOOD	5.11.1992	105105
FIRM190	CIGLI	5-24	BAKERY FOOD	7.03.2002	107103
FIRM191	CIGLI	5-24	BAKERY FOOD	3.04.1992	106201
FIRM192	CIGLI	5-24	BAKERY FOOD	7.09.2006	106102
FIRM193	CIGLI	5-24	BAKERY FOOD	13.10.2006	107203
FIRM194	CIGLI	5-24	BAKERY FOOD	20.06.1984	106105
FIRM195	CIGLI	5-24	BAKERY FOOD	28.06.2012	107101
FIRM196	CIGLI	5-24	BAKERY FOOD	24.04.2017	107103
FIRM197	CIGLI	5-24	BAKERY FOOD	16.05.1997	106102
FIRM198	CIGLI	50-199	BAKERY FOOD	6.06.2000	106109
FIRM199	CIGLI	50-199	BAKERY FOOD	9.03.2016	107103
FIRM200	CIGLI	200 and above	BAKERY FOOD	29.01.1993	107101
FIRM201	CIGLI	5-24	BAKERY FOOD	13.06.2014	107102
FIRM202	CIGLI	5-24	BAKERY FOOD	15.05.2015	107102
FIRM203	CIGLI	5-24	BAKERY FOOD	15.07.1998	107102
FIRM204	CIGLI	25-49	BAKERY FOOD	17.11.1999	107102
FIRM205	CIGLI	25-49	BAKERY FOOD	10.04.2018	107102
FIRM206	CIGLI	5-24	HERBAL FOOD	28.10.2016	108301
FIRM207	CIGLI	5-24	HERBAL FOOD	12.10.2017	108204
FIRM208	CIGLI	5-24	HERBAL FOOD	6.10.2003	108405
FIRM209	CIGLI	5-24	HERBAL FOOD	27.09.2010	108302
FIRM210	CIGLI	5-24	HERBAL FOOD	3.06.2016	108403
FIRM211	CIGLI	5-24	HERBAL FOOD	20.04.2004	108405
FIRM212	CIGLI	25-49	HERBAL FOOD	26.09.1988	108405
FIRM213	CIGLI	50-199	HERBAL FOOD	15.02.1967	108405
FIRM214	CIGLI	5-24	PACKAGED FOOD	22.08.2017	108501
FIRM215	CIGLI	5-24	PACKAGED FOOD	7.03.2013	108501
FIRM216	CIGLI	5-24	PACKAGED FOOD	9.02.2018	108501
FIRM217	CIGLI	5-24	PACKAGED FOOD	13.06.2011	108501
FIRM218	CIGLI	5-24	PACKAGED FOOD	15.12.2016	108501
FIRM219	CIGLI	5-24	PACKAGED FOOD	2.03.2004	108501
FIRM220	CIGLI	5-24	PACKAGED FOOD	19.01.2018	108501
FIRM221	CIGLI	5-24	PACKAGED FOOD	12.04.2013	108501
FIRM222	CIGLI	5-24	PACKAGED FOOD	23.08.2005	108501

FIRM223	CIGLI	25-49	PACKAGED FOOD	11.03.2010	108501
FIRM224	CIGLI	25-49	PACKAGED FOOD	20.04.2011	108501
FIRM225	CIGLI	25-49	PACKAGED FOOD	20.03.2018	108501
FIRM226	CIGLI	50-199	PACKAGED FOOD	16.02.2007	108501
FIRM227	CIGLI	200 and above	PACKAGED FOOD	23.10.2000	108501
FIRM228	CIGLI	5-24	HERBAL FOOD	3.09.2012	108902
FIRM229	CIGLI	5-24	HERBAL FOOD	16.01.2012	108902
FIRM230	CIGLI	25-49	HERBAL FOOD	23.09.1983	109101
FIRM231	CIGLI	50-199	HERBAL FOOD	27.11.2002	108906
FIRM232	DIKILI	50-199	ANIMAL FOOD	23.11.1998	32101
FIRM233	DIKILI	25-49	HERBAL FOOD	19.10.2017	11320
FIRM234	DIKILI	5-24	HERBAL FOOD	6.12.2017	104107
FIRM235	DIKILI	5-24	HERBAL FOOD	21.11.1996	104107
FIRM236	DIKILI	5-24	ANIMAL FOOD	19.10.2017	105102
FIRM237	DIKILI	50-199	ANIMAL FOOD	25.01.2017	105102
FIRM238	DIKILI	5-24	FIRIN SANAYİ	13.03.2009	107102
FIRM239	DIKILI	50-199	HERBAL FOOD	4.01.2011	109101
FIRM240	FOCA	5-24	ANIMAL FOOD	8.05.2017	14703
FIRM241	FOCA	5-24	ANIMAL FOOD	10.03.1983	14701
FIRM242	FOCA	50-199	HERBAL FOOD	5.02.2004	103990
FIRM243	FOCA	25-49	ANIMAL FOOD	16.10.2008	105105
FIRM244	GAZIEMIR	5-24	ANIMAL FOOD	12.12.2017	102003
FIRM245	GAZIEMIR	5-24	ANIMAL FOOD	27.03.2014	102004
FIRM246	GAZIEMIR	200 and above	ANIMAL FOOD	26.04.2010	14701
FIRM247	GAZIEMIR	25-49	HERBAL FOOD	20.07.2010	103901
FIRM248	GAZIEMIR	50-199	HERBAL FOOD	24.02.2010	103990
FIRM249	GAZIEMIR	5-24	HERBAL FOOD	20.09.2016	103905
FIRM250	GAZIEMIR	5-24	HERBAL FOOD	2.08.2016	103905
FIRM251	GAZIEMIR	25-49	HERBAL FOOD	6.08.2015	103905
FIRM252	GAZIEMIR	50-199	HERBAL FOOD	23.07.2014	103905
FIRM253	GAZIEMIR	200 and above	HERBAL FOOD	2.11.1983	103905
FIRM254	GAZIEMIR	5-24	HERBAL FOOD	3.02.2006	104107
FIRM255	GAZIEMIR	5-24	ANIMAL FOOD	16.10.2003	105105
FIRM256	GAZIEMIR	5-24	ANIMAL FOOD	26.04.1995	105102
FIRM257	GAZIEMIR	50-199	ANIMAL FOOD	18.07.2018	105105
FIRM258	GAZIEMIR	5-24	HERBAL FOOD	15.03.2016	107101
FIRM259	GAZIEMIR	25-49	HERBAL FOOD	12.12.2014	107202
FIRM260	GAZIEMIR	25-49	HERBAL FOOD	11.09.2007	106107
FIRM261	GAZIEMIR	5-24	BAKERY FOOD	31.05.2016	107102

FIRM262	GAZIEMIR	5-24	BAKERY FOOD	21.04.2008	107102
FIRM263	GAZIEMIR	5-24	BAKERY FOOD	22.06.2016	107102
FIRM264	GAZIEMIR	5-24	HERBAL FOOD	22.02.2011	108403
FIRM265	GAZIEMIR	5-24	HERBAL FOOD	17.04.1996	108204
FIRM266	GAZIEMIR	5-24	HERBAL FOOD	17.06.1975	108201
FIRM267	GAZIEMIR	5-24	HERBAL FOOD	17.12.2009	108401
FIRM268	GAZIEMIR	50-199	HERBAL FOOD	4.09.2007	108401
FIRM269	GAZIEMIR	50-199	HERBAL FOOD	11.09.2007	108401
FIRM270	GAZIEMIR	5-24	PACKAGED FOOD	28.01.2005	108501
FIRM271	GAZIEMIR	5-24	PACKAGED FOOD	10.06.2016	108501
FIRM272	GAZIEMIR	5-24	PACKAGED FOOD	29.12.2014	108501
FIRM273	GAZIEMIR	25-49	PACKAGED FOOD	28.01.2005	562101
FIRM274	GAZIEMIR	25-49	PACKAGED FOOD	2.03.2010	108501
FIRM275	GAZIEMIR	25-49	PACKAGED FOOD	21.04.2016	108501
FIRM276	GAZIEMIR	25-49	PACKAGED FOOD	22.02.2010	108501
FIRM277	GAZIEMIR	25-49	PACKAGED FOOD	28.01.2005	108501
FIRM278	GAZIEMIR	50-199	PACKAGED FOOD	10.04.2013	108501
FIRM279	GAZIEMIR	200 and above	PACKAGED FOOD	5.06.2008	108501
FIRM280	GAZIEMIR	5-24	HERBAL FOOD	1.02.2017	108901
FIRM281	GAZIEMIR	5-24	HERBAL FOOD	5.12.2016	108906
FIRM282	GAZIEMIR	5-24	HERBAL FOOD	15.10.2010	109101
FIRM283	GAZIEMIR	5-24	DRINK AND TOBACCO	22.08.1997	110701
FIRM284	GAZIEMIR	5-24	DRINK AND TOBACCO	26.02.1973	110702
FIRM285	GUZELBAHCE	5-24	ANIMAL FOOD	23.03.2000	105102
FIRM286	GUZELBAHCE	50-199	HERBAL FOOD	27.04.2009	108401
FIRM287	GUZELBAHCE	5-24	PACKAGED FOOD	18.04.2017	108501
FIRM288	GUZELBAHCE	5-24	HERBAL FOOD	22.07.1964	109101
FIRM289	GUZELBAHCE	50-199	HERBAL FOOD	10.08.2018	108901
FIRM290	KARABAGLAR	5-24	HERBAL FOOD	23.11.2017	107202
FIRM291	KARABAGLAR	5-24	HERBAL FOOD	24.04.2007	107203
FIRM292	KARABAGLAR	25-49	HERBAL FOOD	27.11.2013	107101
FIRM293	KARABAGLAR	5-24	BAKERY FOOD	21.04.1993	107102
FIRM294	KARABAGLAR	5-24	BAKERY FOOD	12.05.2004	107102
FIRM295	KARABAGLAR	5-24	BAKERY FOOD	30.03.2018	107102
FIRM296	KARABAGLAR	5-24	BAKERY FOOD	8.08.1994	107102
FIRM297	KARABAGLAR	5-24	BAKERY FOOD	11.01.2005	107102
FIRM298	KARABAGLAR	5-24	BAKERY FOOD	9.05.1996	107102
FIRM299	KARABAGLAR	25-49	BAKERY FOOD	20.01.1997	107102

FIRM300	KARABAGLAR	25-49	BAKERY FOOD	18.07.2000	107102
FIRM301	KARABAGLAR	25-49	BAKERY FOOD	1.02.1997	107102
FIRM302	KARABAGLAR	50-199	BAKERY FOOD	8.08.1994	107102
FIRM303	KARABAGLAR	5-24	PACKAGED FOOD	13.04.2006	108501
FIRM304	KARABAGLAR	5-24	PACKAGED FOOD	29.07.2015	108501
FIRM305	KARABAGLAR	5-24	PACKAGED FOOD	26.02.2010	108501
FIRM306	KARABAGLAR	5-24	PACKAGED FOOD	28.06.2011	108501
FIRM307	KARABAGLAR	5-24	PACKAGED FOOD	22.05.2015	108501
FIRM308	KARABURUN	5-24	ANIMAL FOOD	10.03.2015	32101
FIRM309	KARABURUN	5-24	ANIMAL FOOD	17.03.2015	32101
FIRM310	KARABURUN	25-49	ANIMAL FOOD	13.12.2017	32101
FIRM311	KARABURUN	25-49	ANIMAL FOOD	17.03.2014	102003
FIRM312	KARABURUN	25-49	ANIMAL FOOD	19.09.2013	102004
FIRM313	KARSIYAKA	5-24	ANIMAL FOOD	3.01.2011	101101
FIRM314	KARSIYAKA	5-24	ANIMAL FOOD	22.04.2016	105105
FIRM315	KARSIYAKA	5-24	ANIMAL FOOD	20.01.2009	105105
FIRM316	KARSIYAKA	5-24	HERBAL FOOD	31.01.2001	107101
FIRM317	KARSIYAKA	5-24	HERBAL FOOD	13.03.2007	107101
FIRM318	KARSIYAKA	5-24	BAKERY FOOD	28.01.2005	107102
FIRM319	KARSIYAKA	5-24	BAKERY FOOD	24.01.1992	107102
FIRM320	KARSIYAKA	5-24	BAKERY FOOD	13.01.2004	107102
FIRM321	KARSIYAKA	5-24	BAKERY FOOD	25.10.1994	107102
FIRM322	KARSIYAKA	5-24	BAKERY FOOD	28.01.2005	107102
FIRM323	KARSIYAKA	5-24	BAKERY FOOD	11.02.2011	107102
FIRM324	KARSIYAKA	5-24	BAKERY FOOD	9.04.2004	107102
FIRM325	KARSIYAKA	5-24	BAKERY FOOD	3.11.2006	107102
FIRM326	KARSIYAKA	25-49	PACKAGED FOOD	27.12.2013	108501
FIRM327	KARSIYAKA	5-24	HERBAL FOOD	15.12.2009	108906
FIRM328	KEMALPASA	5-24	ANIMAL FOOD	17.08.2004	14703
FIRM329	KEMALPASA	5-24	ANIMAL FOOD	6.09.2017	14703
FIRM330	KEMALPASA	5-24	ANIMAL FOOD	22.01.2015	101101
FIRM331	KEMALPASA	5-24	ANIMAL FOOD	7.12.2016	14703
FIRM332	KEMALPASA	5-24	ANIMAL FOOD	24.09.2018	14703
FIRM333	KEMALPASA	5-24	ANIMAL FOOD	9.11.2016	14703
FIRM334	KEMALPASA	5-24	ANIMAL FOOD	12.12.2016	101302
FIRM335	KEMALPASA	5-24	ANIMAL FOOD	4.03.2016	14703
FIRM336	KEMALPASA	25-49	ANIMAL FOOD	20.09.2017	101304
FIRM337	KEMALPASA	25-49	ANIMAL FOOD	9.02.2017	14703
FIRM338	KEMALPASA	25-49	ANIMAL FOOD	23.05.2006	101101

FIRM339	KEMALPASA	25-49	ANIMAL FOOD	14.02.2017	14703
FIRM340	KEMALPASA	25-49	ANIMAL FOOD	2.09.1999	101202
FIRM341	KEMALPASA	25-49	ANIMAL FOOD	19.07.2005	101101
FIRM342	KEMALPASA	50-199	ANIMAL FOOD	31.07.2018	101101
FIRM343	KEMALPASA	200 and above	ANIMAL FOOD	24.08.2006	101201
FIRM344	KEMALPASA	200 and above	ANIMAL FOOD	1.09.1982	101302
FIRM345	KEMALPASA	5-24	HERBAL FOOD	2.08.2012	103904
FIRM346	KEMALPASA	5-24	HERBAL FOOD	14.02.2014	103904
FIRM347	KEMALPASA	5-24	HERBAL FOOD	17.05.2010	103904
FIRM348	KEMALPASA	5-24	HERBAL FOOD	24.08.2015	103904
FIRM349	KEMALPASA	5-24	HERBAL FOOD	27.01.2015	103901
FIRM350	KEMALPASA	5-24	HERBAL FOOD	29.04.2016	103990
FIRM351	KEMALPASA	5-24	HERBAL FOOD	16.03.2017	103990
FIRM352	KEMALPASA	25-49	HERBAL FOOD	14.02.2005	103904
FIRM353	KEMALPASA	25-49	HERBAL FOOD	24.05.2007	103904
FIRM354	KEMALPASA	25-49	HERBAL FOOD	11.07.1994	103902
FIRM355	KEMALPASA	25-49	HERBAL FOOD	17.02.2015	103990
FIRM356	KEMALPASA	25-49	HERBAL FOOD	1.09.2006	103904
FIRM357	KEMALPASA	25-49	HERBAL FOOD	27.11.2014	103990
FIRM358	KEMALPASA	25-49	HERBAL FOOD	16.01.1991	103990
FIRM359	KEMALPASA	25-49	HERBAL FOOD	30.07.1997	103904
FIRM360	KEMALPASA	50-199	HERBAL FOOD	27.02.1987	103901
FIRM361	KEMALPASA	50-199	HERBAL FOOD	29.05.2000	103904
FIRM362	KEMALPASA	50-199	HERBAL FOOD	11.08.1999	103901
FIRM363	KEMALPASA	50-199	HERBAL FOOD	20.11.1996	103904
FIRM364	KEMALPASA	50-199	HERBAL FOOD	18.04.2013	103990
FIRM365	KEMALPASA	50-199	HERBAL FOOD	22.05.2014	103901
FIRM366	KEMALPASA	50-199	HERBAL FOOD	5.12.2008	103990
FIRM367	KEMALPASA	50-199	HERBAL FOOD	8.02.1995	103904
FIRM368	KEMALPASA	50-199	HERBAL FOOD	18.12.1991	103901
FIRM369	KEMALPASA	200 and above	HERBAL FOOD	8.06.2010	103904
FIRM370	KEMALPASA	5-24	HERBAL FOOD	17.08.2004	103905
FIRM371	KEMALPASA	5-24	HERBAL FOOD	11.01.2012	103905
FIRM372	KEMALPASA	5-24	HERBAL FOOD	13.10.2016	103905
FIRM373	KEMALPASA	25-49	HERBAL FOOD	4.03.1963	103905
FIRM374	KEMALPASA	25-49	HERBAL FOOD	16.04.2004	103905
FIRM375	KEMALPASA	25-49	HERBAL FOOD	14.03.2016	103905
FIRM376	KEMALPASA	25-49	HERBAL FOOD	24.05.2007	103905
FIRM377	KEMALPASA	25-49	HERBAL FOOD	16.09.2004	103905

FIRM378	KEMALPASA	50-199	HERBAL FOOD	22.03.1996	103905
FIRM379	KEMALPASA	50-199	HERBAL FOOD	10.01.2001	103905
FIRM380	KEMALPASA	200 and above	HERBAL FOOD	27.07.1990	103905
FIRM381	KEMALPASA	200 and above	HERBAL FOOD	23.11.1989	103905
FIRM382	KEMALPASA	5-24	HERBAL FOOD	28.09.1998	104105
FIRM383	KEMALPASA	5-24	HERBAL FOOD	8.03.1996	104107
FIRM384	KEMALPASA	5-24	HERBAL FOOD	29.01.1985	104107
FIRM385	KEMALPASA	5-24	HERBAL FOOD	6.09.2007	104107
FIRM386	KEMALPASA	5-24	HERBAL FOOD	13.10.2006	104107
FIRM387	KEMALPASA	5-24	HERBAL FOOD	29.08.1996	104107
FIRM388	KEMALPASA	25-49	HERBAL FOOD	4.11.2003	104102
FIRM389	KEMALPASA	5-24	ANIMAL FOOD	24.12.2008	105105
FIRM390	KEMALPASA	5-24	HERBAL FOOD	7.02.2018	107101
FIRM391	KEMALPASA	5-24	HERBAL FOOD	5.09.1996	107201
FIRM392	KEMALPASA	5-24	HERBAL FOOD	13.01.1988	106102
FIRM393	KEMALPASA	5-24	HERBAL FOOD	9.06.2017	106201
FIRM394	KEMALPASA	25-49	HERBAL FOOD	16.01.1990	107201
FIRM395	KEMALPASA	25-49	HERBAL FOOD	26.10.2011	106101
FIRM396	KEMALPASA	50-199	HERBAL FOOD	3.03.1982	106108
FIRM397	KEMALPASA	200 and above	HERBAL FOOD	17.03.1997	107101
FIRM398	KEMALPASA	5-24	BAKERY FOOD	18.10.2016	107102
FIRM399	KEMALPASA	50-199	BAKERY FOOD	6.04.2007	107102
FIRM400	KEMALPASA	50-199	BAKERY FOOD	10.10.2000	107102
FIRM401	KEMALPASA	5-24	HERBAL FOOD	16.03.2006	108302
FIRM402	KEMALPASA	5-24	HERBAL FOOD	16.02.2017	108401
FIRM403	KEMALPASA	5-24	HERBAL FOOD	4.02.2013	108401
FIRM404	KEMALPASA	5-24	HERBAL FOOD	29.04.2015	108302
FIRM405	KEMALPASA	5-24	HERBAL FOOD	27.01.2004	108202
FIRM406	KEMALPASA	5-24	HERBAL FOOD	15.03.2017	108403
FIRM407	KEMALPASA	25-49	HERBAL FOOD	1.04.2016	108402
FIRM408	KEMALPASA	25-49	HERBAL FOOD	31.07.2002	108401
FIRM409	KEMALPASA	25-49	HERBAL FOOD	23.08.2007	108401
FIRM410	KEMALPASA	25-49	HERBAL FOOD	26.05.1998	108401
FIRM411	KEMALPASA	25-49	HERBAL FOOD	23.09.1993	108401
FIRM412	KEMALPASA	25-49	HERBAL FOOD	23.02.2005	108401
FIRM413	KEMALPASA	50-199	HERBAL FOOD	14.05.1970	108401
FIRM414	KEMALPASA	50-199	HERBAL FOOD	14.08.2008	108401
FIRM415	KEMALPASA	50-199	HERBAL FOOD	7.10.1996	108403
FIRM416	KEMALPASA	200 and above	HERBAL FOOD	18.04.1978	108402

FIRM417	KEMALPASA	5-24	PACKAGED FOOD	17.05.2010	108501
FIRM418	KEMALPASA	5-24	PACKAGED FOOD	28.03.2018	108501
FIRM419	KEMALPASA	25-49	PACKAGED FOOD	21.11.2016	108501
FIRM420	KEMALPASA	25-49	PACKAGED FOOD	23.10.2003	108501
FIRM421	KEMALPASA	5-24	HERBAL FOOD	22.06.2011	109101
FIRM422	KEMALPASA	5-24	HERBAL FOOD	4.10.2013	109101
FIRM423	KEMALPASA	5-24	HERBAL FOOD	21.02.2006	109101
FIRM424	KEMALPASA	5-24	HERBAL FOOD	30.07.2002	109101
FIRM425	KEMALPASA	5-24	HERBAL FOOD	17.05.2010	108904
FIRM426	KEMALPASA	5-24	HERBAL FOOD	28.03.2014	109101
FIRM427	KEMALPASA	5-24	HERBAL FOOD	26.08.2013	108905
FIRM428	KEMALPASA	5-24	HERBAL FOOD	22.06.2011	109101
FIRM429	KEMALPASA	5-24	HERBAL FOOD	14.09.2018	109101
FIRM430	KEMALPASA	5-24	HERBAL FOOD	11.05.2006	109101
FIRM431	KEMALPASA	5-24	HERBAL FOOD	7.06.2018	109101
FIRM432	KEMALPASA	25-49	HERBAL FOOD	13.03.2017	109101
FIRM433	KEMALPASA	25-49	HERBAL FOOD	5.04.2004	109101
FIRM434	KEMALPASA	50-199	HERBAL FOOD	7.12.2009	109101
FIRM435	KEMALPASA	50-199	HERBAL FOOD	16.06.2008	108902
FIRM436	KEMALPASA	5-24	DRINK AND TOBACCO	19.01.2018	110201
FIRM437	KEMALPASA	5-24	DRINK AND TOBACCO	13.07.2017	120004
FIRM438	KEMALPASA	5-24	DRINK AND TOBACCO	27.06.2003	110703
FIRM439	KEMALPASA	5-24	DRINK AND TOBACCO	28.08.2015	110201
FIRM440	KEMALPASA	25-49	DRINK AND TOBACCO	30.01.2007	120004
FIRM441	KEMALPASA	25-49	DRINK AND TOBACCO	15.12.2003	120004
FIRM442	KEMALPASA	50-199	DRINK AND TOBACCO	31.03.2016	120004
FIRM443	KEMALPASA	50-199	DRINK AND TOBACCO	4.10.1996	120004
FIRM444	KEMALPASA	50-199	DRINK AND TOBACCO	29.09.2000	110702
FIRM445	KEMALPASA	50-199	DRINK AND TOBACCO	15.07.1970	110702
FIRM446	KEMALPASA	200 and above	DRINK AND TOBACCO	15.05.2000	110702
FIRM447	KEMALPASA	200 and above	DRINK AND TOBACCO	29.08.1990	120004
FIRM448	KINIK	50-199	HERBAL FOOD	28.05.1997	103901
FIRM449	KINIK	50-199	HERBAL FOOD	7.02.2017	103905

FIRM450	KINIK	5-24	HERBAL FOOD	28.01.2005	106102
FIRM451	KIRAZ	5-24	ANIMAL FOOD	5.10.2017	105102
FIRM452	KIRAZ	5-24	ANIMAL FOOD	26.03.2007	105102
FIRM453	KIRAZ	25-49	ANIMAL FOOD	9.10.1998	105102
FIRM454	KIRAZ	25-49	ANIMAL FOOD	17.05.2010	105102
FIRM455	KIRAZ	25-49	ANIMAL FOOD	27.10.2003	105102
FIRM456	KIRAZ	25-49	ANIMAL FOOD	22.10.2003	105102
FIRM457	KONAK	5-24	ANIMAL FOOD	4.11.1986	101304
FIRM458	KONAK	5-24	ANIMAL FOOD	12.08.1998	101302
FIRM459	KONAK	25-49	ANIMAL FOOD	21.07.2009	102004
FIRM460	KONAK	25-49	ANIMAL FOOD	2.06.1998	101101
FIRM461	KONAK	50-199	ANIMAL FOOD	5.11.2003	32101
FIRM462	KONAK	5-24	HERBAL FOOD	8.03.2011	103904
FIRM463	KONAK	5-24	HERBAL FOOD	4.12.2001	103904
FIRM464	KONAK	5-24	HERBAL FOOD	16.06.1997	103990
FIRM465	KONAK	5-24	HERBAL FOOD	20.10.2003	103902
FIRM466	KONAK	5-24	HERBAL FOOD	11.06.1998	103904
FIRM467	KONAK	50-199	HERBAL FOOD	20.09.1994	103990
FIRM468	KONAK	50-199	HERBAL FOOD	13.07.2001	103903
FIRM469	KONAK	50-199	HERBAL FOOD	12.12.1996	103904
FIRM470	KONAK	5-24	HERBAL FOOD	15.04.1987	103905
FIRM471	KONAK	5-24	HERBAL FOOD	13.06.2000	103905
FIRM472	KONAK	5-24	HERBAL FOOD	12.04.1963	103905
FIRM473	KONAK	25-49	HERBAL FOOD	7.08.1978	103905
FIRM474	KONAK	50-199	HERBAL FOOD	20.04.2004	103905
FIRM475	KONAK	50-199	HERBAL FOOD	5.03.1980	103905
FIRM476	KONAK	50-199	HERBAL FOOD	7.08.1981	103905
FIRM477	KONAK	5-24	HERBAL FOOD	30.04.2002	104107
FIRM478	KONAK	5-24	HERBAL FOOD	7.11.2000	104107
FIRM479	KONAK	25-49	HERBAL FOOD	14.01.1982	104107
FIRM480	KONAK	50-199	HERBAL FOOD	24.07.1971	104102
FIRM481	KONAK	200 and above	HERBAL FOOD	23.01.1952	104102
FIRM482	KONAK	5-24	ANIMAL FOOD	23.01.2009	105102
FIRM483	KONAK	5-24	HERBAL FOOD	31.03.2009	107101
FIRM484	KONAK	5-24	HERBAL FOOD	4.10.2010	106109
FIRM485	KONAK	5-24	HERBAL FOOD	12.12.2013	107101
FIRM486	KONAK	5-24	HERBAL FOOD	21.10.2003	107101
FIRM487	KONAK	5-24	HERBAL FOOD	29.08.2018	107101
FIRM488	KONAK	5-24	HERBAL FOOD	15.03.1968	106102

FIRM489	KONAK	25-49	HERBAL FOOD	28.07.2016	107101
FIRM490	KONAK	25-49	HERBAL FOOD	4.08.1992	107101
FIRM491	KONAK	5-24	BAKERY FOOD	31.01.2005	107102
FIRM492	KONAK	5-24	BAKERY FOOD	20.01.1997	107102
FIRM493	KONAK	5-24	BAKERY FOOD	15.07.2008	107102
FIRM494	KONAK	5-24	BAKERY FOOD	31.12.2008	107102
FIRM495	KONAK	5-24	BAKERY FOOD	20.03.2008	107102
FIRM496	KONAK	25-49	BAKERY FOOD	5.02.2007	107102
FIRM497	KONAK	5-24	HERBAL FOOD	7.10.1958	108401
FIRM498	KONAK	5-24	HERBAL FOOD	16.01.2004	108206
FIRM499	KONAK	5-24	HERBAL FOOD	29.04.2016	108401
FIRM500	KONAK	25-49	HERBAL FOOD	26.10.2005	108202
FIRM501	KONAK	50-199	HERBAL FOOD	6.02.1978	108201
FIRM502	KONAK	50-199	HERBAL FOOD	23.09.1985	108401
FIRM503	KONAK	50-199	HERBAL FOOD	5.04.1989	108206
FIRM504	KONAK	5-24	PACKAGED FOOD	2.04.2013	108501
FIRM505	KONAK	5-24	PACKAGED FOOD	20.08.2014	108501
FIRM506	KONAK	5-24	PACKAGED FOOD	12.04.2013	108501
FIRM507	KONAK	25-49	PACKAGED FOOD	30.05.1994	108501
FIRM508	KONAK	50-199	PACKAGED FOOD	2.11.2017	108501
FIRM509	KONAK	5-24	HERBAL FOOD	31.08.1999	109101
FIRM510	KONAK	25-49	HERBAL FOOD	5.08.1961	109101
FIRM511	KONAK	5-24	DRINK AND TOBACCO	20.12.2016	110703
FIRM512	KONAK	5-24	DRINK AND TOBACCO	25.07.2007	110703
FIRM513	KONAK	200 and above	DRINK AND TOBACCO	11.09.1996	120004
FIRM514	MENDERES	5-24	ANIMAL FOOD	5.08.2015	101301
FIRM515	MENDERES	5-24	ANIMAL FOOD	19.04.2017	102003
FIRM516	MENDERES	5-24	ANIMAL FOOD	27.05.2004	14703
FIRM517	MENDERES	5-24	ANIMAL FOOD	6.08.2015	14703
FIRM518	MENDERES	25-49	ANIMAL FOOD	4.05.1973	101101
FIRM519	MENDERES	200 and above	ANIMAL FOOD	4.07.2013	101302
FIRM520	MENDERES	5-24	HERBAL FOOD	21.09.2017	103902
FIRM521	MENDERES	5-24	HERBAL FOOD	2.08.2018	103902
FIRM522	MENDERES	5-24	HERBAL FOOD	12.11.2015	103990
FIRM523	MENDERES	25-49	HERBAL FOOD	24.10.2001	103904
FIRM524	MENDERES	5-24	HERBAL FOOD	11.09.2007	103905
FIRM525	MENDERES	5-24	HERBAL FOOD	31.10.2013	103905

FIRM526	MENDERES	5-24	HERBAL FOOD	15.06.2015	103905
FIRM527	MENDERES	50-199	HERBAL FOOD	29.03.1955	103905
FIRM528	MENDERES	5-24	HERBAL FOOD	22.10.2003	104107
FIRM529	MENDERES	5-24	HERBAL FOOD	19.01.2018	104107
FIRM530	MENDERES	5-24	ANIMAL FOOD	10.04.2002	105101
FIRM531	MENDERES	25-49	ANIMAL FOOD	28.04.2017	105102
FIRM532	MENDERES	5-24	HERBAL FOOD	25.10.2016	106201
FIRM533	MENDERES	5-24	BAKERY FOOD	6.07.1995	107102
FIRM534	MENDERES	5-24	BAKERY FOOD	7.04.2017	107102
FIRM535	MENDERES	5-24	HERBAL FOOD	31.01.2005	108204
FIRM536	MENDERES	5-24	HERBAL FOOD	30.09.1986	108204
FIRM537	MENDERES	25-49	HERBAL FOOD	26.07.2017	108304
FIRM538	MENDERES	25-49	HERBAL FOOD	13.09.2017	108401
FIRM539	MENDERES	5-24	PACKAGED FOOD	23.07.2018	108501
FIRM540	MENDERES	5-24	HERBAL FOOD	16.12.2013	108905
FIRM541	MENDERES	5-24	DRINK AND TOBACCO	13.03.2009	110201
FIRM542	MENDERES	25-49	DRINK AND TOBACCO	14.03.1963	110201
FIRM543	MENDERES	50-199	DRINK AND TOBACCO	26.01.2017	110101
FIRM544	MENEMEN	25-49	ANIMAL FOOD	17.12.2013	102003
FIRM545	MENEMEN	50-199	ANIMAL FOOD	5.05.2016	101101
FIRM546	MENEMEN	5-24	HERBAL FOOD	12.02.2001	103901
FIRM547	MENEMEN	5-24	HERBAL FOOD	5.09.2018	103904
FIRM548	MENEMEN	50-199	HERBAL FOOD	5.10.2012	103904
FIRM549	MENEMEN	5-24	HERBAL FOOD	13.06.2017	103905
FIRM550	MENEMEN	5-24	HERBAL FOOD	28.01.2005	103905
FIRM551	MENEMEN	50-199	HERBAL FOOD	21.04.2005	103905
FIRM552	MENEMEN	50-199	HERBAL FOOD	24.11.2005	103905
FIRM553	MENEMEN	200 and above	HERBAL FOOD	15.10.1993	103905
FIRM554	MENEMEN	5-24	HERBAL FOOD	27.04.2006	104105
FIRM555	MENEMEN	5-24	HERBAL FOOD	6.06.2018	104102
FIRM556	MENEMEN	5-24	HERBAL FOOD	20.11.1997	104102
FIRM557	MENEMEN	50-199	HERBAL FOOD	22.06.2016	104101
FIRM558	MENEMEN	5-24	ANIMAL FOOD	17.11.2014	105102
FIRM559	MENEMEN	50-199	ANIMAL FOOD	11.04.1983	105105
FIRM560	MENEMEN	25-49	HERBAL FOOD	10.02.2017	107103
FIRM561	MENEMEN	25-49	HERBAL FOOD	20.08.1999	106102
FIRM562	MENEMEN	25-49	HERBAL FOOD	4.03.1991	106102

FIRM563	MENEMEN	5-24	BAKERY FOOD	9.06.2017	107102
FIRM564	MENEMEN	5-24	HERBAL FOOD	10.04.2018	108401
FIRM565	MENEMEN	5-24	HERBAL FOOD	23.01.1989	108405
FIRM566	MENEMEN	5-24	PACKAGED FOOD	18.04.2013	108501
FIRM567	MENEMEN	5-24	HERBAL FOOD	19.03.2018	14901
FIRM568	NARLIDERE	25-49	HERBAL FOOD	21.04.1993	107101
FIRM569	NARLIDERE	5-24	BAKERY FOOD	28.03.2002	107102
FIRM570	ODEMIS	50-199	HERBAL FOOD	1.04.2008	103901
FIRM571	ODEMIS	50-199	HERBAL FOOD	5.09.2007	103904
FIRM572	ODEMIS	5-24	HERBAL FOOD	30.05.1989	103905
FIRM573	ODEMIS	5-24	HERBAL FOOD	5.10.1995	104102
FIRM574	ODEMIS	5-24	HERBAL FOOD	11.06.1997	104107
FIRM575	ODEMIS	25-49	HERBAL FOOD	9.01.1968	104105
FIRM576	ODEMIS	5-24	ANIMAL FOOD	23.01.2009	105102
FIRM577	ODEMIS	5-24	ANIMAL FOOD	9.01.2009	105102
FIRM578	ODEMIS	5-24	ANIMAL FOOD	28.01.2005	105105
FIRM579	ODEMIS	5-24	ANIMAL FOOD	6.04.2017	105102
FIRM580	ODEMIS	5-24	ANIMAL FOOD	17.03.2009	105102
FIRM581	ODEMIS	5-24	ANIMAL FOOD	9.01.2009	105102
FIRM582	ODEMIS	5-24	ANIMAL FOOD	9.01.2009	105102
FIRM583	ODEMIS	5-24	ANIMAL FOOD	9.01.2009	105102
FIRM584	ODEMIS	5-24	ANIMAL FOOD	16.01.2012	105103
FIRM585	ODEMIS	5-24	ANIMAL FOOD	15.05.1998	105102
FIRM586	ODEMIS	5-24	ANIMAL FOOD	23.01.2009	105102
FIRM587	ODEMIS	5-24	ANIMAL FOOD	16.02.2017	105105
FIRM588	ODEMIS	5-24	ANIMAL FOOD	25.08.2005	105102
FIRM589	ODEMIS	5-24	ANIMAL FOOD	9.01.2009	105102
FIRM590	ODEMIS	25-49	ANIMAL FOOD	28.05.2007	105102
FIRM591	ODEMIS	25-49	ANIMAL FOOD	19.06.2006	105102
FIRM592	ODEMIS	25-49	ANIMAL FOOD	9.01.2009	105102
FIRM593	ODEMIS	25-49	ANIMAL FOOD	16.02.2017	105102
FIRM594	ODEMIS	50-199	ANIMAL FOOD	10.11.2003	105105
FIRM595	ODEMIS	50-199	ANIMAL FOOD	25.01.2010	105105
FIRM596	ODEMIS	5-24	HERBAL FOOD	9.04.2008	108204
FIRM597	ODEMIS	50-199	HERBAL FOOD	20.12.2005	109101
FIRM598	ODEMIS	5-24	DRINK AND TOBACCO	23.10.2009	110703
FIRM599	SEFERIHISAR	5-24	HERBAL FOOD	15.07.2004	103990
FIRM600	SEFERIHISAR	5-24	HERBAL FOOD	5.09.2018	103990
FIRM601	SEFERIHISAR	25-49	HERBAL FOOD	28.11.2017	103990

FIRM602	SEFERIHISAR	50-199	HERBAL FOOD	17.09.2014	103990
FIRM603	SEFERIHISAR	50-199	HERBAL FOOD	12.07.2005	103990
FIRM604	SEFERIHISAR	5-24	HERBAL FOOD	9.01.2015	103905
FIRM605	SEFERIHISAR	5-24	HERBAL FOOD	16.01.1975	104107
FIRM606	SEFERIHISAR	5-24	ANIMAL FOOD	2.10.1997	105101
FIRM607	SEFERIHISAR	5-24	ANIMAL FOOD	15.02.2018	105102
FIRM608	SEFERIHISAR	5-24	ANIMAL FOOD	12.04.2013	105105
FIRM609	SEFERIHISAR	50-199	HERBAL FOOD	5.07.2007	108401
FIRM610	SELCUK	25-49	HERBAL FOOD	26.01.2011	103990
FIRM611	SELCUK	5-24	HERBAL FOOD	11.04.2001	104107
FIRM612	SELCUK	5-24	HERBAL FOOD	28.11.1996	104107
FIRM613	SELCUK	5-24	HERBAL FOOD	13.10.2000	104107
FIRM614	SELCUK	5-24	HERBAL FOOD	16.12.2005	104107
FIRM615	SELCUK	25-49	HERBAL FOOD	26.01.1984	104107
FIRM616	SELCUK	5-24	DRINK AND TOBACCO	15.04.2014	110201
FIRM617	TIRE	5-24	ANIMAL FOOD	12.02.1999	101302
FIRM618	TIRE	5-24	ANIMAL FOOD	22.12.2011	101302
FIRM619	TIRE	5-24	HERBAL FOOD	20.02.2017	103901
FIRM620	TIRE	5-24	HERBAL FOOD	11.06.2018	103904
FIRM621	TIRE	50-199	HERBAL FOOD	12.08.2011	103901
FIRM622	TIRE	50-199	HERBAL FOOD	16.07.1958	103901
FIRM623	TIRE	25-49	HERBAL FOOD	16.02.1996	103905
FIRM624	TIRE	50-199	HERBAL FOOD	5.02.2016	103905
FIRM625	TIRE	200 and above	HERBAL FOOD	27.11.2001	103905
FIRM626	TIRE	5-24	HERBAL FOOD	17.05.2010	104107
FIRM627	TIRE	5-24	HERBAL FOOD	15.01.2010	104107
FIRM628	TIRE	5-24	HERBAL FOOD	27.09.2017	104107
FIRM629	TIRE	5-24	HERBAL FOOD	3.01.1964	104107
FIRM630	TIRE	5-24	ANIMAL FOOD	16.12.1996	105102
FIRM631	TIRE	25-49	ANIMAL FOOD	27.08.2012	105102
FIRM632	TIRE	25-49	ANIMAL FOOD	5.09.2016	105103
FIRM633	TIRE	25-49	ANIMAL FOOD	23.12.2011	105103
FIRM634	TIRE	50-199	ANIMAL FOOD	9.06.2000	105102
FIRM635	TIRE	50-199	ANIMAL FOOD	28.02.2012	105102
FIRM636	TIRE	50-199	ANIMAL FOOD	8.06.2016	105101
FIRM637	TIRE	50-199	ANIMAL FOOD	24.02.2000	105105
FIRM638	TIRE	5-24	BAKERY FOOD	28.01.2005	107102
FIRM639	TIRE	5-24	BAKERY FOOD	16.02.1952	107102
FIRM640	TIRE	5-24	HERBAL FOOD	23.08.2001	108204

FIRM641	TIRE	5-24	HERBAL FOOD	10.01.2001	108401
FIRM642	TIRE	5-24	PACKAGED FOOD	1.07.2016	108501
FIRM643	TIRE	50-199	PACKAGED FOOD	7.05.2012	108501
FIRM644	TIRE	5-24	HERBAL FOOD	15.06.2016	109101
FIRM645	TIRE	5-24	HERBAL FOOD	17.05.2017	109101
FIRM646	TIRE	5-24	HERBAL FOOD	5.02.2016	109101
FIRM647	TIRE	25-49	HERBAL FOOD	5.04.2010	109101
FIRM648	TIRE	5-24	DRINK AND TOBACCO	7.12.2016	120004
FIRM649	TIRE	25-49	DRINK AND TOBACCO	17.05.2010	120004
FIRM650	TORBALI	5-24	ANIMAL FOOD	20.09.2018	101302
FIRM651	TORBALI	5-24	ANIMAL FOOD	13.09.2000	102003
FIRM652	TORBALI	5-24	ANIMAL FOOD	31.03.2017	101302
FIRM653	TORBALI	5-24	ANIMAL FOOD	27.04.2010	101101
FIRM654	TORBALI	5-24	ANIMAL FOOD	20.01.2010	101101
FIRM655	TORBALI	5-24	ANIMAL FOOD	13.12.1996	101302
FIRM656	TORBALI	25-49	ANIMAL FOOD	30.03.2011	101302
FIRM657	TORBALI	25-49	ANIMAL FOOD	2.02.1999	102003
FIRM658	TORBALI	25-49	ANIMAL FOOD	27.05.1998	101302
FIRM659	TORBALI	25-49	ANIMAL FOOD	13.12.1996	101302
FIRM660	TORBALI	50-199	ANIMAL FOOD	1.11.2017	102003
FIRM661	TORBALI	50-199	ANIMAL FOOD	17.01.2000	101302
FIRM662	TORBALI	5-24	HERBAL FOOD	10.02.2017	103901
FIRM663	TORBALI	5-24	HERBAL FOOD	27.05.2014	103904
FIRM664	TORBALI	5-24	HERBAL FOOD	23.11.2000	103907
FIRM665	TORBALI	5-24	HERBAL FOOD	9.07.2002	103907
FIRM666	TORBALI	5-24	HERBAL FOOD	15.08.2016	103990
FIRM667	TORBALI	5-24	HERBAL FOOD	3.08.2018	103990
FIRM668	TORBALI	25-49	HERBAL FOOD	15.07.2002	103990
FIRM669	TORBALI	25-49	HERBAL FOOD	9.06.2016	103990
FIRM670	TORBALI	25-49	HERBAL FOOD	23.10.2017	103901
FIRM671	TORBALI	50-199	HERBAL FOOD	31.07.2015	103990
FIRM672	TORBALI	50-199	HERBAL FOOD	3.11.1988	103904
FIRM673	TORBALI	200 and above	HERBAL FOOD	6.08.1968	103901
FIRM674	TORBALI	5-24	HERBAL FOOD	5.05.2014	103905
FIRM675	TORBALI	5-24	HERBAL FOOD	28.01.2005	103905
FIRM676	TORBALI	5-24	HERBAL FOOD	10.07.2008	103905
FIRM677	TORBALI	25-49	HERBAL FOOD	24.09.2002	103905
FIRM678	TORBALI	25-49	HERBAL FOOD	10.12.2009	103905

FIRM679	TORBALI	50-199	HERBAL FOOD	10.03.1998	103905
FIRM680	TORBALI	50-199	HERBAL FOOD	7.10.2016	103905
FIRM681	TORBALI	5-24	HERBAL FOOD	28.09.2018	104101
FIRM682	TORBALI	5-24	HERBAL FOOD	6.12.2017	104107
FIRM683	TORBALI	5-24	HERBAL FOOD	24.08.2011	104107
FIRM684	TORBALI	5-24	HERBAL FOOD	20.02.2013	104105
FIRM685	TORBALI	5-24	HERBAL FOOD	28.01.2005	104107
FIRM686	TORBALI	5-24	HERBAL FOOD	4.06.1992	104107
FIRM687	TORBALI	5-24	HERBAL FOOD	9.10.2007	104106
FIRM688	TORBALI	25-49	HERBAL FOOD	5.05.1988	104107
FIRM689	TORBALI	50-199	HERBAL FOOD	23.08.1996	104107
FIRM690	TORBALI	5-24	ANIMAL FOOD	19.01.2009	105102
FIRM691	TORBALI	5-24	ANIMAL FOOD	31.01.2012	105102
FIRM692	TORBALI	5-24	ANIMAL FOOD	13.10.2009	105102
FIRM693	TORBALI	5-24	ANIMAL FOOD	3.08.2018	105105
FIRM694	TORBALI	5-24	ANIMAL FOOD	16.02.2012	105105
FIRM695	TORBALI	25-49	ANIMAL FOOD	1.11.2017	105102
FIRM696	TORBALI	200 and above	ANIMAL FOOD	30.04.1992	105101
FIRM697	TORBALI	5-24	HERBAL FOOD	1.03.2006	106201
FIRM698	TORBALI	5-24	HERBAL FOOD	13.02.2017	106109
FIRM699	TORBALI	5-24	HERBAL FOOD	30.11.2004	106102
FIRM700	TORBALI	25-49	HERBAL FOOD	21.11.1996	107203
FIRM701	TORBALI	25-49	HERBAL FOOD	11.09.1974	106102
FIRM702	TORBALI	50-199	HERBAL FOOD	2.08.2018	107101
FIRM703	TORBALI	5-24	HERBAL FOOD	27.04.1999	108401
FIRM704	TORBALI	5-24	HERBAL FOOD	23.12.2015	108401
FIRM705	TORBALI	25-49	HERBAL FOOD	8.12.2011	108303
FIRM706	TORBALI	50-199	HERBAL FOOD	22.10.2003	108301
FIRM707	TORBALI	5-24	PACKAGED FOOD	13.08.2018	108501
FIRM708	TORBALI	50-199	PACKAGED FOOD	5.09.2017	562101
FIRM709	TORBALI	5-24	HERBAL FOOD	31.03.2008	109101
FIRM710	TORBALI	5-24	HERBAL FOOD	3.08.2018	109101
FIRM711	TORBALI	5-24	HERBAL FOOD	13.02.2017	109201
FIRM712	TORBALI	5-24	HERBAL FOOD	6.02.1996	109101
FIRM713	TORBALI	25-49	HERBAL FOOD	1.04.2016	109101
FIRM714	TORBALI	25-49	HERBAL FOOD	31.07.1989	109101
FIRM715	TORBALI	25-49	HERBAL FOOD	25.04.2002	14901
FIRM716	TORBALI	25-49	HERBAL FOOD	3.08.2018	109101
FIRM717	TORBALI	25-49	HERBAL FOOD	3.08.2018	109101

FIRM718	TORBALI	50-199	HERBAL FOOD	18.03.2011	109101
FIRM719	TORBALI	200 and above	HERBAL FOOD	16.02.1988	108906
FIRM720	TORBALI	25-49	DRINK AND TOBACCO	26.09.2017	110201
FIRM721	TORBALI	50-199	DRINK AND TOBACCO	4.11.2013	120004
FIRM722	TORBALI	200 and above	DRINK AND TOBACCO	9.10.1985	120004
FIRM723	TORBALI	200 and above	DRINK AND TOBACCO	13.08.1993	120004
FIRM724	TORBALI	200 and above	DRINK AND TOBACCO	18.03.1993	120004
FIRM725	URLA	5-24	ANIMAL FOOD	16.03.2015	32101
FIRM726	URLA	5-24	ANIMAL FOOD	24.03.2016	102003
FIRM727	URLA	5-24	ANIMAL FOOD	7.11.2005	32101
FIRM728	URLA	25-49	ANIMAL FOOD	22.01.2014	102004
FIRM729	URLA	25-49	ANIMAL FOOD	30.05.2018	102003
FIRM730	URLA	50-199	ANIMAL FOOD	9.09.2016	32101
FIRM731	URLA	5-24	HERBAL FOOD	12.01.1993	103904
FIRM732	URLA	5-24	HERBAL FOOD	22.03.2017	107101
FIRM733	URLA	50-199	HERBAL FOOD	15.07.2002	108904
FIRM734	URLA	5-24	DRINK AND TOBACCO	3.09.2008	110201

APPENDIX C

R CODES

```
library("MASS")
library("coda")
library("nlme")
library("Matrix")
library("boot")
library("sp")
library("splines")
library("LearnBayes")
library("spData")
library("Formula")
library("sandwich")
library("spdep")
library("bdsmatrix")
library("ibdreg")
library("lmtest")
library("car")
library("Ec-dat")
library("maxlik")
library("methods")
library("grid")
library("miscTools")
```

**********NON-SPATIAL REGRESSIONS**********

REGRESSION ANALYSES

```
data <- read.table("D:/naortDataSet3.txt")
exp <- data$V1
```

```
emp <- data$V2
cap <- data$V3
pop <- data$V4
dcbd <- data$V5
dlcbd <- data$V6
du_dt <- data$V7
du_b <- data$V8
du_p <- data$V9
du_a <- data$V10
du_i <- data$V11
dur <- data$V12

------- Analysis for All Sectors------

dependent variable: Izmir CBD
summary (lm (dcbd ~ emp+exp+pop+du_i))
summary (lm (dcbd ~ cap+exp+pop+du_i))
summary (lm (dcbd ~ emp+exp+pop+du_p))
summary (lm (dcbd ~ cap+exp+pop+du_p))
summary (lm (dcbd ~ emp+exp+pop+du_a))
summary (lm (dcbd ~ cap+exp+pop+du_a))
summary (lm (dcbd ~ emp+exp+pop+du_dt))
summary (lm (dcbd ~ cap+exp+pop+du_dt))
summary (lm (dcbd ~ emp+exp+pop+du_b))
summary (lm (dcbd ~ cap+exp+pop+du_b))
dependent variabe: Local CBD
summary (lm (dlcbd ~ emp+exp+pop+du_i))
summary (lm (dlcbd ~ cap+exp+pop+du_i))
summary (lm (dlcbd ~ emp+exp+pop+du_p))
summary (lm (dlcbd ~ cap+exp+pop+du_p))
summary (lm (dlcbd ~ emp+exp+pop+du_a))
summary (lm (dlcbd ~ cap+exp+pop+du_a))
summary (lm (dlcbd ~ emp+exp+pop+du_dt))
summary (lm (dlcbd ~ cap+exp+pop+du_dt))
```

summary (lm (dlcbd ~ emp+exp+pop+du_b))
summary (lm (dlcbd ~ cap+exp+pop+du_b))

---

urban analysis

dependent variabe: Izmir CBD
summary (lm (dcbd ~ emp*dur+exp*dur+pop*dur+du_i*dur))
summary (lm (dcbd ~ cap*dur+exp*dur+pop*dur+du_i*dur))
summary (lm (dcbd ~ emp*dur+exp*dur+pop*dur+du_p*dur))
summary (lm (dcbd ~ cap*dur+exp*dur+pop*dur+du_p*dur))
summary (lm (dcbd ~ emp*dur+exp*dur+pop*dur+du_a*dur))
summary (lm (dcbd ~ cap*dur+exp*dur+pop*dur+du_a*dur))
summary (lm (dcbd ~ emp*dur+exp*dur+pop*dur+du_dt*dur))
summary (lm (dcbd ~ cap*dur+exp*dur+pop*dur+du_dt*dur))
summary (lm (dcbd ~ emp*dur+exp*dur+pop*dur+du_b*dur))
summary (lm (dcbd ~ cap*dur+exp*dur+pop*dur+du_b*dur))

dependent variabe: Local CBD
summary (lm (dlcbd ~ emp*dur+exp*dur+pop*dur+du_i*dur))
summary (lm (dlcbd ~ cap*dur+exp*dur+pop*dur+du_i*dur))
summary (lm (dlcbd ~ emp*dur+exp*dur+pop*dur+du_p*dur))
summary (lm (dlcbd ~ cap*dur+exp*dur+pop*dur+du_p*dur))
summary (lm (dlcbd ~ emp*dur+exp*dur+pop*dur+du_a*dur))
summary (lm (dlcbd ~ cap*dur+exp*dur+pop*dur+du_a*dur))
summary (lm (dlcbd ~ emp*dur+exp*dur+pop*dur+du_dt*dur))
summary (lm (dlcbd ~ cap*dur+exp*dur+pop*dur+du_dt*dur))
summary (lm (dlcbd ~ emp*dur+exp*dur+pop*dur+du_b*dur))
summary (lm (dlcbd ~ cap*dur+exp*dur+pop*dur+du_b*dur))

---------- Analysis for Sub-Sectors----------

----Packaged Food----

```
summary (lm (dcbd*du_i ~ emp*du_i+exp*du_i+pop*du_i))
summary (lm (dcbd*du_i ~ cap*du_i+exp*du_i+pop*du_i))
summary (lm (dlcbd*du_i ~ emp*du_i+exp*du_i+pop*du_i))
summary (lm (dlcbd*du_i ~ cap*du_i+exp*du_i+pop*du_i))

----Herbal Food----

summary (lm (dcbd*du_p ~ emp*du_p+exp*du_p+pop*du_p))
summary (lm (dcbd*du_p ~ cap*du_p+exp*du_p+pop*du_p))
summary (lm (dlcbd*du_p ~ emp*du_p+exp*du_p+pop*du_p))
summary (lm (dlcbd*du_p ~ cap*du_p+exp*du_p+pop*du_p))

----Drink and Tobacco Food----
summary (lm (dcbd*du_dt ~ emp*du_dt+exp*du_dt+pop*du_dt))
summary (lm (dcbd*du_dt ~ cap*du_dt+exp*du_dt+pop*du_dt))
summary (lm (dlcbd*du_dt ~ emp*du_dt+exp*du_dt+pop*du_dt))
summary (lm (dlcbd*du_dt ~ cap*du_dt+exp*du_dt+pop*du_dt))

----Animal Food----
summary (lm (dcbd*du_a ~ emp*du_a+exp*du_a+pop*du_a))
summary (lm (dcbd*du_a ~ cap*du_a+exp*du_a+pop*du_a))
summary (lm (dlcbd*du_a ~ emp*du_a+exp*du_a+pop*du_a))
summary (lm (dlcbd*du_a ~ cap*du_a+exp*du_a+pop*du_a))

----Bakery Food----
summary (lm (dcbd*du_b ~ emp*du_b+exp*du_b+pop*du_b))
summary (lm (dcbd*du_b ~ cap*du_b+exp*du_b+pop*du_b))
summary (lm (dlcbd*du_b ~ emp*du_b+exp*du_b+pop*du_b))
summary (lm (dlcbd*du_b ~ cap*du_b+exp*du_b+pop*du_b))

----------SPATIAL REGRESSIONS----------

mat <- read.table("D:/NilnazWeightMatrix.txt")
w<- as.matrix(mat)
```

```
w1 <- mat2listw(w, row.names = NULL, style="W")

exp <- data$V1
emp <- data$V2
cap <- data$V3
pop <- data$V4
dcbd <- data$V5
dlcbd <- data$V6

Morans test of Spatiality
moran.test(exp, listw=w1)
moran.test(emp, listw=w1)
moran.test(cap, listw=w1)
moran.test(pop, listw=w1)
moran.test(dcbd, listw=w1)
moran.test(dlcbd, listw=w1)

SPATIAL AUTOCORRELATION TESTS

fm1 <- dcbd ~ emp+exp+pop
fm2 <- dlcbd ~ emp+exp+pop
fm3 <- dcbd ~ cap+exp+pop
fm4 <- dlcbd ~ cap+exp+pop

dt
fm1dt <- dcbd ~ emp*dt+exp*dt+pop*dt
fm2dt <- dlcbd ~ emp*dt+exp*dt+pop*dt
fm3dt <- dcbd ~ cap*dt+exp*dt+pop*dt
fm4dt <- dlcbd ~ cap*dt+exp*dt+pop*dt

b
fm1b <- dcbd ~ emp*b+exp*b+pop*b
fm2b <- dlcbd ~ emp*b+exp*b+pop*b
fm3b <- dcbd ~ cap*b+exp*b+pop*b
```

```
fm4b <- dlcbd ~ cap*b+exp*b+pop*b^

p
fm1p <- dcbd ~ emp*p+exp*p+pop*p
fm2p <- dlcbd ~ emp*p+exp*p+pop*p
fm3p <- dcbd ~ cap*p+exp*p+pop*p
fm4p <- dlcbd ~ cap*p+exp*p+pop*p

a
fm1a <- dcbd ~ emp*a+exp*a+pop*a
fm2a <- dlcbd ~ emp*a+exp*a+pop*a
fm3a <- dcbd ~ cap*a+exp*a+pop*a
fm4a <- dlcbd ~ cap*a+exp*a+pop*a

i
fm1i <- dcbd ~ emp*i+exp*i+pop*i
fm2i <- dlcbd ~ emp*i+exp*i+pop*i
fm3i <- dcbd ~ cap*i+exp*i+pop*i
fm4i <- dlcbd ~ cap*i+exp*i+pop*i

lm.LMtests(fm1, listw=w1)
lm.LMtests(fm2, listw=w1)
lm.LMtests(fm3, listw=w1)
lm.LMtests(fm4, listw=w1)

dt
lm.LMtests(fm1dt, listw=w1)
lm.LMtests(fm2dt, listw=w1)
lm.LMtests(fm3dt, listw=w1)
lm.LMtests(fm4dt, listw=w1)

b
lm.LMtests(fm1b, listw=w1)
lm.LMtests(fm2b, listw=w1)
```

```
lm.LMtests(fm3b, listw=w1)
lm.LMtests(fm4b, listw=w1)

p
lm.LMtests(fm1p, listw=w1)
lm.LMtests(fm2p, listw=w1)
lm.LMtests(fm3p, listw=w1)
lm.LMtests(fm4p, listw=w1)

a
lm.LMtests(fm1a, listw=w1)
lm.LMtests(fm2a, listw=w1)
lm.LMtests(fm3a, listw=w1)
lm.LMtests(fm4a, listw=w1)

i
lm.LMtests(fm1i, listw=w1)
lm.LMtests(fm2i, listw=w1)
lm.LMtests(fm3i, listw=w1)
lm.LMtests(fm4i, listw=w1)
```