Migration Letters

Volume: 20, No: S7(2023), pp. 1451-1481

ISSN: 1741-8984 (Print) ISSN: 1741-8992 (Online)
www.migrationletters.com

Spatial Variation of the Distribution Map of Fast Food Restaurants in Abha City Using Geographic Information Systems

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Abstract

The study focused on the use of geographic information systems in analyzing the spatial distribution of Restaurants in Abha city. By relying on the most important aspects of the application of geographic information systems represented in spatial analysis, to reveal the characteristics of the spatial distribution of restaurants and their pattern of distribution, and to evaluate the efficiency of their distribution in accordance with the local standard. With a study of the characteristics of the undecided on fast food restaurants in Abha.

The study came out with a number of results and recommendations The most important of which is increasing the number of fast food restaurants in high-density neighborhoods that are deprived of service, which reduces pressure on them, and in a manner that guarantees their sustainability, and in a manner commensurate with both the area and the number of residents in neighborhoods in the city, with the need to develop scientific solutions for restaurants that violate planning standards because of their danger to the residents of Abha.

Keywords: *Geographical Distribution, Directional distribution, standard distance, autocorrelation, range, Moran index.*

Introduction

The geography of services has emerged as an applied intellectual concern to engage with the immediate direct needs of both urban and rural communities. Services in the field of geographical studies began to appear clearly in the sixties in developed countries. This branch did not receive attention in the Arab countries commensurate with its importance as one of the modern trends, that prompted geography a strong push towards the applied field occurred only in the eighties of the last century. Increased interest in economic geography with services, during the last stage, where it is evaluated Its general image, and the extent of its adequacy and efficiency to indicate the extent of its development (Sarmis & Helen, 2006:84).

The importance of studying services is due to their connection with economic planning, Therefore, geographical interest increases in it (Adam, 2002:12). And it started geographic by interest studying the pattern of services and the possibility of accessing them, at the beginning of the sixth decade of the twentieth century, at the hands of the American geographer Barn Perry (Berry, 1972). And the seventies of the last century by

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the geographer Peter Haggett, in his study of the pattern of distribution of post offices and telecommunications services on the Island of Angeles (Hagget, 1965).

The geographical study of services is interested in explaining the phenomenon from three main aspects: (Al-Ghamdi, 1986: p. 11).

- Distribution of services, their numbers and patterns, the direction of their spread, and the accessibility to them.
- Service locations: by determining the geographical locations of those services in terms of their mediation, centrality and ensuring that the site is given flexibility in serving the areas around it.
- Services redistribution system, the system of redistribution of services, and this requires a study of the current state of existing services and their locations, and the possibility of re-signing it, in proportion to the general distribution of the population, then the service is evaluated and develop it.

In order to understand the nature of spatial distribution indicators of services, focus should be placed on the locations of services and places of residence of individuals. Hence the distance is in kilometers. Fast food restaurants are defined as those food establishments that offer a special type of meal that has been partially prepared. When requested by the consumer, it is prepared in the final form in a relatively short time.

- Spatial framework of the study:

The city of Abha is located between latitudes 52'10'18' and 31'20'18' north, and between longitudes 59'25'42' and 30'41'42' east in the southwest of the Kingdom of Saudi Arabia within the Asir Administrative Region, and is bordered to the east by To the north-east is Khamis Mushayt Governorate, to the north-west is Tanomah Governorate, and to the west and south-west is Muhayil Governorate. The city of Abha is the capital of the Asir Administrative Region, and the emirate of the region and most of the government departments and institutions are concentrated in it. It is connected by a network of main roads with the cities of: Al-Khamis, Al-Namas, Ahad Rufaidah, and Jazan.

The city of Abha consists of forty-five residential neighborhoods, according to the classification of the Asir Region Municipality, and occupies an area estimated at approximately 300.44 km2, according to the official map approved by the Asir Region Municipality, as shown in Figure (1).

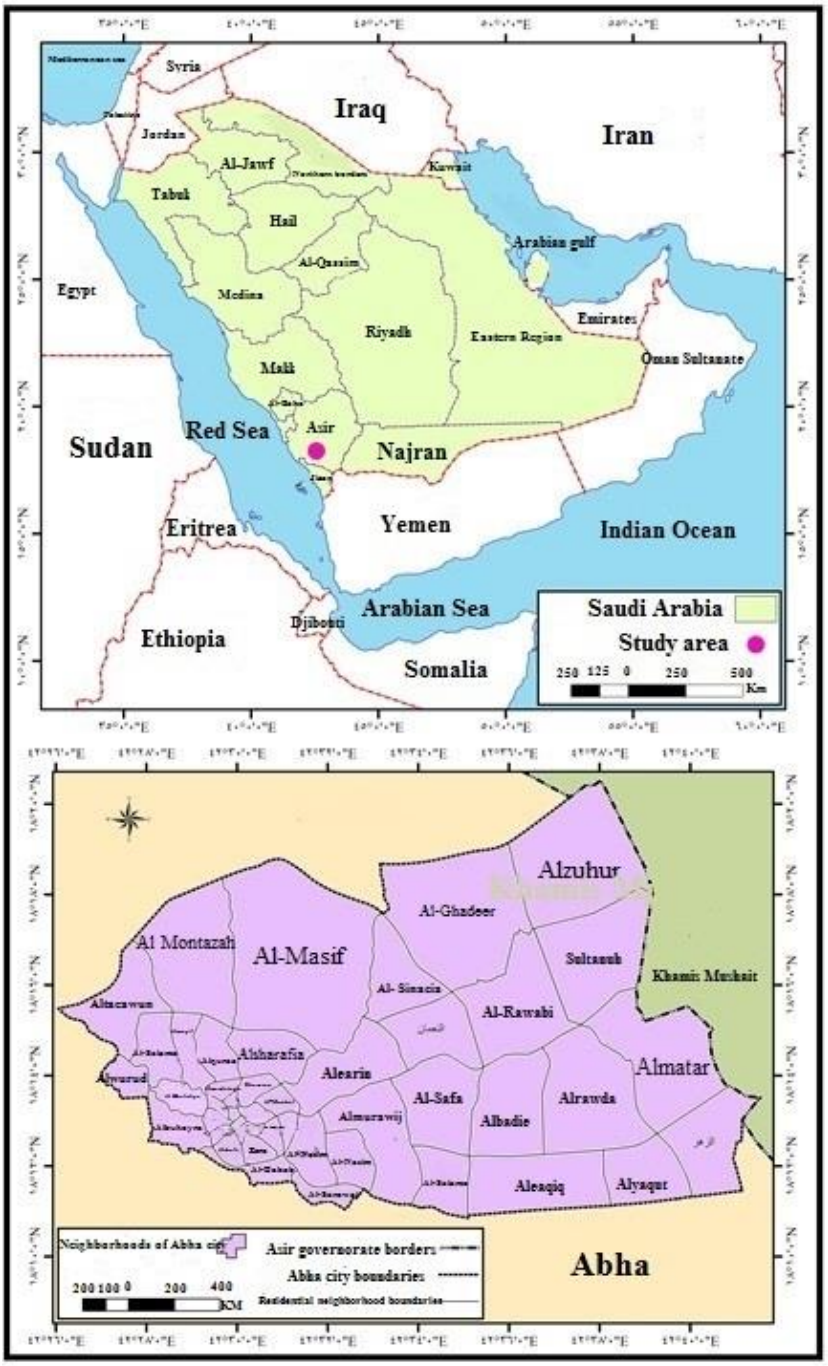


Fig (1). The geographic location and administrative division in Abha city 2023.

Source: Digital maps of the Abha city, Asir Region Municipality, 2023.

The subject of the study is based on the use of geographic information systems in spatial analysis to study and analyze the spatial distribution of restaurants, which are among the most prominent services in the Kingdom, and then evaluate their efficiency in the city of Abha. This is based on the most important applied aspects of geographical information systems represented in the locational analysis (location theory) of restaurants in the city of Abha in order to understand the nature of the spatial distribution indicators of services. Therefore, we must focus on the locations of services (Moselhi, 207: 37), as location is one of the important considerations in geographic studies. At the same time, it is also a relative phenomenon attributed to a group of geographical phenomena surrounding it, which establishes many laws governing it and other sites, as the geographer can reveal the laws that govern the mechanism of exchanges that contribute to the revival of the place

(Bishr, 2010: 5). Not to study employment, since the study of the issue of employment in restaurants is very similar to employment in gas stations, which the researcher studied in his research on gas stations in the city of Al-Khobar, as all workers are expatriate workers from Southeast Asia (Sharif, 2020: 35).

- Research Question:

- Is there a fundamental difference in the distribution of fast food restaurants across the neighborhoods of the city of Abha?

- Research hypothesis: There is no fundamental difference in the distribution of fast food restaurants across the city's neighborhoods, meaning that they are distributed efficiently in the study area.

-Alternative hypothesis: There are fundamental differences in the distribution of fast food restaurants at the level of the city's neighborhoods. That is, they are not distributed efficiently across the neighborhoods of the study area.

- Previous studies:

There are a number of studies that dealt with some services using geographic information systems in general, and restaurant services in particular. These studies can be divided into two parts:

First: Geographic studies related to the analysis of some services using geographic information systems.

Second: Applied geographical studies on restaurants.

First - Studies related to the analysis of some services using geographic information systems:

There are a number of studies that dealt with some services in terms of analyzing the pattern of distribution and efficiency of services at the level of some regions of the Kingdom, including: Study (Al-Rehaili: 1427 AH) The study aimed to use geographical information systems to evaluate the current situation of the sites of government girls' schools in the city of Mecca in all its stages, according to a group Of natural, human, and social standards. The study (Sheikh: 1429 AH) focused on studying the geographical pattern of the distribution of public and model parks in the city of Jeddah using cartographic analysis in geographic information systems (GIS). Al-Dwikat and Al-Faisal studied the pattern of distribution of theft crimes in the city of Hail, Saudi Arabia, using geographical information systems. The study showed a strong relationship between the theft sites and the residence locations of the perpetrators, and that the general trend of thefts in the city of Hail is towards the northwest with new urban trends. The study showed hotspot areas for theft crimes. In the city, in addition to a study (Shawish: 2014) on some aspects of the spatial analysis of the main road network in Taif Governorate in the Kingdom of Saudi Arabia in terms of analyzing the network pattern and using information systems in analyzing it and treating its problems, and a study (Abdul Karim: 2014) on the spatial analysis of public services and identifying planning needs. By application to the city of Hafr Al-Batin, where he focused on monitoring the geographical distribution of public services, and evaluating them in the city of Hafr Al-Batin according to the standards of the foundations of urban planning in the Kingdom of Saudi Arabia... while (Al-Huwaish: 2014 AH) dealt with the analysis of the spatial variation of health services in the Kingdom of Saudi Arabia in the period from 1413- 1431 With the aim of analyzing the components of the health service to determine its components and spatial variation between the regions of the Kingdom of Saudi Arabia. (Mansour: 2014) focused on spatial modeling of quality of life indicators at the governorate level in the Kingdom of Saudi Arabia, through the geographical distribution of quality of life indicators using the spatial analysis model to assist decision makers in making development policies in the Kingdom of Saudi Arabia. (Al-Qahtani: 2018) dealt with the spatial analysis of primary

schools in the city of Abha in the Asir region, where he focused on the geographical distribution of primary schools and processing them using geographical information systems.

Second: Applied studies on restaurants:

- A study (Orqtji and Al-Shari'i: 2017 AD). The study dealt with the spatial distribution of fast food restaurants in the Holy City of Mecca in terms of presenting the distributional image of the restaurants, spatial analysis of them, and knowing their average spacing, the direction of their distribution, and their problems in the Holy City of Mecca.

-A study (Al-Nasr Allah: 2021 AD). The study evaluated the relationship between government schools and fast food restaurants in the State of Kuwait using geographical information systems, where a link was made between the distribution of schools and restaurants and accessibility. The study showed that the distribution of restaurants was closely related to the distribution of schools, which led to the spread of some diseases and recommended the study calls for the need to establish laws that reduce and prevent the establishment of restaurants near schools.

-Study objectives:

This applied study is the researcher's participation in shedding light on the reasons for the spatial variation in the level of efficiency of restaurant distribution in one of the cities of the Kingdom, in order to achieve many goals, the most prominent of which are the following:

- Detecting the characteristics of the spatial distribution of restaurants and their distribution pattern.
- Identify the spatial concentration of restaurants in the city of Dammam.
- Determine the spatial distribution pattern of restaurants in the study area.
- Knowing the characteristics of those who frequent fast food restaurants in Dammam and the problems of these restaurants.

-The study methodology and methods:

The study relied on the inductive, descriptive, and analytical approach related to the spatial analysis of the study phenomenon, in addition to the use of geographic information systems programs to analyze the spatial distribution of restaurants in the study area. The methodology is linked to spatial analysis methods in geographic information systems programs, through which raw data is transformed into data of great benefit based on analytical methods and processes for collecting, measuring, and classifying spatial data, the most prominent of which are matching, spatial and cartographic modeling, distance analyses, and others, in order to understand spatial patterns and variations.

In light of the above, the study will discuss the following main topics:

1. The geographical distribution of restaurants and the relationship between the direction of their geographical distribution and the distribution of the neighborhoods of the city of Abha, and the relationship of the distribution to the population density map and kernel analysis of density

2. .The spatial concentration of restaurants in the city of Abha - the standard distance.

3. Autocorrelation of the distribution of restaurants in the city of Abha (result of Moran's I - Spatial Autocorrelation) to test the study hypothesis.

4. Knowing the characteristics of those who frequent fast food restaurants in the city of Abha, their problems, and proposing solutions to them.

The logical sequence for studying the topic is through addressing the following points:

First: The geographical distribution of restaurants and their spatial relationships:

A- Geographical distribution of restaurants:

Distribution is the necessary starting point for any geographical study, and a step towards a crisis in understanding the behavior of any geographical phenomenon. Distribution means the arrangement or organization resulting from the distribution of phenomena in place according to a special pattern. This means that distribution represents the current image or the final result of a set of relationships that result in the location of the phenomenon. Its size, and its distance from other phenomena (Khair, 2000: 240). It is clear from Table (1) and Figure (2) that:

Table (1) Numbers and percentages of fast food restaurants in residential neighborhoods in Abha city 2023

N	Residential	Population		Area		Restaurants	
		N	%	km2	%	N	%
1	Al-Rawabi	1909	0.8	13.62	4.5	5	2.7
2	Al-Rabwh	13473	5.7	3.87	1.3	14	7.6
3	Al-Munhal	5136	2.2	1.30	0.4	3	1.6
4	Al-Dabab	5143	2.2	2.09	0.7	3	1.6
5	Al-Nasim	13395	5.7	3.50	1.2	3	1.6
6	Al-Naman	3698	1.6	7.51	2.5	-	-
7	Al- Sinaeia	433	0.2	7.28	2.4	-	-
8	Al-Masif	878	0.4	34.93	11.6	-	-
9	Alquraa	9078	3.8	3.29	1.1	7	3.8
10	Albadie	18494	7.8	11.00	3.7	17	9.2
11	Alzuhur	377	0.2	20.35	6.8	2	1.1
12	Almiftaha	924	0.4	0.43	0.1	5	2.7
13	Alnusb	8045	3.4	0.85	0.3	2	1.1
14	Al-Ghadeer	1556	0.7	24.08	8.0	8	4.3
15	Alnuzha	8138	3.4	0.91	0.3	9	4.9
16	Al-Faisaliah	5438	2.3	0.42	0.1	-	-
17	Alwardatayn	6782	2.9	0.78	0.3	4	2.2
18	Al-Sarawat	182	0.1	1.89	0.6	1	0.5
19	Al-Salama	2794	1.2	4.95	1.6	1	0.5
20	Al-Safa	2757	1.2	9.93	3.3	10	5.4

21	Alrawda	4060	1.7	16.42	5.5	6	3.2
22	Sultanuh	3756	1.6	14.90	5.0	6	3.2
23	Alearin	8051	3.4	9.00	3.0	9	4.9
24	Albuhayra	2140	0.9	3.50	1.2	2	1.1
25	Zera	13080	5.5	1.18	0.4	1	0.5
26	Town centre	2293	1.0	0.19	0.1	-	-
27	Alqabil	5157	2.2	0.48	0.2	1	0.5
28	Al Montazah	1014	0.4	15.86	5.3	1	0.5
29	Al-Azizia	3160	1.3	0.15	0.1	1	0.5
30	Shamsan	11540	4.9	1.35	0.4	5	2.7
31	Alwsayif	3102	1.3	2.91	1.0	3	1.6
32	Almurawij	23999	10.2	10.51	3.5	24	13.0
33	Alwurud	518	0.2	2.25	0.7	-	-
34	Alsharafia	4093	1.7	5.55	1.8	4	2.2
35	Alsalam	2196	0.9	4.10	1.4	3	1.6
36	Altaeawun	632	0.3	8.25	2.7	-	-
37	Almatar	3773	1.6	16.67	5.6	6	3.2
38	Alkhashae	5920	2.5	0.37	0.1	3	1.6
39	Alzuhr	108	0.05	9.66	3.2	1	0.5
40	Aleaqiq	4040	1.7	12.29	4.1	2	1.1
41	Alyaqut	1500	0.6	7.14	2.4	2	1.1
42	Al Khalidiya	6135	2.6	2.13	0.7	-	-
43	Alshafa	7643	3.2	1.15	0.4	5	2.7
44	Alsadu	4903	2.1	0.65	0.2	3	1.6
45	Al Andalous	4714	2.0	0.78	0.3	3	1.6
	Total	236157	100	300.44	100	185	100

Source: Google Earth 2023 & Field study 2023.

It is clear from the previous table and map that the number of fast food restaurants in the city of Abha is about 185, as Map No. (2 and 3) show the clear concentration of fast food restaurants in the southwest of the city of Abha, where the Al-Muruj neighborhood accounted for about 13% of the total fast food restaurants in the city of Abha, thus ranking first. In the number of ready-made restaurants in the city, the neighborhood is characterized by population concentration, with a population representing 10.5% of the

total population of the city, which has led to a high population density in the neighborhood.

Al Budaiya neighborhood came in second place with 17 restaurants, which is equivalent to 9.2% of the total fast food restaurants in Abha and about 11% of the city's total population.

Al-Rabwa neighborhood came in third place in the degree of endemicity of fast food restaurants, with the number of 14 restaurants, which is equivalent to 7.6% of the total fast food restaurants in the city and about 5.7% of the total population of the city. Al-Safa neighborhood came in fourth place, representing 5.4% of the total restaurants in the city of Abha.

Al Nahda, Al Areen and Al Ghadeer neighborhoods came in fifth place, representing about 10% of the city's takeaway restaurants and containing 6.7% of the population.

In general, the city of Abha can be divided according to the degree of localization and concentration of fast food restaurants into the following categories: -

-Neighborhoods that include more than 7% of the total ready-food restaurants in the city of Abha. This category includes three neighborhoods: Al-Murooj, Al-Badi' and Al-Zuhur, which include about 55 fast-food restaurants in the city of Abha, which represents 29.7% of the total.

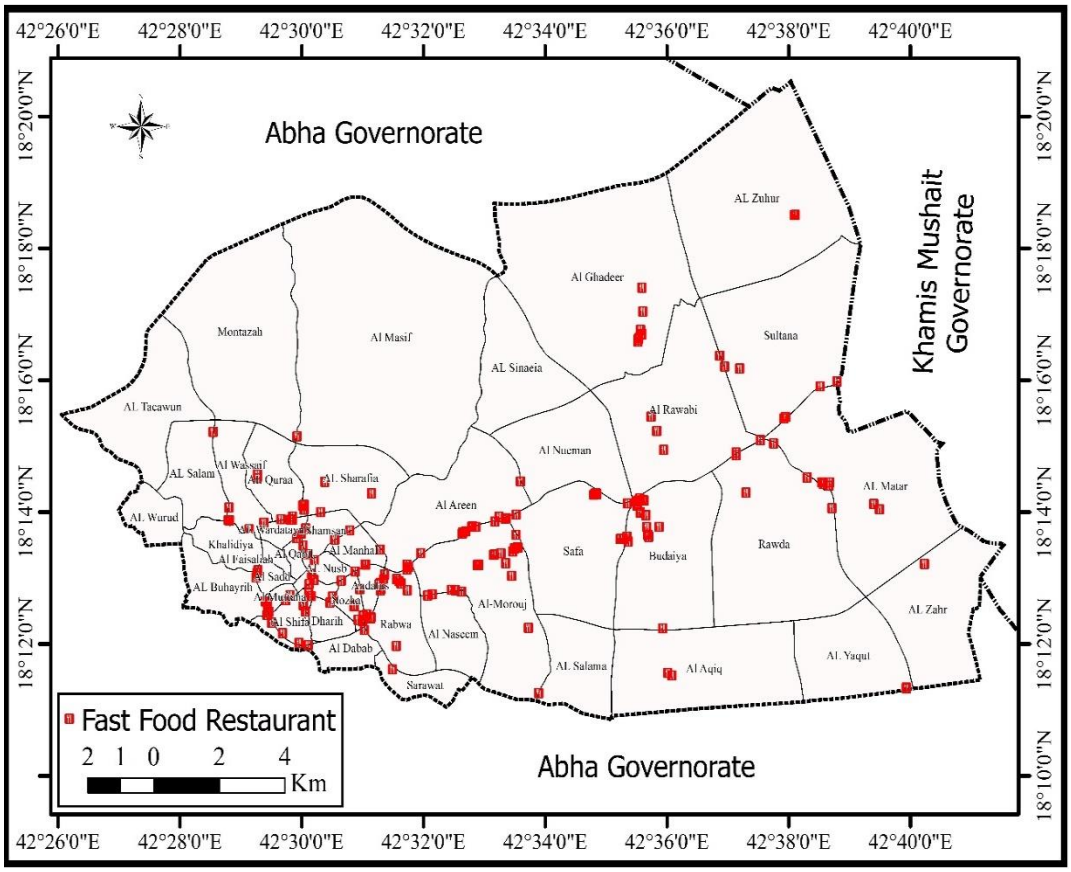


Fig (2). Geographical distribution of fast food restaurants in Abha City 2023.

Source: Google Earth 2023 & Field study 2023.

- Neighborhoods containing 4 - less than 7% of ready-meal restaurants in Abha. Four neighborhoods fall into this category, representing 6.7% of the city's neighborhoods: Al-Ghadeer - Al-Nuzha - Al-Safa - Al-Areen neighborhoods, making 45 restaurants located there, equivalent to 24.3% of the total fast food restaurants in the city. Abha.

- Neighborhoods that contain from 2 to less than 4% of the total restaurants in the city and include the neighborhoods of Al-Rawabi - Al-Qura - Al-Muftaha - Al-Wardatayn - Al-Rawda - Sultana - Shamsan - Al-Matar - Al-Shifa - Al-Sharqiya. This category includes about 53 restaurants, equivalent to 28.7% of the total meal restaurants. Expressway in Abha.

- Neighborhoods that comprise less than 2% of the total neighborhoods of the city of Abha and include the neighborhoods of Al-Manhal - Al-Dhabab - Al-Naseem - Al-Zuhur - Al-Sarawat - Al-Salamah - Al-Nasab - Al-Buhaira - Al-Qayel - Al-Montazah - Al-Aziziyah - Al-Salam - Al-Khasha' - Al-Sarawat - Al-Zahr - Al-Ghafiq - Al-Yaqoot - Al-Sadd- Al-Andalus - Dhahr, where this category includes about 32 restaurants, which is equivalent to 17.2% of the city's total restaurants.

Neighborhoods deprived of fast food restaurant service include the neighborhoods of Al-Numan, Al-Sinaiyah, Al-Masif, Al-Faisaliah, Downtown, Al-Wurud, Al-Taawun, and Al-Khalidiya.

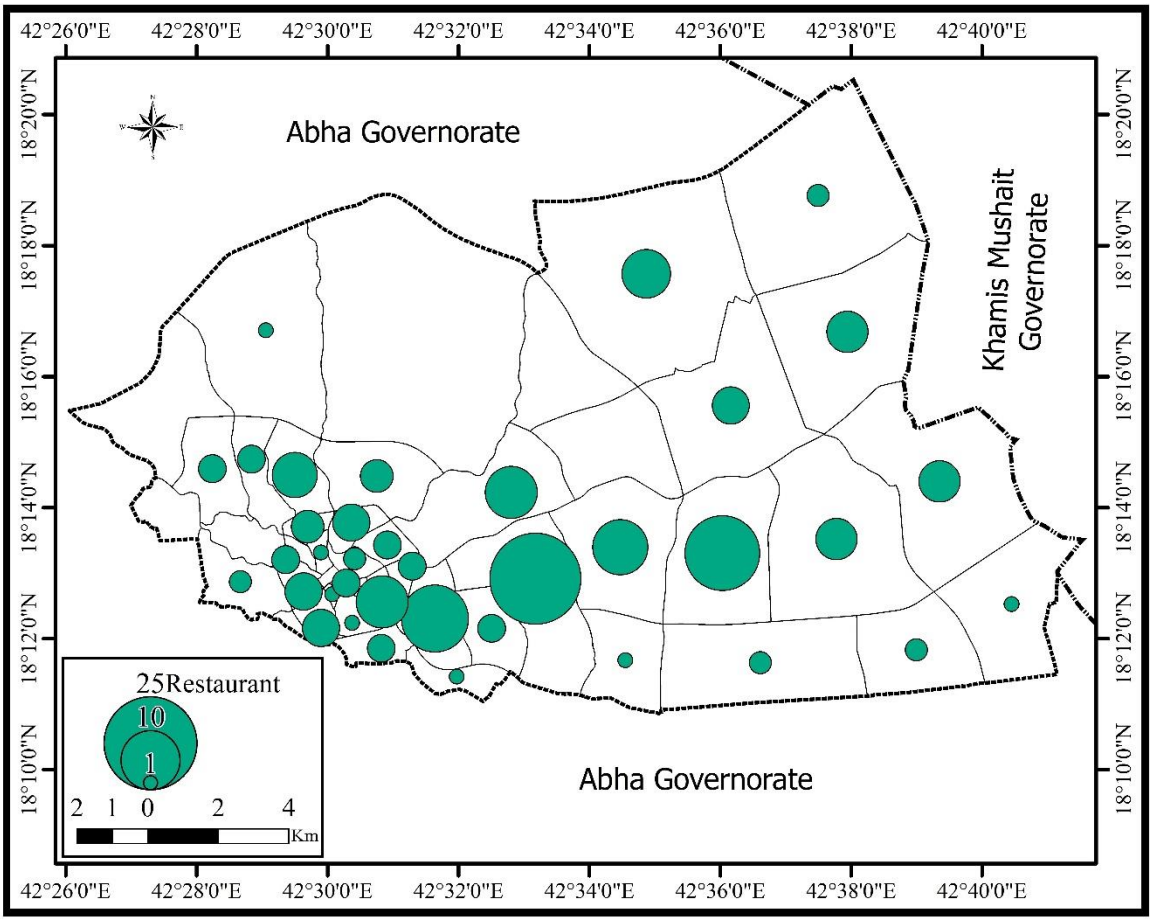


Fig (3). Numerical distribution of fast food restaurants in Abha city 2023.

Source: From Table (1)

In conclusion, it is clear from Map No. (2 and 3) the clear concentration of fast food restaurants in the south and southwest of the city of Abha. As for the relative distribution of population and area and its relationship to the distribution of fast food restaurants, it can be clarified through the Lorenz curve:

It is clear from studying the Lozens curve of the relationship between the distribution of the population of the city of Abha and the distribution of fast food restaurants that the distribution is unbalanced between the city's population and the restaurants, as it is observed that 70% of the restaurants are concentrated to serve 50% of the population.

Likewise, the relationship between the distribution of restaurants and the area of the city, as it is clear that the actual distribution line is not close to The ideal distribution line. Therefore, the relationship between the distribution of fast food restaurants and the population and area of the city of Abha is unbalanced and therefore needs to be redistributed in order for the services of fast food restaurants to suit the population and area of the city, especially the northern, eastern and southeastern neighborhoods of the city. Figure (4).

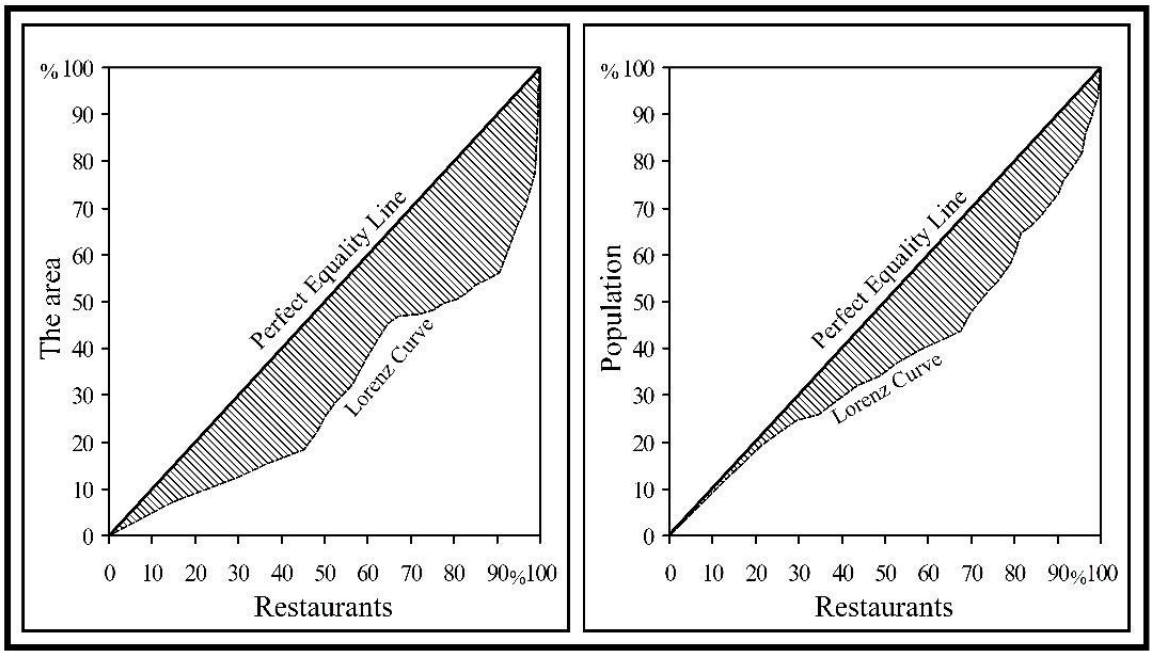


Fig (4). Lorenz curve of the relationship between fast food restaurants, population, and area in residential neighborhoods in Abha city 2023.

(B) Relative importance(*):-

The relative importance of fast food restaurants and their significance among residential neighborhoods in the city of Abha in 2023 AD varied depending on the area and population, as shown in Table (2) and Figure (5)

Table (2) The relative importance of fast food restaurants in terms of (population - area) in residential neighborhoods in Abha city 2023

Area significance	Population significance	Residential neighbourhood	N	Area significance	Population significance	Residential neighbourhood	N
0.9	1.2	Albuhayra	24	0.6	3.3	Al-Rawabi	1
1.4	0.1	Zera	25	5.9	1.3	Al-Rabwh	2
0.0	0.0	Town centre	26	3.8	0.7	Al-Munhal	3
3.4	0.2	Alqabil	27	2.3	0.7	Al-Dabab	4
0.1	1.3	Al Montazah	28	1.4	0.3	Al-Nasim	5
10.5	0.4	Al-Azizia	29	0.0	0.0	Al-Naman	6
6.0	0.6	Shamsan	30	0.0	0.0	Al- Sinaeia	7
1.7	1.2	Alwsayif	31	0.0	0.0	Al-Masif	8
3.7	1.3	Almurawij	32	3.5	1.0	Alquraa	9
0.0	0.0	Alwurud	33	2.5	1.2	Albadie	10

1.2	1.2	Alsharafia	34	0.2	6.8	Alzuhur	11
1.2	1.7	Alsalam	35	19.0	6.9	Almiftaha	12
0.0	0.0	Altaeawun	36	3.8	0.3	Alnusb	13
0.6	2.0	Almatar	37	0.5	6.6	Al-Ghadeer	14
13.1	0.6	Alkhashae	38	16.0	1.4	Alnuzha	15
0.2	11.8	Alzuhr	39	0.0	0.0	Al-Faisaliah	16
0.3	0.6	Aleaqiq	40	8.3	0.8	Alwardatayn	17
0.5	1.7	Alyaqut	41	0.9	7.0	Al-Sarawat	18
0.0	0.0	Al Khalidiya	42	0.3	0.5	Al-Salama	19
7.1	0.8	Alshafa	43	1.6	4.6	Al-Safa	20
7.5	0.8	Alsadu	44	0.6	1.9	Alrawda	21
6.3	0.8	Al Andalous	45	0.7	2.0	Sultanuh	22
1.0	1.0	Total		1.6	1.4	Alearin	23

1- Relative importance in terms of population significance:

The geographic distribution of fast food restaurants in geographical areas reflects their adequacy for the population, as the neighborhoods of Abha can be divided into the following categories.

-Neighborhoods that received more than their share of fast food restaurants, from 3 to more than 4 restaurants, include the neighborhoods of Al-Zuhur - Al-Muftahah - Al-Sarawat - Al-Safa - Al-Zahr - Al-Ghadeer, in addition to the Al-Rawabi neighborhood as a result of the decrease in population numbers in these neighborhoods with the concentration of restaurants there.

-Sheikhat received its share of fast food restaurants compared to the population. This category is represented in the neighborhoods of Rabwah - Al-Qura - Al-Badi - Al-Nuzha - Al-Rawda - Al-Areen - Al-Buhaira - Al-Montazah - Al-Waseif - Al-Muruj - Al-Sharqiya - Al-Salam - Al-Yaqout, where the population is large, matched by a large number of restaurants. .

-Sheikhs received less than their share of fast food restaurants compared to the population, and this category occupied four neighborhoods: Al-Manhal - Al-Dhabab - Al-Naseem - Al-Numan - Industrial - Al-Masif - Al-Nasab - Al-Faisaliah - Al-Wardatayn - Al-Salamah - Dharah - Downtown - Al-Qayel - Shamsan - Al-Taawoun - Al-Khasha' - Al-Aqiq - Al-Khalidiyah - Al-Shifa - Al-Sadd - Andalusia, where the population is large and there are few restaurants, even deprived of service.

2- Relative importance instead of the significance of area:

- Sheikhat received more than its share of fast food restaurants, and they fall into two categories, from 3 to more than 4%. The neighborhoods of Rabwah, Al-Nasab, Al-Aziziyah, Al-Nuzha, Al-Wardatayn, Al-Khasha', Al-Shifa, Al-Sadd, Al-Andalus, Al-Muftahah, and Shamsan came in first place. In addition to the neighborhoods of Al-Manhal - Al-Qura - Al-Qayel - Al-Muruj, this is due to the small area and the large number of restaurants.

- Sheikhat received less than its share of fast food restaurants compared to the area, and it includes the rest of the city's neighborhoods (Al-Rawabi - Al-Numan - Industrial City - Al-Masif - Al-Zohour - Al-Buhaira - Downtown - Al-Montazah - Al-Wurud - Al-Taawun - Al-Ghadeer - Al-Faisaliah - Al-Sarawat - Al-Salamah - Al-Rawda - Sultana – Airport –

Al-Zahr – Al-Aqiq – Al-Yaqoot Al-Khalidiyah) constitutes 82% of the city's area, and 51% of the stations are concentrated in it.

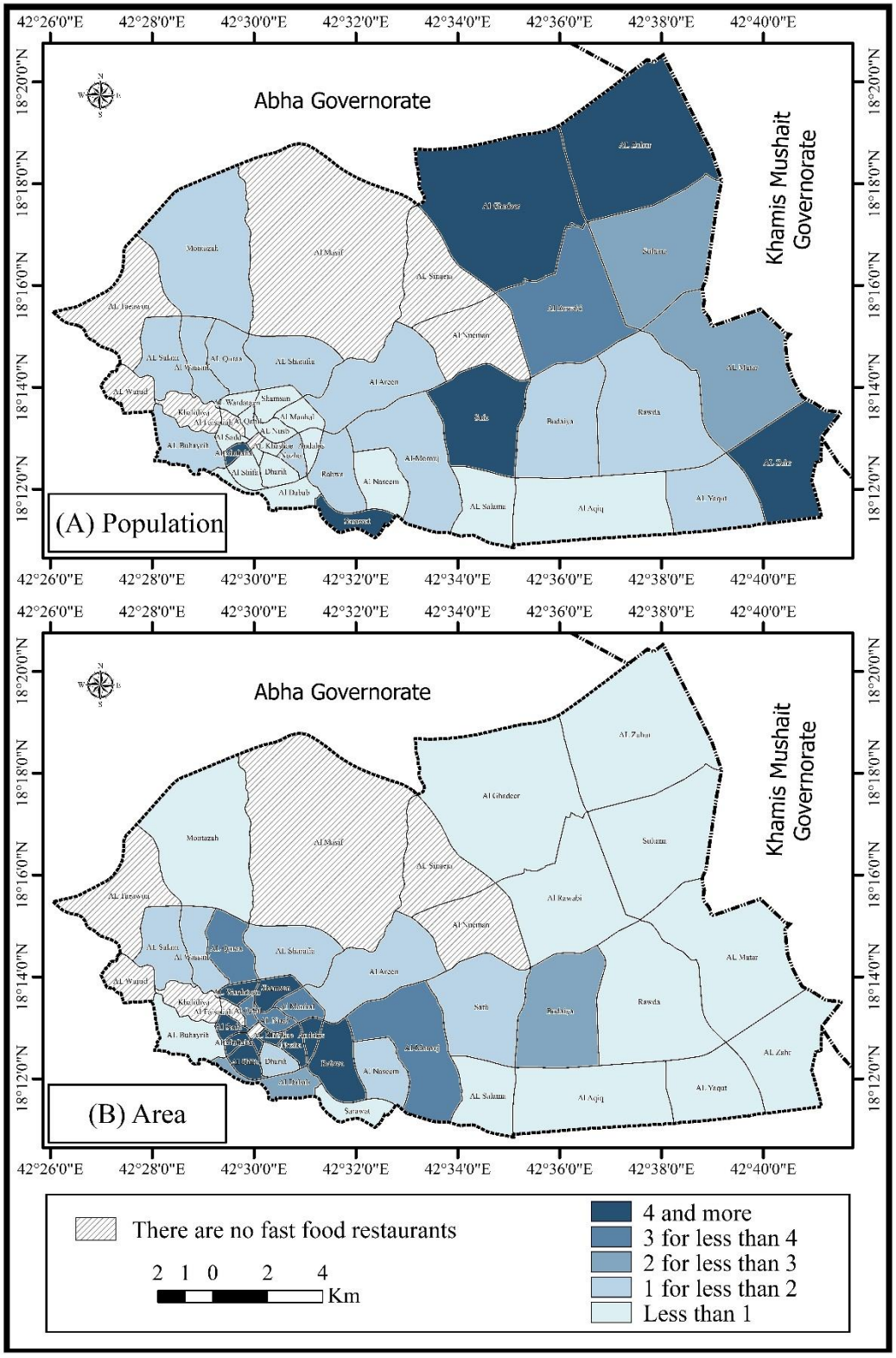


Fig (5). The relative importance of fast food restaurants in terms (population - area) in residential neighborhoods in Abha city 2023.

Source: Data from Table (2)

C- The spatial organization of restaurant locations and its relationship to the main road network in Abha city.

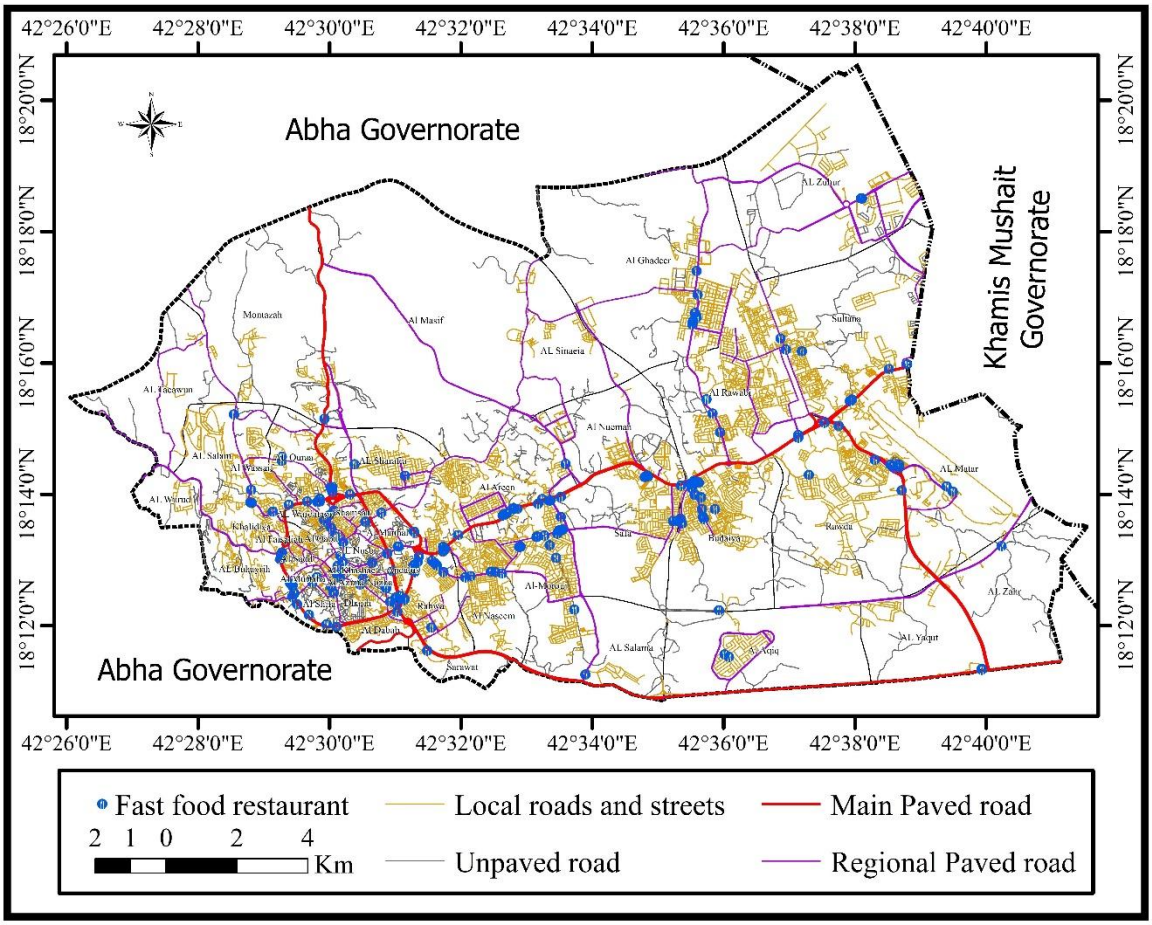
The spatial organization of restaurant locations plays a major role in determining the efficiency of that restaurant, and the extent of its readiness to carry out the tasks assigned to it in the required manner. The efficiency of the spatial organization of restaurant sites is linked to several factors and considerations, including: Reducing the travel time to restaurant locations. This requires that the location be chosen in a middle area of the intended service area and on main or arterial road axes with easy entry and exit from that location, and to cover the service area with the required level and quality of service, that is, in proportion to the size and nature of the service. Land uses and population density in the region, and Table (3) Figure (6) shows the main road network and restaurant locations in the city of Abha.

Table (3) Patterns of the road network and fast food restaurants in residential neighborhoods in Abha city 2023

Restaurants		length		Pattern
%	N	%	Km	
43.8	81	4.04	70.6	Main road paved
50.8	94	9.53	166.7	Paved regional road
5.4	10	66.30	1159.7	Local roads and streets
0	0	20.14	352.3	Unpaved road
100	185	100	1749.3	Total

Source: Arc map 10.7.

.It was concluded from the table that choosing the location of fast food restaurants based on the type of road constitutes an importance and necessity for the residents in fulfilling their daily needs, providing a variety of services and protecting them from any harm. Their spread on all types of roads comes as a result of serving the residents in the residential neighborhoods and the residential neighborhoods adjacent to them. Therefore, this spatial relationship includes facilitating obtaining service in a relatively acceptable time. Therefore, it is noted that restaurants are concentrated on the main and paved streets for more than 85% of the total road lengths. Thus, the strong interrelation between the spatial organization of the sites of ready-food restaurants and the road network in the city of Abha is generally clear, and this helped to Maximizing the major role of transportation roads and their role in maximizing the economic importance of the concentration and spread of restaurant services in Abha city.



Source: Google Earth 2023 & Field study 2023.

Fig (6). Geographical distribution of fast food restaurants and the road network in residential neighborhoods in Abha city 2023

The following table (4) and Figure (7) show the pivotal role of roads in the city of Abha and their relationship with fast food restaurants in 2023.

Table (4) Categories of the sphere of influence of fast food restaurants from main and regional roads in residential neighborhoods in Abha city 2023

%	N	Sphere of influence (m) of the road
67.6	125	Less than 50
13.5	25	From 50 to less than 100
7.0	13	From 100 to less than 150
7.6	14	From 150 to less than 200
4.3	8	From 200 or more
100	185	Total

Source: Arc map 10.7.

It is clear from Table (4) and Figure (7) that about 150 restaurants are concentrated within the distance from the road and street network, which is equivalent to 81.1% of the total restaurants, followed by about 20% of restaurants within the distance from 100 to 200

meters. This confirms the pivotal role of the network of streets and roads in the spread of fast food restaurants in the city of Abha.

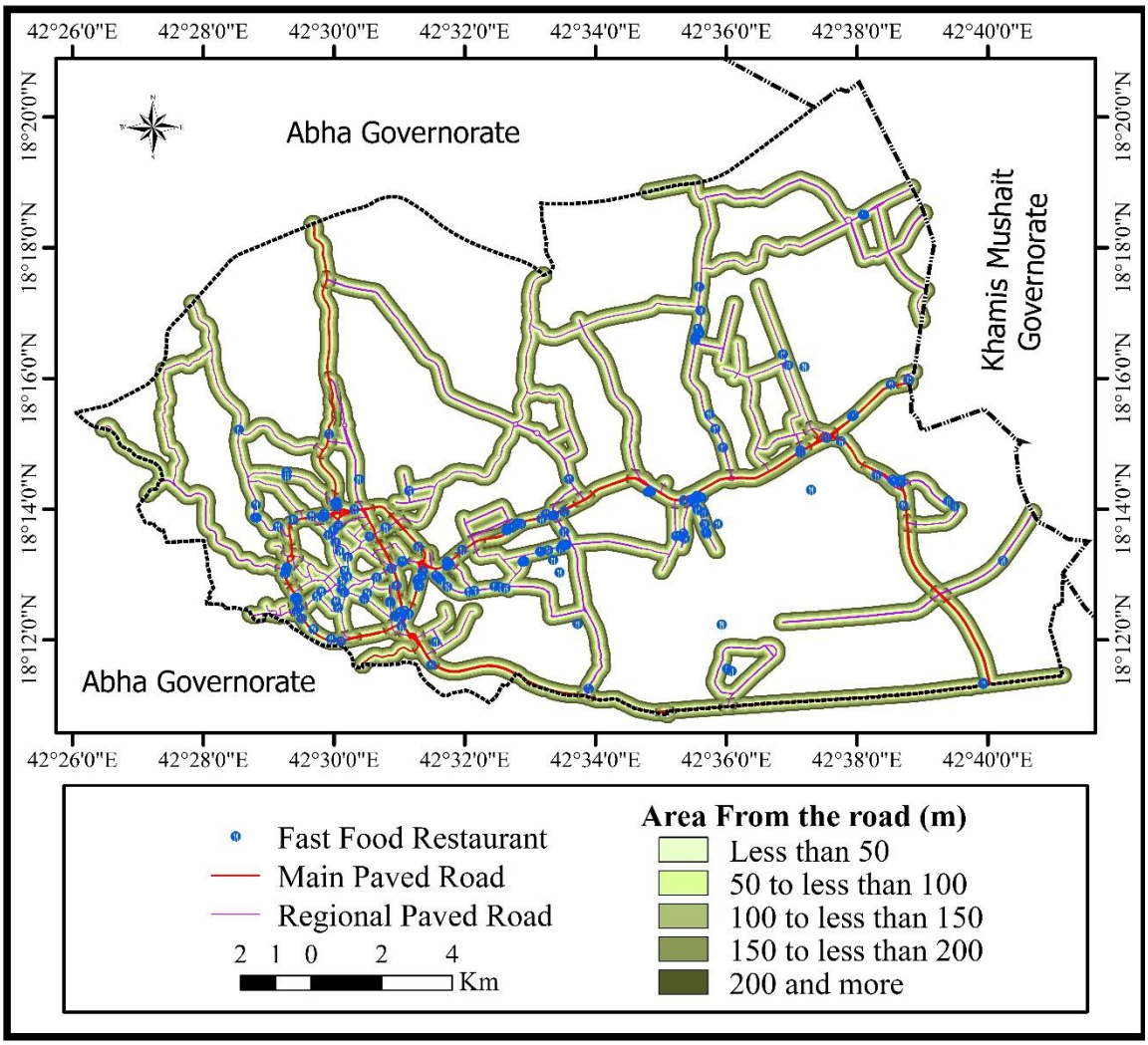


Fig. (7) Location of fast food restaurants on the main and regional roads in residential neighborhoods in Abha city 2023

Source: Arc map 10.7.

D- The spatial organization of restaurant sites and its relationship to the distribution map of educational services in Abha city.

The distribution of fast food restaurants is related to the educational services distribution map as shown in the following table:

Table (5) Categories of the location of restaurants among educational services in Abha city 2023

Area		Restaurants		Sphere of influence (m) of the educational facility
%	km2	%	N	
46.7	140.31	33.5	62	Less than 500
16.9	50.69	43.2	80	From 500 to less than 1000
10.4	31.26	14.6	27	From 1000 to less than 1500
15.4	46.31	1.6	3	From 1500 to less than 2000

10.6	31.86	7.0	13	From 2000 or more
100	300.44	100	185	Total

Source: Arc map 10.7.

It is clear from the previous table and map (8) the extent of correspondence between the distribution of restaurants and the map of educational services, as it is clear that more than 76% of the restaurants are concentrated in the vicinity of schools, less than 1000 m, to benefit from the frequency of students from this service and to maximize economic motives in an area of up to 60 square meters. % of the area of the city of Abha, as the field study showed that a large portion of those who frequent restaurants are students and young people.

It is also clear from the table and the map that the category from 1000 to less than 1500 m represents 14.6% of the number of restaurants in Abha, serving an area estimated at about 10.4% of the total area of the city of Abha, which is consistent with the direct relationship that the closer we are to schools, the greater the number of fast food restaurants. Then the number of restaurants decreases and the degree of service decreases the farther away from the schools we are. Therefore, the relationship here is inverse. The further away we are from the schools the lower the number of restaurants. By studying the correlation between the number of schools and the number of restaurants, it was revealed that there is a strong correlation between the number of restaurants, the area, and the number of neighborhoods in the city, representing..(0.92).

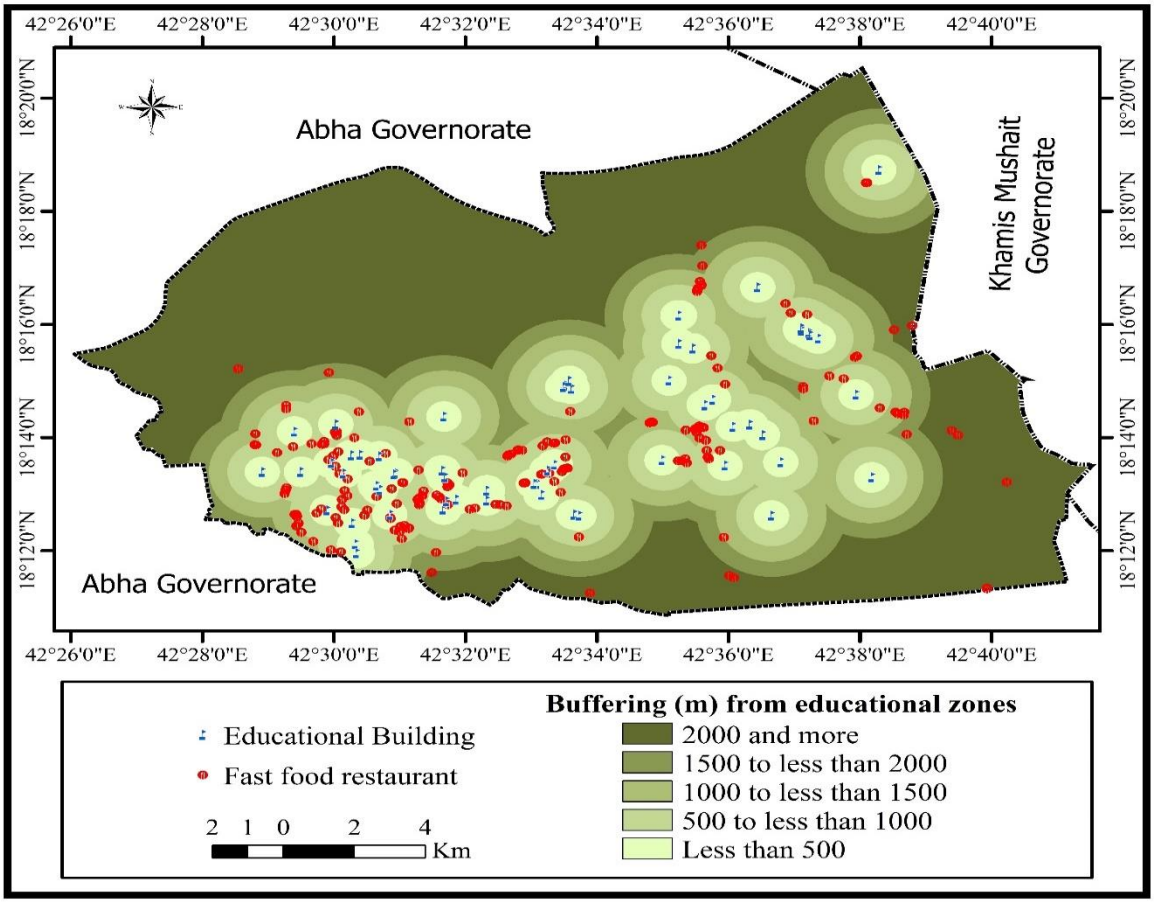


Fig. (8) Location of restaurants among educational services in Abha city 2023

Source: Google Earth 2023 & Field study 2023.

Second: Analyzes of measuring geographical spatial distributions:

(A) The average geographical center or middle place: -

By analyzing Figure (9), it is possible to identify the average geographic center of fast food restaurants in the residential neighborhoods of the city of Abha in 2023 AD as follows- :

The average geographical center for fast food restaurants in the residential neighborhoods of the city of Abha is located in the southwest of the city in the Al-Muruj neighborhood, at the intersection of latitude 42 ,˚18´13˝with longitude 03 ;˚36´33˝This explains the concentration of the majority of fast food restaurants in the old residential neighborhoods in the west of the city.

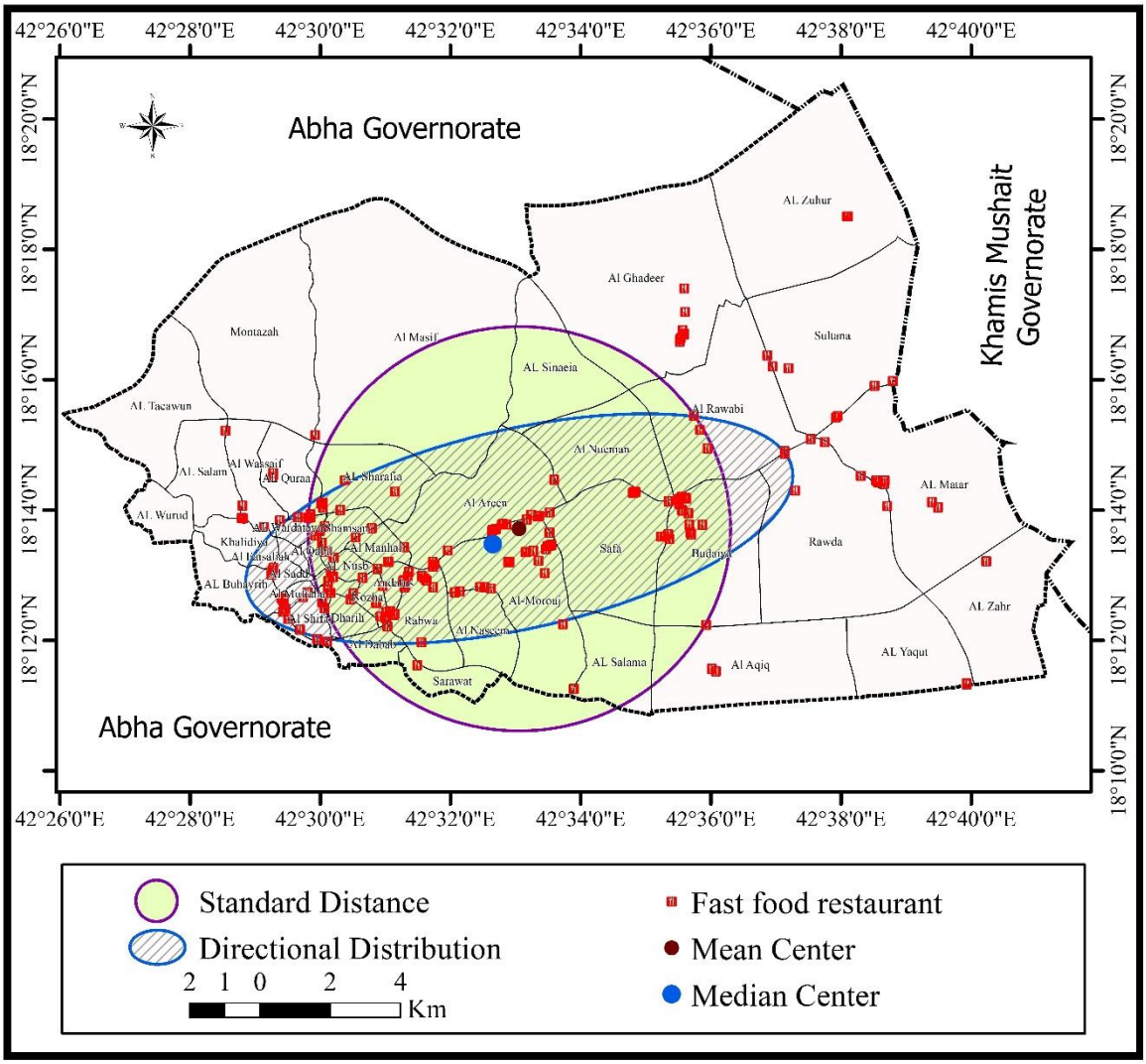


Fig. (9) Average center, standard distance, and direction of distribution of fast food restaurants in Abha city.

Source: Arc map 10.7.

(B) Standard Distance:

Figure (9) can identify the standard distance for fast food restaurants in residential neighborhoods of Abha as follows: -

The standard area of the fast food restaurants in the residential neighborhoods of the city of Abha occupied about 103.2 km2, which constitutes 34.3% of the total area of the city, which amounts to 300.44 km2.

The basic model assumes that the standard circle contains 68% of the total points, but the reality indicated that the standard distance circle for fast food restaurants included 122 restaurants, representing 65.9% of the total fast food restaurants in the residential neighborhoods of the city of Abha, which indicates that the pattern of geographical distribution of restaurants Fast food in the residential neighborhoods of Abha has a semi-regular distribution pattern, as the higher the percentage, the more the distribution pattern tends to be regular, while a lower percentage indicates its random distribution.

(C) Directional distribution:

From the analysis of Figure (9), the distribution trend of fast food restaurants in the residential neighborhoods of Abha can be identified as follows: -

The center of the oval shape is aligned with the middle center point, and its largest axis measures the value of the direction taken by most of the components of the phenomenon, as the length of its largest axis is 7.6 km, and the length of its minor axis is 2.8 km. The distribution direction angle was recorded as 75.5°. The general direction of the distribution of fast food restaurants in the residential neighborhoods of Abha city is from west-southwest to east-northeast in the west of Abha city. The area of the oval shape was 67.4 km2, or 22.4% of the total area of the city.

It is concluded from the results of the indicators revealing the nature of the trends in the spatial distribution of fast food restaurants in the residential neighborhoods of the city of Abha, that there is a clear concentration of these restaurants in the southwest of the city, such that they converge to each other to a clear degree, and the general prevailing trend in the distribution of these types of restaurants extends from the west to the east. The opposite is true in the trends of the city's expansion, both spatially and demographically.

(D) Autocorrelation Coefficient: -

The autocorrelation coefficient differs from the nearest neighbor coefficient in that it requires the geographical location of the phenomenon's components, in addition to a specific non-spatial value to be taken into account in calculating the spatial correlation (Daoud, 2012: 171), and the Moran coefficient was used to identify the general distribution pattern of fast food restaurants in residential neighborhoods. For the city of Abha in 2022, taking into account the population in its residential neighborhoods. Figure (10)

It is one of the important measures for detecting the extent of the relationship between the elements of the phenomenon, and the pattern of its spatial distribution, whether it is a dispersed, random, or regular pattern. The values of the Moran coefficient range between (-1, +1). If its value is close to -1, it indicates... A dispersed or divergent pattern, and if it is close to +1, it indicates a clustered or convergent pattern, but if it is close to zero, it indicates a random pattern in the distribution (Dawoud, 2012: 53).

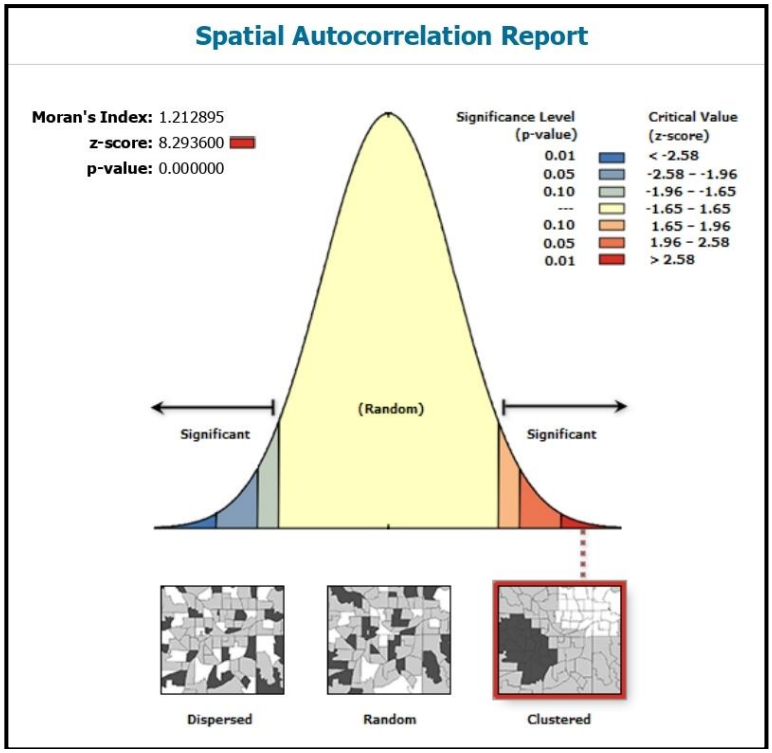


Fig. (10) Autocorrelation coefficient for the general distribution of fast food restaurants in residential neighborhoods in Abha city 2023

Source: Arc map 10.7.

Third: Analyzes measuring geospatial distributions:

(A) Geographical distribution of fast food restaurants according to urban area:

Analysis of Figure (11) made it possible to reach the results mentioned in Table (6), which shows the numerical and cumulative distribution of restaurants and the cumulative area of their service range (maximum) within the ranges from 2.5 kilometers to 10 kilometers. These distances were chosen after conducting several experiments with different distances, and it became clear These distances are appropriate to clarify the aim of the study.

Table (6) Categories of local spread of fast food restaurants around the geometric center in Abha city 2023

Restaurants		Area		Range Spatial (km)
%	N	%	km2	
4.9	9	6.5	19.6	Less than 2.5
31.4	58	19.6	58.9	From 2.5 to less than 5
28.6	53	30.6	91.9	From 5 to less than 7.5
33.0	61	26.4	79.2	From 7.5 to less than 10
2.2	4	16.9	50.9	From 10 or more
100	185	100	300.44	الجملة

Source: Arc map 10.7.

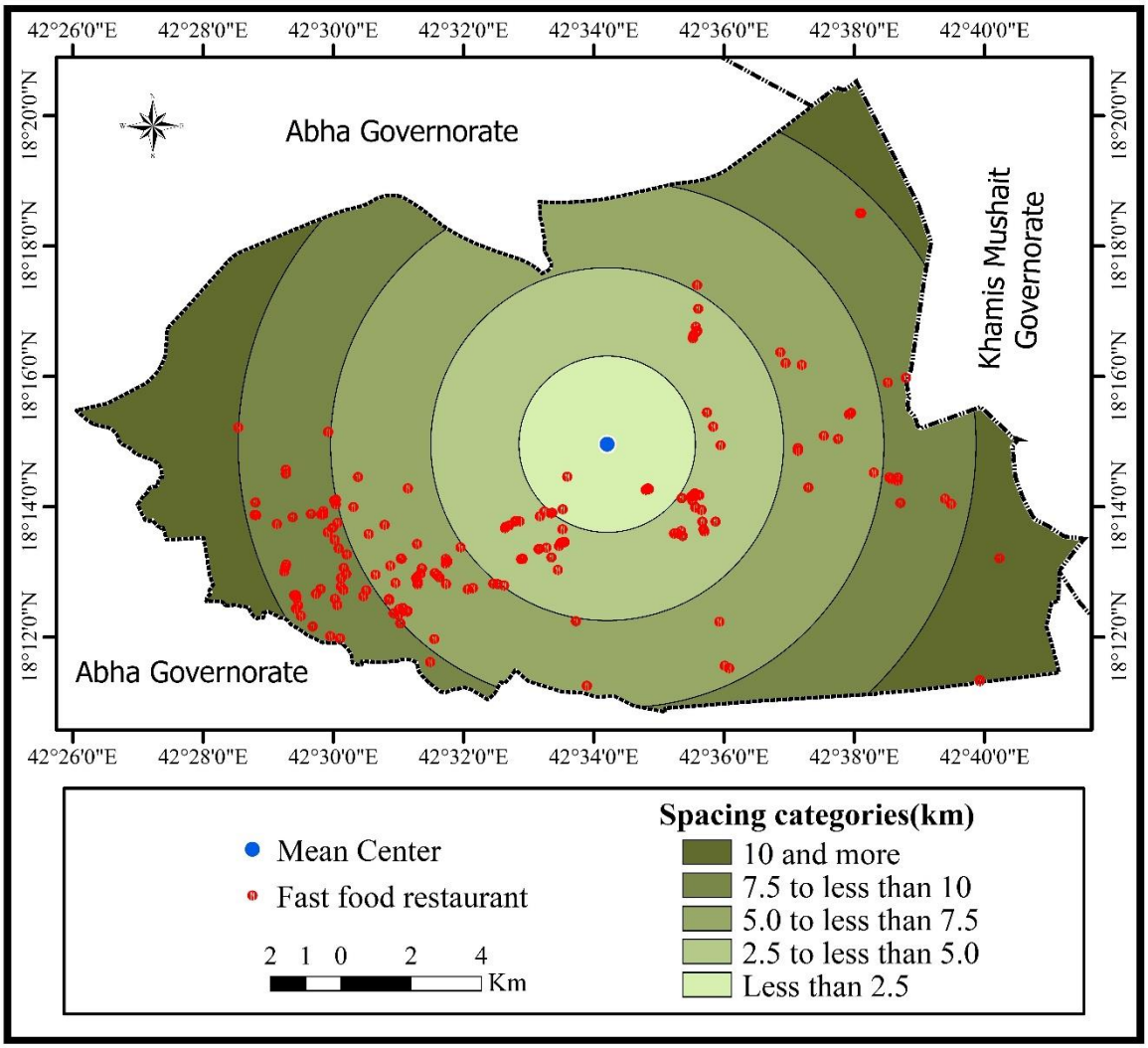


Fig. (11) Local spread of fast food restaurants around the mean center in Abha city 2023

Source: Arc map10.7.

It is clear from studying Table (6) and Figure (11) and their analysis that the number of restaurants is increasing with distance from the average restaurant in the city's neighborhoods, up to a 10 km range, which includes 181 restaurants. This is consistent with the increasing number of neighborhoods (which are characterized by their small area and population concentration in the old core of the city) at a rate of approximately It reaches 98% of the total number of 185 restaurants. Then the number of restaurants decreases after that, especially within a range of 10 kilometers or more, as their number does not exceed 4 restaurants. This can be explained by the modernity of the neighborhoods that are far from the average restaurant, and the breadth of their area and lateral extension to those close to the average restaurant (the old neighborhoods of Abha), in addition to the decreased population numbers.

It can be said that the relationship between the distance from the average restaurant and the number of restaurants in the old neighborhoods is a direct, "complete" relationship. The greater the distance from the average restaurant in the city's neighborhoods, the more the number of restaurants increases, and thus the coverage rate increases. This is confirmed by the value of the correlation coefficient (one correct) between the cumulative coverage rate. The service range is 10 km, where the old neighborhoods of Abha are concentrated. It can also be said that the relationship between the distance from the average restaurant and the number of restaurants in modern neighborhoods is an inverse

relationship. As the distance from the average restaurant increases, the number of restaurants decreases and thus the coverage rate decreases, which is confirmed by the value of the correlation coefficient (- 0.99) between the cumulative coverage rate of the service area and the area of the extended area. Between a range of 7.5 km and a range of more than 10 km, where the modern neighborhoods of Abha city appear.

(B) Analysis of the Buffering phenomenon:

This tool is used to determine the areas in which the service is available and covered, and the areas that are deprived of it based on several criteria, meaning that it reflects the coverage of the service area in the study area around its perimeter and with a fixed breadth. From the analysis of Figure (12), it can be concluded that the following:

Table (7) Categories of the level of geographical influence (Buffering) of fast food restaurants in Abha city 2023

%	km2	Spatial range (meters)
17.6	52.7	Less than 500
21.0	63.1	From 500 to less than 1000
17.2	51.7	From 1000 to less than 1500
13.3	39.9	From 1500 to less than 2000
9.4	28.4	From 2000 to less than 2500
21.5	64.7	From 2500 and more
100	300.44	Total

Source: Arc map 10.7

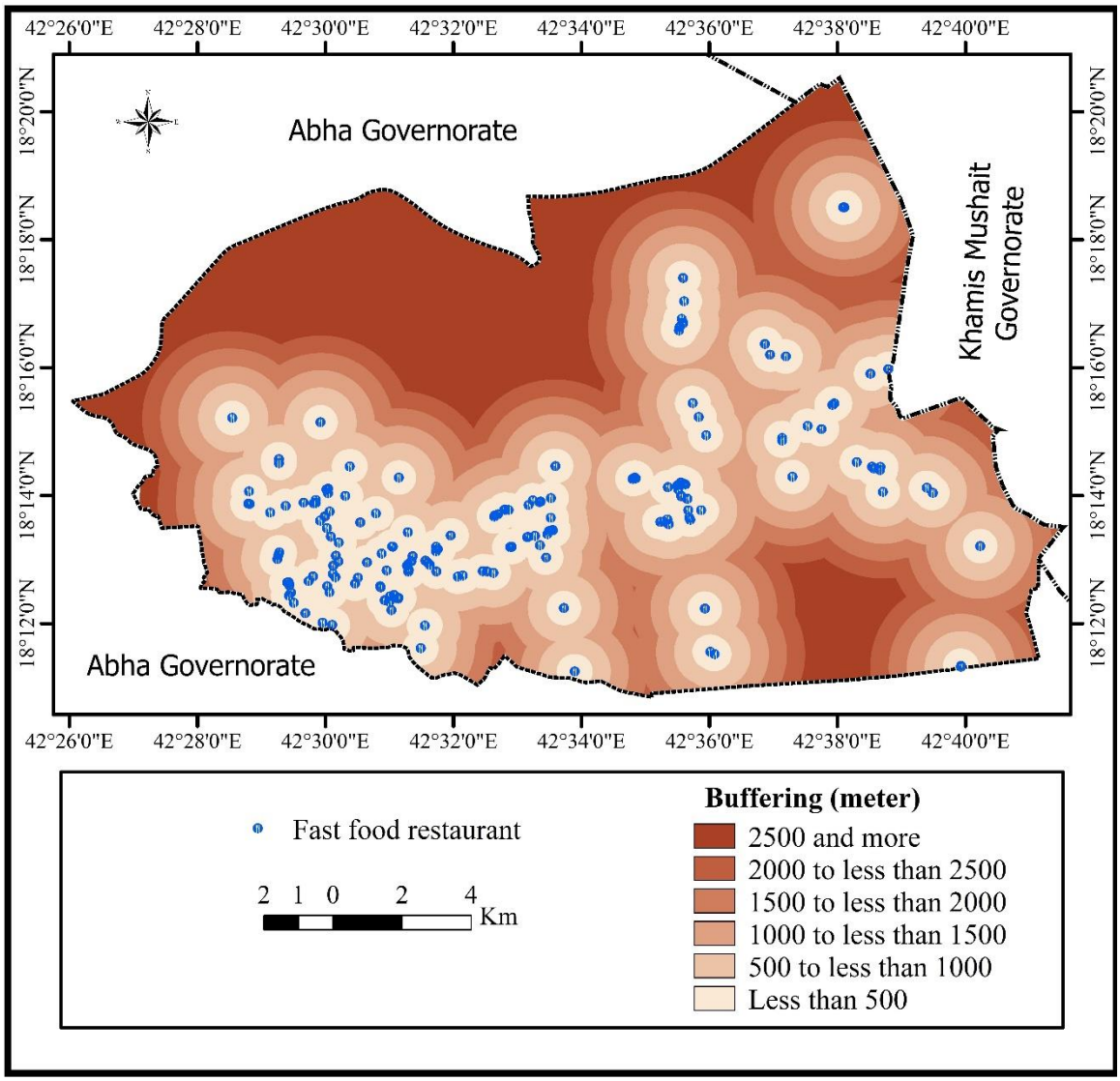


Fig. (12) Buffering's level of geographical influence for fast food restaurants in Abha city 2023

Source: Arc map 10.7.

It is noted from the cartographic analysis of Figure (12) that the service areas of restaurants overlap in the old neighborhoods of the city with small areas, especially those located within the standard distance circle in which 122 restaurants are concentrated, representing 66% of the total number of restaurants in the city - Figure (9), which reflects The geographical scope of restaurants located in the south and center of the city expands to serve areas outside its administrative borders, and this overlap gradually decreases by moving away from the core towards the outskirts, where the modern neighborhoods, especially the northern ones, are characterized by their large area and small population. This ultimately reflects the inefficiency of distributing restaurants at the neighborhood level in Abha city.

Fourth: Characteristics of those who frequent fast food restaurants in the city of Abha.

The research data related to the collection, presentation, and analysis of scientific material imposed the use of the field method, as the importance of using this method in collecting scientific material and investigating the actual conditions of restaurant services in the city of Abha became apparent. Therefore, a questionnaire was distributed to 500 restaurant patrons, and its results were as follows.

1-Frequency rate at restaurants in Abha city:

Abha restaurants vary according to frequency rates, as shown in the following table.

Table (8) Average weekly frequency of fast food restaurants in Abha city 2023

Total	Five times	Four times	Thrice	Twice	Once	Frequency rate
500	61	98	119	139	80	N
100	12.2	19.6	23.8	27.8	16.6	%

Source: Field Study 2023

The weekly frequency of those who frequent restaurants varies depending on the purpose of visiting the restaurants, and the consumption pattern may be one of the factors that help increase the weekly frequency of fast food restaurants, as it is clear from the previous table that the highest frequency of frequency was 27.8 among the total members of the study sample for the frequency of frequency twice a week. Followed by the average frequency of three times a week, representing 23.8% of the total study sample, and the two types represent more than 51% of the total number of people who frequent restaurants, according to the field study. Four times a week was the average frequency of visiting restaurants, ranking third, representing 19.6% of the total study sample. Then, frequency came once a week, ranking fourth, representing 16.6% of the total study sample. Finally, the average frequency was five times a week, representing 12.2% of the total study sample. . The cost of frequenting fast food restaurants in Abha. Fast food restaurants also vary according to the cost of frequenting them, as shown in the following table:

Table (9) The cost of visiting restaurants once, according to the study sample in Abha city 2023

Total	90 SAR and above	61 to less than 90	60-30	Less than 30	Cost in SAR
500	165	95	210	30	N
100	33	19	42	6	%

Source: Field Study 2023

It is clear from the previous table that the financial cost of those who frequent restaurants in the city of Abha varies according to the study sample, as the category of those who cost (30-60) SAR per day came in first place, representing 42% of the study sample. Most of this category are immigrants to work in the city of Abha, then it came in first place. The second category is those who spend more than 90 SAR on frequenting fast food restaurants, representing 33% of the study sample. Most of this category is Saudis who consume larger rates from restaurants with higher incomes. Then in third place came the category of those who cost (61-90) SAR. Representing 19% of the study sample, and finally the category of those who consume less than 30 SAR a day in restaurants came in last place. It is noticeable from the field study that the last category tends to move to the highest category due to the increase in food prices in the Kingdom of Saudi Arabia.

1-Peak and recession times for fast food restaurants:

Frequency hours for fast food restaurants also vary according to working times, seasons, official holidays, and vacations, as shown in the following table:

Table (10) Peak and recession times for those who frequent restaurants in Abha city according to the study sample in 2023

Total	12-8	4 Less than 8	12 to less than 4	12-8	Peak and recession times
500	75	226	77	122	N
100	15	45.2	15.4	24.4	%

Source: Field Study 2023

It is clear from the previous table that the peak and recession periods for fast food restaurants in the city of Abha vary from time to time, as the period from 4 to less than 8 pm ranked first, representing 45.2% of the study sample, because this period coincides with periods of activity in the city of Abha, and it is the most appropriate. Exit times are when the sun begins to set and temperatures drop. Moreover, these times are the most appropriate for students and employees of the government sector to go out.

The period from (8 to less than 12 am) comes in second place, representing 24.4% of the total study sample, as this period coincides with the work hours of most employees, whether working in the government or private sector, which leads to increased crowding during this period.

The period from (12-4 p.m.) came in third place, equivalent to 15.4% of the total study sample. Perhaps the reason for this is that it represents the rest period for government and private sector employees in the city of Dammam, and coincides with the time of the noon prayer, according to the opinions of the study sample.

Finally, the period from (8-12) at night represented 15% of the study sample, as it represents the main recession period for those who frequent restaurants in the city of Abha, as this period coincides with the end of the day and the closure of most activities in the city, and it is worth noting that these times vary according to the seasons. They are consistent with the usual days, but differ during periods of holidays, occasions, and the holy month of Ramadan, as it is noted that the peak period is from eight-thirty to twelve-thirty after midnight.

1- Efficient access to fast food restaurants in Abha city:

It means the time cost and the time it takes to reach the service, and this is due to several factors, including the distance and proximity to fast food restaurants, the density of spread, and the type and means of transportation used. The following table shows the time distance to reach restaurants in the city of Abha according to the study sample in 2023.

Table (11) Time distance of people who frequent restaurants in Abha city according to the study sample in 2023

Total	More than 20	20-15	15-10	Less than 10	Frequency rate (minute)
500	89	115	177	119	N
100	17.8	23	35.4	23.8	%

Source: Field Study 2023

It is clear from the table the ease and efficiency of access to fast food restaurants in the city of Abha, where the category of (10-15 minutes) as the time to reach the restaurants came in first place, representing 45.2%, according to the opinion of the study sample, then the category came as less than ten minutes and 15-20 minutes as the time to reach the restaurants. Fast food restaurants ranked second and third respectively, with

percentages of 23.8-23 respectively, representing nearly half of the study sample. Finally, the More than 20 Minutes category came in last place, with a percentage of 17.8 of the total study sample. The conclusion is that the field study shows an increase in the efficiency of access to fast food restaurants in the city of Abha and an increase in the smooth rate of frequenting restaurants in Abha city 2023.

2- Problems of fast food restaurants in Abha city:

The following table shows the problems of fast food restaurants in the city of Abha according to the study sample. It is noted from the table that the most common problem facing those who frequent fast food restaurants is the high prices, representing 44.6% of the total study sample, and this is due to the noticeable increase in food prices in general in the Kingdom of Saudi Arabia and the world.

Table (12) Problems of fast food restaurants in Abha city 2023

Total	Non-availability of free services	Late meals	Rising prices	Low product quality	Extreme crowding	Problem
500	20	57	223	98	102	N
100	4	11.4	44.6	19.6	20.4	%

Source: Field Study 2023

Then the problem of severe crowding in restaurants came in second place according to the study sample because most of the fast food restaurants are located on main roads and highways, which helps increase the rate of traffic congestion and obstruct roads for long periods according to the study sample, then the poor quality of the product came in third place, representing 19.6% of the problem. The study sample campaign, then the problem of late meals as a result of severe crowding came in fourth place. Finally, the problem of the lack of free services came to represent 4% of the study sample.

3- Levels of satisfaction:

Knowing the levels of satisfaction with fast food restaurants is an important matter in geography in order to participate in solving the problems facing this vital sector to achieve the user’s desire. The following table shows the levels of satisfaction of the study sample in Abha city of with fast food restaurants in 2023.

Table (13): Levels of satisfaction with fast food restaurants according to the study sample in Abha city 2023

Total	weak	Average	Good	Satisfaction levels
500	120	230	150	N
100	24	46	30	%

Source: Field Study 2023

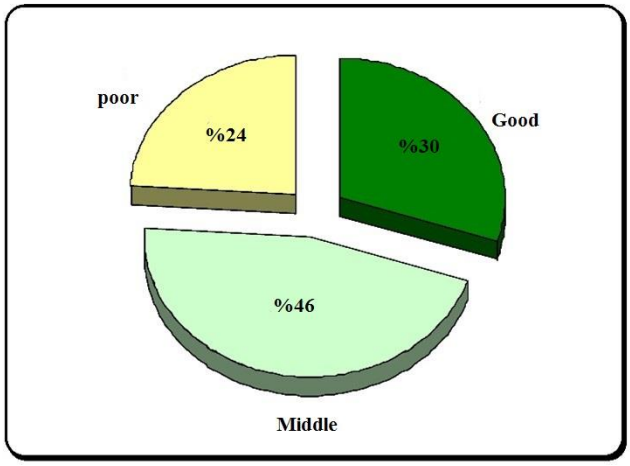


Fig. (13) Levels of satisfaction with restaurants according to the study sample in Abha city 2023

It is clear from the previous table and figure that the efficiency of satisfaction levels with fast food restaurants in the city of Abha varied according to the opinion of the study sample. The table shows that satisfaction levels rose to a good degree with the restaurants, representing 46% of the study sample, then satisfaction levels came in at a moderate degree, occupying second place, equivalent to 30% of Study sample, then satisfaction levels came in at a weak degree, representing third place, equivalent to 24% of the study sample. It is noted from the above that satisfaction levels with fast food restaurants vary within the city of Abha, where satisfaction rates rose to a good and moderate degree in the central area and those close to it, which is the old area in the city of Abha, and then decrease as we move away and head to the margins of the city, which calls for strengthening fast food restaurants and addressing their problems. And participate in fulfilling the desires of the residents of the city of Abha.

Conclusion:

The study concluded with several results, most notably the following:

- The study showed that the number of fast food restaurants in the city of Abha represents 185 restaurants, with fast food restaurants concentrated in the southwest of the city of Abha, where the Al-Muruj neighborhood accounted for about 13% of the total fast food restaurants in the city of Abha, thus ranking first in the number of ready-made restaurants in the city, as the neighborhood is characterized by its population concentration. With a population representing 10.5% of the city's total population, which led to a high population density in the neighborhood.

- The study showed the strong and positive correlation between the spatial organization of restaurant locations and the road network (main and arterial) in the city of Abha, which reflects the efficiency of the locations of most restaurants in relation to the main road network in the city of Abha, a distribution pattern, and this helped to maximize the major role of transportation roads and their role in maximizing economic importance. To concentrate and spread restaurant services in the city of Abha.

- The study showed the extent of correspondence between the distribution of restaurants and the map of educational services, as it is clear that more than 76% of restaurants are concentrated in the area near schools, less than 1000 m, to benefit from students' frequencies of this service and to maximize economic motivations in an area of

up to 60% of the area of the city of Abha. The field study showed that a large portion of those who frequent restaurants are students and young people.

- The average geographic center for fast food restaurants is located in the residential neighborhoods of the city of Abha in the southwest of the city in the Al Murooj neighborhood. The area of the standard circle for fast food restaurants in the city of Abha occupies 46,255 km2, which constitutes 13.1% of the total area of the city, which amounts to 353,0217. The basic model assumes that the standard circle contains 68% of the total points, but the reality indicated that the standard distance circle included 106 restaurants, representing 66.67% of the total fast food restaurants in the city of Abha, which indicates that the geographical distribution pattern of restaurants is closer to that of Semi-uniform distribution, as the higher the ratio, the more the distribution pattern tends towards a regular form, while a lower ratio indicates its random distribution. The standard area of the fast food restaurants in the residential neighborhoods of the city of Abha occupied about 103.2 km2, which constitutes 34.3% of the total area of the city, which amounts to 300.44 km2. The basic model assumes that the standard circle contains 68% of the total points, but the reality indicated that the standard distance circle for fast food restaurants included 122 restaurants, representing 65.9% of the total fast food restaurants in the residential neighborhoods of the city of Abha, which indicates that the pattern of geographical distribution of restaurants Fast food in the residential neighborhoods of Abha has a semi-regular distribution pattern, as the higher the percentage, the more the distribution pattern tends to be regular, while a lower percentage indicates its random distribution.

- The study showed that the relationship between the distance from the average restaurant and the number of restaurants in modern neighborhoods is an inverse relationship. As the distance from the average restaurant increases, the number of restaurants decreases and thus the coverage rate decreases, which is confirmed by the value of the correlation coefficient (- 0.99) between the cumulative coverage rate of the service area and the area of the city.

- The study showed overlapping service areas for restaurants in the old neighborhoods of the city with small areas, especially those located within the standard distance circle in which 122 restaurants are concentrated, representing 66% of the total number of restaurants in the city. This reflects the breadth of the geographical scope of restaurants located in the south of the city, and is less This overlap gradually moves away from the core towards the outskirts, where the modern neighborhoods, especially the western ones, are characterized by their large area and small population. This ultimately reflects the inefficiency of distributing restaurants at the neighborhood level in the city of Abha.

- The weekly frequency of those who frequent restaurants varies depending on the purpose of visiting the restaurants, and the consumption pattern may be one of the factors that help increase the weekly frequency of fast food restaurants, as it is clear from the previous table that the highest frequency of frequency was 27.8 among the total members of the study sample for the frequency rate twice a week. , followed by the average frequency of three times a week, representing 23.8% of the total study sample, and the two types represent more than 51% of the total number of people who frequent restaurants, according to the field study. Four times a week was the average frequency of visiting restaurants, ranking third, representing 19.6% of the total study sample. Then, frequency came once a week, ranking fourth, representing 16.6% of the total study sample. Finally, the average frequency was five times a week, representing 12.2% of the total study sample. . The cost of frequenting fast food restaurants in Abha.

- The study showed that the financial cost of those who frequent restaurants in the city of Abha varies according to the study sample, where the category of those who cost from

(30-60) SAR per day came in first place, representing 42% of the study sample. Most of this category are immigrants to work in the city of Abha, then it came in first place, representing 42% of the study sample. The second category is those who spend more than 90 SAR on frequenting fast food restaurants, representing 33% of the study sample. Most of this category is Saudis who consume larger rates from restaurants with higher incomes. Then came in third place the category of those who cost (61-90) SAR. Representing 19% of the study sample, and finally the category of those who consume less than 30 SAR a day in restaurants came in last place. It is noticeable from the field study that the last category tends to move to the highest category due to the increase in food prices in the Kingdom of Saudi Arabia.

- The study showed that the most common problem faced by those who frequent fast food restaurants is the high prices, representing 44.6% of the total study sample. This is due to the noticeable increase in food prices in general in the Kingdom and the world. Then the problem of the difficulty of severe crowding in restaurants came to occupy second place according to the sample. The study is due to the fact that most fast food restaurants are located on main roads and highways, which helps increase the rate of traffic congestion and obstruct roads for long periods, according to the study sample. Then the poor quality of the product came in third place, representing 19.6% of the study sample holders. Then came the problem of delay in meals as a result of severe crowding. In fourth place. Finally, the problem of the lack of free services came to represent 4% of the study sample.

Recommendations:

Based on the results of the study, and the aspects it revealed that hinder improving the quality of distribution of fast-food restaurants in the city of Abha, and work to improve services to advance the quality of life in cities in the Kingdom of Saudi Arabia. The study provides some recommendations that can be summarized as follows:

1- Increasing the number of fast-food restaurants in high-density neighborhoods deprived of service, which reduces pressure on them, in a way that ensures their sustainability, and in proportion to both the area and population numbers in the city's neighborhoods, with the necessity of developing scientific solutions for restaurants that violate planning standards because of their danger to the residents of the city of Abha.

2- Encouraging the private sector's participation in supporting the service, through establishing, equipping and operating restaurants in the city's neighborhoods.

3- It is necessary to establish a geographic information systems unit to support and make decisions for restaurants in the city of Abha, as well as establishing partnerships between municipal and rural affairs and the Department of Geography and Geographic Information Systems to provide consultations and scientific studies.

4- Geography departments in the Kingdom's universities have directed graduate students (master's and Ph.D.), researchers and interested faculty members towards studies evaluating the efficiency of service distribution in general, and for restaurants in particular, at the level of the Kingdom's cities so that indicators are available to decision makers that can benefit from improving the quality of the service aspect in the cities. Saudi Arabia.

5- It is necessary to conduct more studies and scientific research to know the health effects of ready-to-eat restaurant meals in Abha and the Kingdom in general.

In conclusion, the study recommends the necessity of reconsidering the geographical distribution of restaurants in the city of Abha so that it is compatible with the new and future urban growth in the east and west of the city.

Acknowledgements The authors extend their appreciation to the Deanship of Scientific Research at King Khalid University for funding this work through General Research Project under grant number (RGP 1/243/44).

Funding All authors are funded through the small research group project from the Deanship of Scientific Research at King Khalid University under research grant number (RGP 1/243/44).

References

Arabic references:

- General Administration of Affairs Cultural and Media, (1419 AH): Civil Defense and its 74-Year Journey, General Directorate of Civil Defense, Ministry of Interior, Kingdom of Saudi Arabia.
- Orqtji, Fawzi Abdullah and Al-Sharaie, Ahmed Al-Badawi, (2017), Spatial distribution of fast-food restaurants in the city of Mecca, Egyptian Journal of Environmental Change, No. 9, Egyptian Society for Environmental Change, Cairo.
- Bishr, Mahmoud Mohamed Jamal, (2010), Spatial Analysis of the Distribution of Civil Defense Service in Muscat Governorate Using Geographic Information Systems, Geographic Messages Journal, Letter No. 356, Kuwait Geographical Society, Kuwait.
- Al-Khalifa, et al., (1413 AH - 1993 AD), Factors for Benefiting from the Services of Private Treatment Institutions, "A Field Study," Journal of Humanities and Social Sciences, No. 37, Deanship of Scientific Research, Imam Mohamed bin Saud Islamic University.
- Al-Baghdadi, Mustafa Muhammad (1994): A systematic study on the relationship of geography to services, Girls' College Yearbook, Ain Shams University, no. 17.
- Al-Ghamdi, Abdul Aziz bin Saqr (1986), Study of Mosque Sites in the City of Mecca, Mecca Cultural and Literary Club, Mecca.
- Abdel Karim, Ashraf Ahmed Ali, (2014): Spatial analysis of the distribution of public services and identification of planning needs, an applied study on the city of Hafr Al-Batin, Saudi Geographical Society, King Saud University.
- Al-Rabdi, Muhammad Saleh, (1419 AH), The Riyadh Region, A Historical, Geographical, and Social Study, Services in the Riyadh Region, vol. (7), edited by Abdullah Al-Wali'i, The Emirate of the Riyadh Region.
- Al-Rabiah, Badr Abdulaziz, (2007), The Development of Bakeries in the Kingdom of Saudi Arabia over a Hundred Years, King Abdulaziz House, Riyadh.
- Al-Ruhaili, Basma bint Salama (1427 AH): Using geographic information systems to evaluate the current situation of government girls' school sites in the Holy City of Mecca, unpublished master's thesis, Umm Al-Qura University, Mecca.
- Al-Zahrani, Ramzi Ahmed, (1424 AH - 2003 AD) The geographical distribution of health services in the Makkah Al-Mukarramah region, Geographical Research, No. (55), Saudi Geographical Society.
- Al-Zahrani, Ramzi Ahmed, (2006 AD) Spatial Autocorrelation of Bakery Distribution, Journal of Gulf and Arabian Peninsula Studies, issue (123), Kuwait University.
- Al-Zahrani, Ramzi Ahmed, (2000 AD), Living Standards in the Kingdom of Saudi Arabia: A Study of Residential Characteristics, No. 241, Kuwait Geographical Society, Kuwait.
- Shawish, Adel Muhammad, (2014): Some aspects of the spatial analysis of the main road network in Taif Governorate in the Kingdom of Saudi Arabia, a study in transportation geography.
- Al-Qahtani, Hassan bin Muhammad Misfer, (2018): Spatial analysis of primary schools in the city of Abha, Asir region, vol. 18, Issue 127, Society for Culture and Development, Kingdom of Saudi Arabia.

- Al-Huwaish, Abdul Karim bin Khalaf, (2014 AD): Analysis of the spatial variation of health services in the Kingdom of Saudi Arabia for the period (1413-1431 AH), Journal of Gulf and Arabian Peninsula Studies, Year 40, No. 153, Scientific Publishing Council, University of Kuwait.

- Al-Hubaishi, Sanaa bint Saleh (2011): Bread making in the city of Mecca, a study in economic geography, Umm Al-Qura Journal of Social Sciences, Umm Al-Qura University.

- Al-Dwikat, Qasim and Al-Faisal, Khalid bin Hamad (2010): Analysis of the pattern of distribution of theft crimes in the city of Hail, Saudi Arabia, using geographic information systems, Journal of the Association of Arab Universities for Arts, Volume 4, Issue 3.

- Al-Sudaimi, Muhammad Zaki Hamed (2005): Mills and bakeries in the city of Tanta, Journal of the Center for Geographical and Cartographic Research, Menoufia University.

- Sheikh, Amal Bint Yahya (1429 AH): Analysis of the distribution pattern of typical public parks in the city of Jeddah using Geographic Information Systems technology, a working paper within the Third National Conference on Geographic Information Systems in the Kingdom of Saudi Arabia, Al-Khobar.

- Al-Asiri, Fayez bin Muhammad Mushabab (1422 AH): Awareness of the importance of geographic information systems in civil defense work, a working paper within the research of the nineteenth Civil Defense Conference, King Fahd Coastal City, Jeddah.

- Al-Asiri, Fayez bin Muhammad Mushabab (1424 AH): A model for rapid response in determining the location of an accident using geographic information systems for bakeries in the city of Riyadh, doctoral dissertation, King Saud University, Riyadh.

- Al-Maadawi, Mahrous Ibrahim (2006 AD): Bread production in Kafr El-Sheikh Governorate, a study in the geography of production, Arab Geographical Journal, issue 48, year 38, vol. 2, Cairo.

- Bin Salma, Nasser bin Muhammad (1422 AH): The importance of geographic information systems in planning the redistribution of bakery units in the city of Riyadh, Kuwait Geographical Society, Geographical Letters, No. (262), Kuwait.

- Sharif, Sharif Abdel Salam (2019) Banking services in the city of Dammam, a study in the geography of communications, Journal of the College of Arts - Port Said University.

- Khair, Safouh (2000): Geography: Its Subject, Methods, and Objectives, Dar Al-Fikr, Damascus, Syria.

- Othman, Badr Al-Din Taha (1424 AH): Supporting decision-making and spatial analysis in geographic information systems, Kuwait Geographical Society, Geographical Letters, Issue No. (277), Kuwait.

- Azaz, Salwa Muhammad (2006 AD) Bread making in the Matareya neighborhood, Geographical Research Bulletin, Geography Department, Ain Shams University, Egypt.

- Moselhi, Fathi Muhammad (2007): The Geography of Services, Theoretical Framework and Arab Traders, Dar Al Majid for Publishing and Distribution, 2nd edition.

- Ministry of Economy and Planning, General Statistics Department, preliminary results of the General Census of Population and Housing: (1431 AH).

- Ministry of Municipal and Rural Affairs (1426 AH): Guide to Planning Standards for Services, Riyadh, first edition.

- Ministry of Municipal and Rural Affairs, Eastern Province Secretariat, Geographic Information Systems Department, (1428 AH), Dammam City Map (neighborhoods, cities, land uses), Dammam.

English references:

- Adam. T, (2002), Geography of Service: Progress in the Geography of Service, Progress Report, School of Geographical Sciences. University of Bristol. Bristol. U.K.

- Berry. B, (1972), Classification Handbook Methods and Application, New York.

- Hagget. P, (1965): “Location Analysis in Human Geography, London.

- Jakle.D, (1999): The Strategy of Equality. Allen and Unwin. London.

- Rubenstein. J, (2003): An Introduction to Human Geography، The Cultural Landscape. New Jersey، Pearson Education، Inc.

- Sarmistha. B, & Helen. L, (2006): Economic Geography: Past, Present, and Future, Route Ledge, U. S. A, New York.