

Changes in Commercial Activities in New Egyptian Cities: Impacts, and Dealing Mechanisms

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ABSTRACT

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Land use change is a critical issue that faces updating master plans of New Egyptian Cities. Commercial uses, in all their forms, witnessed the most significant changes during the past two decades. These alterations include changes in spatial distribution, mainly shifting towards suburban areas and major roads, as well as integration within residential areas. They also witness changes in retail types and areas. These changes were triggered by various economic, urban, social, and legislative factors. In turn, they had varying economic, urban, and social impacts on both residents and users. This paper hereby aims to identify mechanisms for addressing the negative impacts of this phenomenon in Egyptian cities, through monitoring and analyzing its aspects, causes, and implications, in New Egyptian Cities. These mechanisms include functional rehabilitation of some activity zones, and the establishment of adequate legislation and control measures, to assist decision-makers in pursuing appropriate measures to minimize its negative impacts and achieve balance in land use patterns in new cities. This is fulfilled through three axes: first, a detailed study of the phenomenon, including its underlying triggers and repercussions. Second, an analysis of selected international experiences similar to the Egyptian context, to deduce the mechanisms they applied to address it. Finally, an in-depth study of the Egyptian experience to identify the major changes in economic activities, followed by a detailed case study of the commercial changes in the 6th of October City, to identify their main causes and repercussions, and eventually outline the adequate mechanisms to address these changes and their implications, making use of the lessons learned from the selected international case studies.

1. INTRODUCTION

The importance of this research stems from the observed changes in commercial activities in most New Egyptian Cities, which have diverged from the proposed development plans. These cities were established based on new ideas and approaches to spatial distribution and planning standards, particularly the concept of a hierarchical service structure at the city, district, and neighborhood levels, as seen in the 6th of October City and 10th of Ramadan City [1].

Commercial activities have notably expanded since 2011, particularly after the 2009 opening of a major mall, driving commercial land development, with further growth expected in the coming periods [2]. This growth is further supported by Egypt's rise to 7th place in the 2021 Retail Development Index, advancing 19 places from 2019, reflecting substantial growth in recent years [3, 4]. This rapid growth has caused changes in the spatial distribution, size, and type of commercial activities, leading to both positive and negative impacts. Accordingly, the research aims to: explore and analyze the general changes in New Egyptian Cities and their relationship to urban characteristics. Identify the types of changes in commercial activities within the 6th of October City. Analyze the causes and effects of these changes in the case study. Propose mechanisms to manage the impacts of commercial activities in

the case study. Determine points of alignment and divergence between theoretical studies and the case study.

1.1 Theories of commercial activity growth

Many ecological and economic theories have explored the spatial distribution of commercial activities within a city's structure, focusing on suitable areas, types, locations, and the factors that influence them [5].

Ecological theories like the Concentric Zone, Sector, and Multiple Nuclei theories explain that commercial activities concentrate in central areas. As cities grow, new centers emerge on the periphery, often near transportation routes. These areas have high land values, rents, and activity density, grow activities in center leading to urban deterioration. This shift causes wealthier residents to move to quieter, more comfortable suburban areas [6].

Economic theories like Von Thünen's Land Market Theory, Alonso's Theory, and Land-Use Succession Theory explain that commercial activity starts in the city center but shifts to the periphery as the city expands. When the central area is redeveloped, activity returns, revitalizing the center. Factors influencing commercial location include land value, accessibility, and vitality, with growth potentially impacting the city's infrastructure [7, 8].

1.2 Changes in commercial activities

Commercial activities have undergone numerous structural and spatial changes during the last decades, due to several economic, social, and scientific factors, likely the amazing development of the internet and e-commerce practices causing changes in consumer behavior and the role of city centers [9-14]. Figure 1 shows changes in commercial activities.



Figure 1. Changes in commercial activities
Source: The researcher based on [12, 13, 15-19].

These changes comprise:

First, Spatial Changes: In recent decades, commercial activities moved from central areas to the peripheries on new main routes or in new suburbs. They sometimes mix with other uses, such as in residential zones. As the city grows, development processes may occur in the center, revitalizing its activities. With the emergence of e-commerce, some activity locations may disappear [12, 14-16].

Second, Changes in Retail Types: The dominance of large stores (hypermarkets) and shopping centers (malls) led to the fallback of the role of traditional small-sized stores, with the growth of e-commerce, non-tangible goods for the consumer disappeared from physical stores [12, 15, 18-20].

Third, Changes in overall areas of commercial activities: This change, which is usually an increase above planned rates, is a result of a set of factors including location and accessibility, and also not following planning principles in the distribution of the activity mainly marginalizing distance factors. With the emergence of e-commerce, where there is no physical existence of the activity, some activity sites may disappear, or decrease in areas [20, 21].

1.3 Factor causing changes in commercial activities

Changes in commercial activities are triggered by various economic, urban, social, political, and legislative factors. Each of these factors may cause more than one type of change in the activity. Table 1 shows the factors causing changes in commercial activities.

Table 1. Factors causing changes in commercial activities

			Economic Factors	Urban Factors	Social Factors	Political & Legislative Factors
Changes			Supply & Demand Changes for Retail Location FAST Return on Investment High Land Prices in Central Areas Consumer Purchasing Power Changes The inability of Stores to Adapt to Market Technological Development & Social Media Economic Crises	Increase in Urban Areas Changes in Housing Distribution City Location of Surrounding Cities Accessibility & Infrastructure Development Increased Traffic & Private Transportation in Central Areas	Population Growth and Population Densities Changes in Consumer Behavior & Cultural Trends Increase in Youth Percentage A Change in the Level of Education	Implementation of Policies & Political Orientations Do not Follow the Urban Plans Proposed Changes in Laws, Regulations, & Legislation
Spatial Changes	Moving Retail from Central Areas	Towards New Suburbs Towards Main Routes Mixed with Residential Zones	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓
	Revitalizing Retail in Central Areas					
	Disappearance of Retail Sites					
Changes in Retail Types	Decrease in the Pattern of Small and Independent Stores		✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓
	Change to Large Stores (Hypermarkets & shopping malls)					
	Change to Stores Type that Intersect with Entertainment Zones					
Overall, Areas Changes	Decrease in Stores Associated with Certain Types of Goods					
	Increase retail area		✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓	✓ ✓ ✓ ✓ ✓ ✓ ✓
	Decrease retail area					

Source: The researcher based on [14, 20, 22-28].

As deduced from Table 1, the most influential economic factors are the change of supply and demand for activity location and also technological development which causes appear and others to disappear for activity sites, as well as types of activity such as hypermarkets or shopping centers. As for urban factors, the most significant ones are the increase in urban area and accessibility and infrastructure development. On the other hand, the most influential social factors comprise changes in consumer behavior and cultural trends, which mainly cause the emergence of new types of stores regarding the political and legislative factors, implementation of policies and political orientations has the most impact.

1.4 Impacts of changes in commercial activities

As a result of changes in commercial activities, a range of economic, urban, and social impacts have emerged, in the city. The change in commercial activity is accompanied by a change in land values and the development of surrounding areas. Additionally, housing categories shift as higher and middle-income groups move near commercial centers on the peripheries, as a result of the migration of these groups from

central areas due to the deterioration of those areas [27, 28].

In addition, unsuitable locations for commercial activities lead to traffic congestion and consequent environmental problems. On the other hand, the rapid growth of shopping centers in suburbs, results in the migration of commercial activities from these areas leaving behind unused and neglected areas, in addition to the increased reliance on cars. This phenomenon occurs mainly in small and middle-sized cities. In addition, the expansion of e-commerce increased vacancies in commercial centers especially small shops [3]. Table 2 shows the range of effects resulting from changes in commercial activities.

As deduced from Table 2, the most influential economic impacts are an increase in land values in suburban and a decrease in the value of the central area after deterioration and moving-out activity. As for urban impacts, increase in vacant commercial buildings in the central area, and also increase in traffic congestion on roads. On the other hand, the most influential social impacts comprise. Reduction in opportunities for social interaction and community participation in the center after the activity moves out and change in shopping and consumption habits.

Table 2. Effects of changes in commercial activities on cities

Changes			Economic Impacts				Urban Impacts				Social Impacts									
			Decrease in Central Area Value after Deterioration	Increase in Land Values in Suburban	Stimulating the Local Economy & Attracting Investments	Increase in Supply of Activity Units and Non-Profitability	Increased Competition Among Activity Types	Providing Additional Employment Opportunities	Increase in Vacant Commercial Buildings in the Central	Decline in Public Spaces and Traditional Markets	Changing Green Areas into Parking	Suburbs Growth Rates Increase	Loss of Local Identity	Pressure on Facilities & Infrastructure	Increasing Demand for Parking Spaces	Increasing Car Usage & Difficulty for Pedestrians Access	Traffic Congestion Increases on Roads	Social Interaction Reduction	Emergence of Undesirable Social Mix	Improving Quality of Life
Spatial Changes	Moving Retail from Central Areas	Towards New Suburbs	✓	✓	✓		✓	✓	✓	✓		✓	✓		✓	✓	✓		✓	✓
		Towards Main Routes	✓	✓	✓		✓	✓	✓	✓		✓	✓		✓	✓	✓		✓	✓
		Mixed with Residential Zones			✓			✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓
		Revitalizing Retail in Central Areas			✓			✓											✓	✓
Changes in Retail Types	Disappearance of Some Retail Sites		✓						✓	✓							✓			
	Decrease in the Pattern of Small and Independent Stores		✓				✓		✓			✓					✓			
	Change to Large Stores (Hypermarkets & shopping malls)			✓	✓		✓	✓				✓		✓	✓	✓			✓	✓
	Change to Stores Type that Intersect with Entertainment Zones		✓	✓			✓	✓	✓	✓		✓		✓	✓	✓				✓
Overall, Areas Changes	Decrease in Stores Associated with Certain Types of Goods																✓			✓
	Increase retail area				✓	✓		✓		✓		✓	✓		✓					
	Decrease retail area		✓						✓								✓			

Source: based on [24, 28-33].

1.5 Mechanisms for dealing with changes in commercial activities

By analyzing the experiences of some countries such as Portugal, France, Italy, Turkey, Jordan, and the United States in addressing the challenges associated with changes in commercial activities, a set of urban, economic, social, and legislative mechanisms was deduced. Urban mechanisms comprise the restoration of commercial activities in central areas and the addition of activities that attract consumers. Also taking into consideration spatial distribution and urban sustainability principles in the distribution of activities,

Mechanisms also include the reuse of some small old closed commercial buildings either in commercial or related enhancing activities such as some administrative offices or health clubs (Gym) or adding some public spaces to the activity. This mechanism has been applied in Lisbon, Portugal, as well as in Milan, Italy.

There is also a set of legislative mechanisms and policies that maintain the old pattern of commercial activity together with the new patterns [9, 19, 29, 34]. Table 3 shows a monitoring of the mechanisms used to deal with the various changes of commercial activity.

Table 3. Mechanisms for addressing the impacts of changes in commercial activities

Commercial Activities Changes Impacts											
Mechanisms		Economic Impacts				Urban Impacts				Social Impacts	
		Decrease Value of Central Area	Increase in Supply of Activity	Increased Competition Among Activity Types	Increase Vacant Commercial Buildings in the Central Area	Center Areas Deterioration & Attractiveness Decrease	Decline in Public Spaces and Traditional Markets	Loss of Local Identity	Increasing Car Usage & Pedestrians Difficulty	Increase in traffic congestion on roads	Social Interaction Reduction Improving quality of life Change in Shopping & Consumption Habits
Urban Mechanisms	Functional Requalification: Small & Closed Commercial Centers	✓			✓	✓		✓	✓	✓	
	Functional Requalification: Mixed Uses	✓			✓	✓		✓	✓	✓	
	Moving out: Adding Public Space Areas to the Center and Reuse	✓			✓	✓		✓	✓	✓	
	Moving Out-Extension: Functional Requalification of Roadside	✓			✓	✓		✓	✓	✓	
	Implementing Comprehensive Urban Projects in Central Areas	✓	✓	✓	✓	✓	✓	✓		✓	✓
	Providing Larger Pedestrian Areas in Central Areas	✓		✓	✓	✓	✓	✓	✓	✓	✓
	Developing Principles of Spatial Planning & Sustainable Development	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Establishing Specific Urban Regulations to Ensure Preservation						✓	✓	✓	✓	✓
Economic Mechanism	Regulating Illegal Investments in Commercial Activities & Incorporating them into the Planning Process		✓	✓	✓	✓	✓				
Social Mechanism	Providing the Needs of the Local Community & Encouraging Community Participation in Planning Processes		✓	✓	✓	✓	✓		✓	✓	✓
Legislative Mechanisms	Establishing Strong Regional Authorities	✓		✓	✓	✓		✓	✓	✓	
	Issuing Clear Restrictions Law on Large-Scale Retail Stores	✓	✓	✓	✓			✓	✓	✓	✓
	Crafting Policies to Integrate Traditional Retail into Urban Scene	✓		✓	✓	✓	✓	✓	✓	✓	✓
	Implementing Administrative Policies		✓		✓	✓	✓	✓	✓	✓	✓
	Enhancing Authorities Cooperation to Develop Retail Principles	✓	✓	✓	✓	✓	✓	✓	✓	✓	

Source: based on: [9, 19, 24, 33, 34]

As deduced from Table 3, the most influential urban mechanisms of functional requalification at four type and developing principles of spatial planning. As for all Legislative mechanisms, aim to regulate competition between old and new pattern activities and enhance the vitality and viability of city centers, and avoid market saturation.

2. RESEARCH METHOD

As shown in Figure 2, the research objectives are accomplished through three main axes.

The first axes: a general study of changes in commercial activities at the three first generations of New Egyptian Cities totaling (21 cities). The fourth-generation cities, which were established within the last decade (30 cities), have been excluded from the study due to their limited population and the potential absence of residents. Additionally, these cities have not experienced changes in commercial activities comparable to those observed in the first three generations of new cities in Egypt. The selected 21 new cities are geographically distributed and vary in their urban, residential, and general characteristics of the city.

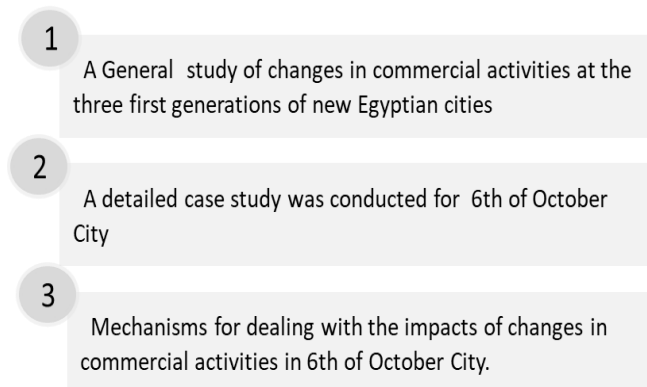


Figure 2. Methodology for the study

This study was carried out to identify the most important changes in commercial activities in those cities. This was accomplished, through a questionnaire that was conducted to the heads of the cities' administrative agency. It comprised three sets of questions; the first group is questions about spatial changes, the second group is questions about changes in types of commercial activities, and the third group is about changes in the areas of commercial activities in the city. This was followed by an analytical study that was conducted using the SPSS program to deduce the correlation between the types of commercial changes and the characteristics of the cities (general, urban, and residential characteristics).

The second axes: A detailed case study was conducted for the 6th of October City; this city was selected because it is one of the oldest and largest new cities and because it is one of the cities that experienced major changes in commercial activities.

Changes in commercial activities in the city were studied through two main steps:

The first step is to measure and analyze the changes in the activity over three periods, which represent the periods of updating the proposed plan for the city, which are (1979-2009/2009-2019/2019-2023). The development of the proposed plans and the changes that occurred in them are studied. This is followed by a study of the existing conditions

of commercial activities at each stage, and finally, a comparison between the proposed plans and existing conditions, using a comparative analysis of changes over periods of development of the activity. This step relied on the Google Earth program, which allows access to the current status of commercial buildings during the three mentioned periods through the historical imagery tool (temporal development of urbanization). For the current conditions, the years 2019 and 2009 were assessed, while the 2023 status was recorded through a comprehensive urban survey of the commercial activity locations in the city. All these tools aim to determine the activity area for each period, its spatial distribution, and the type of activity.

The second step is a study of the factors causing the changes and the impacts of those changes, based on observations of the research team, and questionnaires that were conducted for owners of commercial properties, residents frequenters of stores, and finally officials in the city development agency and the Ministry of Housing. The questionnaire questions covered both the causes and impacts of those changes. The selected survey locations were representative of all locations, residential categories, and types of change. They also had the highest percentage of commercial land use. The city as includes 11 major axes, 13 central areas, 15 commercial areas on the outskirts of residential compounds, and 16 residential areas. Therefore, the selected sample consisted of 5 major axes, 5 central areas, 6 commercial areas on the outskirts of residential compounds, and 6 residential areas. A total of 61 questionnaires were completed, including 29 forms for shop owners, 26 forms for shop visitors, and 6 forms for officials.

The third axis: is concerned with studying the mechanisms of dealing with the impacts of the changes, which can be used and applied in the 6th of October City, to reduce the negative impacts of and maximize the positive impacts of commercial changes in the city. This will be achieved after studying the changes and the mechanisms followed in similar cases mentioned in international experiences, which will help identify the mechanisms that can be applied in the case of the 6th of October.

3. RESULTS

The results of the research address three axes; analysis of changes in commercial activities in New Egyptian Cities, the results of the case study, and the mechanisms proposed for application in the 6th of October City.

3.1 The first axes: Analysis of changes in commercial activities in selected New Egyptian Cities

Spatial Changes: The study revealed that 81% of the cities saw commercial activities move outside central areas, primarily towards main roads or the suburbs which is the most common pattern. In addition, 43% of the cities are integrated into residential areas. This shift did not occur in cities with low urban growth like New Qena and New Fayoum.

Changes in Retail Types: The study found a decrease in small stores (commercial complexes) in new city centers over the last decade in 19% of the cities, while 57% of the cities large stores like supermarkets, hypermarkets, and malls increased. Additionally, commercial uses have replaced other land uses such as main road rights of way, high voltage lines, and some green areas. Some residential-only areas were

transformed into mixed commercial-residential areas in 38% of the cities, particularly those nearing urban completion, such as 6th of October, New Cairo, May 15, New Damietta, and New Thebes.

Changes in the city's overall commercial activity areas: The study found that demand for commercial land in all new cities increased in the last decade. The study was conducted in two stages: from the city's establishment until 2014, and from 2014 to 2023. The year 2014 marked a turning point in land allocation policies due to political and administrative changes. The annual rate of commercial land use (acre/year) was calculated for both phases and linked to the city population size in 2023 to deduce the residents' share of commercial activities.

The 10th of Ramadan City, 6th of October City, and three cities in Upper Egypt (New Assiut, New Beni Suef, and New Minya) saw the highest increase in commercial activities from 2014 to 2023. This was due to significant urban growth, the development of road networks, and proximity to their mother cities. The new city of Qena also experienced high growth due to weak development in its initial stage, a common trend in newest cities in Upper Egypt.

Correlations between changes in commercial activities in new cities and their general, urban and population characteristics: Using cluster analysis in SPSS, the study identified strong correlations between changes in commercial activities and the characteristics of new cities. Key findings include strong correlations between commercial housing areas and the city's age, spatial scope, and number of urban extensions, and greater prevalence of these areas in the Greater Cairo region.

A relationship between specialized commercial recreation activity and the education level of residents, and there are correlations between changes in land use for commercial




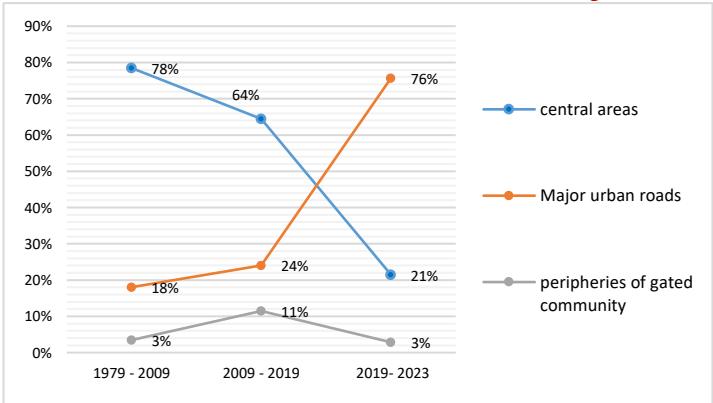
activities and the percentage of urban development completion. In addition to an increase in commercial activity, the area associated with a higher percentage of young people (aged 20-40) and larger urban areas. Also, inverse relationships between per capita commercial activity and the distance from the parent city, as well as the city's population occupancy rate. These findings are discussed in detail in the discussion section.

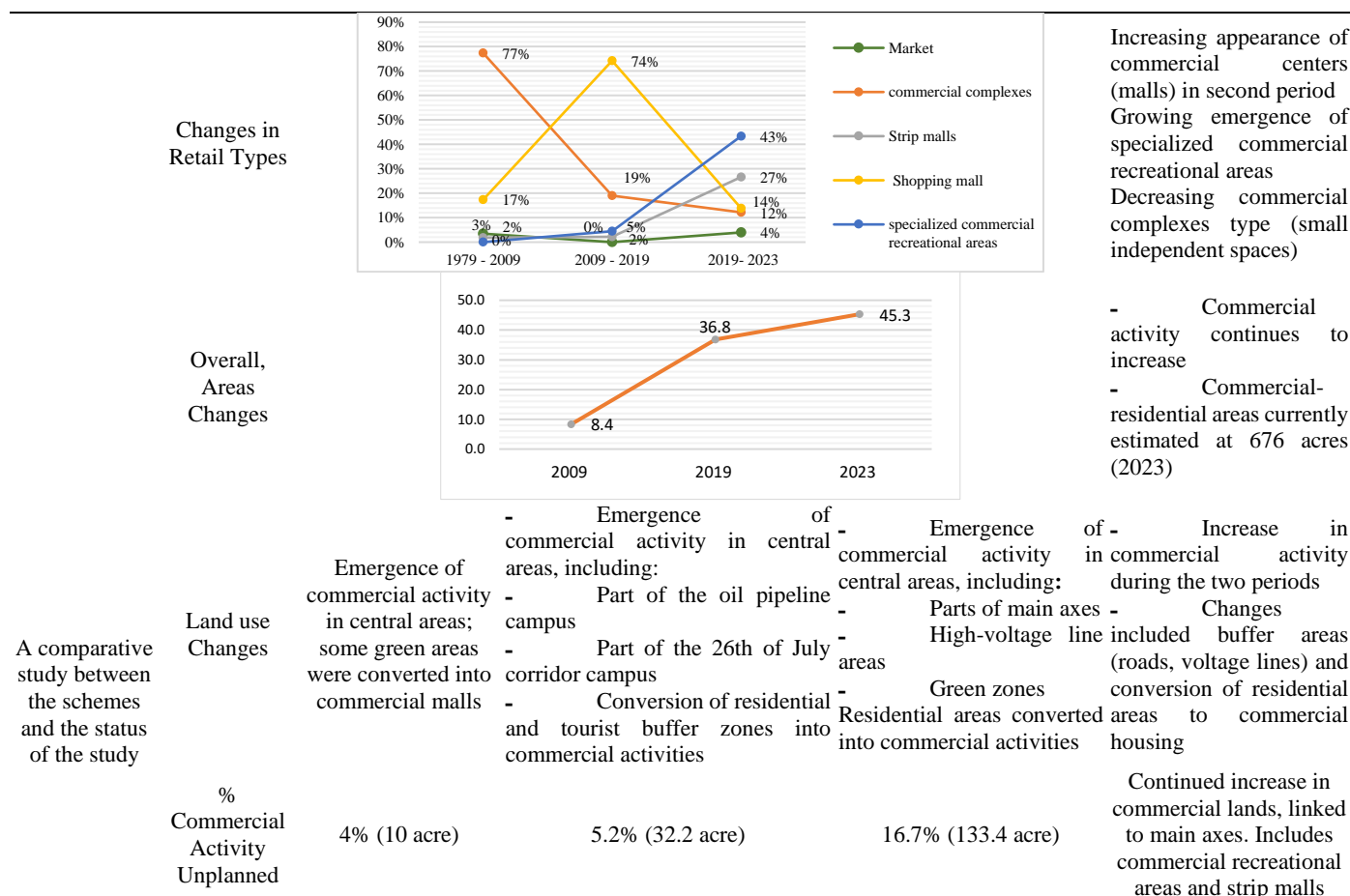
3.2 The second axis is the results of the case study of 6th of October City; the changes in commercial activities and their causes and impacts

First Step: Studying the changes in commercial activities on the 6th of October City: The development of commercial activity in the city was studied across three stages (1979-2009, 2009-2019, and 2019-2023). Activities were analyzed in each stage and compared to the proposed plan for each period, as shown in Table 4.

As deduced from Table 4, the key results of the changes in the 6th of October City, which can be summarized as follows: commercial activity in the city has moved towards the main axes instead of the central areas that dominated activity during the initial period. Regarding the type of retail, the city has recently seen dominance by new types of commercial units, such as shopping malls and recreational commercial areas, at the expense of the traditional patterns of activity (e.g., commercial complexes). Additionally, the rate of increase in commercial area in the city during the most recent period has grown fivefold compared to the initial period. By comparing the current distribution of commercial activities with the proposed strategic plan for the city, it was found that certain commercial activities are distributed in a way that does not align with the plan, with their proportion increasing fourfold during the most recent period compared to the initial period.

Table 4. Study of changes in commercial activity on the 6th of October City

		1979-2009	2009-2019	2019-2023	The Result
Studying Development of Proposed Schemes for Case Studies	The Most Important Change in Land Uses in the Proposed Plan of the City	----	Extensions have been updated to include housing, activities, and services, with parts of the southern green areas converted to housing and services. Allowing the parcels opposite the central axes as Mixed Use	Extensions were added and the city was divided into three	Transforming parts of the city into investment projects
	City Area	15,980 acres	126,950 acres (The area of the city has been 8 times)	52,697 acres New areas were added and divided into 3 cities	Converted residential tourist (residential and services) buffer to services, industrial plots to opposite the central axes investment activities, and from residential to green belt to service housing residential commercial
	Commercial Activities Spatial Distribution				Change in the pattern of distribution of activity from centralization to diffusion
Study the evolution of the current conditions of commercial activity for the case study	Spatial Changes of Activity				Activity areas have increased along the main axes and decreased in central areas As of 2023, commercial housing is distributed 58% within residential neighborhoods and 42% along main axes



Source: Researcher based on the survey and analysis of current conditions of the city and Google Earth

Second Step: The results of the study of the causes and impacts of causative factors and the effects resulting from changes in commercial activity in the 6th of October City.

Questionnaires and observations with the owners of commercial run it's in the city, visitors, residents of the surrounding areas, and officials identified key factors and effects of commercial activity changes in 6th October City: Generally, commercial activity emerges in one city over another due to a set of factors highlighted by shop owners in the questionnaire. For instance, 94% of respondents reported an increase in residents' economic levels, 82% noted easier access and increased demand, 76% cited the city's advantageous location relative to surrounding cities.

- 1) Causative factors and impacts associated with the emergence of commercial activities on road axes and arteries.

The results of the analysis of changes in commercial activities indicate that the growth of commercial activities associated with road axes was in the form of strip shops (strip malls) in a typical and repetitive manner, as there is often a gas station (chill out) and next to it a group of restaurants, cafes, supermarkets, exhibitions, pharmacies and other types of commercial activities which eventually form an integrated area for commercial and service activities in the form of a commercial cluster. Additionally, the emergence of types of commercial activities (malls as well as recreational commercial activities) is linked to the axes, and these activities are also associated with lands that are unplanned for commercial activities. The questionnaire attributed the emergence of these activities on the main axes to a set of factors:

- All shop owners (100%) agreed that easy access and available parking encourage higher residential categories to visit these areas more than central ones. Additionally, 92% agreed on the rapid return on investment, and 83% on increased demand for activities at these locations. State intervention, such as early development incentives, was supported by 67% of respondents. Furthermore, 94% noted that activities have emerged as strip malls, shopping centers, and recreational areas due to increased road traffic, with 88% observing significant changes in consumer behavior and a desire to combine shopping with recreation. Also, 71% attributed the rise in commercial activities to the influx of distinguished residential groups and increased young and educated demographics, which drive demand for open, less regulated spaces.
- Visitors to commercial shops cited ease of access as the most important factor, with 100% agreeing. Additionally, 88% highlighted the importance of location along with their daily commutes and available parking. Specialized stores offering superior services were also mentioned.
- Officials agreed that the main reasons for the emergence of commercial activity are the economic value of land along the axes (100% agreement) and meeting residents' needs with services along the roads. Additionally, 83% noted that increased road traffic is a significant factor.

On the road, axes varied between positive and negative

impacts that were observed through observation and surveys. 83% of shop owners noted job creation and increased urban growth, while 58% observed rising land values in the suburbs and 67% saw an increase in urban growth in the surrounding areas. Negative direct effects were also observed on commercial and residential properties located behind these shops, which was noted by the researchers and confirmed by 42% of the shop owners, as it led to the non-operation of some commercial malls. Some of them have changed the types of shops in them, between the closure of some shops, and some turned into an on-line, and some shops have turned into kitchens for restaurants and some into ceramic exhibitions, finishing tools, health and sports clubs, in addition to poor architectural design, which affected the visual vision of their direct commercial and residential areas.

- In the near term, increased demand for shops is expected to strain the traffic network, raise parking demand, and limit future expansion. Niche brands may also lead to market monopolies by large traders and the closure of small shops, which shop owners confirmed 53% and 41%, respectively. However, the growth of commercial activity along the axes helps alleviate pressure on the city center.
- Visitors to the shops noted job creation (75%) and changes in consumer habits (63%). Officials viewed all impacts positively, with 100% confirming job creation, 83% agreeing on surrounding land development, and 67% observing population and economic growth in the city.

2) Causative factors and effects associated with the contraction of activity areas in the centers

Commercial activities were originally associated with the central areas of the city. At the beginning of the city's inception, where it appeared next to residential neighborhoods (economic and medium categories), in addition to the presence of important uses such as 6th of October University and Al-Hosary Square, which represents the axes of internal movement in the city. Additionally, the central areas are associated with a pattern of small stores, which the study has shown to be declining in recent times, due to the following factors:

- For commercial shop owners, 62% confirmed the inability to compete with the new types of stores, such as shopping malls on the outskirts of the city or residential compounds, and also 62% reported changes in consumer habits and preferences. Additionally, 85% confirmed the increase in rents in central areas, while 15% of the sample stated that the number of shops has not decreased but rather increased.
- For shop visitors, 100% agreed that the change in consumer behavior and their preference for new patterns that provide an integrated shopping and entertainment experience, which are not available in central areas, is the reason for the decline in small shops. They also highlighted the deterioration of infrastructure, the lack of recreational areas, and the unavailability of parking spaces in central areas as factors that have led to a decrease in visits by residents and, consequently, a reduction in the number of commercial shops, with percentages of 69%, 77%, and 77%, respectively.

- For the officials, 100% agreed that high land prices in central areas drive shop owners to seek spaces on the ground floors of residential buildings, whether in internal city axes or lower-cost residential areas. Brand stores and large businesses tend to move to new axes with lower rental prices, attracting demand. Additionally, 67% cited traffic congestion and lack of parking in central areas, as well as the presence of street vendors and beggars, as reasons why higher-income and sometimes middle-income groups prefer new sites. The spread of university students and workers in central industrial zones also contributes to alienating residents. Furthermore, 67% noted that the economic situation significantly affects central areas, as tenants are often small traders who are highly impacted by economic crises and struggle to adapt. Additionally, the difficulty of providing large spaces for major stores in central areas was also highlighted.

These factors led to researchers observing the closure of large percentages of shops in central areas (50% and sometimes more), and the appearance of abandoned areas which are not safe, especially for pedestrian movement. This was confirmed by both shop owners and visitors, where 67% of the sample confirmed the closure of small shops in central areas and the deterioration of public spaces. Additionally, shop visitors noted that this has reduced opportunities for social interaction in central areas, which have now become neglected.

3) Causative factors and effects associated with the peripheries of a gated community.

This phenomenon is associated with the increase in the number of gated compounds in the recent period, and with the increase in the population of higher-income groups due to the following factors:

- Officials attributed the rise in activities at the outskirts of residential compounds to changes in regulations, allowing direct external access for commercial uses to serve the city, with 100% agreement. They also noted increased investment returns, demand from higher-income groups, and brand establishment in these areas, with 83% agreement.
- Shop owners highlighted rising consumer incomes (85%), rapid investment returns (94%), and ease of access (94%) as key factors.
- Visitors emphasized the importance of ease of access (100%) and location along commuting routes (80%).

As a result of these changes, the most important effects mentioned by the officials, which 83% agreed upon, were the increase in the value of land in the surrounding areas, an increase in urban growth rates, as well as researchers observed increasing in the opportunities for social interaction, and finally the enhancement of pedestrian movement and the change in consumer habits. The pressure on the traffic network at these locations.

- Residents also confirm that it supports interaction opportunities and enhances pedestrian movement, with 85% agreeing. However, it has negatively impacted villa prices in compounds, as the

commercial activities unplanned to serve the city's residents.

- 4) Causative factors and effects associated with the integration of commercial activities with residential neighborhoods.

The overlap between commercial activities and residential buildings appeared in almost all districts, especially the first district which witnessed highest rates of intervention of commercial uses in residential areas as a result of the spread of student housing next to the university. Also, in the sixth and twelfth districts due to the increase in economic housing. Residents' opinions about this commercial pattern varied between approval and total rejection, and these changes have emerged unplanned. This could be due to:

- Commercial shop owners unanimously (100%) agreed that rent differences between central and residential areas, along with rapid investment returns and growing demand, are key factors.
- Shop visitors and residents also agreed (100%) that ease of access and shop locations along commuting routes drive activity growth, with 70% of residents emphasizing the need for nearby services.
- Officials concurred (100%) on the significance of rent differences and higher economic returns from commercial use, while 83% attributed the shift from high-rent city centers to lower-rent residential areas to the state's economic conditions, insufficient wages, and high prices.

The impacts observed were significant. Shop owners reported 86% more job opportunities and noted increased traffic congestion and conversion of green spaces into parking areas (57%). Visitors and residents observed a 77% rise in traffic congestion and 62% in job creation. Additionally, 54% noted a deterioration in residential buildings, infrastructure strain, visual pollution, and social issues. Researchers observed more shop closures in central areas. Officials confirmed these issues, including 83% traffic congestion and deterioration, added pressure on utilities, and difficulty selling land in central areas (83%).

3.3 The third axes: Proposed mechanisms for the 6th of October City

From the results of the questionnaire, and the mechanisms that were deduced from the theoretical study, a set of mechanisms for dealing with changes in commercial activities in the 6th of October City were outlined, as shown in Table 5.

Based on the analysis of the impacts resulting from changes in commercial activity in 6th of October City, identified through observations and questionnaires, the key effects are summarized in Table 5. This table highlights three main changes that have significantly influenced the study area, such as the emergence of new types of activities along major urban roads preferred by consumers. These changes have led to the closure of some shops in central areas and a decline in commercial activity in certain locations.

Table 5. Mechanisms for dealing with changes in commercial activities on the 6th of October City

Changes	Impacts	Functional Requalification: Small & Closed Commercial Centers	Functional Requalification: Mixed Uses	Moving out: Adding Public Space Areas to the Center and Reuse	Moving Out-Extension: Functional Requalification of Roadside	Implementing Comprehensive Urban Projects in Central Areas	Establishing Specific Urban Regulations to Ensure Preservation	Developing Principles of Spatial Planning, Urban Models, and Sustainable Development.	Establishing Strong Regional Authorities	Issuing Clear Restrictions Law on Large-Scale Retail Stores	Crafting Policies to Integrate Traditional Retail into Urban Scene	Providing the Needs of the Local Community and Encouraging Community Participation in Planning Processes
The emergence of commercial activity along major urban road	Reducing the economic value of lands located behind the activity	✓				✓	✓	✓	✓	✓	✓	✓
	Closure of some stores and transformations in some of their uses	✓	✓	✓	✓	✓	✓	✓	✓			
	Distortion of the visual image of properties located behind the shops					✓	✓	✓				
	The dominance of major retailers and lack of competitive equality with small traders									✓	✓	✓
Decline in activity areas in central locations	Closure of more stores or shutting down parts of centers (old stores format)	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	
	Deterioration of central areas and their transformation into craft zones or desert areas	✓	✓	✓	✓	✓						
Commercial - residential activities integration	Deterioration of residential buildings and urban environment					✓	✓					✓

By linking these impacts with Table 3, which outlines international mechanisms to address similar issues, it was concluded that the Functional Requalification mechanism, in its four forms, can be applied depending on the commercial building's location and its relationship to surrounding uses. Additionally, Developing Principles of Spatial Planning and Urban Models can help optimize the distribution of activities and ensure sustainability.

The Establishing Specific Urban Regulations to Ensure Preservation mechanism can also be implemented to harmonize and preserve the urban fabric. The emergence of commercial activities in areas not designated for such use in the proposed plan has negatively impacted the operation, profitability, and visual appeal of planned commercial activities, particularly those located behind these establishments. Applying these mechanisms can address these impacts by regulating shop appearances, improving architectural design, enhancing the visibility of activities behind these establishments, and promoting overall urban coherence. This approach was consistently applied to the remaining impacts as well.

4. DISCUSSION

The results of the study can be summed up in three main groups.

4.1 First: Changes in commercial activities at the level of New Egyptian Cities

The study found that changes in commercial activities occurred more widely than expected, affecting Greater Cairo and cities in the Delta and Upper Egypt. The observed changes align with increased development rates, so we don't consider its changes in all the same cities, particularly in Upper Egypt, these changes can be considered, a natural growth of commercial activity not changes, mainly resulting from recent official attention and efforts to attract population growth.

The study anticipated a correlation between moving commercial activities from central areas to suburban and movement axes, old cities, and cities with high urban completion and population occupancy rates, as shown by theoretical studies. However, the analysis revealed exceptions, such as New Cairo, where commercial activities remained central. This may be due to the city's nature, distribution of activities along main roads, city management, and integration of commercial activities in mixed-use projects.

The results of the correlation coefficients showed a correlation between the integration of commercial activities with housing, with the age of the city; the older the city, the greater the likelihood of commercial mix with housing. These changes were associated with cities located in the Cairo region, and this confirms the great dynamism of activity in this region and that the changes in it are different from other regions in Egypt, as a result of the different population and urban nature.

Regarding changes in retail types, it was expected that small stores would decrease, giving way to large, specialized, and recreational stores like malls, strip malls, and mixed-use projects. However, the study did not confirm a decrease in small stores in new cities. Some results did show new trends in commercial activity associated with higher education levels. Although a correlation was anticipated between a high percentage of young people and these new trends, the results

did not confirm this relationship.

The results revealed a correlation between changes in proposed land uses to commercial uses and urban completion rates (e.g., Obour City and 6th of October, where urban completion exceeds 70%). However, no correlation was found with the population growth rate, possibly because urban growth rates outpace population growth. Additionally, significant correlations were observed between commercial activity and cities with higher percentages of young people (20-40 years), with an inverse correlation between the distance from the parent city and per capita commercial activity.

4.2 Second, discussing the changes on the 6th of October City

Survey results indicate that the rise in commercial activity is primarily driven by ease of access, quick investment returns, and proximity to consumer movement routes. Consequently, city planning should account for these economic and spatial factors across all housing types and activities, rather than concentrating all commercial activity in central areas. The October City case study showed that this centralization approach failed, leading to diverse forms of commercial activity, all sharing these key characteristics.

Changes in consumer behavior and new aspirations are among the main reasons for this emergence in activity. It would be better to find alternative opportunities to accommodate these requirements in a planned manner, without negatively impacting the city, while preserving the old activity patterns alongside the new ones and reducing competition between them.

The results of the study confirmed that the trigger for the emergence of commercial activity on main axes is a trend towards the economic use of land, the development of suburbs, and the increase of high-income residents in the city, in the recent period, together with the lack of the distinguished service needed by this category in central areas. The lands on the axes were allocated to investors in residential real estate (residential complexes), who began to establish commercial areas on the peripheries of these complexes, and also the government fulfilled this need on main roads. The effects appeared on the surrounding areas, whether commercial or residential, in addition to that increasing traffic densities in the future may cause significant effects on movement, so there may be a future vision to expand those arteries or remove those activities, especially since they are all buildings with light structure, depending on whether we can deal at the time with this size of shops or the displacement of this volume of labor and the loss of career opportunities.

In addition, when preparing the urban plan for the city, the allocation of land on those axes was not considered as commercial activities to serve roads and meet the needs of those distinguished groups of residents of those surrounding areas, and thus the current and future resulting problems are considered and avoided. The reason may be that when preparing the plan, it relied on the central areas to provide commercial service, but the low levels of services in it helped to appear in the axes. From the analysis of the factors causing changes in commercial activity and their effects in the 6th of October City, it is assumed that the different economic categories will be taken into account in providing the appropriate pattern of commercial activities.

The first stage of the 6th of October City was lower-income neighborhoods October City also began its inception lower

income in economic neighborhoods associated with the industrial zone, and university students. In universities, so there was full reliance on the central area in the vicinity of Al-Hosary Square for the availability of public transportation and its middle accessibility for many universities, so the areas of activity in those sites increased and its condition deteriorated, traffic and pedestrian movement as traffic and pedestrian traffic are difficult, in addition to the fact that its commercial patterns suit that category.

The comparison between the literature and the 6th of October case study shows major alignment, with some

differences highlighted in the case study that were not mentioned in the literature, as detailed in Table 6.

The theoretical changes in economic and ecological theories align with the case study of 6th of October City, commercial activity moving towards the outskirts and main roads. However, commercial activity did not return to the center as theories predicted, and while the theories suggested a decline in the central area's value, this did not happen. As, urban deterioration appeared around the center, as the theories had proposed.

Table 6. The similarities and differences between the literature and the 6th of October case study

Similarities		Differences	
Spatial Changes	- In the most recent period, activity has moving retail from central areas to the suburbs and main routes	- Commercial activity has not yet returned to revitalized central areas, which remain in decline.	- The activity has not disappeared from certain sites as mentioned; rather, it is expanding over large areas with various new types of activities
	- Decrease in the pattern of small and old format stores	- The reduction of certain types of shops selling specific goods (this was not clearly observed in the city)	
Changes in Retail Types	- Change to large stores & stores type that intersect with entertainment zones		
	- A significant increase in the commercial activity areas within the city	- No decline in commercial areas due to profitability issues; activity is steadily increasing.	
Overall, Areas Changes	It aligns with the literature in the factors shown in Table 1, as evident in the case study.	The factors that were not addressed in the literature but were significant in the case study include:	
	- Supply & demand changes for retail location	- Lack of coordination between city development stages and target populations	- Land value changes over time. played a major role in driving changes in activity, particularly along major roads
Factors Causing Changes	- FAST return on investment	- Consumer purchasing power changes	- Security instability leading to residential areas becoming mixed use
	- Changes in housing distribution	- City location of surrounding cities	- The emergence of branded stores attracting residents
Effects of Changes	- Changes in consumer behavior & cultural trends	- On the other hand, factors mentioned in the literature, such as:	- The ability of commercial activities to adapt to new changes, did not show a significant impact in this case study, leading to the closure of some businesses
	- Increase in youth percentage	- Some impacts mentioned in the literature were not observed in the case study:	- Central area value decreased after deterioration: Land prices are actually high
Effects of Changes	- Do not follow the urban plans proposed	- Increase in supply and non-profitability: Commercial area is expanding, and there is demand for land	- Emergence of activities increased surrounding land value: Activities along axes negatively affected properties behind them, reducing their value
	- Implementation of policies & political orientations	- The case study also highlighted new impacts, such as:	- Difficulty for investors to sell land in central areas due to high prices compared to commercial land in residential neighborhoods
Effects of Changes	It aligns with the literature in the factors listed in Table 2, as seen in the case study		
	- Increase in land values in suburban		
Effects of Changes	- Increased competition among activity types		
	- Increase in vacant commercial buildings in the central area		
Effects of Changes	- Decline in public spaces and traditional markets		
	- Suburbs growth rates increase		
Effects of Changes	- Loss of local identity		
	- Increasing car usage & difficulty for pedestrians access		
Effects of Changes	- Social interaction reduction		
	- Emergence of undesirable social mix		
Effects of Changes	- Shopping & consumption habits change		

4.3 Third: Discussing mechanisms for dealing with changes in commercial activities on the 6th of October City

The proposed mechanisms to deal with changes in 6th of October City can contribute to improving the current situation of the city, and reducing the negative effects, especially the closure of shops, the control of large stores on the real estate market in the city, and the great competition between small and large stores. These are the same impacts observed in international cases and mentioned in the literature reviewed in the introduction of the research. The differences were discussed in the previous section. When using the mechanism

of functional rehabilitation in its various patterns, it is expected to attract various groups, restore the commercial activities re-activity to the central areas, rehabilitate them to suit the new spaces and the style of stores, and introduce entertainment elements to them. In addition, it can be included within integrated mixed projects, not only commercial, as this quality has proven successful, as the area does not turn in any period of the day into a dark area, as when mixed commercial development with administrative with housing and entertainment, this encourages ensures the vitality and sustainability of the area region, so if those deteriorating and closed commercial centers are identified and integrated limited

and entered into actual projects and the rehabilitation mechanism was used in relevance proportion to the needs of the surrounding area, and involving stakeholders in the planning process with officials, whether shop owners or residents it is expected to improve the image of the city and increase the occupancy of those closed commercial units in commercial centers.

5. CONCLUSION

After examining the changes in commercial activities in the city and analyzing the causes and impacts of these changes on the 6th of October City in detail, a set of mechanisms has been developed to address the negative effects of these changes on the city, which can subsequently be applied to similar cities.

Changes in commercial activities in new cities may be the result of not taking into account all the needs of high, medium, and economic residential groups regarding the types, sizes, and locations of commercial activities when planning the city. In addition, changes in the policy of managing and allocating distinctive lands on axes may lead to negative impacts on the planning process but have a positive economic impact. It is hence necessary to reconcile the economic and planning dimensions to improve the city and its sustainability.

The planning process must consider city development stages to align with the nature of commercial activity. Initially, economic neighborhoods are dominated by central areas, small stores, that suit this category, and therefore when the second phase of medium and distinct neighborhoods begins, and the imbalance occurs in the need to provide large stores that provide better service. Hence, if there are no alternative locations far from the central areas that may have reached a stage of relative deterioration, changes appear in uses that are incompatible with the plan. Therefore, the stages of development must be linked with the distribution of activity in the city and its flexibility with any innovations in the city.

We must also bear in mind that new commercial activities, whether malls or large stores with their different patterns do not only serve the residents of the city but also serve the residents of the surrounding urban areas, so this must be taken into consideration in their locations and their accessibility. In addition, to the dynamic nature of the activity may stimulate the growth of surrounding commercial areas, so this dynamic must also be taken into account in city planning.

From the study of the New Egyptian Cities, it was found that change in commercial activities as in newest cities in the world, began in the central areas, then the axes, then in the suburbs, and may return to the central areas again. However, this stage has not yet appeared in the Egyptian case and therefore when we look at the new cities in different countries of the world, we rarely find these changes occur, as the basic idea of establishing new cities. It is based on the hierarchical distribution of activity, services, and roads and thus maintaining the sustainability of the city in terms of the distribution of traffic densities and the consumption of all elements of the city from roads and pedestrians and the ease of access of residents to them on foot, and therefore as a result of the difference of the Egyptian experience from other all planning dimensions and the nature of its inhabitants and their characteristics, those principles on which the establishment of new cities were based must be reconciled with the special nature of the experience using some of these proposed mechanisms.

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