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REVIEW PAPER

THE ROLE OF ECONOMIC DETERMINANTS IN THE ORGANIZATION OF LAND USE AND THEIR IMPACT ON THE INTERCONNECTEDNESS OF URBAN SECTORS

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ABSTRACT

The present paper investigates sustainable urban development, as mandated by the state's land-use regulations. It explores the interrelationship among various city sectors based on a guiding plan. Moreover, it delves into the integration of services and facilities across the city and its outskirts. The research analyzes the interactions among these components—whether through attraction, clustering, disintegration, or separation—under the economic determinants that affected the regulation of contemporary land uses.

This study underscores the importance of strategically positioning services and installations to enhance connectivity, minimize costs and adhere to deadlines. Yet, due to a past disregard for economic regulatory principles, urban planners have failed to fully grasp the significance of integrating economic strategies into urban planning. This oversight has resulted in the misconception that economic planning takes precedence over urban planning.

Urban planning is crucial for the effective execution of development projects, and economic regulations go beyond simple cost assessment, as they are a scientific field focused on maximizing resource allocation for guiding planning choices. This subject was chosen to highlight the importance of both urban planning and economic regulations. The complementarity between these two domains will enable the harmonization of numerous urban development decisions pertaining with the demands of social well-being, thereby facilitating effective planning in response to the continuous evolution of urban growth.

Keywords: Economic determinants, land-use organization, connectivity, urban interconnectedness, urban sectors

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Introduction

Recognizing land as a dynamic asset in urban regions is essential for the effective organization of diverse land uses that shape a city. Land values, driven by costs and closeness to city center, play a pivotal role in the seamless integration and connection of various sectors that make up the city's landscape. Additionally, it is vital to acknowledge that economic determinants have had a major impact on the governance of land-use. This stems from the former urbanists' disinterest in this perspective and their unawareness of economic system principles, wherein urban planning was not viewed as a key element of financial planning. These plans, arising from development program interpretations, are not merely minor applications of mathematical science employed in cost-analysis techniques; they represent a discipline of resource allocation and management to facilitate planning choices. Besides, economic controls represent not just a simplified version of mathematical sciences used in cost analysis methods, but rather a scientific approach to distributing and directing resources for informed planning decisions. Considering this, economists and urban planners have begun to recognize that both economy and land use serve as significant functions. They understand that the synergy and balance between these components will enable the formulation of numerous decisions regarding the city and its

In the present paper, the city is examined through the lens of analysis and decision-making to systematically arrange goods and services for its inhabitants, functioning as an economic and social hub where economy and social nature intersect and merge. The city, with all its components, can be viewed as a beneficial site that symbolizes the conventional marketplace for products and services, embodying the essential production elements that both individuals and economic entities rely on when making their urban and economic planning choices. The clustering of economic activities and events enhances their efficiency due to their proximity, integration, and concentration in these areas, creating a dynamic environment that fosters growth and innovation.

This has led to problems that have defined the city's economic management process. Studies have shown that urban growth and expansion increase the complexity between land value and land uses. This complicates accessibility and connectivity between the core and the periphery of a city. Economic competition might disrupt the planned allocation of land use for housing, commercial, industrial, and recreational, often causing a lack of coherence in policies and regulatory frameworks governing land use (Hiba, 2014). This situation is exacerbated by the absence of a clear policy for monitoring and regulating framework laws that preserve the value and function of land uses through systematic distribution within the city. This makes it challenging to achieve optimal connectivity and increases transportation costs, which in turn affect urban land values and competitiveness among various uses (Hiba, 2014).

The present study raises the question of the correlation between economic determinants and the regulatory process of urban land uses. It aims to analyze whether changes and imbalances in land use affect the functional composition of cities. The distribution of urban land uses and their organization within a city's internal structure are significantly influenced by economic determinants, shaping the spatial dynamics and functionality of urban environments. This research aims to develop a comprehensive theoretical framework that elucidates the relationship between economic determinants and the spatial organization of urban land-use within the city.

I. Economic determinants of urban land-use

Economic determinants play a crucial role in regulating land-use within urban areas and shaping their structure. The allocation of land-uses primarily depends on the prices and returns generated by these uses, driven by competitive dynamics in the urban land market that favor optimal land utilization. Land is viewed as an investment commodity by investors, with its value varying according to financial resources and influenced by several factors. Among these, economic considerations are particularly significant, as they markedly affect urban land uses (Kamel, 2008).

In addition, it is essential to recognize that land-uses are influenced by a variety of other determinants, including natural factors such as topography, climate, geological characteristics and social factors. The most important indicators of these determinants include:

1. Competition for location

Location is a critical element. The functional performance of a city—reflected in population distribution and land use patterns—represents the cumulative competitive relationships among various demographic groups, types of land use, functions, and institutions. Commercial and industrial uses are often prioritized due to their economic viability. In contrast, residential uses tend to rank lower because of their reduced competitive capacity. Nonetheless, there is no clear separation among the various land uses within the city; rather, there exists a continuous overlap among these uses as cities expand (Kamel, 2008).

2. Market value of urban land

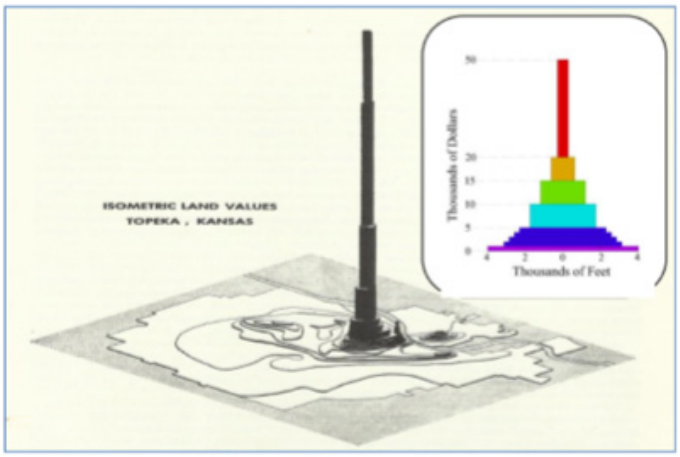
The economic value of urban land, just like other factors of production or commodities, is influenced by the interaction of demand and supply, necessitating an equilibrium between them. Various factors affect the assessment of urban land value, including residential density, location, land features, land use preferences, investment competition, views on taxation, and the main purpose of the city center. Moreover, the topography and cost of living in the area are crucial elements. The value of land in urban planning can also be affected by the proximity of amenities such as services, streets, intersections, and other urban elements (Hiba, 2014).

Recent studies indicate that land prices are highest in city centers. Land value near the city center has continuously varied, with fluctuations in both upward and downward directions, demonstrating a high level of land-use intensity. Furthermore, properties located along main roadways are more valuable compared to other properties due to their strategic positioning near the city center.

II. Urban land market

The urban land market is considered a dependable mechanism for preparing urban plots to fulfill urban growth objectives. Land prices can considerably vary depending on the balance between supply and demand, as studies have demonstrated. In numerous nations and areas, the availability of land in cities does not match the increasing demand due to urban land's distinct economic qualities and location, which dictate its price and purpose (Heritage, 2022).

Figure 1.
Chapin, F. (1972). Land values according to its location in the city [Graph]. urban land Use planning (p. 12). Universities of Illionois Press.



Note. "Represents the distribution of land based on those who abandon or relinquish it."

Developing transportation infrastructure and organizing roads in a city is a key factor in controlling land use. Roads and streets require specific urban land uses with beneficial features and requirements as the majority of land allotments are situated near transportation routes and communication systems. As you get farther from the city center towards the outskirts, the value of land usually goes down, resulting in cheaper rental rates. On the other hand, closeness to city center usually corresponds to increased land prices.

Urban land use studies focus on exploring how people utilize the land in a particular area within a specific timeframe. The goal is to determine the compatibility between environmental resources and the level of land exploitation in terms of size and type (David, 1980).

The idea of land use:

(1)"Entails how different functions such as residential, commercial, industrial, service, and recreational are distributed within a city and its surrounding areas"(Al-Hiti & Saleh, 1986, p.83).

(2)And (2) represents all the actions carried out on the land and indicates the ongoing evolution of the connection between people and their surroundings, in a constant effort to establish a balance between them (Jaber, 2006).

Effective land management is essential for sustainable development, and land use regulation plays a pivotal role in achieving this balance, "Land use regulation is a structured evaluation of the capacity of land and water, different potential land uses, and economic and social factors in order to determine and implement the most suitable land use choices. The goal is to choose land uses that effectively fulfill human needs and preserve resources for the future" (FAO, 1993, p. 06) .

Based on Ghoneim's findings : "Land use planning involves a set of interrelated steps designed to identify the best way to utilize land by examining economic, social, and environmental factors" (Anim,2001,P.157). The regulation of urban land-use is a crucial aspect of thorough planning, based on future-oriented goals for the city's layout. This vision is expressed through a detailed strategy called the "master plan," which details political goals, governance levels, tools, and organizational structures required to reach the intended objectives.

III. The role of economic determinants in regulating the distribution of urban land use types

Identifying four primary types within the city's internal structure significantly influences land use and aids in understanding how economic factors organize urban landscapes. This study focuses on key aspects such as accessibility and its impact on land use patterns, as well as the influence of both external and internal savings. Furthermore, it considers the relationships between essential supporting activities, including those that are both attractive and repulsive.

1.Commercial land-use (mercantile and retail)

This land-use type includes recreational and practical elements, with an emphasis on the practical aspect. Various factors influence the growth or reduction of this land utilization model. The growth of population density results in a higher demand for commercial services, while increased real income levels lead to greater purchasing power, boosting demand for business services and expanding their reach. Additionally, heightened cultural awareness, combined with growing individual needs, contributes to an increased demand for business services (Mostafa, 2004).

Consequently, this type generates more revenue due to the amenities it provides to residents. Since commercial services are closely linked to accessibility, it becomes crucial to select locations near population hubs within the city.

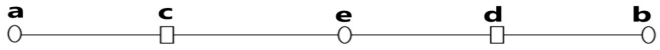
We can distinguish three main distribution types for commercial land uses within the city:

- **Directed toward major streets type:** This type relies on facilitating movement and traffic flow.
- **Based on accessibility type:** This involves clustering commercial uses hierarchically within strategic locations.
- **Based on lower land prices type:** This is represented by markets that serve residential neighborhoods (local shops).

Commercial services typically select their locations strategically by considering a specific set of characteristics and features in order to drive profits and remain competitive. However, other commercial services are attempting to rival them with a similar offering. If the boundaries of a specific area are defined by points (A) and (B), there are initially two shopping centers, (C) and (D), positioned at a distance 1/4 away from either end or the middle. Therefore, residents living between points (A) and (E) are the ones purchasing necessities from center (C), whereas residents between points (B) and (E) are the customers of commercial center (D), under the assumption that it is closer than any other commercial center.

In this scenario, the competition's persistence compels one of the commercial centers to either provide alluring offers or relocate to a more profitable area and setting. For instance, the attractions and offerings of center (C) shift towards center (D) and move further to boost revenue. In this scenario, the demand for (C) grows leading to a profit increase from 1/4 to 3/4. In response, center (D) aims to reclaim its popularity and boost profits by offering better benefits to its customers. This prompts both parties to set up shops and business centers in the middle of (E). The competition and the push and pull dynamics happening in areas cause institutions and businesses to relocate to central city hubs, willing to pay premium prices solely for increased profits (Mostafa, 2004).

Figure 2.
Author. (2024). Illustration of the commercial use type [Graph].



Note. "The figure represents the location of commercial services at specific points."

2. The Residential use type (inhabitants and social services)

The requirement for housing makes up the majority of urban land usage in a city's internal layout. Individuals are compelled to dedicate a large portion of their income towards obtaining housing due to this essential need. As a result, personal earnings and their sufficiency, along with the laws of supply and demand in the city's real estate market, always impact deciding where to live. The need for housing is determined by an individual's capacity to afford a suitable price for housing, depending on their financial situation and assistance from entities like banks. This engagement triggers economic forces in the city, with the foremost factor influencing housing demand being the plot's size and location across various city sectors. Potential home purchasers take into account different factors when choosing a plot of land within a particular area of the city's layout. Factors such as the quality of housing, resident homogeneity, safety features, and surrounding building characteristics are all taken into account. This factor frequently results in homebuyers paying increased prices for sought-after properties.

The primary factor that influences the price of land is its location. Closeness to the city center or main roads greatly affects the value of land. For example, as shown in Figure 06, there is a distinct correlation between land prices and proximity to the center. Point (A) signifies the downtown area, point (B) represents the distance from this downtown area, and point (C) denotes another plot of land. The line connecting points (C) and (B) reflect the potential price that can be paid for any given plot.

3. Functional land-use type (work and labor)

Accessibility, especially in relation to government institutions and public sector entities, is a critical determinant of functional land use in urban areas. The majority of these public institutions, along with a few private ones, are situated in the downtown area, offering services to the community. Hence, the placement of these establishments is intended to guarantee closeness to both residents and public transportation. Because these establishments are usually gathered in city centers and specialized areas, they create functional clusters that support urban economies through efficient information sharing between different entities. In this situation, the expense of traveling to and from work is a key element in planning city development. This is because of the connection between where people work and where they live, emphasizing the placement of these essential facilities in urban transportation centers.

4. Industrial land-use type (including industry and input for production)

There are two primary aspects to industrial land uses in a city. The initial factor is depicted by major industries situated mainly on the peripheries of urban areas. These sectors are crucial for fulfilling urban daily requirements and can efficiently deliver their services from the outskirts to the inner parts of the city, including food production and other critical services. The second factor relates to light industries, which have a closer connection with people's everyday routines. Most of these industries do not transport their services over long distances; they are mainly focused on providing services and are usually located in central areas of cities, away from government buildings to prevent traffic congestion and uphold proper urban planning. The key patterns of industrial land use in the city include small areas located near city centers, large areas situated near transportation hubs, and large areas found in isolated zones.

Typically, industrial use sites need to be close to roads, streets, and transportation hubs. The aim of this is to make it easier for job seekers and employees (workforce) to reach their destination. The key to the success of these industrial clusters lies in combining their services with their unique focus simultaneously. Hence, by selecting the placement of these businesses within the sectors at either the city's core or its periphery, they will have access to workforce from the local residents. However, the service user will not face any obstacles that prevent them from reaching the services. As a result, we can mitigate other influences on the signing process, like supplying energy, raw materials, and infrastructure, since advancements in technology and technical factors have lessened the impact of obstacles. In urban savings, there is no hindrance

due to the presence of technical factors, fast innovation, and technological growth linked to quick information sharing, which leads to an expansion of the market area and increased profits.

IV. Urban Interconnection and Its Impact on the Structure of Urban Land Uses

To identify the underlying elements, which define the general structure of urban land uses that determine the dynamics of changes in land uses, it would be imperative to examine the changes in land uses in conjunction with the changes in organizational factors over times. This needs to break down land uses into their basic building blocks to allow empirical analysis as (Mostafa, 2004) points out.

Communication channels represent pathways for movement and flow that express the character and identity of a place, as they are elements with dense features of stable periodic life, such as transportation networks and commodity flows.

Boundaries are intangible yet perceptible elements that are recognized through transformation lines between adjacent sectors, such as large commercial centres.

Sectors refer to a specific part of the city's fabric that has a defined identity and character due to the interaction of social, cultural, and economic factors that contribute to its uniqueness.

Nodes represent places with a high concentration of activities, often located at intersections between two or more sectors, and most nodes have a distinct identity and independence that does not belong to any sector; many of the reasons for the emergence of these nodes are historical or religious.

Thus, urban land uses can be distinguished materially by the city's urban form and conceptually by their structural evolution, as growth, development, and organic change leave their imprint on the urban form of land uses, reflecting their transformations over time in response to the forces shaping them.

1. The Connection Between Lands Uses

The relationship between different patterns of land use can be understood through the crystallization of social, economic, and political forms in the city, which directly influences the nature of functional interaction among various land use patterns via location centrality, ease of access, competition for land use sites, interaction among activities and functions in the city, and general urban policies.

By recognizing the relationship between different land uses and pinpointing their whereabouts, we can grasp the organization of urban land use types in a city. Three categories of connections can be identified among land uses (Mostafa, 2004):

- **Competitive relationship:** This arises between land uses that cluster together and compete to serve a single market, such as commercial functions, or among various competing functions based on their ability to exploit land, such as trade and industry. The interaction with these relationships is often indirect, managed by controlling variables that directly influence them in order to weaken or strengthen their competitive nature.

- **Mutually beneficial relationship:** In this scenario, a relationship forms between various land uses that do not oppose each other and offer a range of services to a common market, like housing and amenities or commerce and housing. This kind of relationship is controlled by maintaining a good equilibrium between the sizes of these utilizations to avoid it turning into a competitive one, making sure that only those utilizations capable of competing continue to be feasible.

- **Solidarity relationship:** The relationship of solidarity is less frequent but meaningful, happening when a small cluster of land uses back a specific primary use, like having commercial, service, and industrial areas along with residential zones.

2. Mechanisms for regulating urban land use

The evidence indicates that controlling urban land use is essential, as it plays a vital role in overseeing and directing land use operations. In addition, transportation plays a crucial role in identifying the level of connectivity or separation among various areas of the city. Enhancements in transportation quality and decreases in transportation expenses make it easier to travel within and outside the city.

Given that a city functions as a system comprising interconnected components, effective regulation of urban land use can only be achieved

through well-defined mechanisms and strategies. These include:

- **Comprehensive urban land use planning:** Comprehensive planning entails creating tactics starting from a higher-level perspective, considering a detailed examination of current situations, set goals, and recognizing potential challenges that could hinder the planning process for urban land utilization. This method enables the identification of problems and then creating solutions by choosing appropriate options that fit the present circumstances. Moreover, these measures must be evaluated to determine their economic, social, and environmental viability. Following this, the implementation takes place while still emphasizing the importance of monitoring in three phases: before implementation, continuous assessment, and after implementation. This guarantees that the planning procedure stays on track with its goals, enabling proper management of sectors and determining their usage in line with established principles, as follows:

- **Optimal use of land-use:** The effective use of urban land is contingent upon several factors, including the functional preferences associated with land types, their geographical location—specifically, their proximity to the city center—and their economic value, which encompasses land pricing and potential returns. These criteria significantly influence the distribution of land uses. Urban planners and decision-makers must implement regulatory mechanisms that mitigate the monopolization of land by a minority of capital owners. Such monopolization often leads to an uneven concentration of land uses across various sectors, resulting in disparities that adversely affect accessibility both within the city and among its different sectors.

- **Multiple uses in one area:** This approach, employed by urban planners, promotes the integration of various land uses to serve multiple functions. It relies on strategies such as density, clustering, and the provision of a wide range of services within a single area. This method minimizes transportation needs and ensures equitable access both within the area and to adjacent sectors. Economically, it reduces transportation costs, while socially; it enhances convenience and reduces the effort required by residents. Additionally, it offers environmental benefits by improving air quality through decreased transportation reliance, which in turn lowers emissions and helps, protect the environment from pollution. This concept aligns with the vision of the integrated city, which has emerged as a contemporary strategy for achieving sustainable development.

- **Zoning of urban land uses:** Zoning aims to maintain the value of city land using the principles of the land market. It aims to make the economic profit from land while maintaining its value to prevent it from being converted for other purposes. Maintaining the assigned functions of the land relies heavily on this stability.

Conclusion

Urban land use planning is in a state of constant change, driven by urban dynamism and community needs within the city, making it a response initiated by residents. It is essential to implement a series of connected actions by stakeholders and planners to achieve efficient urban land use by analyzing all factors affecting land organization.

However, the initial physical foundation for designating activities and services as intended land uses relies on the principle of selecting the placement of land uses in different city sectors. It should be noted that the latter fits into the concept of zoning, which is suggested in various theories for designating urban land uses in a specific region while allowing for future city growth and development to be determined later. This is known as adaptable planning of urban land usage.

On this basis, this study suggests:

(1) the development of a coherent and successful strategy for organizing urban land use, which involves managing the urban land market, regulating urban expansion, and ensuring compatibility among different land uses within city zones.

(2) The conduction of in-depth studies on the degree of functional interaction between the city's sectors by adopting a variety of indicators related to urban land uses, enabling planners to modify or develop these uses in the future.

(3) The balancing of the distribution of ur-

ban land uses within and between sectors, determining their impact and effectiveness in promoting interaction between sectors as a key step towards integrating land uses and ensuring harmonious functional interaction.

(4) The adoption of an integrated city planning through multiple uses of urban land in the form of intensive activities that will increase connectivity efficiency and reduce pressure on the road and transportation network while saving land by preserving urban land and reducing excessive consumption in land uses.

(5) the implementation of control mechanisms in line with the different phases of land use planning to ensure the successful implementation of goals and guide decision-makers using mandatory standards in legal regulations.

(6) the engagement of all parties in the process. And (7) the emphasis on community involvement through regular meetings to establish effective land use planning by assessing both physical and ethical resources and challenges, ultimately meeting genuine physical and ethical requirements while utilizing precise and swift data analysis techniques.

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