

Original Research Article

Examining the Role of Waqf in the Spatial Organization of the Neighborhood: From Social Institution to Spatial Pattern (Case Study: Chaleh Meydan in the Qajar Period)

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Abstract | Throughout the history of Islamic cities, *waqf* has not merely been a financial or charitable institution, but has also been one of the sustainable tools shaping the spatial organization of the city. However, in urban studies in Iran, the examination of *waqf* has generally remained at the level of historical description, and its spatial mechanisms, particularly at the neighborhood scale, have rarely been analyzed in a systematic and analytical manner. This study, focusing on the Chaleh Meydan neighborhood in Qajar-period Tehran, aims to explain the role of *waqf* in the formation of the spatial structure of this neighborhood and to extract a spatial-functional pattern from this process. The research method is based on a qualitative-historical approach and spatial analysis, proceeding on two levels: on one hand, a study of documents including *waqf* deeds, historical maps, and municipal reports; and on the other, an analysis of the neighborhood's physical organization in terms of a movement network and the system of *waqf* spaces. The theoretical framework of the research integrates the theory of space production, spatial organization and movement analysis, the concept of socio-spatial structure, and the language of organized patterns. The results show that *waqf* in the Chaleh Meydan neighborhood has played a key role in producing and stabilizing the neighborhood's spatial structure through three main mechanisms: regulating ownership and access relations, organizing public and ritual uses, and creating social gathering centers. Based on this, a network consisting of *waqf* spaces such as mosques, schools, *huseiniyas*, and water reservoirs has organically linked with the neighborhood's pathways, fostering local centrality, strengthening collective life, and sustaining the spatial identity of Chaleh Meydan. The research findings indicate that the *waqf*-centered spatial organization pattern can serve as an analytical framework for reinterpreting policies for the revitalization of historic neighborhoods and utilizing the potential of traditional institutions in contemporary urban management.

Keywords | *Waqf, Space production, Neighborhood spatial organization, Chaleh Meydan, Qajar Tehran, Social-spatial institutions*

Introduction | In the tradition of the Islamic city, *waqf* has functioned as an institution that extends beyond charitable activities, playing a sustained role in the spatial organization and collective life of urban environments. Key elements of public space -such as mosques, madrasas, and *tekyehs*- have largely been formed through the *waqf* system (Bianca, 2000). This institution constitutes an effective mechanism for the production and stabilization of space at both physical and social levels, a phenomenon that is also

evident in the formation of historical neighborhoods in Tehran (Ettehadiyeh, 1999; Habibi, 2008).

However, the body of urban studies literature in Iran has predominantly examined *waqf* within the domains of historiography or religious economy, largely neglecting its spatial dimensions at the neighborhood scale. Existing studies have often been limited to descriptive accounts of endowed buildings or inventories of *waqf* properties, without systematically analyzing the relationship between the *waqf* system and patterns of land use distribution, ownership structures, and

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urban movement networks. This gap is particularly evident in the case of Qajar-era Tehran, whose physical transformations have otherwise been extensively studied. In this context, most research has overlooked the active role of waqf as a spatial-producing agent, focusing instead merely on the description of endowed structures (Etehadieh, 1999; Karimian et al., 2017).

The Chaleh Meydan neighborhood, as one of the historical cores of Tehran, represents a prominent example of this institutional-spatial relationship. Nevertheless, previous studies have largely confined themselves to historical narratives of this role and have not analytically examined the concrete mechanisms through which waqf has influenced the physical structure and movement patterns of the neighborhood. To address this gap, the present study focuses on Chaleh Meydan during the Qajar period and seeks to answer the following main research question: through what mechanisms has the institution of waqf influenced the processes of spatial production and organization in this neighborhood, and what kind of pattern has this interaction generated in linking institution, space, and social activity? A subsidiary question further explores how this pattern can be reconstructed through an integrated framework combining documentary and spatial analysis within a pattern-oriented approach.

The significance of this study is twofold. From a theoretical perspective, it aims to bridge the gap between historical studies of waqf and spatial research in Iranian urbanism by offering a novel interpretation of the relationship between traditional institutions and the production of space. From a practical standpoint, its findings may provide a basis for rethinking regeneration policies in historical urban fabrics, policies that, by leveraging the capacities of deeply rooted local institutions such as waqf, can contribute to strengthening place identity, enhancing the quality of public spaces, and promoting participatory urban governance in the contemporary era.

Research Background

The body of literature relevant to this study can be examined at two macro levels: first, international theoretical and empirical discussions related to waqf, spatial organization, and contemporary theories of space; and second, historical and urban studies concerning Tehran.

At the global level, four principal strands can be identified: studies on waqf and the spatial structure of Islamic cities; research on urban morphology and the spatial organization of historical neighborhoods; theories of the production of space and socio-spatial construction; and the emerging literature on urban governance and the role of local institutions.

At the level of Iran, a range of historical works, waqf studies, and thematic urban research can also be referenced.

• Waqf and spatial structure in Islamic Cities

In the literature on Islamic cities, waqf is recognized as one of the principal pillars of spatial order and the provision of public services. Studies by scholars such as Hoexter (1998) and Singer (2002),

demonstrate that networks of mosques, madrasas, caravanserais, bazaars, and other waqf-based public spaces have played a fundamental role in stabilizing urban services and sustaining the spatial identity of cities. These works analyze waqf not merely as a financial mechanism, but as an institution that actively intervenes in the spatial and social organization of the city.

In more recent scholarship, the term “socio-spatial institution” has gained currency in describing waqf. Authors such as Abdelmonem & Elshahed (2012) conceptualize waqf as a mechanism of urban governance that complements formal institutions by creating networks of spaces and services at the neighborhood scale. Nevertheless, most of these studies remain at the macro scale of the city or region and have paid limited attention to analyzing the spatial-producing mechanisms of waqf within a specific neighborhood, based on historical documentation and rigorous morphological analysis.

• Spatial organization and morphology of historical neighborhoods

Morphological studies of Islamic cities regard the neighborhood as the fundamental unit of the city’s spatial (1971) and social organization. Works by scholars such as Hakim (1986), Bianca (2000), and Abu-Lughod indicate that historical neighborhoods have emerged through the long-term interaction of local institutions, kinship relations, property systems, and religious institutions. Within this framework, elements such as the mosque, hosseiniyeh, khāneqāh, and bazaar play a key role in defining neighborhood centrality, spatial hierarchy, and movement networks.

In this approach, urban form is understood as the outcome of institutional and social processes, rather than merely the product of technical decisions or top-down planning schemes. In contemporary morphological literature, the relationship between spatial structure, types of activities, and the quality of social life constitutes a central point of analysis.

Nevertheless, in many of these studies, although the prominent presence of religious and social elements is acknowledged, the waqf-based mechanisms underpinning the production and continuity of these elements have not been independently and systematically modeled; consequently, the institution of waqf often remains in the background of the analysis (Bianca, 2000).

• Theories of the production of space and socio-spatial construction

To understand the role of waqf in the spatial organization of the neighborhood, it is essential to draw upon key theoretical frameworks within spatial studies. Henri Lefebvre’s (1974/1991) theory of the “production of space” constitutes a major in this regard. Within this framework, space is defined as the product of social, economic, and institutional relations, and institutions, through legal, economic, and symbolic mechanisms, produce and reproduce space. This approach enables the analysis of waqf as an institution that intervenes in the spatial structure of the neighborhood through the determination of ownership, the allocation of space, and the definition of land uses.

Subsequently, approaches such as Space Syntax analysis, developed by scholars such as Hillier & Hanson (1984), employ indicators including integration, connectivity, and depth to elucidate the position of key elements within movement and accessibility networks. The application of this method in the study of historical neighborhoods makes it possible to analyze the spatial positioning of specific spaces, their degree of centrality, and their relationship with primary and secondary routes.

• Urban governance and local institutions

Contemporary urban governance literature emphasizes the role of informal institutions, social networks, and local structures in the production and management of space. Within this framework, institutions such as waqf in Islamic cities are understood as instances of “bottom-up governance,” which, alongside formal mechanisms of urban management, have played an active role in shaping public spaces, providing local services, and organizing support networks.

These approaches, on the one hand, attribute the resilience of historical neighborhoods largely to such community-based institutions, and on the other hand, emphasize their potential in contemporary urban regeneration processes. However, many of these studies remain at the macro level of the city or at the scale of urban districts and have seldom engaged with the detailed morphological and spatial organization of a specific neighborhood based on the analysis of historical documents.

Accordingly, there remains a need for studies that examine the role of institutions such as waqf at the micro scale and in direct relation to the spatial structure of a particular neighborhood.

• Research background in Iran

In the context of historical Tehran, particularly during the Qajar period, existing studies can be classified into several distinct categories:

The first category comprises general historical-social works on Tehran, which primarily focus on political and social historiography or provide descriptive accounts of events and buildings. Works such as “Historical events and monuments of Tehran” (Takmil Homayoun, 2008), “History of Tehran” (Javaherkalam, 1978), and “The Old Tehran” (Shahri, 1992) fall within this group. While these sources offer a general understanding of the history of neighborhoods, they typically lack spatial analysis or engagement with the institutional mechanisms shaping urban formation; therefore, they cannot be considered as direct antecedents for the present study.

The second category includes waqf studies with religious, economic, or service-oriented approaches. Research such as “Tehran waqf studies” (Shahhoseini, 2011), “A look at charitable practices in the Qajar period” (Malekzadeh, 2006), and “Endowers of the Capital” (Yaghoubi, 2017) specifically address waqf properties in Tehran. For instance, Malekzadeh focuses on the role of waqf in the provision of welfare and healthcare services. Shahhoseini, in both his book and articles such as “Surveying the Consecration in the Cultural Structure of Tehran from the Ghajar Period up to Islamic Republic” (Shahhoseini, 1998)

and “Mutual Impacts of Endowment Places and Urban Development of Tehran during the Qajar Period,” (Shahhoseini, 2016) claims to address the role of waqf in shaping the city; however, his work largely remains at the level of general statements, assumptions, and descriptions of endowment uses, without offering a systematic analysis of their impact on urban spatial patterns.

The third category consists of studies that explicitly address the relationship between waqf and urbanism or urban development, such as “Analyzing the Interplay Between Waqf and Urban Planning (Spatial-Physical Planning: A New Strategy for the Development and Optimal Utilization of Waqf Endowments)]” (Mohammadi, 2000), “The impact of waqf on the physical-urban expansion of Ray City” (Farhodi & Mirshafiei, 2008), and “The role of waqf properties in shaping urban spaces” (Yousefifar & Yadollahpour, 2012). Although these studies are thematically relevant, they differ from the present research in several respects: case selection (often focusing on cities other than Tehran or on different neighborhoods), methodology (reliance on abstract argumentation and lack of systematic use of historical documents, maps, and morphological analysis), and theoretical framework (absence of engagement with theories such as Christopher Alexander’s “pattern language”).

With specific regard to the Chaleh Meydan neighborhood, despite scattered references in historical sources, no study has been identified that examines the role of waqf in the spatial organization of this neighborhood through an integrated approach combining the analysis of waqf deeds and historical documents, Qajar-era maps, spatial morphological analysis, and theoretical frameworks such as the production of space and pattern language. From this perspective, the present study seeks, through such a multi-layered approach, to extract the “waqf-oriented pattern of spatial organization in the Chaleh Meydan neighborhood” and to articulate its implications for the advancement of urban studies literature and the formulation of regeneration policies in the historical fabrics of Iran.

Theoretical Framework

The theoretical framework of this study, aimed at elucidating the role of waqf in the production and spatial organization of the Chaleh Meydan neighborhood, is built upon the integration of four complementary approaches:

- Henri Lefebvre’s (1974/1991) theory of the production of space;
- The movement network analysis approach (Space Syntax) (Hillier & Hanson, 1984; Hillier, 1996).
- Habraken’s (1998) concept of socio-physical structure;
- Christopher Alexander’s pattern language (Alexander et al., 1977).

The combination of these frameworks enables the analysis of waqf not merely as a historical phenomenon, but as an active institution in the process of spatial production.

• Theory of the production of space

In this theory, space is not considered as an entity separate from social relations, but rather as the product of the interaction between

social, economic, and institutional forces. Lefebvre distinguishes three dimensions of space: perceived space (physical form and movement networks), conceived space (rules, ownership, and organizing institutions), and lived space (experiences, rituals, and social practices). In the present study, waqf is analyzed as an institution that, through the determination of ownership, the definition of ritual and public uses, and the creation of gathering centers, has influenced all three dimensions of spatial production in the Chaleh Meydan neighborhood (Lefebvre, 1974/1991).

• Spatial organization and movement network analysis

This approach, employing indicators such as integration, connectivity, depth, and centrality, provides a fundamental tool for analyzing the spatial structure of historical neighborhoods. In this study, it is applied to examine the placement of waqf-based spaces (e.g., mosques, tekyyehs, and schools) within the street network and to assess their role in shaping movement nodes and neighborhood centralities. This analysis reveals a tangible and measurable connection between the waqf institution and the organization of urban movement (Hillier & Hanson, 1984; Hillier, 1996).

• Socio-physical structure

Habraken's approach emphasizes the interweaving of institutional, functional, and physical layers of the built environment, demonstrating that urban form emerges from the interaction between institutional structures and patterns of social use. In this study, waqf is analyzed as an institution that, through the organization of public uses and support of collective activities, has established a stable connection between the institutional and physical layers of the neighborhood, thereby consolidating its spatial structure (Habraken, 1998).

• Pattern language

This theory regards successful urban spaces as the result of recurring patterns that respond effectively to human needs. In this study, the pattern-based approach is employed as the ultimate tool for synthesizing the findings. Analytical results have led to the extraction of waqf-oriented spatial organization patterns, such as the "mosque-bazaar axis," "waqf ritual center," "waqf movement node," and "waqf intermediate space," which illustrate how institutional interventions through waqf have translated into stable spatial patterns within the neighborhood's physical fabric (Alexander et al., 1977; Alexander, 1979/2016).

• Conceptual model of the study

As shown in Fig. 1, the conceptual model of this study is organized across three analytical levels:

1. Institutional (conceived) level: This encompasses the legal framework of waqf deeds, the types of waqf uses, religious-social objectives, and local management practices, which together determine the institutional rules governing space.
2. Spatial production processes level: This includes the space-shaping mechanisms of waqf, such as the allocation of ritual and public spaces, organization of religious gatherings, formation of centralities, and guidance of the movement network.

3. Physical-spatial structure level: This involves the placement of waqf buildings within the street network, their connection to movement axes, the formation of nodes and intermediate spaces, and the consolidation of spatial hierarchies.

The interaction among these three levels results in the waqf-oriented pattern language of spatial organization in the Chaleh Meydan neighborhood. Beyond explaining the historical role of waqf, this pattern can serve as a conceptual framework for reinterpreting urban regeneration policies and promoting spatial justice in contemporary cities.

Integration and Synthesis

- Pattern language and institutional-physical integration of Chaleh Meydan neighborhood
- Framework for reinterpretation of urban regeneration policies and promotion of spatial justice

Research Method

The present study adopts a qualitative approach with a historical-analytical nature and employs a case study strategy to investigate the mechanisms through which waqf has contributed to the formation of the spatial organization of the Chaleh Meydan neighborhood during the Qajar period. The research method combines documentary analysis with physical-spatial analysis to elucidate the relationship between the institution of waqf and the spatial configuration of the neighborhood.

Data collection was conducted in two domains. First, documentary data -including waqf deeds, historical maps of Tehran, and municipal records- were used to identify the distribution patterns and functional uses of waqf properties. Second, physical-spatial data were obtained through the reinterpretation of historical maps to reconstruct the street network and key built elements.

Data analysis was carried out across three levels. The first level involved documentary analysis to explain the institutional characteristics of waqf and to identify types of waqf spaces. The second level consisted of spatial morphological analysis, using indicators such as integration, connectivity, and centrality, to assess the role of waqf elements in the movement organization of the neighborhood. The third level involved interpretive analysis to synthesize the findings and extract space-institution patterns within the framework of pattern language.

The research process was implemented in four steps: collection of waqf documents, analysis of historical maps, spatial correlation analysis, and finally, the extraction and classification of waqf-oriented spatial patterns. To enhance the validity of the study, a data triangulation method was employed. The reliability of the results was also ensured through repeated map reviews and comparison with independent historical sources.

Discussion

The findings of this study are derived from the integration of Qajar-era waqf deeds, historical maps of Tehran, municipal

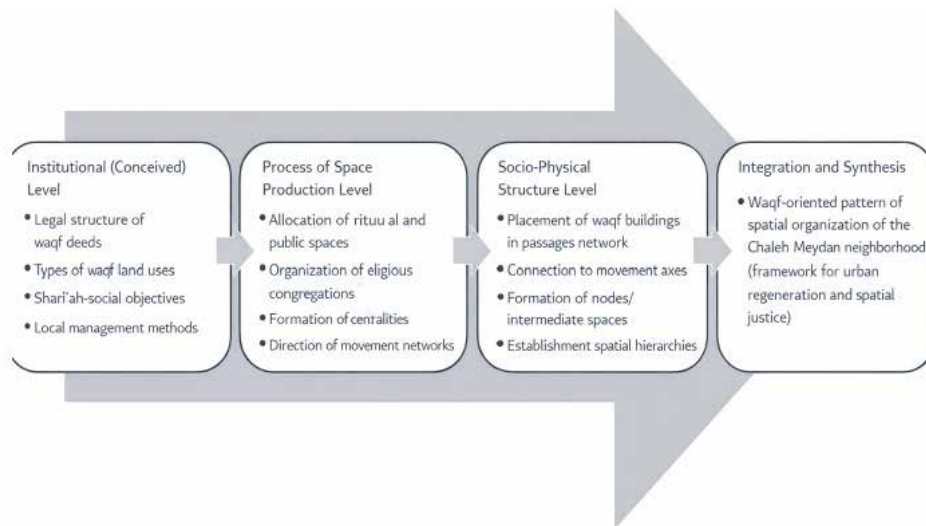


Fig. 1. Conceptual model of the study: Elucidating the role of waqf in the spatial organization of the Chaleh Meydan Neighborhood. Source: Authors.

records, and spatial structure analysis of the Chaleh Meydan neighborhood. This combination enables the analysis of waqf as an institutional–spatial mechanism. The results are organized into four main axes: the historical position and movement network of the neighborhood; analysis of waqf zones; explanation of spatial patterns based on the institution–process–space model; and quantitative assessment of waqf-oriented development between 1269 and 1317 AH.

• Historical position and spatial structure of Chaleh Meydan

As shown in Fig. 2, Chaleh-Meydan was strategically located near the bazaar, the royal citadel, and the southern gates of Qajar Tehran, simultaneously fulfilling commercial, residential, and ritual functions. Safavid- and Qajar-period maps (Figs. 2, 3 & 4), along with urban records, indicate that its main thoroughfares were aligned with high-traffic axes, and that a network of religious and service-oriented waqf properties had developed in proximity to these routes (Etemad al-Saltaneh, 1984; Shahri, 1992).

This pattern led to the formation of social gathering centers within the most active movement routes and contributed to the consolidation of the neighborhood's socio-spatial centrality. The functional structure of Chaleh Meydan comprised a combination of commercial activities, ritual spaces (mosques, *hosseiniyehs*, and *tekyehs*), and service-oriented waqf infrastructures (such as bathhouses, water reservoirs, and caravanserais). The interweaving of these uses provides a suitable basis for analyzing the institutional role of waqf in spatial organization.

• Analysis of waqf geographical zones

A comparative study of Qajar-period waqf deeds and historical maps of Tehran indicates that waqf properties in the Chaleh Meydan neighborhood can be identified across six distinct spatial zones, each representing a specific mode of spatial intervention by this institution.

The primary nucleus of development emerged around the endowments of Fatemeh Sultan Begum (including a bathhouse, *tekyeh*, and school), functioning as a threefold living center with ritual, educational, and hygienic roles. The second zone was

located adjacent to the shrine of Imamzadeh Seyyed Esmaeil and its endowed *tekyeh*, encompassing a multifunctional network of religious, service, and livelihood-related elements. The third zone, situated along the routes leading to the Dolab Gate, exhibited a transitional and connective character.

Three additional complementary zones included residential waqf properties embedded within the deeper urban fabric, dispersed service spaces (such as bathhouses and water reservoirs), and market-oriented waqf properties associated with caravanserais and commercial corridors.

The examination of these zones in subsequent sections will demonstrate that the logic of waqf-based development in the neighborhood evolved from an initial concentration around a ritual core toward the gradual formation of a multi-layered network of residential, service, and economic spaces, ultimately encompassing the entire spatial structure of the neighborhood.

• Qualitative synthesis based on the Three-Layer Model

The final analysis of the data, within the framework of the conceptual model of “institution–process–space,” reveals three principal mechanisms through which waqf has exerted its influence.

At the institutional level, waqf deeds, by defining the legal framework of ownership and modes of use, and by stabilizing a form of semi-public ownership, provided the legal foundation for the continuity of neighborhood services.

At the process level, the continuous performance of rituals and the provision of social services within waqf spaces led to the formation of ritual–social centralities that functioned as focal points of everyday interactions among residents.

At the spatial level, the placement of waqf elements along high-traffic routes and movement network nodes, together with the formation of small squares and intermediate spaces around them, enhanced the coherence of the movement network, the legibility of the physical environment, and the consolidation of place identity within the neighborhood.

The interaction of these three layers generated a set of enduring

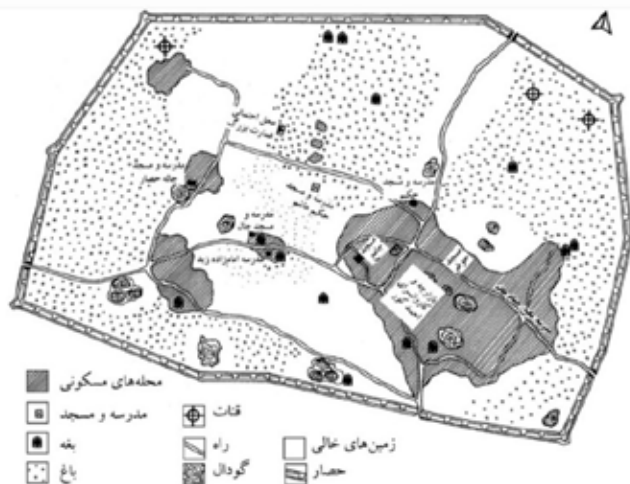


Fig. 2. Map of Tehran in the Safavid Period and its built structures.
Source: Motamedi, 2002, 45.



Fig. 3. Map of Tehran drawn by Krzysz (1858 CE / 1237 SH).
Source: Shirazian, 2016, 10.



Fig. 4. The Chaleh Meydan Neighborhood and its dependent areas in the Map of Tehran drawn by Abd al-Ghaffar Najm al-Molk (1309 AH).
Source: Shirazian, 2016, 32.

spatial patterns, which can be articulated in forms such as the “ritual–bazaar axis,” the “waqf node,” the “waqf intermediate space,” and the “service–ritual nexus.”

• Quantitative analysis of waqf-oriented development

To quantitatively assess the role of waqf, statistical data from the Dar al-Khilafah for the years 1269 and 1317 AH were compared. For this purpose, a Waqf Development Index (D) was formulated as:

$$D = AX + BY + CZ$$

In this equation, X represents the ratio of waqf properties to the total number of buildings, Y denotes the growth rate of residential units relative to the base year, and Z indicates the functional diversity index of waqf properties. The coefficients A, B, and C reflect the relative weight assigned to each dimension.

The number of residential units increased from 1,852 to 3,372 during this period (an 82% growth). For a more precise assessment, the indicator of “waqf density per 1,000 houses” was calculated. The results show that waqf-based residential units, which had a negligible presence in 1269 AH, reached approximately 5.93 units per 1,000 houses by 1317 AH. Waqf bathhouses increased from 1.62 to 2.37 units, and waqf caravanserais from 2.16 to 3.86 units per 1,000 houses.

Despite the absolute growth in waqf-affiliated shops, their relative decline, due to the sharp increase in the total number of shops, indicates a growing specialization of the market network during this period.

The calculations further indicate that by 1317 AH, out of 18 types of urban buildings, 14 types were represented in waqf form, with approximately 70 waqf buildings identified among 4,850 recorded structures. These findings suggest that the growth of the Waqf Development Index (D) was not solely the result of quantitative expansion, but was more significantly influenced by the increasing functional diversity of waqf and its deeper integration with the residential structure of the neighborhood.

During this period, waqf evolved from a purely ritual–legal institution into an effective driver of the spatial and service-oriented development of the neighborhood.

Despite the limitations in comprehensive statistical data for Qajar-era Tehran, two major surveys were conducted during the Naseri and Mozaffari periods. To better understand the spatial density of the Chaleh Meydan neighborhood, the raw data from these surveys particularly the Dar al-Khilafah statistics of Tehran (1269 AH), compiled under the order of Amir Kabir, were examined and categorized. Table 1 presents the outcome of this classification for the Chaleh Meydan neighborhood. In 1317 AH, a comprehensive statistical survey of Tehran during the Mozaffari period was conducted by Akhzar Ali Shah. According to this survey, the population of Tehran had increased to 244,400 inhabitants, and the building statistics of the Chaleh Meydan neighborhood at that time were as Table 2.

For a coherent analysis, waqf deeds were classified into six geographical sections, each representing a distinct form of urban development influenced by waqf. This categorization enables the

examination of the mechanisms underlying the formation and expansion of the neighborhood.

The primary nucleus can be identified as the endowments of Fatemeh Sultan Begum (sister of Shah Tahmasp), which included the earliest prominent public-benefit structures of Tehran, namely a bathhouse, a tekyeh, and a school (Ghasemi, 2000, 79). With their complementary hygienic, educational, and religious functions, this complex formed an initial “living center” and “vital core” that facilitated population concentration and the emergence of sustained social life. These elements correspond to Alexander’s view of the essential components required for the vitality of urban space (Alexander, 1979/2016, 6-221).

The later destruction of this complex, along with the persistence of toponyms such as “Gozar-e Hammam-e Khanom” (Lady’s Bath Passage), attests to its historical centrality within the collective memory of the neighborhood.

Imamzadeh Esmail is not merely a religious site, but also a spatial, social, and economic node. Alexander (1965/2010, 85-90) emphasizes the importance of “central spaces” that function like the heart within the urban body. A comparing Figs. 2 & 3 and Table 3, it is evident that waqf deeds indicate that over approximately a century, an urban ecosystem with diverse functions emerged around this

religious pole: religious functions (shrine, tekyeh), economic functions (shops, caravanserais), and everyday service functions (bathhouses, coffeehouses, stables). This combination forms a distinctive “pattern language” in which urban elements grow dynamically and organically.

Living centers are not created through imposed planning; rather, they emerge from the lived and ritual needs of society over time. The corpus of waqf deeds surrounding the Imamzadeh clearly reflects such a gradual and layered process: beginning with the religious core (the shrine), followed by its supporting services (such as coffeehouses for ceremonies), then livelihood and commercial activities (shops, local markets), and finally the establishment of residential units. In this way, a living, hierarchical, and human-centered spatial structure is formed.

Within this pattern, the city does not grow by erasing its past, but by building upon its original core. Evidence from the waqf deeds demonstrates this gradual development through the expansion of marketplaces and shops and their integration with religious spaces. The endowment of shops belonging to various guilds (ranging from pottery to food preparation) in this area reflects the emergence of a “diverse functional network” that responded to the daily needs of both residents and visitors (Table 4).

Table 1. Statistics of buildings in the Chaleh Meydan Neighborhood in 1269 AH. Source: Authors base on Inventory of Iran’s WAQF (Endowments) documents (Rezaei, 2007) & Tehran Dar al-Khilafah Statistics (Saadvandian & Ettehadiyeh, 1989).

Building Type	Total Number	Waqf Units	Building Type	Total Number	Waqf Units
Shops	712 units	6 units	Bathhouses	16 units	3 units
Houses	1,852 units	—	Stables	12 units	—
Printing Houses	15 units	—	Tekyehs	15 units	1 unit
Imamzadeh Shrines	2 units	—	Gardens/ Land Parcels	Not specified	3 plots
Mosques	25 units	1 unit	Caravanserais/ Commercial Courtyards	Not specified	4 units

Table 2. Statistics of buildings in the Chaleh Meydan Neighborhood in 1317 AH. Source: Authors base on Inventory of Iran’s WAQF (Endowments) documents (Rezaei, 2007) & Tehran Dar al-Khilafah Statistics (Saadvandian & Ettehadiyeh, 1989).

Building Type	Total Number	Waqf Units	Building Type	Total Number	Waqf Units
Houses	3,372	20	Gardens and Garden Plots	3	3
Shops	1,403	7	Tekyehs	5	1
Caravanserais	23	13	Ice Houses	4	4
Bathhouses	28	8	Barracks	2	—
Mosques	2	1	Mills (<i>Hojreh-Tahounah</i>)	—	3
Mosque-Schools	4	2	Coffeehouses	—	4
Water Reservoirs	—	1	Sabils (Public Water Points)	—	1

Table 3. Number, type, and date of waqf properties in the central core of the Chaleh Meydan Neighborhood (The earliest urban core of Tehran). Source: Authors base on Inventory of Iran’s WAQF (Endowments) documents (Rezaei, 2007) & Tehran Dar al-Khilafah Statistics (Saadvandian & Ettehadiyeh, 1989).

Time Period	Public Religious Space	Hygienic-Service Space	Public Economic Space	Private Space
Late Safavid	1 tekyeh, 1 mosque-school	1 bathhouse	—	—
Unspecified	—	—	—	2 courtyards, 8 upper rooms
1307 AH	—	—	3 shops	—
1322 AH	—	—	—	1 house
1329 AH	—	—	—	1 house

Dolab Gate provides an example of gradual spatial dynamism at the urban periphery, where service, residential, and commercial functions progressively animated the urban fabric. Unlike more classical spaces, this area lacks a central core, yet a network of functional elements is gradually transforming into a coherent urban structure. This pattern aligns with Alexander's perspective on "living cities": growth occurs from the bottom up, layer by layer, and in response to actual life needs, rather than according to engineered plans.

During the first half of the Qajar period, Dolab Gate primarily served as a boundary and service area, including bathhouses, icehouses, shops, and gardens. Waqf deeds indicate that this area gradually transitioned from an "extra-urban" space to an "active urban node." Initially, service elements outside the gate were endowed

(e.g., icehouses between 1269 and 1342 AH). In later documents, residential uses and shops connected to houses increased, signaling the transformation of the area from a supporting space to a foregrounded one, a pattern that Alexander describes as the gradual movement of space from the periphery to the center.

In contrast to the waqf properties around Imamzadeh Esmail, which are dependent on a religious core, the endowments of Dolab Gate are organized around scattered functional nodes such as the Naib al-Saltaneh Bazaar, the pottery workshop, Amin al-Zarb Garden, and icehouses. Alexander emphasizes that the interconnection of heterogeneous but complementary functions is essential for creating a living city. In this section, such a pattern is not yet fully structured, but it is emerging, and

Table 4. Number, type, and date of waqf properties in the Northwestern Zone of the Chaleh Meydan Neighborhood (Waqf and urban life infrastructure around Seyyed Esmail). Source: Authors base on Inventory of Iran's WAQF (Endowments) documents (Rezaei, 2007) & Tehran Dar al-Khilafah Statistics (Saadvandian & Ettehadiyeh, 1989).

Time Period	Public Religious Space	Public Hygienic Space	Public Economic Space	Private Space
1250–1259 AH	1 plot for tekkeh	—	1 khan + 8 shops + 1 caravanserai + 19 shops	—
1260–1269 AH	Seyyed Esmail Tekkeh	2 water reservoirs + 1 coffeehouse + 1 plot for washing the deceased + 1 bathhouse	4 shares of Gardan Kaj caravanserai +? shops	—
1270–1279 AH	—	—	1 shop	—
1280–1289 AH	—	—	18 shops + 3 shares of caravanserai	1 house + 2 buildings
1290–1299 AH	Land for Imamzadeh courtyard	1 coffeehouse	—	1 house
1300–1309 AH	—	1 stable, 1 enclosure (baharband)	—	1 building
1310–1319 AH	—	—	—	1 courtyard + 2 shares of a house
1320–1329 AH	—	—	12 shops	—
1330–1339 AH	—	—	—	—
1341–1349 AH	—	—	7 shops + Haji Hadi caravanserai	—

Table 5. Number, type, and date of waqf properties in the Eastern Zone of Chaleh Meydan Neighborhood (Transitional spaces from the periphery to urban node – Dolab Gate). Source: Authors base on Inventory of Iran's WAQF (Endowments) documents (Rezaei, 2007) & Tehran Dar al-Khilafah Statistics (Saadvandian & Ettehadiyeh, 1989).

Time Period	Public Religious Space	Public Hygienic–Service Space	Public Economic Space	Private Space
1250–1259 AH	—	—	1 shop	1 garden
1260–1269 AH	—	1 icehouse	1 shop	—
1270–1279 AH	—	2 bathhouses	2 shops	1 plot of land
1280–1289 AH	—	—	—	—
1290–1299 AH	—	—	—	—
1300–1309 AH	—	3 shares of 1 icehouse	—	—
1310–1319 AH	—	—	5 shops	1 house
1320–1329 AH	—	4 shares of 1 icehouse + 2 shares of another icehouse + 2 bathhouses	5 shops	—
1330–1339 AH	—	—	—	1 house
1341–1349 AH	—	—	—	2 shares of 1 house

changes in the waqf pattern reflect a transitional area in the process of urban consolidation (Table 5).

Initially, urban elements outside the gates were scattered. Subsequently, with the expansion of the market and urban settlement, shops, houses, and bathhouses were progressively endowed as waqf. Finally, endowments along Tehran's Main Street and around the Mehresh-Bashi intersection in the 1340s AH indicate that the traditional urban boundary had been breached and the urban fabric extended outward. Alexander characterizes this process as a continuous, layered transformation from the center to the periphery.

Imamzadeh Yahya, similar to Imamzadeh Esmail, functions as a semantic-spatial core within the neighborhood structure. Together with its surrounding waqf properties, it assumes a central, identity-forming, and spiritual role. The integration of religious, commercial, and residential functions here produces a living, multi-purpose structure, with waqf acting as a facilitator in shaping local spaces and strengthening social bonds. Endowed tekyehs, hosseiniyehs, mosques, and schools along this axis exemplify the "sacred space as gathering center" pattern. The endowment of shops with complementary functions (from grocery stores to coffeehouses) adjacent to religious spaces

reflects the formation of an "action node" directly interacting with the daily life of residents (Alexander, 1979/2016, 225).

The recurrence of waqf deeds in this area from 1248 to 1342 AH not only attests to its dynamism but also demonstrates that waqf gradually organized a living, expanding network that both attracted activity and preserved the urban fabric. The diversity of waqf spaces (houses, shops, tekyehs, bathhouses, schools) and their placement along main streets exhibit a pattern of organic growth. Spatial development in this part of the neighborhood was achieved not through macro-level planning, but via incremental, continuous decisions of endowers, realized as "gradual repair" and additive growth to the existing urban space (Alexander, 1965/2010, 49) (Table 6).

The development of waqf in the southern part of the Chaleh Meydan neighborhood following the construction of the Naseri wall reflects the physical and social transformations of Tehran in the late Qajar period. The types of waqf properties (such as stables, water reservoirs, newly established shops, and tekyehs) indicate the emerging needs of newly developed neighborhoods and the efforts of endowers to organize these spaces. At this stage, waqf assumed a balancing and regulatory role, both in stabilizing new socio-spatial boundaries and in reinforcing livable urban patterns within newly formed areas.

Table 6. Number, type, and date of waqf properties in the Northeastern Zone of Chaleh Meydan Neighborhood (Religious precinct and social cohesion; waqf around Imamzadeh Yahya). Source: Authors base on Inventory of Iran's WAQF (Endowments) documents (Rezaei, 2007) & Tehran Dar al-Khilafah Statistics (Saadvandian & Ettehadiyeh, 1989).

Time Period	Public Religious Space	Public Hygienic-Service Space	Public Economic Space	Private Space
1248 AH	Land for tekyeh and hosseiniyeh	—	—	—
1250–1259 AH	—	—	—	—
1260–1269 AH	—	—	—	—
1270–1279 AH	—	1 school-house (maktabkhaneh)	6 shops	—
1280–1289 AH	—	—	—	—
1290–1299 AH	—	—	8 shops	1 house
1300–1309 AH	—	1 coffeehouse	7 shops	—
1310–1319 AH	9-arched mosque building	—	3 shops	2 shares of 1 house
1320–1329 AH	—	—	—	1 building + 1 house
1330–1339 AH	—	—	—	—
1341–1349 AH	—	—	—	2 houses

Table 7. Number, type, and date of waqf properties in the Southern Zone of Chaleh Meydan Neighborhood (Expansion of the southern part of the neighborhood in response to post-Naseri wall developments). Source: Authors base on Inventory of Iran's WAQF (Endowments) documents (Rezaei, 2007) & Tehran Dar al-Khilafah Statistics (Saadvandian & Ettehadiyeh, 1989).

Time Period	Public Religious Space	Public Hygienic-Service Space	Public Economic Space	Private Space
1310–1319 AH	—	1 mill (hojreh-tahounah), 1 water reservoir	—	1 courtyard
1320–1329 AH	—	1 stable, 1 enclosure (baharband), and 1 carriage house	—	1 house
1330–1339 AH	—	—	8 shops and 3 shares of the Arab caravanseraï	—
1341–1349 AH	—	—	—	—

Table 7 shows that the lands associated with the Chaleh Meydan neighborhood demonstrate a significant transformation in the function of waqf following the construction of the Naseri wall. Here, one observes a form of conscious urban development that nevertheless continues to follow traditional patterns linking public and private spaces.

Waqf properties such as the newly constructed mosque, clusters of shops, and residential units along the streets of the Naseri city indicate that waqf was no longer merely a religious act, but had become part of the process of urban and social network formation in an entirely newly developed area. These endowments contributed to the creation of an interconnected network of public, commercial, residential, and religious spaces.

The new mosque, together with shops of diverse functions (ranging from herbal medicine to metalworking), represented a central node of activity within an emerging urban fabric. This corresponds closely with Alexander's concept of "small activities adjacent to a central institution" (Alexander, 1979/2016, 29; Alexander, 1965/2010, 54-146). In Naseri city, waqf functioned as an instrument for organizing newly emerging urban spaces. Waqf properties in this area were primarily oriented toward the functional structuring of the city (mosque, market, shops, water infrastructure, housing), all of which constitute components of sustainable urban livability.

According to Table 8, it is evident that to more objectively assess the role of waqf in shaping the Chaleh Meydan neighborhood, a comparative analysis of two historical Qajar statistical records is undertaken: the Tehran Dar al-Khilafah statistics for the years 1269 AH (Amir Kabir period) and 1317 AH (Mozaffar al-Din Shah period). These two points in time enable an analysis of developmental trends over half a century. During this period, the

number of residential units increased from 1,852 to 3,372 (an 82% growth).

To more precisely evaluate the role of waqf, the index of "waqf density per 1,000 houses" is employed, allowing for a targeted comparison of endowed land uses within the context of demographic transformation. The results are as Table 9.

The analysis indicates that the waqf-driven development pattern in the Chaleh Meydan neighborhood exhibited two key characteristics. First, the strengthening of commercial and transit-oriented functions is reflected in the increase in endowed caravanserais (from 2.¹⁶ to 3.⁸⁶ per 1,000 houses), demonstrating the active responsiveness of waqf to the expansion of economic activities. Second, the continuity of waqf's role in urban services is evident in the gradual increase in endowed bathhouses, while the relative decline in endowed shops may be attributed to the transfer of small-scale commercial activities to private ownership or to changes in waqf policies in the late Qajar period.

The integrated analysis suggests that the waqf played an active role in the production of space in Chaleh Meydan. The development of the neighborhood originated from initial waqf-based cores, continued through multifunctional centers (such as the area around Seyyed Esmaeil), and eventually extended across the entire urban fabric through a network of transitional, residential, and service spaces. By the mid-Qajar period, with the increasing diversity of functions and the deepening integration of waqf with residential structures, a stable pattern of a waqf-bazaar neighborhood had emerged. This pattern may serve as a conceptual foundation for rethinking urban regeneration policies in contemporary Tehran.

Conclusion

This study demonstrates that the institution of waqf in the

Table 8. Number, type, and date of waqf properties in the Northeastern Zone of Chaleh Meydan Neighborhood (Naseri New City; The linkage between waqf and modern urban order). Source: Authors base on Inventory of Iran's WAQF (Endowments) documents (Rezaei, 2007) & Tehran Dar al-Khilafah Statistics (Saadvandian & Ettehadiyeh, 1989).

Time Period	Public Religious Space	Public Hygienic–Service Space	Public Economic Space	Private Space
1290–1299 AH	—	3 shares of 1 icehouse	—	—
1300–1309 AH	1 mosque	—	11 shops + 1 kiosk	—
1310–1319 AH	—	—	4 shops	2 houses
1320–1329 AH	—	—	—	—
1330–1339 AH	—	—	—	—
1341–1349 AH	—	—	—	—

Table 9. targeted comparison of endowed land uses within the context of demographic transformation. Source: Authors base on Inventory of Iran's WAQF (Endowments) documents (Rezaei, 2007) & Tehran Dar al-Khilafah Statistics (Saadvandian & Ettehadiyeh, 1989).

Type of Waqf Property	Per 1,000 Houses (1317 AH)	Per 1,000 Houses (1269 AH)
Endowed houses	5.93	0.00
Endowed shops	2.08	3.24
Endowed bathhouses	2.37	1.62
Endowed caravanserais	3.86	2.16

Chaleh Meydan neighborhood during the Qajar period was not merely a religious or charitable entity, but an active agent in the production of space and the organization of the neighborhood's socio-spatial structure. The analysis of waqf deeds, historical maps, and spatial data reveals that endowed ritual-social spaces were strategically located along major thoroughfares and key nodes within the movement network, contributing to the consolidation of neighborhood centralities and enhancing spatial legibility. Based on the three-layer model of institution-process-space, waqf operated at the institutional level by stabilizing semi-public ownership and defining enduring land uses, thereby providing the legal framework for collective activities. At the processual level, the continuity (استمرار) of rituals and services within these spaces led to the formation of stable centers of social gathering. At the spatial level, the placement of waqf elements along main routes and the creation of intermediate spaces around them strengthened the physical coherence and legibility of the neighborhood. The interaction of these layers generated enduring spatial patterns -such as the ritual-bazaar axis, the waqf node, and the waqf intermediate space- forming a coherent

spatial pattern language aligned with theories of the production of space and pattern language.

The quantitative analysis based on the waqf development index further indicates that the strengthening of waqf between 1269 and 1317 AH was driven less by a numerical increase in endowed properties and more by the expansion of their functional diversity and their deeper integration into the socio-spatial structure of the neighborhood. Waqf evolved from a purely religious institution into an active driver of spatial development and the organization of local services. From an applied perspective, the findings underscore the importance of recognizing the potential of indigenous institutions such as waqf in urban regeneration policies. The extracted pattern can serve as a conceptual framework for designing participatory and sustainable strategies that integrate the conservation of physical heritage with the enhancement of social life quality and the reinforcement of place identity in contemporary urban contexts.

Declaration of No Conflict of Interest

The authors declare that they have no conflict of interest in conducting this research.

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