



Original scientific paper

# Urban Form and Real Estate Value in Msheireb Downtown Doha, Qatar

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## ABSTRACT

### ARTICLE INFO:

#### Article History:

Received: 5 February 2023

Revised: 14 June 2023

Accepted: 25 June 2023

Available online: 30 June 2023

#### Keywords:

Economics;

Morphology;

Real Estate value ;

Regeneration;

Urban Studies.

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*In the late 20th century, Doha's rapid urbanization and globalization led to the loss of housing and the compact, traditional urban fabric in the old city center. The Qatari government and Msheireb Properties developed Msheireb Downtown Doha to bring urban living back with a contemporary re-interpretation of the traditional urban fabric and modern life conveniences. Our study's primary objective is to investigate the relationship between urban form and the rental value of residential units, identifying factors that might influence rental asking prices. The paper examines morphological characteristics through field surveys and the real-estate variables such as location, floor area, number of bedrooms/bathrooms, and asking price collected from publicly available real estate websites. The findings indicate that the residential units' layout and adjacent streets' morphological characteristics clearly define specific targeted user groups. Larger residential units target Qatari families via more bedrooms/bathrooms and quieter urban settings, emphasizing Islamic cultural values. Smaller units target ex-pat workers (especially Westerners) using open-plan layouts in more lively urban environments of the development. The price per square meter also increases for residential units closer to the Doha Metro station. The study reiterates the success of compact living for improving urban living in other neighborhoods of old Doha.*

JOURNAL OF CONTEMPORARY URBAN AFFAIRS (2023), 7(1), 224-241.

<https://doi.org/10.25034/ijcua.2023.v7n1-15>

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### Highlights

- The findings indicate that the residential units' layout and adjacent streets' morphological characteristics clearly define specific targeted user groups.
- User groups are targeted via the layout of residential units, number of bedrooms/bathrooms, quality of the urban setting, and emphasizing Islamic cultural values.
- The price per square meter also increases for residential units closer to the Doha Metro station.
- Msheireb Downtown Doha provides a new model of urban living in the Gulf Cooperation Council (GCC) and Middle East regions.

### Contribution to the field statement

The article contributes to academia by providing insights into the relationship between urban form, real estate values, and societal factors, offering valuable knowledge for urban planners, economists, and researchers interested in sustainable urban development and its socio-economic implications.

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#### How to cite this article:

Aliyar, A.K., Major, M.D., Tannous, H.O., & Al-Esmail, F.R.A. (2023). Urban Form and Real Estate Value in Msheireb Downtown Doha, Qatar. *Journal of Contemporary Urban Affairs*, 7(1), 224-241. <https://doi.org/10.25034/ijcua.2023.v7n1-15>

## 1. Introduction: Urbanization in Qatar

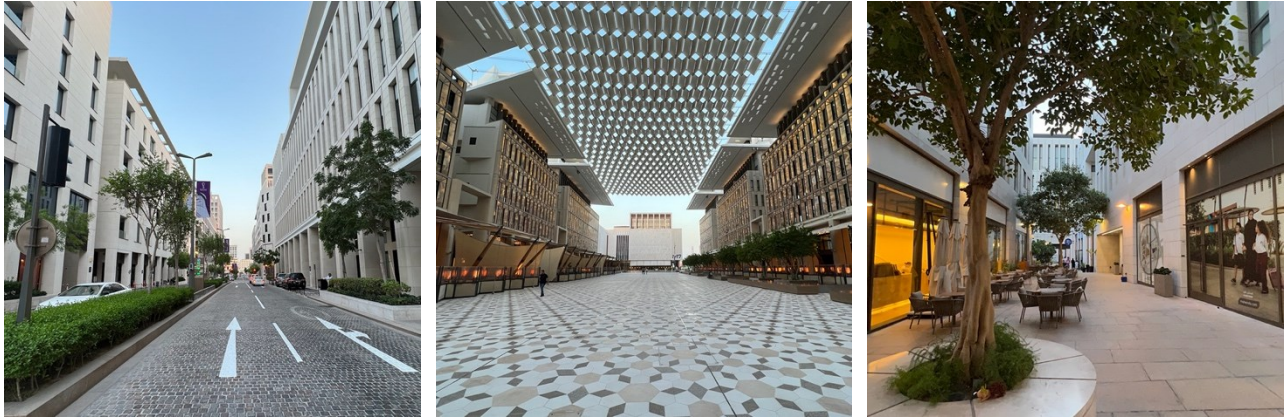
During the mid-twentieth century, Qatar began to experience urbanization fed by a natural gas and oil boom. Over the past few decades, this has led to significant physical, cultural, and economic development in its capital city, Doha (Scharfenort, 2012). It increased job opportunities and the number of workers migrating (expatriates or ex-pats) to Qatar, especially males, during the 1960s and 1970s. Many moved into the old city center. These demographic changes coincided with many Qatari families leaving the historic city center and moving to the new city suburbs due to lifestyle preferences for new contemporary two- and three-story villas (Wiedmann et al., 2012; Wiedmann & Salama, 2013; Ibrahim et al., 2019; Furlan et al., 2019; Al-Mohannadi et al. 2019; Al-Mohannadi et al., 2020). From the mid-1990s, Doha witnessed a mega-project phase of urbanization with significant urban developments such as Education City and the Qatar Science and Technology Park (Rizzo, 2014). Mega-events accelerated the city's rapid and vast built environment growth, including the 1995 World Youth Cup, the 2005 West Asian Games, and the 2006 Asian Games (Furlan et al., 2019). In this way, massive investments fed the infrastructure, real estate, hospitality, and tourism industries, resulting in unprecedented urban innovation. The 2008 Global Financial Crisis drove a momentary pause in urbanization, marked by excess housing and declining oil and gas prices (Rizzo, 2014). Awarding of the International Federation of Association Football (FIFA) World Cup 2022 to Qatar fed a development renewal beginning in 2011, the creation of stadiums, infrastructure, and a new public rail transport system (e.g., Doha Metro) over the last decade. Throughout all of this, the country's ex-pat population continued to grow, which is currently 89.5% of the country's total population (Ibrahim et al., 2019).

With rapid growth and modernization came a perceived loss of Doha's identity in terms of architectural style and its traditional urban fabric. A predominant Western influence is evident in the building language of urban developments such as West Bay, a new business district of Doha, and exclusive residential areas such as the artificial island of The Pearl-Qatar (Al-Amadi et al., 2022). Multi-story housing with commercial developments and ancillary services replaced the traditional courtyard-type houses (*Figure 1*), attached wall to the wall forming a *fereej* (neighborhood), creating a sense of community by delivering space for communal activities and gathering (Wiedmann & Salama, 2013; Al-Mohannadi, 2019; Al-Mohannadi et al., 2020). The cultural continuity formed by the spatial arrangement of the traditional urban fabric, preserving social traditions from the private domain of the home to the public realm of the traditional souq (market) and mosques, began to fade away. Doha's urban spaces became dispersed and unsociable. The cityscape became dominated by cars, large highways, and parking lots, which encourages people to stay in their vehicles, making it difficult for people to stroll around neighborhoods (Wiedmann & Salama, 2013). Exclusionary zoning practices keep residential activities away from social and commercial uses and discourage gathering in public places outside of air-conditioned hotels and shopping malls.



**Figure 1.** (a) Traditional urban fabric of Qatar and (b) the automobile-dominated cityscape of Doha (Source: Msheireb Properties).

Like other countries in the Gulf Cooperation Council and Middle East region, Qatar shares Islamic principles as a foundation for its core beliefs. Among them are residential privacy, the interrelationship between mosques, souqs, and homes in the urban environment, and some cultural barriers like gender segregation (Al-Khani, 2018). These ideas served as the factors for the urban expansion of Doha. Some have transformed or disappeared in the modern metropolis, resulting in the disappearance of the local Qatari identity, where a key goal of sustainable communities is identity preservation.



**Figure 2.** Views of the Msheireb Downtown Doha development in old Doha in 2022 (Source: Authors).

### 1.2 Development of Msheireb Downtown Doha

The master plan of Msheireb Downtown Doha (MDD) was developed to address these effects and re-establish a Qatari culture and traditional style of architecture in an innovative re-interpretation for the urban regeneration of the city center (Tannous et al., 2021). MDD attempts to revitalize the inner city's downtown area and restore a way of life built on communities, trade, and a sense of togetherness for contemporary life (Figure 2) (Al-Khani, 2018). Msheireb Properties is the developer of MDD, a real estate group and a division of a state-led organization called Qatar Foundation. MDD is an outcome of the Qatar National Vision (QNV 2030), which emphasizes expanding and developing cities in a more sustainable manner, striking a balance between modernization and heritage or cultural identity at the center of urban development in an Arab and Islamic nation. According to Msheireb Properties, the MDD regeneration project aims to bring Qatari families back to the historical neighborhood by providing a sense of community as the backbone of traditional Islamic society. It includes mixed-use land planning, accommodating residential, commercial, cultural, retail, and entertainment facilities spread across 0.31 square kilometres (sq. km). The project's construction was planned in separate phases, beginning in 2010 (Al-Fadala et al., 2021). MDD strongly emphasizes sustainability, preserving natural resources, and the calibre of its architecture, with all the buildings in MDD achieving LEED-certified status.

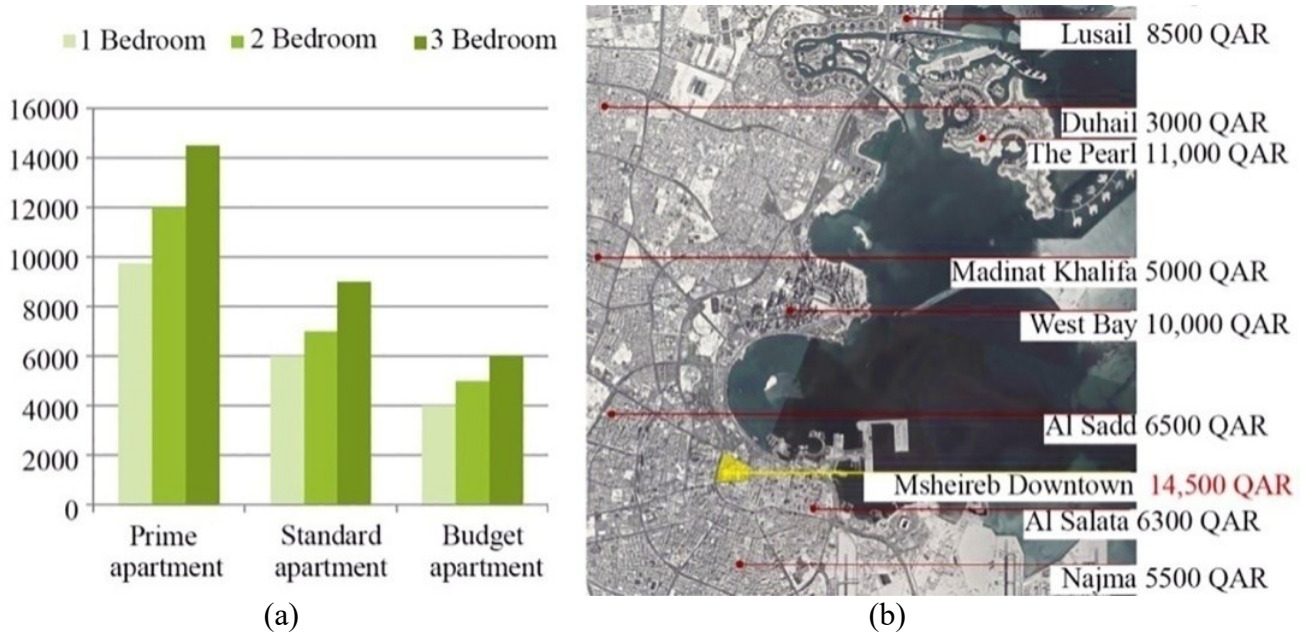
In the face of Doha's existing urban fabric and traditional housing stock, our study aims to gain a deeper understanding of the urban form of MDD with a focus on its relation to the real estate value of the residential units, if any. Furthermore, the main objective is to investigate the connection between the urban form of MDD and the property value of its residential units and identify factors that influence the rental asking prices (e.g., estimated monthly rent). This study contributes to our understanding of improving urban living in other neighborhoods in old Doha.

### 1.3 Real Estate Trends of the Doha Residential Market

The real estate sector is one of the fastest-growing industries in Qatar, which is clear from Doha's position among the Top 80 cities in worldwide price ranking based on the cost per square meter (sq.m) of a residential unit (Source: Numbeo, 2022). The real estate market in Qatar was already booming in the early 21st century between 2003 and 2006, when the GDP increased by an average of 24.6%, tripling within only four years (Al-Amadi et al., 2022).



Qatar offers diverse types of accommodation facilities for rent and sale for Qatari citizens and ex-pats, including apartments, villa compounds, and free-standing villas (Alattar et al., 2021). According to a leading international real estate firm, Cushman & Wakefield (2020), about 59% of all occupied residential units in Qatar are rentals. The apartments in Qatar have an estimated average monthly rent of QAR 9,500-14,500 for a prime apartment, QAR 6,000-9,000 for standard apartments, and QAR 4,000-6,000 for budget apartments. According to data collected from the popular real estate website Property Finder Qatar in early 2020, the most expensive apartments are in MDD, The Pearl-Qatar, and West Bay, which offer some of the city's best locations along the Arabian Gulf coastline (*Figure 3*). Among them, MDD is quickly gaining popularity. In recent years, Qatar securing the right to hold and stage the FIFA World Cup 2022 significantly increased market demands.



**Figure 3.** (a) Rental comparison of Qatar's prime, standard, and budget apartments. (b) Average monthly rent in various places in Qatar (Source: Authors Compiled via Property Finder/Property Portal Qatar/Cushman & Wakefield).

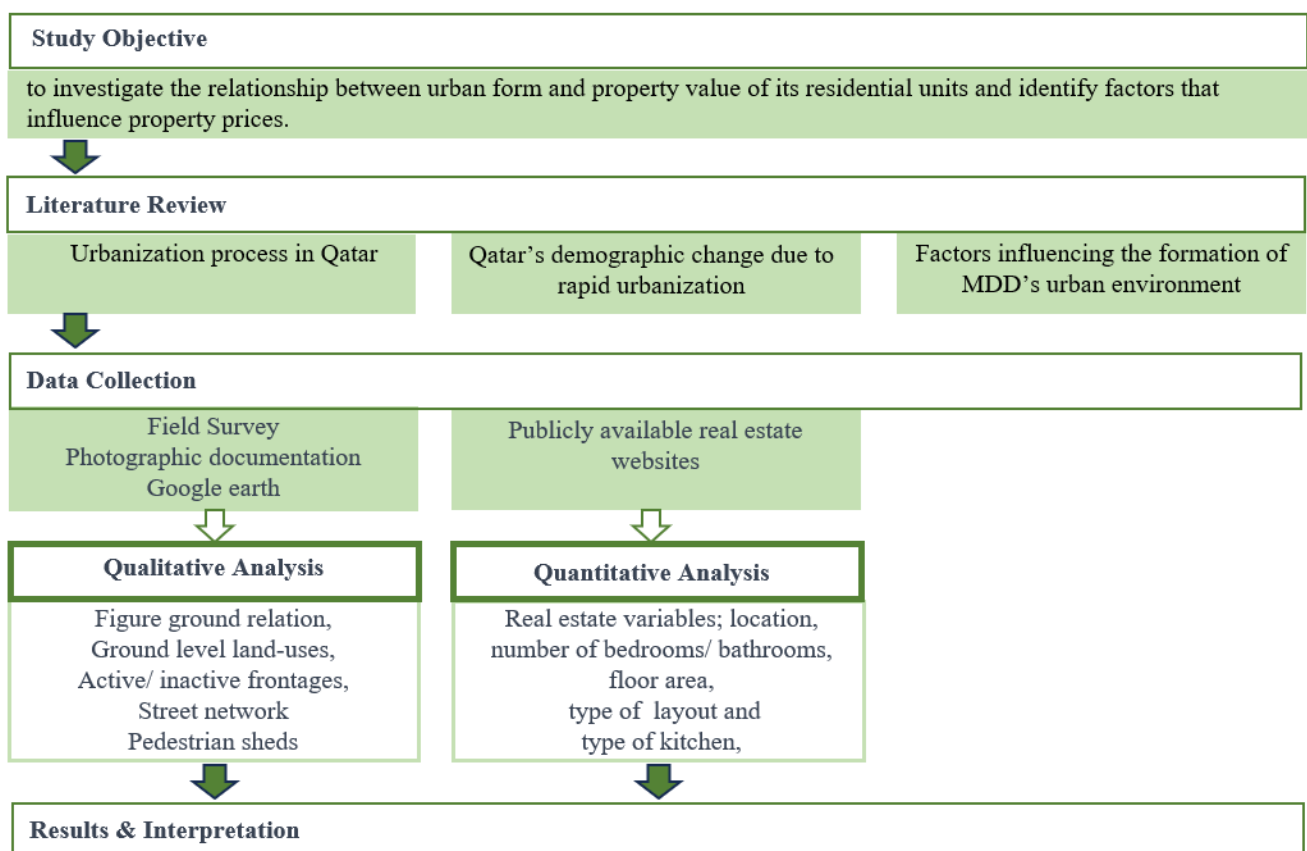
#### 1.4 Real Estate Variables of Residential Units

According to Marthya & Major (2022), real estate is viewed as a wise investment due to its ability to provide solid returns and protection against inflation. They describe the primary and transient factors that impact residential property values. The primary factors represent changes that influence house values over an extended time, frequently resulting from a more extensive process, like immigration patterns or economic cycles (Marthya & Major, 2022). The latter has short-term effects with local variations resulting from unique qualities, for instance, winning the bid to host the FIFA World Cup 2022. Both have favored the growth of the real estate sector in Qatar.

Furthermore, the property values of housing units can be influenced by three major factors: (1) characteristics of the building, including the type, quality of the built environment, number of bedrooms, and bathrooms; (2) characteristics of the neighborhood, including the location, nearness to recreational facilities or public transit, perceived safety of the neighborhood, and economic status within the country, and (3) availability of amenities and services, such as water, electricity, and presence of comparable properties (Wickramaarachchi, 2016). Since the attributes of neighborhood characteristics and the availability of amenities and services are constant for the entire MDD area, building characteristics are considered the primary factor for analyzing the real estate value of its residential units. Based on this, researchers used data from Property Finder to analyze monthly asking prices for residential units in MDD, which we will discuss later.

## 2. Material and Methods

This section presents the research design and methodology adopted for this study (Figure 4). To achieve the study's objectives, an in-depth literature review was conducted by exploring relevant literature, including journal articles and academic research papers about the past urbanization progress in Qatar, the elements influencing the formation, growth, and redevelopment of MDD's urban environment, and the shift in Qatar's demographic data arising out of rapid urbanization, which has been discussed in the introduction. The data collection contains two parts. First, surveying data for analyzing the form and function of MDD, and second, compiling data for evaluating the real estate variables of residential units. The first part was studied from a morphological perspective using graphic mapping representations based on factors like urban morphology of the built form and block sizes/shape, ground floor land use patterns, active/ inactive frontages, and pedestrian sheds. The authors conducted on-site surveys to collect data during Spring 2022 to analyze the physical and functional features of MDD that might correspond to the cultural and socio-economic factors contributing to its urban morphology.



**Figure 4.** Diagram outlining the research design and methodology (Source: Authors).

Graphical representations of the design and layout of MDD were developed based on on-site surveys and maps available from Google Earth/Google Maps. Using photographic documentation, researchers surveyed and recorded the active/inactive frontages for each existing building in MDD concerning the ground-level land uses. We define active frontages as building facades that interact by providing visual or physical access between the building interior and the ground-level public street via windows, doors, or glass curtain walls. In contrast, inactive frontages are building facades that do not provide visual or physical access to the public realm of ground-level streets, i.e., blank walls. Figure-ground mapping allows us to assess block sizes, street networks, and building patterns to determine the functional connections between streets and buildings. Mapping ground-level land use patterns helps us understand how MDD is organized and functions as an urban environment. Pedestrian sheds using a 400 m radius from the MDD mosques provide us with a picture of the center of each residential core, considering the mosque as the focus of everyday life in the Islamic culture of the Qatari society.

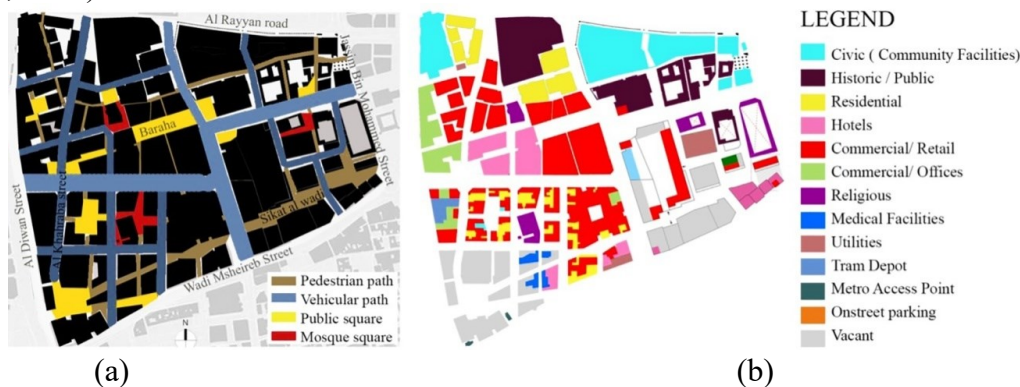
The latter stage of data collection compiled information in early 2022 from publicly available real estate websites in Qatar, such as Qatar Property Finder, Qatar Property Portal, and data from the Msheireb Properties. Generally, our study combines qualitative and quantitative approaches to analyze the collected data. A qualitative approach was chosen to review the form and function of MDD. A quantitative strategy was selected to check the real estate value of the residential units in MDD and how it might be related to the neighborhood's physical characteristics and spatial layout.

The quantitative analysis was done by compiling the information about the real estate variables of the residential units in MDD against the background of Doha. It included an evaluation of the current market trends for the asking monthly prices of residential units in Qatar, focusing on MDD. During the data collection, it was observed that some parameters other than the ones selected from the literature review played a contributory role, such as the level of furnishing and kitchen layout. Based on this, the available data about residential units of MDD were categorized according to the number of bedrooms and bathrooms, the unit's design, kitchen type, furnishings, and location in the development. We studied the relationship between these variables to determine whether any pattern could be discerned for the housing prices in MDD. However, it is essential to note that this study has limitations, as only a small number of residential units in MDD (46) were available on these websites (Appendix A). Asking prices may not be the actual prices. Since the actual prices were not available, asking prices were considered for this study. No specification about the exact location of residential units is provided on the websites. Therefore, a detailed comparative analysis between neighborhood residential clusters is impossible here due to only a general understanding of their location in MDD, i.e., by residential quarter and the small number of dwelling units.

### 3. Data Analysis and Results

#### 3.1. Morphological, Land Use, and Spatial Analysis

The location of MDD at the center of old Doha, adjacent to Souq Waqif, defines its importance within the city. The northern side of the neighborhood is surrounded by Amiri Diwan, which is Qatar's statehouse and the Ruler's Palace, and the eastern side comprises the Souq Waqif, which is the cultural and heritage origins of Doha, whose character is reflected in the design and land use of the adjacent outer layer of MDD. Based on the Qatar National Vision 2030, the MDD master plan takes the essence of the traditional Qatari settlement and urban fabric, developed over time to address the region's hot, humid climatic conditions. This creates a tight urban grain, like the traditional urban fabric, formed by more than 100 buildings on the site. The urban blocks in MDD are arranged and oriented to cool down the neighborhood's interior parts by shading each other and the streets by channeling breezes from Doha Bay. They jointly impact the high-density urban form on the climatic variables of the outdoor areas in the neighborhoods with hot, dry cities to improve living conditions within such spaces (Qaoud Rami et al., 2022).



**Figure 5.** (a) Figure-ground representation indicating public spaces, mosque, squares, and pedestrian and vehicular paths, and (b) Ground-level Land Use map of MDD (Source: Authors).

The neighborhood's primary streets shape the four quarters of MDD with distinct characteristics (blue-coloured streets in *Figure 5a*). Sequential connectivity between open spaces is maintained throughout



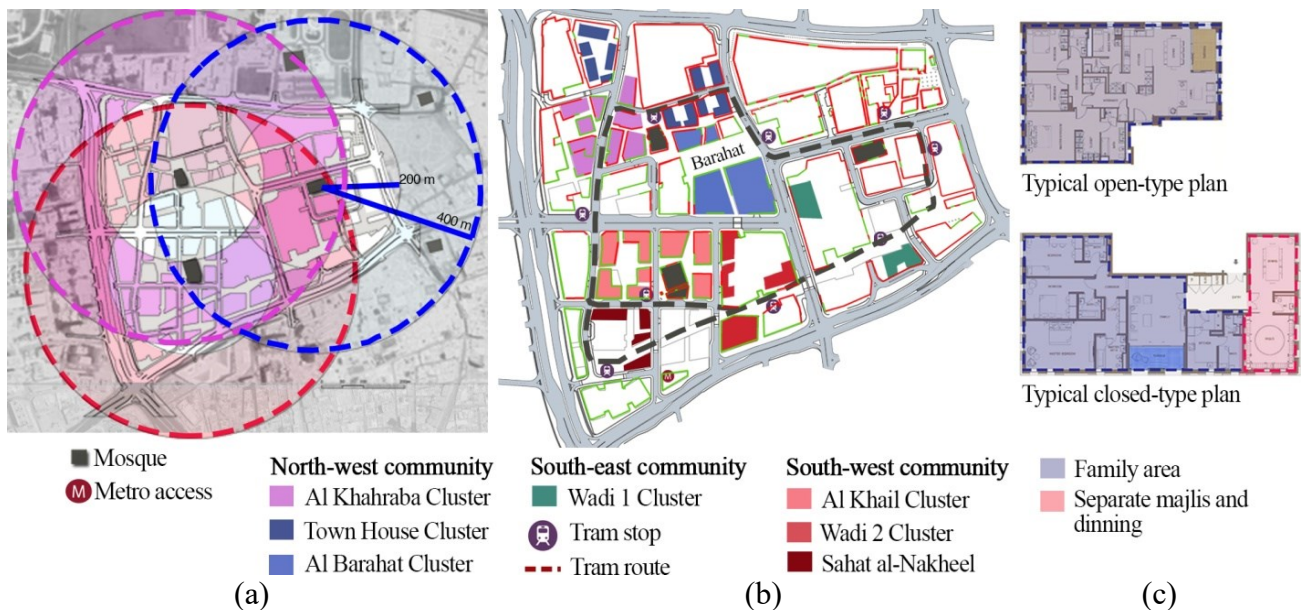
the site to increase walkability; for example, the mosque squares (red-coloured public square in *Figure 5a*) are integrated with other nearby public squares (yellow-coloured public squares), forming a grouped square. Public squares relate to streets and blocks, which allows permeability for people to access the internal open spaces within the blocks and create route choices for pedestrians. We can also see a hierarchy in the arrangement of public squares ranging from the most prominent, central square (the Barahat) to the smallest internal courtyards within the urban blocks.

MDD emphasizes that buildings are not just objects that limit our paths and accessibility. The pedestrian crossways and streets form the spaces to access the buildings, which can be seen throughout the street layout. The MDD street layout is designed to be a pedestrian-oriented environment by providing everything in proximity, encouraging social gatherings and interactions, slowing down the cars, reducing the need for on-street parking, and bringing the service corridor to a basement level with underground parking garages, which allows for narrower streets at ground level. This replacement of car-oriented street parking typology with narrow streets creates shaded sidewalks and pavements, making the neighborhood more people-friendly and adaptive to the regional climate. Historically, routes kept after regeneration, such as Al-Khahraba Street and the Sikka-al-Wadi, connect significant surrounding areas in the city, including Souq Waqif and Al Corniche. Many pedestrian routes, known as *sikkas* (narrow alleyways in traditional Qatari settlements), run parallel to the main routes to increase connectivity and permeability. They invite more people by incorporating activities such as outdoor dining, informal seating, water fountains, art installations, etc. These pedestrian areas enhance people's active and passive engagement with spaces and other people, making the neighborhood livelier throughout the day, especially during the evenings after the sun sets. The site primarily comprises low-to medium-rise buildings, with a few high-rise buildings on the southern edge. There is a general increase in building height from north to south. This also helps block the harsh sunlight on the interior parts of the neighborhood and enhances the long-range and short-range city-wide legibility.

MDD's land use strategy seeks to foster an active, vibrant city environment by promoting an integrated community in the neighborhood, in which everything is close and convenient enough for walking (*Figure 5b*). The local surroundings, mostly historic and civic buildings, influence the land usage on the northern and eastern sides. The area's western part is a mixed-use of residential, commercial, retail, cultural, leisure, and community facilities, provided with mostly active frontages. This encourages people to meet in public spaces, making it more vibrant and crowded during peak times. Retail facilities for food and cafes concentrate along primary vehicular and pedestrian routes at ground level to increase the number of users and maximize visibility. The retail uses for day-to-day needs, like a department store and medical facilities, are provided towards the western part of the site, where the residential units are concentrated. Open spaces for gatherings and social events come hand in hand with the buildings. Thoroughly segregated parking and service facilities are provided in the basement, helping the functional efficiency of the streets at ground level. The community facilities include a school, nursery, health services, community center, and mosques. There are three prominent mosques in MDD, so access is equally distributed throughout the neighborhood (*Figure 6a*).

These mosques serve public spaces within the city, playing a crucial role in the urban environment of Doha, particularly at the micro-scale of the street layout (Al-Khani, 2018). Historically, a mosque is a place for community worship, an intellectual hub of its region, and a socio-political attractor. The mosque holds a special significance in Islamic culture. Residents and visitors use these mosques within the boundaries of MDD daily. Each MDD mosque has a courtyard surrounding the façade. It is designed as an integral part of the public squares so worshippers can continue their conversations after exiting the mosques in adjacent public spaces. Some mosques, like the northwest one, even have traditional integrated wall seating. This enabled the area's inactive frontage to be utilized for activities.





**Figure 6.** (a) Pedestrian shed of 200 m and 400m radius from mosques in MDD, (b) Residential map with the active (green lines) and inactive frontages (red lines), and (c) Typical apartment layouts in (top) (d) Al-Barahat and Al-Khahraba clusters and (bottom) Al-Khail, Wadi-2, and Wadi-1 clusters (Source: Authors/Msheireb Properties/Arch Daily).

Most of MDD is within a 400 m walking distance from these mosques. Many routes are designed as car-free environments where everything is accessible on foot. A physical setting promoting walking increases the likelihood of people connecting, fostering a sense of community (Boyle et al., 2013). There are other existing methods of transport, like the local tram, which is free of charge and circulates through the different quarters of MDD. The southwest community also has direct access to the Msheireb Terminal Station, the Doha Metro system's central hub.

### 3.2. Residential Area Overview

According to Msheireb Properties (2022), about 26% of the neighborhood is reserved for residential areas with 820 dwelling units. The residential area is organized into three core areas in the northwest, southeast, and southwest areas of MDD, offering a range of accommodation facilities (Figure 6b). The residential typologies include luxury apartments and townhouses arranged in clusters to provide a sense of community living, respecting the cultural values of society and privacy. Except for the townhouses, residential units are above the ground floor retail units, which give a substantial street frontage to foster safer streets, according to Jacobs (1960). Considering the Islamic culture of the society, mosques have been provided at the center of each residential core.

The northwest part of the neighborhood consists of townhouses and apartment clusters on Al-Khahraba Street and Al-Barahat (Figure 6b). The townhouse cluster is the least dense area in MDD, away from the hustle of the most intense urban activities. It is introverted in design, providing the most privacy by employing inactive street frontages. The Al-Barahat cluster surrounds the central plaza, which is active throughout the year. Most of the apartment clusters in the northwest face Al-Khahraba Street, one of the oldest streets and a cultural link to the area's history. Most are three- and four-bedroom apartments, while Al-Barahat offers more two- and three-bedroom apartments. These clusters are designed with separate entries for guests and hosts, a separate majlis, and a closed kitchen with a maid's facility (Figure 6c). This part of the site is characterized by gardens, courtyards, rooftop terraces, semi-public and public plazas, and narrow shaded sikkas that do not affect residential unit privacy. The mosque serves the community in Al Khahraba North, strategically located along with the community plaza, the Barahat. There is no clear distinction between the mosque site and its surroundings, encouraging people to gather and form part of the public space.





Apartment clusters in Al-Khail Street, Wadi-2, and Sahat al-Nakheel form the southwest community (Figure 6b). It is always busy and vibrant, with good accessibility to Msheireb Train Station, retail, cultural, and leisure facilities along Sikkat Al-Wadi (the most used pedestrian street in the neighborhood that runs across the site in the east-west direction connecting its edges to the Souq Waqif) with active frontages. The Al-Khail cluster creates a diverse community, offering a range of options of one-, two-, three-, and four-bedroom apartments and favors medium-sized families. At the same time, the Wadi-2 cluster offers more one- and two-bedroom apartments and a smaller number of three-bedroom apartments. Wadi-2 cluster is the only area without any four-bedroom apartments. These have an open kitchen plan with a single entry for the dwellers and guests (Figure 6c). The southeast community of the Wadi-1 cluster faces the Sikkat Al-Wadi, which is highly active, with both Qataris and ex-pats enjoying the outdoor life most evenings during pleasant weather. The Wadi-1 cluster also offers one-, two-, three-, and four-bedroom apartments, with a larger majority of one- and two-bedroom apartments. The design of the apartments is like that of Al-Khail and Wadi-2 clusters, with an open kitchen layout and a single entrance for residents and guests (Figure 6c).

### 3.3. Real Estate Aspects of the Residential Area in MDD

The potential of a neighborhood in the real estate market depends on the location (He et al., 2021). MDD is in the ‘heart of Doha’ with the privilege of location adjacent to Souq Waqif. Researchers analyzed the asking prices of residential units available in the market in 2022 before hosting the FIFA World Cup using different websites, as discussed in the methodology section.

Since the occupant rate is not 100%, and there is no publicly available data regarding the population within the neighborhood, the projected population was estimated to understand the demography of MDD. Data from the Msheireb Properties website about the number of residential units in each cluster was used to estimate the average household number in MDD. Furthermore, some assumptions regarding the household size were made to facilitate the calculations, such as the household size for one- and two-bedroom apartments is 2.5; for three-bedroom apartments, it is 4; for four-bedroom apartments, it is 5, irrespective of nationality. The household size of townhouses with five or six bedrooms is 6.5; for seven or eight bedrooms, the number is 8.7, the average Qatari family size (Qatar Planning and Statistics Authority, 2020). Based on these assumptions, we estimate that the average household size is 3.2 people per household in MDD, which could vary according to the abovementioned assumptions. Furthermore, the population density of the neighborhood can be estimated using the following equation:

$$p = \frac{x * y}{a}$$

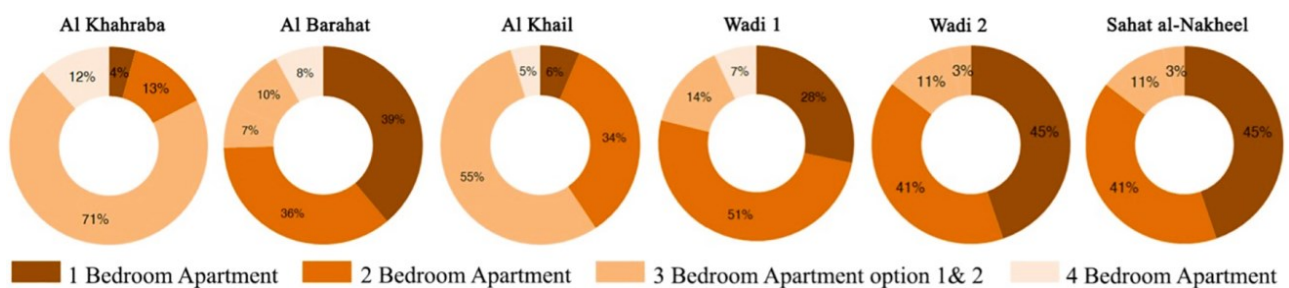
Where ‘p’ is the projected population density, ‘x’ is the total number of residential units in MDD (820), ‘y’ is the average household number (3.2), and ‘a’ is the area of MDD in square kilometers (0.32 km<sup>2</sup>). This gives a projected population density of 8,200 people/sq.km in MDD at 100% occupancy.

### 4. Residential Characteristics of MDD

MDD is an urban regeneration project that harnesses the cultural values of the Qatari society through its careful utilization of New Urbanism design and planning strategies (Khalil, 2012). It has attained the local identity of traditional Qatari culture via its compact traditional urban form and unique architectural vocabulary (Tannous et al., 2021). It has elements of traditional Qatari architecture in the functional characteristics of residential units, especially the Qatari units. It provides a sense of community and maintains the transition from the private to the public realm by connecting the traditional sikkas and mosque squares to the residential units. It contrasts with today's contemporary Qatari villas in suburban developments, segregated from the city and public life, enclosed within high compound walls and large yards around the house. MDD creates compact villas and apartments for the Qatari population while respecting socio-cultural factors.

#### 4.1 Correlation between Residential Unit Features and Cultural Targeting

In Qatar, conventional residential design contributes to preserving its architectural identity, grounded in its socio-cultural heritage. According to Al-Mohannadi et al. (2020), Qatar's housing development is significantly influenced by socio-cultural aspects, evident from the traditional Qatari courtyard houses to the contemporary villas of the modern city. The different spaces in a Qatari home are determined by privacy, gender division, and hospitality, as demonstrated in space syntax studies (Al-Mohannadi et al., 2021, 2022, 2023). A similar pattern can be seen in the development of the MDD master plan with a degree of exclusivity incorporated into the design of residential units, provided facilities, and the surroundings regarding specific user groups. Considering the cultural aspects and privacy in the design of residential units in Al-Khahraba and Al-Barahat clusters and townhouses with different guest and host areas, closed kitchens, and separate maid entry, they can be reasonably classified as Qatari residential units. The provision of more bedrooms and bathrooms also indicates the expected user groups with larger household sizes, like that of Qatari families (Qatar Planning and Statistics Authority, 2020). Al-Barahat cluster is an exception, possessing more one- and two-bedroom apartments (*Figure 7*). At the same time, the open-space layout of Al-Khail, Wadi-1, Wadi-2, and Sahat al-Nakheel apartments classify them as ex-pat residential units. This is also evident from the higher availability of one- and two-bedroom apartments, except in the Al-Khail cluster. It has a more balanced mix of apartments for smaller and larger families.

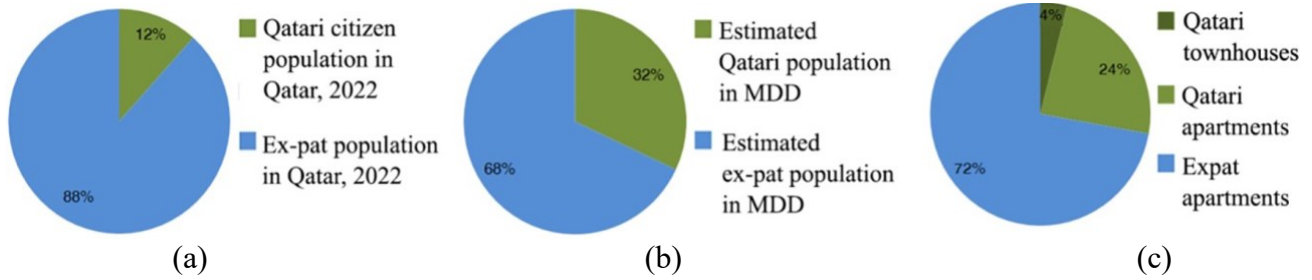


**Figure 7.** Number of 1-, 2-, 3-, and 4-bedroom apartments in each residential cluster (Source: Authors/Msheireb Properties).

#### 4.2 Correlation between the Number of Units and User Group

The average rent of the apartments in MDD ranges from QAR 10,000-25,000 per month, which is higher than the average monthly rent in Qatar from QAR 5,000-10,000. It shows that the targeted consumer group of these apartments is high-income professionals, usually Westerner ex-pats in Qatar (Cushman & Wakefield, 2020). The high-income professionals generally in the Middle East are the ex-pats from the West, typically from Europe or North America, as they are thought to have better benefit packages and higher pay than trained immigrants from Asia or Africa (Al-Mohannadi et al., 2023).

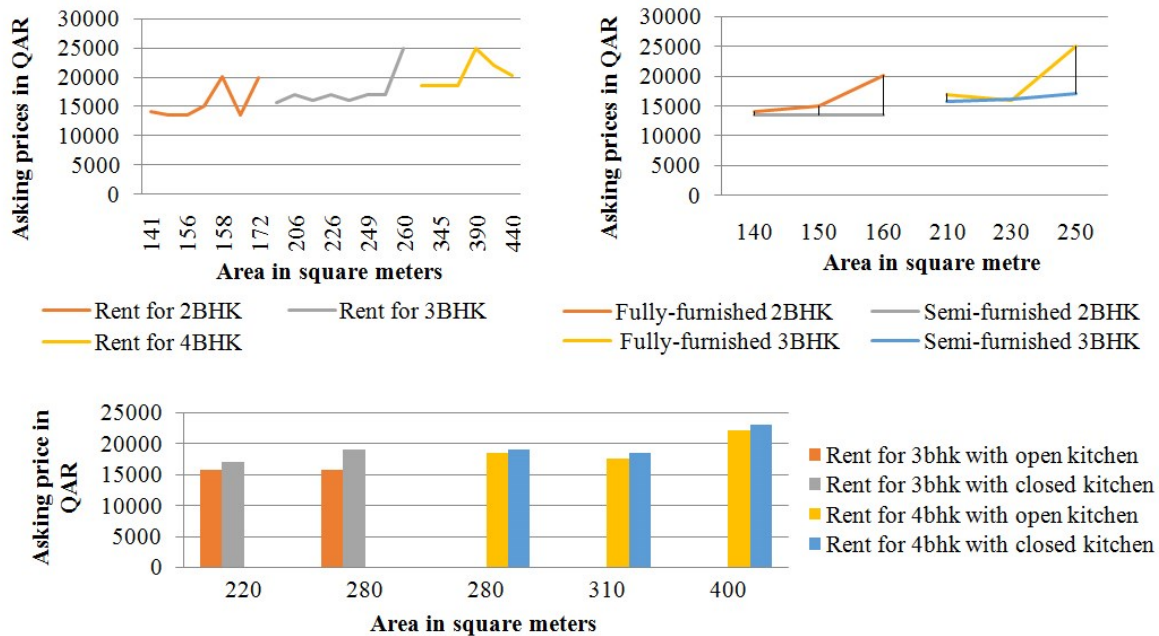
On comparing the number of apartments reserved for Qataris and ex-pats and the estimated total number of households in each category, there are 1,772 ex-pat residential units and 845 Qatari residential units based on our earlier assumptions, Qatari households form 32%, and ex-pat households 68% of the total projected residential population in MDD (Msheireb Properties, 2022). This ratio does not correspond to the current population in Qatar, which has 88% ex-pats and only 12% Qataris, meaning the prime focus of the residential units at MDD is to increase the Qatari citizen population in the city center (Qatar Planning and Statistics Authority, 2020) (*Figure 8*).



**Figure 8.** (a) Population ratio of Qatari citizens and ex-pats in Qatar, (b) Estimated population ratio of Qatari citizens and ex-pats in MDD, and (c) Relation between Qatari and ex-pat residential units in MDD (Source: Authors Compiled via Msheireb Properties/Cushman & Wakefield/United Nations).

### 4.3 Correlation between Residential Unit Features and Monthly Asking Price

One of the general trends in the real estate sector is that price tends to be proportional to floor area and number of bedrooms (Marthya & Major, 2022; Al-Amadi et al., 2022). However, there are fluctuations in rates. For example, the asking price of a two-bedroom apartment in the northwest MDD quarter, with an average area of 167 sq.m, has a lower rate than that of a two-bedroom apartment with an average size of 158 sq.m (Figure 9a). It is like that also for MDD three-bedroom apartments (Figure 9b). Another factor is the level of furnishing, i.e., fully furnished, semi-furnished, or unfurnished. By comparing fully furnished apartments to semi-furnished apartments of similar areas, we noted that the rent is only slightly higher with floor area for semi-furnished apartments. There is a significant increase in rent related to the floor area for fully furnished MDD apartments. It is a trend common for both two and three-bedroom apartments in MDD. The type of kitchen is a driving factor for rent in MDD when comparing open-space kitchen designs with the more enclosed-space kitchens in the two- and three-bedroom apartments with comparable floor areas. The closed kitchen units have a higher rental asking price due to the domestic roles of females and servants (Figure 9c).

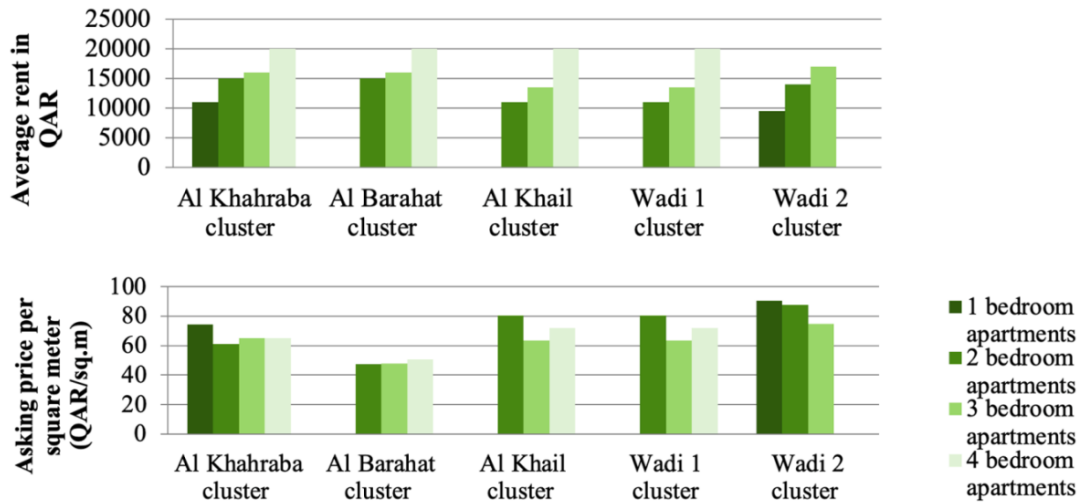


**Figure 9.** (a) Relation between rent and area (top left), (b) rent and level of furnishing in the northwest community (top right), and (c) Relation between rent and type of kitchen for 3 and 4-bedroom apartments (bottom) (Source: Authors Compiled via Property Finder/Property Portal Qatar/Msheireb Properties).



#### 4.4 Comparative Analysis of Monthly Asking Prices in Each Residential Cluster

Asking prices are highest for the Qatari apartments and townhouses in the Al-Khahraba and Al-Barahat clusters. The variation in rent among the clusters is more for two- and three-bedroom apartments, while four-bedroom apartments have similar prices in all clusters (*Figure 10*). Even though the Al-Khahraba and Al-Barahat clusters provide the most prestigious residential units in MDD, they do not possess the highest asking price per sq.m. It is the Wadi-2 cluster with the highest asking price per sq.m for one-, two-, and three-bedroom apartments. It is also the most intermediate and accessible location for walking between Souq Waqif and the Msheireb Station on the Doha Metro.



**Figure 10.** (above) Relation between the average asking price for apartments in each residential MDD cluster and (below) Relation between the average asking price per sq.m of residential units in each residential cluster (Source: Authors Compiled via Msheireb Properties).

#### 4.5 Comparison of Monthly Asking Prices in 2020 and 2021

The MDD occupancy rate was 92% in early 2022 before the FIFA World Cup, a significant increase from the previous year (+19%). According to the number of listings of available apartments in Qatar in 2021 and 2022 on Property Finder, there has been an increase in the asking prices of apartments for rent leading into the World Cup, which is unsurprising. Also, there is a considerable increase in the listings, addressing the high demand for accommodation for the FIFA World Cup 2022. As for MDD, since it is gaining popularity very quickly, the number of listings between 2020 and 2021 has skyrocketed. MDD experienced the most meaningful change in median advertised prices from one year to the next, moving from QAR 13,500 to QAR 14,500, i.e., +7.5%. The reasons for this increase in value may include the FIFA World Cup 2022 and an increasing aspiration for the 15-minute city lifestyle, in which the day-to-day needs of the dwellers are available within a travel distance of 15 minutes or less.

### 5. Discussion

MDD is the new face of Qatari architecture, with luxury and technology in the old city center. The study aimed to investigate the relationship between the urban form of MDD and the rental value of its residential units, identifying factors that influence asking rental prices. Considering the uniqueness of the MDD regeneration project in the region, it is essential to understand the real estate principles behind its design. It could help develop similar neighborhoods in the region in cities that have also undergone suburban sprawl and rapid urbanization, resulting in a poorer quality of urban fabric. The study's findings indicate clearly how the development of residential units in MDD is aimed at the Qatari community and the high-income ex-pat community, mostly Westerners, with an asking price ranging far above the average in Qatar (QAR 5,000- 10,000). There is a clear distinction between Qatari and ex-pat residential units, considering the difference in the facilities of residential units and their overall distribution. Qatari households form 32%, and ex-pat households include 68% of the total



projected residential population of MDD. It does not correspond to the current population demographics of Qatar, which has 88% ex-pats and only 12% Qataris. From this, it is perceptible that the prime focus of the residential facility in the neighborhood is to increase the Qatari citizen population in the heart of old Doha. After analyzing the asking prices, there is no significant price difference in each residential community in MDD. However, the Qatari residential units have a higher asking price than the ex-pat residential units. This is due to more floor area and more bedrooms/bathrooms, with the additional privacy features of traditional Qatari neighborhoods. Furthermore, the highest price per sq.m is for the ex-pat residential units of the Wadi-2 cluster intermediate between Souq Waqif and the Msheireb Station. It is also nearest to Wadi Msheireb Street, one of the essential arterial roads leading to Souq Waqif and Al Corniche. Another conclusion from the study is the lowest price per sq.m for the residential units is in the Al-Barahat cluster for the apartments targeting Qataris. The Al-Barahat cluster apartments offer more area at a lesser price than other residential units of MDD. This difference could be purposefully made to negotiate the effect of overcrowding and noise from the cultural events and programs often occurring in the Barahat. Generally, the floor area is usually the driving factor of rental value in real estate. However, we also found an increase in rental value with the level of furnishing and type of kitchen, i.e., closed kitchens have a higher price than open-space kitchen plans. Due to the unavailability of enough rental data, further reasoning about the rental value fluctuation was not feasible. Even though the main aim of MDD is to bring back the Qatari population to the core city, the urge for privacy and comfort of larger contemporary villas in larger plots of Qatari citizens raises the question of the feasibility of their stay in MDD. This forms a research gap for future studies. Furthermore, a more detailed analysis could not be accomplished due to the unavailability of sufficient datasets for research, which can also be studied further once MDD occupancy reaches nearly 100%. Such a study could focus on finding out the most and least significant factors affecting housing prices in MDD.

## 6. Conclusion

In the late 20th century, rapid urbanization and globalization in Doha led to the loss of housing and the traditional urban fabric in the old city center. The Qatari government and Msheireb Properties developed Msheireb Downtown Doha to bring urban living back with a contemporary re-interpretation of the traditional urban fabric and modern life conveniences. Our study's objective was to investigate the relationship between urban form and the rental value of residential units, identifying factors that influence rental asking prices. The paper examined the morphological characteristics through field surveys and various real estate variables such as location, floor area, number of bedrooms and bathrooms, and the asking price collected from publicly available information. We found that the residential units' layout and adjacent streets' morphological characteristics define targeted user groups in the development. Larger residential units target Qatari families via more bedrooms and bathrooms and quieter urban settings emphasizing cultural values. Smaller units target ex-pat workers (especially Westerners) using open-plan layouts in lively urban locations. We also found that the price per sq.m increased for residential units closer to the Doha Metro mainline terminal station in MDD. The findings of this study reiterated the success of compact living and how it can contribute to improved urban living conditions in neighborhoods of old city centers.

## Acknowledgements

The authors would like to acknowledge the contributions of Ph.D. and MUPD. Graduate students in the Department of Architecture and Urban Planning, College of Engineering at Qatar University, to this research. A. M. Alyefei, R. Y. Awwad, G.H. Fetais, M. A. Najjar, A.M. Keshk, R. Razzak, S. Thankam, and Z. A. Mostafa assisted in the data collection for the foreground and background information about MDD.

## Conflict of Interests

The Authors declare that there is no conflict of interest.



### Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

### Data availability statement

Not applicable.

### Credit author statement

Conceptualization: A.A., M.M., H.T., F.A. Data curation: A.A., M.M., H.T., F.A. Formal analysis: A.A., M.M., Funding acquisition: (no funding). Investigation: A.A., M.M., H.T., F.A. Methodology: A.A., M.M., H.T., F.A. Project administration: M.M., H.T. Resources: M.M. Software: not applicable. Validation: M.M. Visualization: A.A., M.M. Writing—original draft: A.A. Writing—review and editing: A.A., M.M., H.T. All authors have read and agreed to the published version of the manuscript.

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## Appendix A

**Table 1.** Datasets of residential units in MDD for rent collected from Qatar's publicly available real estate websites.

Sl No.	Property type	Bed	Bath	Area in sq.m	Rent in QAR	furnishing	Type of kitchen	maids service	pet	car parking	Pool, gym, spa
1	Luxury Apartment	1	1	100	10000	fully furnished				<input checked="" type="checkbox"/>	
2	Luxury Apartment	1	1.5		11000						
3	Luxury Apartment	1	1.5	100	11000	fully	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
4	Luxury Apartment	1	1	111	10000	semi				<input checked="" type="checkbox"/>	
5	Luxury Apartment	2	2	141	14000	fully furnished					<input checked="" type="checkbox"/>
6	Luxury Apartment	2	2	143	13500	semi					<input checked="" type="checkbox"/>
7	Luxury Apartment	2	2.5	156	13500	semi					<input checked="" type="checkbox"/>
8	Luxury Apartment	2	2.5	156	15000	fully	closed				<input checked="" type="checkbox"/>
9	Luxury Apartment	2	3	158	20125	fully		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
10	Luxury Apartment	2	2	167	13500	semi					<input checked="" type="checkbox"/>
11	Luxury Apartment	2	3	172	20000	fully		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
12	Luxury Apartment	2	3	220	15000	semi			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>



13	Luxury Apartment	2	3	220	13847	semi						<input checked="" type="checkbox"/>
14	Luxury Apartment	2	3	227	15000	semi						
15	Luxury Apartment	3	3	206	15692	semi	open					<input checked="" type="checkbox"/>
16	Luxury Apartment	3	3	206	17000	fully furnished						<input checked="" type="checkbox"/>
17	Luxury Apartment	3	3	220	16000	semi						<input checked="" type="checkbox"/>
18	Luxury Apartment	3	3	226	17000	semi						<input checked="" type="checkbox"/>
19	Luxury Apartment	3	3	231	16000	fully furnished						<input checked="" type="checkbox"/>
20	Luxury Apartment	3	5	249	17000	semi	close d	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
21	Luxury Apartment	3	5	250	17000	semi						<input checked="" type="checkbox"/>
22	Luxury Apartment	3	4	261	15693	-	close d	-	-	-	-	-
23	Luxury Apartment	3	4	261	15693	semi						<input checked="" type="checkbox"/>
24	Luxury Apartment	3	4	270	17000	semi						y
25	Luxury Apartment	3	3	280	17539	semi	close d					
26	Luxury Apartment	3	4	280	19000	semi	close d		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
27	Luxury Apartment	3	4	284	17000	semi	close d		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
28	Luxury Apartment	3	4	287	17000	semi	close d					<input checked="" type="checkbox"/>
29	Luxury Apartment	3	4	287	15692	semi	open					<input checked="" type="checkbox"/>
30	Luxury Apartment	3	4	287	17000	semi		<input checked="" type="checkbox"/>				<input checked="" type="checkbox"/>
31	Luxury Apartment	3	3	297	15693	semi						<input checked="" type="checkbox"/>





32	Luxury Apartment	3	3	307	18461	semi		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
33	Luxury Apartment	3	3	315	16615	semi	close d				
34	Luxury Apartment	3	3	315	16616	semi	close d				
35	Luxury Apartment	4	4	278	18461	semi		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
36	Luxury Apartment	4	4	278	18461	semi		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
37	Luxury Apartment	4	4	278	20000	semi					<input checked="" type="checkbox"/>
38	Luxury Apartment	4	4.5	293	17538			<input checked="" type="checkbox"/>			
39	Luxury Apartment	4	5	307	19000	semi		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
40	Luxury Apartment	4	5	307	19000	semi		<input checked="" type="checkbox"/>			<input checked="" type="checkbox"/>
41	Luxury Apartment	4	6	340	18500	semi		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
42	Luxury Apartment	4	5	345	18500	semi					<input checked="" type="checkbox"/>
43	Luxury Apartment	4	5	345	18500	semi					<input checked="" type="checkbox"/>
44	Luxury Apartment	4	5	390	25000	semi		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
45	Luxury Apartment	4	6	395	22000	non		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
46	Luxury Apartment	4	4	440	20308	semi		<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

**How to cite this article:**

Aliyar, A. K., Major, M. D., Tannous, H. O., & Al-Esmail, F. R. A. (2023). Urban Form and Real Estate Value in Msheireb Downtown Doha, Qatar. *Journal of Contemporary Urban Affairs*, 7(1), 224-241. <https://doi.org/10.25034/ijcua.2023.v7n1-15>