Ain Shams Engineering Journal 13 (2022) 101798

Contents lists available at ScienceDirect

Ain Shams Engineering Journal

journal homepage: www.sciencedirect.com

Housing challenges and programs to enhance access to affordable housing in the Kingdom of Saudi Arabia

Mubarak F. Alhajri

Department of Urban and Regional Planning, University of Imam Abdulrahman Bin Faisal, Dammam, Saudi Arabia

ARTICLE INFO

Article history:
Received 6 February 2022
Revised 21 March 2022
Accepted 4 April 2022

Keywords:
Affordable housing
Enabling approach
Housing challenges
Saudi Vision 2030
Kingdom of Saudi Arabia

ABSTRACT

Affordable housing contributes to the prosperity of any community. This study assesses housing challenges and enabling programs to affordable housing in the Kingdom of Saudi Arabia (KSA) within the Vision 2030. A questionnaire of housing experts was undertaken, and responses were analyzed using the Relative Importance Index (RII) and Chi-Square. The findings show that top-ranked challenges are the high price of residential land (RII = 0.89), high construction cost (RII = 0.87), and high urbanization rate (RII = 0.76). The study found that participants' demographic factors led to significant differences in scores for six of the investigated challenges. In addition, the most effective enabling programs were the value added tax (VAT) exemption program (RII = 0.82), followed by the developmental housing program (RII = 0.73), and ownership forms (RII = 0.73). Significant differences in scores for two of the enabling programs were found based on participants' age and gender. The present study recommends that the government should review some of these programs and reassess the challenges of access to affordable housing.

1. Introduction

Housing is among the basic human needs that should be affordable to all. The concept of affordable housing originated in the 19th century in response to the problem of housing shortage, slums, and inadequate housing amenities. Housing affordability can lead to delivery of adequate housing, which improves human health, work efficiency, and overall socioeconomic development [1]. It also fosters social stability by reducing crimes, and creating jobs, [2]. The quality of housing reflects a person's identity, cultural values, aspirations and future expectations which impact the community, and in turn leads to national development [3]. Thus, access to affordable housing will lead to the growth and development of individuals and the country.

In KSA, rapid urbanization and population growth, inadequate affordable housing, and low rates of home ownership mean that the housing sector faces significant challenges, most especially in providing adequate affordable housing for middle and low-income households [4,5]. To address this issue, the government aims to transfer its role from direct housing provider to enabler in the Saudi Vision 2030, which led to establishing the Saudi National Housing Company to transform the housing sector through an enabling approach [6]. The enabling approach seeks to improve the efficiency of the legal, regulatory, and financial environment necessary for effective participation of private sector organizations in housing delivery [7,8]. The approach seeks to encourage private sector investment in housing, increase the diversity of housing types, and raise homeownership from 47% to 52% by 2020 [9].

The enabling approach aims to achieve housing transformation through several incentives. The "Wafi" (on-map sale program) is a model public-private partnership (PPP) scheme between the Ministry of Municipalities Rural Affairs and Housing (MOMRAH) and private developers to sell housing units at the design or construction stage. While the "Etmam" is a program that streamlined the

Abbreviations: KSA, Kingdom of Saudi Arabia; REDF, Real Estate Development Found; VAT, Value Added Tax; MOMRAH, Ministry of Municipalities Rural Affairs and Housing; SAR, Saudi Riyal.

Peer review under responsibility of Ain Shams University.

Production and hosting by Elsevier

E-mail address: mfmalhajri@iau.edu.sa

https://doi.org/10.1016/j.asej.2022.101798
2090-4479/

process of obtaining licensing and approval for housing development by private developers, the White Land (Alarady albida) program applies fees to residential vacant land in order to inject more land into the housing market. There is also the ownership forms (Masaraat Altamalluk) program that matches the socioeconomic status of housing applicants and with appropriate housing solutions based on their financial capability and existing developmental housing program [10]. Adopting enabling approach can enhance the capacity of the private sector to provide housing for a large segment of low-income groups as well as middle- and higher-income groups [11].

The Saudi government is thus implementing an enabling approach based on the idea that works in developed countries such as the UK [12], the USA, Canada, and Australia [13]. However, the implementing the approach in KSA has been criticized in several studies. For example, it does not consider the affordability of low-income people that cannot afford housing in the existing market, and directly threatens the main objective of housing provision, which is poverty alleviation [14]. Another study concluded that housing provision through market mechanisms is likely to be inconsistent and may require seeming policy contradictions [15]. It has been five years since the launch of the enabling program, but no study investigated whether the initiatives are enhancing access to affordable housing in the country. Hence, this study aims to assess the extent to which this approach tackles the challenge of affordable housing in the country. According to Kavishe et al. [16], different countries have experienced varied outcomes, with most of them experiencing failures in their partnerships with housing market actors. In the words of Hassan [14, p.422], "many governments around the world have adopted the enabling approach; some with more success than others".

There is a dearth of studies on the role of the enabling approach in improving access to affordable housing in developing countries, as only a few countries have implemented this approach. In Kolkata, India, partnerships with market actors were challenged by a lack of access to finance, especially for low income people, which conflicted with the partnerships' goal of delivering affordable housing to those in need [17]. In Lagos, Nigeria, Ibem [18] found that the enabling approach provided affordable serviced plots and housing units for high-income groups but contributed slightly to the needs of low-income people. Conversely, the enabling approach is successful in Malaysia where the private sector's performance in housing has been impressive in terms of the number of housing units completed [19]. The private sector accounts for over 90% of housing provision and a greater proportion of low-cost housing [20]. Thus, the successes and failures of the enabling approach is country specific.

Only a few studies have discussed housing within context of the new transformation of the Saudi Vision 2030 [21]. A study by Bahmmam et al. [22] examined the transformation of the Saudi Housing Sector's 13 program and the provision of incentives by the Saudi Ministry of Housing and identified a need for enhancement and improvement of some of these programs and incentives. Another study investigated the challenges of the implementation of the enabling approach within the new transformation of the housing sector [6]. Meanwhile, Alqhatany [19] found that socioeconomic characteristics of citizens, government support, and cooperation between the government, private and non-profit sectors are the three main issues than can foster the transformation of the housing sector through Saudi Vision 2030. However, the present study asks an important question: to what extent has the transformation of the housing sector to an enabling approach solved the challenges of affordable housing in KSA? To the author's knowledge, this study is the first of its kind to review the current transformation of the housing sector in KSA after its first five years of implementation. It also improves our knowledge on the implementation of the enabling approach in KSA and other emerging economics. The following section reflects on the importance of affordable housing, and section three reviews the challenges of housing in KSA. In section four, findings from studies on the challenges of affordable housing in KSA will be analysed. The fifth section will reflect on the new transformation of the housing sector with Saudi Vision 2030.

2. Literature review

2.1. Affordable housing – a global context

A comprehensive definition of affordable housing is provided by Bahmmam, that which meets the needs, increases the quality of life, and reduces the cost to the household, achieves quality of living, is environmentally friendly, and provides an urban identity, as well as achieving satisfaction with function, meeting family future growth, reducing the construction and maintenance cost, and using sustainable building techniques and energy [23]. In addition, affordable housing can be considered as housing that is adequate and available to those who cannot meet their needs without government intervention or special arrangement by the housing providers or cannot afford the mortgage payments or rent for such housing [24].

When people obtain housing, they are not just purchasing the services of the dwelling, but the advantages and disadvantage of the location: physical characteristics, neighbours, accessibility, municipal services, and so forth [25]. Accordingly, the amount that a household can and does pay for housing determines the entire environment in which it lives [26]. Thus, the concept of affordable housing is beyond the boundary of the physical housing.

Affordable housing can be categorized based on its delivery mechanism to formal and informal housing [27]. Informal housing is built without proper building licenses or land use approval. Informal housing is one mechanism used to deliver new housing to meet the needs of lower-income households [28]. Informal housing is not limited to shanty housing and slums: it can also include many other forms: for example, the subdivision of a single-household house into multiple units, and the conversion of garages into flats [29]. Governments' inability to provide affordable housing pushes the new and veteran urban poor into precarious informal labour and poverty, and into informal housing, to provide themselves with shelter in the only way available to them [30]. Thus, the existence of this type of housing is a result of lack of access to affordable housing.

Conversely, the formal housing is produced through the official channels of recognised institutions, such as urban planning authorities, banks and building societies, and land development companies, observing formal legal practices, building standards and land use and subdivision regulations [31]. "The success of the housing policies can be assessed by the comparison between the percentages of governmental expenditure to the number of benefiting from this policy" [14, p.422]. On the other hand, within the housing market, "most developers have continued to build or rehabilitate for upper-income households to satisfy their desired profit margins" [32, p.4].

However, it evident that neither governments nor markets can independently take responsibility for housing delivery [18]. Thus, in the housing sector, the government's role is gradually transferring from that of provider to facilitator or partner through an enabling approach [33]. "The strategy contends that markets should be the primary housing delivery mechanism and that the public sector's role is to introduce incentives and facilitate housing actions by other actors, through partnerships of local government, the private sector and nongovernmental and community-based

organizations (NGOs and CBOs)" [34, p.165]. However, within different contexts, and especially in the developing countries, the outcome of enabling approach is different. That is due to the varying institutional, financial, and cultural environments in these developing countries [35,36]. Thus, these contradictory findings call for more empirical studies on this subject within different contexts.

2.2. Affordable housing-Saudi context

In KSA, in 2016the Vision 2030, seeks to transform the housing sector to an enabling approach through which to work in partnership with market actors. According to the National Housing Strategy, "An efficient and effective housing sector based on partnership with the private sector contributes to the development of the kingdom enables all groups of society to obtain suitable housing for their needs and financial capabilities through a balanced and sustainable housing market based on knowledge and quality" [37, p.72]. In addition, the traditional mechanism of housing delivery in KSA, where the government worked as a direct provider and not as a market actor, does not guarantee affordable housing [38]. However, since the implementation of the Saudi Vision 2030 agenda, little or no attention has been given to measuring the success of the enabling approach to face the Saudi housing challenges.

Even though the Saudi government has responded to the housing demand by implementing public housing programs in which houses are either owned or allocated by a public body, house prices have been rapidly increasing, which means that an increasing proportion of citizens are unable to own a home. There is a lack of the availability of suitable housing units for various socioeconomic segments of society in KSA [39]. Within the KSA housing market, affordability has been pushed beyond the reach of many new households [40]. The gap between the demand and the supply of housing in the kingdom has not been bridged. Since the development of the Real Estate Development Fund (REDF) in 1975, this fund has become the backbone of the country's housing development by providing total loans of SAR 269,852,662,615 ($71,960,710,030.66) [41]. However, there has been a rapid increase in the number of applicants, and consequently, the waiting list has reached more than 15 years [6]. As a result, the gap between supply and demand has been escalating. Furthermore, the growth of the housing sector and the government fund in KSA have been allied and can be tracked with the five-year development plan [42]. Fig. 1 illustrates the gap between the supply and demand of housing in KSA from the implementation of the first development plan (1970–1974) to the ninth development plan (2010–2014).

According to Aleid [43], in KSA there was a shortage in housing supply since the 1990s for two reasons: the first was falling oil prices in the mid-1980, which resulted in significant cutbacks in financing housing, and the second was the economic consequences of the Gulf War, which can be clearly identified in Fig. 1. Similarly, the more recent drop in oil prices in 2014 reduced market liquidity, and budget tightening, which affected the delivery of housing and other critical infrastructure. On the other hand, there is little private investment in the delivery of affordable housing in the country. The chain of funding for housing development in KSA is still very slow and unstable and the contribution of private investment is limited [44]. As a result, with the new Saudi Vision 2030, the government's commitment to shift to enabling approach and make the private sector participate in the delivery of the future demand for housing, as is evident in National Transformation Program 2020, which affirms the government's commitment to "providing housing units through public-private-partnerships" [45, p. 97]. Furthermore, in 2020 the demand for housing, according to the Saudi Housing National strategy for the thirteen regions of the kingdom, is 1.15 million units [37].

The population growth rate of 1.6% annually and the current high urbanization rate (84%) [5], can be considered as significant challenges that contribute to housing issue [6,22]. In addition, due to the population's rate of growth, MOMRAH needs to build a massive number of dwellings to respond to the increased demand [22]. Furthermore, one of the major challenges for the housing sector in KSA is the rapid increase in the foreign labour force, which is now about one-third of the population [46]. Other challenges that strain the gap between demand and supply in KSA include the increasing number of households: KSA has a moderately young demographic (over 60% of its population are under the age of 30 years), where more young people are getting married and seeking to leave their parents' homes [4,47]. This leads to the formation of many new households, which will consequently create a huge demand for housing [38].

Beyond the demographic character of KSA, social and cultural preferences have contributed to the country's housing challenges. Due to the traditional preference for villa-style homes, Saudi households are reluctant to live in some types of housing such as apartments, which are smaller and cheaper, due to shared entrances and joint spaces, which are considered disadvantageous [48]. Furthermore, the most significant issues appear to be the high

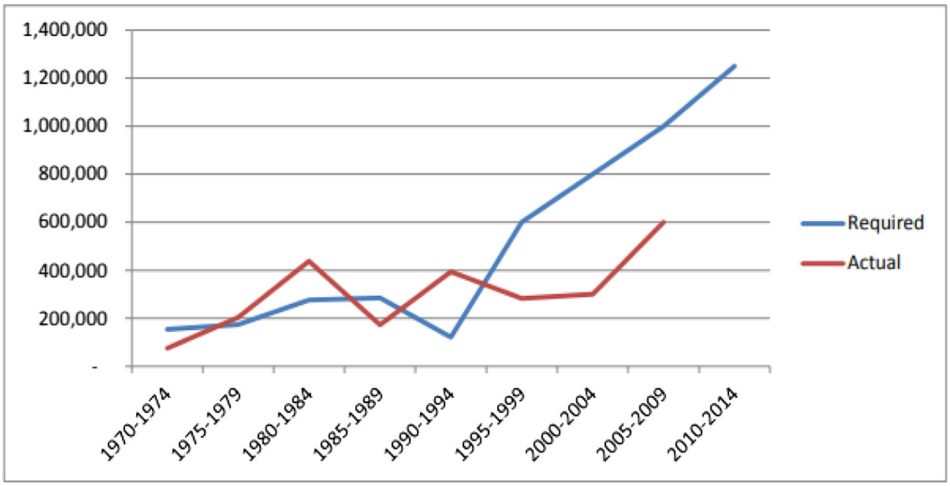

Fig. 1. Supply and Demand of Housing in KSA from 1970 to 2014 [6].

cost and shortage of housing units and the fact that available housing units are not compatible with the socioeconomic characteristics of Saudi families [39]. The rapid increase in house prices has meant that about 53% of citizen unable to afford to own a home in 2018 [9]. For example, a 4-bedroom villa with average size of 410 square meter in Riyadh, cost about by SAR 4,500,000 ($1,200,000). In comparison with average monthly income of the Saudi citizen SAR 12,500 ($3,333) [4], this equals 30 years of saving of the whole salary to purchase this villa not to mention the other living expenses. However, only 30% spent on housing is considered affordable.

The escalating house prices are aligned with the increasing price of land, which has become an investment channel for many households in KSA, as it is bought speculatively as an investment and kept empty in the hope of future price rises. Thus, large tracts of subdivided lands have witnessed very sparse development, but that has not stopped either the flow of investment or the escalation of land prices [49,50].

Moreover, the absence of a comprehensive strategy for housing provision has contributed to the worsening of housing problem in KSA. According to Al-Mayouf et al. [51], the tasks of housing provision have been transferred through several authorities. Various government ministries and agencies have been cancelled or replaced by other agencies, that introduce different strategies. However, the government has recently introduced the Saudi Housing Strategy to develop the housing sector in the country. Therefore, the challenges of affordable housing in KSA can be recognized from four different perspectives: financial, socioeconomic, cultural, and political.

3. Method

3.1. Study setting

KSA has total area of 2,250,000 square kilometres [52]. According to the Saudi General Authority for Statistics [53], in mid-2020, the total population in KSA was 35,013,414 people. The urbanization rate has grown dramatically over the past decades, increasing from just 665 thousand in 1950, with only 21% of Saudis living in urban areas [54], to 84.3% of the population living in urban areas in 2020 [55]. The country, administratively divided into 13 regions, has an average population density of 12.8 persons/km^2 in 2010 (the 20th lowest in the world) [56]. Furthermore, in 2018, the total number of applicants received by the Ministry of Housing reached 1,159,077 seeking access to housing through government programs. The distribution of those applicants among the 13 regions is illustrated in Fig. 2. It can be anticipated that the highest demand for housing was located within the three main regions: Riyadh, Makkah, Madinah, Eastern Province, and Asser.

To address the increasing housing demand, Saudi Vision 2030 aims to encourage the participation of the private sector through an enabling approach and increase the rate of homeownership. It states that "Even though 47 percent of Saudi families already own their homes, we aim to increase this rate by five percentage points by 2020. This would be a substantial achievement, given the high increase in the number of new entrants to the housing market. This target will be met by introducing laws and regulations, encouraging the private sector to build houses, and providing funding, mortgage solutions and ownership schemes that meet the needs of Saudi citizens [45]. The Ministry Housing has launched several incentives and programs to transform the role of the government to an enabling approach, including the following [10]:

- The Wafi or on-map sale program (off plan) as a model for the PPP housing scheme by the Ministry of Housing to sell housing units from the developer at an earlier stage after design or during construction.
- The Etmam program, which facilitates and speeds up the process of licensing and approving housing development from different government-related agencies.
- The White Land program, which applies charges to residential vacant land in order to inject more land into the housing market,
- Ownership forms which aim to study candidates' socioeconomic state and provide them with housing solutions based on their capability.
- Developmental Housing, which provides housing units for the groups with the greatest need in the community through integration and partnership with non-government organizations and institutions
- Cooperative Housing, which aims to organize and stimulate the sector to contribute to the provision of affordable housing units, through the development of legal frameworks, boosting capacity, and increasing awareness.
- First Home VAT exemption: the government waives VAT on loans of up to SAR 1,000,000 ($266,666) for Saudis buying homes for the first time in order to reduce the cost of owning housing.

Hence, these programs and incentives can be delivered more efficiently in light of an exploration of the challenges that affect this efficiency, which is the aim of the present study.

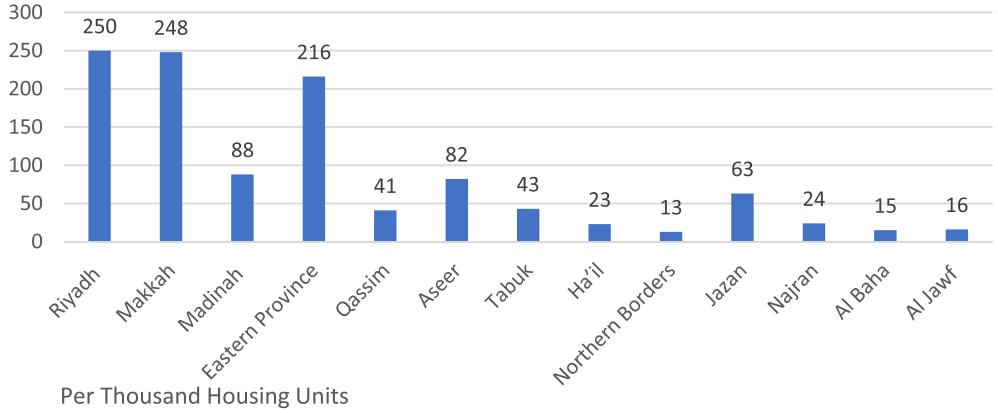

Fig. 2. The number of applicants for affordable housing in the different regions in KSA National Housing Strategy, [37].

3.2. Data collection and sampling

Data were collected through a questionnaire survey targeting experts in the Saudi Housing sector. Expert opinion is essential to measure the extent to which the enabling approach can increase the supply of affordable housing in KSA. A questionnaire is an ideal way to collect data about the opinions and behaviour of large numbers of people [57]. Moreover, it helps the researcher to deduce the frequency of the expert opinion in the different challenges facing the delivery of affordable housing in KSA, and to assess the different enabling programs and incentives that intend to increase access to affordable housing in the country. The questionnaire consisted of three main sections. The first section gathered data on the participants' profiles, including gender, age, education level, and job ranking. The second section assessed housing challenges after the transformation to the enabling approach to assess both the deductive challenges identified from the literature, using closed-ended questions, and inductive challenges from participants' experience, using open-ended questions. The third section assessed the various programs and incentives that have been implemented through the enabling approach in the Saudi housing sector.

The use of questionnaires enables researchers to obtain information from a large group of respondents within a limited time frame. To ensure the quality of the questionnaire, a pilot study was conducted with three experts from the field of housing development and two academic researchers with experience of urban challenges. The pilot study's primary goal was to analyse the substance of the questionnaire and the items' compliance with the study's objectives, and it also sought to ensure that the questions were clear and understandable to the intended respondents. Based on the observations and feedback received, the questionnaire was updated several times. Google Forms was utilized to create an electronic questionnaire interface. This method is preferred for its quick, economical, and eco-friendly manner of data gathering. Based on the author's knowledge, the link was sent to different experts in MOMRAH, and academic experts in related fields, and to the Saudi Planning and City Development Association. Snowball sampling was utilized to share the survey link through email and social media. Based on the author's knowledge, experts from the above-mentioned organizations were targeted in different regions of the kingdom to ensure geographical spread and representation. Then, through the snowball technique, each expert was asked to share the link within his geographical location to other participants with similar characteristics until no addition participants emerged. The demographic details of the participant are shown in Table 1, below.

The sample size of this study reached 121 respondents, of whom 80.8% were male and 19.2% were female. Regarding education, 65% of the respondents held bachelors' degrees and 3.3% had only a certificate of secondary education or less. The largest age group was 30–44 years old, representing 69.2% of the sample. The expert participants were from different parts of the country: 50% were from the Eastern Province, 16% were from Riyadh, 13% from Hail, 9% were from Makkah, 2% were from Madina, 6% were from the Northern Border, 2% were from Baha, 2% were from Jizan and 1% were from Qassim. However, the study did not receive any responses from Tabuk, Asser, Aljawf or Najran. A similar study by Alqahtany et al. [39] investigated the opinions of experts on the Saudi Housing Sector with 35 experts.

3.3. Data analysis

The statistical analysis of the data collected from targeted respondents was conducted using the Statistical Package for the Social Sciences (SPSS) software to test and validate the extracted data. According to the analysis, the overall Cronbach's alpha reliability coefficient was 0.74; being higher than 0.70, this indicates good internal consistency and reliability for all factors [58]. Pearson's Chi-square test is suitable for establishing whether there is a statistically significant relationship between a dependent variable, such as experts' perceptions of challenges to Saudi affordable housing, and a categorical predictor variable with at least two independent groups, such as job categories, gender or age [59]. In the questionnaire, the relative importance of the challenges and enabling programs and incentives was measured individually using a Likert-type scale ranging from 1 to 5, with the following equivalents: 1 = strongly disagree, 2 = disagree, 3 = moderate, 4 = agree and 5 = strongly agree. The Relative Importance Index (RII) was used to assess the levels of importance of the various challenges to access to affordable housing and the enabling programs and rank them in descending order based on their influences on access to affordable housing.

Table 1
Demographic details of the participant.

Demographic Variables	Categories	Number (Percentage)
Gender	Male	97 (80.8%)
	Female	23 (19.2%)
Job Position	Higher Management	22 (18.6%)
	Middle Management	27 (22.9%)
	Employee	69 (58.5%)
Level of qualification	Certificate/ Secondary or less	4 (3.3%)
	Diploma or less	16 (13.3%)
	Batchelor's Degree	78 (65.0%)
	Master's Degree	17 (14.2%)
	PhD	5 (4.2%)
Organization's nature of business	Public	35 (29.4%)
	Private	53 (44.5%)
	Academic	22 (18.5%)
	Other	9 (7.6%)
Age Group	18–29	16(13.3%)
	30–44	83 (69.2%)
	45–59	16 (13.3%)
	60 and above	5 (4.2%)

4. Results and discussion

4.1. Challenges facing affordable housing in KSA

This section presents the study findings and examines expert opinions on the extent to which the identified challenges contribute to the lack of access to affordable housing in KSA. Table 2 presents the challenges to access to affordable housing based on RII value, mean, and standard deviation based on expert opinion. The top ranked challenges are the high price of residential land, high construction cost, and urbanization rate. On the other hand, the least important challenges are the decrease in the government housing budget, the increasing size of the foreign labour force, and new household formation. Also, Pearson Chi-square test were employed to analysis demographics factors and challenges of affordable housing Table 3. The following sub-section will discuss these challenges in detail.

4.1.1. High price of residential land

The price of residential land can challenge access to affordable housing, as it contributes to housing prices. This study found that this was the highest ranked challenge, with 85.7% of the participant agreeing and strongly agreeing on high price of residential land as challenge. The RII (0.89), and mean (4.47). Also, the standard deviation (1.096) indicates that there was little variation in the experts' opinions regarding this challenge. In addition, there

Table 2
Ranking of challenges to access to affordable Housing.

Challenges	Mean	Std. Deviation	RII	Ranking
High price of residential lands	4.47	1.096	0.89	1
High construction cost	4.34	1.116	0.87	2
High urbanization rate	3.79	1.365	0.76	3
High preference for villa-style homes	3.70	1.279	0.74	4
Private sector investment in housing for higher income groups	3.61	1.263	0.72	5
High rate of population growth	3.44	1.357	0.69	6
Difficulties in optioning housing mortgages and loans	3.44	1.344	0.69	6
Decrease in government housing budget	3.31	1.216	0.66	7
New household formation	3.06	1.195	0.61	8
Increased number of foreign labour force	2.97	1.245	0.59	9

Table 3
Summary of analysis on demographics factors and challenges of affordable housing by using Pearson chi-square test.

		1	2	3	4	5	6	6	7	8	9
Gender	P-value	0.470	0.448	0.123	0.135	0.024	0.002	0.001	0.207	0.314	0.043
df = 4	χ 2	4.278	3.701	7.257	7.017	11.208	16.44	21.072	5.897	4.754	9.867
Job	P-value	0.635	0.583	0.051	0.214	0.369	0.086	0.563	0.450	0.618	0.157
df = 8	χ 2	9.582	10.37	20.952	15.532	13.003	19.12	10.6	11.946	9.977	16.802
Education	P-value	0.261	0.331	0.606	0.989	0.853	0.214	0.015	0.343	0.429	0.728
df = 16	χ 2	19.154	17.883	13.908	5.897	10.247	20.14	30.634	17.678	16.349	12.281
Work Organization	P-value	0.636	0.832	0.034	0.229	0.621	0.403	0.010	0.368	0.186	0.517
df = 12	χ 2	13.492	10.632	27.723	19.799	13.707	16.656	32.023	17.279	20.81	15.104
Age	P-value	0.747	0.605	0.167	0.130	0.020	0.136	0.695	0.223	0.070	0.003
df = 12	χ 2	8.473	10.12	16.561	17.553	24.019	17.384	9.087	15.339	19.834	30.056

was no significance difference between participants' opinions on this challenge based on demographic variables.

Prior literature has reported that the high price of residential land is a challenge to the affordability of housing. In KSA, Alqahtany et al. [39] found that the high price of residential land was the top ranked housing challenge, with an average rank score of 15.25. Alobaid explained this challenge by stating that "Investors' and developers' demand for land and housing sector, in general, peaked as they sought high returns which were being achieved through land trading throughout KSA. This pushed affordability beyond the reach of many new households being formed" [40, p.14]. Similarly, Alasmari [50] found that land has become an investment channel for many households, being speculatively bought and kept empty in the hope of future price rises. Furthermore, within the literature, difficulties with access to land and affordability have been examined. For example, in Tanzania, a study by Kavishe et al. [60] found a positive significant relationship between "poor access to land" and "high costs and difficulties of acquiring land", showing strong positive correlations, which indicates that this factor is making the delivery of affordable housing difficult. Thus, access to affordable land is a top ranked challenge that impacts access to affordable of housing.

4.1.2. High construction cost

Access to affordable housing can influence housing prices. The present study found high construction cost was ranked second, with 80.6% of the participants agreeing or strongly agreeing that it was an important challenge. The RII (0.87) and mean score (4.37) indicate that the participants' opinions were clustered around the 'agree' option. The standard deviation (1.116) indicates that there was little variation in the experts' opinions. Previous literature found that high construction cost is a barrier to increased housing affordability. Moreover, this study found no significance difference in participants' scores for this challenge based on demographic variables.

Previous literature reports that construction cost is a serious challenge to access to affordable housing. For example, in KSA, Alqahtany et al. [39] found that high construction cost was the third most critical obstacle challenging affordable housing, with an average ranked score of 13.19. Another study conducted in KSA, by Assaf et al. [24] investigated the factors that impact high cost of construction and found that inadequate labour availability, material standards, design quality and design changes were the top reasons for the high construction cost in KSA. In addition, in Nigeria, Ajayi et al. [61] found that construction cost was among the top three factors affecting housing delivery (RII = 0.78). This concurs with the finding of this study, where high construction cost was identified as the second biggest challenge to access to affordable housing. Thus, the impact of the high cost of construction greatly influences housing affordability.

4.1.3. High urbanization rate

A high urbanization rate can have an influence on access to affordable housing by increasing demand. This study found that high urbanization rate was the third highest ranked challenge, as 68.9% of the participant agreed or strongly agreed on this challenge. The RII score (0.76) and the mean (3.79) indicate that participants' opinions were constrained between the 'neutral' and 'agree' options on high urbanization rate as a challenge to access to affordable housing. Also, the standard deviation of 1.365 indicates an average degree of variation in the experts' opinion. In addition, this study found that participants' work organizations had a significant relationship with their belief that high urbanization rate was a challenge facing access to affordable housing in KSA (χ^2 = 27.72, p = 0.034). In total, 77% of participants from the public sector agreed or strongly agreed that high urbanization rate is a challenge facing access to affordable housing, followed by participants from the private sector (69%), and from other organizations (63%). It can be anticipated that the low agreement from academic sector participants could reflect that they have more knowledge on the impact of other challenges compared to participants from public, private, and other organizations. Also, the study found a significant difference between participants' job status and high urbanization rate as a challenge (χ^2 = 20.95, p = 0.059). In total, 76% of participants from upper management agreed or strongly agreed, followed by middle management (74%), and lower employees (70%). This

reflects the degree of awareness regarding this challenge, as top-level management are likely to have more awareness and agreement regarding this challenge than other employees.

Within the literature in KSA, several studies emphasise the escalating urbanization rate as the main challenge that is aligned with demand for affordable housing [6,46,62]. In addition, in Malaysia, Yap et al. [63] found that demographics and urbanization rates were not among the significant factors that strongly influenced housing affordability. In contrast, in China, a study by Wang et al. [64] found a relationship between urbanization, housing prices, and affordable housing, arguing that these variables are mutually coupled and promoted, with urbanization having a close relationship with demand and supply in the real estate market, which, in turn, directly impacts housing prices and consequently impacts housing affordability. Furthermore, a relationship between job status and urbanization rate has also been reported in the literature. For example, a study by Tselios [65] found that the relationship between urbanization and type of job was positive and statistically significant in European regions. Therefore, urbanization rate influences the affordability of housing.

4.1.4. High preference for villa-style homes

The preference for housing type can impact access to affordable housing, as each housing type has a different cost. The present study found that high preference for villa-style homes was the fourth highest ranked challenge to access to affordable housing, as 58.8% of the respondents agreed or strongly agreed on this challenge. The RII score (0.74), and the mean score (3.70) indicate that participants opinions were grouped between the 'neutral' and 'agree' options. No significant differences in participants' opinions on this challenge were found based on the participants' demographic variables.

Within the literature, the relationship between household income and housing type has been investigated. For example, in Malaysia, Bujang et al. [66] found a strong relationship between household incomes and the type of property, meaning that those with high income might buy a property with a higher price, while those with lower income might buy a house with a lower price in future. Also, in KSA, Alhubashi et al. [67] found that the majority of households (86%) prefer to live in an independent and separate housing unite like a Villa. Similarly, Opoku et al. [68] found that the majority of respondents would prefer to live in a small house (43%), followed by an apartment (29.7%), with an almost equal proportion (27.3%) preferring the duplex option, which suggests that the issue of privacy may have something to do with the high preference for small house in KSA. Furthermore, Tuncalp et al. [46] and Al-Otaibi [69] found that Saudi households lacked the ability to afford their chosen housing type within the Saudi housing market. However, Alhajri [6] found that the preference for villa-style homes was among the last two challenges facing housing schemes in KSA where the there is a gap between households' interests and their needs: households' financial capabilities are limited, but they are interested in villas. Thus, household preference type challenges access to affordable housing.

4.1.5. Private sector investment targeting high income housing

The housing types in which the private sector invests can affect access to affordable housing by increasing supply. The present study found that private sector investment targeting housing for high income groups was ranked as a moderate challenge, with 57.2% of the participant agreeing and strongly agreeing on this factor as a challenge. The RII (0.74) and mean score (3.61) indicate that the participants' views were clustered between 'neutral' and 'agree'. In addition, there was a statistically significant difference in scores based on participants' gender (χ^2 = 11.208, p = 0.024), with 77% of female participants indicating that they agreed and strongly agreed that this factor was a challenge, in comparison to just 53% of male participants. This might reflect a difference in purchasing power between males and females and their access to affordable housing on the market, with females finding it more difficult to access the private housing market. Furthermore, the study also found a statistically significant difference in scores for this variable based on participants' age (χ^2 = 24.019, p = 0.020). All participants aged 60 and above (100%) agreed or strongly agreed that this factor was a challenge, compared to 63% of participants aged 18–29 and 55% of those aged 30–44 (55%). This result can explain the relationship between investing in high income housing and different age groups.

Previous literature has also reported that private sector investment has failed to provide affordable housing. In KSA, Alqhatany et al. [39] found that families' purchasing power was the second highest challenge, with an average rank score of 14, which is not compatible with the housing market, and that the housing units available were not affordable across families' differing socioeconomic characteristics. Similarly, in Ogun State, Nigeria, the provision of housing by the private sector was targeting high-income earners and excluding low income groups, and this was identified as a significant challenge to the delivery of affordable housing through such partnerships. Furthermore, within the literature, the relationship between the attributes of private investors on the housing market and gender has been reported. For example, a study by Majid et al. [70] in Malaysia found that gender was significantly related to purchasing power and housing affordability (p = 0.057). Furthermore, another Malaysian study, conducted by Bujang et al. [71], found that the size of households, monthly income, marital status, and education level each had a significant relationship with affordability of housing. Therefore, private sector investment can influence access to affordable housing by targeting high income groups within the housing market.

4.1.6. High rate of population growth

Population growth can increase the demand for affordable housing through new family formation. The current study found that the high rate of population growth was ranked as a moderate challenge, with 52% of the participants agreeing and strongly agreeing on the importance of this challenge. The RII score (0.69) and the mean (3.44) indicate that participants' opinions were grouped between 'neutral' and 'agree'. This study also found a significant relationship between the gender of participants and their opinions on high rate of population growth as a challenge to affordable housing (χ^2 = 22.072, p = 0.002), with 59% of the female participants agreeing or strongly agreeing that the high rate of population growth was a challenge to affordable housing, in comparison to 51% of male participants. Also, the study found a significance difference in participants' opinions about this challenge based on their job status (χ^2 = 19.12, p = 0.086), with 67% of employees from middle management agreeing or strongly agreeing that this factor was a challenge, followed by participants from lower levels of employment (57%), while only 24% of participants from top management agreed or strongly agreed that this factor was a challenge. This discrepancy might suggest that top management participants have more experience to know that there are other factors that affect the affordability of housing more strongly than high rates of population growth.

The influence of population growth rate on the delivery of affordable housing has been reported in previous literature. In KSA, Alobaid [40] found that a 1% increase in population rate resulted in about a 0.19% rise in demand for housing in KSA. Moreover, in Spain, Paz (2003) [71] found evidence of a positive relationship between residential prices and population size, which is considered as a factor that influences demand. In addition, Ajayi et al. [61] found that high population growth was a moderate chal-

lenge to affordable housing in Nigeria (RII = 0.75) concurring with the finding of this study. However, in Beijing, China, Wang et al. [72] found no sufficient evidence to indicate a relationship between Beijing's demographic changes and housing affordability. Therefore, it appears that a high rate of population growth can have a moderate impact on access to affordable housing.

4.1.7. Difficulties in obtaining housing mortgages and loan

Difficulties in obtaining housing mortgages and loans have an impact on access to affordable housing through financing. This study found that 50.4% of participants agreed or strongly agreed that this variable was a challenge to affordable housing, which makes it a moderate influence among the investigated challenges. The RII score (0.65) and mean (3.44) indicate that participants' opinions were grouped between 'neutral' and 'agree'. Moreover, the standard deviation (1.34) indicates that the participants' opinions were of average variety. This study also found a significant relationship between gender and experts' opinions on the importance of this challenge to access to affordable housing (χ^2 = 21.072, p = 0.001), with 77% of female participants (agreeing and strongly agreeing that difficulties in obtaining mortgages and loans presented a challenge to access to affordable housing, in comparison to 45% of male participants. This means that lack of access to housing finance is more of a challenge for females than it is for males. Also, the study found a significance relationship between education and opinions on difficulties in obtaining housing mortgages and loans (χ^2 = 30.634, p = 0.015), with 75% of participants with certificate/secondary education or less agreeing or strongly agreeing with this statement, compared to 63% of those with PhD-level education and 52% of those with bachelors' degrees. It can be anticipated that lower levels of education lead to more difficulties in obtaining housing mortgages and loans, and the high agreement of participants with PhD-level education reflects their degree of awareness on this challenge. In addition, the study found a significance relationship between participants' work organizations and their opinions on the difficulties of obtaining a housing mortgage and loan (χ^2 = 32.023, p = 0.010), with 89% of participants from other work organizations indicating that they agreed or strongly agreed with this statement, followed by 64% of participants from academic organizations, 51% from the public sector, and 38% from the private sector. This difference might reflect the degree of housing support and security determined by different work organizations, which impacts the degree to which employees' access to housing funds is simplified.

Within the literature in KSA, Alqhatany et al. [39] found that the high interest rate of mortgages was challenging, with an average range score of 11.56, and this factor was ranked fourth out of 14 challenges. In addition, in Nigeria, Ajayi et al. [61] found that the financial and mortgage system was a challenge: with an RII score of 0.79, it was considered as the second highest challenge to affordable housing. However, within the current study, it was ranked as a moderately important challenge and not a top ranked one. This is not unexpected, as the current effectiveness of the enabling approach and the creation of partnerships with private finance institutions to provide access to finance for housing has improved the situation in KSA. Furthermore, there is also evidence in the literature that explains the significance difference between difficulties in accessing housing mortgages and loans and the demographic status of the participant. For example, in Saint Louis, MO, US, Sanders et al. [73] found that females were significantly more likely than males to be rejected for home loans (χ^2 = 13.97, p = 0.001). Bourassa and Peng [74] suggest that this is because men generally earn higher and more stable incomes than women and are thus more likely to secure a mortgage loan. Moreover, in Jos, Nigeria, Daniel [75] found that the employment organization has a significant impact on access to housing finance (χ^2 = 86.816; p = 0.00). Thus, demographic factors have a significant relationship with access to housing mortgages and loan.

4.1.8. Decrease in government housing budget

Government housing support through housing finance can affect access to affordable housing. The present study found that 41% of the participants agreed or strongly agreed that a decrease in the government housing budget was a challenge to access to affordable housing. The RII score (0.66) and the mean (3.31) indicate that participants opinions were clustered around neutral. Significant differences in these opinions based on demographic variables were not found.

Within the literature in KSA, Alobaid [40] explains that a drop in oil prices in 2014 left the Saudi government with a budget deficit of more than 20% in 2016, including the housing budget. In addition, Sidawi and Meeran [76] found that the government financial organization, namely the Real Estate Development Fund (REDF), was incapable of delivering enough mortgages to low-income citizens, as these mortgages were very limited and usually take a very long time to be granted due to the bureaucratic financing processes. Similarly, in China, Wu et al. [77] found that a budget deficit caused a surge in housing prices. Also, in Ghana, Afrane et al. [78] found that housing deficit was perfectly correlated with inadequate mortgage financing institutions (p < 0.000). However, in the present study, this challenge was ranked as not very important compared to other challenges to access to affordable housing in KSA, so it can be anticipated that the new enabling approach, in which the government works with private finance institutions to provide more housing funds, has had an impact in reducing the influence of this challenge. Therefore, government financial support can have an impact on access to affordable housing.

4.1.9. New household formation

Household formation can influence the affordability of housing by increasing demand. In this study, only 33% of the participants agreed or strongly agreed that new household formation indicating that it has second least impact, (RII = 0.61). Furthermore, the χ^2 result shows a statistically significant relationship between age and participants' opinion that the increase in new households formation was a challenge facing access to affordable housing (χ^2 = 19.834, p = 0.070), with 69% of participants aged 18 to 29 (agreeing or strongly agreeing with this statement, followed by 50% of participants aged 45 to 59 and 36% of participants aged 30 to 44.The younger participants showed the strongest agreement on the importance of this challenge, reflecting the age of household formation and the difficulties that they face in contrast to participant aged 60 and above, who did not agree or strongly agree that new household formation was a challenge.

Whitin the literature, Assaf et al. [24] found that an increasing household formation rate resulted in significant shortages of affordable housing in KSA, where providing affordable housing has become a challenging task for the government as well as the private real estate sector. In addition, in 2016, the number of applicants to the Saudi Ministry of Housing exceeded 800,000, and 63% of these candidates were households of three to five people, with the head of the household's age not exceeding 30 years [42]. Furthermore, in Nigeria, Taiwo et al. [79] found that the rate of household formation increases the demand for affordable houses. Similarly, in the United States, it was found that higher house prices were associated with the probability of leaving the parental home to live with a partner within the same state, but not with leaving home to live alone [80]. Furthermore, within the literature, a significance difference between demographic factors and household formation has also been reported. For example, in Malaysia, Bujang et al. [66] found that household size had a significant relationship with affordable housing price among the respondents

(χ^2 = 30.49. p = 0.002). Although there was a significant relationship between household size and housing affordability, new household formation was found in the present study to have a lower impact on access to affordable housing than the other challenges discussed above. There is a new trend to delay the age of marriage in Saudi society. Al Mutairi [81] explained that one of the most important factors associated with this delay is economic, in terms of the inability to provide independent housing, expensive living, and high marriage costs.

4.1.10. Increased size of foreign labour force

Housing affordability can be affected be the increased size of the labour force, which increases the demand for affordable housing. The present study found that only 32.7% of participants agreed or strongly agreed that this factor was an important challenge, with a RII score of 0.59 and a mean of 2.97, which indicates that participants' opinions tended to cluster below the 'neutral' option. Furthermore, this study found a significant difference in opinions on the importance of this factor based on participants' gender and their opinions on whether the increase in the foreign labour force was a challenge to access to affordable housing (χ^2 = 9.867; p = 0.043), with 55% of female participants agreeing or strongly agreeing that this factor was important, in comparison to only 28% of male participants. This might be because males are more directly involved and more experienced in obtaining affordable housing than women, and hence think this factor is the least important. Also, the study found a significance relationship between age group and opinions on whether the increasing foreign labour force was a challenge (χ^2 = 30.056; p = 0.003), with 52% of respondents aged 45 to 59 agreeing and strongly agreeing, followed by 44% of those aged 18 to 29 and only 29% of these aged 30 to 44. This result suggests that there is little agreement between participants from different age groups on the belief that the foreign labour force is challenge to access to affordable housing.

Previous literature has also reported this challenge. For example, Tuncalp et al. [46] found that the foreign labour force was the second most important among six challenges facing the housing sector in KSA. Similarly, in Mentari Court, Selangor, Malaysia, Leh, et al [82] found that foreigners had a negative impact on housing affordability, with the majority of respondents (76%) believing that the presence of foreigners had increased housing and rental prices. However, in Beijing, China, Wang et al [72] found that the labour force did not significantly influence changes in housing affordability (χ^2 = 9.200, P = 0.056). The findings from the present study differ from those of Tuncalp et al. [46] because their study included rental housing, which is known to be influenced by the size of the foreign labour force.

4.2. Housing enabling program and incentives

This section presents the experts' opinions on the role of the government's enabling approach in improving access to affordable housing in KSA. Table 4 presents a summary of the programs that have been implemented under the enabling approach according to RII, mean, and standard deviation. Based on the expert opinion, the most important program is the First Home Value Added Tax (VAT) exemption, followed by the Developmental Housing Program. On the other hand, the least important programs are Etamm and Wafi. Also, Pearson Chi-square test were employed to analysis demographics factors and enabling housing programs (Table 5). The following subsection will present the programs and incentives based on their ranking from the highest to the lowest.

4.2.1. First home VAT exemption

Financial incentives for first home buyers can be an effective tool when applied by the government to enhance access to affordable housing. The present study found that the VAT exemption incentive was the top ranked enabling program applied by the Saudi government to tackle the challenge of affordable housing. Over half (53%) of the participants agreed or strongly agreed on the effectiveness of this program. The (RII = 0.82) and the (mean = 4.08) indicate that the expert view was clustered around agreement. The present study found not significance difference in participants' opinions on this program based on demographic variables.

Previous literature also reports that tax exemptions on building materials or home sales, or similar tax-related provisions, have been used successfully in other countries for low- and moderate-income families in order to enhance their access to affordable housing. For example, in Nigeria, a study by Ajayi et al. [61] found that a review of fiscal and monetary policies was the third most effective strategy in affordable housing delivery (RII = 0.83). Also, in Columbia, the government assists people through tax-breaks to increase access to affordable housing [79]. In addition, Quayes' [83] study in the United States found a statistically significant positive relationship between tax exemption and housing sales, where such policy provided an additional incentive to facilitate access for purchasing a house. Therefore, financial incentives such as VAT exemption have been found to be effective as an enabling program.

4.2.2. Developmental housing

Developmental Housing Program can facilitate access to affordable housing through partnerships with non-government organizations. Expert opinion indicated that the Saudi Developmental Housing Program was the second highest ranked enabling program to enhance access to affordable housing in KSA (RII = 0.73), with 54.7% of the participants agreeing and strongly agreeing on the effectiveness of this program. The mean score of 3.67 indicates that participants' opinions were clustered between 'neutral' and 'agree'. The present study found no significant differences in scores based on demographic variables.

Within the literature, in KSA, Bahammam et al. [22] found that the Developmental Housing program worked with non-profit organizations to enable vulnerable households to access affordable housing. However, the number of housing units available is limited relative to the actual needs of the vulnerable groups. Furthermore, in Hong Kong, Singapore, South Korea, and Taiwan, Lee [84] found that the developmental housing systems have not successfully

Table 4
Enabling housing programs.

Program	Mean	Std. Deviation	RII	Ranking
First Home VAT exemption	4.08	1.081	0.82	1
Developmental Housing	3.67	1.091	0.73	2
Ownership forms	**3.67**	**0.983**	**0.73**	**3**
Cooperative Housing	3.63	0.959	0.72	4
White Land program	**3.60**	**1.260**	**0.72**	**5**
Etmam program	3.59	1.084	0.72	6
Wafi	**3.33**	**1.046**	**0.67**	**7**

Table 5
Summary of analysis on demographic factors and enabling programs by using pearson chi-square test.

		1	2	3	4	5	6	7
Gender	P-value	0.236	0.429	0.538	0.020	0.908	0.742	0.644
df = 4	χ^2	5.54	3.835	3.117	11.669	1.013	1.966	2.504
Job	P-value	0.690	0.677	0.743	0.787	0.219	0.545	0.951
df = 8	χ^2	9.148	9.3	8.526	7.978	15.429	11.072	5.198
Education	P-value	0.577	0.393	0.747	0.841	0.510	0.545	0.277
df = 16	χ^2	14.284	16.88	11.954	10.47	15.196	14.723	18.839
Work Organization	P-value	0.847	0.669	0.754	0.700	0.482	0.729	0.376
df = 12	χ^2	10.355	13.053	11.85	12.62	15.983	12.219	17.154
Age	P-value	0.701	0.813	0.349	0.147	0.482	0.513	0.075
df = 12	χ^2	9.025	7.632	13.283	17.081	11.561	11.185	19.608

proved that they have sufficient resilience to handle the dynamics of the international forces being imposed upon them by factors more powerful than their internal factors. This study's findings contradict those reported by Bahammam [38], probably because their study was conducted during the early stage of the implementation of this program. Thus, increasing the capacity of this program can help address the challenge of access to affordable housing.

4.2.3. Ownership form (Masarat Altamlek)

The study of beneficiaries' socio-economic situation, such as income level and household size, can help reduce the challenge of access to affordable housing. The present study found that the ownership form was the third ranked program to enhance accessibility to affordable housing in KSA, with 55.5% of participants agreeing or strongly agreeing on the effectiveness of this program. The (RII = 0.73) and the (mean = 3.67) indicate that participants' beliefs were clustered between the 'neutral' and 'agree' options. Also, the standard deviation of 0.983 indicates that there was little variation in the experts' opinions regarding this program. The present study found no significant differences in scores based on demographic variables.

Within the literature, similar programs have been reported to be effective tools to reduce the challenge of access to affordable housing. For example, in Malaysia, a study by Shuid [85] found that the allocation system applied by the government (Open Registration System) was successful in providing a more efficient and more transparent system of allocation of housing to the targeted beneficiaries and improving their access to affordable housing. However, an international comparison study by Adabre et al. [86] found that in a factor analysis, the factor loading of 'transparency in allocation of houses' was below 0.50, which indicates that it is not significant or successful factor. Therefore, the effectiveness of this kind of program is based on how it is implemented.

4.2.4. Cooperative housing

Cooperative Housing programs, in which community-based organizations contribute to affordable housing supply, can facilitate access to affordable housing. The present study found that 53.80% of the participants agreed and strongly agreed that cooperative housing is an effective program to enhance access to affordable housing in KSA (RII = 0.72). The mean score of 3.59 indicates that participants' opinions were grouped between 'neutral' and 'agree'. The present study did not find any significance difference in participants' ratings based on demographic variables.

Within the literature, cooperative housing has been reported to be a successful tool to contribute to affordable housing. Balmer et al. [87] found that cooperative housing was a success in Switzerland because of basing policies on private initiatives rather than public property and targeting the middle class, which contributed to the popularity of this strategy. On other hand, in Lagos State, Nigeria, Oloke *et al*, [88] found that the success rate of co-operative societies in housing delivery was less than 50%, dispelling the belief that the co-operative approach to housing delivery is a sure way of arresting housing affordability problem: only 23.8% of housing was delivered, while the overall performance rate was 38.3%. This finding is in line with the findings of this study, where the impact of this program was not high, possibly because it has only recently been implemented. Thus, the capacity and the impact of cooperative housing can be improved to enhance access to affordable housing.

4.2.5. White land program

Access to affordable housing can be impacted be the supply of residential land. The present study found that 55.6% of participants agreed and strongly agreed on the impact of this program (RII = 0.72). The mean score of 3.60 indicates that participants' opinions were clustered between the 'neutral' and 'agree' options. Also, the standard deviation of 1.26 shows large variation in experts' opinions regarding this enabling program. The present study did not find any significance difference in participants' ratings based on demographic variables.

Previous literature reflects the impact of White Land programs. In KSA, Zakaria et al. [89] found that in the short term, the implementation of the White Land program, the aim of which is to hinder land speculation and encourage residential development in urban areas, had a limited impact on real estate developers and housing contractors. However, in Nigeria, Ajayi et al. [61] found that land reforms/reviews of land use represented the third most important strategy for ensuring affordable housing delivery (RII = 0.83). Furthermore, in Hong Kong and Singapore, Forrest et al. [90] found that the land allocation system was highly effective in providing affordable housing which included a strong element of public land ownership. Thus, this study found that the effect of such programs can enhance access to affordable housing.

4.2.6. Etmam program

Legal constraints such as housing and development licensing and approval can impact access to affordable housing by delaying proceedings, increasing the cost, and restricting supply. Etmam Program is a program initiated by the Saudi Government to ease licensing and approved of housing and development project. The present study found that 50% of the participants agreed or strongly agreed that this program enhanced access to affordable housing in KSA, with (RII = 0.73) and (mean = 3.63) indicating that participants' opinions were grouped around the 'neutral' and 'agree' options. Furthermore, the results of the chi-square analysis showed a significant relationship between participants' gender and their opinions on this program (χ^2 = 11.67; p = 0.02). Seventy-one percent of the female participants agreed or strongly agreed that this program was effective, compared to 47% of males. This might suggest that males have more experience in housing provision and consider other programs more important than Etmam.

Within the previous literature, Alhajri [6] found that removing bureaucratic obstacles is one of the most important steps that will help enable PPP housing schemes in KSA. In addition, in Nigeria, Ajayi et al. [61] found that anti-corruption practices involving land approval documents and processes formed the top strategies for ensuring affordable housing delivery (RII = 0.90). Also in Nigeria, Akeju [91] found that improving licensing requirements and process by reducing the processing time and decreasing the costs would not only increase the size of the formal construction sector but also reduce the costs of housing construction, thereby increasing the availability of homes to a broader segment of Nigerian society. Another study, conducted by Muhammad et al. [19], found that an efficient approval process was ranked as the 11th most critical success factor for enabling housing programs in a comparative study between Malaysia and Nigeria. Furthermore, relationships between demographic factors and access to land have also been reported. For example, in Nigeria, Lawal et al. [92] found no significant difference among participants' demographic variables and their perceptions of the difficulty of the land acquisition process as a major constraint in providing affordable housing for middle- and low-income earners. Thus, such programs can enhance access to affordable housing.

4.2.7. Wafi or on-map sale (off-plan sale) program

Advance payment on housing programs as a mechanism for housing delivery can enhance access to affordable housing. The present study found that 42.40% of the participants agreed and strongly agreed on the effectiveness of this program (RII = 0.67). The mean score of 3.67 indicates that participants' opinions were clustered around the 'neutral' option. Furthermore, the chi-square results showed a statistically significant relationship between the age of participants and their opinions on whether the Wafi program has an impact on access to affordable housing (χ^2 = 19.608, p = 0.075), with 67% of those aged 18 to 29 agreeing or strongly agreeing, followed by 56% of those aged 45 to 59 and 37% of those aged 30 to 44, while only 20% of participants aged 60 and above agreed or strongly agreed. This suggests that the familiarity of off-plan sale as a mechanism for affordable housing delivery is lower in the older age group and more acceptable in the younger age group, who are starting new households.

Within previous literature, in KSA, Alhajri [6] found that Wafi or on-map sale as a mechanism of public private partnership was low in effectiveness and was challenged by 24 factors across the following three categories: Actors, Network, and Project. However, in Kenya, Mwaita et al. [93] found that a unit change in off-plan sales led to a 21.5% increase in the performance of housing real estate development projects, and this price was found to be competitive through assessing the market price, which had a positive and significance influence on the real estate market. It can be anticipated that this approach will help with the affordability of housing. This result can be argued to suggest that people do not trust that off-plan housing projects will be successfully implemented.

5. Conclusion

Affordable housing contributes to the fulfilment of a basic human need and improves the wellbeing of families and communities. Housing provision is increasingly dominated by markets where the issue of access to affordable housing and government interest in shifting to an enabling approach have been increased. KSA, through Vision 2030, aims to improve access to affordable housing. Based on expert opinions, this study found that, from among ten challenges, the major challenges to access to affordable housing are the high price of residential land (RII = 0.89), followed by high construction cost (RII = 0.87), and high urbanization rate (RII = 0.76). Also, from among seven programs implemented by the Saudi Government, the most effective enabling programs that are implemented by the government are first home VAT exemption (RII = 0.82), the Developmental Housing program (RII = 0.73), and Ownership forms (RII = 0.73).

Based on the evidence generated by this study, the success of the enabling approach in affordable housing provision can be considered to be strongly associated to tackle the challenges of access to affordable housing. Based on expert opinions, Etmam program (RII = 0.73), and the Wafi program (RII = 0.67) are the least effective programs to enhance access to affordable housing in KSA. The government needs to enhance the capability of these two programs in order to improve their contribution. The government should increase integration and cooperation of the different stakeholders to streamline housing development approval process. Regarding Wafi, the government needs to build trust by providing more guarantees on accruing affordable housing through this program.

The limitation of this study is that it does not cover the opinions of experts from all 13 regions, as the researcher was unable to access experts from Tabuk, Asser, Aljawaf, and Najran. However, housing policies and programs are unified across the country, as KSA has a high degree of centrality. Also, even though affordable housing was defined on the beginning of the survey, measurements and definitions varied from one expert to another. Despite these limitations, the present study's strength lies in its use of a large and representative sample of housing experts 121 respondents from eight different regions of KSA. In addition, this research examined both the challenges and the enabling approach after five years of implementation of housing programs and incentives. Future studies should investigate the consistency of achievement of those different enabling programs and incentives and should also examine the significance of challenges to affordable housing in KSA. In conclusion, addressing obstacles to affordable housing and enhancing the delivery program is vital in increasing access to affordable housing.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgements

The author would like to acknowledge firstly the support of Prof. Ismaila Rimi Abubakar for the guidance and encouragement that I received from him throughout the journey of this paper. This paper would not have been feasible without his guidance and his constant feedback. Secondly, I would like to thank all reviewers for their feedback and input to this paper. I am also grateful to all those individuals who voluntarily participated in my study and dedicated from their time to share their knowledge and experience, which enabled this research.

References

[1] Hulchanski JD. The concept of housing affordability: Six contemporary uses of the housing expenditure-to-income ratio. Housing Stud. 1995;10(4):471–91.
[2] L.M. Olayiwola, O. Adeleye, L. Ogunshakin, Public housing delivery in Nigeria: Problems and challenges, 2005.
[3] O.A. Olufemi, Neighbourhood Revitalisation and Housing Satisfaction: Enhancing Residents' Quality of Life in Public Low-Income Housing in Lagos Metropolis Nigeria, 2018.
[4] Mulliner E, Algrnas M. Preferences for housing attributes in Saudi Arabia: A comparison between consumers' and property practitioners' views. Cities 2018;83:152–64.
[5] I.R. Abubakar, Y.A. Aina, Achieving sustainable cities in Saudi Arabia: Juggling the competing urbanization challenges, in: E-planning and collaboration:

Concepts, methodologies, tools, and applications, IGI Global, 2018, pp. 234–255.
[6] Al-hajri M. Framework development for public private partnership in affordable housing delivery in Saudi Arabia. University of Salford; 2020.
[7] S.K. Mayo, S. Angel, Housing: Enabling markets to work, in Housing: Enabling Markets to Work, World Bank, Policy Paper, 1993.
[8] Ogu VI, Ogbuozobe JE. Housing policy in Nigeria: towards enablement of private housing development. Habitat Int. 2001;25(4):473–92.
[9] https://eskan4.sa/ar/node/add/attendant [last accessed October 2021].
[10] https://momrah.gov.sa/ar [last accessed October 2021].
[11] Cao JA, Keivani R. The limits and potentials of the housing market enabling paradigm: an evaluation of China's housing policies from 1998 to 2011. Housing Stud. 2014;29(1):44–68.
[12] Berry M, Whitehead C, Williams P, Yates J. Involving the private sector in affordable housing provision: can Australia learn from the United Kingdom? Urban Policy Res. 2006;24(3):307–23.
[13] Susilawati C, Armitage L. Do public private partnerships facilitate affordable housing outcomes in Queensland? Australian Property J. 2004;38(3):184–287.
[14] Hassan GF. The enabling approach for housing supply: Drawbacks & prerequisites–Egyptian experiences. Alexandria Eng. J. 2011;50(4):421–9.
[15] Mukhija V. The contradictions in enabling private developers of affordable housing: A cautionary case from Ahmedabad, India. Urban Stud. 2004;41 (11):2231–44.
[16] Kavishe N, Chileshe N. Identifying project management practices and principles for Public-Private partnerships in housing projects: The case of Tanzania. Sustainability 2018;10(12):4609.
[17] Sengupta U. Government intervention and public–private partnerships in housing delivery in Kolkata. Habitat Int. 2006;30(3):448–61.
[18] Ibem EO. Public-private partnership (PPP) in housing provision in Lagos Megacity Region, Nigeria. Int. J. Housing Policy 2011;11(2):133–54.
[19] Muhammad Z, Johar F. Coping with challenges of public-private partnership (PPP) for housing delivery in Nigeria. Int. J. Eng. Technol. 2018;7 (2.29):1097–101.
[20] Salleh AG. Neighbourhood factors in private low-cost housing in Malaysia. Habitat Int. 2008;32(4):485–93.
[21] Alqahtany A. Affordable housing in Saudi Arabia's vision 2030: new developments and new challenges. Int. J. Housing Markets Analy. 2020.
[22] A. Bahammam, E. Haider, Compatibility of housing programs and initiatives with the kingdom's vision (2023). The Second International Engineering Conference and Exhibition (2-5 March 2020), Riyadh, Saudi Arabia, 2020.
[23] A. Bahammam, The manual of affordable houses, High Commission for the development of Arriyadh, Riyadh, 2004.
[24] Assaf SA, Bubshaitr AA, Al-Muwasheer F. Factors affecting affordable housing cost in Saudi Arabia. Int. J. Housing Markets Analy. 2010.
[25] Tammaru T, Marcińczak S, Van Ham M, Musterd S. Socioeconomic segregation in European capital cities. Increasing separation between poor and rich. Urban Geogr. 2017;38(7):1062–83.
[26] M. Stone, Shelter Poverty: New Ideas on Housing Affordability, 2010.
[27] Roosli RB, Al-Abed A. PPPs as a housing delivery for affordable housing development in Yemen. Business Manage. Dyn. 2014;3(8):1.
[28] Wegmann J, Mawhorter S. Measuring informal housing production in California cities. J. Am. Plann. Assoc. 2017;83(2):119–30.
[29] V. Mukhija, A. Loukaitou-Sideris, The Informal American City: Beyond Taco Trucks and Day Labor, 2014.
[30] Dekel T. The institutional perspective on informal housing. Habitat Int. 2020;106:102287.
[31] Drakakis-Smith D. Aboriginal access to housing in Alice Springs. Aust. Geogr. 1981;15(1):39–51.
[32] Anacker KB. Introduction: Housing affordability and affordable housing. Int. J. Housing Policy 2019;19(1):1–16.
[33] M. Majale, Enabling Shelter Strategies: Design and Implementation Guide for Policymakers, vol. 2. UN, 2011.
[34] Yap KS. The enabling strategy and its discontent: Low-income housing policies and practices in Asia. Habitat Int. 2016;54:166–72.
[35] H. Voordijk, Contemporary Issues in Construction in Developing Countries, 2012.
[36] G. Ofori, Contemporary Issues in Construction in Developing Countries. 2012.
[37] National Housing Strategy, Ministry of Housing. Riyadh, Saudi Arabia, 2018.
[38] Bahammam A. An approach to provide adequate housing in Saudi Arabia. J. Arch. Plann. 2018;23(1):161–84.
[39] A. Alqahtany, A.B. Mohanna, Housing challenges in Saudi Arabia: the shortage of suitable housing units for various socioeconomic segments of Saudi society, Housing, Care and Support, 2019.
[40] Al Obaid H. Factors determining housing demand in Saudi Arabia. Int. J. Econ. Financ. Issues 2020;10(5):150.
[41] http://portal.redf.gov.sa/ar/Statistics/Pages/Statistics.aspx [last accessed October 2021].
[42] AlJerbi AS. The evolution of the housing sector in Saudi Arabia. J. Econ. Admin. Legal Sci. 2019;3(10):18–111.
[43] A.S. Aleid, Building Up the Housing Finance Market in KSA Improving the Legal Infrastructure, 2017.
[44] Sidawi B. An evaluation of the performance of the housing finance system in the Kingdom of Saudi Arabia. Int. J. Housing Markets Analy. 2014.
[45] http://vision2030.gov.sa/sites/default/files/NTP_En.pdf [last accessed December 2021].
[46] Tuncalp S, Al-Ibrahim A. Housing finance in Saudi Arabia. Habitat Int. 1990;14 (1):111–21.
[47] G.K. Heilig, World urbanization prospects: the 2011 revision, United Nations, Department of Economic and Social Affairs (DESA), Population Division, Population Estimates and Projections Section, New York, vol. 14, 2012, p. 555.
[48] Bahammam A. The difficulty of obtaining and possessing a dwelling in light of the recent circumstances in Saudi Arabia. Soc. J. 2015;9(3):10–23.
[49] H.H.M. Alhubashi, Housing sector in Saudi Arabia: preferences and aspirations of Saudi citizens in the main regions, 2018.
[50] F. Alasmari, An Institutional Analysis of State-Market Relations in the Saudi Arabian Housing System: A Case Study of Riyadh, 2018.
[51] Al-Mayouf A, Al-Khayyal A. Provision of public housing in Saudi Arabia: past, current and future trends. Population 2011;2004:2007.
[52] Alahmadi M, Mansour S, Martin D, Atkinson P. An improved index for urban population distribution mapping based on nighttime lights (DMSP-OLS) data: An experiment in Riyadh Province, Saudi Arabia. Remote Sens. 2021;13 (6):1171.
[53] https://www.stats.gov.sa/en [last accessed December 2021].
[54] Abou-Korin AA, Al-Shihri FS. Rapid urbanization and sustainability in Saudi Arabia: the case of Dammam metropolitan area. J. Sustain. Dev. 2015;8(9):52.
[55] http://unhabitat.org/sites/default/files/2020/05/Saudi_city_report.english.pdf. [last accessed October 2021].
[56] Abubakar IR, Dano UL. Sustainable urban planning strategies for mitigating climate change in Saudi Arabia. Environ. Dev. Sustain. 2020;22(6):5129–52.
[57] M. Easterby-Smith, R. Thorpe, P.R. Jackson, *Management Research,* 2012.
[58] J.F. Hair, W.C. Black, B.J. Babin, R.E. Anderson, R.L. Tatham, Multivariate data analysis 6th Edition, Pearson Prentice Hall. New Jersey. Humans: Critique and Reformulation. Journal of Abnormal Psychology, vol. 87, 2006, pp. 49–74.
[59] Almulhim AI, Abubakar IR. Understanding public environmental awareness and attitudes toward circular economy transition in Saudi Arabia. Sustainability 2021;13(18):10157.
[60] Kavishe N, Chileshe N, Jefferson I. Public–private partnerships in Tanzanian affordable housing schemes: Policy and regulatory issues, pitfalls and solutions. Built Environ. Project Asset Manage. 2019.
[61] O. Ajayi, O. Ajayi, O. Akinsiku, T. Osunsanmi, Strategies for housing affordability in Nigeria, J. Construct. Project Manage. Innov. 6(sup-1) (2016) 1620–1632.
[62] W. Alzamil, Evaluation of Affordable Housing and Subsidy Programs in Saudi Arabia, 2016.
[63] Yap JBH, Ng XH. Housing affordability in Malaysia: perception, price range, influencing factors and policies. Int. J. Housing Markets Analy. 2018.
[64] L. Wang, X. Rong, L. Mu, The Coupling Coordination Evaluation of Sustainable Development between Urbanization, Housing Prices, and Affordable Housing in China, Discrete Dynamics in Nature and Society, vol. 2021.
[65] Tselios V. Urbanization and socioeconomic status in the European regions: The role of population ageing and capital city regions. Europ. Plann. Stud. 2014;22 (9):1879–901.
[66] Bujang AA, Zarin HA, Jumadi N. The relationship between demographic factors and housing affordability. Malaysian J. Real Estate 2010;5(1):49–58.
[67] Alhubashi H, Roca Cladera J. Housing types and choices in Saudi Arabia, in Back to the Sense of the City. International Monograph Book; 2016.
[68] Opoku RA, Abdul-Muhmin AG. Housing preferences and attribute importance among low-income consumers in Saudi Arabia. Habitat Int. 2010;34 (2):219–27.
[69] A. Al-Otaibi, The Aspiration for Housing in Jeddah - Saudi Arabia, Editorial Team, vol. 4, 2006.
[70] R. Majid, R. Said, M.N. Daud, The impact of buyers' demography on property purchasing, J. Surv., Construct. Property 3(2) (2012).
[71] de La Paz, Paloma Taltavull, Determinants of housing prices in Spanish cities, *J. Property Invest. Finance* (2003).
[72] Wang Z, Hoon J, Lim B. The impacts of housing affordability on social and economic sustainability in beijing. Australasian J. Construct. Econ. Build.-Conf. Ser. 2012.
[73] Sanders CK, Scanlon E. Mortgage lending and gender. Affilia 2000;15(1):9–30.
[74] Bourassa SC, Peng C. Why is Taiwan's homeownership rate so high? Urban Stud. 2011;48(13):2887–904.
[75] Daniel MM, Hunt RJ. Changing housing policies and housing provision in Jos, Nigeria,". Habitat Int. 2014;42:203–13.
[76] B. Sidawi, S. Meeran, A framework for providing lifelong finance to the owners of affordable dwellings in the Kingdom of Saudi Arabia, Cities 28(2) (2011) 138-146.
[77] Wu GL, Feng Q, Li P. Does local governments' budget deficit push up housing prices in China? China Econ. Rev. 2015;35:183–96.
[78] A. Afrane, A. Bujang, H. Liman, I. Kasim, Major factors causing housing deficit in Ghana, 2016.
[79] Taiwo OD, Misnan SH. Factors influencing supply of affordable housing in Nigerian cities using confirmatory factors analysis. Int. J. Built Environ. Sustain. 2020;7(3):11–21.
[80] Mulder CH, Clark WA. Leaving home and leaving the state: Evidence from the United States. Int. J. Populat. Geogr. 2000;6(6):423–37.
[81] Al Mutairi HM. Economic and social factors that delay youth age of marriage in Saudi Youth in Saudi Society. King Abdulaziz University; 2009.
[82] O.L.H. Leh, N. Rosli, F.A. Marhalim, S. Musthafa, Social Impact of Foreign Immigrants in Affordable Housing Area. Case Study: Mentari Court, Selangor, Malaysia, Planning Malaysia, vol. 15, 2017.

[83] Quayes S. The impact of capital gains tax exemption on housing sales. Appl. Econ. Lett. 2010;17(3):213–6.
[84] Lee H. Institutional Shifts of Four East Asian Developmental Housing Systems. J. Asian Arch. Build. Eng. 2018;17(1):103–10.
[85] S. Shuid, Low income housing allocation system in Malaysia: Managing housing need for the poor, in ENHR International Conference, 4th-7th July, 2010.
[86] Adabre MA, Chan AP. Critical success factors (CSFs) for sustainable affordable housing. Build. Environ. 2019;156:203–14.
[87] Balmer I, Gerber J. Why are housing cooperatives successful? Insights from Swiss affordable housing policy. Housing Stud. 2018;33(3):361–85.
[88] Oloke OC, Oni AS, Oletubo AA, Opoko PA, Ogunde A. Empirical assessment of success rate of co-operative societies' housing provision in Lagos State, Nigeria. Int. J. Humanities Soc. Sci. 2017;7(3):1–7.
[89] N. Zakaria, Z. Ali, M.Z. Awang, White Land Tax: Evidence in the Kingdom of Saudi Arabia, 2019.
[90] R. Forrest, J. Lee, *Housing and Social Change: East-West Perspectives,* 2003.
[91] Akeju AA. Challenges to providing affordable housing in Nigeria. *Proceedings of 2nd Emerging Urban Africa International Conference on Housing Finance in Nigeria*, 2007.
[92] A.O. Lawal, I.A. Adekunle, Access to land and the delivery of affordable housing in Nigeria: an assessment of the federal housing authority (FHA) in Abuja, 1991 to 2013, *SAGE Open* 8*(2)* (2018) 2158244018777281.
[93] S.S. Mwaita, Influence of Foreign Direct Investment on Performance of Real Estate Development Projects in Kilimani, Westlands Sub County, Nairobi County, Kenya, 2020.