Housing Affordability in a Resource Rich Economy: The Case of Kuwait

Abstract

This paper seeks to test the impact of new policies introduced to the Kuwaiti housing market to improve affordability. In 2008, the Kuwaiti parliament introduced two policies: a tax on empty lands and the other on forbidding companies to own or develop residential lands or houses. We constructed the housing affordability index and the price-to-income multiplier to measure housing affordability performance. We used observations from 2004 until 2017. We found that affordability has worsened over time regardless of the new policies introduced in 2008. Housing in Kuwait became "severely unaffordable" (equivalent to London in the U.K., San Diego in U.S. and Toronto in Canada). Even with its unique condition, as a rich country, small population and availability of white land and other resources, the affordability worsened over time. Introducing new policies without solving the central issue of housing supply challenges seems not worth it. This paper is the first of its kind on the Kuwait housing market, and it provides a valuable foundation for future research on this market and similar markets in the region.

1: Introduction

The issue of housing affordability resonates globally and across different types of economies and housing markets. While there may be various underlying reasons and dynamics, affordability is commonly one of the most talked-about and often contentious public policy issues. National, regional and local governments across the world need to balance an array of inter-connecting vital issues, the most immediate being the adequate provision of housing and its cost. That is where much of the policy conversations regarding affordability are focused, particularly in the context of new entrants to the housing market. While this paper is focused on affordability with respect to the owner-occupied property, the same issues also come into focus in the rented sector and are often the focus of the debate concerning the advantages and disadvantages of rent control (Breidenbach, Eilers and Fries 2022).

What is at times perhaps often given less emphasis is that the population are not passive participants in these conversations. As voter's they play an essential role, explicitly and implicitly, in the policy stances taken by politicians. This is arguably seen no more so than when considering a market where the majority of homes are owner occupied and where the value of homes is central to household wealth due to it often being the largest financial asset and debt the household has. When considered in this broad context it is clear that policy decisions, and therefore any government interventions in the housing market, have potentially widespread consequences. This is in addition to the pure economic impact that the development process can have. Government intervention is therefore not only important in the direct context of how it may impact market dynamics, but also how it is informed by the political priorities of the government in the implementation of such policies. Simply, government intervention is a key factor in any market, and one that can impact housing in either a positive or negative manner, and that perception will often depend on the priorities of the specific party affected.

This paper considers how two new policy initiatives introduced in Kuwait in 2008 impacted affordability. The policies were aimed at reducing manipulation in the market and to calm the rapid rate of house price appreciation that had been observed. The first policy (Policy: 8/2008) introduced was in February 2008 and was concerned with the implementation of a new tax on land banking. This targeted individuals owning more than 5,000m^2 of vacant residential land, with an annual tax of K.D. (Kuwaiti Dinar) 10, to be charged for each additional empty square meter (1 Kuwait Dinar approximately = 3.30 US Dollar/ 2.92 Euro/ 2.43 Pound Sterling). For land to be viewed as being developed, either 20% of the land area or at least 200m^2 must be developed, whichever of the two

is greater. The second new policy (Policy: 9/2008) was introduced in February 2008 and forbids any company from owning residential land or houses, the rationale being to release stock into the market.

Kuwait provides an interesting case when considering the impact of government intervention. It is a relatively small country in a geographic sense, and the effect this has upon available land supply is further affected after one takes into account the land that is unavailable for development due to the oil fields that dominate the country, both geographically and economically. The extensive oil reserves that Kuwait has provided it with a quite distinct economic base, one that not only delivers considerable economic wealth to the country but also makes it more vulnerable and exposed due to the relative lack of economic diversity. In addition to the above distinct features of Kuwait, there is generally a relative lack of papers that have considered markets other than the mature post-industrial economies in Europe and North America. This paper provides empirical evidence on affordability and government intervention in a wealthy but less mature economy.

2: Affordability Literature

Affordability is an issue that permeates much of the conversation regarding housing, especially with respect to public policy. As noted in the introduction, this is in part due to its political importance, which in turn is related to how it can impact individuals' lifestyles and their financial wellbeing. While affordability may disproportionately impact lower income and younger households, the political impact is often broader as any decrease in house prices, which would generally improve affordability, will also have a negative effect on existing owners of the property. It is balancing these two, often conflicting, issues that often result in the compromises often witnessed in political and public policy debates about the subject.

Given the nature of Kuwait, both in terms of its housing market and its broader economy, some of the most relevant prior literature on affordability is that has been conducted on markets in Asia. Many of these markets share similarities with Kuwait in terms of relatively recent economic growth, as well as the speed and scale of that economic development. In contrast, the more mature economies in the likes of Europe and North America not only have mature economies that do not see such rapid economic growth, but their housing stock is older and more established. This can create issues of its own in terms of affordability, such as low housing density, but there are different challenges to those faced in countries that have observed more recent economic development. An

example of such a market is China, as Zhang et al. (2016) studied 157 Chinese cities between 2002 and 2009. In the case of China, a key factor in the rise in house prices was the remarkable economic growth observed, which averaged 10% p.a. The result of such strong economic fundamentals led to rising house prices which in turn led to an increase in the attractiveness of residential real estate to investors. The result was that a large number of cities saw rapid house price appreciation; 35 major metropolitan areas recorded average annual real house price growth of 17%. In turn, this led to increased supply pressure, the result is an increase in issues surrounding affordability, with the Price-to-Income ratio across China rising from 3.26 in 2002 to 4.22 in 2009 and 10.2 by 2013. Zhang et al. (2016) highlight how income inequalities, and the purchase of multiple properties by investors primarily focused on capital return, played a major role in the limitation of supply, the increase in prices, and the increase in problems in affordability for those on a low or limited income. What also contributed to this cycle of rising prices in China was that it was also accompanied by rapid urbanization. Papers such as Garriaga et al. (2014) have noted the critical impact that urbanization played in heightening demand. Furthermore, this was seen especially with respect to major metropolitan areas, which not only saw population movement from rural areas but also from smaller cities.

Malaysia is another example of a developing country that has encountered affordability issues. Hartwich (2017) reported a Price-to-Income Ratio of 4.4 in 2014, a figure slightly higher than that observed in the U.K. and one that would normally be viewed as indicating major affordability issues. However, this study considered the entire country. Hashim (2010) studied two different Malaysian states, highlighting not only geographic differences but also how different dynamics can play an important role. The two states were Selangor, which is considered the country's most developed state, and Kelantan, which is relatively under-developed. The analysis was based upon Housing Affordability Indices (HAI), measuring the ratio between average household income and the income required to qualify for a loan to buy a house of the average price in a specific area (Pink, 2009). The results highlighted how multiple factors can influence affordability. For example, while median house prices in Selangor increased by 80% between 1995 and 2006, the affordability index also showed an improvement, rising from 125 to 141. Furthermore, median incomes rose by less than house prices, 60%. Hashim (2010) therefore, attributed this improvement in affordability to relaxed mortgage lending criteria and lower interest rates. In contrast, in Kelantan, while the affordability index also improved, from 77 to 196, it was, in this case, was accompanied by an 11% fall in median house prices. In addition, this fall in house prices occurred at the same time as median incomes rose by 77.5%.

The Singaporean case is interesting in the context of Kuwait due to the similarities the two country's share in terms of their compact geographic nature and the natural constraints this imposes. Singapore is also of interest due to its relatively unique housing system. Singapore has one of the highest owner-occupancy rates in the world, 90%. This is in part achieved due to the role of the Housing Development Board (HBD), through which 80% of Singaporean households own their property (McLaren et al., 2016). However, it does also contribute to the issues in affordability when considering the private sector and the ability of Singaporean's to move into private housing (e.g. Yuen et al., 2006). A number of studies have illustrated that this issue has progressively got worse over time. For example, Abeysinghe & Gu (2011) find that in 1975 a low-income individual's lifetime income was equivalent to 2.8 times the value of the private property. In 2007, the same individual's lifetime income was equivalent to only 0.8 times the same private property value. One can also consider the value of a low-income individual's lifetime earnings in relation to the resale of apartments from public houses. In 1990, a low-income individual's lifetime earnings were equivalent to 6.0 times the price of an average apartment in a public house, while in 2007, a low-income individual's lifetime earnings were equivalent to only 3.8 times the same housing unit. Hartwich (2017), using more recent data, reported a Price-to-Income Ratio in Singapore of 4.8. While high the figure not only masks the divergence between the private sector and HDB apartments but it actually does compare favorably to many global cities, such as Hong Kong or London.

The 13th Annual Demographia International Housing Affordability Survey (ADIHAS), conducted in 2017, analyzed data from over 400 housing markets globally. Based on the analysis of Price-to-Income ratios, the analysis classified markets as follows. "*Affordable*", referred to markets with a ratio of 3.0 or lower; "*Moderately Unaffordable*" to ratios between 3.1 and 4.0; "*Seriously Unaffordable*" to ratios from 4.1 to 5.0; and "Severely Unaffordable" referred to markets with a ratio in excess of 5.0. Not surprisingly, significant differences were observed in many individual countries. For example, considerable variation was observed across the 262 US markets examined. Of that number 82 were considered "*Affordable*", while 36 were classified at the other extreme as being "*Seriously Unaffordable*". The Price-to-Income ratios varied from a low of 1.8 for Racine, Wisconsin to a figure of 11.6 for Santa Cruz in California. Similar variations were also observed on a global level; however, some broad trends were noticeable. For example, the majority of cities with populations greater than 5 million were classified as "*Seriously Unaffordable*". Arguably these are cities that are influenced more by economic demand and the corresponding inward migration. A further interesting finding is that of the 50 cities with more than 2 million residents, those that

were more affordable also have fewer land restrictions. This is consistent with Hilber's (2015) specific analysis of the U.K. Hilber argues that the worsening affordability issue in the U.K. over recent decades is in part due to the planning system in place, which fails to deliver housing in a timely manner. The resulting supply constraints, especially in areas such as London and the South East of England with substantial population and income growth, heightened the affordability issues. The result is that as of 2014, not only did the U.K. have the second-most expensive house price per square meter in the world but the size of new houses were 40% smaller than those in other European countries with similar population densities (Hilber, 2015). A number of papers have noted that housing affordability has worsened considerably in the U.K. over time. Not only has the Price-to-Income Ratio risen considerably, from 2.9 in the 1970s to 4.0 in the 2000's (Poon & Garratt, 2012), but the average age of first-time buyers has also increased, from 30 years old in the 1980s to 34 in 2004 and 38 in 2010 (Poon & Garratt, 2012; Smith et al., 2010).

While it may be argued that some countries, such as Singapore, have been more successful than most in addressing the issue of housing supply over the long term, government intervention designed to have an impact over the short term is often difficult to effectively implement. Berry et al. (2001), for example, examined the short-term response to policy initiatives introduced by the Irish government to both curtail house price appreciation in the late 1990's and to increase housing supply. The paper notes that the impact of changes to Stamp Duty (transaction tax), which had been initially designed to help buyers enter the market in the face of rapidly escalating prices, actually had the reverse effect[1]. Irish Stamp Duty rates were extremely high in comparison to most other countries. For example, the 1997 stamp duty rate for properties sold in excess of IR£170,000 was 9%. Indeed, the 5% rate came into effect at only IR£60,000. Given the increase in house prices that had already been observed in Ireland by the mid-nineties, these high stamp duty rates were acting as a barrier to first-time buyers in particular. The response of the Irish government was to both widen the bands at which different rates applied and to increase the transaction prices at which specific rates came into effect. For example, a property sold for IR£150,000 would now be subject to a 4% rate rather than 7%, while the top rate of 9% now applied to properties sold for in excess of IR£500,000 rather than IR£170,000. The unanticipated impact was that these changes actually further fuelled house price appreciation as home buyers largely used the money they would have incurred in stamp duty to pay a higher price for a property. Similar adverse consequences have been noted in markets such as China (Cao & Keivani, 2013; Li et al., 2020), Hong Kong (La Grangei & Pretorious, 2002), and Singapore (Phang et al., 2014)[2]

The examples detailed above illustrate how attempts to address affordability, and market access, issues via fiscal measures may result in unforeseen consequences. One of the few cases where a government succeeded in having a meaningful impact on affordability in a relatively short span of time was Korea in the late 1980s. Kim & Cho (2010) examined the impact of the 1986 policy decision by the Korean government to increase housing stock significantly and in a very short span of time. The aim was to deliver to the market two million additional units, a figure that equated o half of the existing housing stock at that time, and to do that in four years. What had prompted such a decisive stance was due to robust housing demand, in part related to the economic growth Korea observed from the sixties onwards; the Price-to-Income Ratio across the country had reached 11 by 1986. The figure for Seoul was even higher at 19. The result of the large-scale intervention in housing supply resulted in prices moderating, and the Price-to-Income Ratio's falling to 8 for Korea overall and 14 for Seoul. This trend of improved affordability continued into the nineties, aided by strong income growth and changes in mortgage regulation. As a result, the respective ratios for Korea and Seoul had fallen to 4 and 6 by 2000.

3: Structure of the Kuwait Housing Market

There are a number of factors that contribute to the quite distinct features that characterize the housing market in Kuwait. Some of these are perhaps more apparent than others, such as its economic reliance upon oil and its relatively small geographic size. However, there are other issues that also are major issues and require discussion when examining the Kuwaiti market. Benefitting from its strategic location in the Gulf, Kuwait initially developed as a trading port. This history does provide it with different characteristics compared to some of the other states in the Gulf. The discovery of commercially viable oil in 1938 did, however prompt both a shift in the economic emphasis of the country but also helped to accelerate its economic transformation. Kuwait currently accounts for 6.1% of global oil reserves (OPEC, 2019; B.P., 2020) with over 100 billion barrels, while the Burgan Oil Field is the second largest in the world. At present, the country is the ninth-largest oil producer, accounting for 3.1% of global production (OPEC, 2019; B.P., 2020). The economic and financial benefits to Kuwait from its large oil reserves are numerous and can be illustrated by its high and largely stable credit ratings. These currently stand at A.A. (Fitch Ratings), A1 (Moody's) and A+ (Standard & Poor's). However, as we will discuss, there are numerous other consequences that arise, not all of which have positive connotations.

The most immediate issue is that Kuwait, in common with other states in the Gulf, is heavily dependent upon a single commodity. The dominance of oil economically can be illustrated in that it accounts for 95% of national income and half of GDP (World Bank, 2014). Furthermore, this dominance means that other economic and social, indicators are also heavily dependent and influenced by both oil production in Kuwait itself as well as global oil prices. Coleman (2013) highlighted how economic indicators such as unemployment are directly influenced by what is happening within the oil industry. The fact that oil prices are highly volatile also highlights the risks that Kuwait is subject to[3]. For example, the halving of oil prices in 2013 and 2014 to less than $50 per barrel resulted in Kuwait's first budget deficit in the 21st century. This prompted the government to launch a major new economic development plan which had as one of its primary objectives the diversification of the country's economy. The intended aim is that not only will government revenue be more stable and less vulnerable to changes in oil prices, but that this increased stability will enable more long-term planning with respect to government infrastructure spending, including housing.

The geography of Kuwait also provides it with some quite distinct challenges. Not only is it a relatively small country to begin with, with an area of 17,819 square kilometers, but this is further reduced as such a large proportion of the interior of the country is taken up with oil production. The result is that residential areas only account for 11% of Kuwait's geographic area (Real Estate Association, 2015). If one compares Kuwait to other countries, this impact can be seen. Its overall size is more comparable to countries such as Qatar (11,572 square kilometers) than to the likes of Bahrain (766 square kilometers), Hong Kong (1,106 square kilometers), or Singapore (728 square kilometers). However, Kuwait's population of 4.27 million is considerably larger than Qatar's (2.78m). Therefore, not only does it have a relatively high population density of 240 per square kilometer, but this increases to over 2,181 when limited to residential areas. This makes Kuwait one of the most densely populated countries in the world. In addition, the composition of the population itself also creates additional issues. Specifically, the ex-patriate/immigrant population has consistently averaged over 70% of the population in recent decades. The result is that Kuwait citizens only account for 1.3 million. The majority of the expatriate population are from other Arab nations and from South Asia. This has a direct impact on the housing market as foreign property ownership is prohibited[4].

The only exceptions to this are citizens from GCC (Gulf Corporation Council) states, and even in this case they are restricted to owning one property in Kuwait[5]. In addition, house prices in Kuwait are higher than in many other GCC countries. This will naturally act as a disincentive for GCC

citizens to buy property in Kuwait unless perhaps they are long-term or permanent migrants. Furthermore, GCC citizens comprise a minority of non-citizens in Kuwait. According to CIA estimates (CIA, 2020), Asians, predominantly from South Asia, comprise 58% of the non-citizen population, with other non-Kuwaiti Arabs total 39.4%. This does mean that the number of households eligible to buy properties is extremely low and centered around Kuwaiti citizens. This, however, can in turn, make the housing market vulnerable to relatively small demographic shifts[6]. As it happens, this has occurred over recent decades, with an average annual growth rate in the Kuwaiti population of nearly 3%. In 2000 the Kuwaiti population was 840,000, which consisted of 153,587 families. By 2020 the population had grown to 1,430,000 and 310,495 households (TPAFCI, 2020). This increase in demand can be primarily accounted for in terms of both natural population growth and the demographic profile of the population rather than social factors such as household size. According to the Real Estate Association (2015) report, the average growth rate in the citizen population was 4.4% between 2000 and 2015. Furthermore, these strong demographic trends are likely to continue due to the demographic composition in Kuwait. In common with many countries in the Middle East, Kuwait has a young population. According to TPAFCI (2020), 69% of Kuwaitis are younger than 35 years old, and 44% are below 19. This has major implications for housing market demand, especially given that so much of the country's geographic area is taken up with oil production.

A further distinction of the housing market in Kuwait is that the domestic Kuwaiti citizenship population has retained a strong preference for single-family housing (Real Estate Association, 2015). In contrast, the ex-patriate/immigrant population is predominantly housed in apartments. The result is quite a segmented residential market. The single-family sector is dominated by both Kuwaiti citizens and owner-occupiers, while in contrast, the apartment sector is primarily owned by investors and occupied by non-citizens. The result is that the two sectors are susceptible at times to quite distinct supply and demand factors.

The result of these factors is severe under-supply, especially in single-family housing. The Public Affairs for Housing Welfare (2020) identified a shortage of 87,838 units, a figure almost equal to half the total number of existing houses. In addition, this shortage does not take into account potential future demand. The result of this shortage in supply has been severe price pressure in the Kuwaiti housing market. Alfalah et al. (2022) estimated that single-family house prices more than doubled between 2009 and 2015. This impact has naturally had consequences upon affordability and hindered the ability of many Kuwaiti to enter the housing market. The response of the government to these issues has been multi-faceted. As part of its new development plan, additional

land was allocated to residential development with the intention to build 340,000 units over 20 years (Real Estate Association, 2015). While this initiative represented a significant shift, it has been less clear at this point whether that supply is reaching the market in a timely fashion. Over the last two decades, the supply of new Kuwait housing has averaged 3,000 units a year, in comparison to new demand, which has averaged over 8,000 per annum. This shortfall is due to a number of issues. Firstly, the tight control of supply, with all new developments requiring approval by the Ministry of Housing. In addition, other government departments may also be able to veto new construction. For example, the Ministry of Oil may reject a new development if it is located in close proximity to an oil field or refinery. The Ministry of Defence also commonly rejects schemes due to safety concerns.

After all, approvals have been obtained, the Ministry of Housing is then required to liaise with the Ministry of Public Works in order to ensure that the necessary infrastructure is put into place. Any infrastructure also has to be put out to tender. Only when the infrastructure is in place will the plots be demarcated. The majority of plots are sold vacant, with the buyers developing their own houses. Standard home's plot size in Kuwait ranges from 250 to 1,000 square meters; only around 5% of houses are larger. The Zoning Code for built-up areas limits the maximum floor area above ground to 210% of the plot, with the option of a one-floor basement equal to 100% (Real Estate Association, 2013). Given these restrictions, it is perhaps not surprising that the majority of single-family properties are built to the maximum specifications. Not only is it more cost-effective than subsequently adding an extension, but it also provides the opportunity of incorporating independent apartments into the property that can be let out.

As noted earlier, residential areas only comprise 11% of Kuwait’s geographic area. Furthermore, there are only an estimated 170,000 houses (Real Estate Association, 2015), far below the number needed to satisfy current demand from Kuwaiti citizens alone. It is estimated that the accumulated unmet demand for housing was 87,838 (Public Authority of Housing Welfare, 2020), almost equal to half the existing number of houses. In addition to the time constraints imposed by the approval process, there is also the fact that there is a lack of capacity to deliver the necessary number of homes. REA (2014) forecast that the average number of housing units needed to be delivered to meet current and accumulated demand is around 17,000 units per year. The current supply is less than 3,000 units. Not only is this due to the lengthy approval process but also the availability of land. This has been an ongoing political argument in Kuwait, with accusations of land banking with landowners not either selling or developing sites themselves in part due to the expectation that land and house prices will continue to rise.

In addition to the government proposals with respect to supply, changes were also made with regards to speeding applications to the Public Authority for Housing Welfare (PAHW). The PAHW plays a central role in the Kuwait housing market, yet at present, applicants can wait up to 18 years before getting a property. All Kuwaiti citizens without an existing house are eligible to apply to the PAHW as long as they have been married for at least five years or if they have a child. There are three alternative options available. The first is to apply for a mortgage from the Kuwait Credit Bank (KCB), a government bank that was established to provide mortgage loans for Kuwaiti citizens. The mortgage loans that are provided are interest-free and up to a maximum of K.D. (Kuwaiti Dinar) 70,000 per family. This option is considered the fastest as it allows the family to buy a house in the market; however, they must repay the loan using their own resources.

The second option is to apply for both land and a loan from KCB. Families who pursue this option must wait for the PAHW to provide them with a plot, which they then need to develop themselves. In many cases, the constructions costs may exceed the value of the loan provided, and thus the excess must be funded by the family themselves.

The final option is to apply to the PAHW for a house. Families who apply for houses are waitlisted and receive a built house. Formally this is considered a combination of a land gift from the PAHW and a K.D.70,000 loan from the KCB. Therefore, while the land is free, the families must repay the loan (PAHW, 2015). Although the second and third options may seem attractive, the waiting times are extremely long, and the quality of the houses is relatively poor compared to houses developed by the private sector. Even though Kuwait's system seems quite generous with “free land” and interest-free mortgages, this does not address the supply shortage currently in the market.

As it is very likely that any KCB loan might not be sufficient, and given the fact that the waiting time for the allocation of land or a house takes too long, many Kuwaitis buy their properties on the market. It is important to note that mortgage loans are structured differently in Kuwait compared to many countries. The main difference is that the total amount is capped at K.D. 70,000. This is true irrespective of income. In addition, the monthly repayments cannot exceed 40% of the total monthly income. While these restrictions do constrain the amount that can be borrowed, there is some flexibility in the system. For example, unlike other mortgage structures, the loans do not need a real asset as collateral. Furthermore, it is important to recognize that a married couple both take out a loan form commercial banks plus a loan from KCB, leading to a total loan of K.D. 210,000. While loans from commercial banks normally have a 15-year term, the KCB loans are more flexible, with a minimum monthly repayment of the higher K.D. 100 or 10% of the borrower’s monthly salary.

4: Data & Methodology

4.1: Data

Data sourcing in any housing emerging market can present challenges. The lack of recognized house price indices in Kuwait does necessitate the estimation of house price data, in addition to the actual analysis of affordability. Transaction data was obtained from the Kuwait Ministry of Justice. The initial sample of 60,000 single-family houses was reduced due to data cleaning with respect to either missing data or noticeably extreme observations. The data covered 76 residential areas across Kuwait over the period February 2004 to March 2017. The house price data was then converted into a price per square meter basis, and the median price data for every 76 areas were used to inform the grouping of them into five clusters. Given the volume of sales, it was possible to create monthly data, resulting in a total of 158 observations for each area.

Household income data for each cluster was obtained from the Kuwait Public Institution for Social Security (KPISS). The KPISS collects income data for all employed Kuwaiti citizens. This data also identified the employment sector in terms of Government, Petroleum, and other Private Employment. In 2015 nearly three-quarters, 74.1% of Kuwaiti's worked in the government sector, 7% in Petroleum, and 18.9% in other private industries. It is noticeable that there are marked differences between the public and private sectors, and in particular, government employees are paid substantially less. For example, in 2015, the average monthly income for males aged 36 to 40 in government employment was K.D. 1,360. The corresponding figures for those working in Petroleum and other Private Industries were K.D. 2,620 and K.D. 2,010 respectively. Given that government employees comprise nearly three-quarters of the employment base, we focus the analysis on this group as they will be more representative of low to medium-income households. The income figure used includes not only the primary monthly income but also additional income, such as support and allowances. In addition, as we are focused on single-family housing, which is predominantly purchased by families, we estimate household income assuming that both partners work in the government sector. We, therefore, add the average male and female income figures for government employees within each age bracket.

4.2: Methodology

The first measure of housing affordability used in this study is the Housing Affordability Index (HAI). The index measures the ratio between average household income and the income required to qualify for a loan to buy a house of the median price in a specific area (Kupke & Rossini, 2011). As noted earlier in the paper, affordability measures like this index can be influenced by many factors, including family income, house prices, interest rates, length of loan, and mortgage restrictions.

The median house price is estimated as;

$$Median\ house\ price = Median\ house\ price\ per\ square\ meter * 400\ square\ meters \quad (1)$$

The choice of 400 square meters to convert the per square meter data to a median price was based on an examination of the underlying data and that, for example, 38.4% of sales were of properties between 400 and 600 square meters in size and that it is the most common plot size with very few properties being sold on smaller plots.

The required loan can be expressed as follows;

$$Required\ loan = Median\ house\ price - [Gov't\ interestfree\ loan + Equity\ Deposit + \beta(External\ loan)] \quad (2)$$

Calculating the correct equity deposit is challenging. In this study, we run two scenarios. The first assumes no equity deposit, the second with a deposit equal to one year of average family income. It is important to note that saving a full year of family income might take a considerable amount of time, especially for young families who are at the beginning of their careers and have many expenses and financial commitments. The β in Equation 2 takes the value of either 0 or 1. One is used in those instances where the median house price exceeds the maximum loan available to a family (K.D. 210,000) plus the equity deposit. As the housing situation has become more intense, cases from 2013 until 2016 fulfill this definition, meaning that an additional amount must be provided from other sources, either wider family savings or through the liquidation of other assets. We do, however, assume that the cost of borrowing is equal to the cost of borrowing from commercial banks. The reason for this is to show the impact of the houses price changes over the years 2013-2016 regardless of Central Bank of Kuwait restrictions, which would mislead the observations for those years.

$$Monthly\ payment\ = Required\ loan * \ (R/12)/(1-(1+R/12)^{-180}) \quad (3)$$

$$Qualifying\ family\ income = Monthly\ payment/40\% \quad (4)$$

While *R* represents the interest rate. We assume that all loans are paid back based on the maximum mortgage period of 15 years as determined by the Central Bank of Kuwait. Therefore, monthly payments are based on a 180-month schedule. The Central Bank of Kuwait also restricts the maximum monthly financial commitment to 40% of income. To calculate qualifying income, we assume a family in which neither party has any financial commitments. Therefore, the qualifying income cannot be more than the monthly payment divided by 40%.

$$Average\ family\ income\ = Average\ male\ income + Average\ female\ income \quad (5)$$

To construct the index (HAI), we divide family income, based on the assumption of both parties working, by qualifying income and then multiplying by 100. The number generated from the index is meaningless; it simply indicates that scoring 100 or more means that a family is qualified to receive a loan to purchase a house of median price.

$$HAI = (\frac{Average\ family\ income}{Qualifying\ family\ income}) * 100 \quad (6)$$

The second affordability measure is the Price-to-Income Ratio and can be represented as follows:

$$PIR = \frac{median\ house\ price}{Average\ family\ income} \quad (7)$$

This method simply compares the annual income of a family to the median house price. It, therefore, ignores other factors, such as mortgage terms and regularity restrictions, which can change over time and affect a family's ability to buy a house. The index constructed using this method is also used to measure and compare markets.

5: Empirical Findings

Housing affordability is to a large extent influenced by the manner in which households finance a purchase. Figure 1 details the different scenarios that we assume with respect to housing finance. Scenario 1 is the case where a house does cost less than K.D. 210,000. Here the family would use the interest-free loan from the government, and the outstanding volume would be financed through commercial bank loans. In Scenario 2, the house price matches the allowed amount which a family can be borrowed. Scenario 3 considers a circumstance where an additional equity deposit, equal to 10% of the house price, is used by the family, which thereby reduces the amount that needs to be borrowed. Finally, Scenario 4 illustrates a case where the allowed funding does not match the house price, and therefore an additional source of funding is required. Figure 2 illustrates how this scenario alters over time. The data in Figure 2 is based upon the assumption that the average family utilizes a deposit equal to one year's savings. Figure 3 graphically displays the median house price per cluster from 2004 to 2016. The marked appreciation in house prices previously discussed is clearly evident across both the entire sample and also specifically for the second and third clusters.

Figure 4 displays the HAI indices for all houses. The two indices with and without an equity deposit show a similar trend, as would be expected. The index constructed by the income multiplier shows a distinct opposite trend, because of the nature of the methodology. Yet, similar reading that affordability is worsening over time, which again is to be expected. This is because the lower the HAI indicator, the less affordable the market is. Similarly, the higher the income multiplier, the more income is needed to buy an average house. It is of interest to analyze affordability over different demographic segments. Figure 5 reports the indices, without any equity deposited, over different age ranges. As younger people, due to the phase of their family planning, might have a larger need for housing, it comes with no surprise that they face a competitive market where they compete with more mature candidates. It is clear that older purchasers (51-55-year-olds) have a higher level of affordability compared to younger generations (31-35-year-olds). Figure 5 also illustrates that in 2004 all age categories were able to afford a house, as evidenced by the HAI in excess of 100. However, the percentage of qualifying categories dropped over time until 2013, when no age group was able to afford a house. As expected, this was most evident among the younger generations, the youngest of which were barely able to afford to buy a house during the years 2009 to 2011. A similar finding is shown in Figure 6, in which we assume that families have a down payment equivalent to one year of their family income. The only difference between the two charts is that, in Figure 5, people aged 51 to 55 qualified for mortgage loans for the duration of the sample period, while people aged 46 to 50 and 41 to 45 qualified again in 2016 due to the

drop in housing prices. The results clearly highlight how different segments of the market, in terms of buyers, have different sensitivities to house price changes. This is especially clear in the case of an assumed down payment in 2007 (Figure 6). This may be because older people, who tend to have higher incomes and higher down payment abilities, are likely to experience more rapid HAI increases when housing prices drop.

We also measure affordability using the PIR. Although the assumption that affordability can be measured using only income (per the PIR approach) is questionable, we consider this method for the sake of international comparison. Like the previous charts, Figure 7 – Price-to-Income Ratio (PIR) Across Demographic Segments

clearly shows that affordability has been continuously worsening since 2004. The only correction occurred in 2016 following a drop in housing prices. In comparison to international housing markets, Kuwait's housing market was rated "Severely Unaffordable" in the 13th Annual Demographic International Housing Affordability Survey: 2017 Standard (Hartwich, 2017). Since the main category affordability considered is young people, we believe families with adults aged 36 to 40. This category rated a PIR 6 in 2004 and then reached a figure close to 10 in 2014 before dropping to 8 by 2016. These figures place Kuwait in the same category as London, San Diego, and Toronto in terms of housing affordability. A common factor that can be the primary driver for housing price and worsening affordability is the strength of demand and the supply response speed. The US market can be an excellent example of the impact of demand and supply elasticity on PIR levels. The availability of lands and houses and the flexibility in moving from one place to another can significantly affect the elasticity of supply and demand, housing price, and eventually PIR levels. Cheong and Li (2018) studied the transitional dynamics of housing affordability in the US, Canada, and Australia. Interestingly, unlike the Canadian and Australian markets, the US PIR tends to show more elasticity and drop when reaching the level of PIR 3.5. In contrast, the Canadian and Australian PIR levels increased even further when the PIR exceeded 8.0. The authors suggest that the demand factors, including international buyers for houses in Canada and Australia, played a significant role in housing prices and consequently higher PIR. In the case of Kuwait, where the market is small, supply is limited, and demand is increasing dramatically, this will eventually drive the price higher as well as the PIR levels.

Policies implemented do not seem to improve the affordability in Kuwait significantly. All affordability indices constructed confirmed that affordability has worsened over time. Minor improvements showed in 2008 and 2015, resulting from the financial crisis in 2008 and the massive

drop in oil prices in 2014. The purpose of implementing these two policies was to improve the supply side of the equation by releasing any housing stocks owned by companies and releasing land monopolists by individuals. The trading volume of residential transactions collected from the Ministry of Justice can also show the insignificant impact of these policies. The transactions of empty lands in 2007, 2008, and 2009 were 3,374, 2,114, and 1,608, respectively. Also, the transactions of houses in 2007, 2008, and 2009 were 2,839, 1,619, and 1,479, respectively. Figure 8 shows the total number of transactions every month for this specific period (2007-2009).

6: Concluding Comments

Policymakers have significant roles in improving the affordability in their markets. This paper aims to study the impact of implementing two new policies in Kuwait in 2008. These policies are supposed to indirectly increase the supply of housing units by enforcing taxes on empty lands and restricting companies from owning residential units (houses and lands), and forcing them to sell their stocks. Using different methodologies to measure the affordability in Kuwait and using different scenarios, we can see that implementing those new policies has no significant impact on improving affordability. Affordability showed slight improvement, which might be driven by global events, such as the financial crisis in 2008 and oil price drop in 2014, followed by a continuous worsening affordability trend over time. Housing in Kuwait became "severely unaffordable" (equivalent to London in the U.K., San Diego in U.S., and Toronto in Canada). This means the implementation of new policies in 2008 is not enough in Kuwait, where the enormous supply shortage and the constant increase in demand are more critical and have a significant impact on affordability than the expected consequences of those two policies. With a young population, 69% of Kuwaitis younger than 35 years old, and 44% are below 19 (TPAFCI, 2020), this required a significant policy focused on meeting the current accumulated demand and future demand. Policymakers must prioritize policies that speed up the supply of housing at a larger scale, such as those for developing new cities that have already been allocated for the Public Authority for Housing Welfare with a capacity of 340,000 housing units.

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Tables and Figures

Figure 1 - Housing Finance Scenarios (in Kuwaiti Dinar)

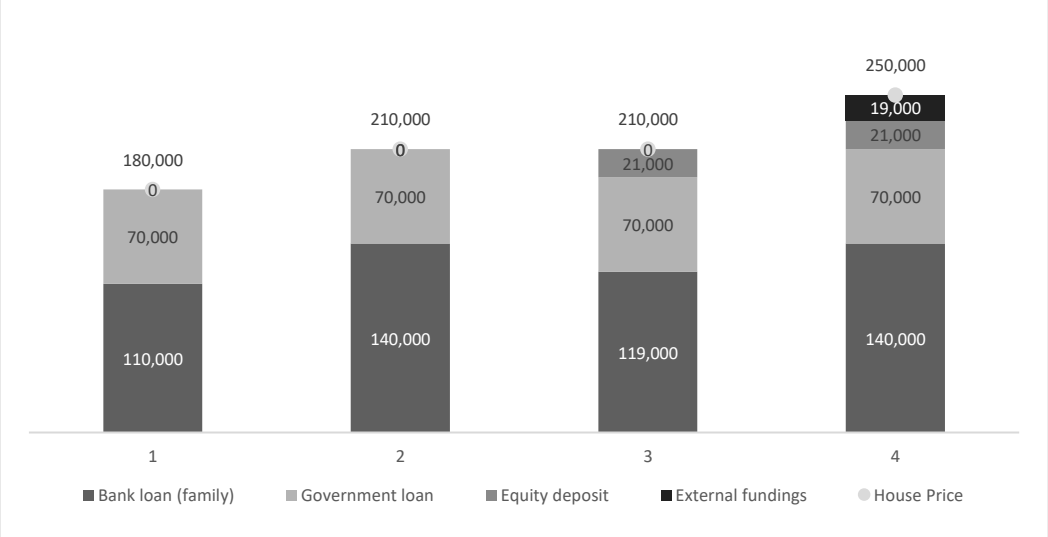
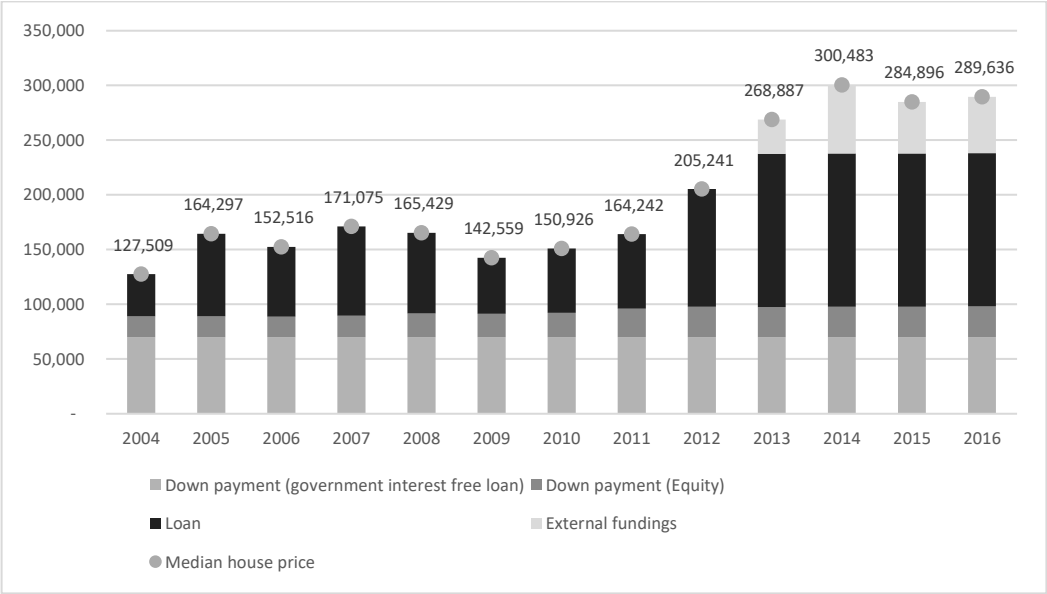
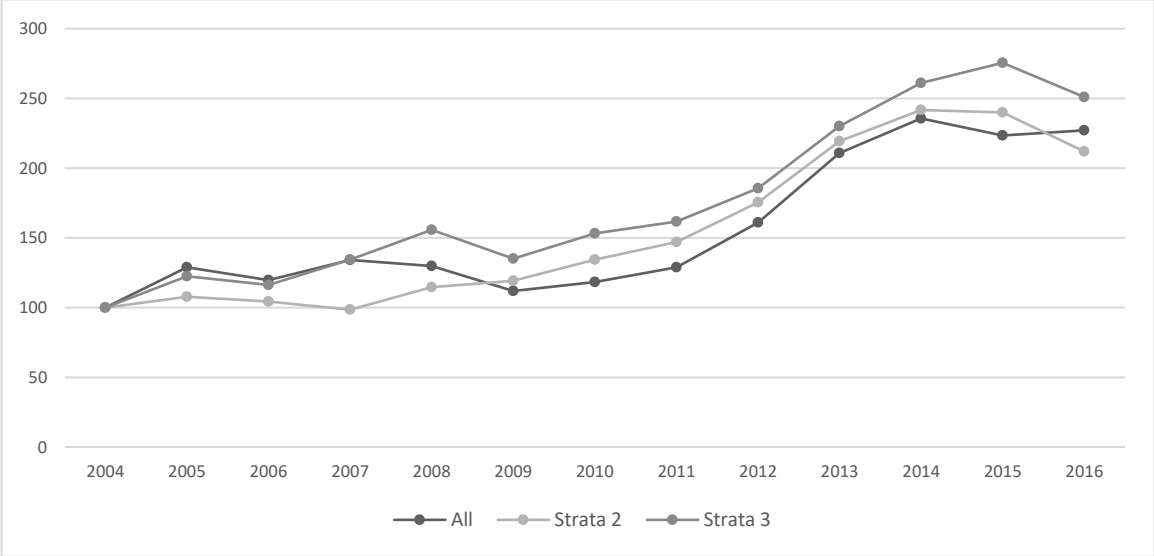


Figure 2 - Housing Finance over Time (in Kuwaiti Dinar)



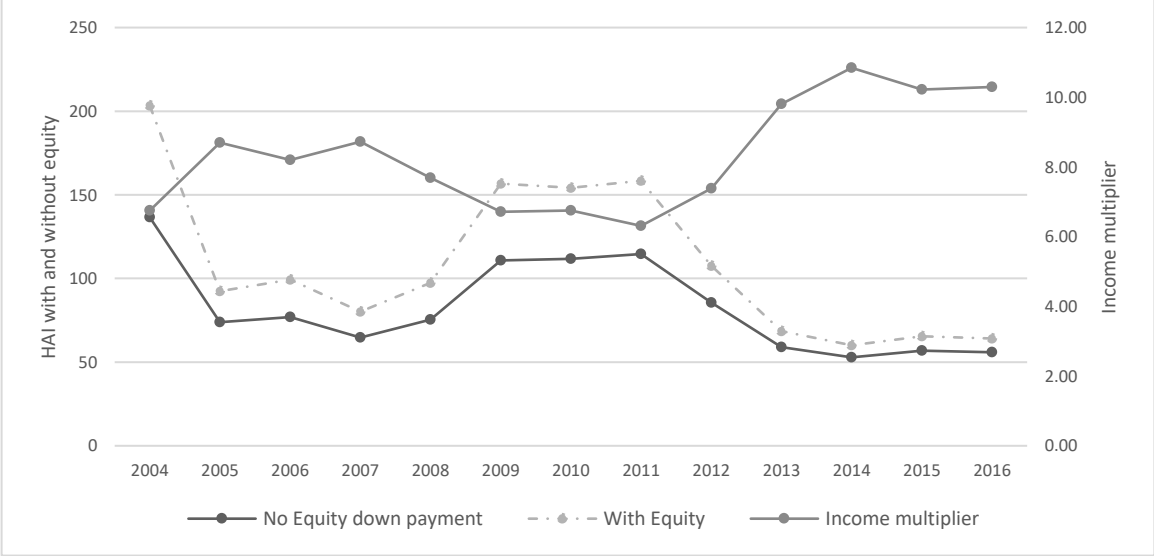
Note: Figure 2 illustrates the assumed financing for each year for an average house. The data uses the entire data set for median house prices and is further based on the average family income over all age groups. The down payment equity is assumed to equal annual income per family.

Figure 3 – Median House Prices trend over time



Note: Figure 3 illustrates the trend in housing prices over the years for different stratas. For clarity, the data has been converted to an index starting in 2004 at 100.

Figure 4 – Housing Affordability Indices (HAI), all houses



Note: Figure 4 illustrates the affordability trend over the years using HAI with and without equity, and PIR.

Figure 5 – Housing Affordability Index (HAI) without Equity Deposit Across Demographic Segments

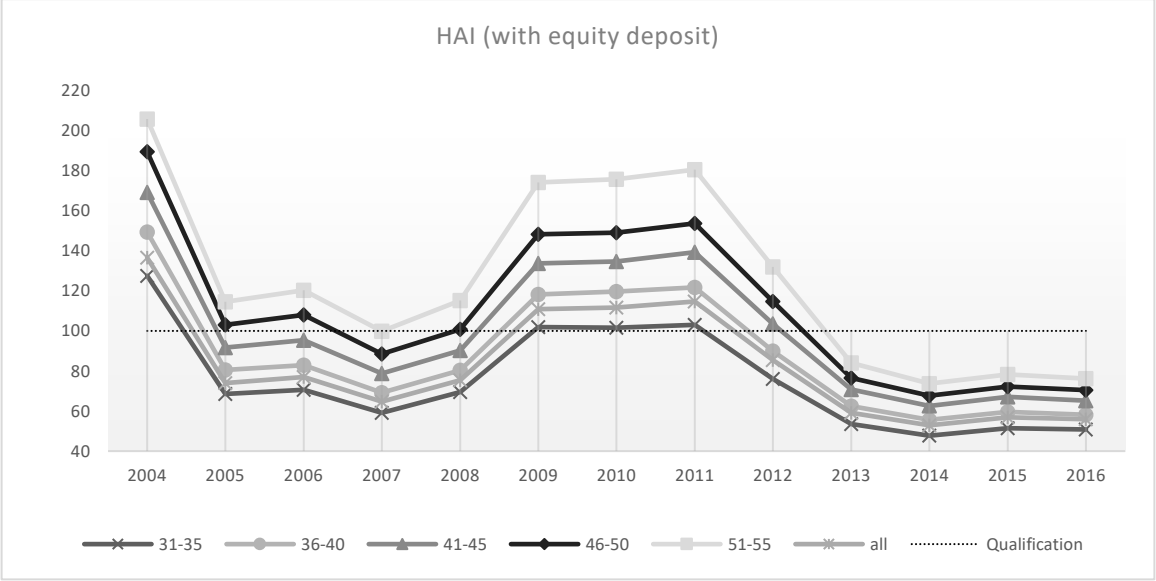


Figure 6 – Housing Affordability Index (HAI) with Equity Deposit Across Demographic Segments

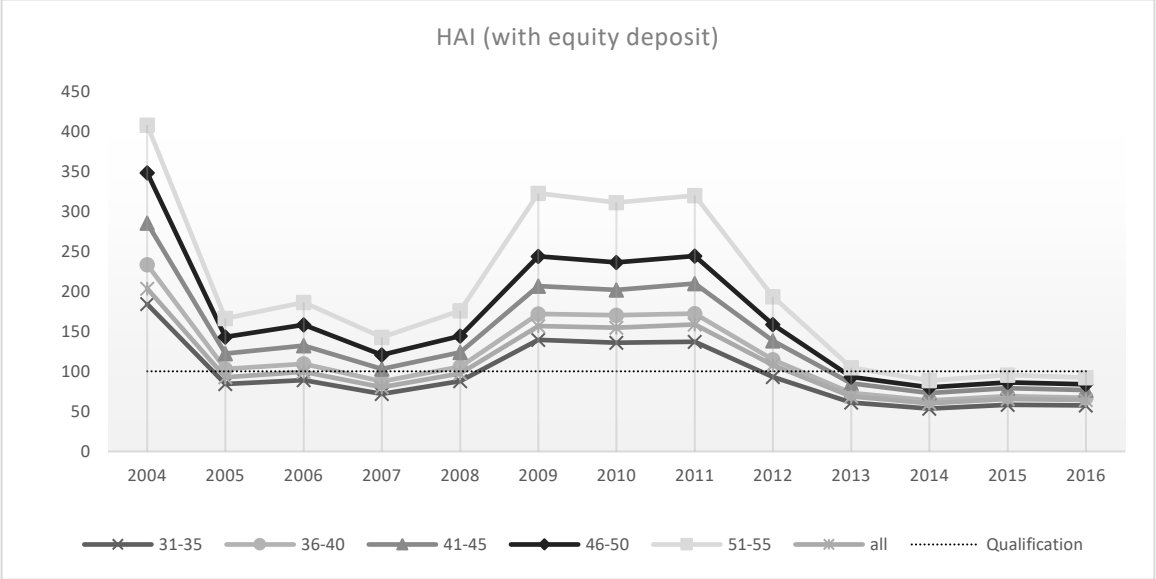


Figure 7 – Price-to-Income Ratio (PIR) Across Demographic Segments

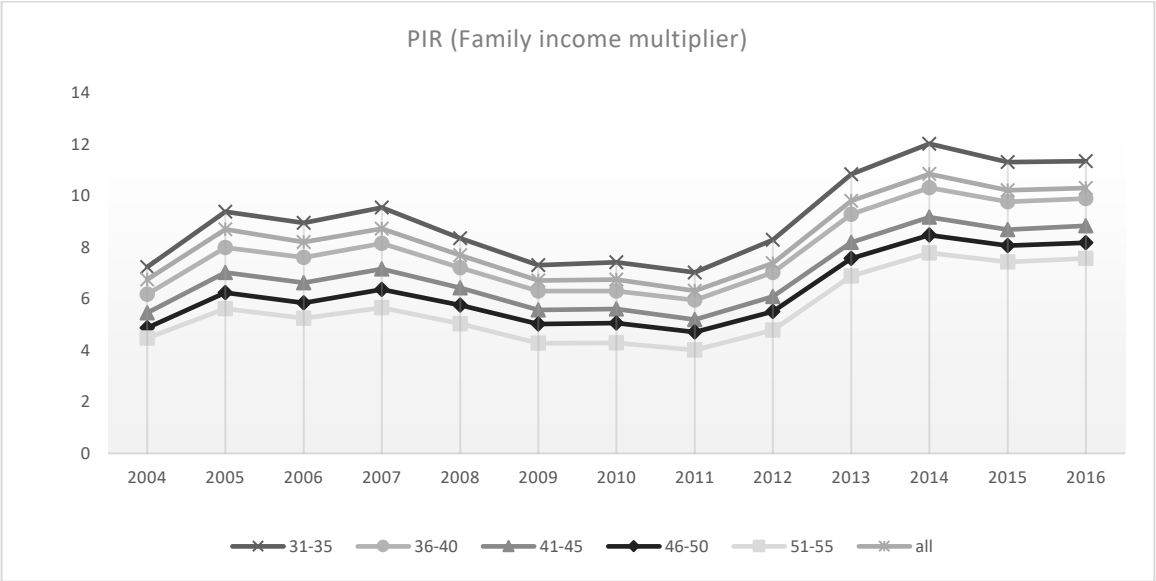
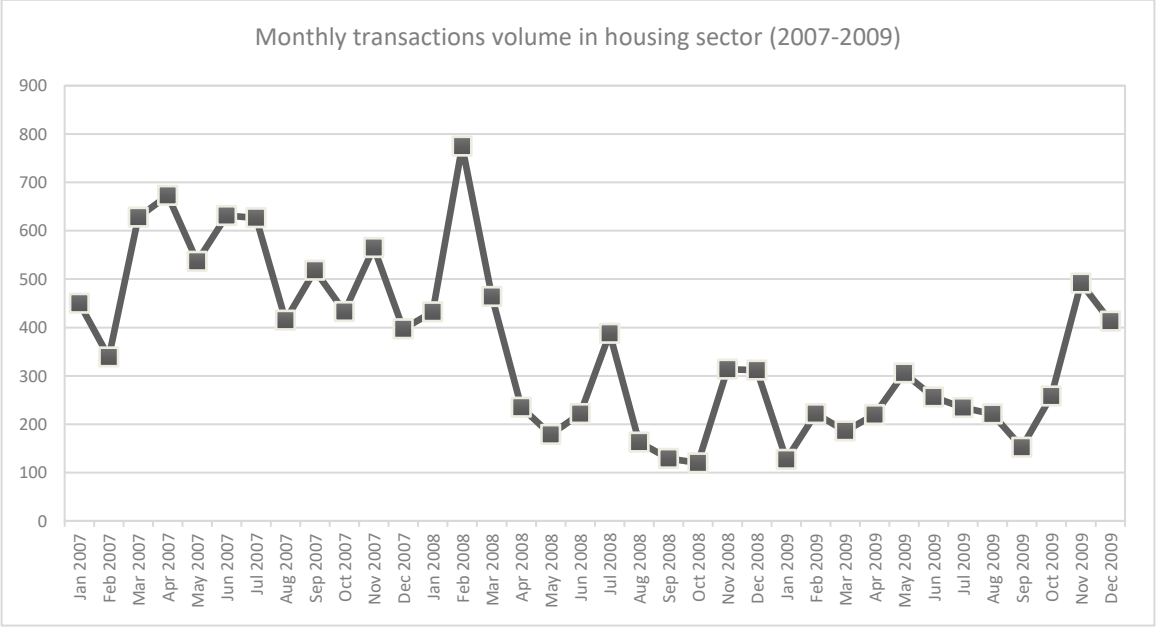


Figure 8 – Transaction volume before and after the implementation of the two new policies.



Note: Figure 8 illustrates month-to-month transactions in housing units in Kuwait. This includes empty lands and houses for each month. The new two policies were implemented in February 2008.

Endnotes

[1] Maclaren et al. (2016) discusses how Singapore also used Stamp Duty as a policy tool. In this a penalty Stamp Duty was payable if properties were re-sold within a short-period of time. Sellers must pay an additional 16% if a property was sold within 12 months of purchase, 12% if within 2 years, 8% if in the third year and 4% if in the fourth year.

[2] This is in addition to the broader impact of government intervention through areas such as monetary policy (e.g. Tsai, 2014).

[3] There is a large literature to have examined the volatility in oil prices, and oil futures contracts. For example, Baumeister & Peersman (2013), Charles & Darne (2014), Kang et al. (2009), Wei et al. (2010) and Wen et al. (2019).

[4] The prohibition of foreign ownership of real estate also contributes to the poor ranking that Kuwait obtains in terms of its attractiveness as a business environment. The World Bank ranked Kuwait 83rd, out of 190 countries, in terms of the ease of doing business (Trading Economics, 2020). A major factor behind this low ranking is that the country is largely closed to foreign investors, and market openness is commonly seen as a major attractor in terms of foreign investment (Alnasser, 2008; Anyanwu, 2012). The closed nature of the economy also contributes to Kuwait ranking 85th, out of 198 on the Corruption Perceptions Index (Trading Economics, 2020).

[5] The GCC is comprised of Bahrain, Qatar, Oman, Saudi Arabia, the United Arab Emirates as well as Kuwait.

[6] Stevenson (2008) highlighted, in the case of Ireland, how small population bases can be extremely vulnerable to sudden demographic shifts, originating from migration and natural population change.