

Housing Affordability from a Global Perspective – a Comparison between Housing Demography in Australia and Germany

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The population profile of many developed countries has changed rapidly in recent years. One factor has been a rapidly ageing population which is due to the ‘baby boom’ generation now entering retirement; another driver has been very low fertility rates where smaller families, often without children, are commonplace. Also the concept of a household has changed substantially where a single person household can now be frequently observed. These demographic changes have direct implications for housing affordability and the ability of a household to (a) enter the housing market and/or retain homeownership.

This paper examines demographic changes in Australia and Germany. Comparisons are made between each country included differences in perceptions towards renting and purchasing a home. The paper also analyses housing affordability levels and discusses implications for purchasers who are seeking to obtain and retain housing. The findings from this paper are useful for stakeholders and policy-makers who are seeking to address one of the fundamental challenges of the 21 century, being the supply of affordable housing for all households.

Introduction

Whilst much of the focus in property and real estate markets is consistently placed on financial returns, there has been increasing global attention placed on demographic characteristics such as projections for population growth, fertility rates, household formation rates and household income (Lee et al. 2003; Reed et al. 2006; Leishman et al. 2008; Mengjie et al. 2008). For example, for residential property the importance of socio-economic characteristics can be directly linked to ability to service a mortgage and purchase housing of a particular value (Reed 2001). In many countries varying government incentives have been introduced with the intention of bridging this gap by providing financial hand-outs although arguably this has indirectly contributed to even higher house prices and issues for social sustainability (Forster-Kraus et al. 2009). This was the scenario in Germany for example.

Undertaking a cross-country comparison is an accepted and insightful research approach. Accordingly this paper examines housing affordability, demographic trends and property markets in Australia and Germany. The objective is to examine housing demography in Australia and New Zealand and also raise the profile of demography when examining property markets in each country. The paper examines data from varying demographic and economic sources to draw comparisons between each country and the contribution of demography towards housing markets. The findings from this paper are useful for stakeholders and policy-makers who are seeking to address an increasingly difficult challenge in the 21 century, being the supply and availability of affordable housing for all households.

Housing affordability considerations

Housing affordability is commonly expressed as the ratio of (a) the sum of the monthly housing expenses (e.g. rent, mortgage repayments) to (b) the monthly income per household. This proportion indicates what proportion of a household's income is needed for housing. This approach has been adopted in previous studies and is widely accepted (see Meen et al. 2005; Skarburskis 2004). Whilst there are many factors affecting housing affordability, often these variables can be placed into three main groupings: economic, political and social factors (Bunting et al. 2004). Nonetheless a distinct 'cause and effect' analysis is not always possible because there are different relationships between factors that affect housing affordability. Earlier studies into the housing markets in England and Scotland have sought to explain housing affordability using simulated models based on variables including labour

market, migration, housing sales, household formation rate and the decision to 'rent or buy' (Meen et al. 2005; Leishman et al. 2008). A landmark housing demography study which examined the links between demography and real estate was undertaken by Mankiw and Weil (1988) where the findings concluded an age dependant demand variable had a significant influence on the level of housing prices in the US. The study focussed on demographic variables and forecast a 47% decline in house prices.

Other studies have followed on from the initial Mankiw and Weil (1988) study in further attempts to highlight links between demography and house prices. Using the same housing data as the landmark 1988 study, a cointegration analysis was undertaken by Crone et al. (1991) where the findings concluded there was a direct relationship between (a) the proportion of the population aged 25 years and above and (b) the level of house prices. A different study examined the links between (a) house prices and (b) income variables/interest rates where it was demonstrated there would be a decline in house prices although less than initially predicted by earlier studies (Hendershott 1991). Another project concluded that housing demand is dependent upon household income, interest rates and changes in overall house prices (Swan 1995).

In the housing demography literature there have been studies undertaken into individual countries. Applying the original Mankiw and Weil (1988) framework to Austria, Lee et al. (2003) argued the number of adults plus net migration is collectively a better demographic indicator for housing demand studies than simply examining the actual number of births that occurred 20 to 30 years earlier. The same study also concluded the variables for income, finance costs and the jobless rate were all significant in the analysis of housing prices. With reference to Canada, the same methodology as the original Mankiw and Weil study was used but no significant relationships were identified (Engelhardt and Poterba 1991). In a Germany study Maennig et al. (2007) analysed the relationship between housing prices and demography in German cities; the model used a dummy variable to reflect cities which were growing or shrinking. The findings were that declining populations were linked to changes in house prices but there was no relationship with increasing populations, even though other variables were also added to the analysis including population levels, construction costs and income. Focussing on US metropolitan cities, a multiple regression analysis employed characteristics including population density, education and location which were linked with different levels of housing affordability (Wolff 2006).

In the UK it was stated in *The Barker Review* that the planning system affected households and also had an effect on the entire economy (Barker 2004). The findings included a discussion about an insufficient quantity of housing units to meet demand in the UK. In response to *The Barker Review*, The NHPAU (2009) argued that a higher allocation of property to living space could not solve the problem of high housing affordability rates in isolation; it was felt that overall demand and interest rate levels should also be added into the analysis. A different project found that UK house prices had low price elasticity in a broader European context (Meen 2005). In addition it was shown that regional differences need to be fully considered in a housing market analysis into affordability (Meen et al. 2008); this is particularly relevant when examining the relationship between housing affordability and the overall construction process, demand variables, migration and the decision about whether to rent or buy.

Other researchers have investigated links between housing affordability and individual demographic variables. A study into the relationship between (a) household income and rent with (b) housing affordability concluded although the relationship between income and housing affordability were both significant and positively correlated, interventions in the market regarding household income are the most effective means of improving poor housing affordability situations (Kutty 2007). A recent investigation was undertaken based on the hypothesis that higher housing affordability rates caused lower fertility rates; however this theory was not proven to be correct or incorrect but interestingly it was shown that higher affordability rates caused the age of the female to rise when giving birth to their first born child (Kostolecky et al. 2009). With reference to younger households, it was concluded that housing affordability problems were more common in comparison to older households (Skarbuskis 2003).

This review of previous studies into housing studies clearly identified links that have been observed between demography and house prices including housing affordability, where this body of literature is now commonly referred to as *housing demography*. It has also been shown that although there are common themes such as the positive relationship between household income and house prices, the actual relationship between variables differs between markets, regions and countries. Demand for housing is a function of population characteristics such as fertility rates, migration and age groups which are discussed further with reference to Australia and Germany.

Ageing population base

Many countries in the world are experiencing a rapidly ageing population basis which is due to factors such as lower fertility rates and ongoing medical advances that extend longevity. On a global perspective between 1950 and 2009 the highest median age increased from 35.7 years (Channel Islands) to 44.4 years (Japan) as shown in table 1, which equates to nearly 7 additional years added over a 59 year period. An ageing population has widespread implications for property markets including:

- Higher emphasis on aged care facilities including high care and low care (Csesko et al. 2009);
- A reduced workforce equating to a reduced income tax inflow to government;
- Higher costs to government for medical and housing costs for older citizens; and
- Substantially different housing product needed such as on level with no stairs, high level of security and low maintenance.

Table 1. Countries with Highest Median Age – 1950 and 2009

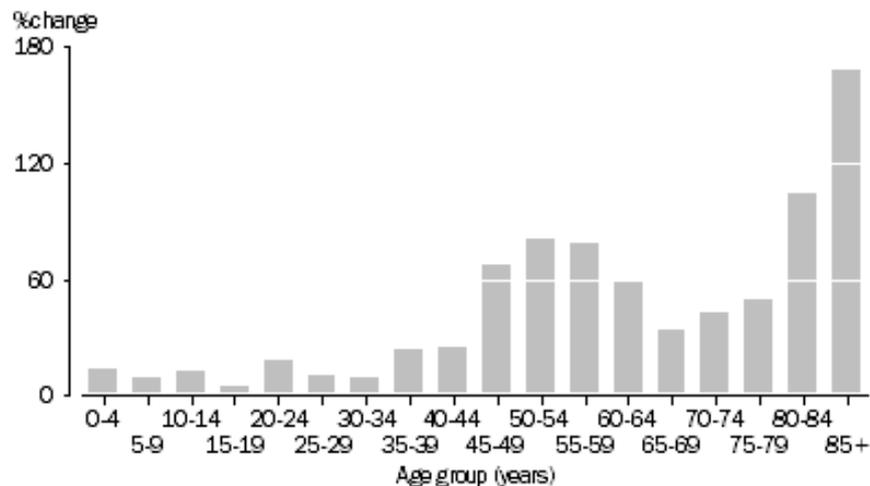
Rank	Country	Median Age (yrs) - 1950	Rank	Country	Median Age (yrs) - 2009
1	Channel Islands	35.7	1	Japan	44.4
2	Austria	35.7	2	Germany	43.9
3	Belgium	35.5	3	Italy	43.0
4	Germany	35.4	4	Finland	41.8
5	Luxemburg	35.0	5	Channel Islands	41.7
6	Great Britain	34.6	6	Switzerland	41.6
7	France	34.5	7	Bulgaria	41.5
8	Sweden	34.3	8	Austria	41.4
9	Switzerland	33.2	9	Slovenia	41.4
10	Norway	32.7	10	China, Hong Kong	41.3

(Source: Just 2009)

It can be noted in table 1 the median age in Germany increased by 8.5 years from 35.4 years (ranking 4 - 1950) to 43.9 years (ranking 2 - 2009) although notably Australia does not fall within these rankings. A similar trend has been observed in Australia where the 'over 85 years' age bracket has increased substantially – see figure 1. In Australia over a shorter time period between 1989 and 2009 the median age increased by 5.1 years from 31.8 years (1989)

to 36.9 years (2009) (ABS 2009). In the future it is anticipated the ageing of the Australian population will have an adverse effect on the country's health, labour force participation, demand for skilled labour as well as housing (Productivity Commission 2005). In Germany approximately 20% of the total population were aged 65 years and over in 2009, however this is predicted to increase to 35% of the total population by 2060 (Dechant et al. 2008).

Figure 1. Change in Age Groups in Australia – 1989 to 2009



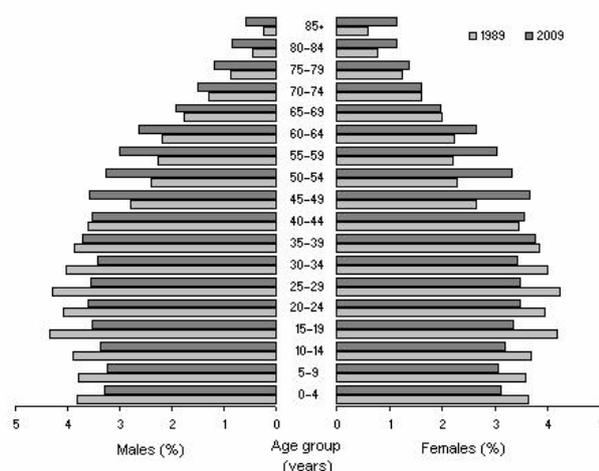
(Source: ABS 2009)

In Australia there has been migration both within states and territories as well as overseas, where younger adults are more likely to relocate than older adults. For example the highest median age is in Tasmania (39.6 years in 2009) where can be largely attributed to migration of younger adults interstate to the mainland or overseas (ABS 2009). The age pyramid in figure 2 confirms the ageing of Australia's population between 1989 and 2009 is relatively evenly spread between males and females.

Migration in Germany is a combination of immigration and internal migration. The positive immigration rate has compensated for a decreasing fertility rate in Germany, which restricted the total population in Germany from decreasing. However external migration has increased further and the total population has been decreasing since 2006 (Dechent et al. 2008).

Migration within Germany is predominantly caused by changes in the labour market and education; this trend was affected by an east-west movement of many households until the end of the transformation in the late 1980s. An ageing global population also increases the incidence of dementia which remained incurable, therefore reducing the number of older residents who can live independently (Csesko et al. 2009).

Figure 2. Change in Age Pyramid in Australia – 1989 to 2009



(Source: ABS 2009)

Fertility Levels

Fertility rates in Germany have fallen every year under the replacement level of 2.1 children per female since the early 1970s (Berlin-Institut für Bevölkerung und Entwicklung 2008). A fertility rate below replacement levels has not been a problem in Germany due to the positive migration inflow, although population levels started to decrease after 2003 with a fall in the number of immigrants. The total population continues to decrease as immigration levels have not yet risen in Germany. In the European Union the scenario with decreasing fertility rates has widespread implications that are yet to be fully appreciated; without immigration the total population in the European Union will decrease by approximately 50 million residents by the year 2050 (UN 2008).

In comparison to Germany, in recent years the fertility rate in Australia has been steadily increasing. In 2008 there were 296,600 births registered which exceeded the previous record years of 2007 (285,200 births) and 1977 (276,400) (ABS 2008b). The overall fertility rate in Australia was 1.97 births per female, being an increase from 1.92 (2007) and clearly the highest fertility rate since 2.01 in 1977 (ABS 2008b). The research also acknowledged that nearly half (43%) of these births were to first time mothers whilst approximately one third (33%) were having their second child. The recent trend towards a higher fertility rate may reflect the relatively strong economic growth that Australia has experienced including the ability to cope with economic downturns. This will affect the type of housing required for family which typically is not medium to high density. However the fertility rate discussion

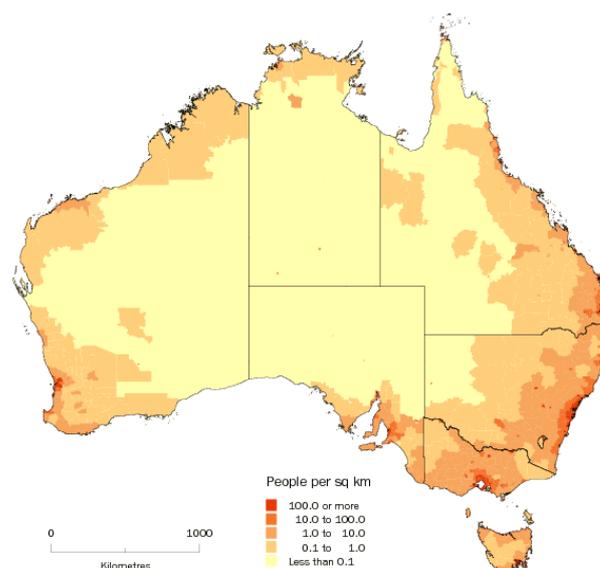
need to also encapsulate the proportion of aged Australians where overall the population continues to experience an increased median age.

Urbanisation

It is commonly accepted there is a global trend towards increased urbanisation. In Germany 73.5% of the total population lived in cities in 2007, especially in the strong economic regions in the south including Munich or Stuttgart (Just 2009). The same study confirmed that highly urbanised cities in Germany have the highest proportion of single person households representing 38.7% of all households. If this trend of urbanisation towards the cities continues to rise in the future, the implications are for housing demand in cities to increase at the same rate as the total population of Germany decreases.

Australia is highly urbanised with about 90% of the population living in urban areas although approximately two-thirds of the total population living in capital cities alone (ABS 2010a). This research showed that population growth in Australia was most prominent in inner-city areas, outer suburbs, urban infill areas and along the coast; at the same time there has been population decline including inland, in rural areas affected by drought and in some mining areas. An additional consideration for housing affordability in Australia is the costs associated with journey-to-work. As shown in figure 3 a large proportion of the population resides in the south-eastern region where industry is predominantly located but with the most expensive house prices.

Figure 3. Population Change in Australia (2008 - 2009)



(Source: ABS 2010a)

The high level of urbanisation in Australia creates increased pressure on housing affordability for competing locations close to employment, as well as placing additional pressure on transport. A worker in a household has limited employment opportunities due to the relatively small number of capital cities in Australia and substantial distance between each. Accordingly it is not realistically possible to relocate a employment to another city without relocating the entire household; the location of the employment dictates where the worker lives.

The German housing market

With reference to the property and real estate industry in Germany, demographic change is generally referred to as a 'century target'. If total population levels decline this will change the level of demand for housing, however this does not automatically infer that demand for the number of housing units will decrease in the same ratio that population levels may fall. In other words, when examining demographic trends and housing affordability levels in Germany the emphasis should be placed on the number of households rather than the total population only. On the other hand it is predicted the number of households in Germany may even rise over the next few years.

Generally speaking, the housing market in Germany faces different challenges in the future in comparison to other European countries. Inherent characteristics include a much larger proportion of renters, high supply-side elasticity and a housing credit system based on fixed interest rates. In addition Germany has experienced a decrease in construction levels over the past few years (Dechent et al. 2008). In the same study it was demonstrated that Germany has approximately 82.3 million residents although the smallest number of new housing starts. In Germany there were 39.3 million housing commencements in 2008 with an average area of 90 m² (owner-occupied) and 70 m² (rental); rental properties also showed a vacancy rate of 8% (Dechent et al. 2008).

In Germany the average area per person in housing was 42.9 m² in 2006, which in comparison has increased since 1989 by approximately 5% (Dechent 2008). Following the trend of increased demand for housing areas, the transfer price for vacant land has risen by approximately 52% between 2003 and 2006 in Germany (Statistisches Bundesamt 2009). One of the most significant features of the German housing market is the very low ownership rate (RICS 2009). In turn this creates a relatively stable rental market which is predominantly 'renter orientated' (BMVBS 2009II). Most landlords (59%) are private individuals which is

another feature of the German housing market (VHW 2008). With reference to housing affordability, the amount of disposable income of German households was 1,493€ per month (2006) where the cost of housing was approximately 23% (Timm 2008). The same study highlighted that households under the highest stress were one person households (26.3%) followed by households with children (23.2%). As a benchmark it is accepted that if a household contributes more than 30% of total income to housing, it is then under housing stress. In 2008 approximately 36% of all households in Germany were in some form of housing stress; furthermore 15% of all households allocated in excess of 40% of total monthly disposable income to meet rental payments (Timm 2008). In Germany households located within cities faced a housing affordability rate of more than 36.8% (IVD 2008). To assist households under housing stress, the government in Germany has a system of social housing supply. In a similar manner to other European countries, Germany has been reducing expenditure on social housing even though housing stress for low income households has been rising.

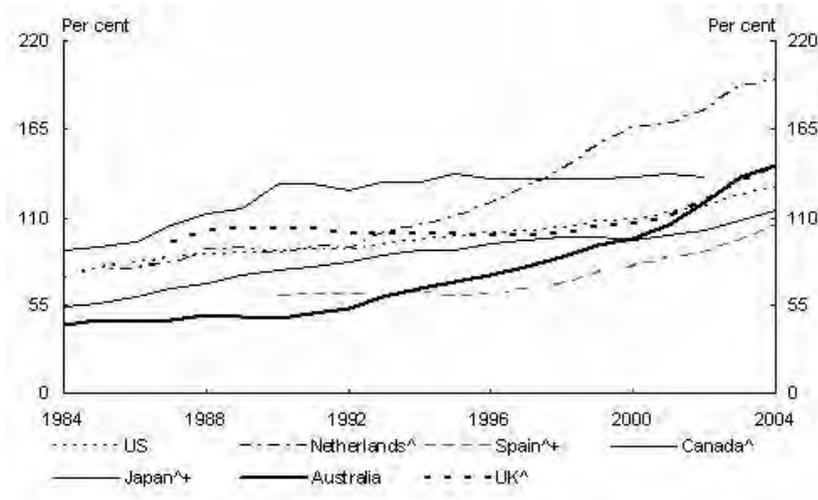
The Australian housing market

With reference to house prices the household formation rates in Australia are partly responsible for a sustained long-term increase with residential house prices exceeding the inflation rate by an average 6.5% per annum between 1995-96 and 2005-96 (ABS 2008). It is evident that newly formed households have struggled in Australia to enter homeownership with much of the new household formations linked to the trend towards single person households (ABS 2008). For example in the twelve months to September 2009 there were approximately 200,000 first home buyers in Australia although it is predicted this demand will continue to slow as the 'First Home Owners Grant Boost' (FHOGB) is being partly withdrawn at the same time as house prices increase (REIA 2009; ABS 2010b).

It has been argued that a low income household's ability to purchase and retain longer-term affordable housing in Australia has decreased markedly over the past twenty years; this refers to (a) a newly formed household entering the housing market and (b) an existing household seeking to retain homeownership (REIA 2009). An influencing factor has been the ratio of household debt to income. As shown in figure 4 Australia experienced a similar upward trend to other countries where the household debt to income ratio increased from approximately 40% (1984) to 145% (2004). During this period there was completing pressure for household income (e.g. mobile phones, technology, higher interest rates) which

placed additional pressure on the ability of the household to meet housing costs such as mortgage repayments or weekly rent. With regards to housing tenure breakdown in Australia, approximately 30% are rental households with the balance being owned outright (30%) or being purchased via a mortgage (Reed 2001). Most households which are renting seek to enter the homeownership although perhaps this demand has decreased in recent years due to the increasing appeal of the ‘rent vs. buy’ argument.

Figure 4. Household Debt-to-Income Ratio, Selected Countries (1984-2004)



(Source: Economic Reference Committee 2005)

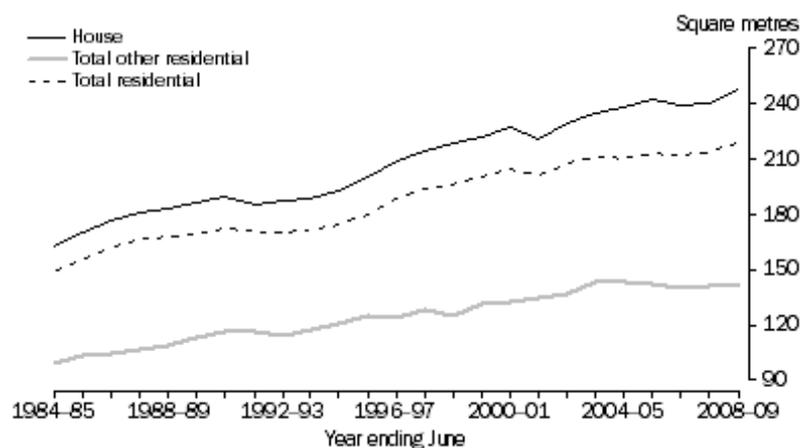
In Australia it has been shown that housing owners and purchasers can be divided into three broad categories:

- (a) Households which put additional equity into their home which exceeds their requirements;
- (b) Households which withdraw more equity than they invest in housing; and
- (c) Households which retain a fixed amount of equity (Reserve Bank of Australia 2005).

Overall the housing market in Australia has been quite robust and was not adversely affected by global market downturns (Berry 2005). However there has been increasing pressure placed on housing affordability and the ability of Australian households to enter the housing market. For example the Real Estate Institute of Australia acknowledged that levels of housing stress fluctuated. In the March 2009 quarter there was a decrease in housing affordability levels from 32.4% to 28.6% although the overall rate remained relatively close to 30%. Another metric to support strong fundamentals in the housing market is the increasing trend for larger area of new housing (figure 5). In this diagram it is evident the

area of a new house has increased from 180 square metres (1984-85) to 245 square metres (2008-09).

Figure 5. Average Floor Area of New Residential Dwellings (Australia)



(Source: ABS 2010C)

Conclusion

This paper has highlighted the importance of demography and population characteristics when examining housing affordability from a global perspective. The main focus of the study was to investigate demographic trends in Australia and Germany, both of which are developed economies although with inherent differences. Australia is a relatively new country which co-incidentally has a relatively large land mass. In comparison Germany has a long heritage and is an integral part of the European Union. It can be concluded that research into housing affordability has become increasingly complex and is supported by an established body of research. These studies confirmed that demographic characteristics are partly able to explain variances in house prices and housing affordability. Both Australia and Germany, in a similar manner to many western countries, were affected by an increased median age. This trend has direct implications for housing affordability for retirees as well as the ability for older Australians and Germans to afford and retain housing during an extended yet possibly unforeseen retirement. In addition the type of housing required may be located closer to hospitals and major cities due to the need for high care.

Fertility rates in both Australia and Germany are below the accepted replacement levels of 2.1 children per female; this statistic contribute to an ageing population where the design of housing should be altered to suit one or two child families. In Australia in particular there is a trend towards larger housing although a household would often contain no children, one

child or two children. This trend is inversely related to demand for larger housing (figure 5) which it would appear to challenge the concepts of realistic housing affordability and sustainability; it is difficult to argue why a childless couple would need additional bedrooms. Urbanisation rates were relatively high in both countries, although the sparse nature of Australia's landscape combined with the large distance between capital cities appeared to increase the level of urbanisation. This may have a flow-on effect which lowers housing affordability, mainly because workers must live in relatively close proximity to industry. This paper has provided a direct comparison to demographic characteristics and housing affordability challenges in Australian and Germany. Whilst there are observed similarities (e.g. ageing population, low fertility rates) there are also distinct differences such as the cultural views towards homeownership versus renting. The next stage of the research is to undertake a detailed cross-country comparison of housing affordability trends over time. This will allow policy makers to make informed decisions to ensure an adequate supply of affordable housing is available for population which are undergoing rapid demographic changes.

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