Alternative Analysis of the Australian Housing Shortage

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INTRODUCTION

A number of organisations have concluded that Australia has suffered from a housing shortage in recent years, which is also predicted to worsen in the future. The housing shortage is in turn identified as a primary cause of rising house prices in recent years, with an increase in new housing construction offered as the solution to low affordability. The National Housing Supply Council (NHSC), established by the Commonwealth Government in 2008, estimated that Australia had a shortage of 178,400 dwellings in June 2009.

Calculations of an Australia housing shortage are based around the immigration led surge in population growth in recent years, which has lifted society's underlying demand for housing faster than growth in the dwelling stock. Whilst there is some legitimacy to this position, there are also flaws in the underlying demand growth methodologies employed.

This paper presents an alternative analysis of the adequacy of Australia's housing supply, in order to reach three conclusions:

1. Underlying demand growth methodologies used to calculate the housing shortage are flawed, as they do not recognise the significant excess capacity of the existing housing stock or the role of higher prices in reducing real demand.
2. Population growth can continue to be accommodated in the capacity of the existing total housing stock. Considering long term historic trends, this is achieved through a relatively minor adjustment in the average occupancy rate.
3. The influence of the relative level of new dwelling construction as the cause of high house prices is somewhat overstated.

All quantitative analysis of the housing market is limited by the availability and quality of statistics. Nationally aggregated data hides lower level diversity, with housing outcomes ultimately determined at a unique individual level. Younger and/or poorer people are those predominately impacted by lower housing affordability, regardless of the extent to which this has been caused by inadequate new dwelling construction.

This paper has been written from June to August 2011 based on available data and the NHSC's *2nd State of Supply Report* (NHSC Report), released in early 2010. While the statistical analysis in this report will become outdated with the release of the NHSC's third report (anticipated for later in 2011) and 2011 Census data, the concepts presented and conclusion reached will likely remain valid.

STATISTICAL AND THEORETICAL CONTEXT

Statistical Background

National housing standards have increased significantly over the past century. Two key historic trends are a decrease in average household size (people per dwelling), in parallel to an increase in average dwelling size. In addition, the portion of the population that lives in public dwellings (hostels, aged care etc) has fallen, the portion of the dwelling stock that lies vacant has grown, and the quality of materials used to construct dwellings has improved. Increased mobility has resulted in an increasing proportion of overseas visitors (ABS, various).

Fig. 1 (derived from historical census data) shows the extent to which the Australian dwelling stock has grown faster than the population over past century, with the average number of people per private dwelling halving from 4.8 in 1911 to 2.4 in 2006 (ABS, various). The average number of people per private dwelling is the preferred measure of average housing occupancy in this paper, as it captures the entire population and the entire private dwelling stock. This is arguably preferable to the common alternative measure of average

people per household, as this measure excludes unoccupied private dwellings and people in public dwellings.

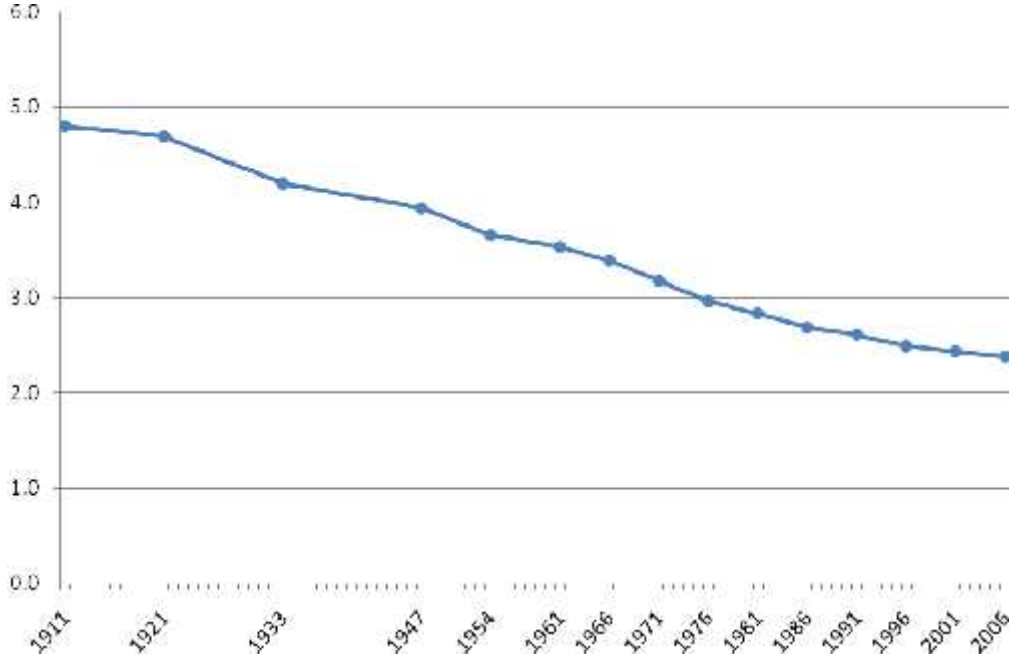

Figure 1: Average Number of People per Private Dwelling (ABS various)

Dwelling size has increased over time both in terms of the average number of bedrooms, and floor space. The average number of bedrooms per dwelling has increased from 2.88 in 1994-95 to 3.07 in 2007-08 (ABS 2009). The average floor area of all newly completed residential dwellings has increased from 149.7m^2 in 1984-85 to 218.9m^2 in 2008-09 (ABS 2010a).

National population growth increased significantly after the most recent 2006 Census, both in percentage and absolute terms (Fig. 2). This increase is attributable to higher net migration (permanent arrivals minus permanent departures), with natural increase (births minus deaths) being the other more stable component. After peaking in 2008, population growth and net migration have since fallen back towards historic levels.

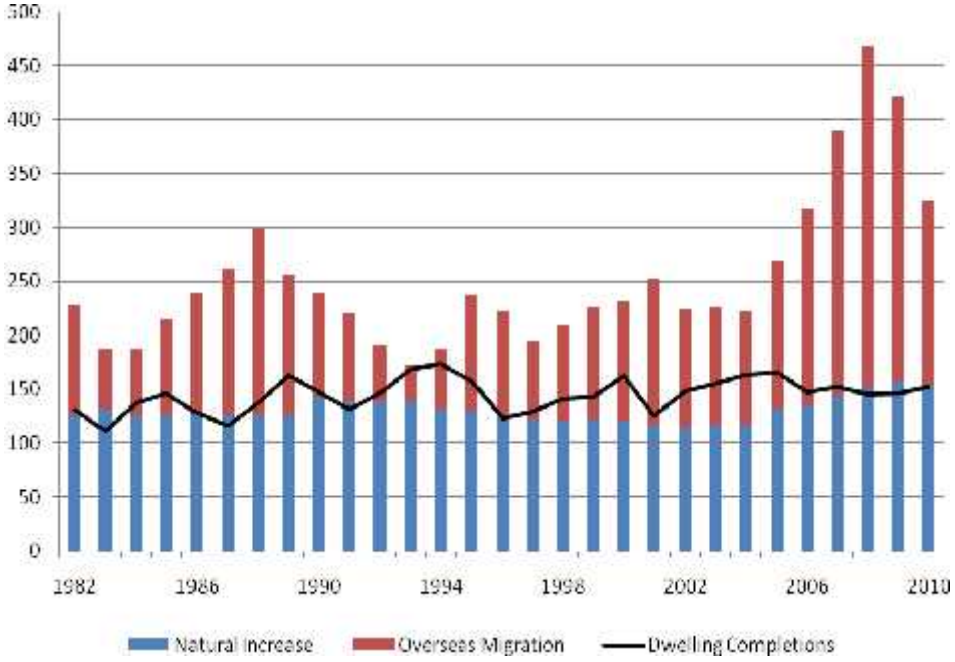

Figure 2 – Population and Dwelling Growth 000's (ABS 2011a; ABS 2011b)

The population growth rate has exceeded the dwelling supply growth rate for the first time in many decades over the second half of the previous decade. Despite criticism of the inadequacy of construction levels, the

number of annual new dwelling completions has remained relatively stable for an extended period, with the average size of these dwellings also increasing over time.

The long term increase and shorter term movements in house prices are widely assessed in Australia. The influence of factors besides demographics or supply on house prices, such as interest rates, macroeconomic conditions and consumer confidence, are well accepted and summarised in the NHSC Report. While the central focus of this paper is supply, house prices are also discussed, given that quantity and price are co-dependent in market theory.

Theoretical Foundation

The parallel trends of higher population growth and flat dwelling supply growth can be shown on a supply demand diagram to illustrate the theoretical impact on market outcomes (Fig. 3). Higher population growth shifts the demand curve out further (D^1 to D^2) than the supply curve (S^1 to S^2 *shortage*), leading to a new equilibrium at a higher price (E^1 to E^2).

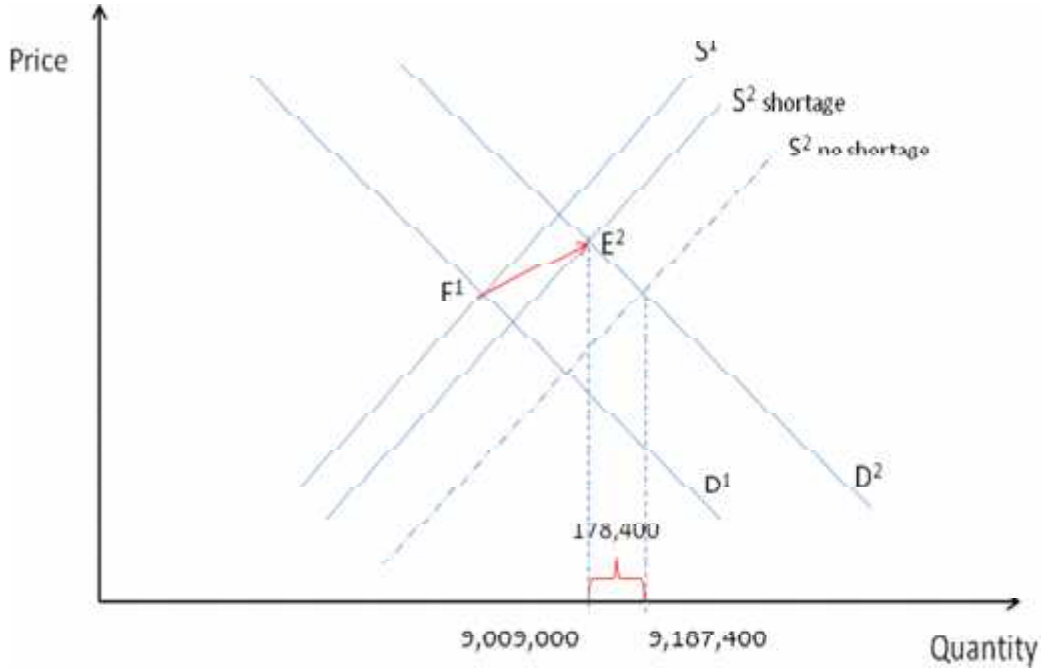

Figure 3 – Housing Market Supply and Demand Diagram

Economic theory therefore supports the assertion that the rise in population growth has contributed to higher house prices. The shortage represents the estimated additional 178,400 dwellings needed in June 2009 for the supply curve to shift further outwards (to S^2 *no shortage* instead of only to S^2 *shortage*) for the market price to remain equal to E^1. Flat new dwelling completions over recent years despite higher prices suggest a relatively inelastic (steep) supply curve.

Economic theory also supports proponents who claim that higher housing construction levels would result in lower prices. Dwelling completions did increase in parallel to rising prices over the previous decade in many other developed countries, including Spain, Ireland and the United States. These nations are now all burdened by far weaker housing market conditions. This suggests that if Australian dwelling completions had also been more responsive to higher prices, it might also now be experiencing comparable weakness.

However, economic theory also clearly discredits the existence of a housing shortage. Point E^2 on Fig. 3 represents a market equilibrium where demand equals supply, a point at which there is neither a shortage nor surplus. As people have flexibility in determining their housing outcomes, in response to higher prices a portion of the population will make a downwards adjustment to their housing expectations. A larger percentage of people will select a cheaper housing alternative, including sharing a dwelling instead of forming a separate household, causing total housing demand to fall. Motivated by self interest, the population will spread across whatever dwelling stock is available.

If 178,400 additional dwellings had been built by June 2009, the same population would simply spread across a larger housing stock, resulting in a lower rate of average occupancy. This makes measuring trends in the average number of people per private dwelling crucial to analysing how the market has and can continue to accommodate population growth. Based on data in the NHSC Report, an additional 178,400

private dwellings at June 2009 would have increased national stock to 9,187,400 dwellings and reduced the national average number of people per private dwelling from 2.44 to 2.39.

Anthony Richards (2009) from the Reserve Bank of Australia outlines the process through which society moves towards comparatively higher dwelling occupancy in the following way: “we might expect to see some young adults choosing to live with their parents for longer. We might expect some households to look for an extra flatmate rather than leaving a bedroom vacant. Some owners of holiday homes or second homes might have become more inclined to sell them, with those houses then occupied full-time”.

Although potentially not ideal from a personal perspective, it is entirely possible for people to adjust to a slightly lesser quality and/or quantity housing outcome, whilst still more than adequately satisfying their need for shelter. This highlights the divergence in the dual roles that housing serves as both a need and want. Even an additional 178,400 dwellings may be insufficient to satisfy national housing desire. A recent survey of Melbourne and Sydney residents by the Grattan Institute (Kelly, Weidmann & Walsh 2011) found a significant mismatch between the dwelling supply available and the mix of housing which respondents said they would choose (in terms of type and location), for a given income and housing price level.

Arguably, homeless people are the only members of society that suffer from a housing shortage, as they are the only people whose requirement for shelter is not met by available supply. Yet estimates of the housing shortage bear no correspondence to the number of homeless people in Australia, and the NHSC even removed homelessness data from the methodology in its second report. Total national homelessness has remained flat over the past three census counts, suggesting a structural level of homelessness predominately caused by personal issues, rather than cyclical economic or housing market conditions. At the 2006 Census there were an estimated 16,400 primary homeless (people without formal shelter, sleeping rough), representing 9,400 households (Chamberlain and MacKenzie 2008). This is far less than the NHSC shortage estimate of 178,400 dwellings. The shortage estimate therefore largely represents an assertion that additional dwellings are required to house people who already have a house.

HOUSING SHORTAGE ESTIMATES, METHODOLOGY AND DEFINCIENCES

Housing Shortage Estimates

A number of organisations, mostly from the housing and finance sectors, have estimated that Australia has suffered from a housing shortage over recent years, and this is often stated in media reporting. BIS Shrapnel (2011) estimated the national shortage at June 2011 to be 120,400 dwellings while ANZ (2011) forecast the shortage in 2011 to be over well 200,000 dwellings. The Housing Industry Association (HIA 2011) uses an equivalent justification to conclude the existence of a shortage.

The NHSC Report, published in April 2010, estimated an Australian housing shortage of 178,400 dwellings at June 2009. Due to lags in data release, analysis and report publication, this figure technically remains as the current official shortage estimate until the release of the third NHSC report late in 2011. The estimated shortage grew from 29,600 in June 2005 and 99,500 in June 2008. Despite using a completely new methodology, the more recent 2008 estimate is close to the 2008 shortage estimate of 85,000 dwellings in the first NHSC report.

The (second) NHSC Report also projected the future housing shortage under varying scenarios. Under the central scenario, for medium future growth in underlying demand and supply, the shortage was projected to increase every year over a twenty year period to 2029, reaching 228,300 dwellings in June 2011 and 640,600 dwellings in 2029. For convenience, the 2009 NHSC estimate of 178,400 dwellings is utilised in the analysis in this paper, even though this is over two years old. This is appropriate, given this estimate is based on actual data, is close to the NHSC forecasts for the present, and also close to more recent estimates by other organisations.

Others dispute the existence of a housing shortage and/or that constrained supply has caused high prices currently, either nationally or in specific cities. This analysis incorporates a range of factors including high debt levels (Sayce 2010), the recent increase in the number of dwellings on the market (Shann 2011), econometric analysis (Keen 2011) and the self interest of those claiming a shortage (Michael Matusik, reported in Ryder 2011*)*. Perth, the capital city with amongst the weakest market conditions currently, was surmised not to be suffering from a shortage by the Real Estate Institute of Western Australia (Bourke 2011), contradicting the NHSC Report. Significantly, both proponents and opponents of the housing shortage note the key role of variability in average occupancy in reaching market equilibrium (ANZ 2010; Edwards 2011).

Underlying Demand Growth Methodology

The organisations which calculate that Australia has a housing shortage all seem to use comparable methodologies. However, the NHSC appears to be the first to have released enough details of the methodology behind its results as to allow public scrutiny.

The NHSC Report utilises what is referred to throughout this paper as an underlying demand growth methodology (UDGM). In an UDGM calculation, annual population growth is divided by the estimated average number of people per household to calculate underlying demand growth in terms of a number of households. The estimated growth in households is then compared to net growth in the dwelling stock (the number of newly built dwellings (completions) minus estimated demolitions) to determine whether society has produced an adequate supply of housing in that year.

As the two determinants of underlying demand growth, population growth and average occupancy are therefore significant factors in any UDGM. However, in the NHSC Report and the reports of other organisations, overwhelming emphasis is placed on the estimated growth in the number of households. Minimal justification is provided for how this is actually calculated, with data for population growth or the average number of people per household absent from the main body of the NHSC Report.

The current shortage estimate in the NHSC Report is calculated with actual historical data, then spliced with estimations of the future shortage out to June 2029, based on projections of future population growth and dwelling supply. Projections of the future number of households (underlying demand) are based on the net transition probability approach developed by MacDonald, Kippen & Temple (2006), and adapted specifically for the NHSC Report. Based on historic inter-census trends, this approach estimates the annual probability that people will transition through various household types at typical stages of their lifetime. The projected number of households is then compared to separately projected net growth in dwellings.

The net transition probability methodology appears to suffer from the same key deficiencies as UDGM (outlined below), in that as a demographic projection it ignores the central role of price in determining housing demand. Related to this, the net transition probability methodology also appears unable to recognise that a greater number of people can be accommodated in the same number of existing dwellings.

As the focus of industry participants and policy makers remains on current housing market conditions, and with the solutions to any shortage likely to be identical whether implemented now or in the future, the remainder of this paper deals with the NHSC estimation of the current adequacy of the housing stock, rather than future projections. This is appropriate given that similar methodological issues are faced when estimating a current or future housing shortage, and the speculative nature of all long run projections. Underlying demand projections are particularly sensitive to assumptions regarding future migration, while the NHSC stresses that even “land supply projections beyond two years are highly speculative” (NHSC 2010 pg xiii).

The NHSC Report does acknowledge some of the limitations and challenges of its approach in numerous places, with a summary of some of the same issues identified in this paper provided on the final page of Appendix 3. This including noting that “there is no standard methodology for measuring the gap between supply and demand” (NHSC 2010 pg 218). While acknowledging this, the NHSC still uses an UDGM in order to calculate the shortage. National media reporting and industry analysis invariably focus on the headline results (a current and likely worsening shortage), without placing the methodology under any scrutiny, or questioning what a shortage actually means on a deeper contextual level.

The UDGM for measuring the adequacy of the housing stock carries two key deficiencies.

Underlying Demand Growth Methodology Deficiency – Prices and Occupancy Rates

Higher prices reduce real demand for housing. UDGM ignores the role of price in determining market outcomes, as underlying demand is not real demand. Underlying demand is a demographic calculation based on population growth and assumed rates of household formation, whereas real demand (effective demand) is a consumer’s inverse relationship between price and quantity. Real demand for housing is significantly influenced by various non-demographic factors including interest rates, ability to access debt, macroeconomic conditions and sentiment. The NHSC Report in numerous places acknowledges the difference between real (effective) demand and underlying demand, and that its projections “do not attempt to allow for non-demographic factors that contribute to effective demand” (NHSC 2010 pg 218).

Higher house prices cause people to delay new household formation, leading to an increase in the average number of people per dwelling, whilst still allowing these people to more than adequately satisfy their need

for shelter. All other things being equal, higher house prices reduce society's real demand for housing, and supply to rise (due to higher potential profits) until market equilibrium is reached.

As average occupancy is responsive to price changes, this paper suggests that this variable should be treated as an output of housing market modelling. UDGM instead uses an estimated average number of people per household as an input. This UDGM deficiency could therefore be partially overcome by carrying out sensitivity analysis on the impact of variability in average occupancy on the calculated shortage.

Despite the inability of UDGM to recognise the market clearing role of higher prices in avoiding a housing shortage, the calculated shortage is then often cited by the NHSC and others as the primary cause of higher prices: "One of the consequences of a gap between demand and supply is that prices rise" (NHSC 2010 pg 105). This is an incorrect application of market theory, in it ignores the role of price rises in avoiding a gap between demand and supply in the first place. Price and quantity, supply and demand, constantly respond to each other in the market, with bi-directional causality.

A separate chapter of the NHSC Report focuses on housing affordability, with numerous indicators measuring the number of mortgage holders and private renters that suffer from housing stress, and the shortage of affordable and available private rental dwellings for lower income earners. However, there is no quantitative analysis presented which links the NHSC Report conclusions in separate chapters regarding the shortage and affordability, in order to support the assertion in the previous paragraph.

Far from supporting the assertion that insufficient new dwelling construction is responsible for higher prices, recent historical data suggests that, if anything, the direction of causality runs more in the other direction. That is, higher prices may have contributed to the shortage. Fig. 4 shows Australian median house prices grew significantly in the first half of the previous decade, whereas population growth (and the shortage calculated in the NHSC Report) only increased later throughout the second half of the decade. During the peak in population growth throughout 2008 and 2009, when the analysis of shortage proponents suggests that upwards pressure on prices should have been greatest, prices actually fell due to the flow on impacts of global financial instability. This indicates a dominance of economic over demographic factors in determining market outcomes in these periods.

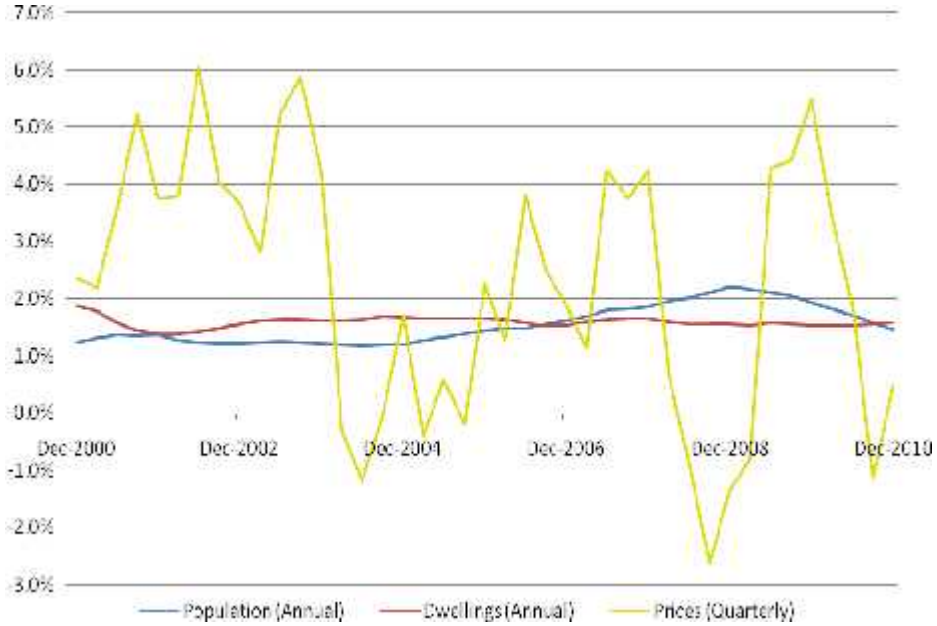

Figure 4 – Growth in Australian Housing Market Variables (ABS 2011a; ABS 2011b; ABS 2011c; ABS various)

The periods of higher population growth and high house price growth over 2006-2007 and 2009-2010 provides some support to the position that a shortage contributed to higher prices. These periods are in contrast to the real house price growth experienced in the decades prior to the time period shown in Fig. 4, which occurred despite dwelling supply growth exceeding population growth.

Underlying Demand Growth Methodology Deficiency – Marginal Analysis Ignores Overall Market

As UDGM only compares population growth against net new dwelling completions, the spare capacity of the existing housing stock to accommodate more people is disregarded, as is the flexibility in living habits of the

overall population. Marginal supply does not meet marginal demand, total supply meets total demand. While the estimated shortage of 178,400 is significant when compared to annual dwelling completions (which have averaged 150,000 over the past decade), the shortage represents only around 2% of the total housing stock. This means that the effective capacity utilisation of the existing total stock must only rise by around an approximately equivalent 2% in order to overcome the estimated shortage.

With population and the dwelling stock typically growing between 1 – 2% annually, an UDGM calculation for a single year disregards the remaining 98 – 99% of the nation's people and houses in determining the adequacy of the national housing stock. UDGM shortage estimates such as in the NHSC Report are usually strung across multiple years of historic data (and extrapolated forward with projections), achieving marginal improvements to the coverage of the estimate as a portion of the overall market. The NHSC Report assumes a net housing balance in 2001, meaning there is neither a shortage nor surplus. This is a convenient and necessary assumption, as no matter what point in time an UDGM projection begins from, the adequacy and spare capacity of the total pre-existing stock can not be measured. Recent UDGM shortage estimates by ANZ commencing in the mid 1980's (NHSC 2010) suffer from the same deficiency.

The NHSC Report estimated there were 8.53 million households nationally at June 2009, with 9.01 million dwellings. While this seems to suggest a surplus of around 500,000 dwellings rather than a shortage, the divergence is explained by the significant number of vacant dwellings (830,000 dwellings, representing 9.9% of the total private dwelling stock, were counted as vacant in the 2006 Census). Vacant or unoccupied dwellings are attributable to secondary or holiday homes, or dwellings which are between occupants, recently completed, being renovated, abandoned or awaiting demolition. The majority of vacant dwellings are likely to be unable to assist those suffering from housing stress, due to private ownership, being located in different or remote areas, and/or having poor access to employment opportunities.

The natural increase component of population growth (births minus deaths) is not a source of additional demand for dwellings, as newborns will reside with parents, while deaths occasionally make additional supply available. Net migration is the other component of population growth, and this does constitute a source of underlying demand for housing.

The other source of underlying demand is young people leaving the family home and forming new households, which is not directly incorporated into UDGM estimates. It is most likely that recent higher prices have compelled more adult children to remain living longer with their parents. However, the increasing tendency for young adults to live for longer in the family home is a trend which pre-dates the estimated emergence of the shortage. From 1989 to 2006 the portion of 21-24 year olds living at home increased from 39.4% to 46.8%, while the portion of 25-29 year olds living at home increased from 11.8% to 17.9% (HIA 2008).

A further illustration of the relative insignificance of the estimated shortage is found by comparing this to the upwards adjustment made by the ABS to the 2006 Census dwelling count for assumed undercounting. The estimated shortage of 178,400 is roughly equal to the undercounting adjustment of 180,400 dwellings, which is also applied to NHSC Report calculations. The housing shortage is within a data collection margin of error.

Statistical Challenges

Various issues exist with regards to the availability, collection and accuracy of housing market data. Due consideration is required to overcome these statistical challenges to ensure meaningful analysis and results.

The census population count is significantly less than the quarterly estimated residential population data series, which itself carries over a six month lag between the end of the quarter and the release of the data. The census only provides a count of the dwelling stock once every five years, which necessitates combining census dwelling stock data with completions data in order to produce a quarterly dwelling stock data time series.

Demolitions are the necessary complimentary input to completions in dwelling stock estimates (for the period since the latest census count of dwellings). However, no systematic demolitions data is collected nationally. The states and territories provided demolition rate estimates for the first NHSC report, with these (unspecified) demolition percentage rates varying from 1.5 in Queensland to 56.0 in the Northern Territory. The second NHSC Report therefore developed a formula for estimating demolitions, though this was only applied for some jurisdictions.

Dwelling vacancy rates have increased across multiple census counts, with a range of classifications for why a dwelling might be vacant. The NHSC Report concluded that 5.9% is the portion of the housing stock that should be maintained as vacant. Combined with estimated demolitions, the NHSC Report assumed that one in every seven dwelling completions since June 2001 has been unavailable to satisfy underlying demand growth.

Public dwellings include hotels, hostels, aged care facilities, boarding houses, hospitals and prisons. The overall capacity available in public dwellings in terms of a number of bedrooms or beds receives little focus and is therefore unclear. Public dwellings appear capable of relieving some pressure in the private dwelling market, particularly with the ageing society likely to increase the number of people in aged care. Public dwellings are not explicitly included in the estimation of the capacity of the current national dwelling stock in the NHSC Report, though the net transition probability methodology used to estimate future underlying demand does incorporate probabilities for the elderly to move to public dwellings.

ALTERNATIVE ANALYSIS OF AUSTRALIAN HOUSING SHORTAGE

Average occupancy

The surge in Australian population growth in recent years has been accommodated through a relatively minor adjustment in the long term historical trend for average occupancy, compared to what would have occurred in the absence of a shortage. The continuation of comparatively higher population growth and/or high prices would likely result in progressively larger adjustments, and potentially lead to clear turning points in the historical downwards trend in the average occupancy rate, and historical upwards trend in new dwelling size.

The NHSC Report estimated the national dwelling stock at 9.01 million dwellings at June 2009. With a national estimated residential population of 21.95 million, there was an average of 2.44 people per private dwelling. Provision of the extra 178,400 dwellings estimated necessary to overcome the shortage would have reduced the average occupancy rate to 2.39 people per private dwelling.

Fig. 5 shows the divergence in average occupancy between the actual historic trend (in blue) and the lower average occupancy rate (in red) which would have occurred if the shortage estimated in the NHSC Report had not eventuated.

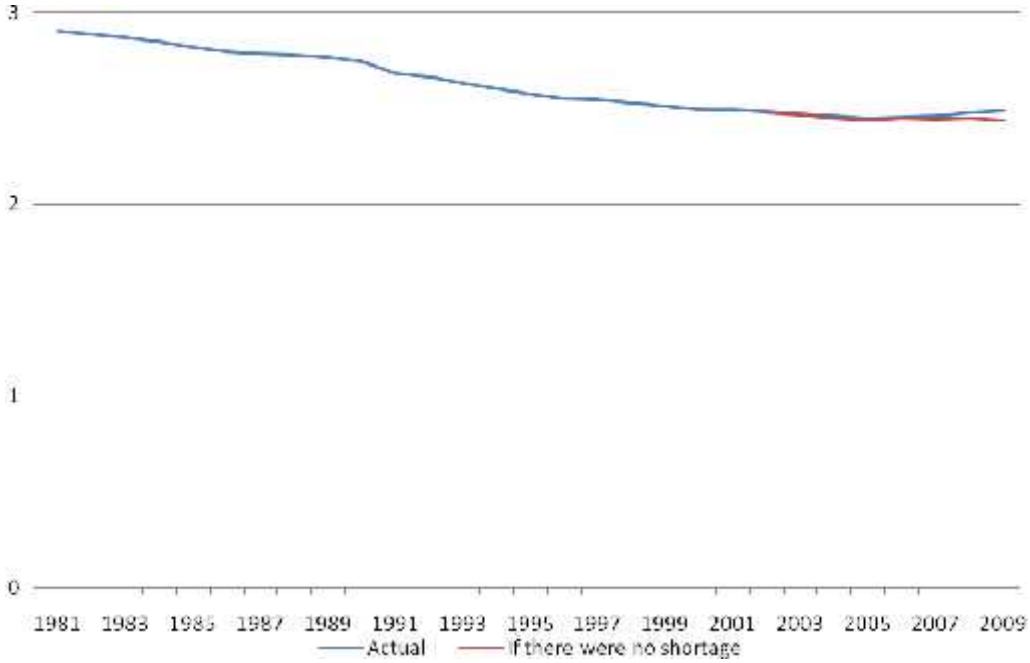

Figure 5 – Average number of people per private dwelling (ABS 2011a; ABS 2011b; ABS various; NHSC 2010)

The only data provided in the NHSC Report for average household size from 2001 to 2009 is in Table A10 of Appendix 3. This table is referenced to a 2004 ABS report containing forecasts based on the 2001 Census. It is unclear why near decade old forecasts were presented, or why these might have been utilised in the modelling when more recent, actual data was available. The explanation of the methodology used to estimate the average number of people per household was too brief for the justification to become evident.

The average occupancy rate used for 2001 to 2009 in the NHSC Report can be approximated from other data, and it shows a decreasing average number of people per household over this entire period, matching the trend in Table A10. However, this key quantitative input directly contradicts written analysis in the same report, which notes "recent increases in average household size (following decades of decline)" (NHSC 2010 pg 21).

ABS data based on the 2007-08 Survey of Income and Housing (SIH) shows the average number of people per household in Australia increased from 2.51 in 2005-06 to 2.56 in 2007-08 (ABS 2009). As shown above, an increase of 0.05 people to the average occupancy rate virtually eliminates the calculated shortage (though care must be taken because this compares a sampled movement in average people per household against a calculated difference in average people per private dwelling).

This data from the 2007-08 SIH was released in November 2009, before the release of the NHSC Report in April 2010. This allowed sufficient time for four of the NHSC Report's six overall key indicators, contained in the separate chapter regarding affordability, to be based on 2007-08 SIH unit record data.

Parallel to the flattening of the historic trend of decreasing household size has been an ongoing increase in the average number of bedrooms per dwelling. Fig. 6 combines occupancy and bedroom data to show the national average number of people per 100 bedrooms (in private dwellings). This is arguably the most appropriate measure of the capacity utilisation of Australia's housing stock over time. Comparable calculations were performed with 1921 Census data, though based on the total number of rooms per dwelling rather than bedrooms.

At June 2001 there were an estimated 83.1 people for every 100 bedrooms in private dwellings in Australia. By June 2009 there were an estimated 81.1 people for every 100 bedrooms. Despite a recent uptick, Fig. 6 shows that national housing capacity utilisation has actually fallen over the period since the emergence of the estimated shortage. This means that the increase in average bedrooms per dwelling has outweighed the increase in average occupancy over the past decade.

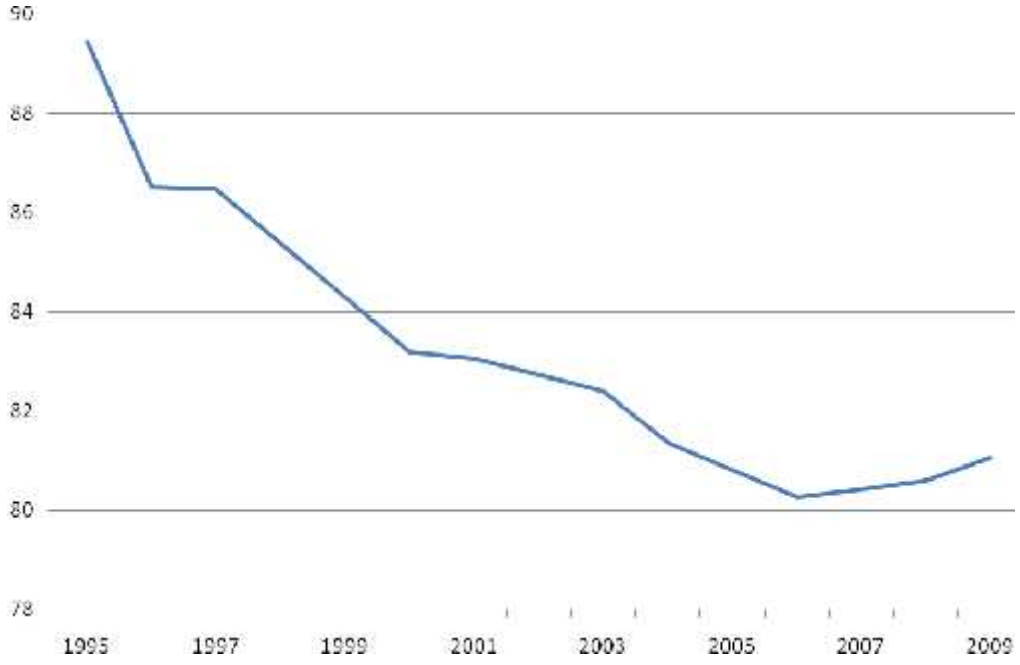

Figure 6 – Average persons per 100 bedrooms in private dwellings (ABS 2011a; ABS 2011b; ABS 2009; ABS various)

Relative Capacity

Additional measures demonstrate both the spare capacity in the national dwelling stock, and the significant capacity of Australia's dwelling stock compared to other nations.

Applying the Canadian National Occupancy Standard, 77% of Australian households in 2007-08 had one or more bedrooms in excess of the number required to meet the standard, whereas only 2.6% of Australian households required one or more extra bedrooms (ABS 2010b). This demonstrates a mismatch between

supply and demand, with the majority enjoying spare housing capacity while a small minority struggle with overcrowding.

Australia also enjoys a large dwelling stock capacity compared to other nations. The Organisation for Economic Cooperation and Development (OECD) Better Life Initiative measured the average number of rooms in a dwelling per person across 32 developed nations. Australia was ranked second highest with 2.4 average rooms per person, eclipsed only by Canada with 2.5 average rooms per person, and an OECD average of 1.6 rooms per person (OECD 2011).

Sub-Market Diversity and Qualitative Analysis

Whilst the quantitative analysis in this paper has focused on national aggregate data, significant variability exists across housing sub-markets. Prospective and recent home buyers are predominately younger adults who have been disadvantaged by recent higher prices, compared to previous generations. People at lower socioeconomic levels are those predominately impacted by low affordability, whether owners or renters. One significant recent trend has been an under performance of completions in Sydney compared to its share of the national population and population growth.

Weakness and price falls appear most concentrated in areas with comparatively larger holiday home markets, including the Gold Coast and the Margaret River region of south west Western Australia. Larger, high-end dwellings in these areas may be difficult to rent or sell to local residents with more modest expectations, and thus an inability to secure an income stream damages values.

In contrast, market strength in the remote mining centres of the Pilbara region in Western Australia appears attributable to an actual housing shortage. The March 2011 quarter weekly Pilbara median house rent of $1650 was many times the national capital cities median house rent of $380 (RP Data 2011). Owners are able to charge such high rents only because of high local incomes and an absence of alternatives. Port Hedland prohibits the use of sea containers as dwellings (Town of Port Hedland 2011), while there are highly paid workers in Karratha living in tents (Barrass 2011). This context illustrates the tendency of people to attempt to make the best from their available circumstances.

The majority of Australians live in the small number of our largest capital cities. This is also where most of our future population growth is projected to occur. Higher real house prices are more justifiable in larger cities, as dwelling occupants hold access to a broader range of services, employment and cultural opportunities. Stable, rising underlying demand supports market conditions in Australian cities, and also leads to an ever widening range of housing outcomes and living arrangements. Despite recent media attention on the house-sharing of tertiary students (Sheehan 2011) and young travellers (Cooper 2011), these are examples of demand for affordable metropolitan accommodation which pre-dates the emergence of the housing shortage.

The dispersed nature of our cities, with car dependant and job poor outer suburbs, contributes to stronger demand and prices in the inner and medium ring areas. The continuation of both low density peripheral development and infill densification are restricted by diverse cost pressures and planning regulation that seeks to ensure a high quality standard of living for residents of all existing and new dwellings. This represents a trade-off as higher quality leads to lower supply.

Housing shortage proponents often call for improvements in planning and approvals systems, the release of additional land for development and greater public infrastructure investment, in order to reduce private costs and stimulate greater new supply. These calls must be judged by governments together with all other additional legitimate claims on society's scarce public resources.

CONCLUSION

This paper presents an interpretation of current housing trends which is arguably a more accurate and therefore useful analysis of the housing market than shortage proponents.

Faced with accommodating the bulk of further population growth and legitimate development constraints, Australia's major cities may be on the cusp of turning points in the historic trends of decreasing household size and increasing dwelling size. Higher capacity utilisation and smaller dwelling sizes appear to be likely characteristics of many cities as they grow, and therefore the emergence of these trends in Australia does not represent a failure of public policy. However, there appears to be a greater need for understanding in policy formation of the potential for these turning points to occur.

ACKNOWLEDGEMENTS

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