

Population growth and housing affordability in the modern city - Sydney a case study.

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Abstract

Urban populations are forecast to increase in coming decades. Population growth is a major underlying factor for the demand of housing and without a new supply of dwellings, it pushes up the prices for both renting and purchasing dwellings. The resultant fall in affordability is a problem that is further compounded in many large cities by the change in living preferences that has resulted in a fall in household occupancy rates, particularly in the western world.

Affordability is further eroded in many of the urban cities from the supply side of the equation, as new supply is needed to house the growth of population, which results in urban sprawl, which in turn is putting pressure to upgrade and extend existing infrastructure or provide new infrastructure. As the new supply is often in outlying areas of the city, the requirement for new infrastructure is more the norm and together with new environmental compliance costs and elevated quality expectations, it impacts on the cost of new supply.

In order to analyse the likely trends in housing affordability, Sydney is explored as a case study. It is expected to grow significantly and housing this growth is putting pressure on both urban redevelopment and fringe settlement. Both of these bring specific challenges that shed light on the question of long term trends in affordability. This paper will analyse several policy directions that could be considered in order to address these adverse trends in housing affordability.

Introduction

World population has risen to over 6.3 billion people and by 2030 over 60 percent of the world's population is expected to be living in cities. There are now over 400 cities with a population of over a million people¹.

As population growth is an underlying factor for the demand of housing, without new supply of dwellings, it pushes up the prices for both renting and purchasing dwellings. The problem is further compounded in many of the large cities with a change in living preferences that has resulted in a fall in household rates, particularly in the western world.

Hence, population movement to the city and fewer people per household means the supply of more housing is needed. This can only be brought about through urban consolidation and/or greenfield development, that is, the sub-division of outlying broad hectares. One major effect of this is the cost of infrastructure required, as either new infrastructure has to be put in place or upgrading and extending the existing infrastructure. Either way, in Australia, there has been a rapid increase in the cost of infrastructure. In fact, due to the increases in infrastructure costs that are required to service new sub-divisions over the past two decades, the cost of supplying new land for residential development in Sydney has risen at a far greater rate than the cost of construction of new dwellings.

Using Sydney as a case study, this paper will show how population growth is producing a housing affordability problem in a major city and will discuss options that could be considered by policy makers. The paper will concentrate on purchase affordability only and will not be addressing rental affordability.

Literature Review

The rising population in the cities has been identified as a contributing factor in rising housing costs, to the extent that housing affordability has been declining in Australia. Sydney's population continues to grow and the NSW Government's Metropolitan Strategy (2005), hereafter referred to as the "Metro Strategy", expects on average, Sydney to grow by about 40,000 people per year, or 780 people per week. About two thirds will be from natural increase and the remainder of the growth is expected to come from interstate and overseas migration.

Beginning with the National Housing Strategy definition of affordability to convey a notion of reasonable costs in relation to income, Gabriel et al (p8, 2005) define housing affordability as a "term usually denoting the maximum amount of income which households should be expected to pay for their housing". Similarly, PCA (2007) and Whitehead (1991) point out that housing affordability is expressed by the relationship between housing expenditure (rent or mortgage) and household income.

¹http://www.prb.org/Content/NavigationMenu/PRB/Educators/Human_Population/Urbanization2/Pattens_of_World_Urbanization1.htm

In way or another, housing affordability is measured and expressed as a ratio between expenditure on housing and income.

As a general rule property analysts (PCA, HIA, UDIA) use 30 percent as the benchmark for housing affordability. Yates and Gabriel (2006) defined as having 'housing stress', those in the nation's lowest two income quintiles (40 percent) that need more than 30 percent of their disposable income for housing and refer to it as the '30/40 rule'. Using this definition, in a study for the Australian Housing and Urban Research Institute (AHURI), they have identified that there are 862,000 households in Australia experiencing housing stress.

A survey of 159 major markets in Australia, Canada, Ireland, New Zealand, the United Kingdom in 2006 by Cox and Pavlevich (2007) showed that Australia has the most "pervasive housing affordability crisis". The measure used "to rate housing affordability was the "Median House Price to Median Household Income Multiple," and thereby deriving the "Median Multiple" ratio. The survey also identified that "the housing cost escalation is principally the result of supply factors".

Day (2006) points out, that in Australia, it is not the house itself that has risen in price, rather it is the land the house sits on, which over the previous ten years (1995-2005) has nearly trebled across Australia and by comparison the cost of building a new house on that land has hardly moved. "Where land once represented 25 percent of the cost of a new house and land package, it is now 60 percent".

UDIA's (2007) submission to the NSW Department of Planning regarding the City Centre Plans in four city centres (Penrith, Liverpool, Parramatta and Gosford) concluded that it is not feasible to undertake new medium and high rise dwelling development in these areas as the cost of supplying the new dwelling is less than the expected price realisation. UDIA contends that "regulatory and market conditions are presently unsympathetic to apartment construction" and contend that there need to be a reduction taxes and charges, in particular, developer contributions (Sect 94 levies). In a previous report, UDIA (2002) calculated that for every \$10,000 increase in the cost of developing land, 240,000 Australian households are no longer able to afford a basic house and land package.

As noted from above, there are varying views as to cause of affordability as the REIA (2007) points out, "the affordability problem has been caused by a broad range of complex factors including policy inaction by various levels of government". In a case study of residential developments, Karantonis (2007) found that the government receives 60 percent of total income, whilst the developer with the risk, receives 40 percent. In a study for the Property Council of Australia, UrbisJHD (2006) found that government levies and compliances now make up for 35 percent of the total cost of homes in Sydney's northwest and 28 percent of the cost of new units. HIA (2003) also noted that state and local government approaches to the supply and funding of infrastructure associated with residential development have impacted negatively on housing affordability.

Internationally, in a review of housing supply in the UK (UK Treasury, 2004), known as the Barker Report, identified that the long-term upward trend in real house prices has been 2.4 per cent per annum over the last 30 years compared to the EU average of 1.1 percent. To bring the UK real price trend in line with the EU, an extra 120,000 houses each year would be required. In their submission to the review, the Home Builders Federation (HBF) stressed that land supply is the key to sustainable housing (Anonymous, 2007).

Finally, UDIA (2003) noted that providing affordable housing is determined by three interacting factors; namely, demand side factors, supply side factors and government. The latter included its intervention in planning regulatory mechanism, provision of infrastructure, which are predominantly on the supply side.

Affordability

Using a multiplier ratio (Median House Price to Median Household Income), Cox and Pavlevich (2007) identified that comparing Australia with five other countries, Australia has the most “pervasive housing affordability crisis” as shown in Table 1. From the Table² we can see Australia with a multiplier of 6.6, which is more than 50 percent greater than the average and in relative terms, 10 percent greater than New Zealand and more than double Canada’s affordability. The reason for Australia’s high ratio was attributed to the increasing house prices across Australia.

Table 1: Median Multiplier

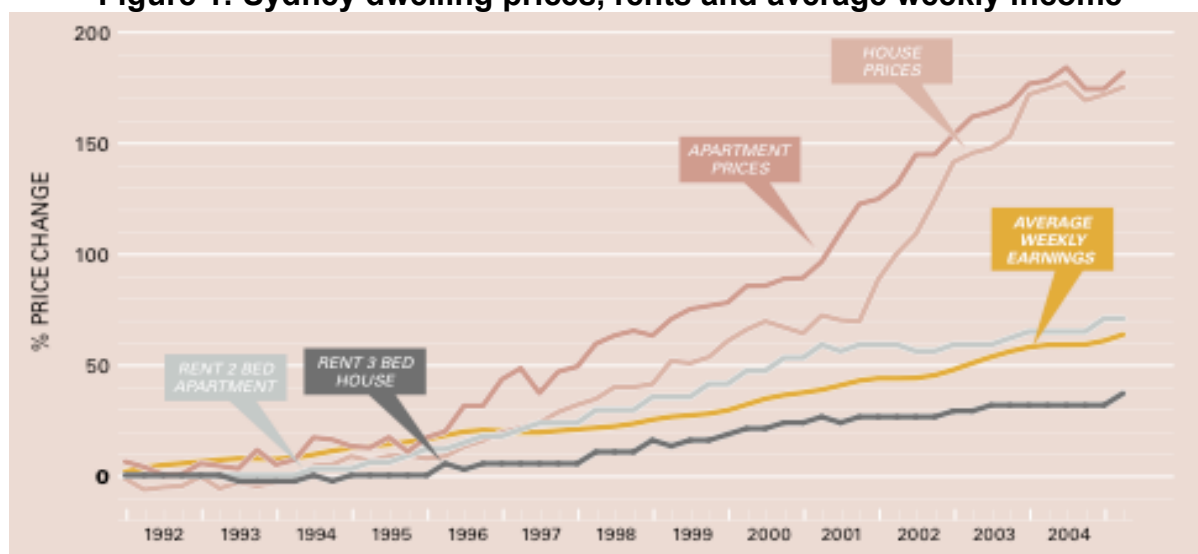
Country	Multiplier
Australia	6.6
New Zealand	6.0
Ireland	5.7
UK	5.5
USA	3.7
Canada	3.2
Average	4.1

Source Cox and Pavlevich (2007)

Examining Sydney, Figure 1 shows the dwelling prices, rents and average weekly income for the period 1992-2004. As can be noted, house and apartment prices are rising above average weekly earnings, especially since 1998.

² However the disaggregated survey shows the worst ranked Australian city, Sydney is ranked 7th worst, behind Los Angeles and six other USA cities. The reason for this could be that the Australian housing market is more closely correlated than the USA market.

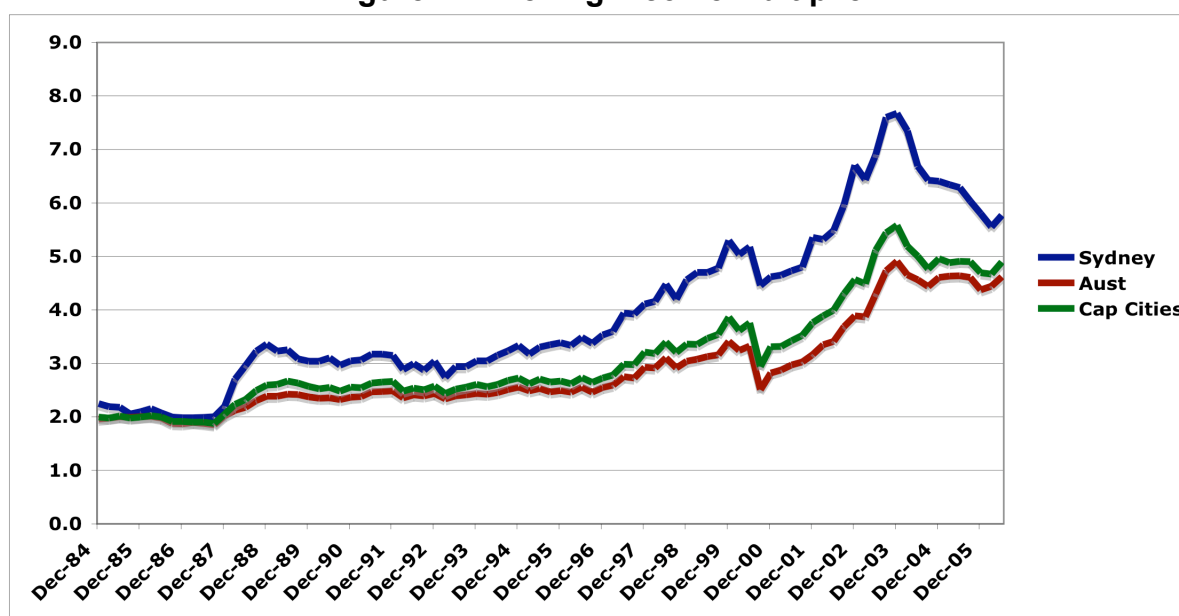
Figure 1: Sydney dwelling prices, rents and average weekly income



Source: Metro Strategy, 2005 (Figure C5)

Figure 2 shows the multiplier when applying the median house price to the household disposable income, for Australia, the Australian capital cities and for Sydney for the period December 1984 to March 2006. From the Figure we can note that Sydney has the highest multiplier, particularly from the early 1990s, where the gap between Sydney and the rest has significantly increased.

Figure 2: Dwelling/Income Multiplier

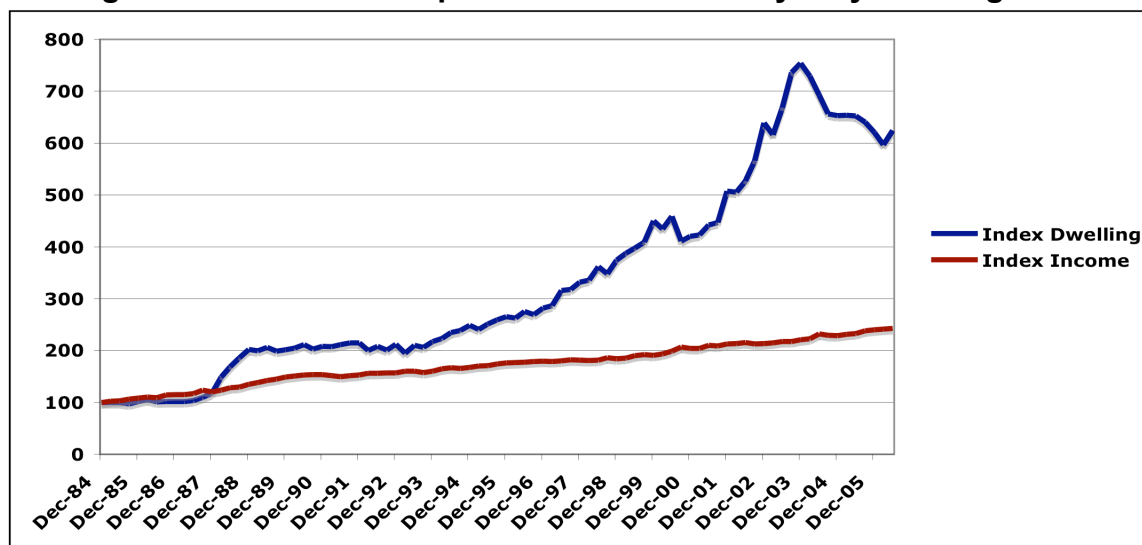


Source: Derived from HIA-Commonwealth Bank Affordability Report (various)

Using housing cost to income multiplier we see from Figure 3 that in the early 1980s the median house cost just over twice the household disposable income. In March 2006 the multiplier had risen to 5.77 for Sydney after reaching 7.67 in December 2003. That is, increasing by 345 percent (2003) and 259 percent (2006)

respectively. This means that income has not kept pace with dwelling prices. The dwelling index has risen to 624 whilst household disposable income index has risen to 243. In other words housing prices in Sydney have risen 2.5 faster than disposable income.

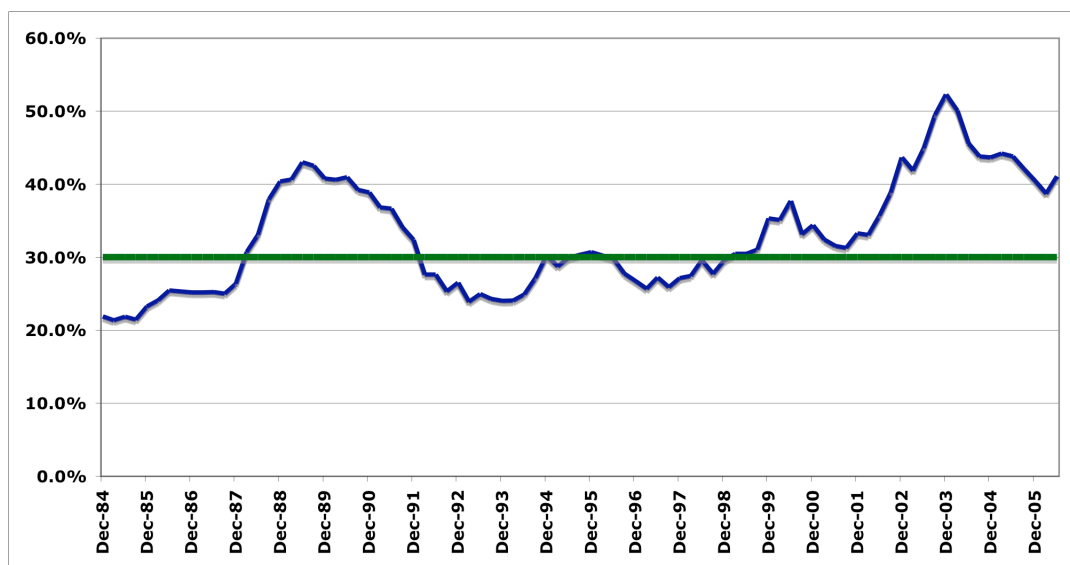
Figure 3: Household disposable income and Sydney dwelling indexes



Source: Derived from HIA-Commonwealth Bank Affordability Report (various)

Finally, as discussed in the literature, housing stress is often defined when more than 30 per cent of household income is required to meet the repayments for the loan. Figure 4 shows the percentage of disposable income required to meet housing payments for Sydney median price dwelling from December 1984 to June 2006.

Figure 4: Percentage of disposable household income



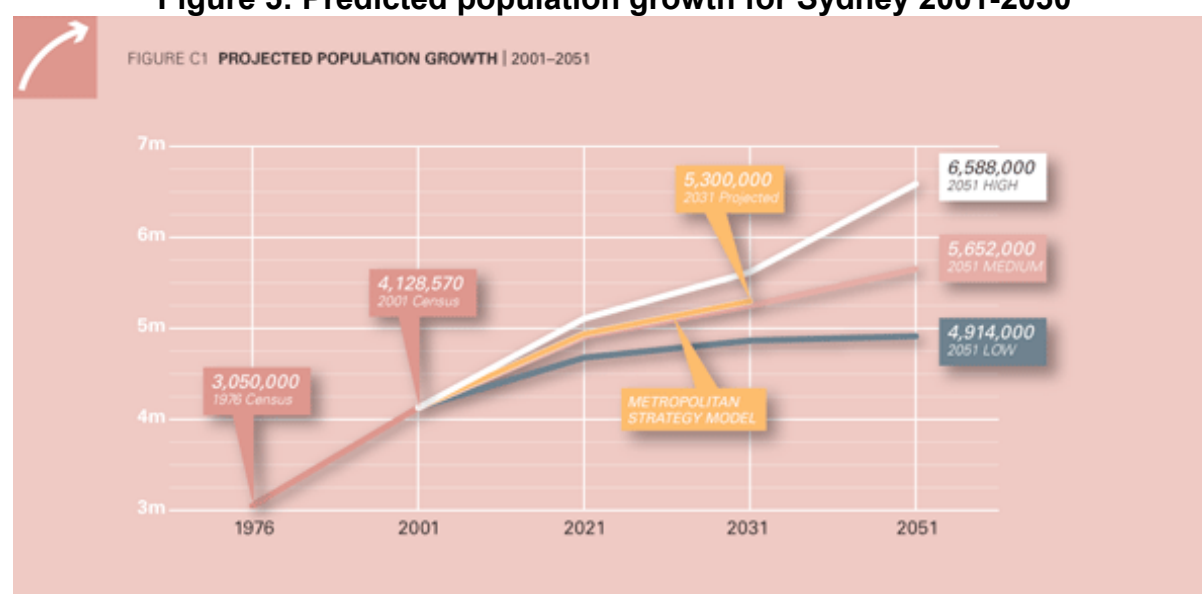
Source: Derived from HIA-Commonwealth Bank Affordability Report (various)

As can be noted, there are two periods when the ratio has been greater than 30 percent, the late 1980s and the period from December 1999, peaking at 52.3 percent in December 2003, but still at 41.1 percent at the end of the period (June 2006).

Sydney's population growth and changing demographics

The Metro Strategy (2005) expects Sydney's population to continue to grow. Figure 5 shows the historical and forecasted population growth for Sydney and adopting the Metro Strategy's moderate position, the population is expected to reach 5 million by 2021 and 5.3 million by 2031. This increase represents an additional 1.1 million people by 2031.

Figure 5: Predicted population growth for Sydney 2001-2050



Source: Metro Strategy, 2005 (Figure C1)

The Metro Strategy (2005) further anticipates that the average household size will fall from 2.65 to 2.36 people per dwelling, due partly to the ageing of the population, which tends to result in more single and two person households and more single and young people living alone.

These changes in household type and therefore occupancy rates mean that total demand for housing will be greater than population growth and a wider mix of housing types will be required. This will inevitably lead to a greater demand for smaller housing with good access to shops, transport and services such as health. Currently, 22 per cent of all households in Sydney are occupied by one person and by 2031, there are likely to be an additional 300,000 single person households in Sydney-representing 30 per cent of all households.

The Metro Strategy (2005) has calculated that with a population growing to 5.3 million and average household sizes anticipated to fall from 2.65 to 2.36 persons per private dwelling by 2031, a total of 2.2 million homes will be required in Sydney. Accounting for current stock it estimates that there will be a need for an additional

640,000 dwellings. It forecasts that two thirds of the new dwellings (420,000) will come from urban consolidation through more medium and multi density development and the balance (220,000) will come from green fields area.

Policy options

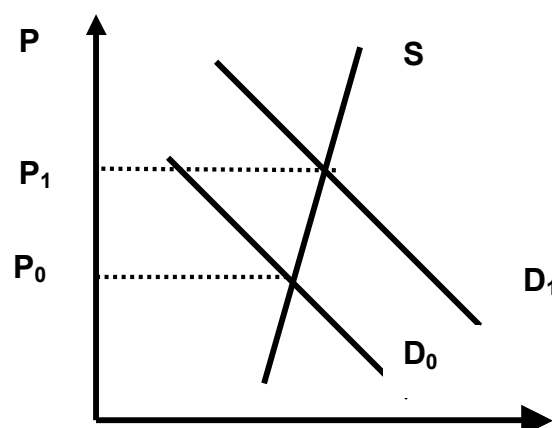
Like all markets, the property market is determined by demand and supply factors and one could argue in the typical classical economists way that in the long run the market will sort itself out. It is also important to note that in property markets, supply is relatively inelastic to demand and in particular as Warren (1994) and other property economist point out that “supply is primarily inelastic”.

However unlike other markets, property is both shelter and a wealth asset for the consumer and therefore there are social consequences for society when it become unaffordable. Accordingly the role of government is considerably pronounced in property markets affecting both the demand and supply side. Therefore in addressing the issue of affordability, we need to consider all three, demand, supply and government.

However, any option that alleviates affordability on the demand side without any accommodating increase in supply will result in making the current affordability position even worse. This is because, as discussed, the increase in demand is coming from population growth and to a lesser extent the falling household formation rates and therefore one could say that there will be a pent up demand if assistance is given on the demand side and therefore compound the current affordability problem.

In simple terms, it could be argued that any policy option that gives benefit to the buyer will only be passed onto the seller as can be demonstrated in Figures 6. Figure 6, show the typical demand and supply analysis with supply being relatively inelastic to demand, as is the case in property markets. As can be noted the consequences of easing affordability on the demand side (such as abolishing stamp duty on the purchase) will result in a movement in demand from D_0 to D_1 and price going from P_0 to P_1 .

Figure 6: The demand and supply of housing



From the foregoing discussion, it is obvious that supply needs to increase. Not surprising, the industry bodies (UDIA, 2007, AREI, 2007, PCA, 2007) have identified many options on the supply side, which can mainly be summarised by the following options:

1. an increase in the supply of affordable housing,
2. a decrease in government charges, and
3. an improvement in transport infrastructure and employment in regional areas.

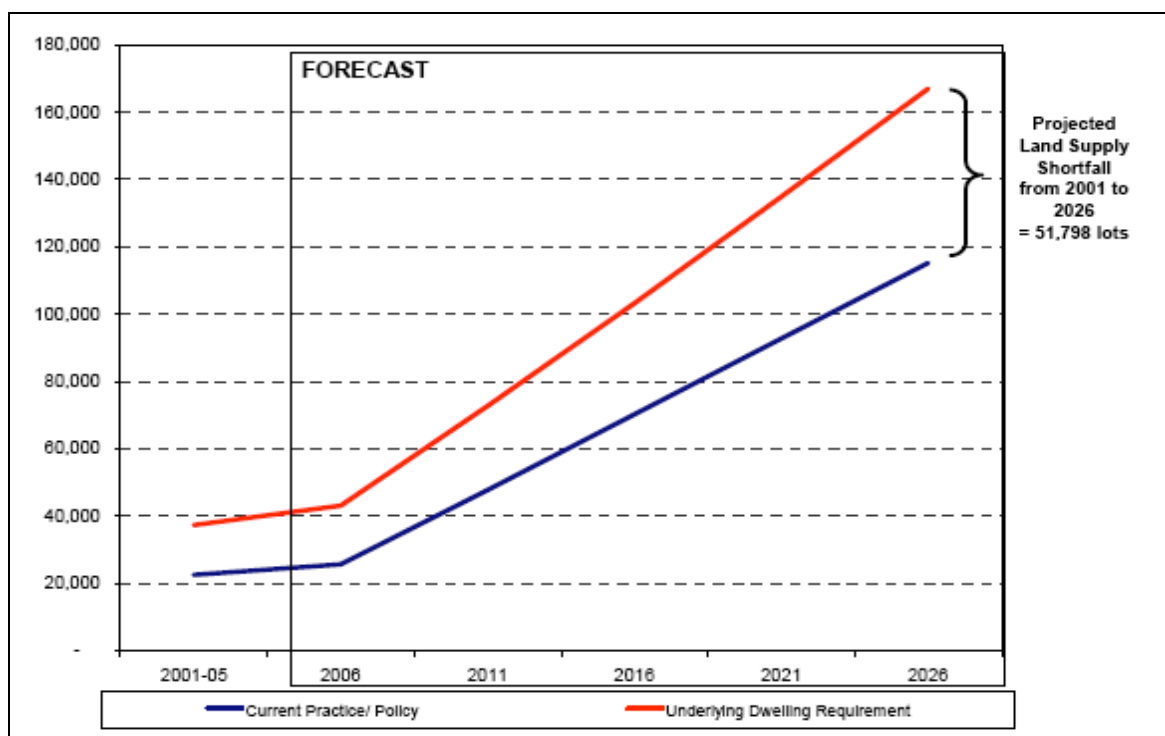
The above three have an interrelationship and indeed in all cases, governments (federal, state and local in varying ways) need to take a leading pro-active role, either directly or indirectly.

- **Increasing the supply of affordable housing**

In economic market theory, an increase in supply, *certirus paribus*, will have an effect of decreasing the price. However The PCA (2007) has also identified that there is a worsening demand supply imbalance in Sydney due to a number of factors, but most importantly the lack of long term supply as shown in Figure 7.

Figure 7 shows the underlying dwelling requirements and projected land supply to 2026. As can be seen, clearly, there is a need for governments to release more land for the purpose of development.

Figure 7: PCA Forecast of Land Supply

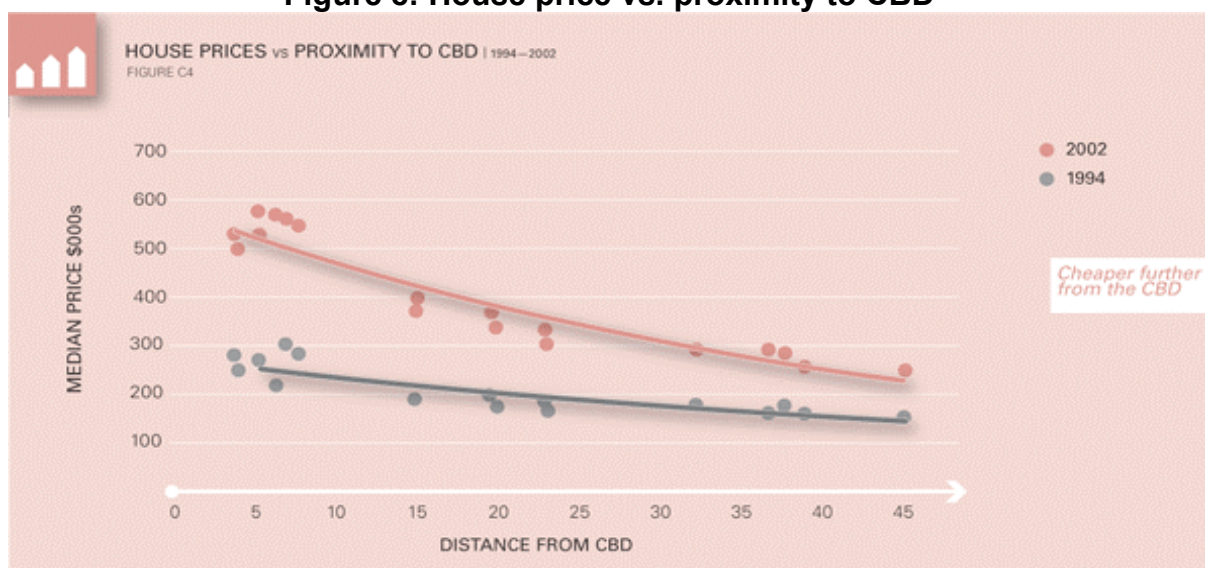


Source: PCA (2007)

Notwithstanding the shortage of land supply, a major problem that has been evolving for developers is the increasing cost of land or land and house supply is becoming so great that it is not feasible to undertake the development. This is because, on the one side costs are increasing and on the other, developers are faced with lower gross realisations as they move further from the CBD.

Figure 8 shows how values typically fall as property is further from the Sydney's CBD for 1994 and 2002. Thus, the one major stumbling block is the gross realisation of the developed dwelling may exceed the total cost of supply it, as invariably the total cost is so great that there is absolutely no benefit (even a loss) to a developer to undertake a development, be it a new greenfield release or a medium to high density development.

Figure 8: House price vs. proximity to CBD



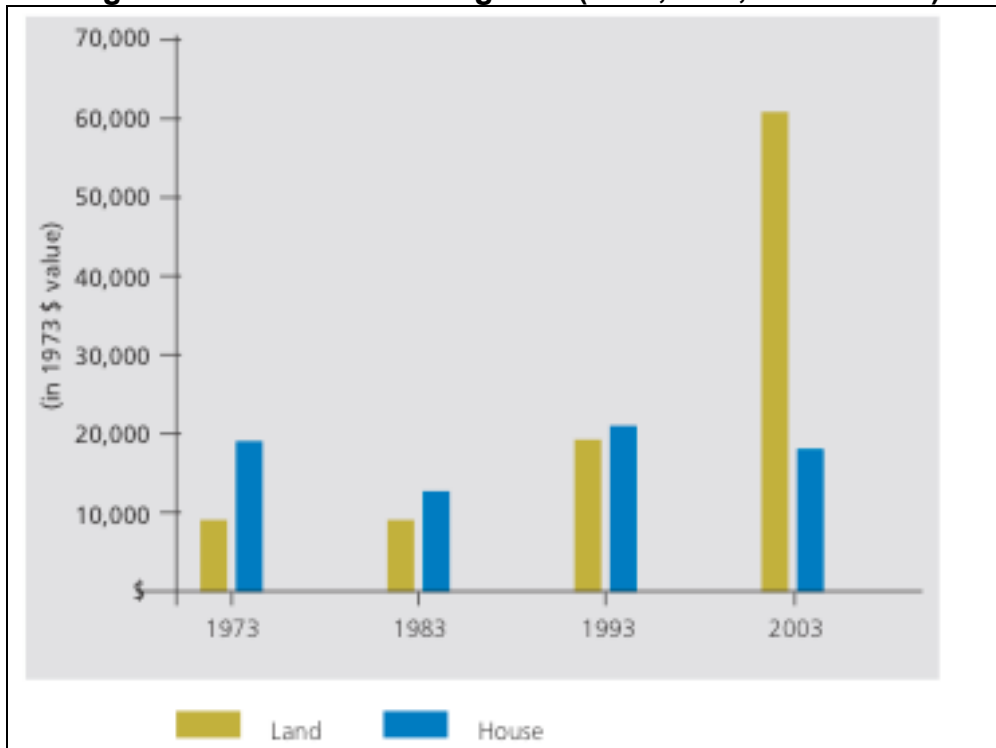
Source: Metro Strategy, (Figure C4, 2005)

In fact, as noted in the literature review, the UDIA (2007) submission to the NSW Department of Planning regarding the City Centre Plans in four city centres (Penrith, Liverpool, Parramatta and Gosford) the cost of supplying the new dwelling in these areas was less than the expected price realisation.

The problem for affordable supply is further compounded with the need for an upgrade of existing infrastructure in brownfield developments, whilst the greenfield development require new infrastructure. These costs are generally passed onto the developer though infrastructure levies and Section 94 contributions as discussed above.

Figure 9 shows land and housing cost supply for the years 1973, 1983, 1993 and 2003. It can be noted that land has not increasing relative to housing price for 1973, 1983 and 1993, but increasing markedly in 2003 to be around 80 percent of the cost of a new house and land package (UDIA 2007a).

Figure 9: Land and housing cost (1973,1983,1993 & 2003)



Source: UDIA 2007a, p31

This has become a self perpetuating problem, because whilst developers cannot get a *reasonable return* on development, they will not provide the new supply needed and thereby have existing dwelling prices driven higher. So the problem is not one of simply increasing availability of land through government land release for subdivision in the city fringe area.

- **Decrease in government charges**

In regards to property development, as pointed out in the literature review, the AREI (2007), Karantonis (2007), URBIS JHD (2006) and HIA (2003) all found that government charges are a major contributing factor for the cost of providing new supply. This is even more relevant for the cost of providing new supply of land for housing, as the increasing cost of charges, levies and taxes are imposed by the various levels of government. UrbisJHD (2006) found that infrastructure cost for Sydney to be \$68,223, an increase of 21.1 percent since 2000.

The UDIA (2003) identified that new and rising taxes and charges on a new dwelling in Sydney was about \$167,000:

- GST introduced in 2000, adding between an average of \$50,000
- Land tax and stamp, up by \$30,000
- Infrastructure charges, \$75,000, made up of:
 - \$50,000 Section 94 levies
 - \$15,000 transport levy,

- \$10,000 Water and sewerage headworks and charges
- Land dedicated for regional conservation, \$10,000
- Additional application and incidental fees, \$2,000.

Clearly, the government has an important role to play in lowering the cost of supply. But once again, any policy initiative must clearly lead to a reduction or at least stabilising the cost of providing new supply and not passing the benefits of policy onto the developer or land owner.

- **Improve the transport infrastructure**

As we have seen, the current cost of supplying the new development needs to decrease to make development feasible for the developer. On the other side of the equation, it can become feasible if the gross realisation increases. Whilst under the current climate, in addressing the affordability problem, the policy option needs to be more concentrated on supply side, there can be some justification for a policy option for increasing the price.

As identified by the Metro Strategy (2005), urban sprawl is necessary, but urban sprawl itself does not help ease the affordability problem, as there are issues that need to be addressed. People need employment and if employment is not nearby, then transport needs to be cheap and efficient.

Decentralisation policy such as subsidies to business encourages the population to grow in regional cities and other areas of the State. However as the Metro Strategy (2005) noted that, as Sydney is a global city any restrictions on its growth are more likely to result in businesses moving interstate or overseas than to regional areas. Currently, regional areas outside the Greater Metropolitan Region lack the employment base or infrastructure investment to sustain or attract large increases in population.

Another major factor is the cost and efficiency of transportation for the fringe regional areas, as commuters need to travel to work. The Metro Strategy (2005) noted that “the average household spent 31 percent more on petrol in 2003-4 compared to 1998-9 and traffic congestion in Sydney was estimated at \$5 billion in 1995 and is estimated to increase to \$8.8 billion by 2015”. In a USA study, Lipman (2005) has shown that for every \$1 saving on housing, a working family spends an extra 0.77 cents. That is by moving to the cheaper fringe area, 77 percent of the saving goes to transportation costs.

This is where governments have to be proactive. Government need to make transportation more cost and time efficient and the same time needs to encourage employment in these regional centres. Both these will have the effect of an increase in demand for these areas, making it more attractive for developers to undertake new supply.

Whilst the theory of location property price is such as illustrated in Figure 8, it can also be noted that the difference in the real medium price for a dwelling 45 kilometres from the CBD to one 5 kilometres from CBD was much lower in 1992 than 2002. Therefore, with some justification, the increase in demand would increase the price in these areas and make it more viable for developers to undertake development. Under this scenario, for the purchaser, whilst price has increased, there are now benefits of employment and more efficient transport service.

Solution to housing affordability

The above analysis has highlighted the problem of housing affordability in a modern city that is also experiencing a continued population growth. The main problem stems from the inadequate supply as identified by PCA (2007) and HIA (2003), that the future underlying demand for new dwellings in the Sydney region is far greater than the expected annual release of land by the government.

However, there is probably no 'one fix' to the problem and further in depth research needs to be undertaken. However, it can be acknowledge that the following are positive factors that need to be considered in addressing the affordability problem:

- Government release of land for development,
- Lower infrastructure levies,
- A more efficient transportation system
- A proactive move to encourage industry to be located in the fringe region.

Other options

There have been many other options presented by various researchers on the demand side, two that are worthy of further consideration and research. The first by AREI (2007) is to make use of the trillion dollar superannuation vehicle in Australia, whereby the government could include home ownership within self funded policies. The second by the PCA (2006), who proposed a government housing bond, which can be traded like other bonds. In the past, it was suggested to allow retirees to invest in such bonds and derive an income without jeopardising their pensions because of the means test. Although both of these options are on the demand side, they have merit and need further research for their development.

One final point, whilst this paper only analysed the affordability of purchasing housing, the end result of people not being able to buy is that they will demand rental accommodation and accordingly drive up rents as has been the case in recent times. REINSW (2007) latest media release said, that "for the 12th month in a row, the residential property vacancy rate in Sydney has remained at below 2 percent - the benchmark figure that indicates whether or not there is a rental crisis." The figure currently for Sydney is 1.5 percent. So whilst some commentators may say that people are better off renting, rental prices are also creating (rental) affordability stress.

Conclusion

This paper has discussed the growing affordability problem in Sydney, whereby households are spending more and more on housing as a ratio of their income. The paper also discussed Sydney's expected population growth, which will result in further increases in demand for housing. However, as shown, the problem is not one of helping those that are in affordability stress by introducing policies that will alleviate the current problem, as this would only drive demand and prices even higher in the long run.

The options need to address the supply side and in particular in the fringe areas where new releases could be at more affordable prices for the purchaser of house and land packages. However, what has been clearly identified is that the problem is not one of simply increasing availability of land through government land release for subdivision in the city fringe area. This is because the cost of new supply is being driven upwards, due mainly to increases of government charges and as UDIA's four city centres study found, that the cost were so great that it is not feasible for the developer to undertake development in those areas.

There is the risk that the affordability problem is becoming a self perpetuating problem, because whilst developers cannot get a *reasonable return* on development, they will not provide the new supply needed to keep pace with the expected growth in population and thereby have existing dwelling prices driven higher.

There is no 'one fix solution' to the problem and it needs a combination of policies to assist, after all, all the factors that lead to the problem are interrelated in one way or another. The several policy options that were analysed in this paper were common among the various industry bodies and all were dependant upon government action in one way or another. All three tiers of government need to be pro-active in addressing the problem.

Without, government action, the current problem may well in fact become a permanent one, whereby households will not be able to bridge the affordability gap.

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