

The underlying fundamentals of housing affordability: the Sydney dynamics.

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Keywords: Housing affordability, building cycle, housing approvals, housing price, housing markets.

Abstract

Once recognised as one of the highest home ownerships in the world, Australia has been experiencing a decline in housing affordability over the past decade or so. Whilst the reason for this is fundamentally increasing dwelling price in relation to household income, the underlying factors are varied. Much of the discussion has centred on the increase in dwelling price in Australia and in particular the capital cities with Sydney being the least affordable. But there have also been twelve consecutive increases in interest rates, which add to the repayment of loans. Furthermore, on the supply side, amidst all this, there has been a declining trend in new dwelling building supply.

This paper will identify the various underlying factors, including demographic, economic, government and building activity and show why there is no one solution to the problem.

Introduction

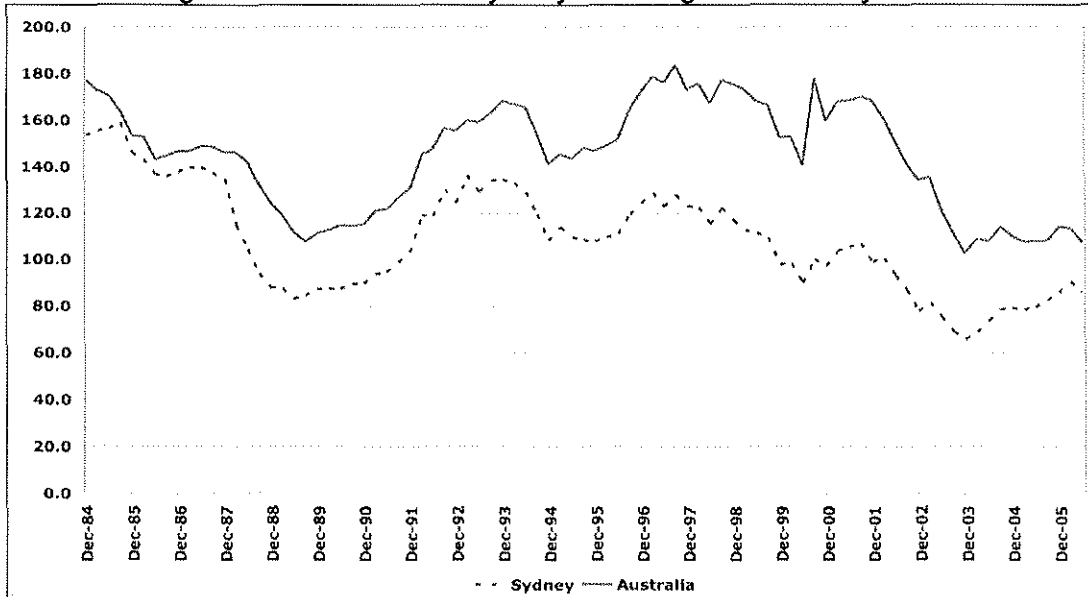
Housing affordability is "the maximum amount of income which households should be expected to pay for their housing" (Gabriel et al, 2005). That is, it measures the relationship between housing expenditure and household income (PCA, 2007 and Whitehead, 1991).

This measure takes the form of a ratio between expenditure on housing and income and as a general rule, 30 per cent is used as the benchmark for housing affordability (PCA, HIA, UDIA). The REIA Home Loan Affordability Indicator (2008) found that Australian households on average required 39.8 percent of income to meet loan repayments, reaching the highest level since recording the data over the past 22 years. Extending the definition further, using a '30/40 rule', which identified the nation's lowest 40 per cent income group that need more than 30 per cent of their disposable income, Yates and Gabriel (2006) identified that there are 862,000 households in Australia experiencing housing stress.

The Housing Industry of Australia (HIA, 2007) derive an Affordability Index which measures the ratio of net household income to net qualifying income for an 80 percent loan of the Sydney and Australian median dwelling prices. The higher the

ratio, the more affordable and *vis a vis*, the lower the ratio, the less affordable. Figure 1 shows the HIA affordability index from 1984 for Sydney and Australia and as can be noted both indexes have decreased, that is housing is now less affordable than in the 1980s and 1990s. What Figure 1 also shows is that Sydney has consistently been less affordable than the Australian average with the gap between the two widening from around 1994 onwards.

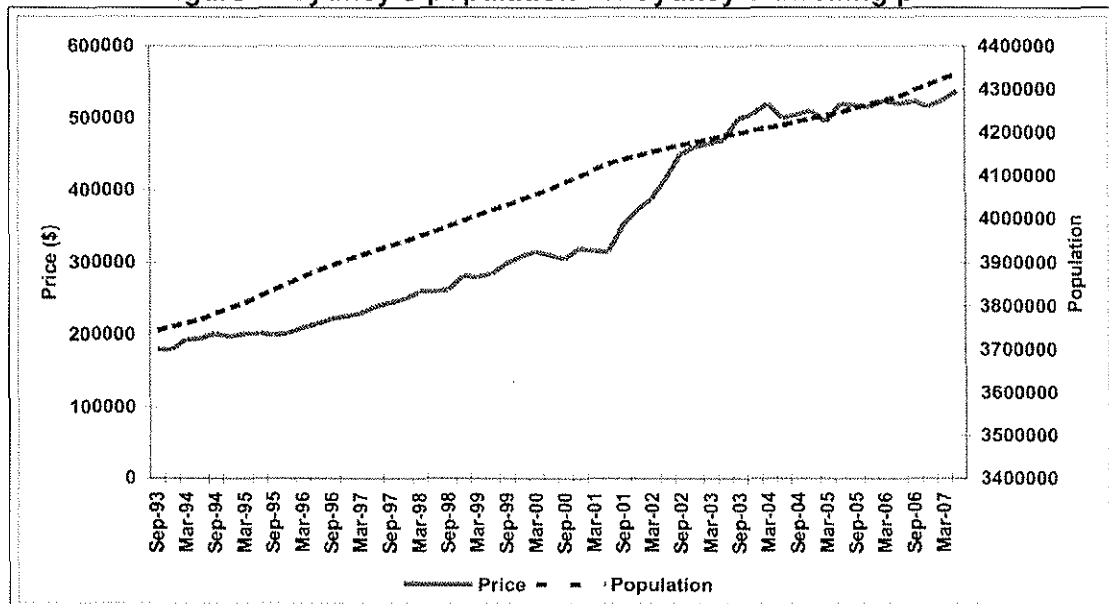
Figure 1: Australia and Sydney Housing Affordability Index



Source: HIA Various

The main reason for the affordability crisis has been the sustained increase in price and one underlying driver of demand for housing is population growth. Figure 2 shows Sydney's population and medium dwelling price from September 1993 to June 2007. As can be observed, both have moved in an upward trend over the period. BIS Shrapnel's (2008a) stated, "the growth of its (Sydney's) population has been creating 'unprecedented' demand for housing".

Figure 2: Sydney's population vs. Sydney's dwelling price

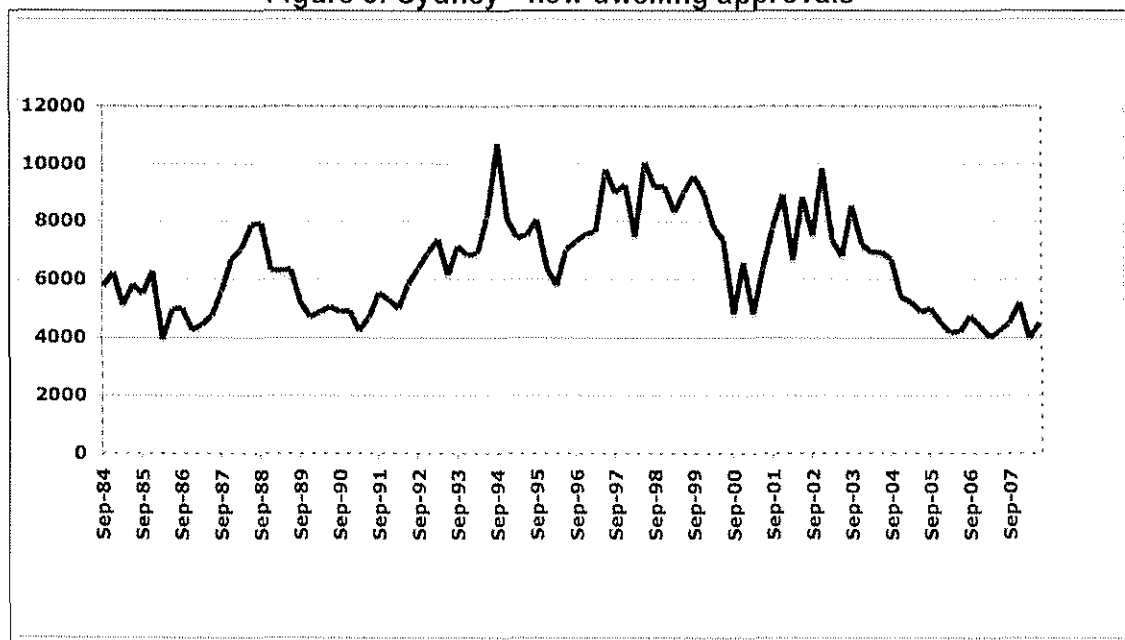


Source: HIA & ABS (2000)

On the supply side, there has not been an accommodating increase in new dwellings to keep pace with this rising demand and according to BIS Shrapnel (2008b), "new dwelling construction in Sydney *has fallen* to levels not seen since the 1950s".

Figure 3 shows the 'new dwelling approvals' for Sydney from September 1984 to June 2008 and from it we see fluctuating swings over the period. After falling from 1988 to 1991, there was a sustained upward trend from 1990 to peak in 1994. Since then there have been three significant periods of a downward trend, with the latest the most sustained dropping to its lowest level in for the entire period in March 2008, before having a slight increase for June 2008.

Figure 3: Sydney - new dwelling approvals



Source: ABS (2008a)

Considering the two figures above, on the one side, there has been an upward trend for both Sydney population and dwelling prices, whilst on the other side new dwellings have been in a downward cycle for the past ten years. In other words, new dwellings have not kept pace with the growth of population in Sydney.

Compounding the problem for the future is that Sydney's population is expected to continue to grow by 23.6 to 26.6 per cent over the next 20 years (ABS, 2008), with the NSW Government's Metropolitan Strategy (2005) predicting Sydney to grow by about 40,000 people per year. This means that there needs to be an upturn in the number of new dwelling, otherwise there will be an even shorter supply of accommodation.

Hargreaves (2007) pointed out that a major driver for development was increase in population, particularly migration. He added that a problem for developers is the time it takes to complete a project and that developers tend to "see the same demand signals ... and compete for first mover advantage". In his study in New Zealand, he showed how new approvals were still rising two years after immigration growth slowed. Eichholtz and Lindenthal (2007) showed that demographics influence the demand for housing and added that "a slowdown in population growth does not necessarily imply a decline in overall demand".

Barras (2005) determined that cyclical movements of building activity was determined by endogenous factors such as current and expected economic growth rate, real rental levels, vacancy rates and property yields. Most of these factors have been for a positive cycle, however on the negative side, there has been an increase in the cost of land and government charges. Day (2006) found that over the previous ten years (1995-2005) land has nearly trebled across Australia and "where land once represented 25 percent of the cost of a new house and land package, it is now 60 percent". Ellis (2006) concluded that financial and macroeconomic developments contributed to the increased demand for stock of housing and because the increase stock is slow to adjust, this causes an increase in relative price.

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 and as REIA (2007) stated "the affordability problem has been caused by a broad range of complex factors including policy inaction by various levels of government". Recent studies have shown that government has also contributed to the affordability problem with excessive takes and fees (Karantonis, 2007) and government levies and compliances (UrbisJHD 2006). 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. Finally, UDIA (2007) proposed a reduction in taxes and charges, in particular, developer contributions (Sect 94 levies), as "regulatory and market conditions are presently unsympathetic to apartment construction".

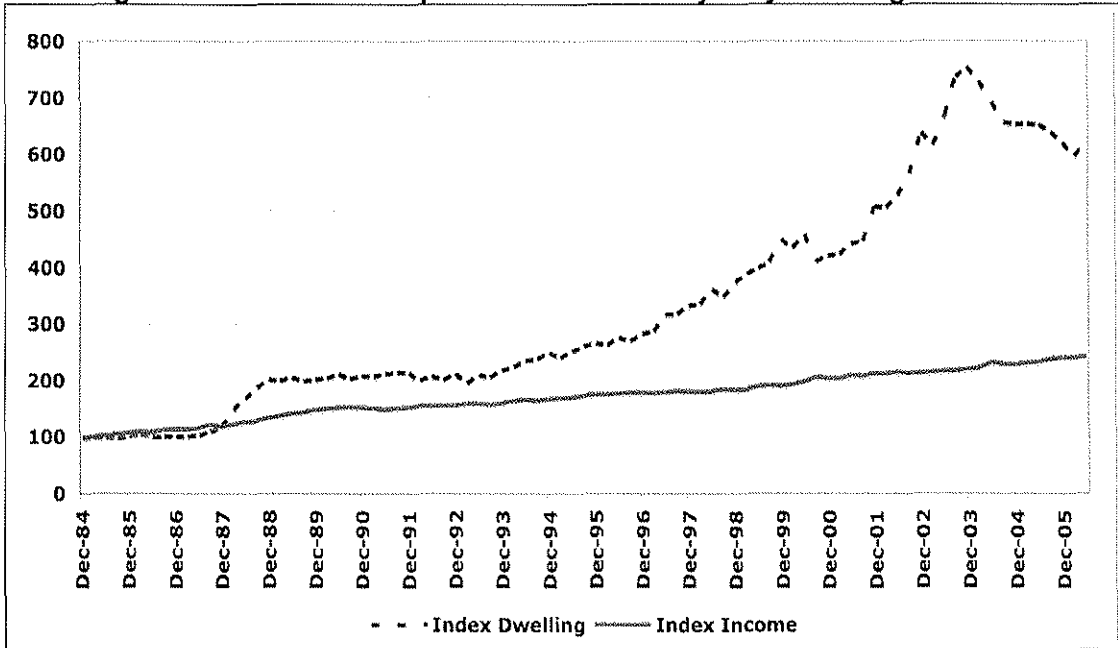
Methodology and Data

This paper uses empirical evidence for Sydney to ascertain the relevant ratios, indexes and multipliers to identify the affordability problem as discussed in the general literature. The data used came from various sources. The paper used the HIA affordability index time series for median dwelling price and disposable household income for Australia, Sydney and capital cities. Rental prices were ascertained from the NSW Department of Housing, whilst the vacancy rates were provided by the Real Estate Institute of NSW. The Australian Institute of Quantity Surveyors index was used for the cost of constructing a new dwelling. All other variables are from the Australian Bureau of Statistics (ABS). 'New dwelling approvals' for Sydney was used to identify building activity, as it was the only monthly or quarterly data available for building new dwellings.

The housing affordability problem

The emergence of housing affordability stress has been due to a sustained increase in price relative to household income. Figure 4 compares the Sydney prices index to Sydney household income index from December 1984 to June 2006 and as can be noted prices have risen more substantially in relation to income, particularly over the latter 10 years.

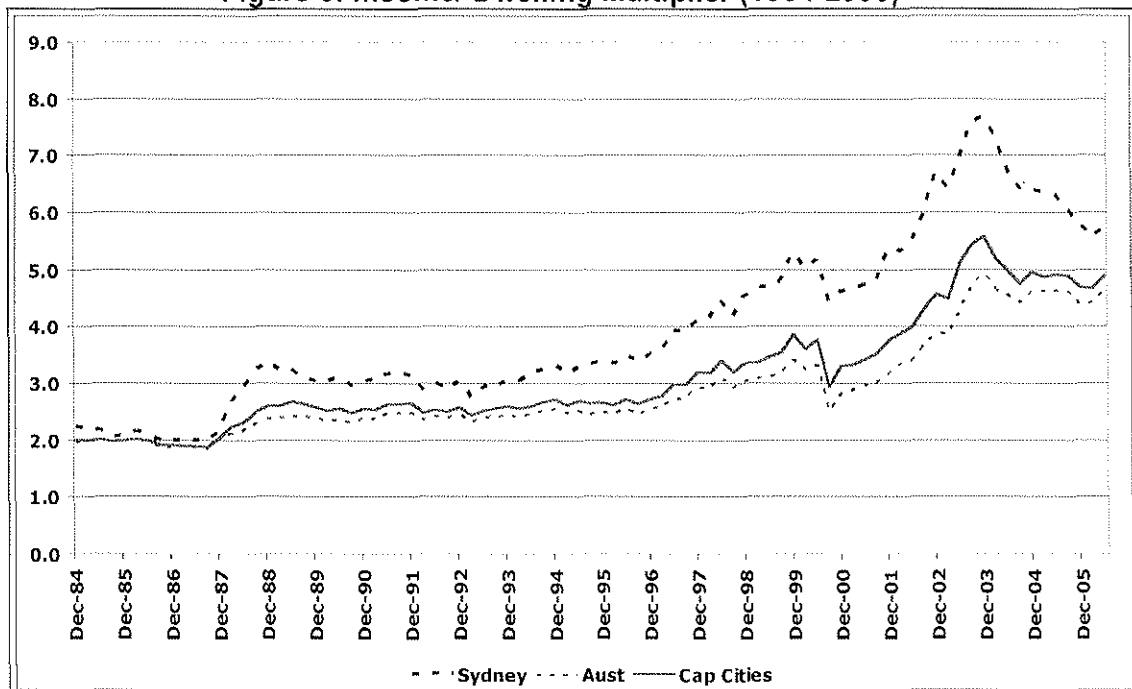
Figure 4: Household disposable income & Sydney dwelling indexes



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

Another way of measuring housing affordability is to derive an income multiplier that is to derive the number of year's income it takes to pay for a dwelling. Figure 5 shows the 'income/dwelling' multiplier for Australia, Australian Capital Cities and Sydney. We can note that Sydney has the highest multiplier, particularly from the early 1990s, where the gap between Sydney and both the capital cities and the overall Australian position has significantly increased. For Sydney, housing cost to income multiplier in the early 1980s cost just over twice the household income, but by March 2006 the multiplier had risen to 5.77 after reaching 7.67 in December 2003.

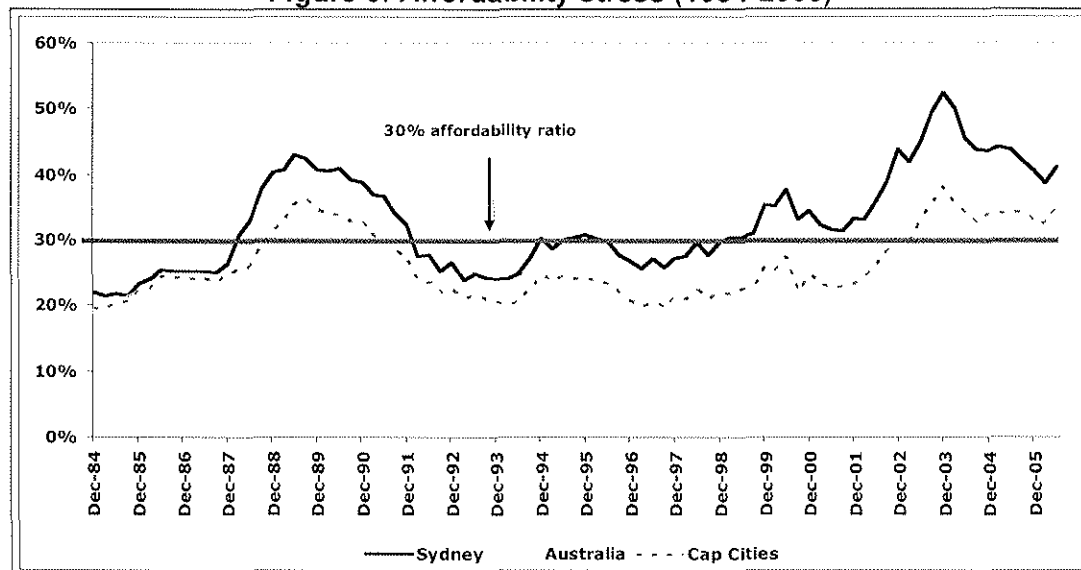
Figure 5: Income/ Dwelling Multiplier (1984-2006)



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

Now, as noted, housing stress is often defined when more than 30 per cent of household income is required to meet the repayments for the loan. Figure 6 shows the affordability ratio, that is the percentage of disposable income required to meet housing payments, based on an 80 percent loan at the variable interest rate for Australia and Capital Cities and Sydney's respective median price dwelling from December 1984 to June 2006.

Figure 6: Affordability stress (1984-2006)



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

From the Figure, it is evident that all markets moved in a similar cycle and that there are two periods when the ratio has been greater than 30 per cent, the late 1980s and the period from December 1999 onwards for Sydney and 2003 for the other two. It can also be seen that Sydney has always a higher level of affordability stress than the rest of Australia, peaking at 52.3 per cent in December 2003, but still at 41.1 per cent at the end of the period (June 2006).

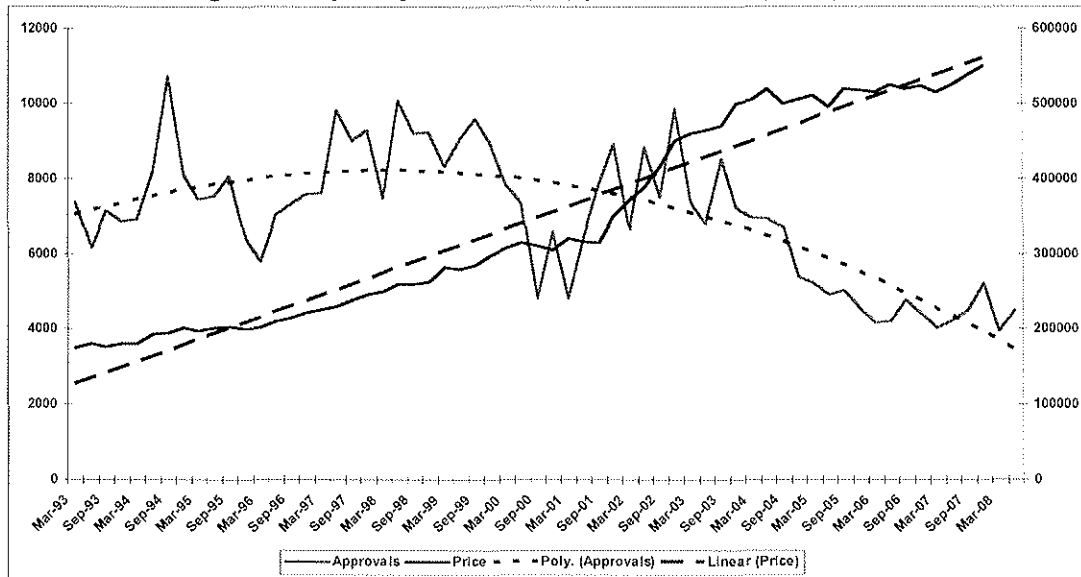
At the same time as the sustained growth in the decade to 2003-04, there has been a steady increase in population underlying the need for more dwellings. But the supply of new dwellings has not been increasing. Thus with supply of new dwellings not maintaining pace with the level of increase in demand, prices for both renters and buyers of dwellings increases, which in turn creates an affordability crisis.

New dwelling building activity

The phenomenon of cycles with peaks and troughs is a normal feature of a market economy and despite similar phases, each specific cycle varies in duration and intensity. Figure 7 compares the movement of Sydney dwelling prices and dwelling approvals from March 1993 to June 2006. The Figure also shows the 'trendline' for both and as can be noted, their respective trends are moving in the opposite direction, which implies if there is no change to the new dwelling activity, housing affordability can only be reduced from the demand side. That is, by a reduction in the price and/or the rate of interest and/or an increase in the household income.

This leads to the question, "since property prices have risen significantly and population growth is expected to continue to provide underlying demand for housing, why is new dwelling activity on a downward cycle?"

Figure 7: Sydney dwelling approvals vs. Sydney price



Source: ABS (2008a), REI (Various)

There are several reasons why this downward building activity has occurred, including:

- Decrease in affordability
- Rising debt levels
- Increase in construction and land costs
- Lack of availability of suitable of land
- Government – BASIX, high taxes and charges

• **Decrease in affordability**

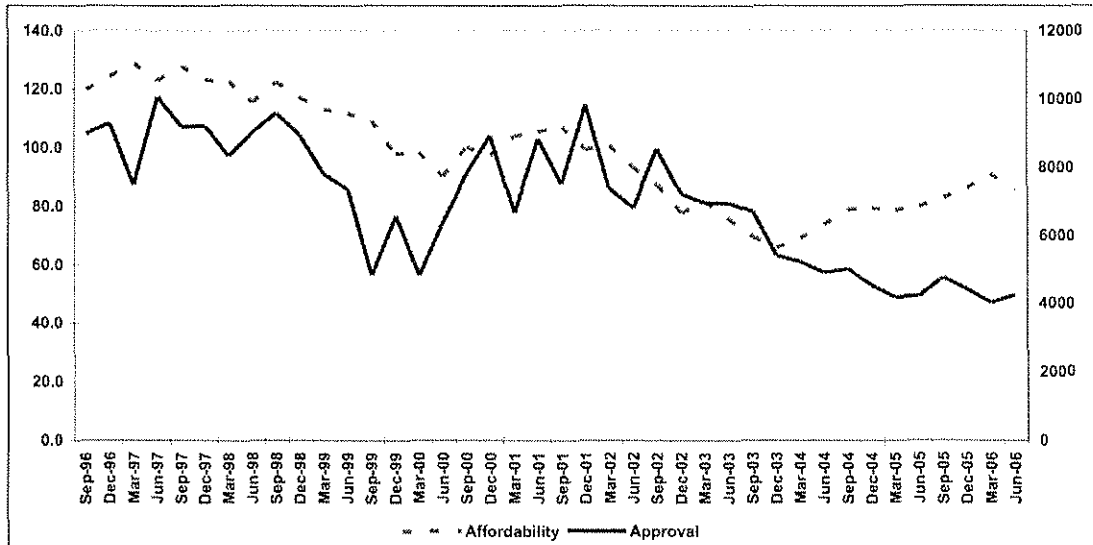
A decrease in affordability implies a slowing down of demand for dwellings and is reflected in price, which as Figure 2 (above) showed, levelled off from 2004.

Figure 8 shows the relationship between the HIA affordability index and the new dwelling approvals, lagged by one year for the ten-year period from September 1996 to June 2006. The reason for using a lag is that typically, a response to the affordability would impact on approvals in the future planning of new dwellings. After all, to obtain an approval, the site has to first be acquired and then the approval documentation, subdivision, plans etc must be prepared and lodged with the local authority. The approval itself would take anything from two months upwards. Several lags were tested and the one year lag was selected as it derived the highest correlation result*.

As can be noted the both the affordability index and the dwelling approvals are moving in a similar direction.

* Using excel analysis, the correlation increased by each quarter lagging, deriving a correlation of 0.687 for the four quarter lag (one year). However the two begin to diverge from around 2004 and this could be due to the relative increase in cost of supply new dwellings.

Figure 8: Sydney Affordability Index vs new dwelling approvals (1 yr lag)



Source: HIA (Various) & ABS (2008a)

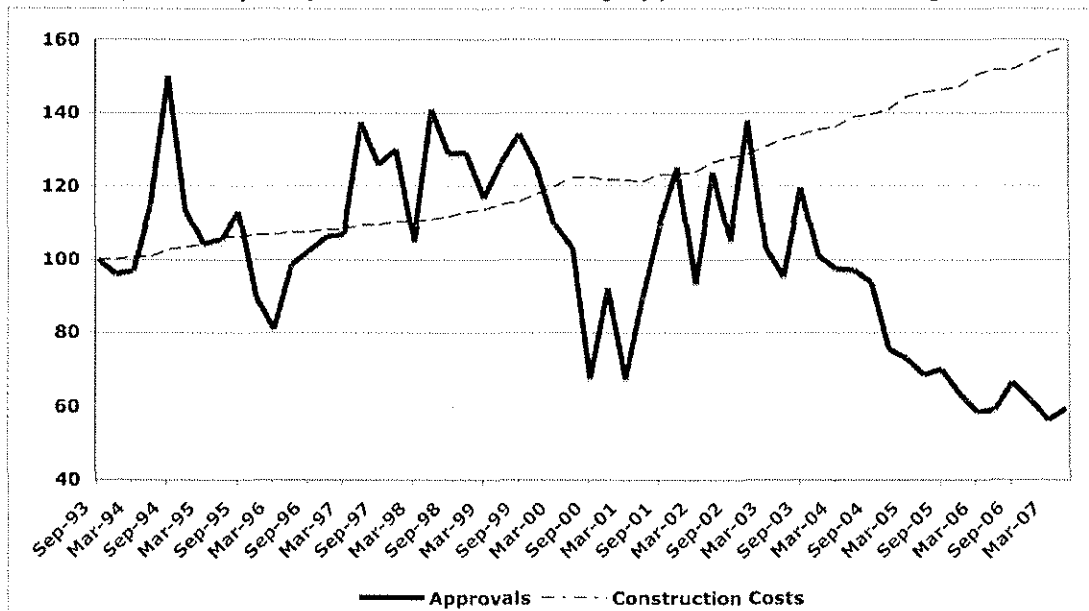
- **Rising debt levels**

From about 1993, debt levels began increasing in Australia. This is reflected in the marked change in the gradient of house prices in comparison to incomes in Figure 4 (above). This increase in debt coincided with the easy access to finance plus the falling interest rates in the early 1990s. From that time until about 2006, Australian household debt rose and much of this debt has been related to housing and has helped to drive prices up beyond sustainable levels over that period.

- **Increase in cost of construction & land costs**

Both construction and land costs have continually risen and one would expect that without an increase in dwelling price, the increase in costs should have a detrimental impact on new dwelling activity. As discussed above, the price level tapered off in 2004, which is about the same time that the downturn in approvals. This can be observed in Figure 9, which shows the 'indexed' levels of new dwelling approvals and building costs for Sydney from September 1993 to March 2007. As can be noted, construction costs have increased by almost 60 percent over the period and more critically for the downturn of building activity, by 27.5 percent in the past five years.

Figure 9: Sydney index - new dwelling approvals and building cost

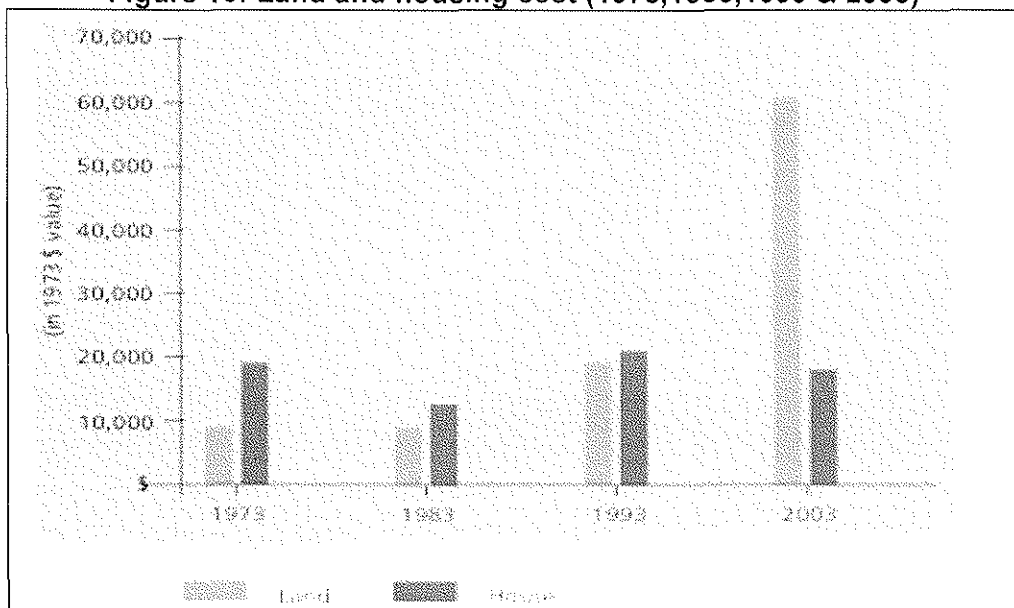


Source: ABS (2008a) & AIQS (2008)

Turning to the cost of land, Figure 10 shows the land and housing cost supply for the years 1973, 1983, 1993 and 2003. The Figure shows that land cost relative construction cost has been increasing in each decade from 1973 and by 2003, land accounted for about 80 percent of the cost of a new 'house and land' package as opposed to less than 50 percent (UDIA 2007a).

As most new building lots are in the 'outer' city fringe area, there is a need to provide new infrastructure, which is very costly and has been passed on to the developers by the government in the form of the 'section 94' levy within the EPA Act. This has become a major factor for the increase in the cost of land as UrbisJHD (2006) found that it increased the cost of land in Sydney by 21.1 percent since 2000.

Figure 10: Land and housing cost (1973, 1983, 1993 & 2003)

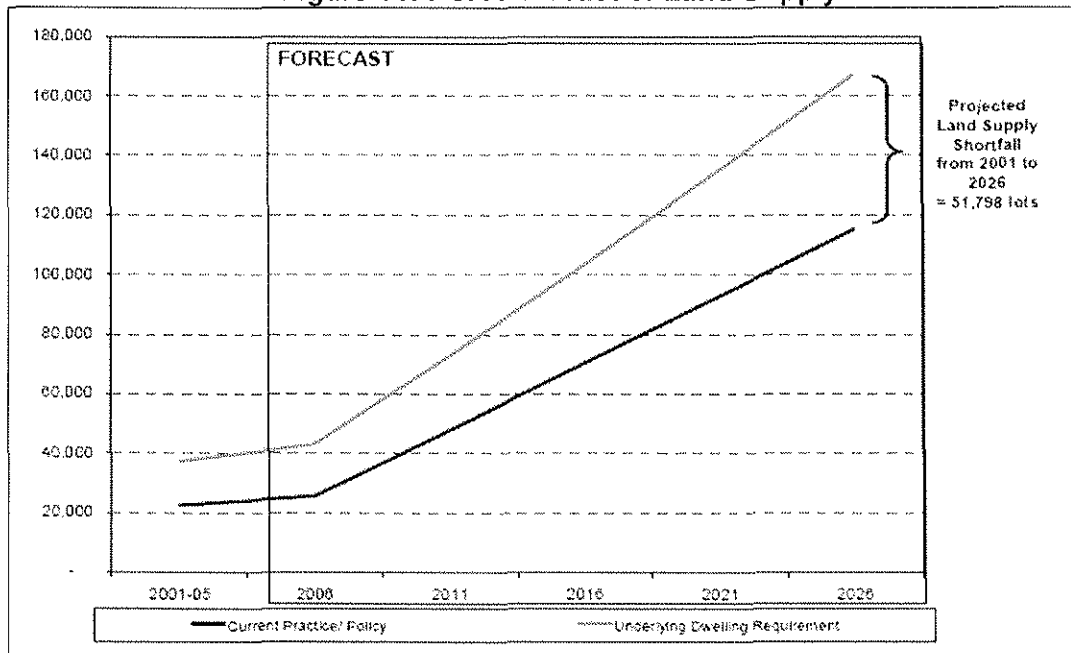


Source: UDIA 2007a, p31

- **Lack of availability of suitable of land**

Notwithstanding the above discussion, to further compound the land problem is the lack of its availability of land. The future supply of new land is also a concern with a growing shortage of suitable land emerging. Figure 11 shows the forecast of land supply for Sydney, in which the PCA (2007) identified a worsening demand supply imbalance in Sydney. They expect the shortfall to be over 50,000 building lots by 2026.

Figure 11: PCA Forecast of Land Supply



Source: PCA (2007)

But supplying more land is not the answer on its own as the Metro Strategy (2005) pointed out, this results in urban sprawl, which brings about another problem. People need employment and regional areas outside the Greater Metropolitan Region lack the employment base or infrastructure investment to sustain or attract large increases in population.

The Metro Strategy (2005) also found 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. They expect this to increase to \$8.8 billion by 2015”. In a USA study, Lipman (2005) has shown that for every \$1 saving on housing in the fringe area, 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.

- **Government – high taxes and charges & BASIX**

As discussed in the introduction government charges are a major contributing factor for the cost of providing new dwelling supply. In a case study of residential developments, Karantonis (2007) found that between them, the three tiers of government receive around 60 percent of total income, whilst the developer with all the risk, receives 40 percent. 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.

The government impact is even more pronounced in the cost of providing new supply of land for housing. UDIA (2003) identified that new and rising taxes and charges from all three tiers of government on a new dwelling in Sydney was about \$167,000. The main components were identified as GST, Land Tax and Stamp Duty (\$30,000) and Section 94 Contributions (\$75,000).

Another new cost introduced by the NSW Government, which came into effect for all new dwellings from July 2005, is BASIX (Building Sustainability Index). The aim of BASIX is to ensure that all new dwellings are designed and built to use less potable water and produce fewer greenhouse gas emissions. The additional construction cost for complying with BASIX has been calculated to be between 3.08 and 4.21 percent (BMT).

Conclusion

This paper has discussed the growing housing affordability problem, whereby more households are now over the 30 percent affordable stress benchmark. In the discussion, it was identified that there are many factors that have contributed to it both from both the demand and supply side.

In the midst of increases in dwelling price and sustained by an increasing population, there has been a downward trend in building new dwellings. The reasons for this are also varied, whilst there was a 0.687 correlation with falling affordability, there is also evidence that government charges have had an impact.

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.

Thus, what has clearly been 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 upward, due mainly to increases of government charges as taxes and infrastructure levies and fees. In addition, the outer city fringe areas need to have the capacity of transport people to work in a more efficient manner, both in time and cost.

The discussion in this paper showed that there are several reasons why the current affordability stress exists, some are inter-related others totally independent such as the introduction of BASIX. Accordingly there is no 'one fix solution' to the problem, rather there needs to be a combination of policies to assist, with the government taking a leading role.

References

- ABS (Australian Bureau of Statistics (2008) "Regional Population Growth, Australia", Cat. 3218.0, March, ACT
- ABS (Australian Bureau of Statistics (2008a) "Building Approvals, Australia", Cat. 8731.0, ACT
- AIQS (Australian Institute of Quantity Surveyors (2008) " " Building Economist, March, Canberra
- Barras R (2006) "A Building Cycle Model for an Imperfect World", Journal of Property Research, Vol 21 No. 4, Spon Press
- BIS Shrapnel (2008a) "Underlying demand for new dwellings at record high", News Release, 4 Aug, Sydney
- BIS Shrapnel (2008b) "High land costs and affordability remain a challenge for the new housing market", News Release, 2 Oct, Sydney
- BMT & Assoc
http://www.basix.nsw.gov.au/information/common/other/direct_cost_multi_full.rtf
- Day B (2006), "Home Truth", Falcon Print Hill, South Australia
- Eichholtz P and Lindenthal T (2007), "Demographics, Human Capital, and the Demand for Housing", ICPM Netspar Conference, Maastricht University, 30 October.
- Ellis L (2006), "Housing and Housing Finance: The View from Australia and Beyond", Research Discussion Paper (RDP 2006-12), Reserve Bank of Australia.
- Gabriel M, Jacobs K, Arthurson K and Burke T with Yates J (2005), Conceptualising and measuring the housing affordability problem, Research Paper 1, Australian Housing and Urban Research Institute, Sydney Research Centre
- Hargreaves B (2007) "What do rents tell us about house prices?", Pacific Rim Real Estate Society Conference, Freemantle.
- HIA (Various), HIA-Commonwealth Bank Affordability Report, Quarterly time series
- (HIA) Housing Industry Association (2003), "Restoring housing affordability", July, HIA, Sydney.
- Karantonis A (2007), "Is property being over taxed – a NSW study", Australian and New Zealand Property Journal, September, Vol1 No 3
- (Metro Strategy) NSW Government (2005), "City of Cities: A Plan for Sydney's Future", NSW Government Printer, Sydney.
- (PCA) Property Council of Australia (2007), "Australia's land supply crisis", January, PCA, Sydney.
- (REI) Real Estate Institute of NSW (Various) "Property Market Facts", REI, NSW

(REIA) Real Estate Institute of Australia (2008), "Home owners suffering", Real Estate National Update, Issue 13, 26 September, REIA, Canberra.

(REIA) Real Estate Institute of Australia (2007), "Focus must be on core contractual problems", Issue 15, 27 July, REIA, Canberra.

(UDIA) Urban Development Institute of Australia (2007), "City Centres – Submission of the Urban Development Institute of Australia NSW to the Department of Planning", August, UDIA, Sydney.

(UDIA) Urban Development Institute of Australia (2007a), An industry report into affordable home ownership in Australia, UDIA, Sydney

(UDIA) Urban Development Institute of Australia (2002), "Land Cost: The impact of land costs on housing affordability", UDIA, Sydney.

UrbisJHD (2006) "Residential Development Cost Benchmarking Study", Property Council of Australia.

Whitehead C (1991), "From need to affordability: an analysis of UK housing objectives", Urban Studies, December, Vol 28, Issue 6 p871-887.

Yates J and Gabriel (2006), "Housing affordability in Australia", Research Paper 3, Australian Housing and Urban Research Institute, Sydney Research Centre.

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AUTHOR: Yasmin Mohd Adnan and Md Nasir Daud and Ibrahim Mohd @ Ahmad and Aniza Abd Aziz

TITLE: Criteria for the Classification of Purpose Built of Office Buildings in Malaysia

KEYWORDS: "Criteria, classification framework, office buildings"

ABSTRACT: "Malaysia property market is deficient of key indicators to make an objective assessment of the market situations. In the effort to monitor the commercial property market performance, it would be useful to develop an indicator that will be useful for the construction of property indices. As such, to develop such indices for commercial properties, it is necessary to assess the performance of each office building through a classification framework. This paper highlights the identification of the criteria to be adopted in the classification of the purpose built office buildings in Malaysia. Through the investigation of the local and international practices as well as the literature on office building classification, a set of criteria was selected for local adoption. In arriving at the final set of criteria, a series of expert panel group discussion were held. This paper highlights the findings of the initial investigation of the identified criteria and the expert panel discussion held in an attempt to arrive at the final classification framework."

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AUTHOR: Hera Antoniadis

TITLE: A Preliminary Study On The Use Of Forensic Accounting Techniques To Determine Property Agency Trust Accounting Compliance [\[Refereed\]](#)

KEYWORDS: "Property agency, trust accounts, forensic accounting"

ABSTRACT: "In the late 1800's the New South Wales government commenced to regulate the property industry in order to manage property agents. The regulation of property agency is now part of the Property Stock and Business Agents Act 2002, which is administered under the auspices of the Office of Fair Trading. Now, over one hundred years later, and with numerous changes aimed at improving consumer protection and providing a higher accountability standard, the Office of Fair Trading recently reported an increase in fraud relating to property agency's trust accounts. The Property Stock and Business Agents Act 2002 Act also stipulates that all agency businesses should be "effectively controlled and supervised by a licensed agent", and in particular where there are large sums of money held by way of a trust account. Additionally, the Act has also clarified the responsibilities of licensees for their employee's conduct. Using forensic accounting technique, this paper critically examines those provisions of the Property Stock and Business Agents Act 2002, and accompanying Regulations that relate to trust accounting policies and procedures. The findings identify a number of problem areas with respect to consumer protection that call into question the adequacy of current legislation. The paper concludes with suggestions and recommendations for improving the present regime and thereby enhancing client protection and consumer confidence with property agency."

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AUTHOR: Andrea Blake and Connie Susilawati

TITLE: Property Education: An Evaluation of How Well Undergraduate Property Students Are Prepared for Commencing Their Careers [\[Refereed\]](#)

KEYWORDS: "property education, multi-disciplinary units, property professional, transition out, generic professional skills "

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Professor Bob Hargreaves is Professor of Property at Massey University, New Zealand. Bob has a distinguished academic career in property and has focused his applied property research in the area of housing market analysis. Bob has actively contributed to PRRES over many years and has published widely in the various property research journals in New Zealand and internationally. He has strong links to the property industry via the Property Institute of New Zealand. Bob's contributions to property education and research have been widely recognised, with Bob receiving the 2004 PRRES Achievement Award. Bob's keynote address is on "The Housing Puzzle".

MR BARRY BRAKEY

Barry Brakey has recently joined the Australian Government Future Fund as Head of Property to implement the Fund's global property mandate. Prior to this, he was operating his own property advisory business. He was responsible for over \$4 billion of property invested both domestically and globally for a number of government, industry and corporate superannuation and investment funds. Barry is also a past National President of the Australian Property Institute and has a wide involvement in property industry issues. Barry's keynote address is on "Property Investment in the Current Investment Environment".

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Barry Brakey, Head of Property, Future Fund - [Property Investment in the Current Investment Environment](#)

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