A History of Housing Prices and Rents in Australia 1880-2007

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1 Introduction

The period since the early 1970s has been one in which house prices have risen quite significantly by any measure with median capital city house prices in Australia having risen on average 3% per annum in real terms. The lack of time series on house prices before 1970, both in Australia and internationally, has meant that this period of history has tended to be taken as 'normal'. This paper presents a new annual series on house prices for Australia which the author has constructed (Stapledon, 2007a). The new series is the first to to span 1880-1970 and spliced with existing series gives a picture of house prices for 1880-2007. Together with a series constructed by Eichholtz (1997) for Amsterdam for 1628-1973, this is one of the first house price series giving a longer term perspective on house prices.

This longer history of prices indicates that in the 70 odd year period from 1880 till the mid 1950s, there was negligible real growth in house prices (Figure 1). Then from the mid-1950s there was a change in direction with house prices growing at an average 2.5% per annum in real terms. If estimates of the ratio of house prices to income are observed (Figure 2) , the same broad pattern can be observed, with the ratio steady or thereabouts in the period 1880-1950, then rising steeply thereafter. Interestingly, the broad trend for house prices is very similar to that observed by Eichholtz for Amsterdam, while estimates from various sources for the US suggest a broadly similar picture for that country (Stapledon, 2008b). Data extracted for fringe residential housing lots show a consistent trend to that shown by house prices and indicates that a sharp rise in fringe price of land explains the rise in prices from 1950s to the 1970s.

INSERT Figure 1 Australian Real Median House Prices 1880-2007

INSERT Figure 2 Australia: Ratios of Prices and Rents to Income 1901-2007

This paper also presents a series for gross rental income per dwelling for the years 1901-2007 (Figure 3) and series for the gross dwelling yield (Figure 4). Butlin (1962) had constructed a series for gross rental income for the period 1901-1939 but, when compared with some ABS estimates, inconsistencies were found which led to new estimates being constructed (Stapledon 2007d). In the context of the debate about historical estimates of GDP growth in the period[1] (refer McLean, 2004), it is also observed that the Butlin series for volume growth in rental income shows no growth per dwelling over this 40 year time span. Notwithstanding this period includes the 1930s depression, nil growth seems highly improbable. Growth of about 1% per annum is a more probable figure which would in turn feed into a marginal upgrading of GDP growth estimates for this period. The broad picture presented by the gross rental income per dwelling corresponds closely with, and supports that presented by, house prices. That is, it shows negligible growth in the period to the

[1] This debate is outlined in McLean (2004). Haig (2001) argues that the Butlin (1962) estimates of real growth in the period 1901-1939 are too low.

1950s then a clear shift in direction then as real rents per dwelling then rise quite sharply. This real gross rental income per dwelling series also contrasts with the ABS rental index which, if it were correct, says that real rents have shown no rise since 1901. Again, that seems implausible and strongly points to a downward bias in the series.

INSERT Figure 3: Australian Real Rental Series 1901-2007

INSERT Figure 4: Australian Gross Dwelling Yield 1901-2007

A major source of that bias, and of interest in its own right, is the period from 1939 when with the outbreak of WW2 Australian and State governments imposed rent controls which were subsequently only gradually lifted in the 1950s. As this was a period punctuated by high inflation, real rents fell quite sharply. In the decades prior to 1939, rental stock had accounted for a steady 55% of the market. In response to the decline in real rents, the supply of rental stock shrunk, falling to just 25% in 1960, with the flip-side being a stimulus to and rise in owner-occupation or home ownership. That structural change in the ownership structure of the housing market became a permanent fixture in the second half of the 20th century. The imposition of rent controls was not unique to Australia but the Australian government also imposed controls on house prices in the period 1942-49 which saw 'legal' prices fall sharply and market activity dry up before a sharp spike in prices after 1949 when controls were lifted.

The long-run history of prices also allows some observations on the various cycles in house prices. Aside from the spike in prices in the early 1950s, the two cycles which appear to stand out are the first and the last, The boom of the 1880s/1890s was followed by a severe depression and that historical period has been well documented by historians[2] but the new historical series does give some estimates of the magnitude of the fall in prices after the peak in 1891: it shows prices fell about 30% in nominal terms. The last cycle began in 1996 and the full story is yet to be told. The one observation that can be made is that a feature of the upswing in prices was a sharp decline in the gross rental yield and the question that raises, which perhaps time will only tell, is whether that decline is structural or cyclical?[3] The final and other broad observation is that, while housing is essentially a domestic sector, the housing cycles are not unique to Australia. The post-1996 cycle has occurred across most countries but going back there is also evidence of similar episodes in the 1890s, 1930s in other countries.[4]

2 House Price Series 1880-1970

This paper presents new series for Sydney and Melbourne house prices for the June quarter for the period 1880-1970 which the author has collected and constructed and series for the six capital cities and Australia which the author has estimated using the Sydney and

[2] See for example Butlin (1964), Sinclair (1976) and more recently Simon (2003).

[3] This issue is addressed in Stapledon (2007a) and Stapledon (2007b)

[4] In Stapledon (2007b) evidence is presented for the US and Eichholtz (1997) shows similar timing of cycles for Amsterdam.

Melbourne series as a base.[5] For the period from 1950, the primary sources for the house price series for Sydney and Melbourne are actual selling price series published in weekly property market reports published in the Sydney Morning Herald and Melbourne Age.[6] The precedent for these series is the house price series 1965-1989 for these two cities from BIS-Schrapnel which used this same source and which are used by the Reserve Bank of Australia and the Commonwealth Treasury as the basis for house price series for the period of the 1960s and early 1970s before other series became available. In the overlapping years 1965-1970, the BIS-Schrapnel series and the new series are, as might be expected, very close. These sale price series are similar to sale price series from real estate industry bodies in Australia and other countries which estimate median prices from sales reported by real estate agents and which are accepted as reasonable measures of house prices. The issue for all these series is whether the samples of prices are reasonably representative of the population of houses. While sample size limits scope, some limited stratification of prices by location and material of house does point towards the probability that the sale price series are reasonably close to the true price.[7] With a higher level of confidence it can be said that the broad trends in the series are a good representation of movement in the market. In the period 1942-1949, as discussed below, house prices were fixed in Australia at their levels for 1942. One result was that sales, and certainly publicly recorded sales, gradually dried up in this period. There was a black market for established houses in this period but not unexpectantly there are no records. However, the sales actually recorded are consistent with fixed prices in this period.

For the years 1880-1943, the price series are based on asking prices from the sample of houses advertised for sale by private treaty in the Sydney Morning Herald and Melbourne Age newspapers respectively. There are two precedents for an asking price series. The first is an asking price series for Melbourne 1861-91 constructed by Butlin (1962) and presented in terms of price per room. The second is an unpublished study by the US National Housing Agency.[8] The US study collated asking prices from newspaper advertisements for 100 cities for the period 1940-1947 and for Washington, DC for the period 1918-1947. The series for Washington, DC does appear to provide a reasonable picture of trends in houses prices over the period 1918-1947. The authors of the Washington series acknowledged the limitations of using asking prices, identifying three sources of potential bias: period to period changes in the sample; houses with advertised prices may not represent the population of houses; and relationship between asking and actual prices (discount) which can vary over the cycle. While the latter issue is specific to asking prices, the first two issues are also common to sale price series, albeit not necessarily in terms of magnitude of any bias in the estimates. However, when the Sydney asking price series are compared with sale prices over comparable years, the asking price estimates are reasonably close to the sale price estimates but on average are about 5%

[5] Refer Stapledon (2007c).

[6] So far as the author can ascertain from perusing capital city newspapers, there are not similar reports for the other capital cities.

[7] Stapledon (2007c).

[8] *Ad Analysis – a Technique to Study Prices of Single-Family, Other-than New Houses*, cited in Fisher, 1951

higher than the sale prices.[9] As with the sale price series, some stratification of the asking price series for Sydney and Melbourne has been done and it also points to the probability that, after making a minor adjustment for slight upward bias, the asking price series are reasonably close to the true price. In terms of cycles, the series probably misses some of the timing due to variation in the discount but observation of the series indicates that it captures the major cycles.

The Sydney and Melbourne house price series for the period 1880-1970 have been used in Stapledon (2007c) as the base to construct a series for median house price series for all the capital cities for the period 1880-1970 which, spliced with existing series post-1970, gives a series for 1880-2007. Similarly, a series for the mean market value of all private dwellings for Australia has been constructed for the period 1901-2007. In the absence of house price data for the other capitals and for the non-metropolitan markets, data on the relative rental value of housing has been used as an instrument to construct these series for the period to 1950. The specific assumptions and methodology used are detailed in Stapledon (2007c). The new house price series measure house prices for the sample of houses for each year. That is when comparing years, the series do not measure pure price changes: the changes in price also reflect improvements in the average quality of the housing stock and changes in the locational composition of the stock as the urban areas have expanded. In Stapledon (2007c)[10] the long term impact of improvements, or capital spending, on the mean value (in constant prices) of the housing stock is estimated to have added an average 0.95% per annum to the real value of housing in the period 1901-2005. Estimates also indicate that the changing composition of the stock probably subtracted 0.35% per annum from the mean price. The net effect of these quality and compositional effects is a net addition of 0.6% per annum which, subtracted from the price series estimates, gives a 'constant quality' index series for house prices. The average rise in real terms over the period 1880-2006 of 1.6% becomes 1% per annum in terms of pure price changes.

There are few historical estimates of house prices for Australia prior to the 1960s against which to benchmark the various new series. Daly (1982) has collated some estimates at five yearly estimates for Sydney within the period 1880-1940 and the levels of the estimates appear to be similar for specific years.[11] Abelson (1985) has constructed annual estimates for Sydney, based on valuations of property, which covers the period 1925-1970. The estimates in the Abelson series are close to the new series in the years 1930-1933 but outside those years, the new price estimates are higher than the Abelson estimates by an average 23%, over the period 1925-1942 and over the whole period 1925-1970. However, that is not surprising as there is a conservative bias of about that magnitude to valuations.[12] How then can the closeness of the series in 1930-1933 be explained? In a

[9] In the period before 1942, newspaper reports of actual sale prices are available for Sydney but the estimates proved quite volatile, which I interpret as more likely to be volatility in the sample in that period rather than in prices: refer Stapledon (2007c)

[10] Stapledon (2007c) pp XXX [PAGE TO BE SPECIFIED]

[11] The poor quality of the Figure (Daly, 1982: Figure 5.5, page 148) in which some of the price estimates are embedded, make exact comparison difficult. Daly did not publish his estimates in tabular form.

[12] Owners had (have) an interest in low valuations as value determines tax liability. Albeit in an earlier period, the NSW Statistician put that conservative bias at 14%: refer The Wealth and Progress of NSW

falling market, which was certainly the situation in the period 1930-1933, that conservative bias will be less than normal as valuers are slow to react to the rapid and sharp fall in prices. While not matching the short-term movements, the broad direction and magnitude of the Abelson series in the period 1925-1970 is consistent with that of the new price series. A series from Neutze (1972) spanning the period 1949-1967 is also broadly consistent with the new series for that corresponding period. For Melbourne, there is even less historical data. A number of studies have been done of the boom-bust of the 1880s and 1890s in Melbourne. For the 1880s, there is the Butlin series of asking price per room 1861-1891 which closely matches the new series.[13] Simon (2003) has constructed a series which is based on valuations rather than prices but the magnitude of the movements is comparable.

In terms of capital city and national estimates of houses prices, the Commonwealth Treasury and the Reserve Bank of Australia have both constructed unpublished series using the BIS-Schrapnel series for Sydney and Melbourne prices as their primary base for the period 1960s-early 1970s.[14] The Commonwealth Treasury publishes estimates of aggregate market value, and implicitly mean values, of private dwelling assets starting from June 1960. The new series and the Treasury series are very close except after 1985 when the Commonwealth Treasury series shows a much steeper rise both relative to the new series and when compared with a Reserve Bank series which starts from 1998. The levels and movement of the new series and the Reserve Bank series move closely together for the period 1998-2005. Speculating on the reasons why the Commonwealth Treasury series diverges is difficult but the ABS has published a discussion paper on the issue and while not directly criticizing the Treasury series, have come out in support of the Reserve Bank series.[15]

In extracting the house price data for Sydney and Melbourne, the author also collected data on prices of residential lots of land for sale or sold. The land lots for sale in any period will include land from all segments of the urban area but will tend to be predominantly new allotments for sale in the outer suburbs of a city. Hence, the sample will not provide a measure of the average value of land lots in the urban area but is more likely to be providing a measure of the price of fringe land. The mean price will be affected by the sale of a portion of high priced blocks closer to the centre but the median price will be less affected and can be taken as a reasonable proxy for the level and trends in the price of lots

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1900-01, pp 857. Other evidence points to a higher conservative bias of the order of 20%+: refer Stapledon (2007a) pp 27.

[13] From the data collected comparable estimates of price per room can be calculated and the figures are close to those of Butlin: refer Stapledon (2007a)

[14] Unpublished estimates by the Commonwealth Treasury of mean house prices supplied to the Productivity Commission and presented in real terms in Figure 2.1, page 16 of the Productivity Commission Discussion Draft "First Home Ownership" December, 2003. This also forms the base for Commonwealth Treasury estimates of the market value of private dwelling assets published each year in its Economic Roundup, Summer edition. In my capacity at Westpac, I was also privy to Reserve Bank of Australia estimates of prices in the 1960s which relied on the BIS-Schrapnel prices for Sydney and Melbourne and also movement in the average size of housing loans to construct a series. These unpublished RBA estimates are an input into RBA internal modeling work.

[15] ABS (2005). The ABS paper has the Treasury Series cited as a reference but the text pointedly makes no reference to it. However, the ABS paper did specifically adopt the RBA measure of the market value of housing as its preferred measure.

at the urban fringe. When spliced with median price series for residential lots from BIS-Schrapnel for the period 1960-1989 and the author's own estimates from 1989-2006, this gives an historical picture of movements in the price of fringe land in these two cities. The series are volatile and to ascertain broad trends, the estimates have been aggregated into period averages in Table 1. That Table also contains estimates of the ratio of the fringe land to house prices for those periods which give an indication of the contribution of changes in fringe urban land prices in the Sydney and Melbourne markets to the changes in houses prices in those markets.

3 Historical Rent Series

For rents there is substantially more historical data available. From 1901, there are rental price indexes published by the ABS for the capital cities. In addition, there are value and volume estimates of gross dwelling rental income from the ABS national accounts for the period 1948/49-2004/05, and estimates from Butlin (1974) for 1939/40-1947/48 and from Butlin (1962) for the years prior to 1938/39. For the period 1932/33-1947/48, there are also estimates from an unpublished ABS (1947) paper.

In its 1947 paper, the ABS used the Census estimates of actual rents on tenanted houses to calculate a benchmark estimate of gross rental income for 1932/33 and then applied a premium for owner-occupied housing: the ABS premium was 20% for the capital cities and 7.5% for other urban and rural houses, and larger premiums for units. Butlin's methodology was to used the ABS A series of rents (expressed in currency) as his base, with the value adjusted with reference to some Melbourne building society data, then used that to estimate the rental price per room at a state level, and then applied that to all houses with no premium for owner-occupied housing. The puzzle is that with no premium for owner-occupied housing, Butlin's estimate for 1932/33 is 13% higher than the ABS estimate.[16] There is also somewhat of a puzzle with the period 1932/33-1938/39 where there is a sharp difference in the magnitude of the rise in gross rents. The Butlin series records a rise of just 13.5% and the ABS estimate shows a rise of 40%. Butlin assumes a lesser rise in non-metropolitan rents but with the C series index of rents showing a rise of 20% and with an approximate 15% lift in the housing stock in the period 1933-1939[17], it is difficult to see how to reconcile the bare 13.5% rise in gross rents estimated by Butlin. Given the issues with the Butlin series, I have used the ABS methodology and re-estimated gross dwelling rents for the years 1901-1933. The benchmark estimates constructed for the Census years 1911 and 1921 are lower than the Butlin estimates for those years, and by margins (6.5% and 3%) broadly consistent with the 7% margin for which the 1933 estimate was below the Butlin estimate. These differences are insignificant and provide support for the inter-Census movement in the Butlin estimates for this earlier period.

There is another puzzle with the Butlin series, specifically the estimates of growth in rental volume which contributed to his series on Australia's GDP. If the series is

[16] Given that the expressing of the A series in currency terms (base year = $1) rather than as an index number (base year = 100) was the convention at the time and did not relate to actual value, this appears to be a misuse of the A series by Butlin. The bigger puzzle is that Butlin appears not to have fully utilised the information in the 1933 census to generate a bench mark estimate for that year.

[17] Refer Stapledon (2007d)

presented in terms of rental volume per dwelling, the Butlin series shows no growth in the period 1901-1939. By contrast, in the period since 1948/49, the ABS series shows volume growth of XX% per annum on average and the ABS (1947) paper assumed volume growth per dwelling of about 1% per annum in the years 1932/33-1938/39. The underlying premise of the Butlin series is the implausible one that there has been no increase in average size or quality of houses over a 40 year period. I surmise that the rationale was the Census figures showing no increase in average rooms per dwelling, however, the rise in detached housing and commensurate decline in medium density housing indicates that the average size of rooms probably rose quite substantially in this period. As well, the addition of other attributes would have increased the quality and volume of structure per dwelling. A more reasonable estimate might be that the volume of rent per dwelling grew by an average of 1% per annum in that 40 year period. There is an on-going debate about the Butlin GDP estimates for this period which have GDP per capita growing at just XX% per annum, making it a poor period for Australia's economic performance. The higher estimates of growth in rental volume do not substantially change the story but they do marginally lift the average GDP growth rate to XX%.

The measures of gross rental income constructed can be presented in terms of real gross rental income per dwelling (Figure 3) and can also be used, dividing the nominal estimate by the estimate of the market value of private dwellings, to generate series of the gross rental yield for all dwellings for the period 1901-2007 (Figure 4). For the period 1901-1942, the rental yield series can be compared with estimates of gross rental yields for the rental market for Sydney and Melbourne derived from the asking price data collected for those two cities.[18] The Sydney/Melbourne rental market yields confirm the broad flat direction of the gross yields in the period 1901-1942 but are consistently higher which is a puzzle. A partial answer is that the rental market gross yields make no allowance for vacancies, but it cannot explain all the difference. Another probable answer to this puzzle is that the ABS methodology for estimating imputed gross rents on owner-occupied housing stock understates the difference in quality (and price) between rented and owner-occupied houses. For example, whereas the ABS methodology generates a premium for owner-occupied houses in the capital cities for 1933 of 20%, the asking price data indicates that detached house prices, which tend to be skewed to owner-occupiers, were about twice as high on average.[19] This is an issue for the ABS series for the whole period 1932/33-2005/06 but assuming the bias is consistent across time, it should not affect the broad trends in gross rental yields over time.[20]

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[18] Refer Stapledon (2007d). A reasonable sample of the data provided asking prices and gross rental income on the houses for sale.

[19] The gross rents advertised are in the ball park of the Census estimates of rents for Sydney and Melbourne. However, the mean price of the rental sample is consistently about half the mean level of other houses for sale. This points in the direction of a larger difference than 20%.

[20] Construction of a new series for imputed rental income for the period 1901-2005 was well beyond the scope of this study, so I can only leave this as conjecture and for future research. In discussions with ABS officers at the UNSW Economic Measurement Group Conference, Sydney in December, 2006 there was some recognition that this is an issue but one for which there is no historical data which would give a ready, objective solution.

The picture presented by real gross rental income per dwelling can also be contrasted with the rental price index expressed in real terms in Figure 3. The major difference in the two series is in the period 1939-1966, coinciding with the period of rent controls which started in 1939 and were gradually phased out from 1952. Whereas, rises in the volume of rent per dwelling might be expected to see the rise in actual rents outpacing the rise in the rent index by about 1% per annum[21], in the period 1947-1966 the Census estimates of rents had actual rents rising an average 3.4% per annum faster than the ABS rental index. This strongly suggests that the distortions created by rent controls were causing the ABS considerable problems in estimating a rental index. Based on the difference between the 1% and 3.4% figures, an estimate of the understatement of the movement in rents by the ABS rental index is probably of the order of 2.4% per annum or a cumulative 55% in the period 1947-1966.

4 Discussion of Broad Trends

The broad trends that can be observed are that the real median price for houses in Sydney, Melbourne and All Capitals (Figure 1) rose only marginally in the period 1880 - mid 1950s. [22] Consistent with the picture painted by those measures of house prices, the measures of fringe land prices for Melbourne and Sydney (Table 1) also show no apparent trend in this period. And if rents are observed, and allowing for the impact of rent controls in the 1940s and 1950s, the measures of real gross rent per dwelling for Australia (Figure 3) also show no trend in this period.

From the mid 1950s, however, there is a clear shift in trajectory. The median house price grows significantly in terms of all measures. Taking 1955 as the turning point[23], in the period 1955-2007, the median house price for the All Capitals series show a real rise of 3.6 times or 2.5% per annum. Over this period Sydney prices rose about 2.7% per annum, while Melbourne prices have risen about 1.8% per annum.

The interesting question is explaining the shift in trajectory. Rises in the cost of constructing a house ahead of general prices will explain some of the rise in prices but not the shift in trajectory. Over the period 1955-2007, the ABS estimates of the dwelling construction cost index for Australia has the cost of housing structures rising about 0.5% per annum in real terms which accounts for about one fifth of the quality adjusted rise in price. Alternately, deflated by the construction cost index, the value of constant quality capital cities median houses has risen at about 2% per annum. For the earlier period, there are estimates by Butlin (1962) of the dwelling construction cost index for the period 1901-1939 which, in conjunction ABS and other estimates from 1939, indicate real construction costs rose a sharper 0.9% per annum on average in the period 1901-1955 which would actually accentuate the shift in trajectory from 1955. These historical estimates need to be treated with some caution[24]: if deflated by this cost index, the value of capital cities median

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[21] The 1% per annum rise is the ABS (1947) estimate of the annual rise in rental volume per dwelling.

[22] These rises refer to the series adjusted for quality changes.

[23] In Stapledon (2007a) pp 84 Chow tests in Table 3.1 support 1955 as a suitable choice for a turning point.

[24] Particularly, bearing in mind that is the deflators of Butlin (1962) which have been the subject of most criticism by other historians (Butlin, 1977)

houses fell by 0.7% per annum (cumulative 30%) in the period 1901-1955 which does not seem plausible.[25]

The variable that appears to explain the shift in trajectory is the fringe price of urban land allotments which together with the location premium are the two components of urban land prices.[26] Whereas Sydney and Melbourne fringe land prices showed a slight upward trend to the mid-1950s, in the period to the 1970s the price of fringe land in Sydney and Melbourne increased sharply in real terms and that, in turn, appears to explain a significant portion of the rise in median house prices in this period. In the case of Sydney, whereas in the first half of the 1950s, the cost of fringe land represented just under 10% of the median house price, it jumped sharply in the first half of the 1960s and by the first half of the 1970s the cost of fringe land had risen nine fold and accounted for 51% of the median price of a house in Sydney (Table 1). The rise in land prices accounted for effectively the whole of the rise in house prices in this period. For Sydney, the rate of appreciation in the fringe land price decelerated after 1975 but from the high base prices nonetheless approximately trebled when comparing the first half of the 1970s and 2007. In doing so, this rise in the price of fringe land accounted for about 60% of the rise in median house prices in Sydney in this period. That indicates that a rise in the location premium was lifting the land component of the median house in this later period. The rise in the price of fringe land in Melbourne lagged Sydney and has not been as sharp but it nonetheless explains a significant approximately half of the rise in detached house prices in the period 1955-2007. That leaves then the question of the forces that drove the fringe land price and the location premium in Sydney and Melbourne, the answer to which is beyond the scope of this paper.[27]

The shift in the trajectory of house and land prices is also reflected in rents. The real value per dwelling of gross rents, allowing for the distorting effect of rent controls in the 1940s – 1960s, shows a clear upward trend (Figure 3). These broad trends in prices and rents and the shift in trajectory from the mid 1950s can also be observed in the price-to-income and rent-to-income ratios (Figure 2) which show a steady trend then clear upward trends in the second half of the 20th century.

While rents and prices have both exhibited an upward trend, it can also be observed that house and land prices have risen more sharply than rents. Taking 1939 as the starting point (to circumvent the effect of rent controls), the real gross rent per dwelling has risen 1.6% per annum while over the same period the real price per dwelling has risen an estimated 3.2%.[28] That divergence in growth rates is reflected in a rise in price to rent ratios

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[25] It suggests perhaps that the private dwelling deflator has not adequately allowed for quality improvements and significantly overstates inflation of construction costs. This point would apply to both the Butlin (1962) and ABS series.

[26] The location premium rises from zero at the fringe to a peak at the centre, the point at which transport costs are zero. The slope of the location premium is also referred to as the transport gradient. There are features other than transport costs which give locations a premium (e.g. proximity to ocean) but transport explains a significant portion.

[27] The answer often put is that it reflects demand. However, there is increasing support for the view that increased government regulation and controls have constrained supply and that this is a major explanation. I discuss this in more detail in Stapledon (2007a) and (2007e).

[28] Here, for purposes of comparing like with like, the price per dwelling is referring to the rise in the mean market value of dwellings in Australia without the adjustment for quality changes.

or equivalently, a decline in the gross rental yield (Figure 4). Yields appear to have been at consistently higher levels in the first half of the 20th century compared with the second half. In the period 1901-1949, the average gross yield was 8.1%, with small deviations about the mean and no apparent trend. The picture is then heavily distorted by rental controls which prevailed in the period from 1939 to the mid 1960s. Allowing for that distortion to yields, what can be observed is a decline in the gross rental yields in the second half of the 20th century. It is not a straightforward decline. Yields were pushed higher in the period from the late 1970s to the late 1980s, coinciding with the period of high interest rates and also, with a lag, the period of high yields in the equity market. From that peak in the 1980s, rental yields have fallen substantially, appearing to follow similar substantial declines in equity market yields and in interest rates. The period since 1980 has also been a period of significant de-regulation of financial markets which would arguably have lowered the effective cost of borrowing and favoured lower yields. If the longer term history were ignored, the decline in yields could be simply attributed to interest rates and deregulation[29] . However, if the longer span of history is looked at, the period of high interest rates in the 1980s is relatively unique and there is a substantial period in the first half of the 20th century in which low interest rates also prevailed and which was a relatively deregulated environment. The issue then is, as is debated in relation to equities[30] , whether the decline is structural or cyclical? The answer to that question is beyond the scope of this paper but is one which I address in another paper.[31]

5 Pre-WW2 Cycles in Land and House Prices

In the pre-WW2 period, when viewed in real terms, there appear to have been three clear cycles. In both nominal and real terms, the biggest cyclical swing was associated with the 1880s boom/1890s depression. Capital city house prices appeared to peak in 1891 (Figure 1) but there was also a peak and trough in the mid-1880s in Sydney preceding the 1891 peak which is consistent with historical accounts of the period (Sinclair, 1976)[32]. From that 1891 peak, prices fell in nominal terms by about 37%, or 32% in real terms, to their cyclical low of about 1898. Thereafter there was a gradual recovery but, of interest is that in real terms prices did not reach their 1891 peak levels until 1950 or 69 years later.

In real terms, the next cyclical peak was in 1913, by which year real prices had recovered to 71% of their peak value in 1891. Hall (1963) argued that demographic factors were positive for housing in Melbourne in this period and the demographic picture was similar for Sydney at this time. The weakness in demand and the slow response to the inflation associated with the 1914-1918 war then caused real prices to fall to a cyclical low in 1920. From those lows, prices then picked up quite sharply in 1921 and then hovered just above those levels until a sharp fall in 1930. Daly (1982) made much of the 1920s boom in

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[29] Study by Otto (2006) finds interest rates explain much of the decline in house prices, and implicitly the fall in yields, in the period 1986-2006

[30] Mehra (2003) gives an account of this debate in relation to the equity market.

[31] The issue is addressed in Stapledon (2007a) where, while conceding ample room for debate, I argue that factors such as tax and inflation do potentially make the case for a structural decline being part of the explanation. This debate is also taken up in Stapledon (2007e).

[32] As I did not collect data for all years in this period, there is less certainty about observations about this period. My expectation is that a complete series will confirm the observation.

Sydney house prices, but the series indicates that, while the level of prices (in real terms) was above that in the first two decades, it was not an overly significant period for house prices. In nominal terms the peak in prices occurred in 1929. In real terms, however, prices actually peaked in 1922 but then held just below those levels out to 1929. From the 1929 'nominal' peak, prices fell 18% in real terms to their cyclical low in 1933. However, this was a period of deflation in prices and wages. In nominal terms, the price fall was about 35%. From that cyclical low in 1933, by 1939 prices had recovered less than half those real losses, with the real price still 10% below the 1929 level.

6 Rent controls 1939-1952, price controls 1942-1949 and their aftermath

The price of houses and rents in the 1940s, and rents also in the 1950s, was heavily distorted by price and rent controls, imposed during a period of comparatively high inflation. In 1939 the Australian Government used its war-time powers to fix rents throughout Australia at their then levels, a measure which was taken in most war-time economies.[33] Then in 1942 the Australian Government moved to extend price controls to more goods and services including, in what appears to have been unique to Australia, the prices of houses and land which were fixed at levels that were not more than 10% above a fair and reasonable price as at 10 February 1942 as determined by an approved valuer.[34] As valuations were used to estimate local rates and taxes, valuations were available for properties. In the early years, before inflation had eroded the real value of the valuations and notwithstanding the subjectivity in valuation of properties, Butlin (19--)[35] describes the task of the valuers as being comparatively easy. However, in the later years, with real values significantly eroded by inflation, the task became much tougher not least because 'buyers and sellers exerted strong pressure on (the valuers) to produce an "acceptable" valuation.' The price controls were circumvented in a number of ways. Firstly, low prices for houses were offset by excessive payments for furniture. This avenue was closed by additional regulation in 1943 which constrained second-hand furniture prices to no more than 75% of "the ceiling price for new goods"[36]. When this loop-hole was closed, the market switched to vendors requiring "key money" – it was illegal but given the imbalance in the housing market, there "was no way of stopping this form of black-market."[37]

When the legislation enabling the price (and rent) controls lapsed on 30 December 1946, the controls were included in the Defence (Transitional Provisions) Act. The constitutional basis of this new legislation, however, appeared likely to be successfully challenged and, in response, the Government sought by referendum (of 29 May 1948) to amend the Constitution to give it permanent powers over prices and rents. When that referendum proposal was defeated, power to control rents and prices was transferred to the

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[33] Rents were fixed throughout Australia and tenants provided protection against eviction under the Commonwealth Landlord and Tenant Regulations, enacted as part of the National Security Act, 1939. The US also implemented rent controls in WW2 (Block and Olsen, 1981).

[34] So far as I can ascertain, other countries did not control house and land prices. The US and UK did not. The Australian plan was given effect by the National Security (Economic Organisation) Regulations of 20 February 1942, refer specifically Statutory Rules 1941 No. 76 20 February 1942.

[35] This title is undated. Paper by Sidney Butlin.

[36] Prices Regulation Order No. 1092, Gazette No. 144 as cited in Tebbutt (1950), pp39.

[37] Butlin (19--) pp 322

States.[38] As Butlin noted, the States adopted the substance of the Commonwealth laws in their own legislation. However, while the States mostly persisted with rent controls albeit in steadily diminished form into the 1960s, the price controls proved untenable and the States suspended them in or around September 1949[39].

As inflation was substantial in the period 1942-1949, the pegging of prices implied sizable falls in real prices. Consumer prices rose 30% in that seven year period but, more pertinent to house prices, the residential construction cost deflator rose 48%[40]. Moreover, inflation was accelerating and by 1950 these two inflation measures were up 42% and 64% respectively from their 1942 levels. There were significant shortages of building materials and scarce labour (Butlin, 19--) which explains the much faster rise in construction costs in this period.

With the lifting of controls, house prices rose very sharply. For Sydney, the median price for detached houses rose from the median pegged price of $2400 in 1942-49, by 119% to $5250. The magnitude of that rise is above the cumulative increases in consumer prices and construction costs since 1942 and puts 1950 median prices 53% above their 1942 level in real terms. In terms of construction costs, the median price was 33% above the increase in costs in the period 1942-1950. The price estimates by Abelson (1985) and Neutze (1972) also show very substantial nominal rises of 77% and 76% respectively coinciding with the lifting of controls.[41] Indirect support for the high magnitude of rises is the price of new houses as there is generally some proximity between new and established house prices. For 1950, the median asking price for new detached houses was $6400 which represents a nominal rise of 94% compared with an estimate of $3300 for new detached houses in 1942. In the case of Melbourne, the price rise with the lifting of controls was actually sharper, with real prices in 1950 rising to 79% above the 1942 level.

In nominal terms, capital city house prices continued to rise, not least because of the high general inflation associated with the Korean War (1950-53). In real terms however, 1950 was the peak. Prices remained high in 1951 but then dropped away and by 1953 capital city prices had retreated in real terms by about 25%. The retreat can probably be attributed to the price levels in 1950-1951 containing a degree of 'overshoot' in response to the extreme situation presented by the price controls. If other demand and cost indicators are looked at, they continued to be positive for house prices in the first half of the 1950s. On the demand side, a post-WW2 rebound in immigration had lifted the growth rate in household formation to a 2.5-3% annual growth rate in the years 1947-1950 – a good rate but not high by historical standards – but this then accelerated to a 3.5-4% growth rate in

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[38] Formal control was transferred on 16 August 1948 to all States, except Queensland for which transfer happened on 1 September 1948.

[39] NSW lifted controls on 28 September 1949 (NSW Yearbook 1950). Victoria lifted controls on 5 October (Victorian Yearbook 1950).

[40] The national accounts estimates by Butlin (1977) have estimates of the residential cost deflator and private consumption deflator. The private consumption deflator rose 28% in the period 1942-1949 and was up 41% over the period 1942-1950. The construction cost data are in the Statistical Appendix.

[41] Both are lower than the estimates from my series but not necessarily inconsistent. The issue with the Abelson series is the small sample size. The Neutze series is a calendar year average and as the 1949 estimate will have probably included a substantial number of sales in the December quarter after the lifting of price controls, the 76% rise will, if anything, understate the actual rise from the pegged price.

1951-1954, a pace only matched in the first half of the 20th century in the mid-late 1920s. In the hypothetical absence of price controls, one could conjecture that this lift in demand would have more likely produced a peak in prices in the early 1950s rather than 1950. On the supply side, while house prices retreated after 1950, the construction cost index continued to edge marginally higher in real terms in the period 1950-1956, indicating persistent cost pressures. After 1956, with demand easing back and supply probably catching up with demand, construction costs then experienced a steady decline in the period 1956-1971.

Rental yields on housing were largely unaffected in the period 1939-1949 because that period mostly coincided with controls on the price of housing in the period 1942-1949. Full rental controls were lifted by the State governments in the early 1950s but partial controls continued to varying degrees in each State into the 1960s. The effect of these controls, occurring at a time of relatively high inflation, was to push down the real value of gross rents and depress yields. Gross yields, which had averaged 8.0% in the period 1901-1939, fell to a low point of 3.1% in 1951. As rental expenses continued to rise faster than fixed gross rental incomes, the net yield continued to fall for several more years, hitting a low point in 1953 of just 0.2%. While difficult to judge, I estimate that by about the second half of the 1960s, gross rental yields were again close to reflecting market conditions, although levels were still well below the pre-1939 levels.

Interestingly prices for medium density housing and units, which were predominantly used for rental housing, did not appear to rise or recover anywhere near as significantly with the lifting of price controls. In real terms, while detached housing was higher by an average 43% in 1950-1953 (vs. 1936-1939), medium density houses were about 23% lower, or 35% relative to the rise in the cost of construction.[42] The reason for the real decline in the price of medium density houses was that while controls on house and land prices were lifted, the NSW State Government (along with other States) legislated to continue rent controls. While new houses were exempted from the controls, the existing stock remained subject to the controls until tenants moved out voluntarily.[43] With the future rental stream effectively fixed at 1939 levels, the present value of these properties was constrained from rising, except to the extent that investors might anticipate a future lifting of controls. Then, as rent controls were gradually phased down, the price of medium density housing gradually caught up, rising much faster than detached houses in the second half of the 1950s and again in the 1960s. Apart from the lifting of rent controls, there could be other factors contributing to the recovery of the price of medium density housing. For example, with a heavy concentration in the inner areas of Sydney and Melbourne, it could be that the location premium in the inner areas was rising with the expansion of the urban areas in the 1950s and 1960s, although Abelson (1997) argues that, in the case of Sydney, the rise in the location premium was more a creature of the 1970s and 1980s than the

[42] I use averages for a number of years to take out some of the annual volatility in movement.

[43] Tenants were protected from eviction and various amendments in the 1950s in NSW increased the protection of tenants. In the case of an owner-occupier buying a tenanted property, the new owner had to wait a period of six months before taking possession. While this was a disincentive to purchasing such properties, sale to owner-occupiers was still a means for landlords to circumvent, or extricate themselves from, the rent controls.

preceding two decades. Evidence of the impact that rental controls had on the housing market is the substantial structural change ownership in the market in this period. The rental share of houses in the capital cities declined from 55% of the market in 1947, to 32% in 1954, and 20% in 1961.[44] In absolute terms, the number of rented houses declined by 25% in the period 1947-1954, while the number of owner-occupied houses almost doubled. This structural shift was not unique to Australia, with the US also experiencing a very similar shift in this period (Block and Olsen, 1981). The final point to note is that the high rate of owner-occupied housing which emerged in the 1960s then became a permanent feature of the housing market in Australia, and also in the US.

7 Post-WW2 Cycles

In real terms there have been more frequent house price cycles in the post-WW2 period. Peaks can be identified in 1950 (already discussed), 1958/1960, 1974, 1981, 1989, and 2004. The land price series appears to match those cyclical peaks with the exception of 1960.

For Sydney the next cyclical peak in 1960 was associated with the 1961 credit squeeze. The credit squeeze had a short-term but significantly negative effect on the economy (Meredith and Dyster, 1999) so it would be expected to have had some adverse effect on the housing market. Certainly the volume of sales activity in both the Sydney and Melbourne markets declined by 35-40% in response to the credit squeeze[45], prices in the Sydney market do show a fall and dwelling construction activity shows a short, sharp decline with new starts declining by 24%.[46] However, Melbourne prices appear much less affected, although there prices actually peaked in 1958 and fell 5% in real terms in 1960 ahead of the credit squeeze. The puzzle is that data on land prices suggests that for both Sydney and Melbourne land prices did not fall in 1961 despite the clear decline in numbers of sales. In short, some contradictory evidence but nonetheless an environment in which the expectation would be that prices of both houses and land would have fallen. .

The next clear peak in house prices for the capital cities (this time both Sydney and Melbourne) was 1974. For Sydney, that peak had prices up 62% on their 1960 peak, while for Melbourne the peak had prices up 38% on their 1958 peak and for the capital cities the aggregate picture was a rise of 48%. For Sydney, the significant 62% rise was associated with the sharp rise in fringe land prices which, as discussed earlier, probably account for the whole of the rise. Fringe land prices rose by a lesser amount in Melbourne. From that 1974 peak, capital cities prices declined by about 16% in real terms to a trough in 1979.

The next significant peak was in 1989. In between, the picture was mixed. Sydney appears to have experienced a clear cyclical peak in 1981, but that barely registered in

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[44] The figures for Sydney (and Melbourne) show comparable declines from 55% (53%) in 1947 to 20% (19%) in 1961.

[45] The number of sales recorded per Saturday for Sydney declined from about 100 in 1960 to about 65 in 1961, a decline of 35%. For residential allotments the decline in number of sales reported was about 40%. For Melbourne, the decline in reported house sales was about 40%. Source: author's own estimates.

[46] ABS Cat 8150.0 Dwelling Unit Commencements, Preliminary, Table 01. Commencements of private dwelling units (houses and units) declined form 17,686 in the June quarter 1960 to 13,436 in June quarter 1961.

Melbourne. Then there was another minor peak in 1986 before the surge in prices to the 1989 peak. The 1989 peak saw prices reaching 17% above their 1974 peak in real terms and the peak to trough decline 1989-1992 was just 9%.

The final cycle 1996-2006 is an unfinished story at the time of writing. While prices hit their trough in 1992, prices did not really move in any material way until 1996. From 1996-2006 the capital cities median price rose by 88% in real terms. Peak to peak the rise is 74%. That puts it ahead of the 1974 cycle and the 1880s cycle and, excepting 1950 when price controls were lifted, ranks this period 1996-2006 as arguably the biggest housing cycle in Australia's history. A crucial difference with earlier periods in history is that the land component is a larger share of the house price vis-à-vis the structure which would have been a stabilizing influence on house prices in the 1880s boom. Whereas the defining characteristic of the 1974 cycle was the rise in the cost of fringe land, the defining character of the 1996-2006 cycle is the significant decline in the gross housing rental yield, or rise in the housing valuation ratio.

NB: Reference List and Notes on data eg consumer price deflators used to come

Figure 1 All Capitals Median House Prices 1880-2006

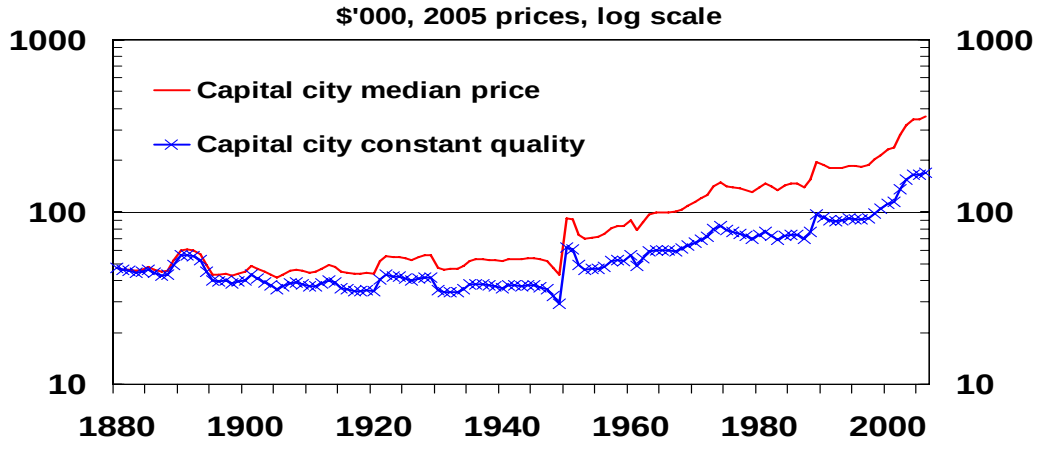
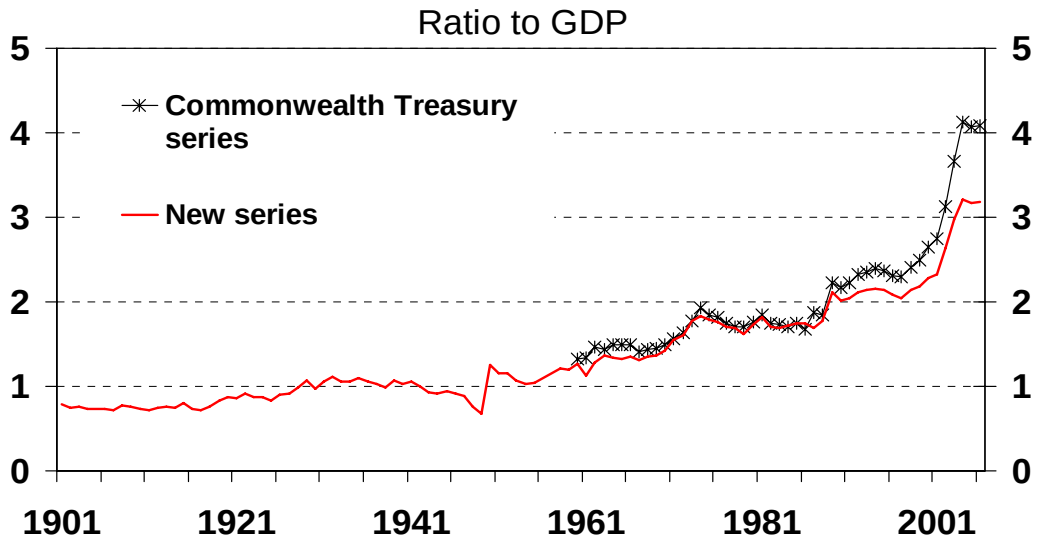


Figure 2 Price to Income ratio: Market Value of Private Dwelling Assets to Income 1901-2007



In text Figure 2 refers to 2 and 2a here

Figure 2a Rent to Income ratio: Gross Dwelling Rent to Income 1901-2007

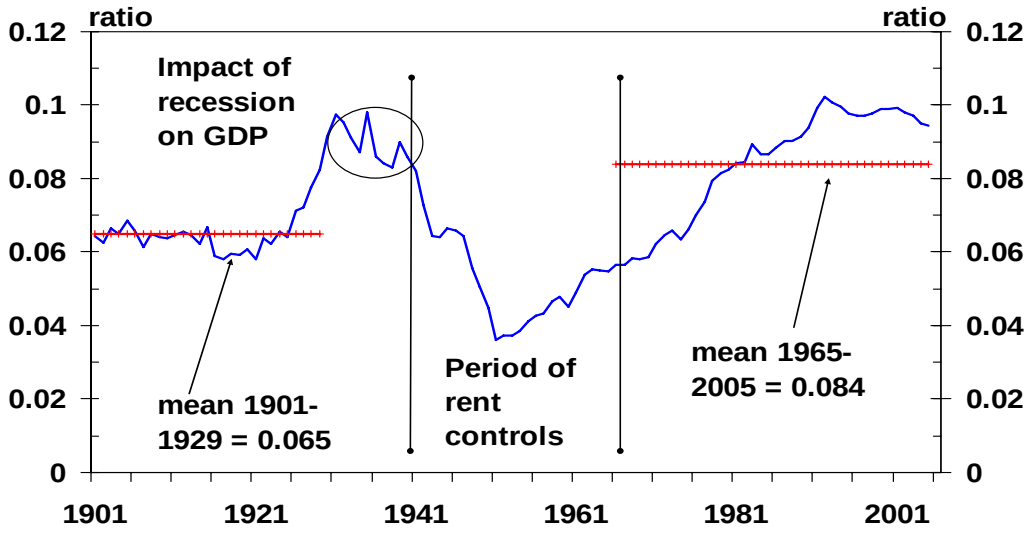
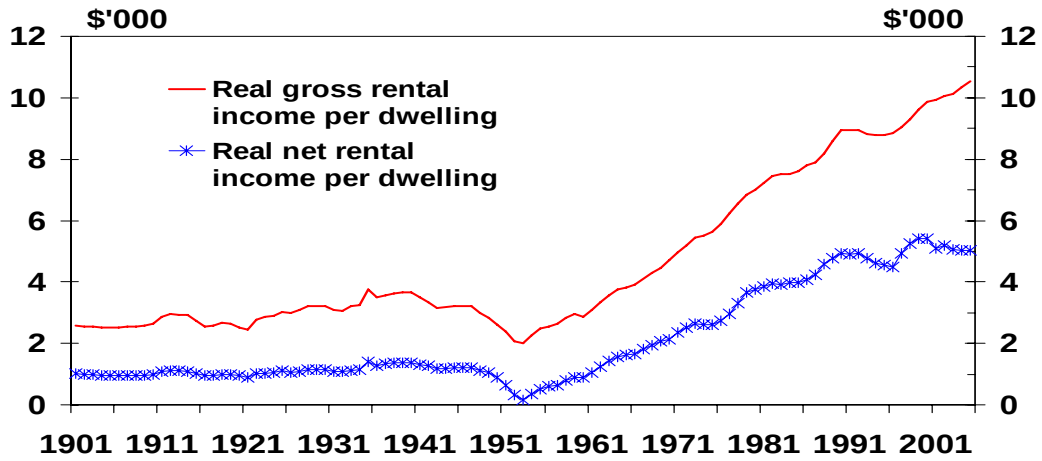


Figure 3 Real Rental Income per Dwelling



In text Figure 3 refers to 3 and 3a here

Figure 3a Real dwelling rental price index 1901- 2007

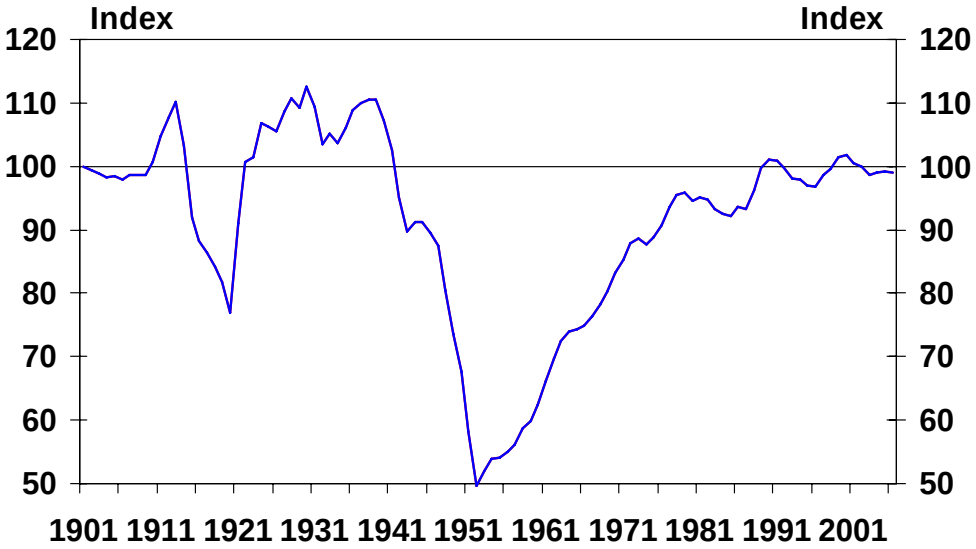


Figure 4 Gross and Net rental Yields 1901-2006