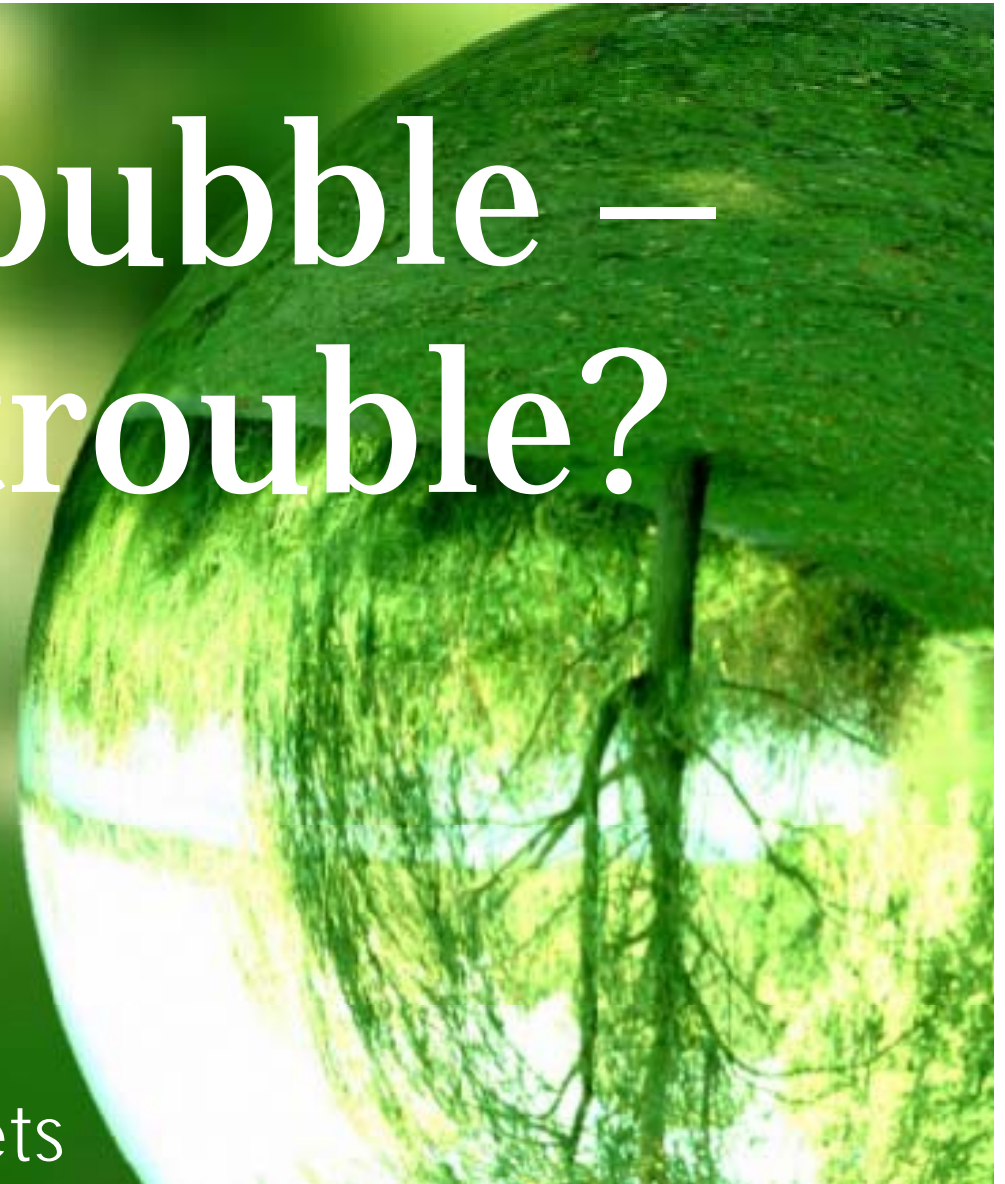


Bubble, bubble – toil and trouble?

15 February 2011

facilitating
debate on the
outlook for the markets



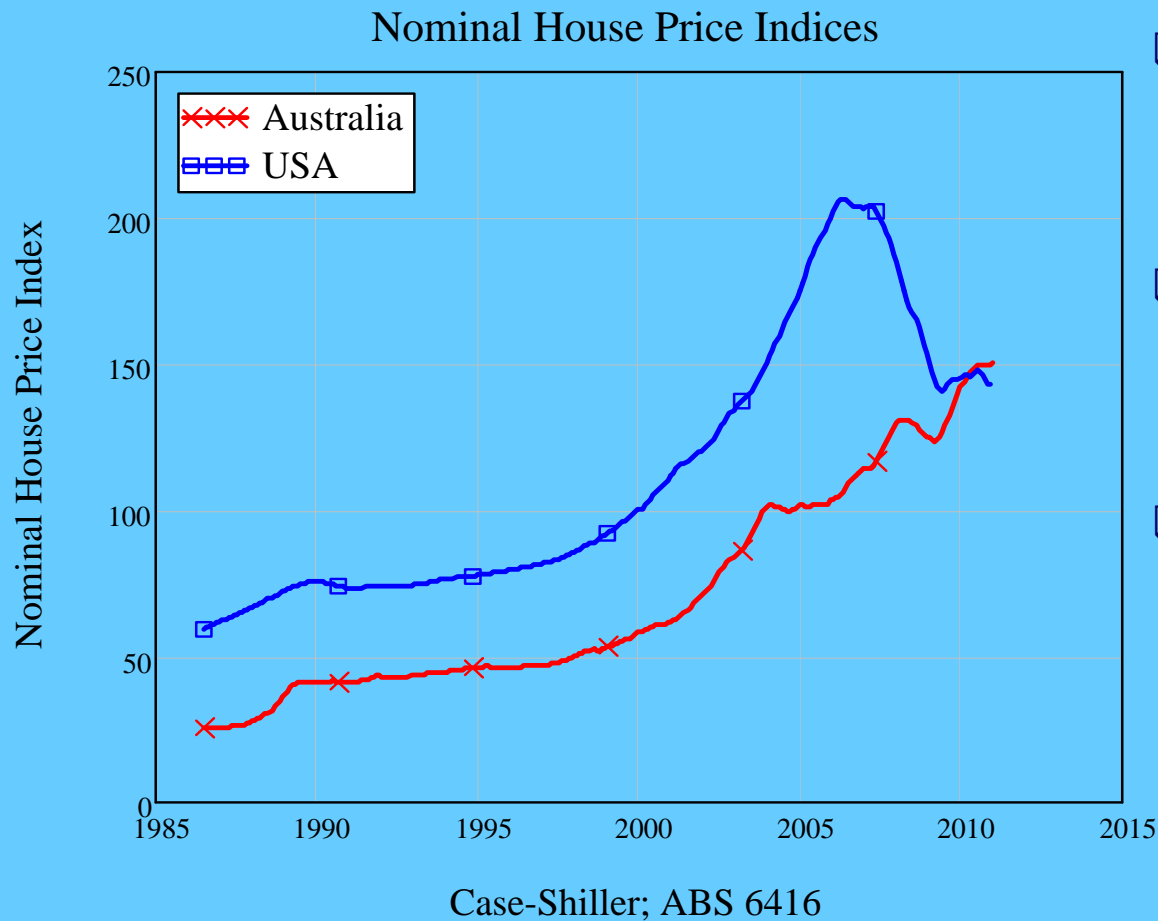


Dr Steve Keen

Associate Professor
University of Western Sydney

Just the facts: Australia-USA comparison

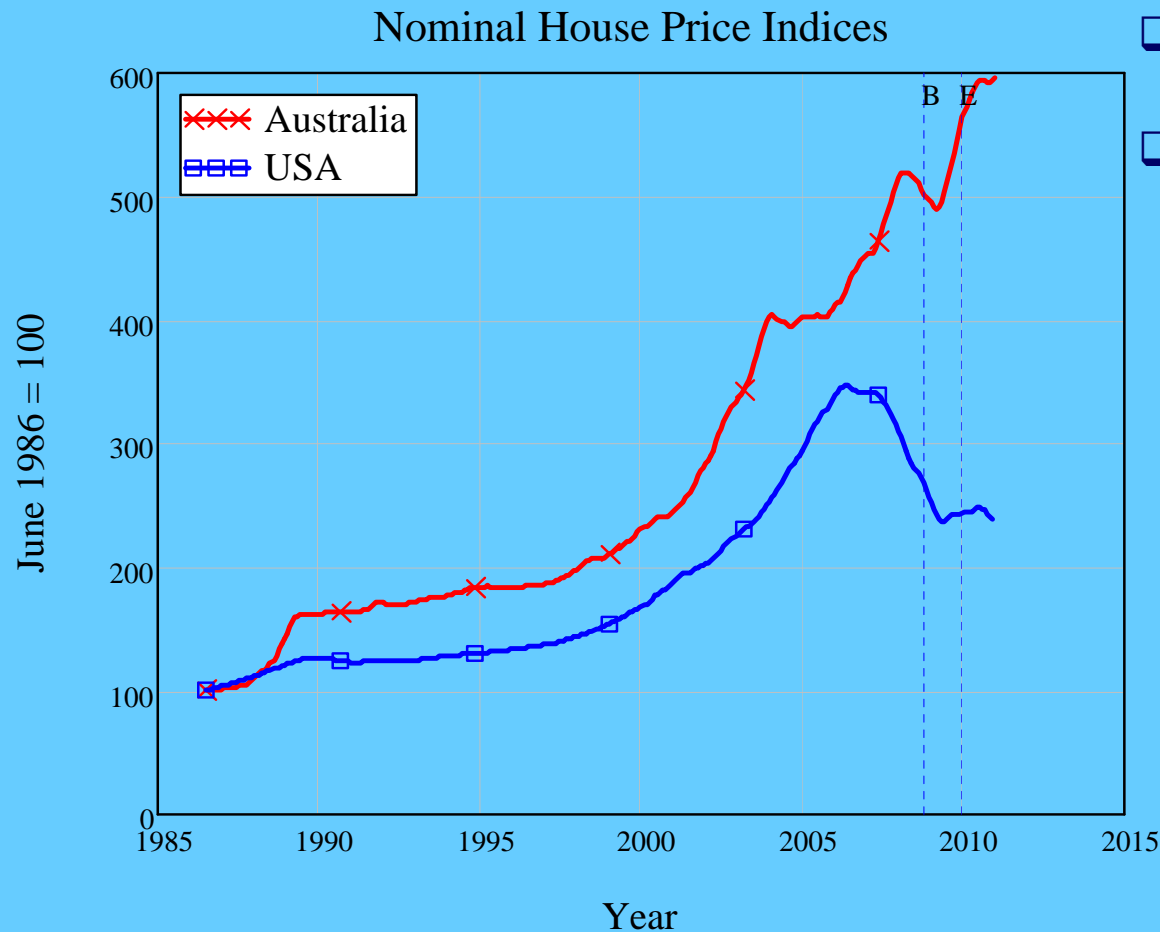
The raw indices: Australian vs US nominal



- Case-Shiller composite 20 city index latest value = 142.7
- Australia's ABS House Price Index latest value = 150.5
- Using the same base year...

Just the facts - Aus-US comparison

June 1986 = 100: Australian vs US nominal



□ USA = 240

□ Australia = 597

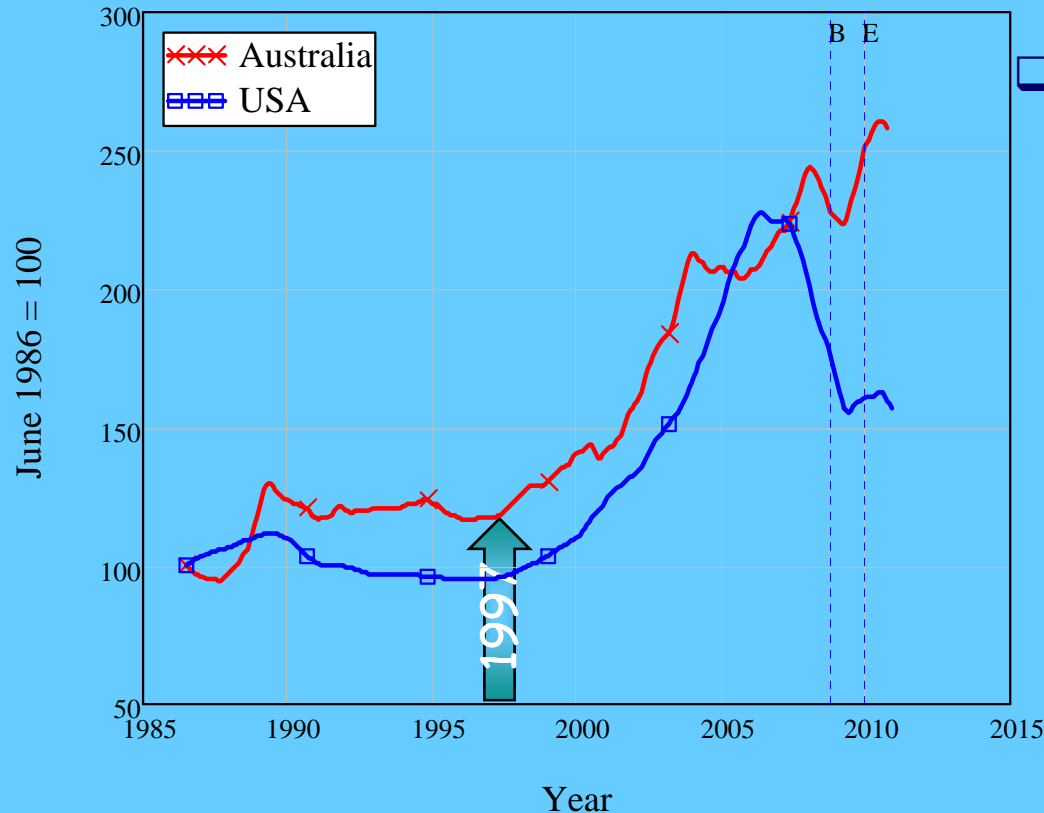
■ B = Beginning of doubling of "First Home Vendors Boost"

■ E = End of doubling

Just the facts - Aus-US comparison

June 1986 = 100: Australian vs US real

Real House Price Indices



□ USA = 157

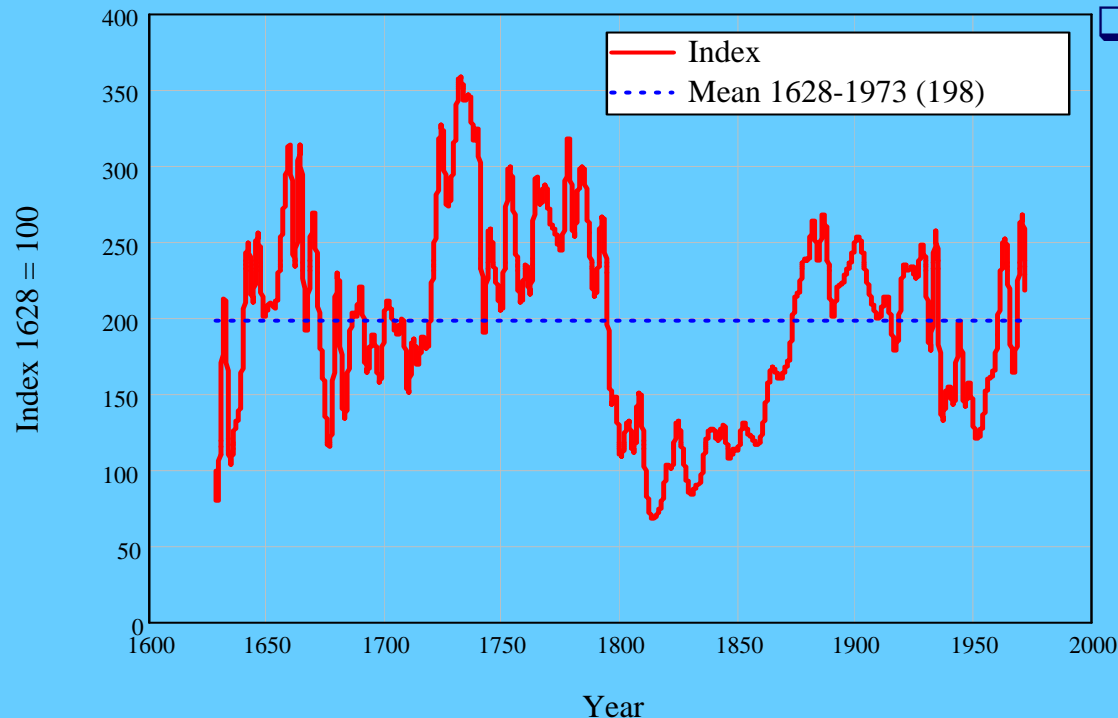
□ Australia = 258

- US houses 1.6 times as expensive as in 1986
- Australian houses 2.6 times as expensive
- Divergence dates from 2005-07 - common "bubble" pattern 1997-2004
- US bubble burst 2006
- Aussie bubble stalled 2004, restarted 2006, burst 2008, restarted by FHVB

Just the facts - Long-term prices

Longest time series: no trend to real price

Herengracht Canal Real Price Index



Source: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=598

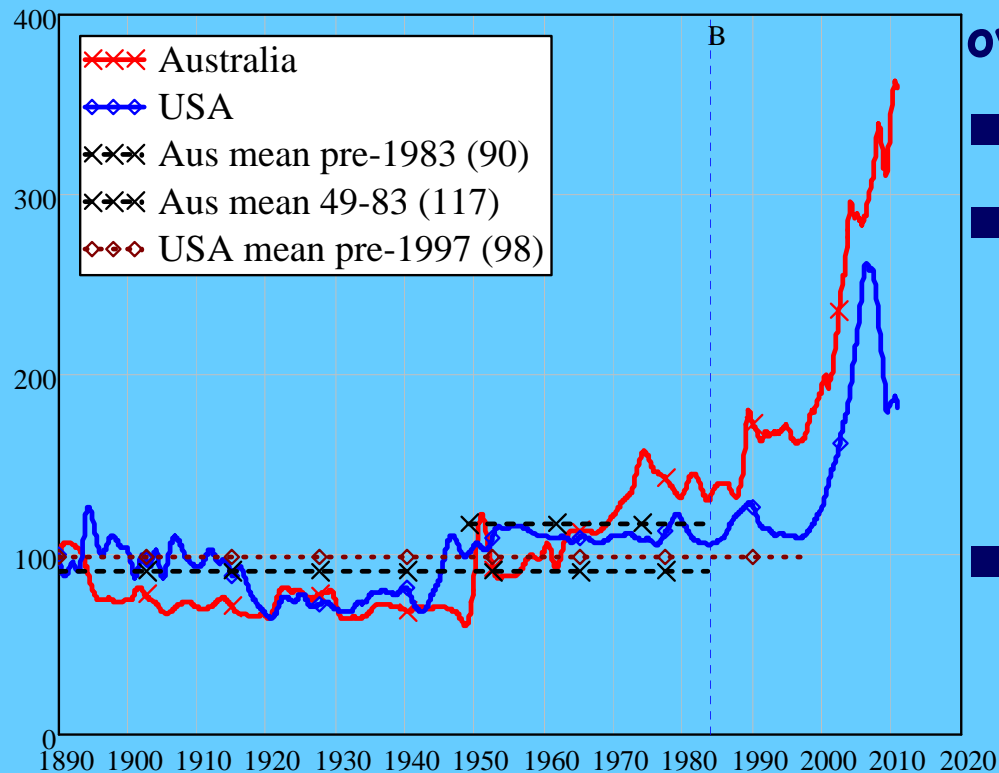
Herengracht Canal Amsterdam price data 1628-1973

- Long periods of rising or falling real prices
 - But no trend over 350 years
 - Implies real house prices roughly constant
- Deviations reflect bubbles/collapses rather than sustained trends

Just the facts - Aus-US comparison

Long term: US index stable till 1997

Long Term Real House Price Indices



Sources: Nigel Stapledon (<http://handle.unsw.edu.au/1959.4/29488>), ABS

☐ No trend in US real house prices over 1890-1997

■ Same for Australia till 1987

■ US bubble obvious over long term

☐ Now 181

☐ Reverting to mean? (98)

■ Australian index now 359

■ vs 117 mean between two government schemes

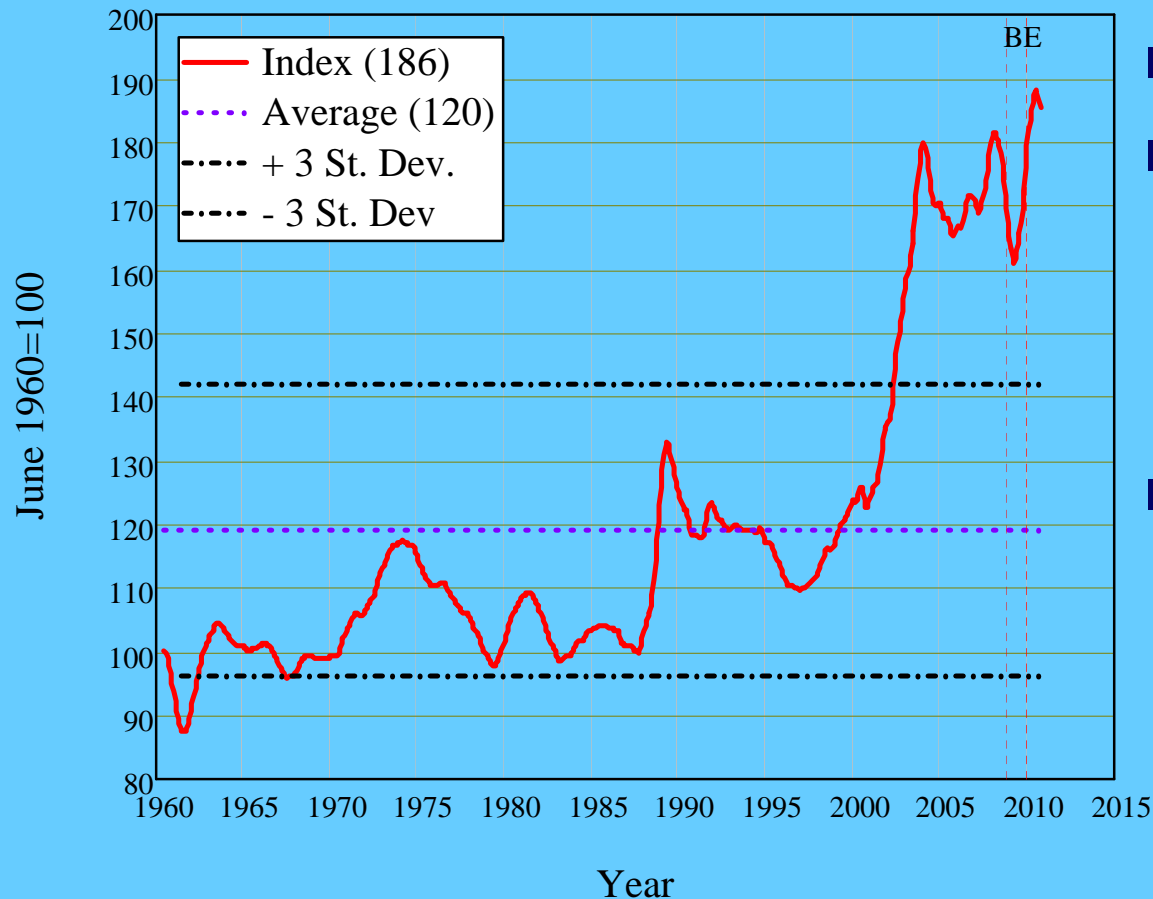
☐ Rent control pre-1949

☐ First Home Owners Grant post-1983

Just the facts - Compared to disposable income

Per-capita household disposable income

House Price Index to HDI Per Head 1960-2010 □ Data since 1960



■ Mean 120

■ All rise in ratio dating from 1997

□ 111 in 1997

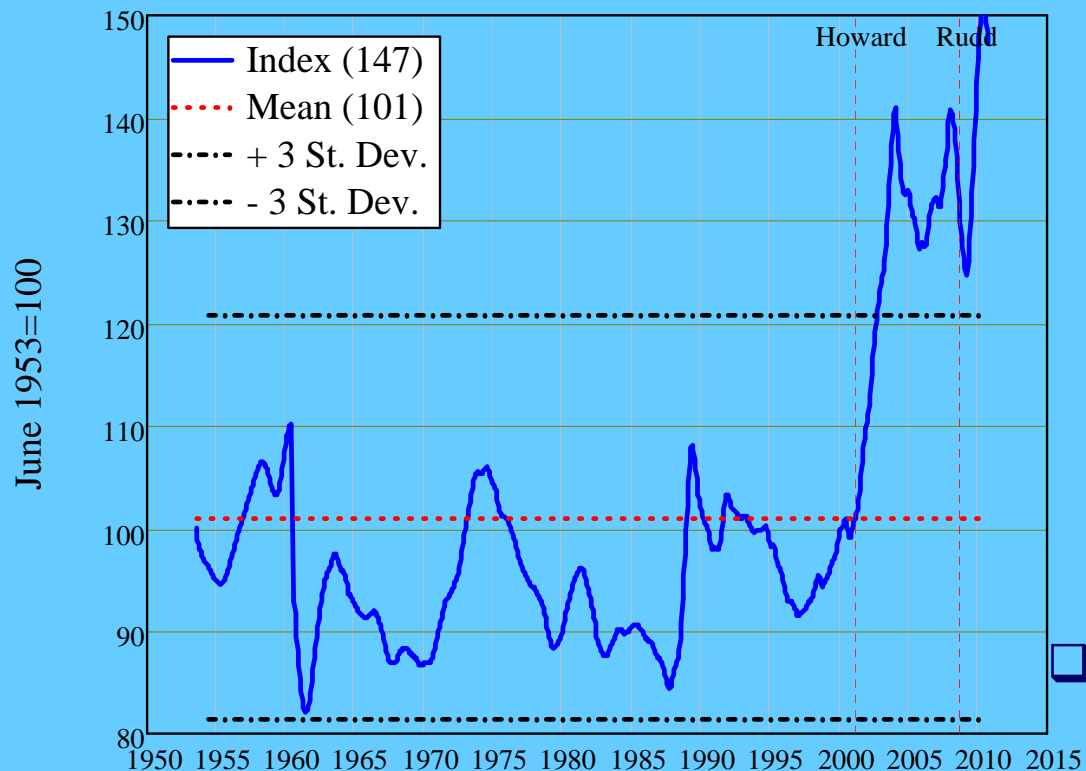
□ 188 13 years later

■ Current value 10 standard deviation above 1960-2010 mean

Just the facts - Compared to income

GDP per head

House Price Index to GDP Per Head



□ Data from 1953

■ Mean 101

■ All rise in ratio dating from 1997

□ 92 in 1997

□ 150 13 years later

■ Current value 7 standard deviation above 1953-2010 mean

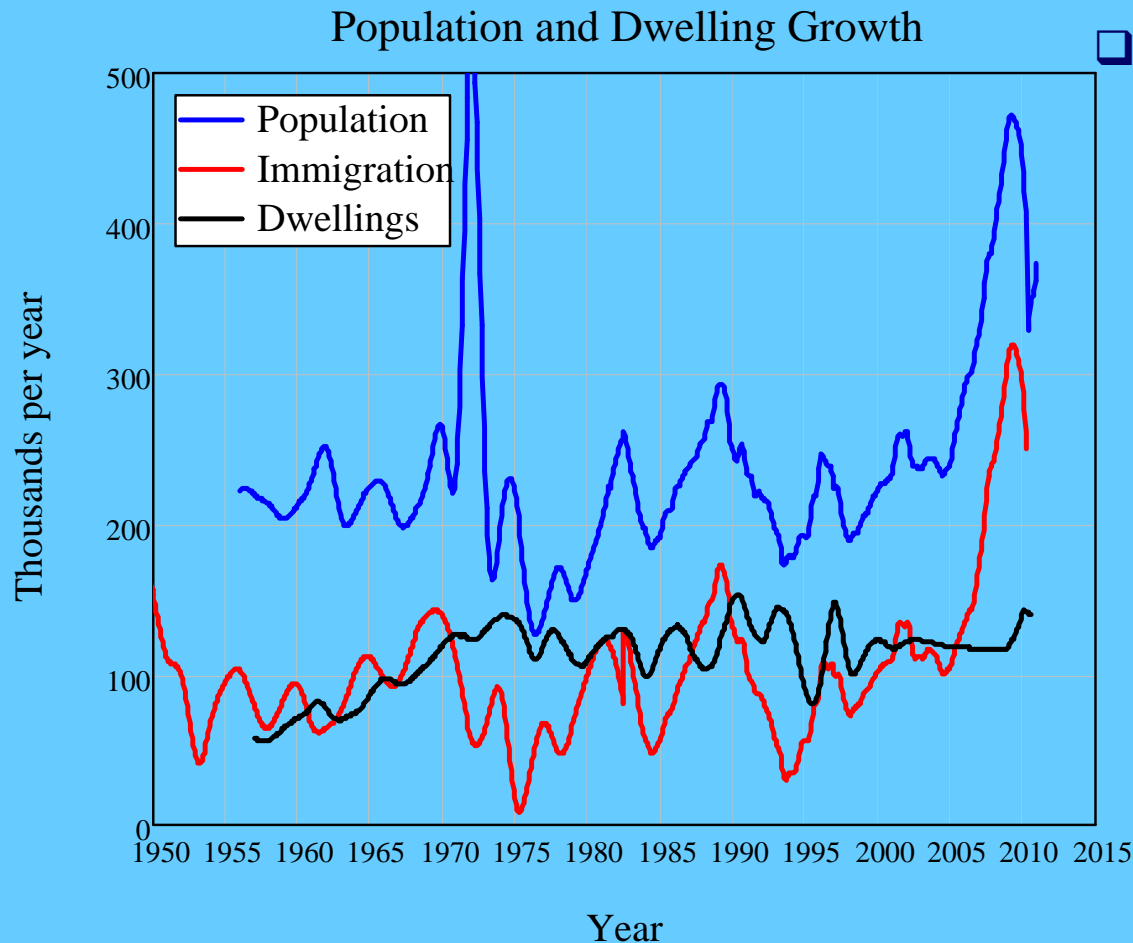
□ Conclusion

■ Bubble began in 1997

■ Value at least 50% above sustainable levels

"No bubble" - Housing shortage?

Rise explained by population growth exceeding dwelling construction?

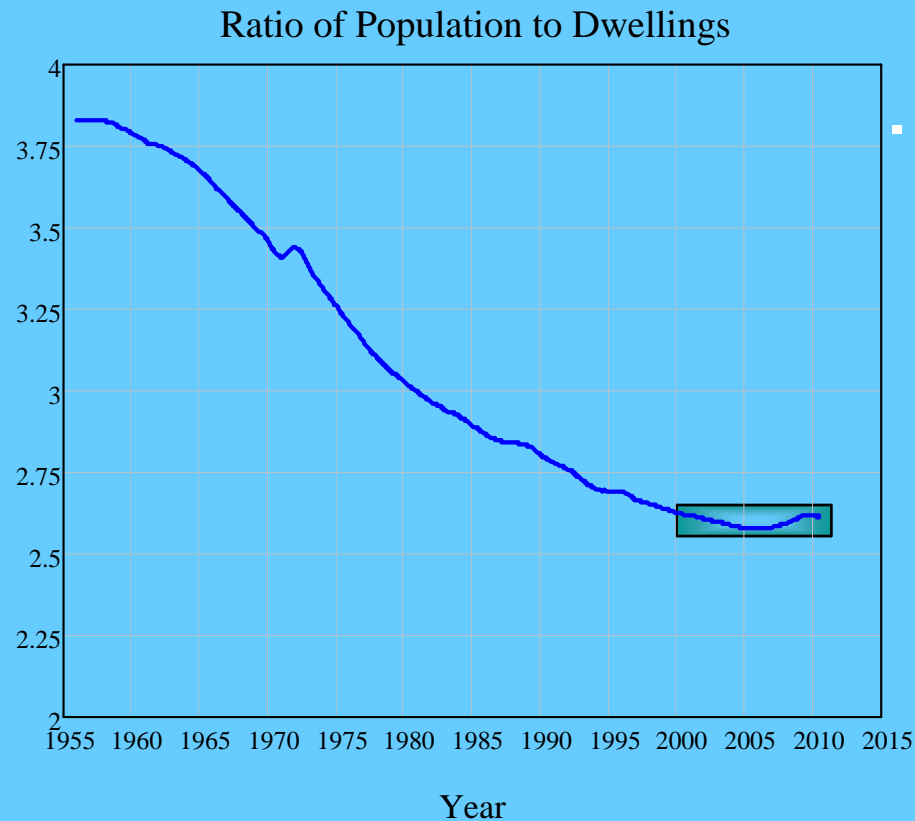


■ "Spikes" in population

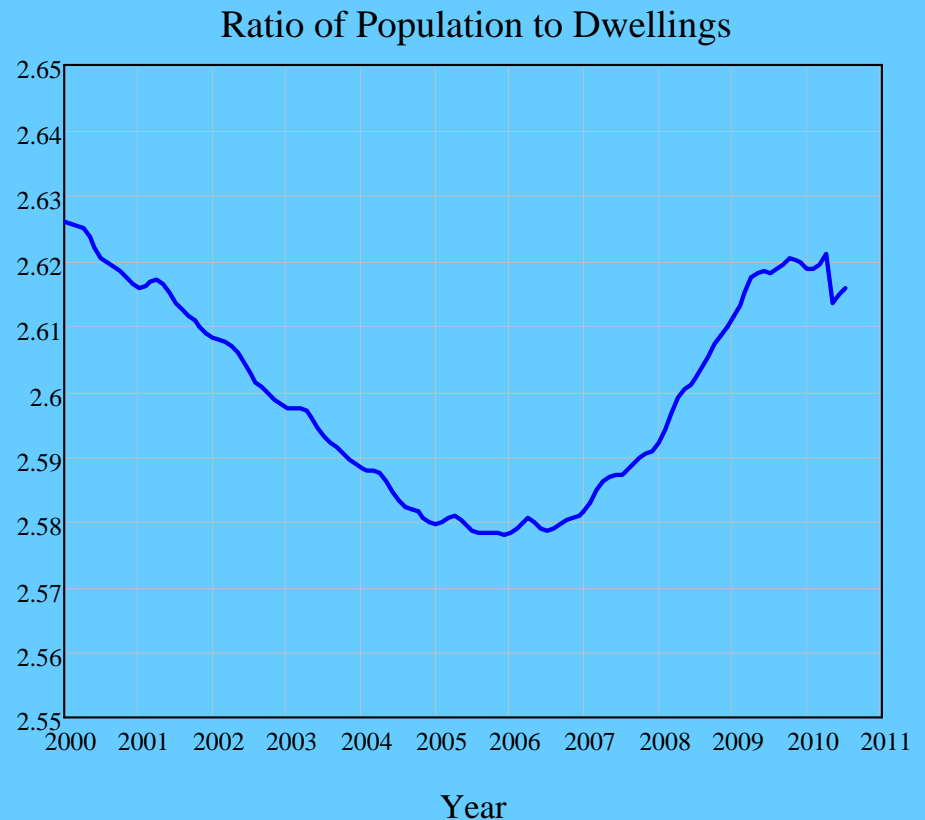
- 1973: recording aboriginal population in census for the first time
- 2009: large skilled migrant and education intakes

"No bubble" - Housing shortage?

Rise explained by population growth exceeding dwelling construction?

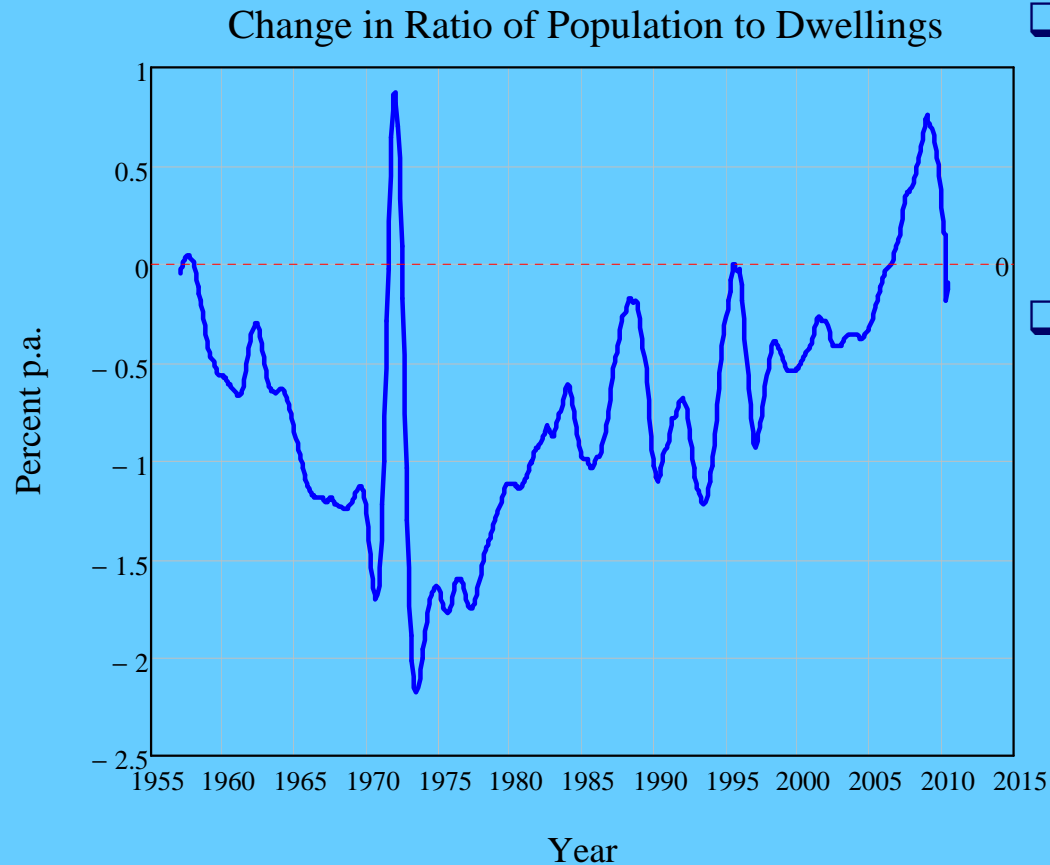


□ Persons-per-dwelling ratio *falling, except for 2006-10*



"No bubble" - Housing shortage?

Rise explained by population growth exceeding dwelling construction?



- ☐ Dwelling construction has outstripped population growth for all but mid-2006 to early 2010
- ☐ So were house prices falling between 1958 and 2006?
 - ☐ Clearly not!

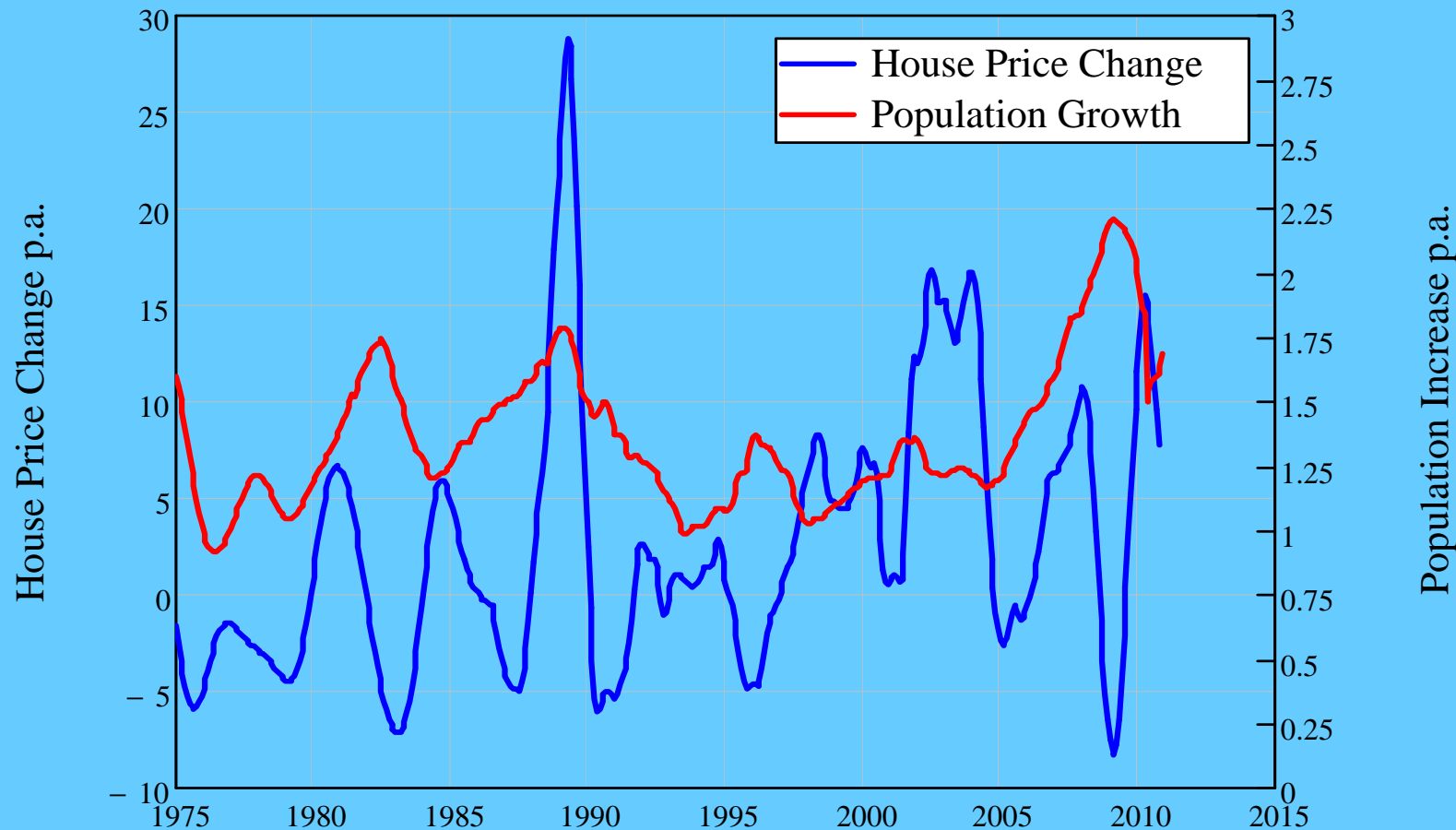
"No bubble" - Housing shortage?

Rise explained by population growth exceeding dwelling construction?

❑ No correlation between population growth and real house prices

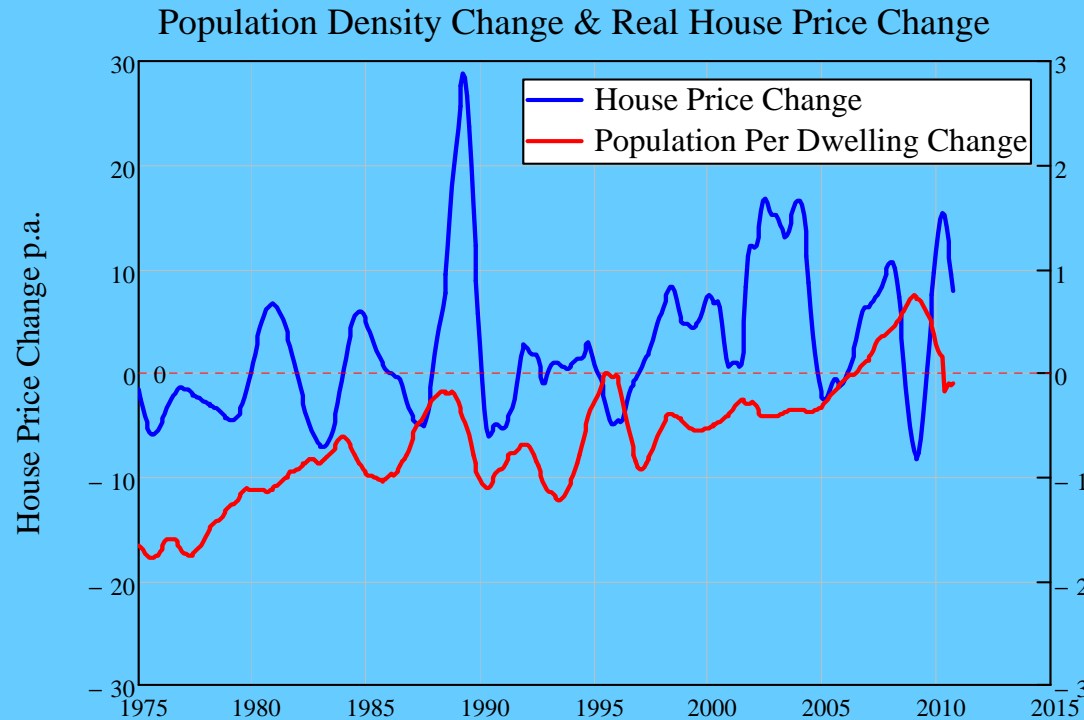
■ $R^2 = 0.09$

Population Change & Real House Price Change



"No bubble" - Housing shortage?

Rise explained by population growth exceeding dwelling construction?



□ Apparent correlation between change in population per dwelling and *real* house prices

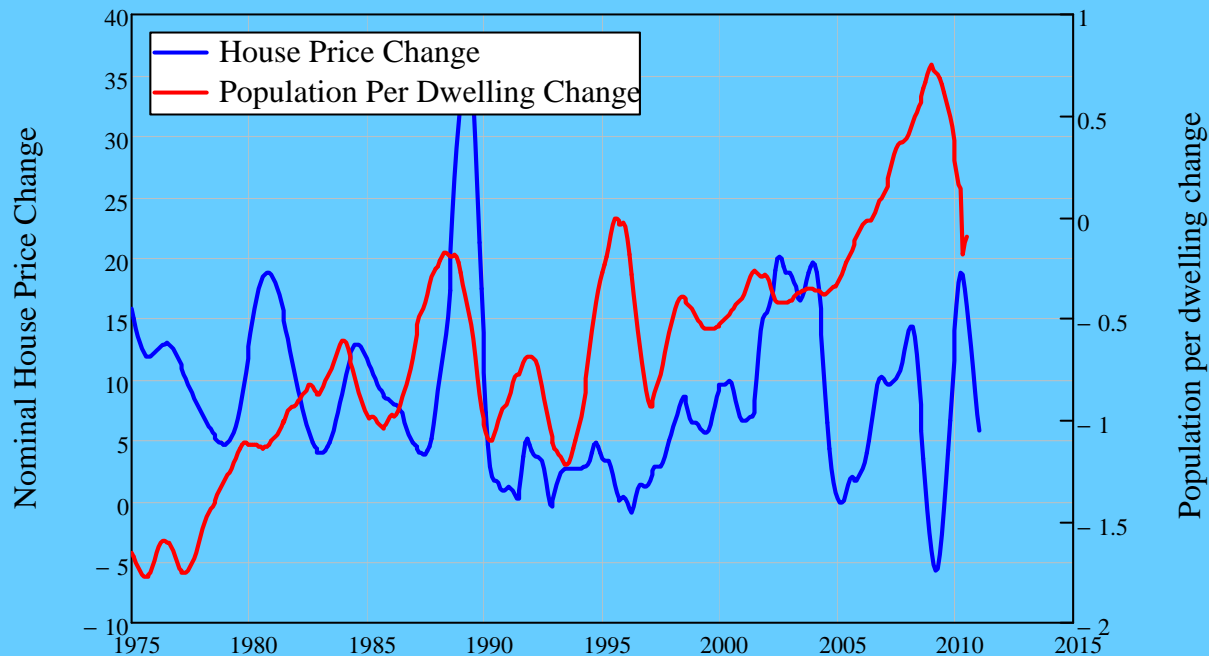
■ $R^2 = 0.32$

□ But a spurious correlation due to coincidence of declining trends in commodity price inflation & persons per house

"No bubble" - Housing shortage?

Rise explained by population growth exceeding dwelling construction?

Population Density Change & Nominal House Price Change



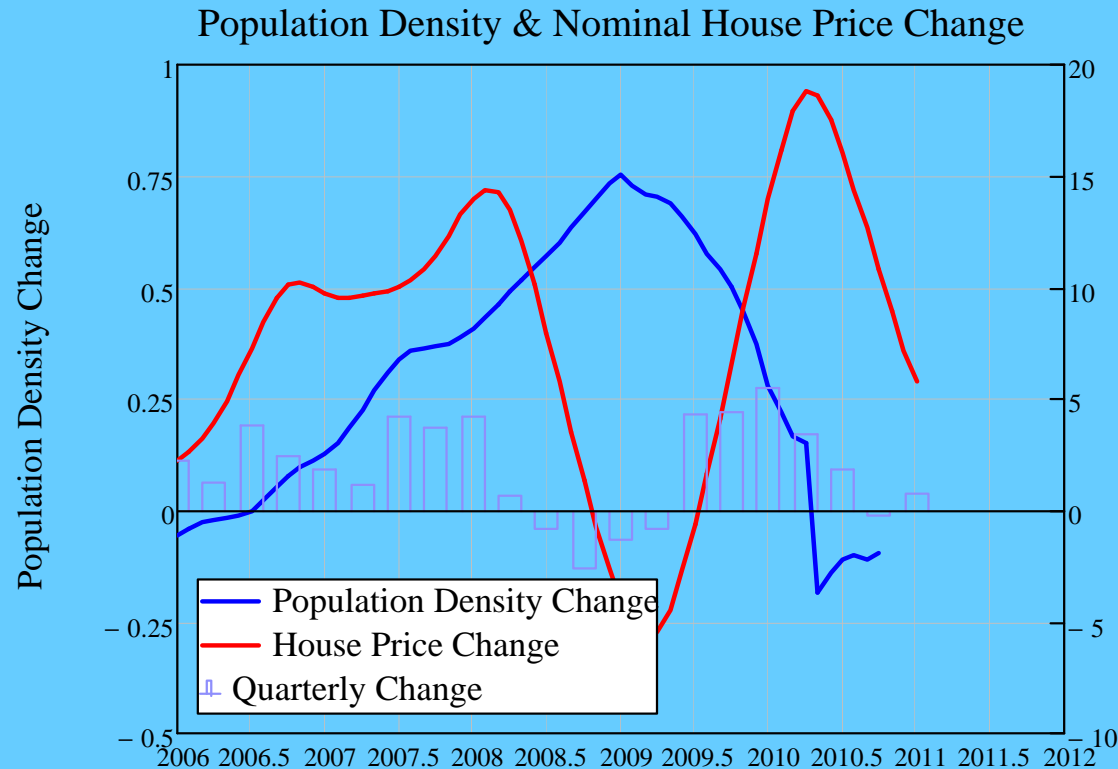
□ Trivial *negative* correlation with nominal house prices

■ $R^2 = -0.06$

■ What about recent immigration surge?

"No bubble" - Housing shortage?

Rise explained by population growth exceeding dwelling construction?



- Even when population density rising, correlation has wrong sign
- $R^2 = -0.56$
- Immigration surge gave bubble-deniers a plausible story
- But population growth/density can't explain price surge

"No bubble" - "Underlying demand"?

- Price rise explained by shortage of housing relative to projected demand?
 - '... the Council estimated a gap of around 85,000 dwellings between underlying demand for and supply of housing at 30 June 2008. The Council developed a methodology for measuring the gap *based on selected measures of homelessness...* The measures used in the 2008 report were:
 - 2008 gap size = additional private rental dwellings required in 2008 to increase the number of vacant private rental dwellings to 3 per cent of the total private rental stock
 - + *dwellings required to accommodate people who are homeless and sleeping rough* or staying with friends and relatives
 - + *dwellings required to house marginal residents of caravan parks.*

National Housing Supply Council 2010, pages 65-66

"No bubble" - "Underlying demand"?

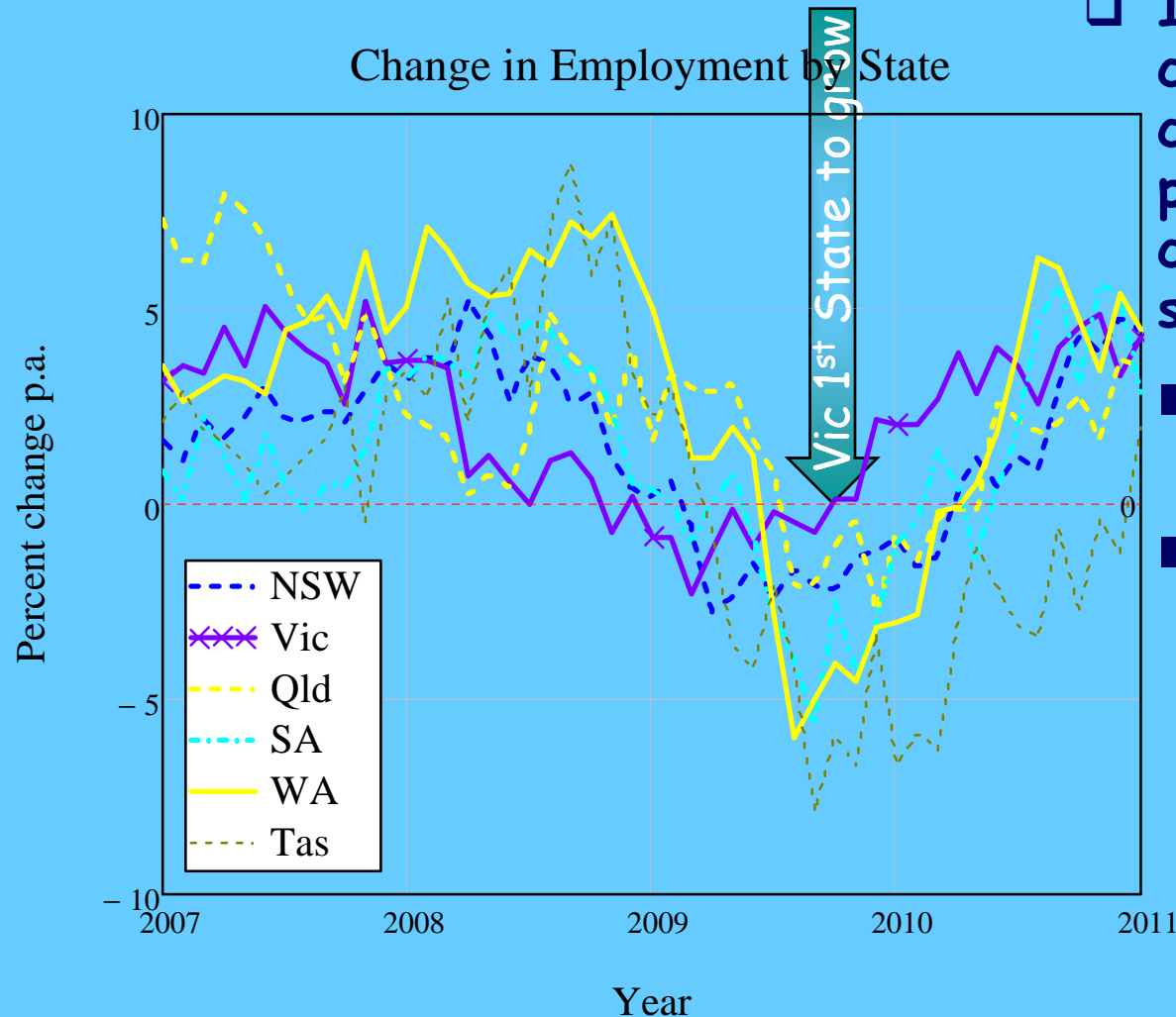
- Price rise explained by shortage of housing relative to projected demand?
 - "Gap between underlying demand & supply" might explain need for housing
 - But doesn't explain monetary demand for it
 - *Homeless people driving up house prices?*
- Illicit use of measure of *need* as basis for *demand*



- If you think he's driving up house prices, I have a bridge I'd like to sell you...

"No bubble" - The China boom?

Price rise explained by boom in exports to China?



□ If China boom story is correct, best "during crisis" economic performance should have come from resource states

■ WA & Qld worse than average till mid-2010

■ Outperforming state was Victoria

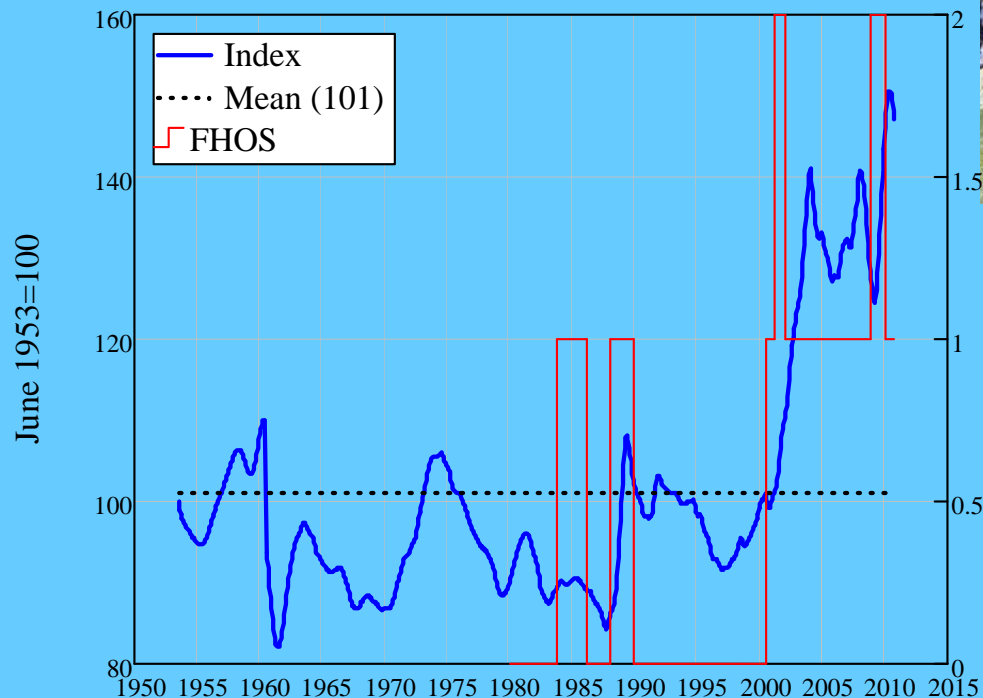
□ Biggest state supplements to Federal First Home Owners' Boost

So if not population or China...

- What kept Australian house prices airborne?

- (1) The "Hand of Gov"

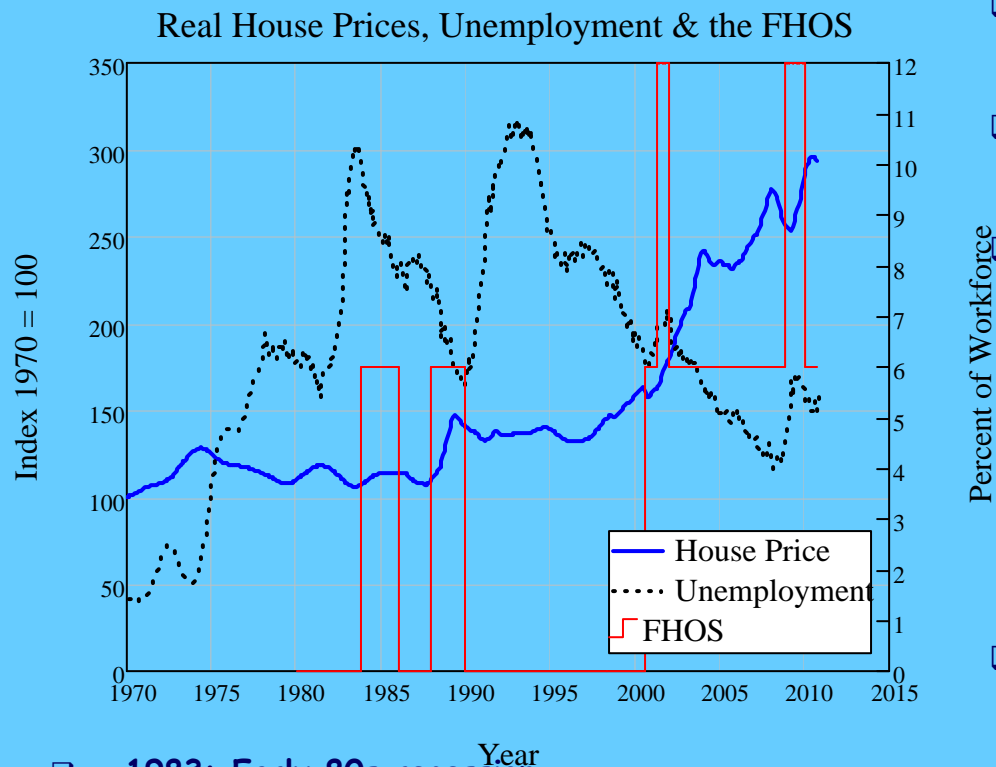
House Price Index to GDP Per Head



- First Home Owners' Scheme used as macroeconomic "anabolic steroid"
 - Introduced in 1983 to stimulate economy after 80s recession
 - Ditto 1988 after 1987 stock-market crash
 - Doubled 2001, 2008
 - 2000 as "temporary" GST boost, but never removed

The Hand of Gov

House price inflation as macro policy

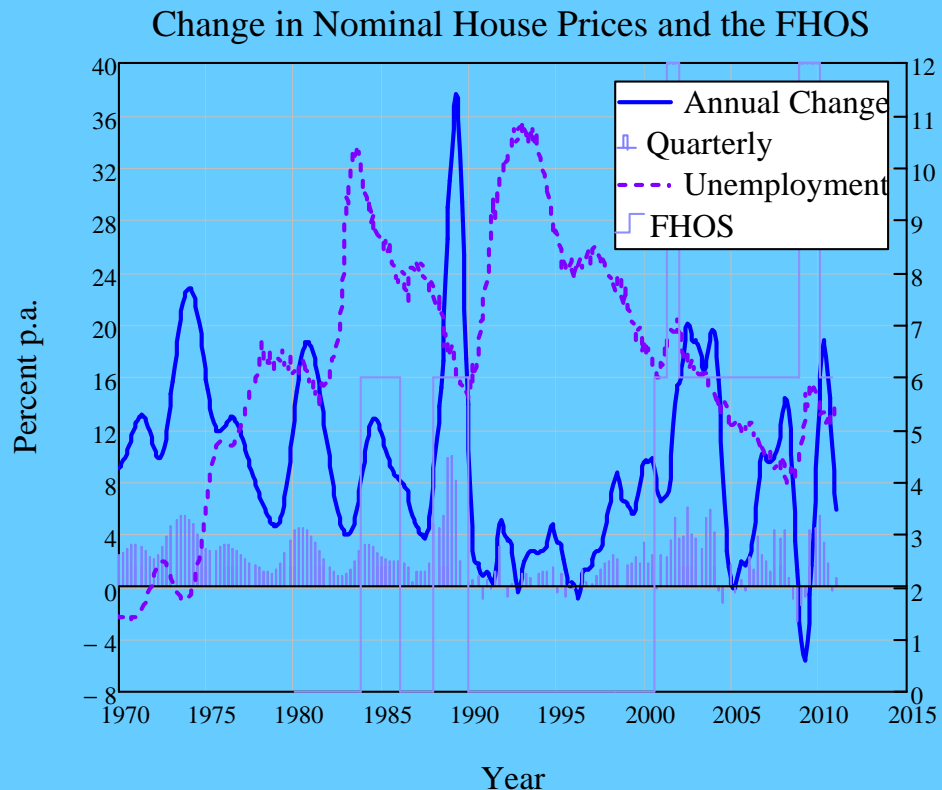


- ❑ 1983: Early 80s recession
- ❑ 1988: 1987 stock-market crash
- ❑ 2000: "Temporary" offset for impact of GST
- ❑ 2001: Fear of recession after 2000 market crash
- ❑ 2008: Financial crisis

- ❑ First Home Owners' Bill 1983
- ❑ 'This Government was elected ...with a commitment to boost the nation's economy...
- ❑ Our housing policies are an essential element of our national recovery strategy...
- ❑ Our program is designed to achieve the dual objectives of
 - ensuring that housing plays a key role in our economic recovery and
 - ensuring that Australian families can gain access to adequate housing at a price they can afford.
- ❑ The main elements of our program are...
 - a new more effective scheme to assist low income home buyers - the *first home owners' scheme*...
 - to get the housing industry moving without delay *we removed the savings requirement from the existing home deposit assistance scheme...*

The Hand of Gov

House price inflation as macro policy



First Home Owners' Schemes

- 1983: strong fall in unemployment and temporary boost to prices, but focus of speculation shifted to stock market
- 1988
 - Scheme supercharged real-estate bubble after too-successful rescue of financial sector post-1987 stock-market crash
 - Unemployment explodes as real-estate bubble bursts
- 2001 doubling
 - No early 2000 recession - unemployment continued to fall from 1993 peak
 - House-price-bubble explodes
- 2008 doubling
 - Reverses fall in price; restarts bubble
 - Bubble-driven fall in unemployment

The Hand of Gov

Government scheme supports Ponzi scheme

| Quarterly Real House Price Movements | | | | | | |
|--------------------------------------|--------|-------|----------|--------|---------|---------|
| FHOS Stats | Before | After | All Data | During | Between | Doubled |
| Mean | 0.1% | 1.0% | 0.5% | 2.2% | 0.3% | 3.1% |
| Min | -5.5% | -3.7% | -5.5% | -2.3% | -2.3% | -0.9% |
| Max | 3.9% | 7.9% | 7.9% | 7.9% | 3.0% | 4.9% |
| Std. Dev. | 1.7% | 2.2% | 2.0% | 2.7% | 1.3% | 1.8% |
| Count | 131 | 107 | 238 | 25 | 51 | 7 |

❑ First Home Owners' Scheme seriously distorted market

- No trend to prices prior to scheme
- 1% p.q. increase after it
- Much higher price volatility as well

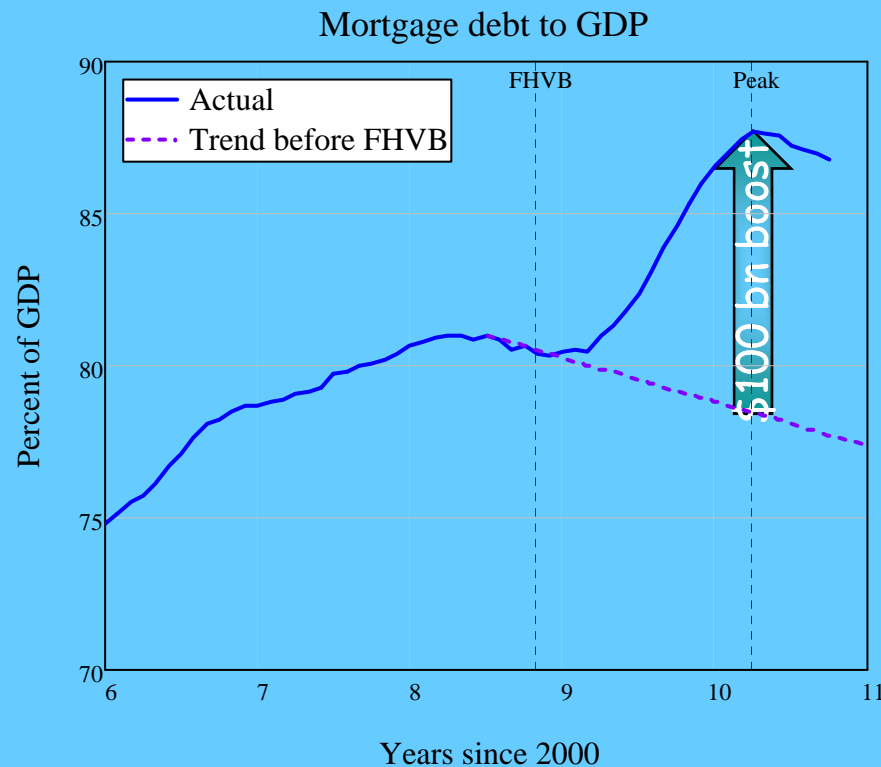
❑ How it works: double leverage

- Government gives FHB extra \$7k
- Bank loan to FHB levers this to (say) \$70k
- Bids price up by (say) \$35k
- Bank loan to seller levers this to (say) \$350k for next purchase

The Hand of Gov

Government scheme supports Ponzi scheme

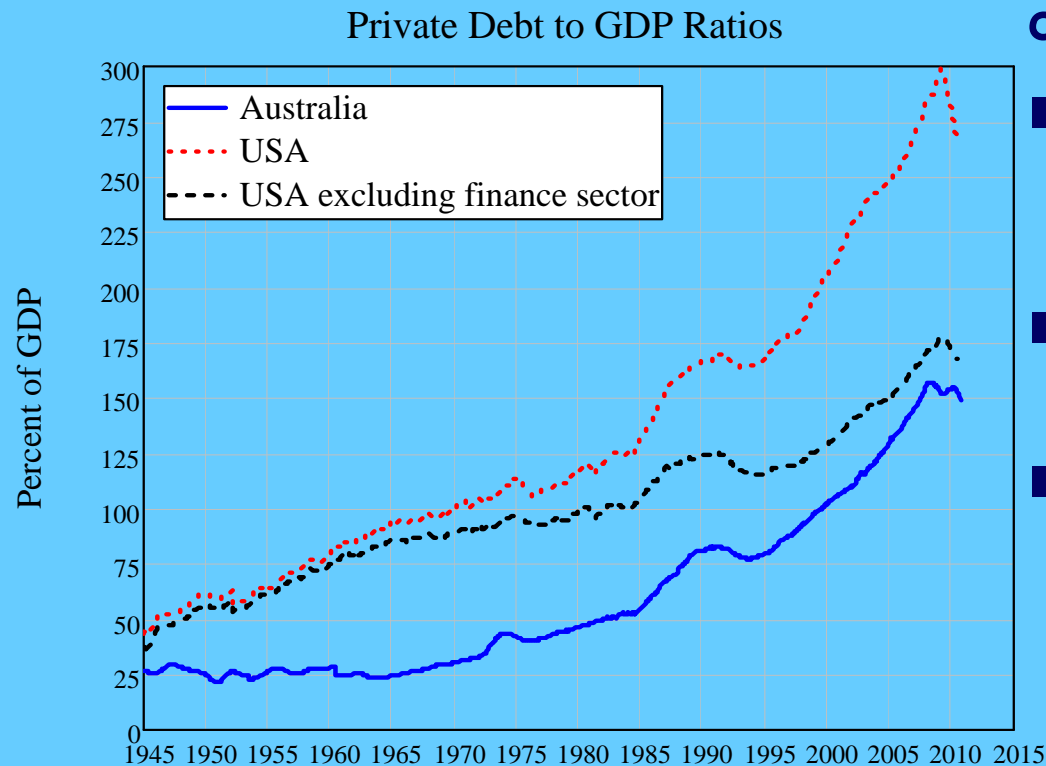
Releveraging



- 2008 Scheme reversed trend of falling mortgage debt
- Pre-scheme trend: mortgage/GDP ratio falling by 2.1% by March 2010
- Instead rose by 6.1%
- Turnaround 8.2% of GDP
- *Equivalent to \$100bn increase in aggregate demand*

And Deeper in Debt

Finance-government nexus



□ FHOS fed into finance sector-driven debt binge

■ Australian banks (& housing market) just as debt-driven as US counterparts

■ Debt/GDP grew exponentially in both countries

■ Major differences:

□ Far smaller “shadow”-banking sector

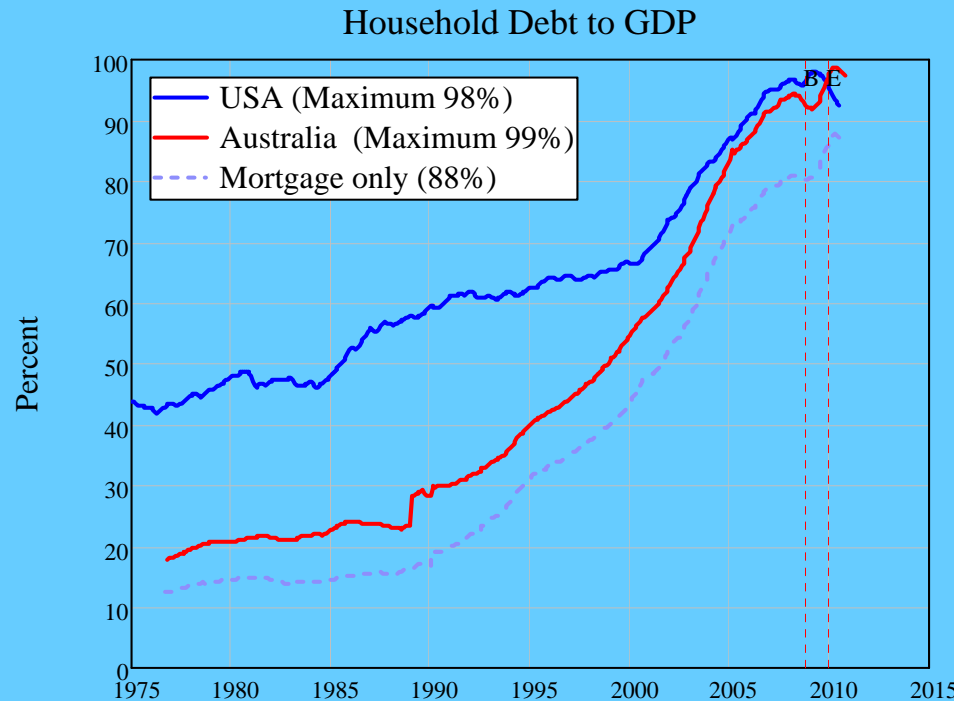
□ Slower takeoff post WWII

□ Faster-growing, larger lending for mortgages...

And deeper in debt

Australian banks as responsible lenders?

☐ Less subprime lending than in USA. But...



■ Higher rate of growth of lending to households

■ Higher level of household indebtedness

■ Debt more widely dispersed through population

☐ Less "Ma and Pa Kettle" lending; but

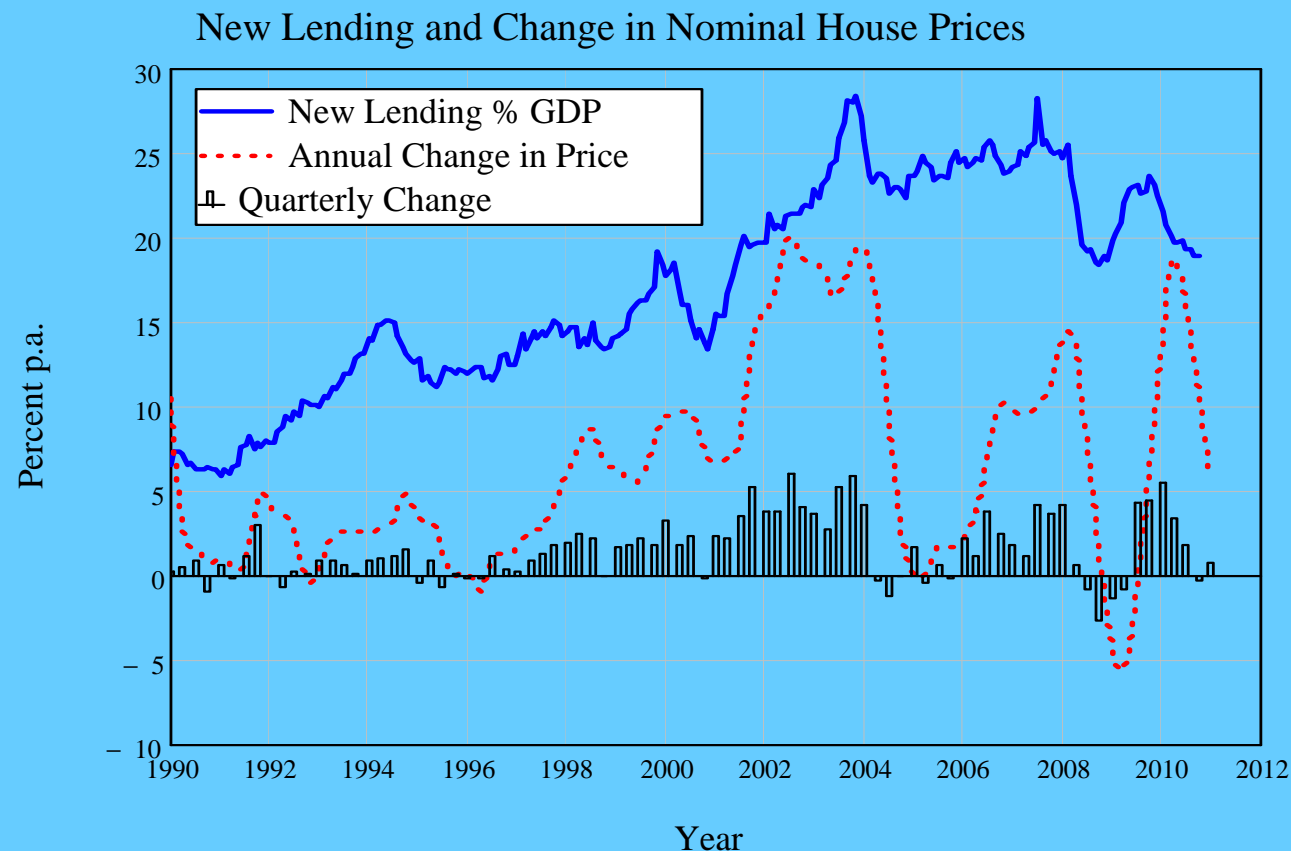
☐ More broadly debt-encumbered population

☐ Worse impact on retail sector

Real driver of house-price bubble

Lending key force behind bubble

- Loans from 5% of GDP pre-1990 to 25% in 2000s
- 0.51 correlation between new lending & change in prices
 - 0.53 correlation when rising trend accounted for

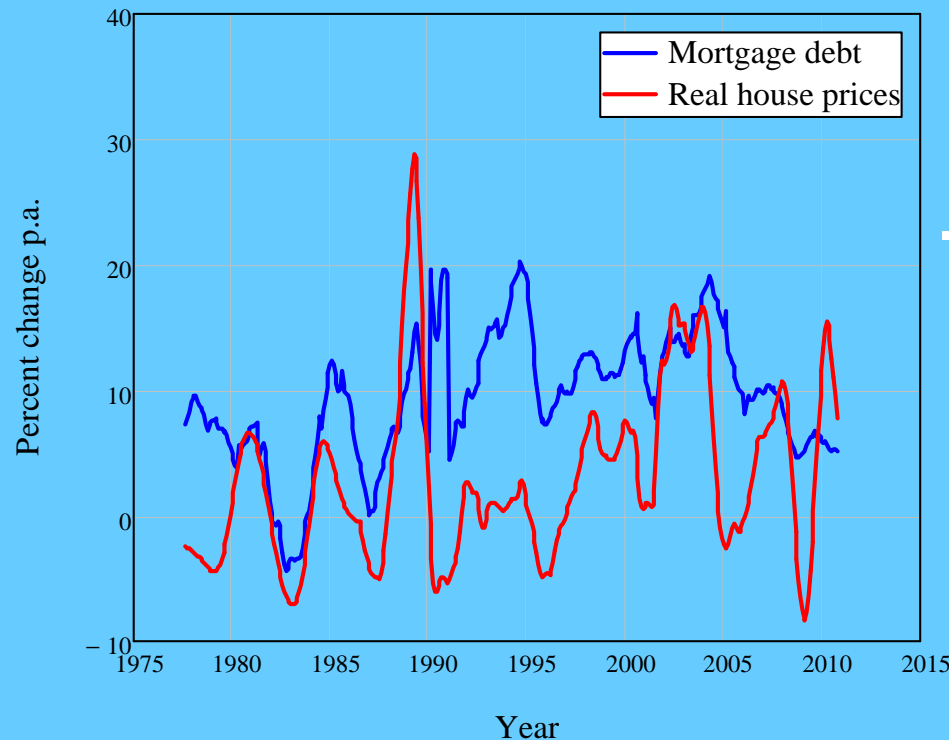


Real driver of house-price bubble

Lending key force behind bubble

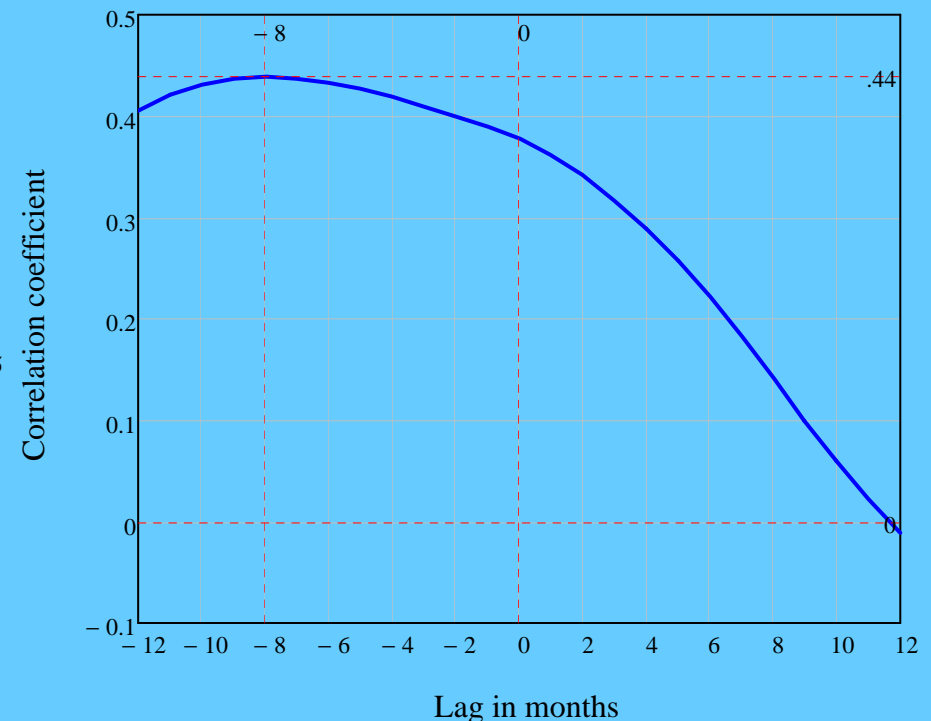
- Change in mortgage debt main driver of change in prices

CPI-deflated Mortgage Debt and House Prices



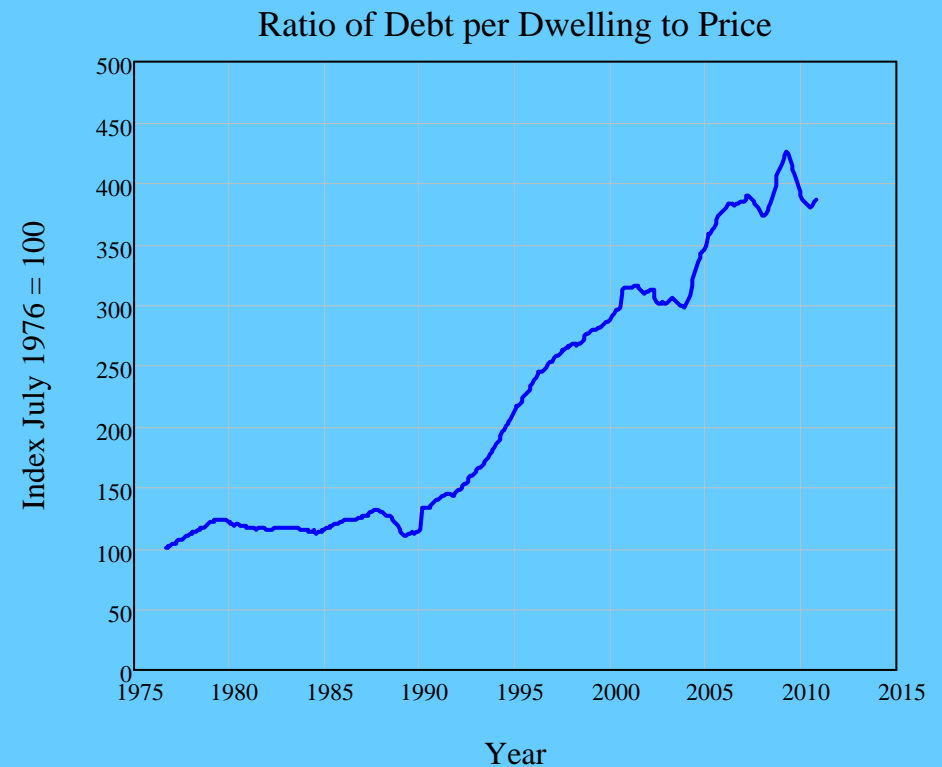
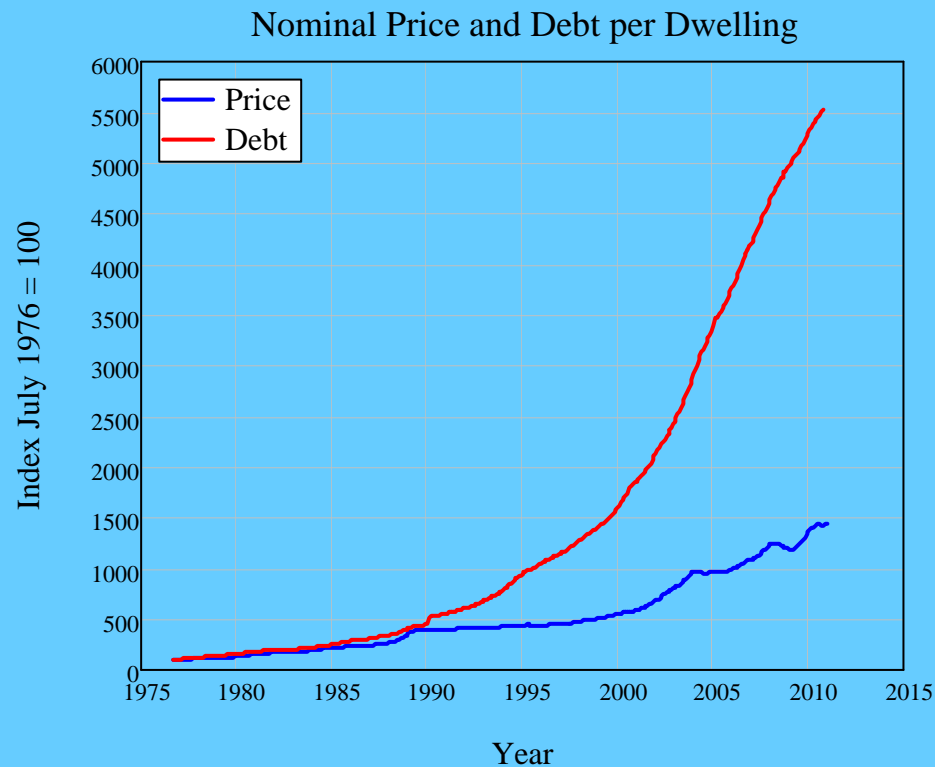
- Mortgage debt leads real house prices by about 8 months

Change in Real Mortgages & House Prices



Real driver of house-price bubble

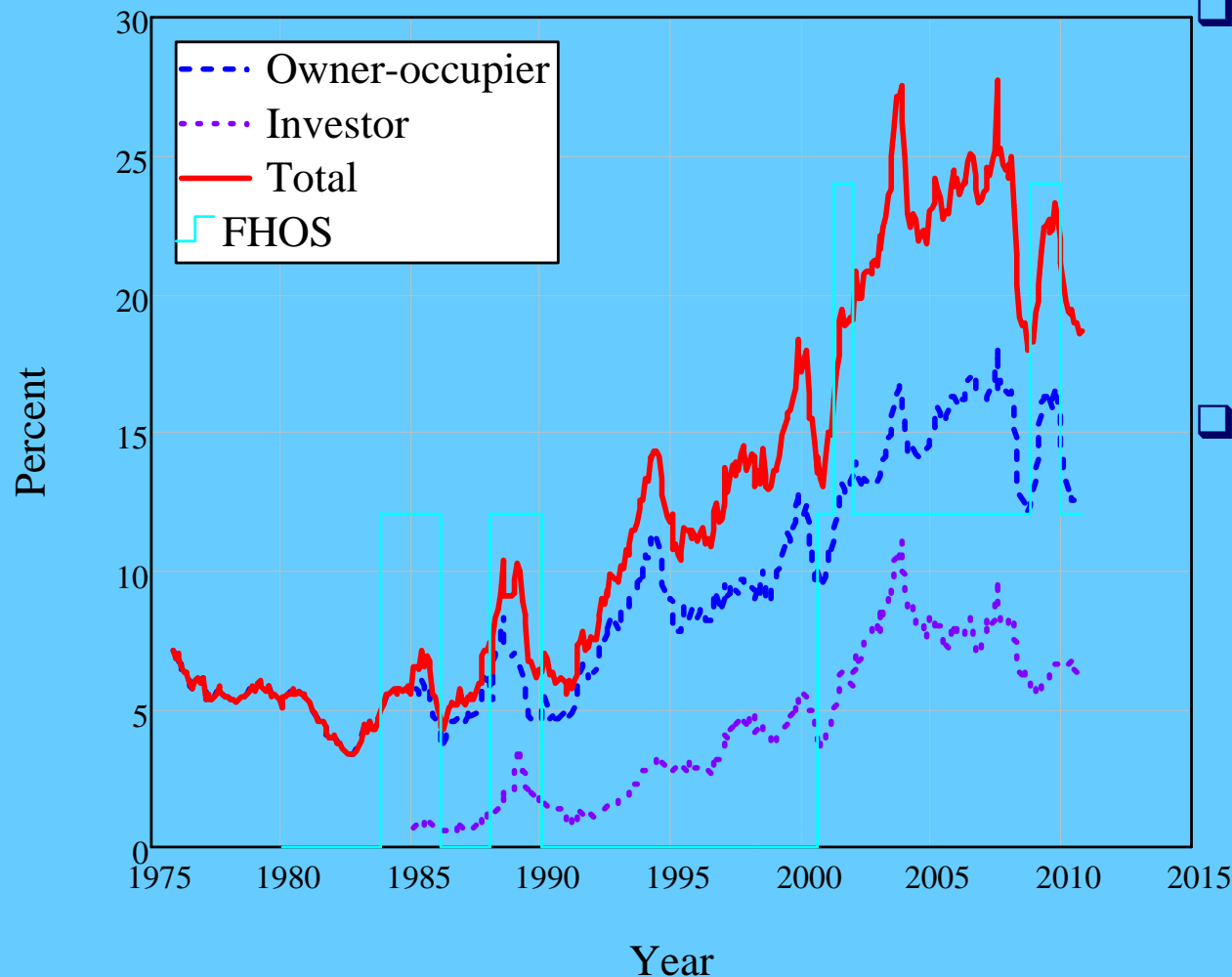
- Lending key force behind bubble
- Debt drove house prices higher
- Debt per house Increase far greater than price increase



And deeper in debt

■ Australian banks as responsible lenders?

New Housing Loans as percent of GDP



□ New home loans

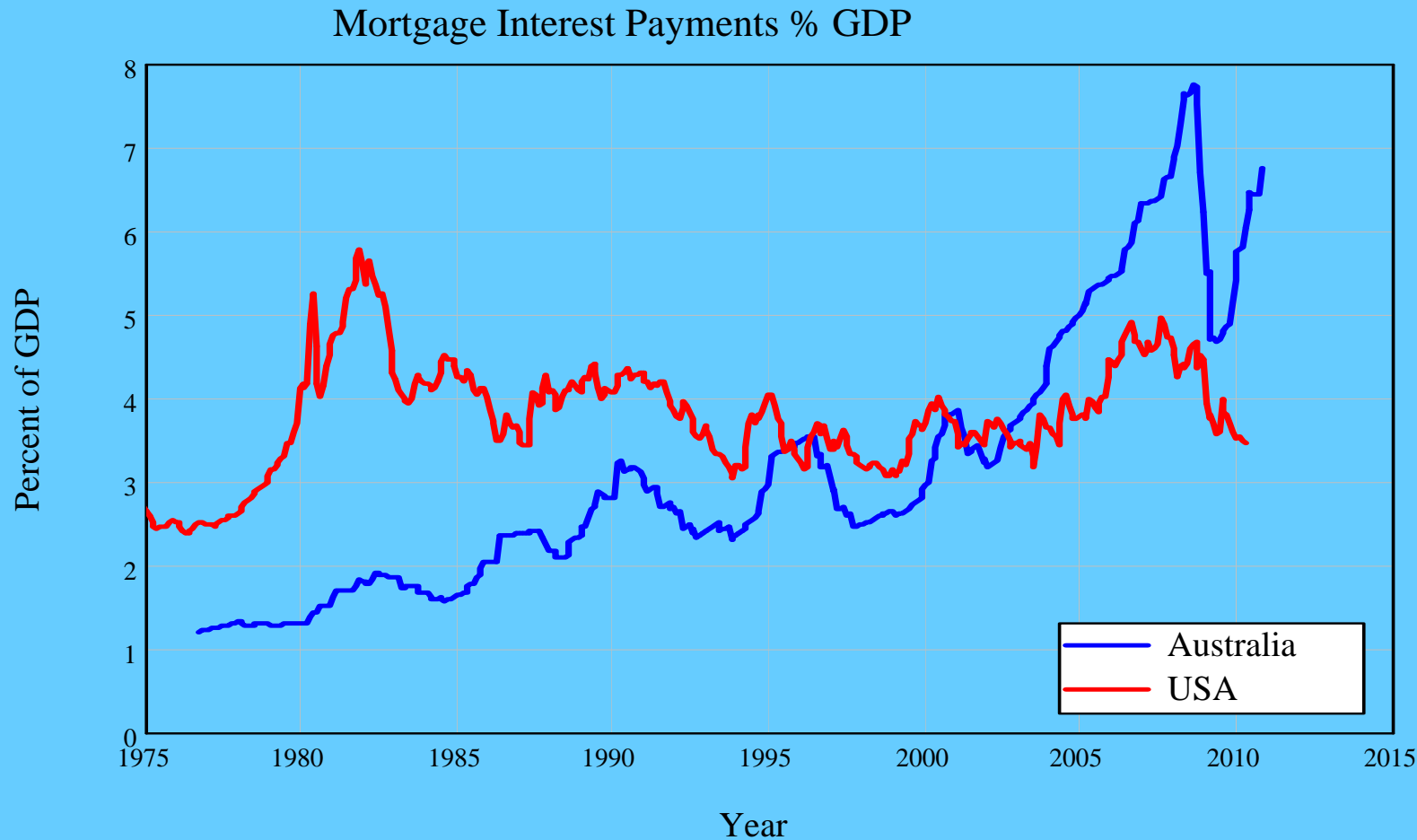
■ 5% of GDP pre-1990

■ Up to 25% post-1990

□ Dramatic rise in "investor" component - from under 1% of GDP to up to 10% (currently 7%)c

And deeper in debt

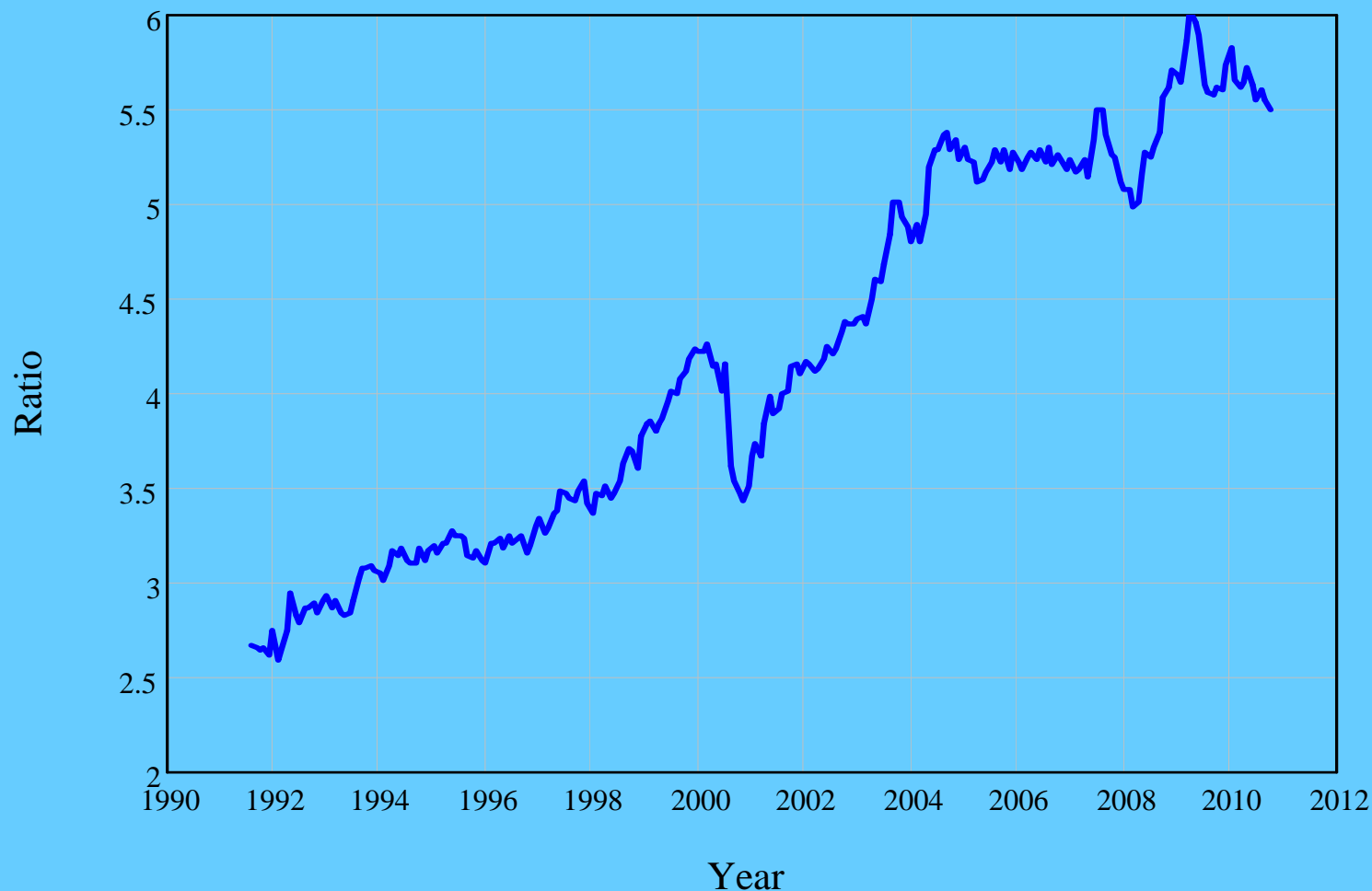
- Mortgage payments 2.5% of GDP at start of bubble (1997)
- 6.75% now, vs under 4% in USA



And deeper in debt

- Consumers under stress
 - Mortgage entry costs now prohibitive
 - First-home loan almost six times average yearly income

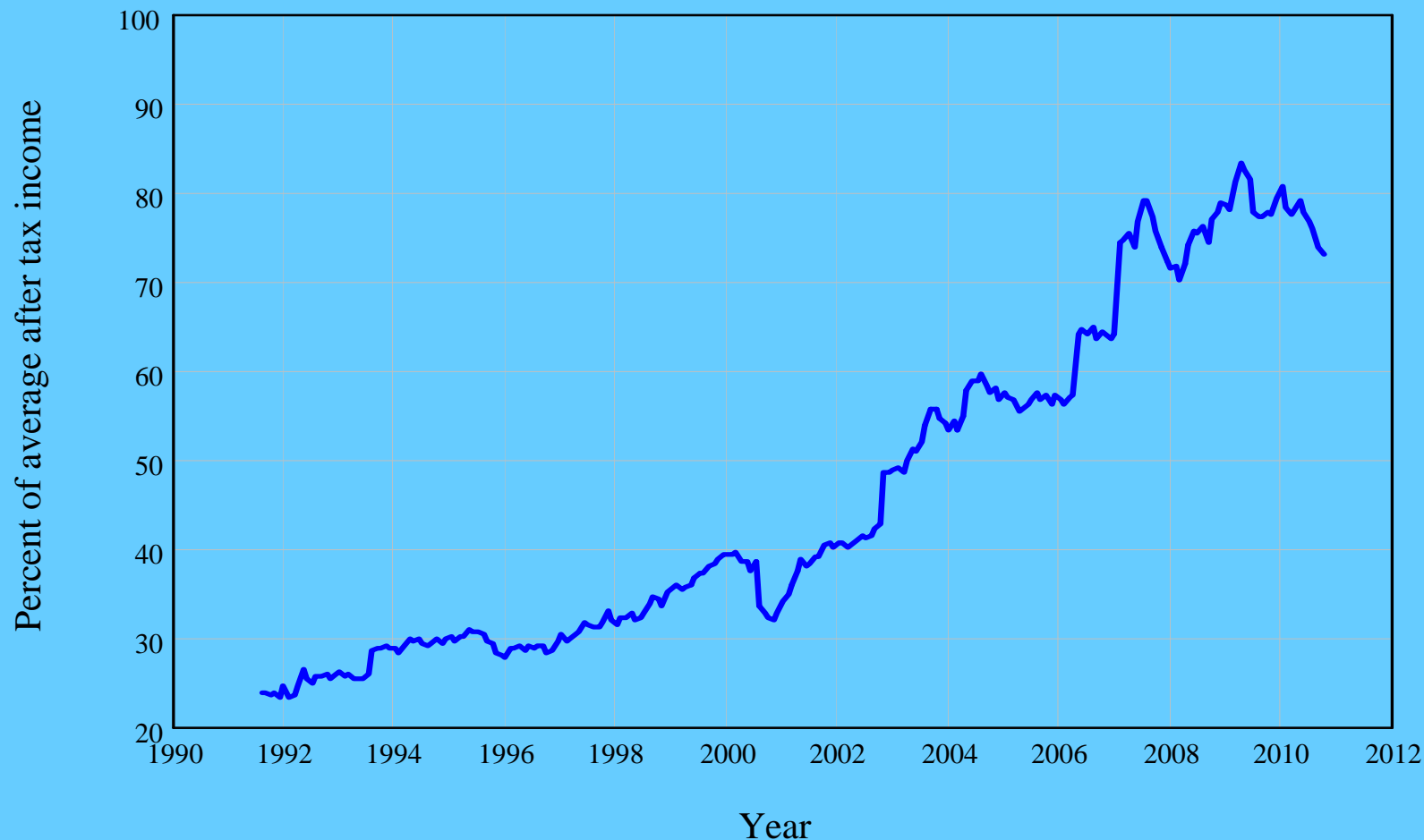
Ratio Average First Home Loan to Average Income



And deeper in debt

- Consumers under stress
 - Servicing 25-year loan takes 80% of average after tax wage
 - Up from 30% at start of bubble (1997)

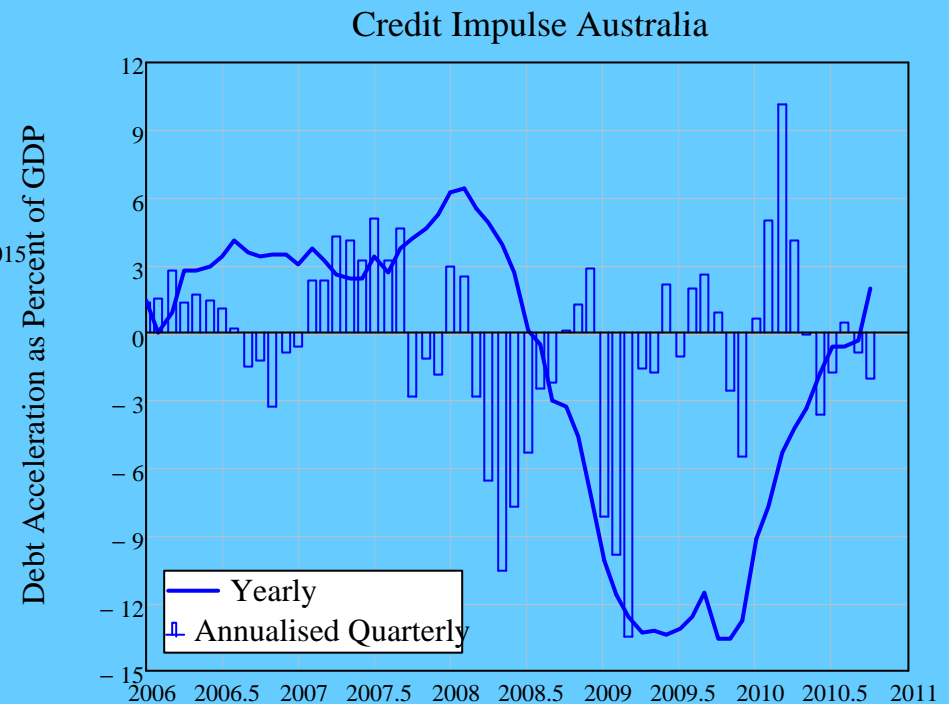
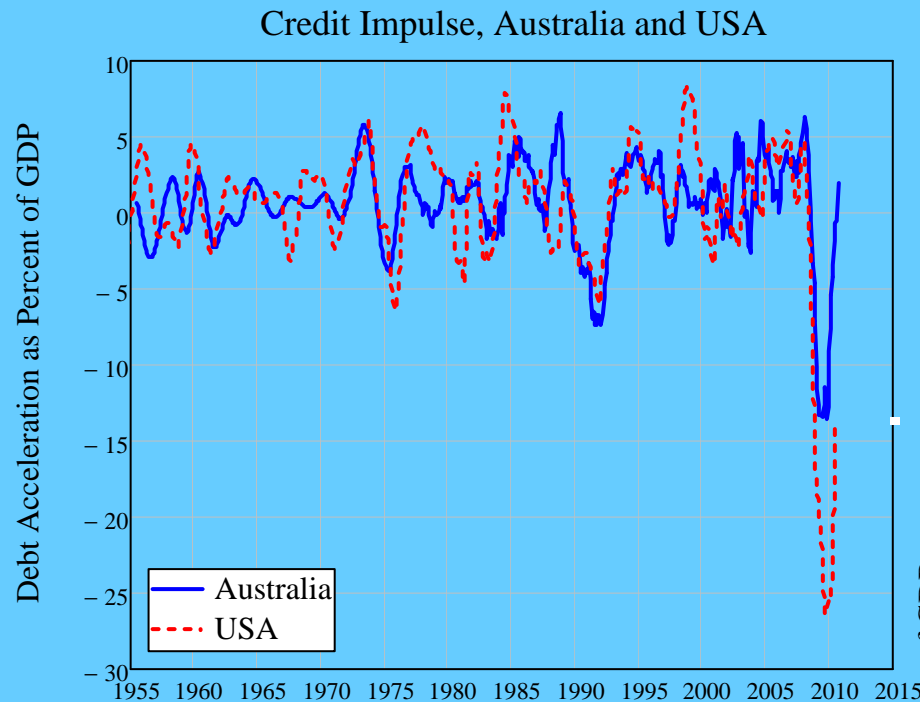
Payments on Average First Home Loan over 25 Years



Trigger for a collapse?

Endogenous: the "credit impulse"

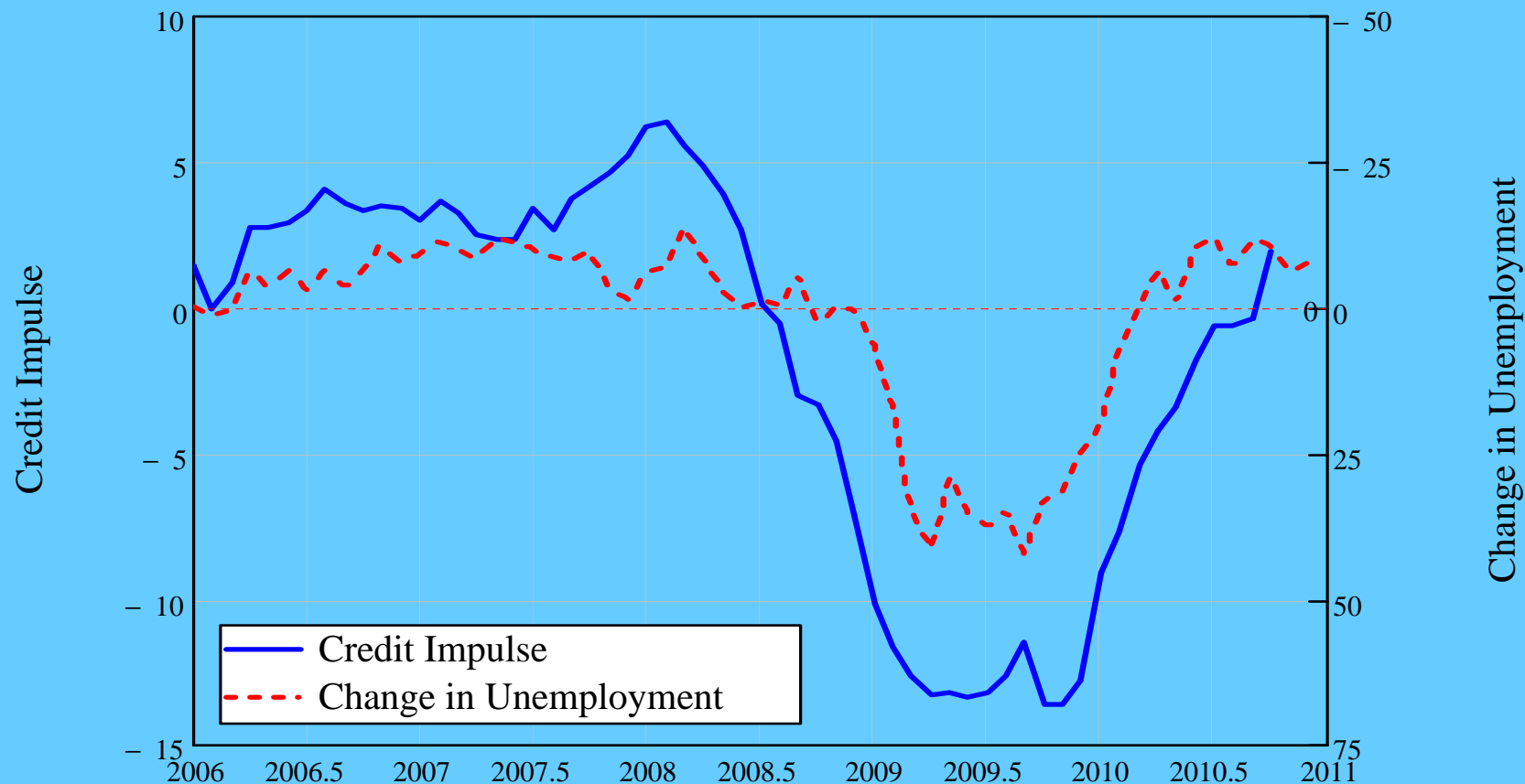
- Reversal of fall in Credit Impulse got us through crisis
- Now turning negative again as impact of FHVB wanes



The credit impulse & employment

- Strong (-0.55) correlation with change in unemployment over 60 years
- Australia's top performance in crisis due to releveraging
 - debt deceleration turned into acceleration again by FHVB

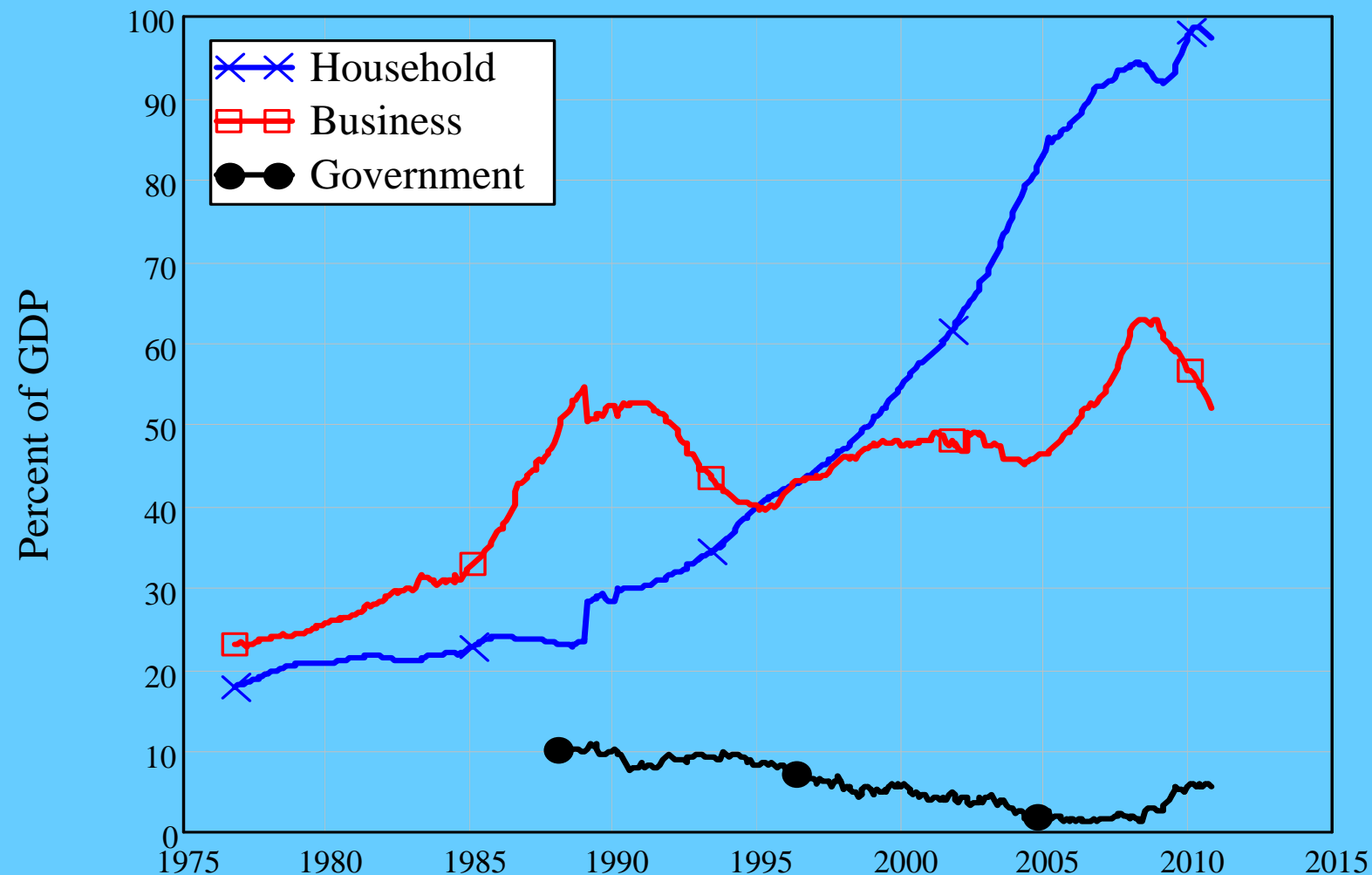
Credit Impulse & Change in Unemployment



Too much debt

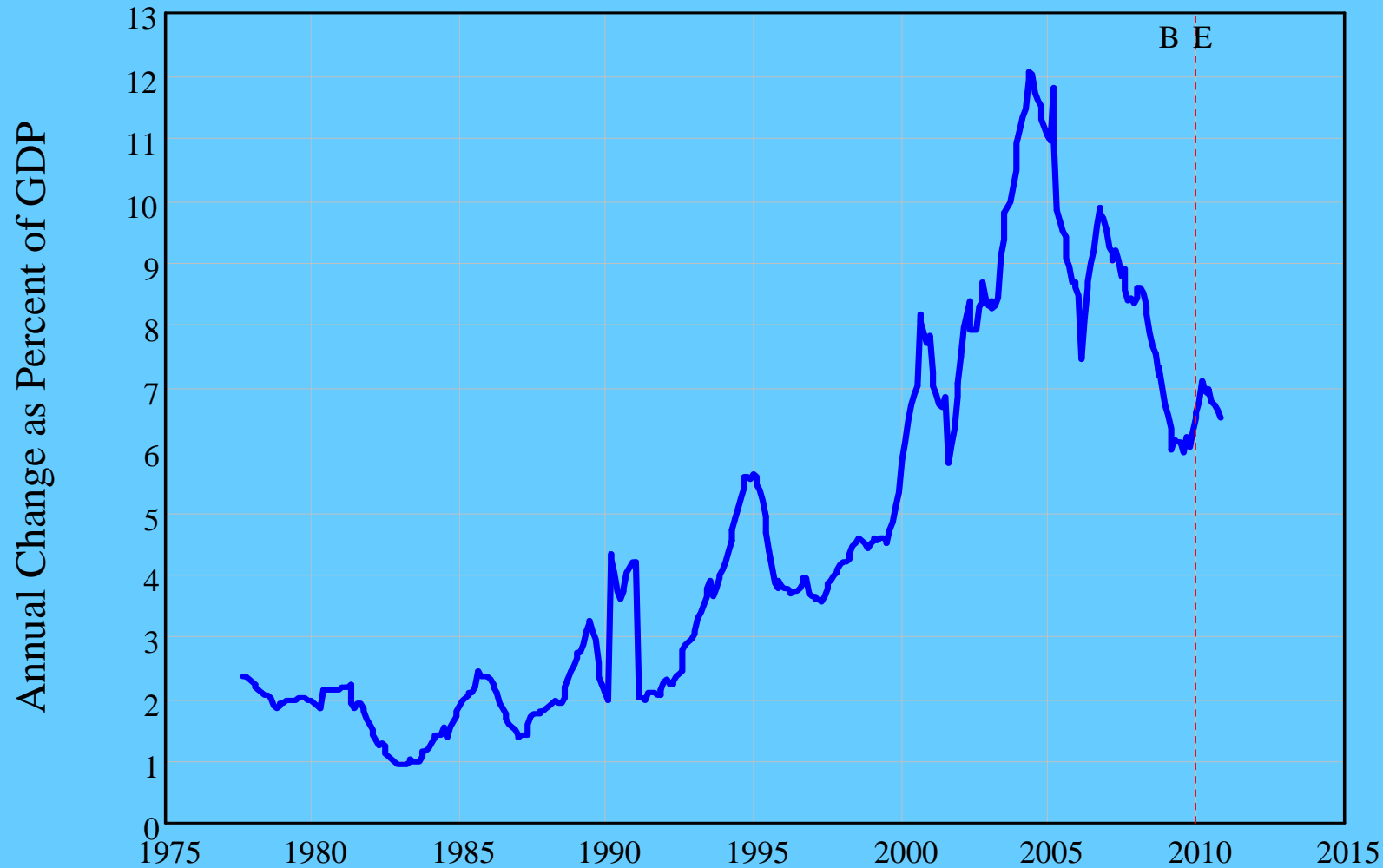
- No prospect for rising borrowing
- - Must impact on odds for credit impulse to be positive

Australian Debt by Sector



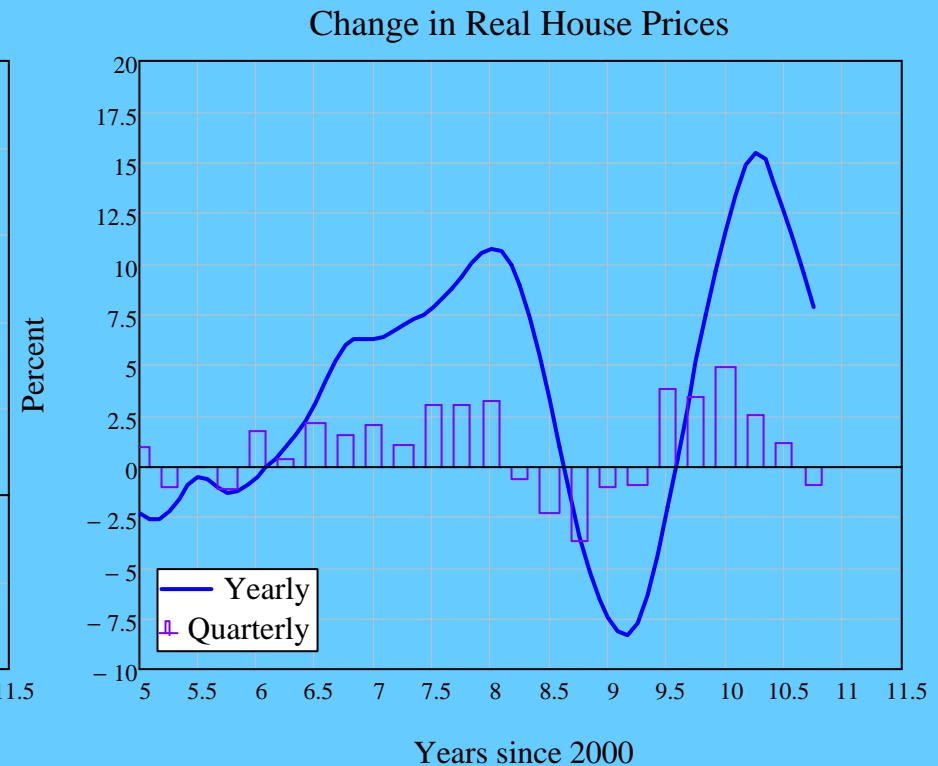
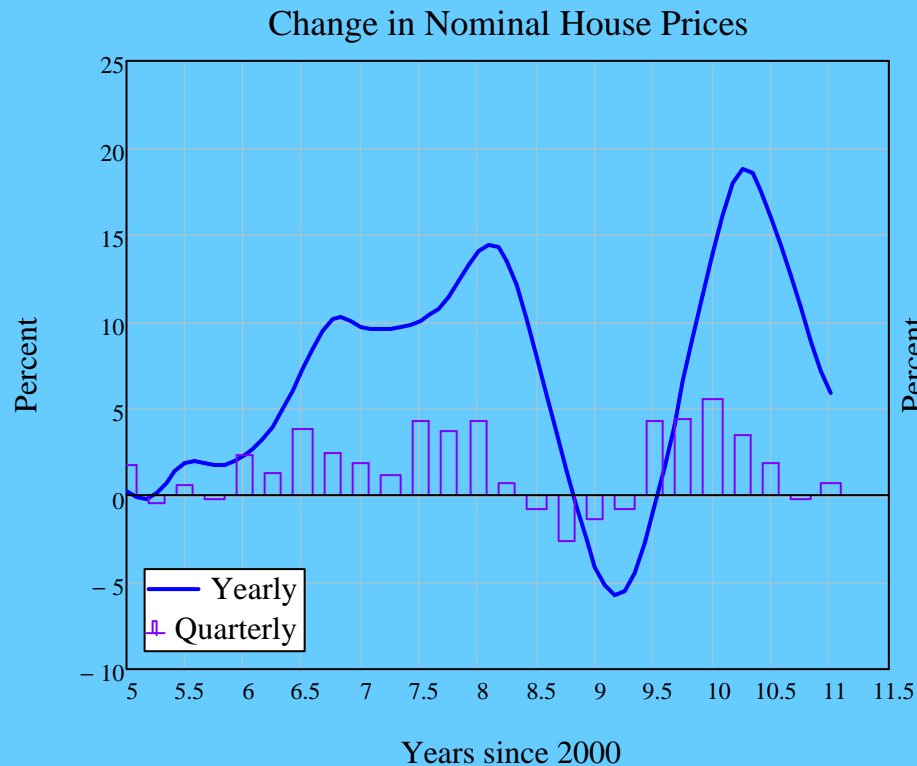
Too much debt

- Rate of growth of mortgage debt clearly slowing
Australian Mortgage Debt



Bursting a bubble

Bust may have begun already



Signposts in 12 months? (February 2012)

- Falling mortgage debt to GDP
- Negative credit impulse from household sector
- Credit-impulse-driven rise in unemployment
- Countered by China Boom (if it continues)
- And RBA rate cuts
- Growing stock of unsold properties on market
- Substantial single-digit fall in house price index

Bubble, bubble – toil and trouble?

15 February 2011

facilitating
debate on the
outlook for the markets

