



# **A Perverse Response to Interest Rates**

## **Implications for Monetary Policy**

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## 1. Introduction

In the early 1990's, while developing a forecasting model for Australian retail turnover, I noticed a correlation pattern between interest rates and retail spending that I did not expect. There was the expected negative correlation and this had a lag of five quarters. But there was also a positive correlation with a lag of one quarter.

If this correlation pattern were true, then retail turnover would initially accelerate when interest rates are increased (with a lag of three months) and then decelerate after a lag of 15 months. This seemed counter to conventional wisdom but it could be explained if:

- There are enough people who are net recipients of interest;
- They cut back spending when rates fall (rather than spend capital to maintain lifestyle) and boost spending when rates rise;
- They make this adjustment quite quickly, after about three months; and
- People with debt take 15 months to adjust spending after a change in interest rates.

I decided that this was not an unreasonable set of assumptions and specified my forecasting model accordingly. The first test of the model's predictive validity came when the Reserve Bank of Australia raised official interest rates three times in late 1994 by a total of 2.75%. Housing mortgage rates went from 8.75% to 10.5%.

The forecast was that retail sales growth would initially accelerate in early 1995 and then decelerate in 1996. The forecast was published in the Australian Financial Review in January of 1995 and is reproduced below, along with the growth outcome (at that time, I was employed by Marketing Insights which was later absorbed by ACNielsen). The forecast was remarkably accurate.

The model has continued to forecast accurately, as interest rates declined in 1996 and 1997 and rose again in 1999 and 2000.

Since the early 1990's, I have assembled survey data from various sources that confirms the validity of the assumptions listed above. This data is presented in Chapter 4.

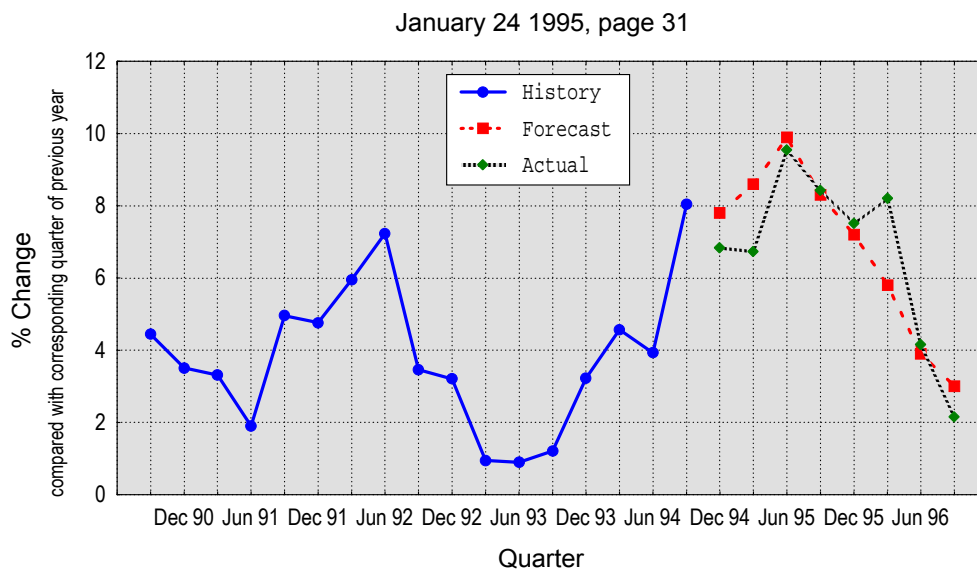
The fact that two segments of consumers react to interest rate movements in different directions and with different delays presents several challenges in setting monetary policy:

1. If interest rates are set without knowledge of differential responses, then there is the potential for the interest rate cycle to have a wider amplitude than necessary to achieve the objective. It is possible to be misled by the initial "perverse" reaction and to reinforce earlier rate changes unnecessarily.

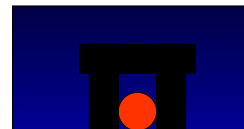


2. Particular intervals between a period of rates moving in one direction and then moving in the other can result in two segments cutting or boosting spending simultaneously. For example, if rates have been rising for 18 months, then net payers of interest will just be starting to cut spending, and the official statistics of retail sales will reflect that. If rates are then cut then net receivers of interest will cut spending while net payers of interest are also spending less. Thus, the impact of interest rate changes can appear to be perverse at some times, ineffective at others, and stronger than expected at still other times.
3. The effectiveness of monetary policy will also vary over the long run if the relative sizes of the net receiver and net payer segments are changing relative to each other. This has happened recently and will continue to do so with the rapid ageing of Australia's population.

### Forecast of Retail Turnover Growth



Of course, it should be stated that monetary policy in Australia at present is primarily aimed at keeping price inflation in the band 2% to 3%. The RBA sets monetary policy with an eye on investment and other factors as well as on consumer spending. Nonetheless, the potential remains for policy error if the relationship between interest rates and consumer spending is not well understood. Many factors influence consumer spending, not just interest rates, and these include employment growth and tax changes.

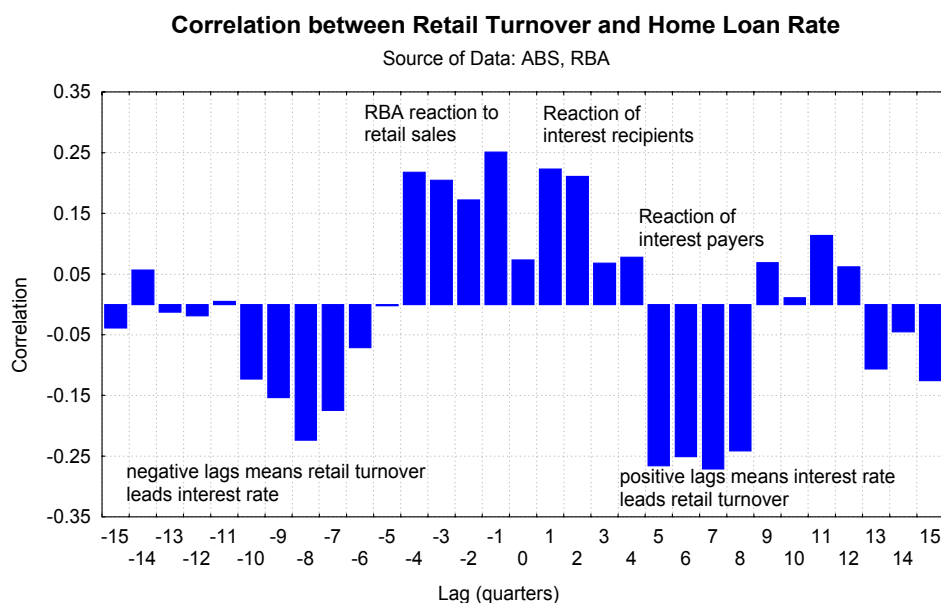


## 2. Time Series Analysis

The chart below shows the correlation between mortgage interest rates and retail sales at various lags. The period covered is June 1982 to June 1999 and the periodicity is quarterly. Transformations have been applied to make the picture clearer (primarily to remove autocorrelation in the retail sales data: these are taking logarithms and differencing one and four apart).

The expected negative correlation is at lags 5, 6, 7, and 8. That is, five quarters after interest rates change, retail sales growth moves in the opposite direction. The perverse correlation is at lags 1 and 2. Shortly after rates move, retail spending growth moves in the same direction.

The correlation at lags -1 to -4 is the reaction of the RBA. This means that after retail spending growth is fast or slow, the RBA tends to move rates in the same direction (down corresponding to slow) with a lag of one quarter.



The negative correlation at around lag minus 8 suggests that two years after an acceleration in growth in retail spending, the RBA tends to be cutting rates.



## 3. The Reserve Bank of Australia's Attitude

The RBA wrote about the issue of perverse reactions to interest rates in their 1995 report:

*It is sometimes claimed that monetary policy has a much weaker effect on the household sector (than the business sector) and could even have a perverse effect. Such claims are based on a view that households as a group constitute a "surplus" sector, with an excess of financial assets over debt, and interest receipts over payments. On this view, an increase in interest rates generates net income for the household sector and therefore facilitates higher, rather than lower, spending. This reasoning is, however, fallacious for at least two reasons:*

- *The household sector is only in surplus if shares, unit trusts and superannuation are included. It is in deficit so far as direct holdings of interest-bearing assets are concerned; it makes net payments of interest equivalent to about 3% of household income. A rise in interest rates will, therefore, reduce the cash flow to the household sector, the more so as household indebtedness rises.*
- *Household expenditure data show that the net receivers of interest tend to be either high-income earners or retirees. Net payers of interest, on the other hand, tend to be concentrated in the middle-income range and to have large mortgages, so that they have little choice but to reduce their spending in some areas when interest rates rise.*

The RBA analysis is correct in some respects, but omits several important points.

It is correct that the household sector will in aggregate cut spending as a result of rate rises. But, as the time series analysis suggests, different segments react in different directions and with different time lags. This could lead to confusion and error on the part of monetary policy makers if these subtleties are not understood.

The RBA does not admit that households that are net receivers of income will adjust spending with a positive correlation with interest rates. This segment comprises primarily self-funded retirees or age pensioners with some savings. Why would they not cut their spending as rates fall and boost spending when rates rise? Qualitative and other research indicates that they tend to be reluctant to use capital or debt for consumption.

The RBA says that net payers of interest have little choice but to reduce their spending in some areas when interest rates rise, but they do have choice. They can choose to save less and/or borrow more – at least for some period of time – in order to maintain lifestyle.

Most importantly, the RBA statement says nothing about lags. In particular, the possibility that different segments respond to monetary policy with different delays.

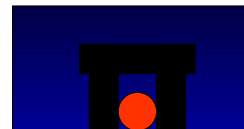
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The treatment of consumers as an average of different segments (a representative consumer) is a potentially dangerous policy.



## 4. Consumer Segmentation

In this Chapter, I present information about consumers' exposure to interest rates and their reactions to movements in rates. This is based on several independent consumer surveys.

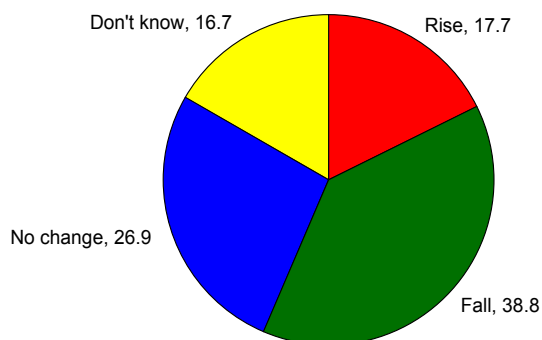
### 4.1 Consumer Segmentation Based on Exposure to Interest Rates

Perhaps the simplest way to segment consumers based on interest rate exposure is to ask them whether they would prefer interest rates to go up, down, or stay the same. Such a question was put to consumers in mid-November 2001 by **foreseechange**. The survey comprised a random sample of 600 consumers over 18 years old in mainland capital cities. The result is shown in Chart 4.1.

**Chart 4.1**

**Preferred movement in interest rates over next six months**

November, 2001  
source, foreseechange



We can divide the adult population into three segments based on their interest rate exposure:

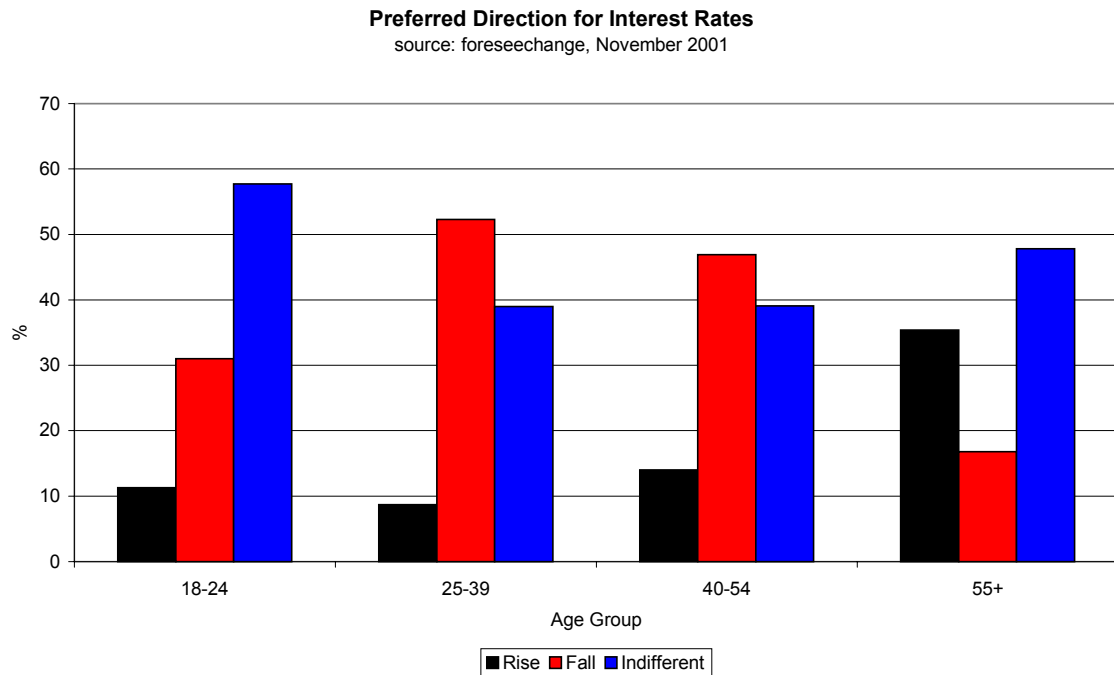
1. Those who prefer rates to rise (17.7%);
2. Those who prefer rates to fall (38.8%);
3. Those who are indifferent (43.5%). This segment has a balanced exposure to interest rates (including some who are neither borrowers nor lenders).

Thus, the ratio of net payers of interest to net receivers of interest is currently about 2.2.



Interest rate exposure by broad age group is shown in Chart 4.2. People under the age of 55 are more likely to prefer interest rates to fall than to rise, while the reverse is true for people over 55. As the large baby boomer generation is starting to pass 55 years of age, the over 55 component of the population is growing rapidly.

**Chart 4.2**



**Chart 4.3**

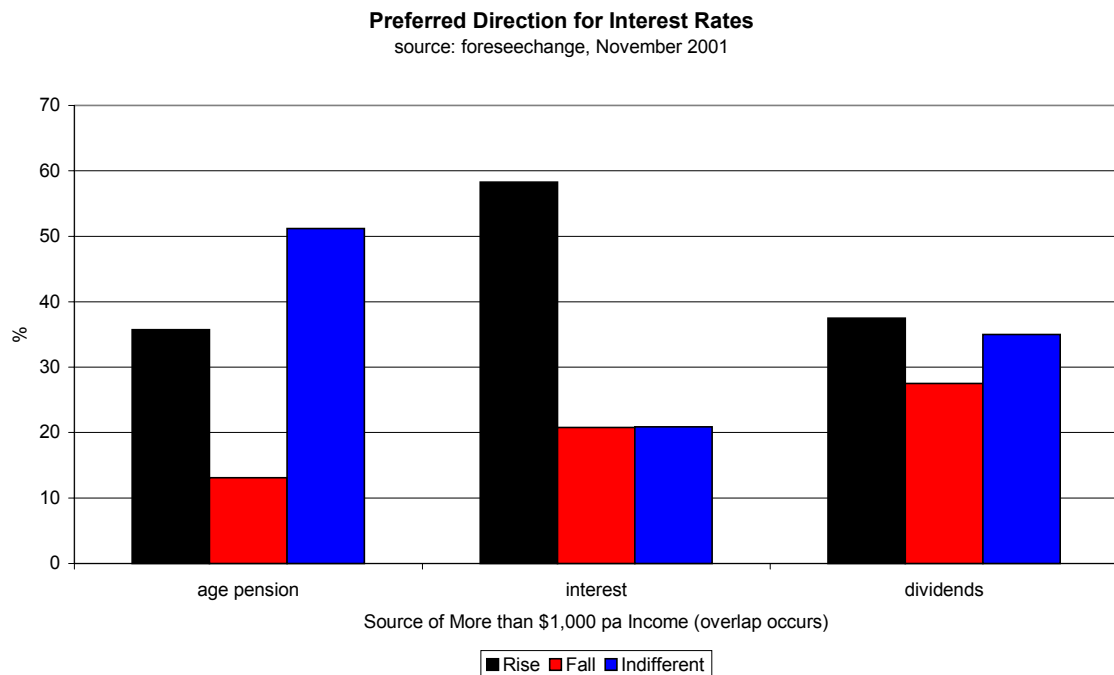




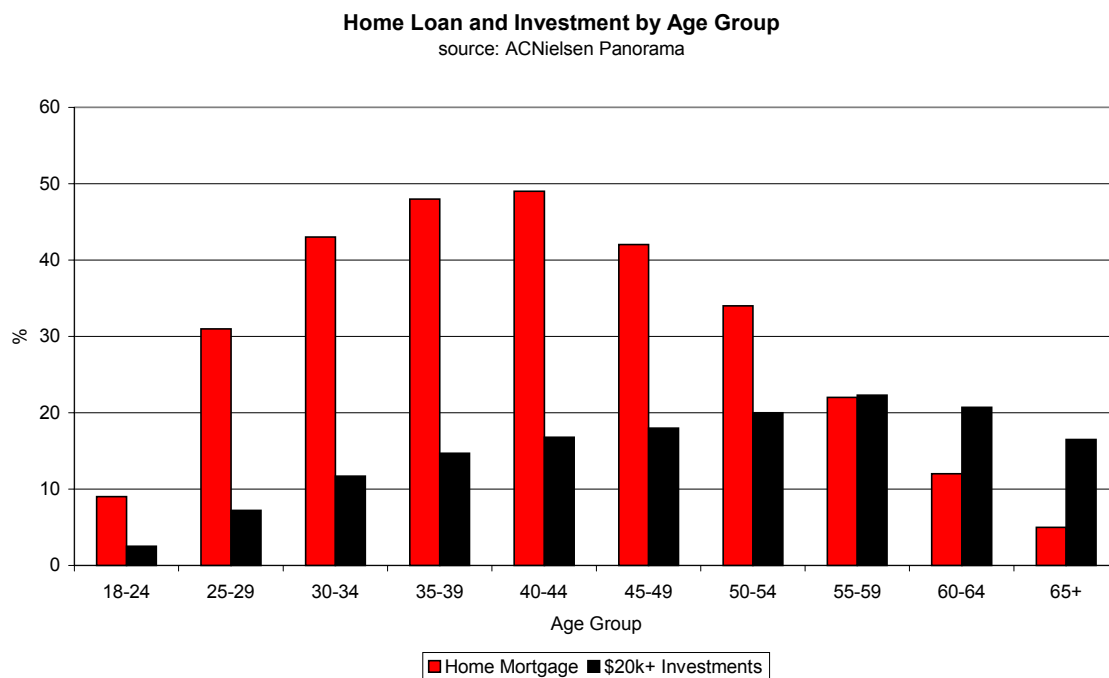
Chart 4.3 shows that the following groups of people tend to prefer interest rates to rise:

- People who receive a full or part age pension;
- People who receive \$1,000 per year or more in interest on savings;
- People who receive \$1,000 per year or more on dividends on investments.

The first group, age pensioners, is likely to be particularly hurt by low interest rates and to cut back on discretionary spending when rates fall. Self-funded retirees and those saving for retirement see the future purchasing power of their nest-egg decline as rates fall – effectively a capital loss.

ACNielsen Panorama data shows that in the 55 to 59 age group, there is a balance between the incidence of having a home loan and the incidence of having investments of \$20,000 or more.

## Chart 4.4

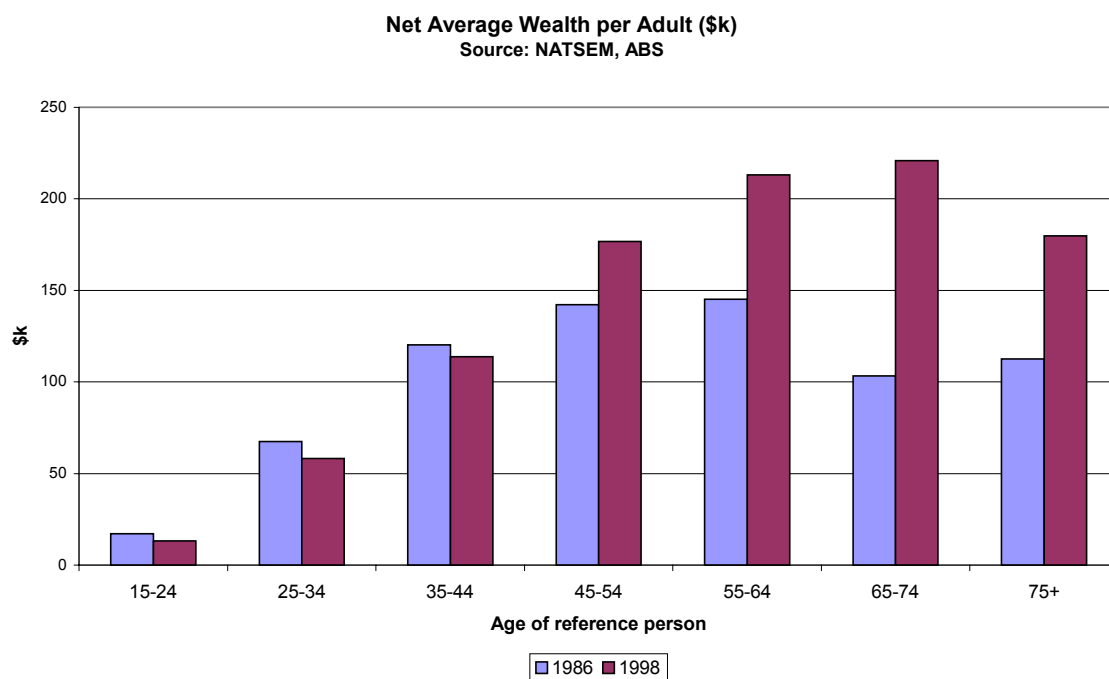




The National Centre for Social and Economic Modelling at the University of Canberra (NATSEM) recently analysed trends in the assets and incomes of older Australians, based on the Australian Bureau of Statistics (ABS) income surveys.

The analysis found that the average wealth of older Australians almost doubled from \$106,000 to \$204,000 between 1986 and 1998. This was in sharp contrast to the fall in the average wealth holdings of Australians aged less than 45 years over the same period (Chart 4.5). The average picture for older Australians masked major differences among them, as the after-inflation incomes of the bottom 25% of older Australians fell over the 12 years, while the incomes of the top 25% rose.

## Chart 4.5



This picture reflects a number of factors in addition to age, such as generational differences in attitudes to home ownership, saving, and interest rates. Nonetheless, we can expect the older population to continue getting richer for some time yet.

The share of total net wealth increased for people aged 65 and over (Chart 4.6).

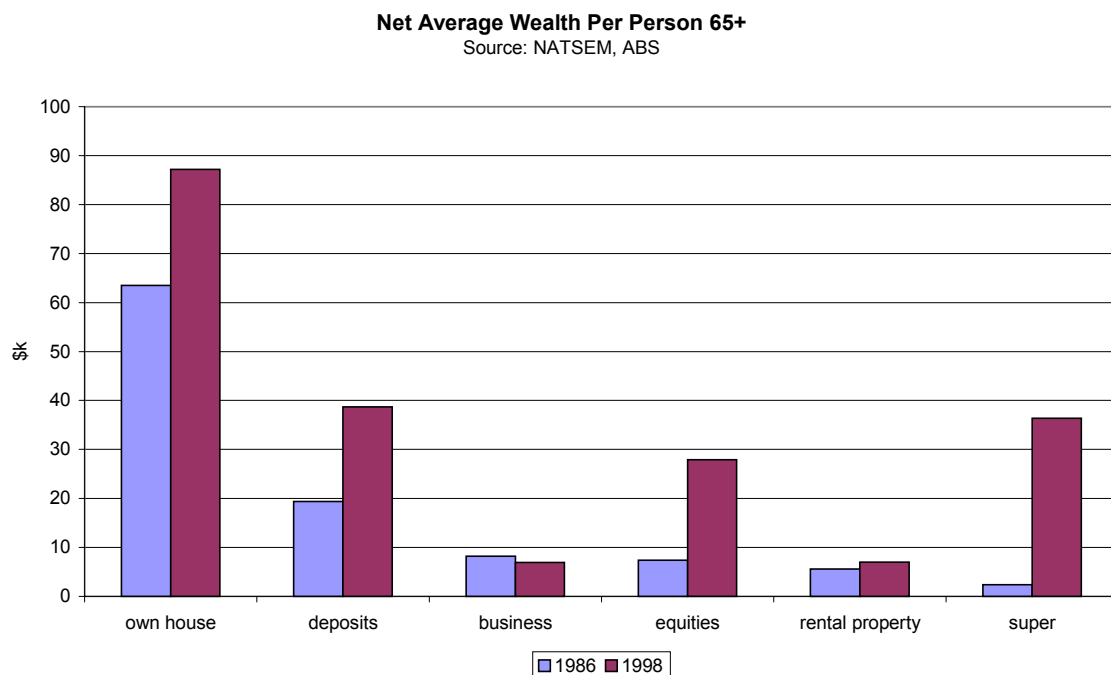


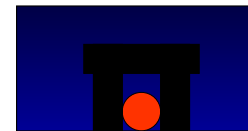
Chart 4.6



The amount of net assets held in deposits by older Australians increased from an average of \$19,400 to \$38,700 over the period. Even greater increases occurred for assets in the forms of equities and superannuation (Chart 4.7).

Chart 4.7

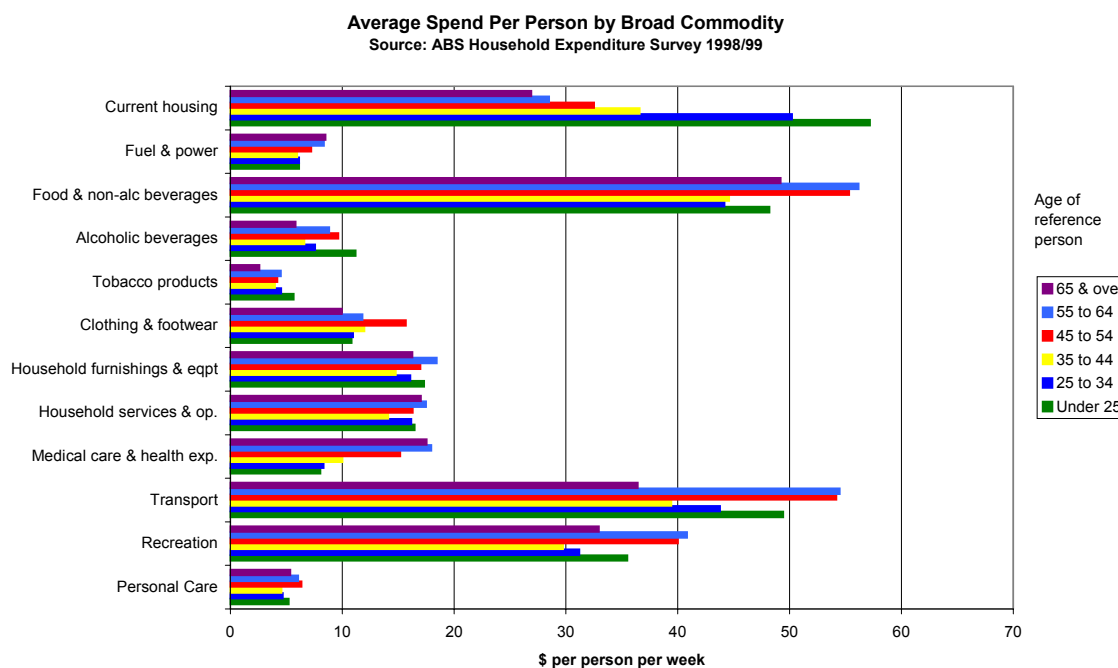




## 4.2 Spending by Age Group

It should not be assumed that older people spend little compared with younger people. ABS Household Expenditure data shows that older people spend similar amounts per person in the household on commodities such as food, recreation, household furnishings and equipment, and clothing (Chart 4.8). They do spend less on housing as they are more likely to own their home than younger people.

Chart 4.8



## 4.3 Variations in Spending in Reaction to Interest Rate Movements

People who receive more than \$1,000 in interest per year have a much higher marginal propensity to spend than people who have a mortgage (Charts 4.9 and 4.10). This is because the latter group has more debt. This data is based on a question about how a spare \$1,000 would be allocated between spending, saving, and loan repayment.

Thus, if both groups received a \$1,000 tax cut, for example, the receivers of interest would spend between \$300 and \$400 on average, while the payers of interest would spend between \$200 and \$300. **Similarly, if a receiver of interest received an extra \$1,000 because of higher interest rates they would spend more than a payer of interest rates would spend if their interest bill was reduced by \$1,000.**

Also, note the positive correlation between marginal propensity to spend and interest rates. Net receivers of interest seem to want to protect the future value of their savings by saving more when rates are low. On the other hand, net payers of interest

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seem to increase marginal propensity to spend when rates rise so as to maintain lifestyle, at least for some period of time.

Chart 4.9

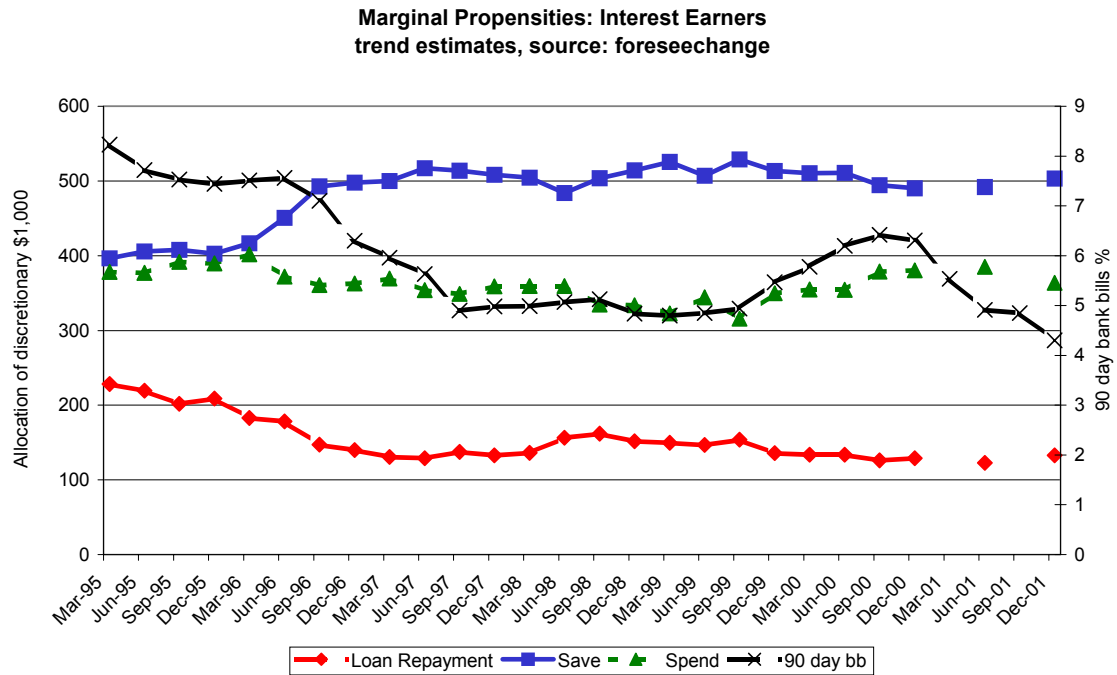
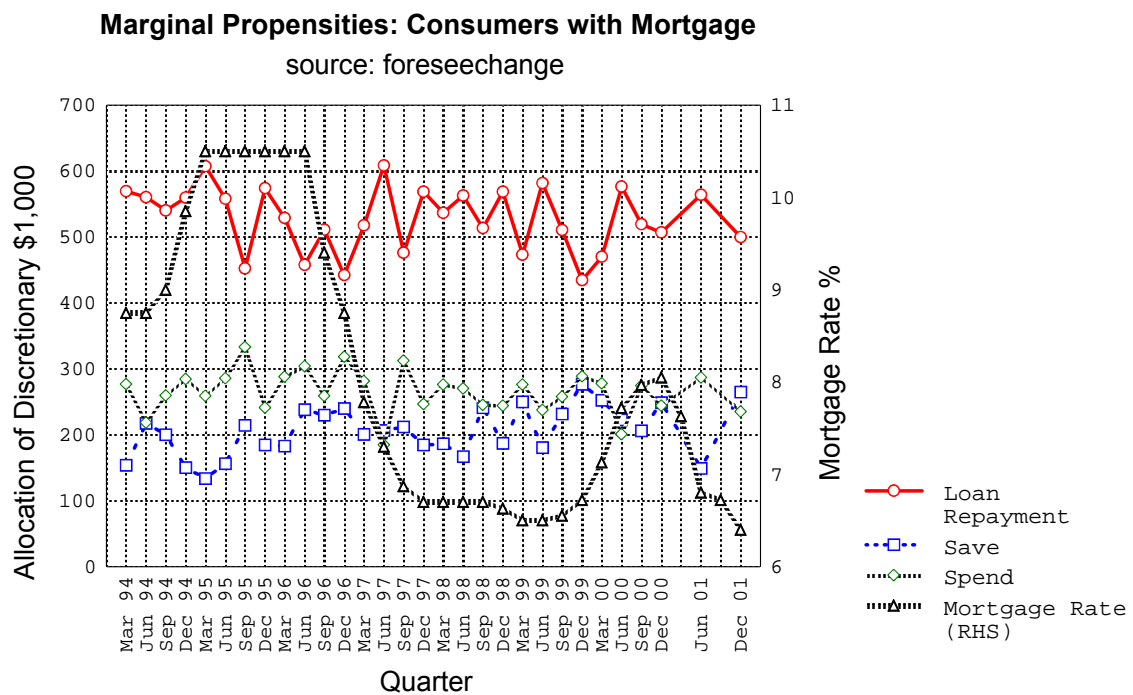


Chart 4.10

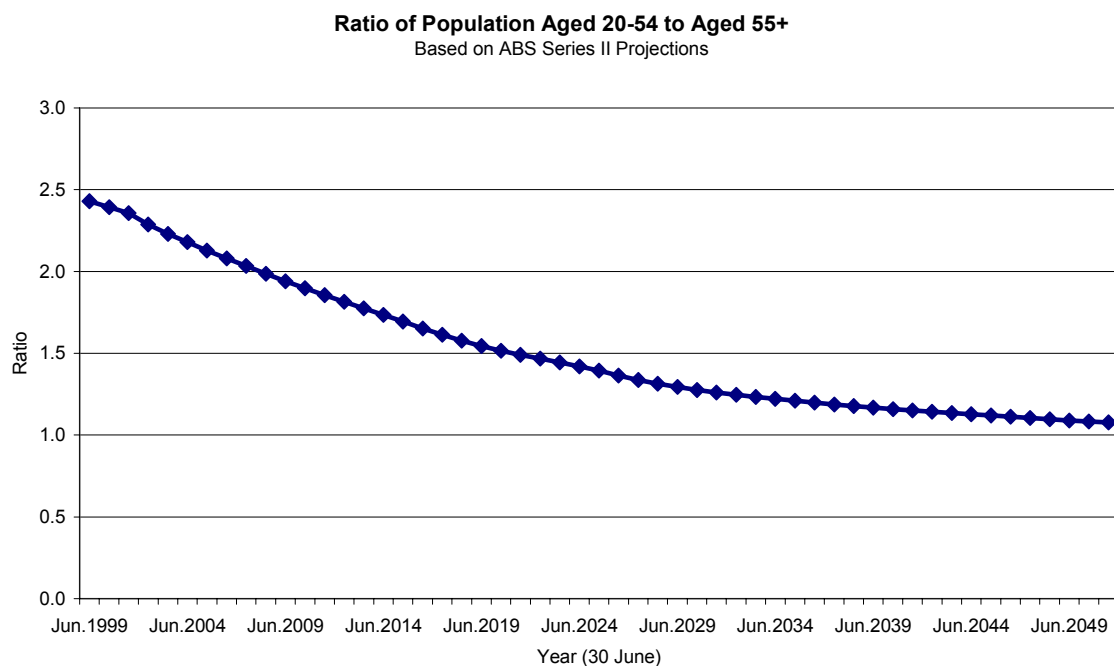




## 5. Future Prospects for Australia

It was noted in Chapter 4 that there were 2.2 people who preferred interest rates to go down for each person who preferred interest rates to go up. Also, the latter group is mostly over 55 years old while the former group is mostly under 55. It is probably no coincidence that the ratio of the population over 55 to the population aged 20 to 54 is currently 2.4.

As shown in the chart, this ratio will decline very quickly as the population ages. By 2020, it will be down to 1.5. By 2040, it will be down to 1.2.



It is, therefore, reasonable to expect that the number of net recipients of interest will approach the number of net payers of interest very quickly.

We have also noted in Chapter 4 that the net recipients of interest have a higher marginal propensity to spend than net payers of interest. Accordingly, some time over the next ten years, the overall relationship between interest rates and consumer spending is likely to turn “perverse”.



## 6. Implications for Japan and Other Countries

Japan is much further along the ageing population trajectory than Australia or USA. Japan is a country with a lot of savings paying very low interest rates. In Japan, monetary policy has lost its power to stimulate consumer spending. This suggests that the net “perverse” reaction of consumer spending to interest rates that I predict in about 10 years for Australia may already have taken hold in Japan.

The conventional wisdom is that consumer spending is sluggish in Japan because of price deflation – consumers are holding off spending while they wait for cheaper prices. But could it be that prices are falling as an effort by retailers to stimulate consumer spending and grow market share?

Consumer prices of some commodities have been falling for a long time. Electronic equipment such as audio, video, and computers are examples. Motor vehicle prices in Australia in 1998 and petrol prices in Australia and USA in late 2001 are more examples. Have consumers held off purchasing these commodities? Are Japanese consumers starving to death while they wait for a cheaper pizza?

Consumer spending in Japan will not accelerate until interest paid on savings increases. Consumers are reluctant to use capital to fund consumption and low interest rates reduces the future purchasing power of capital.

Australia and USA are about 10 years behind Japan in the demographic transition and their trajectory may not be so severe – depending on immigration policy. Also, older Australians and Americans may decide not to hold so much of their savings in cash – unless, of course, their stockmarkets behave like that of Japan over the past 12 years!

## 7. Conclusions

We have presented evidence from the analysis of several sources of data that there is a “perverse” reaction of consumer spending to interest rates in Australia. The size of this reaction is likely to grow and may become dominant in the next ten years. Already this perverse reaction has the potential to confuse policy makers and to make aggregate consumer spending reactions to interest rate changes seem small, large, or perverse according to the timing of rate changes.

Monetary policy will become increasingly blunt and damaging to one segment of consumers or another. Governments and central banks have a lot of thinking to do about future policies. Unfortunately, I have seen no sign in official statements that this thinking is taking place.