Affordability of Housing: Concepts, Measurement and Evidence

Mark Robinson, Grant M. Scobie and Brian Hallinan

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AUTHORS

Mark Robinson
The Treasury
PO Box 3724
Wellington
New Zealand

Email mrob125@ec.auckland.ac.nz

Telephone +64 27 472 6795

Grant M. Scobie
The Treasury
PO Box 3724
Wellington
New Zealand

Email grant.scobie@treasury.govt.nz

Telephone + 64 4 917 6005

Fax +64 4 473 1151

Brian Hallinan
The Treasury
PO Box 3724
Wellington
New Zealand

Email brian.hallinan@treasury.govt.nz

Telephone + 64 4 917 6018

Fax

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NZ TREASURY

New Zealand Treasury
PO Box 3724
Wellington 6008
NEW ZEALAND

Email information@treasury.govt.nz

Telephone 64-4-472 2733

Website www.treasury.govt.nz

Abstract

There has recently been widespread public debate and media attention around housing affordability. This paper discusses the concept of affordability as it applies to housing, examines the approaches used to measure affordability, and then documents the aggregate evidence for New Zealand over the last twenty years. We largely use the Household Economic Survey conducted by Statistics New Zealand to obtain our data. We conclude that affordability is difficult to define and that there is no consensus as to the best way to measure it. Using a range of measures, we examine the trends over time. Our data reveals no long-term trend in affordability when considering all measures. Different measures show different movements over time. Affordability has appeared to move in cycles over the last twenty years.

JEL CLASSIFICATION R20: Housing

KEYWORDS housing; affordability; New Zealand

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Affordability of Housing: Concepts, Measurement and Evidence

1 Introduction

The affordability of housing is an important subject for New Zealanders, and it has received considerable recent public attention. This paper examines the nature of housing affordability in New Zealand.

This paper has two main purposes. The first is to review a range of definitions and approaches to the measurement of housing affordability. The second is to examine the evidence on housing affordability in New Zealand over the last two decades.

The concept of affordability and its measurement is the subject of Section 2, which also includes a discussion of specific definitions of housing affordability. Section 3 examines the various ways of measuring housing affordability, and outlines the strengths and weaknesses of each. Having grounded our analysis in this discussion of methods, the paper then reviews evidence of affordability in New Zealand. We present and discuss time series affordability data, using various measures, in Section 4. We examine trends, and discuss the drivers of these movements. We consider the near term future of these series, and whether current trends show any cause for concern. Section 5 presents some international comparisons. Section 6 summarises and discusses the findings of this paper.

2 The Concept of Affordability

2.1 The Concept

The term 'affordability' is widely used in the English language, with general consensus as to its meaning. Indeed, the term 'housing affordability' has come into widespread usage in the last 15 or so years. However affordability as a concept is hard to define. In this context, 'afford' is defined as being able to pay without incurring financial difficulties[1]. But how does one decide exactly when they are in financial difficulty? Often things are considered unaffordable even when someone's income is clearly greater than the cost of an item.

[1] Collins English Dictionary.

Stone (1994, p.21) states that affordability is not an inherent characteristic of housing, but rather a relationship between incomes and relative prices. Of course, this argument could easily be extended to any good or service.

This is an example of the conceptual problem economists have with housing affordability. Glaser & Gyourko (2003) state that the ability to pay criterion confuses poverty with housing prices, and that income should form no part of affordability considerations. They believe that the physical construction costs of housing are a more sensible benchmark to compare with prices. However this definition does not reconcile with our above definition of 'afford', which clearly indicates the relevance of income. We believe that the ability to pay is a crucial element of housing affordability.

When we refer to the affordability of an item, we are usually talking about the amount of financial stress that the purchase would place us under. There are two ways to consider this financial stress. Firstly, how much of our income[2] is going on this purchase? Secondly, how much income do we have left over for other goods? These measures can be applied to housing just as easily as any other good.

However these two measures both have an inherent problem, arising from our lack of a specific definition of the word 'afford'. Affordability can generally be thought of as a continuum, which is itself a relationship between income and relative prices. At one end is easily affordable, at the other definitely not affordable. But at which point do we say that something that was affordable now becomes unaffordable?

There is very little difference between the concept of affordability as it applies to housing and as it applies to other goods. The obvious variation is that a person might consider a particular house to be quite affordable, while they consider some other good for the same price to be very unaffordable. What makes this possible is that what we really care about is how much money we have left over after a purchase and what we think we might need to spend it on. Since housing accounts for a much greater proportion of a household's monthly expenditure than most other groups, we need less income left over after housing costs than we do after, say, clothing costs. Also, when purchasing a house the total cost (and benefit) can be spread over several years, more so than most other goods.

A related concept used in the context of housing is accessibility. Accessibility is a reflection of initial conditions facing a potential tenant or owner. It includes the interest rate, house prices, rents, income and the criteria applied by lenders. Accessibility may be further influenced by government housing policy; for example, a grant to first-home buyers may make a purchase more "accessible".

In contrast affordability typically refers to the ongoing costs of owning or renting. It clearly reflects many of the same factors governing accessibility, and may also be influenced by government policy. For example, the payment of an Accommodation Supplement may make housing more "affordable", other things being equal. A person for whom housing is unaffordable is in effect lacking access, suggesting that there is no clear demarcation between the two concepts. The issue of accessibility for potential home owners and tenants is addressed in Section 6.1.

[2] See later for a discussion of exactly what we mean by 'income'.

2.2 Three Strands of Affordability

Housing affordability can be viewed from three different perspectives: affordability for renters; affordability for would-be home owners; and affordability for existing homeowners (DTZ New Zealand 2004).

These different approaches are appropriate as affordability considerations are likely to differ for different groups of people. There is a difference between the affordability of, say, rental accommodation and of purchasing a house. Someone who is renting doesn't consider the actual value of the house as much as someone looking to buy it. Similarly, interest rates have only an indirect impact on rental affordability.

The accompanying box offers a selection of definitions of affordability:

Alternative Definitions of Affordability

Some definitions used in practice (policy and academic) are set out below. Most of these definitions include components of adequate accommodation and adequate residual income. As DTZ New Zealand (2004, p.19) point out, "these two components can be considered the core of any definition of housing affordability".

"Affordability is concerned with securing some given standard of housing (or different standards) at a price or rent which does not impose, in the eye of some third party (usually government) an unreasonable burden on household incomes." (Maclennan and Williams 1990, p.9)

"The answer is that any rent will be affordable which leaves the consumer with a socially-acceptable standard of both housing and non-housing consumption after rent is paid" (Hancock 1993, p.144)

"A household is said to have a housing affordability problem, in most formulations of the term, when it pays more than a certain percentage of income to obtain adequate and appropriate housing" (Hulchanski 1995, p.471)

"Physically adequate housing that is made available to those who, without some special intervention by government or special arrangement by the providers of housing, could not afford the rent or mortgage payments for such housing." (Field 1997, p.802)

"Definitions of affordability concentrate on the relationship between housing expenditure and household income and define a standard in terms of that income above which housing is regarded as unaffordable" (Freeman, Chaplin and Whitehead 1997)

"The notion of reasonable housing costs in relation to income: that is, housing costs that leave households with sufficient income to meet other basic needs such as food, clothing, transport, medical care and education" (Australia National Housing Strategy 1991)

"'Housing affordability' refers to the capacity of households to meet housing costs while maintaining the ability to meet other basic costs of living." (Burke 2004)

"Affordability is not simply a matter of housing costs and income levels; it is about people's ability to obtain housing and to stay in it." (Housing New Zealand Corporation 2005)

2.3 Relative and Absolute Affordability

Using affordability as a relative measure can be very useful. It allows us to document changes in financial stress over time and across populations. However this only gives us information regarding variations in affordability along the continuum, not whether any particular position on the continuum is actually affordable or not.

An absolute measurement of affordability is necessary to give the whole picture. For example, housing may be causing more financial stress than it was 5 years ago, but if it is still 'affordable', then the change is of only minor consequence. So, how much financial stress do we need before we say that housing is unaffordable? This requires some sort of benchmark.

2.4 Normative Basis

As outlined above, an inherent problem in defining affordability is the need to invoke some benchmark for which there is no objective definition. What we consider to be 'adequate accommodation and adequate residual income' requires some normative decision-making. We need to decide how much money people need, and this often involves arbitrary benchmarking.

The normative basis of affordability definitions has been widely criticised (DTZ New Zealand 2004). For example Bramley (1994) discusses how decisions are made regarding what is considered acceptable under any particular measure. He notes that there is often no explicit basis for these decisions, that they are made in a subjective way and that they may simply refer to past observations.

Yet the literature provides no help in discovering an objective method of benchmarking. Glaeser & Gyourko (2003) compare house prices to their "more sensible benchmark" (p.21) of construction costs over time. Yet they do not provide any useful benchmark for an absolute affordability analysis as they do not state what they believe this ratio should be, but only compare the ratio over time and across areas.

Consequently, it appears that using some sort of normative basis for definition and measurement is inevitable for any analysis into housing affordability.

3 Measurement

3.1 Factors that Contribute to Housing Affordability

There are several factors identified in the literature that contribute to the affordability of housing (DTZ New Zealand 2004):

- Income (current and expected lifetime): directly impacts on a household's ability to purchase and make housing payments
- House prices and rents: represents the level of payment that is required to secure housing
- Interest rates, nominal and real: determines the cost of borrowing for home owners

- Labour market conditions: affects a household's ability to participate in the labour market and earn an income, and thus be able to maintain housing costs over a period of time
- Mortgage and rent payments: directly impacts on a household's ability to save and increase their housing consumption in the future. This is especially relevant for households in the rental market who are looking to purchase a house
- Supply constraints: may limit the ability of the market to respond to excess demand for housing

These factors are clearly interrelated. Labour market conditions directly affect people's incomes, specifically their certainty of future income streams. Mortgage and rent payments are determined by interest rates, house prices, rents, and wealth. Supply side constraints affect house prices. Interest rates can also affect house prices as a result of changes in demand for purchasing a house.

3.2 Affordability Measures

There are two broad groups of affordability measures. These can be termed 'shelter first' and 'non-shelter first' measures (Burke 2004).

The shelter first approach assumes that housing has first claim on the household budget, and other expenditure is met from the remainder. Conversely the non-shelter first approach assumes that other expenditure has first claim, with housing costs met from the remainder.

The shelter first approach is the most common. There are two main types of measurement in this group. They are an outgoings (on housing) to income ratio (OTI), and a residual income measure (RI). A third type, similar to OTI, is a house price to income ratio.

These measures are applied differently for renters and for home owners. Firstly we analyse rental measures, followed by the home ownership measures that build on them.

3.2.1 Affordability Measures for Rental Tenure

For renters, the OTI is measured as a rent to income ratio. Rent is divided by income for some time period (e.g. weekly, monthly). We can then find the proportion of households with an OTI above some pre-determined level. The more households above this level, the less affordable is renting. Alternatively, we can find the average rent divided by the average income. It is not always appropriate to use averages; measures such as the median, the lower quartile or the 10th percentile may give a more useful picture in some contexts. A high average OTI indicates relative unaffordability of renting.

The RI measure is simply a person's income less their rental payments, for a given period of time. Again, we can calculate the proportion of households below some level, where a higher number indicates relative unaffordability. Also, we can calculate an average RI, where a low value indicates relative unaffordability[3].

It is evident that we have to define some 'norm' when using these measures; i.e. at what level of OTI is housing deemed 'unaffordable'. Further discussion of this occurs later.

[3] We do not encounter this difference in our evidence, as we do not calculate average RIs. In all our later evidence, a low value is relatively more affordable than a high value.

3.2.2 Affordability Measures for Home Owners

For home owners, these measures are more difficult to calculate. The OTI for existing home-owners is a ratio of mortgage payments to income.[4] For would-be homeowners, the relevant outgoings are the potential mortgage payments given their deposit and current interest rates and house prices. The residual income measure for both existing and would-be home owners is then income less the above mortgage payments.

There are differences in these measures for would-be home owners / new home owners, and long term homeowners. Would-be home owners often face higher interest rates, usually with a small deposit. Long term homeowners may have much lower monthly repayments, or have fully paid off their loan.

Again, there are two specific ways to analyse an OTI, both of which are useful. Firstly, one can calculate the proportion of all households which have an OTI above a certain level. This could apply to all households, or a subset, such as those in some low-income bracket. The alternative method is to calculate the ratio of average outgoings to average income.

3.2.3 Non-shelter First and Other Measures

The rarely used "non-shelter first" approach assumes that other expenditure has first claim on the household budget, with housing costs met from the remainder. This requires some estimate of the cost of all non-housing necessities (or quasi-necessities). Measures used in Australia have been the Henderson poverty-line, and a budget standard developed by the Social Policy Research Centre (Burke 2004). Banks also use similar methods to assess non-housing costs, as part of determining suitability for credit.

This is exclusively a residual income approach, representing the income left over for housing once a minimum living standard is deducted from income. We do not use non-shelter first measures in our evidence.

There are other possible measures for affordability. The ratio of average house price to average income is often used due to its simplicity for calculation and understanding.

Another often-cited measure is Stone's "shelter-poverty" standard (Stone 1994). Stone uses a sliding scale to analyse the required income for various housing types and compositions to meet non-housing costs, and whether their income is sufficient for this. Despite being a very informative measure, it is essentially a more complex version of the residual income method, and still requires normative decisions.

Massey University has measured the length of time needed for a household to accumulate a 10% deposit on the median house in their region, based on various monthly savings (DTZ New Zealand 2004). However, as cited, this method effectively gives the same relative results as comparing house prices across regions. The only data used are average house prices, an assumed 10% deposit, an assumed interest rate, and arbitrary monthly savings figures. There is no consideration of how easy it is to save these amounts neither in relation to income, nor to the differences in this savings ability over time and across regions.

Another possible measure is a ratio of income to construction costs. Although this is essentially an OTI, we consider it separately. This is a way of comparing the ability to pay

[4] Data used from the Household Economic Survey includes rates and repairs together with the mortgage payments.

criterion against construction costs, rather than house prices. The problem with this measure is that the main contributor to house price changes in NZ over the last two decades has been land values, not construction costs (DTZ New Zealand 2004). Hence simply using construction costs as a benchmark is misleading, in that it does not consider the most significant element of the changing affordability of purchasing a house.[5]

3.2.4 Different purposes

All the measures outlined above are used as tools for analysis of the housing sector and several are used to varying degrees for policy purposes.

The rent-to-income OTI measures the affordability of rental tenure. It can be used for several purposes in relation to state housing and accommodation benefits. In New Zealand it is used as one factor to set rent levels for state house tenants.; ie the tenants pay 25% of their income as an Income-Related Rent. OTIs are also used as one factor when assigning priority for access to state housing in New Zealand, for setting levels of housing assistance and assessing people's eligibility for benefits.

The prospective mortgage-to-income OTI measures the affordability of purchasing a house today. The ratio of house prices to income performs a similar function. The OTI measuring the number of households with housing costs above some proportion of income indicates the affordability of households' current homes, for all households.

The RI measures tend to be able to be used for similar purposes as their respective OTI. RI's added use is in determining eligibility for, and the level of, income assistance.

3.3 Strengths and Weaknesses of Selected Measures

3.3.1 Outgoings-to-income Ratios

OTIs are very easy to calculate and understand. Data for these ratios are also readily available. However, since it is a ratio, it does not fully depict a household's ability to pay housing expenses and still cover other costs. For example, some households on low incomes may not even be able to pay 20% of their income on housing, while a high income household might be able to pay 50% of their income on housing and still maintain a high standard of living. This problem can be partially overcome by looking only at low-income households; especially if we are concerned with affordability for first-home buyers.

OTIs do not incorporate any allowance for the number of dependents in a household. For example, the same ratio would have different implications for a four-child family compared with a one-child family. Nor do the allow for upfront costs, such as bond money, mortgage deposits, relocation costs and utilities.

The OTI approach does not encompass any measure of the quality of the housing. By focusing on actual payments, no allowance is made for differences in quality between households. A low OTI for a particular household may seem satisfactory, but this data tells us nothing about the standard of their housing. Furthermore, when considering time series it must be noted that what is deemed 'adequate' housing has been constantly changing over time.

[5] For a recent analysis of housing costs and the role of land prices see Grimes and Aitken (2006).

A major limitation of OTIs is that they only consider affordability at the present moment. For example, when considering mortgage repayments as a ratio of income, the value of the house, the interest rate and the earnings are all usually taken at that point in time. Affordability is taken into account at that moment. There is no consideration of future changes to interest rates, incomes, and house values, all of which would have a significant effect on the affordability of the house, and people's decision-making.

Furthermore, we are given no indication of how long a particular house will remain at a given OTI. If there are 20% of households with an OTI above 25%, but the majority of these will remain at this level for only 3 months, then the nature of this issue is significantly different than if 20% were in *long-term* housing stress.

There has been much debate about precisely how to calculate the ratio (see Section 3.4 for various methods). This matters since it alters how the ratio behaves under changing circumstances.

Another limitation of all the financial measures of affordability is that they fail to fully capture differences in quality. The concept of adequacy has at least three dimensions: Physical standards (eg, dampness, light); amenities (eg ablutions, privacy); and household size (eg, shared bedrooms, the use of sleep–outs or caravans). A measure of affordability does not directly capture such factors as crowding. Affordability measures are not designed to measure well-being.

3.3.2 Residual Income Measures

Residual income measures are designed to address one of the major concerns about OTIs; namely that OTIs do not accurately describe a household's ability to cover housing and then other costs. They are simple to calculate, given that they use largely the same data as the corresponding OTI. While addressing the first problem of OTIs, residual income (RI) measures also suffer from all the other flaws of OTIs.

The problem of different household compositions can be addressed by equivalising RI. This involves some form of standardisation so that a given measurement value represents the same thing for any household composition. Equivalising RI has proven far simpler than equivalising OTIs. One such method is the revised Jensen scale used by Statistics NZ[6].

3.3.3 House price to income ratio

The ratio of average house price to average income is often used and cited, due to its simplicity and ease of understanding. However this simplicity is precisely what limits its usefulness since it fails to incorporate many factors that affect the affordability of housing.

The main factor not directly considered by this ratio is the prevailing interest rate. Since the majority of house purchases involve a loan, the interest rate is an important influence on people's ability to pay. Of course, house prices themselves will in part reflect prevailing interest rates. Other factors not considered include banks' lending practices, and the amounts of rates and repairs.

6 Statistics on Housing Affordability, published on www.stats.govt.nz

It is also only directly useful for existing and would-be home owners, not renters. Renters are affected indirectly by the ratio of house prices to income, but this effect cannot be discerned immediately from the ratio.

3.3.4 Other problems

The fact that a household may be able to "afford" a house in a given region, might simply be due to its lower quality or relative inaccessibility. . That is, differing affordability values may simply reflect accessibility premiums and different neighbourhoods.

Relative differences in OTIs or residual income may not reflect differing levels of affordability, but rather differing preferences. Housing is a consumer good, and it is reasonable to expect people to have varying preferences for trading-off housing and other expenditure items.

Similarly, people may have a relatively unaffordable housing position by choice due to their life cycle position. A good example is current or recent students, who are not earning very much at present, but have large amounts of human capital and reasonably expect to have high future income streams. The point-in-time measure shows them being in a state of relative unafforability, but they have chosen this position since they believe they can afford it over the medium to long term.

3.3.5 The best way forward

All of the measures outlined are useful to some degree. They all provide information about the affordability of housing. However no single measure gives a complete picture of the situation.

When considering affordability for specific individuals we need to consider more than one measure. For example, a particular individual could have a high OTI that may look unsatisfactory, but if they have a high residual income then they are probably not in an unaffordable situation that requires government assistance. Similarly if an individual has a low residual income and a low OTI then their problem is a lack of income, which may require different government assistance.

We also need to consider more than one measure when investigating affordability at an aggregate level. A basket of measures can give a reasonable overall picture of affordability. Furthermore, analysing the differences between each measure's trends can reveal the underlying elements of the situation.

This paper focuses on housing affordability at the aggregate level. We do not examine affordability for specific individuals or small subsets of the population. A more detailed analysis of any individual's circumstances would be required for assessing their need for any government assistance.

In Section 4, we use several of the measures we have outlined earlier. We analyse each individually, and then all of them collectively. We believe this type of analysis is the best way to approach an investigation into trends of housing affordability.

3.4 Calculations and Benchmarks

3.4.1 Calculations

Calculating these measures is less than straightforward. The key considerations are what exactly we mean by 'outgoings' and 'income'.

Income can be gross or net, all income or only wages/salary, and with or without the Accommodation Supplement.[7] We could look at individual income, or household income. We can also calculate average individual income as that for all people or of only those employed. The latter, which is obviously the average wage, is much larger than the former.

There is also the issue of whether we should use current income, or an alternative such as permanent or expected lifetime income. People consider their expected future income alongside current income when making housing choices. This may be more realistic than current income for affordability purposes. However using this idea in practice becomes difficult. An objective estimate of someone's future income may be different to their own expectations. Further, it is difficult to ascertain what these income levels might be. Therefore we use current income for our analysis[8].

Outgoings are even more variable. For people currently making payments, we must decide whether housing costs include only rent and mortgage payments, or other costs like rates and repairs. We must also decide whether to deduct the Accommodation Supplement from housing costs. For those where we want to measure what repayments would be if they were to buy a house, many assumptions need to be made. We need to assume things about the size of the deposit and the interest rate. We also have to consider how much the house will cost. In this paper, we use all costs in some cases, while in others only mortgage or rental payments. This is clearly outlined in each case.

3.4.2 Household or individual income

Whether individual or household income is used can make a significant difference. The increasing proportion of two-income households, due in part to increases in the female participation rate, has led household income to rise faster than individual income. One could argue that household income is a much better measure for affordability because it is the whole household that pays the housing costs, and a couple may easily be able to afford a house that individually they could not.

But that same advantage can also be to the detriment of household income as a measure. Household income hides changes in household composition that are due to income shortfalls. A lack of sufficient income to pay housing costs may induce people to live with others. Household income is then able to cover the housing costs adequately, but the change in composition hides the decreasing affordability for the individuals. Similarly, it is possible that the increasing participation rate is partly due to couples deciding that they

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[7] The Accommodation Supplement is a non-taxable payment to provide assistance with accommodation costs. Receipt of another benefit is not required. It is payable to New Zealand residents who meet a range of income, assets and other criteria, and whose accommodation costs exceed a certain threshold. It is available to all tenures, including home owners and boarders, with the exception of people who pay rent for a property owned or managed by Housing New Zealand.

[8] In a similar vein, the expected inflation rate is potentially relevant to buyers in considering the effect on both future interest and house prices. Given that there is no straight forward way to measure inflationary expectations we compute real interest rates by deducting the current inflation rate from the nominal rate.

need two incomes to afford their house, rather than some change in underlying preferences.

We believe that household income is the best for our purposes, and consequently we use this in Section 4. We endeavour to use average net household income where possible. This data is for all households, and incorporates all income including the Accommodation Supplement. In some cases we use average gross individual income, due to data limitations.

Housing assistance such as the Accommodation Supplement is based on the concept of the economic unit. Rather than the household, the economic unit more closely corresponds to a family unit where there is a common pool of incomings and outgoings. The distinction is important in cases where there is a composite household; eg, a couple with children and an independent single person (say a widowed mother or border). Each has a responsibility for meeting a share of the housing costs. As a result, there can be two distinct outcomes for affordability for each part of the household.

3.4.3 Benchmarks

As discussed earlier, every measure requires a benchmark for an absolute affordability analysis. At what proportion of total income do housing costs become 'unaffordable'? Organisations in many countries, including Statistics New Zealand[9], use either a 25% or 30% benchmark. That is, they calculate the proportion of households whose housing costs exceed this level.

As for the residual income method, we need to determine how much money we have left over after housing costs have been incurred. We then need some benchmark as to how much is 'necessary', and at what point does the residual income become insufficient for an 'adequate' lifestyle. Benchmarks are usually derived from poverty measurement, or standard of living exercises. It is also possible to use a relative benchmark. For example, Statistics NZ[10] measures the proportion of houses with residual income below 60% of the median residual income.

Care needs to be taken when comparing information from multiple organisations. Continuing the somewhat arbitrary nature of these benchmarks, often the same benchmark is applied inconsistently. For example, the 30% OTI benchmark is has been applied to both gross and net income data by different organisations. Similarly, when calculating an average OTI, the result is only directly comparable to other figures if they were obtained using the same data definitions[11].

3.4.4 Benchmarks used in practice

Some benchmarks used in practice are shown below. The most common benchmarks are OTIs of 25% and 30%. That is, people spending more than this proportion of their income on housing costs. Many organisations concentrate on the lowest 40% of income earners for their analysis. As discussed earlier, often one benchmark can be applied by different organisations to data that is not directly comparable.

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9 ibid.

10 ibid.

11 Care must be taken when comparing our results (Section 4) to figures from other sources

Benchmarks in Practice

"Affordability typically becomes a concern where the housing costs of households in the lower 40% of the income distribution exceed 25% to 30% of their income." (Housing New Zealand Corporation 2005)

"A household is below its affordability standard if it spends more than 30% of its income on housing costs." (Canada Mortgage and Housing Corporation; cited in (DTZ New Zealand 2004)

"Households in the lower 40% income bracket who pay more than 30% of their gross income on housing costs, whether renting or buying, are said to be in 'housing stress'." (Affordable Housing National Research Consortium 2001)

"Housing is considered affordable if households can access suitable and adequate housing by spending a maximum of 30% of their gross income." This source then notes that this is consistent with a number of other countries, and that the strategy focuses on the bottom four deciles (40%) of household income (Auckland Regional Growth Forum 2003)

4 Evidence

4.1 Aggregate New Zealand Trends

4.1.1 All households' (owning and renting) housing costs

OTI measures

In this section we analyse the number of households that spent more than a given proportion of their disposable income on housing costs[12]. Household income and housing costs are calculated from the Household Economic Survey (HES) conducted by Statistics NZ[13]. Since this income is gross, disposable income was calculated using Treasury's TAXMOD system[14].

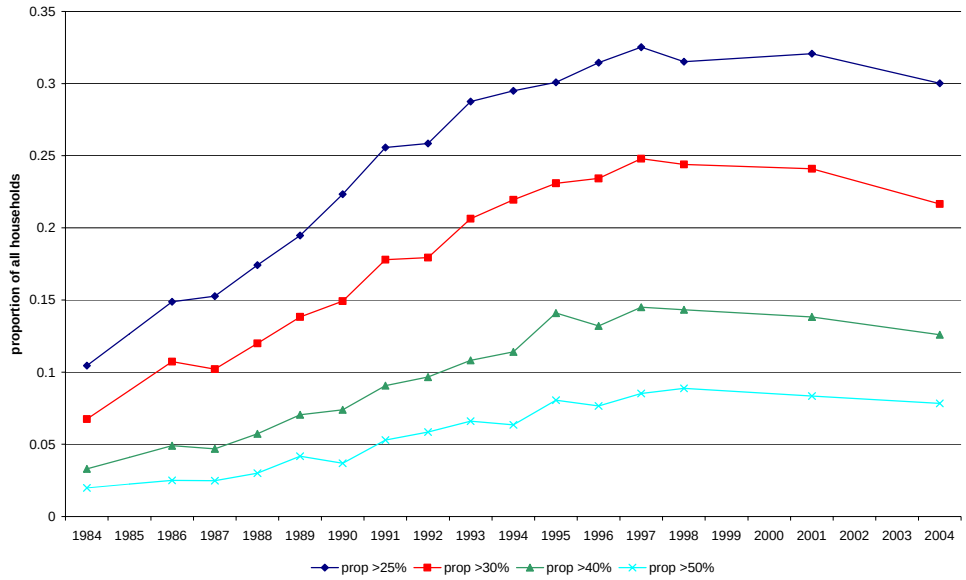
The proportion of all households who spent more than 25%, 30%, 40% and 50% of their household disposable income on housing costs all rose over the period from 1984-1997 (see. Figure 1). This was followed by a period of levelling off, which preceded a modest fall from 2001 to 2004.

12 Includes rent, mortgage payments, payments to local authorities, and property maintenance.

13 A detailed explanation of the HES is in the Appendix.

14 TAXMOD is a computer model of the NZ population, designed to forecast data and model policy related to income, tax and transfers.

Figure 1 – Proportion of total households spending more than a given percentage of net household income on housing costs



Note: the HES was not conducted in 1999, 2000, 2002 or 2003.

The above ratios include all households regardless of their position in the income distribution. Ratios that consider all households tend to become heavily influenced by those at the top-end. High-income households might be easily able to spend 50% of their income on housing costs.

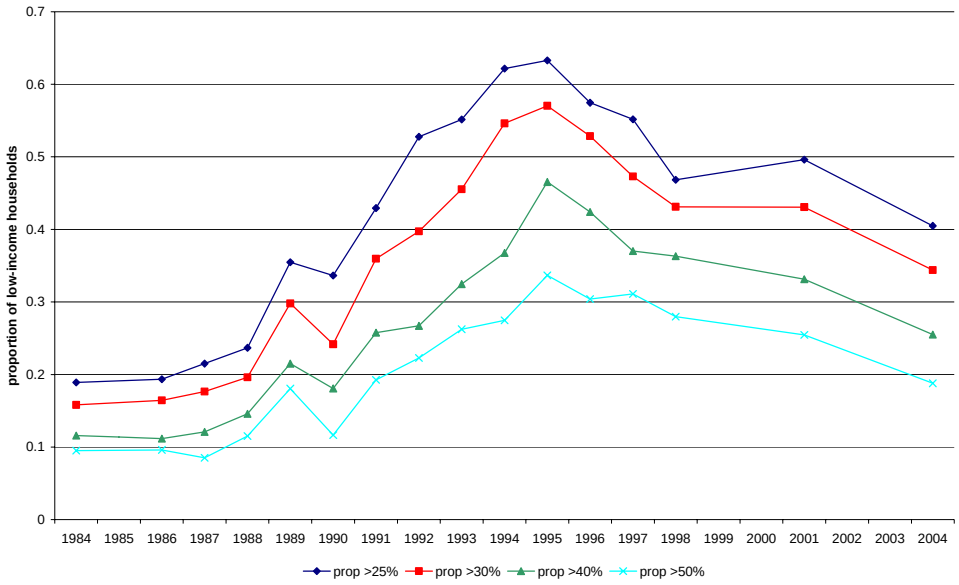
For some policy purposes, interest lies with the low-income households. These are normally indicative of first-home buyers but include retirees and students. Figure 2 shows the same ratios for only those households that have equivalised household disposable incomes below 60% of the median equivalised household disposable income.[15]

For low-income households the general decline in affordability (shown by an upward trend in the values) is apparent from 1984, until reaching a peak much earlier in 1995. After that time there is steady improvement in affordability from 1995 to 2004, (albeit with a slight regression in 2001). This distinct improvement after 1995 is in contrast to the ratios for all households, which had a very small decline from 1997 to 2004, back to roughly their 1995 levels.

It is clear that housing is relatively less affordable for low-income households than for all households, which is unsurprising. In 2004, the proportion of households spending more than 30% of their net household income on housing costs is 22%, whereas this figure is 34% for low-income households.

[15] We use this definition of low-income households because this is the data we were able to obtain from Statistics NZ. Estimates of equivalised incomes are from Statistics NZ using the revised Jensen scale.

Figure 2 – Proportion of low-income households spending more than a given percentage of net household income on housing costs



Residual Income measures

From the same HES data, we have calculated the residual income of households after housing costs. This income has been equivalised using the method described earlier. We have calculated the proportion of households with an equivalised household residual income below certain benchmarks.

We have used three different benchmarks. The first is used by Statistics NZ, and is 60% of the median equivalised residual household income (MERHI). The other two were used by Housing New Zealand Corporation to review their Monthly Living Allowances for home ownership assistance. They were calculated in 2005, and we have used the same base household that Statistics NZ use for their equivalised scale. Earlier years are retrospectively adjusted for changes in the CPI. This benchmark is referred to by us as the living allowance (LA) and the second benchmark is simply 80% of this figure, which may be more realistic for those on lower incomes.

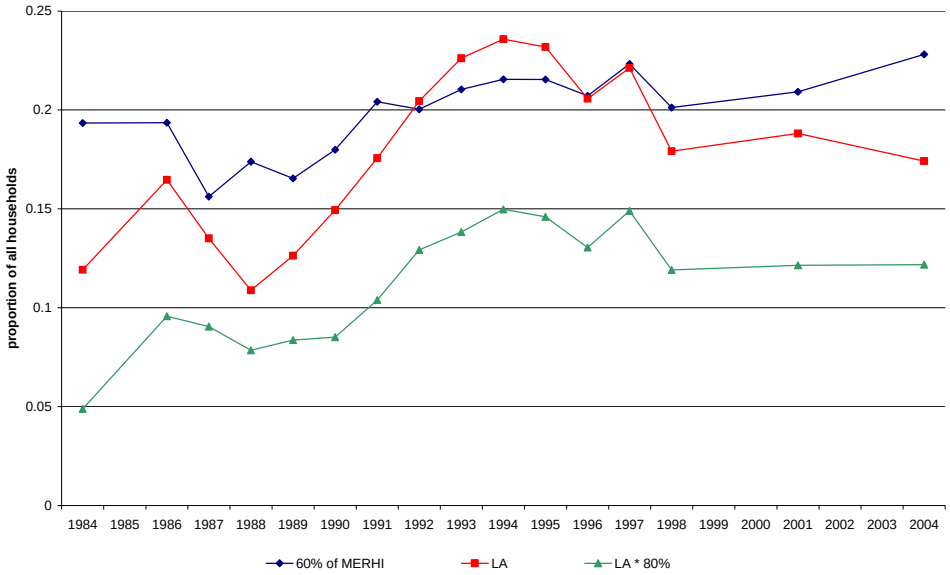
For all three cases, the proportion of households with incomes below the benchmarks increased from 1987 or 1988 to 1994 (Figure 3). However on either side of this period the trends differ. After 1994, the proportion below the LA and 80% of it jumped about before levelling off in at a level lower then the earlier peak. However the proportion below 60% of the median rose to 1997, fell and then rose again to 2004, which is its highest value.

Consequently, definitive trends are difficult to ascertain based on the differences between benchmarks. Generally affordability deteriorated in the early 1990s before levelling off somewhat to today.

4.1.2 Renters' housing costs

We have calculated the ratio of average rent to average income. Average rent data was obtained from the Tenancy Bond Centre. We only have rental data as far back as 1991, which limits the time-series analysis somewhat.

Figure 3 – Proportion of households with equivalised residual household income below budget thresholds



Average household income data is obtained from the HES. The raw data collected is gross income, but we have used Treasury's TAXMOD system to derive disposable or net figures. We have estimated the non-survey years using two methods. Values for 1999, 2000, 2002, 2003 and 2005 (when no HES survey took place) were estimated using data from the Quarterly Employment Survey (Statistics NZ)[16]. Values prior to 1988 (when TAXMOD was not available) were estimated using the percentage changes in the gross HES values. This is the standard method we use for average net household income in this paper.

Average individual income is obtained from the New Zealand Income Survey (NZIS) conducted by Statistics NZ, and is gross. The NZIS is an annual survey and only began in 1997.

The ratio of average rent to average household income has been fairly stable for the past 15 years (Figure 4). The ratio of average rent to average individual income has fallen slightly from 1997 to 2005. However the 2005 values are higher than the lowest values, in 2002. Therefore, affordability has improved slightly for individuals over the last 8 years, but remained stable for households.

4.1.3 Potential home-owners' housing costs

We have calculated the proportion of income that mortgage repayments would represent if a house were bought, given current house prices and interest rates. We have assumed a 20% deposit[17] and a 25-year term. We have used the median house sale price in each quarter, obtained from Quotable Value New Zealand (QVNZ).

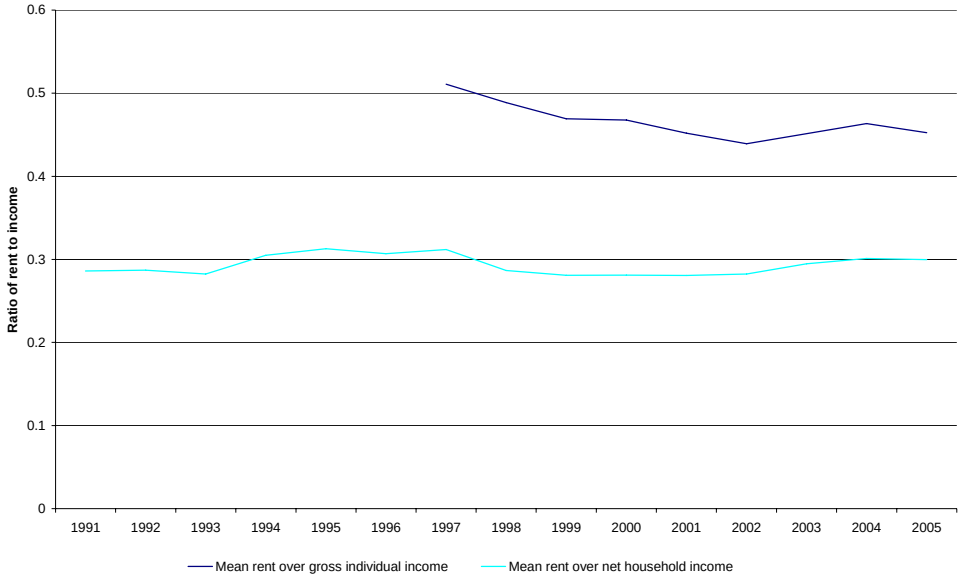
We have used two different interest rates, both obtained from the Reserve Bank of New Zealand (RBNZ). The first is a strictly floating rate. It is the average floating rate given to new customers, weighted by the balance sheets of each major bank at that date. The second rate is a combination of floating and fixed. It is the average rate of mortgage

16 This method which we have adopted is based on work by Gareth Kiernan; personal communications.

17 We also analysed 5% and 10% deposits. There was a simple level shift on the graph, but the trend did not change.

service, weighted not only by bank but also by the relative amounts of fixed and floating take-up and the take-up of various terms of fixed rates.

Figure 4 – Ratio of average rent to average income

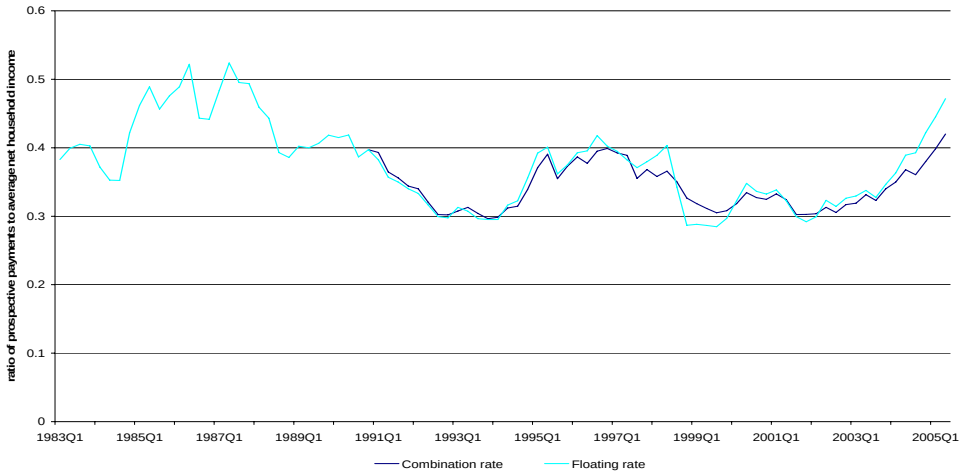


We obtain the average income data used from the HES. After-tax figures, and the estimates of non-survey years, have been obtained and estimated using the previously described methods. We also assume that income is equal for every quarter of a given year to June (since the most recent HES surveys occurred in June and estimate income in the previous 12 months).

Figure 5 shows the trends in prospective mortgage repayments as a proportion of income, using the two different interest rates. Since the majority of mortgages were floating in the 1980s, this represents an appropriate line for that period. Then since about 80% of mortgages today are at fixed rates, the floating rate is considerably less relevant. So the main trend follows the floating rate line until the two diverge, at which point the combination rate should take preference.

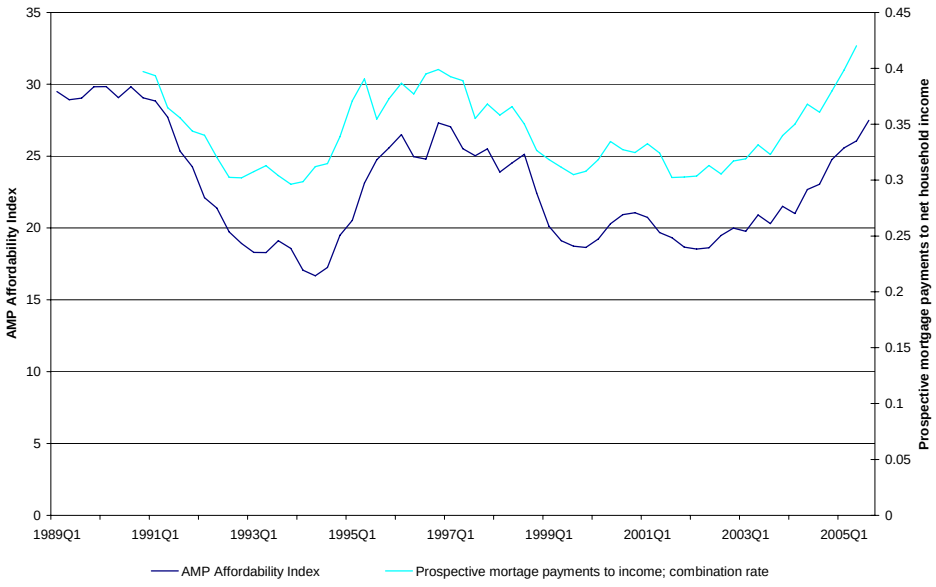
The proportion of income spent on mortgage payments was very high from 1985 to1989, much higher than in the early 1980s, after which mortgages became more affordable from 1991 onwards until 1994. The proportion of average income went back up again until 1998, but this period of relative unaffordability was not as high as that of the 1980s. The value then stayed somewhat stable at a proportion of around 0.32 until 2002, when purchasing a home become increasingly unaffordable. Using the more relevant combination rate, this current period of unaffordability is at a slightly higher level than the peak in the mid 1990s, but not as unfavourable as that of the 1980s.

Figure 5 – Ratio of prospective mortgage payments to average net household income



A similar measure is the AMP Home Affordability Index, calculated quarterly by the Massey University Real Estate Analysis Unit. This index measures the ability of new home-buyers to service their mortgage, given current levels of income, house prices and interest rates. It is not directly comparable with our above ratios, as the data used is slightly different, but as we see in Figure 6, the general trend is the same. The AMP index only started in 1989, so we only see the very end of the period of relative unaffordability that existed in the 1980s. Figure 6 also shows, for comparison, the prospective mortgage repayments as a proportion of net household income (using the combination rate; shown originally in Figure 5).

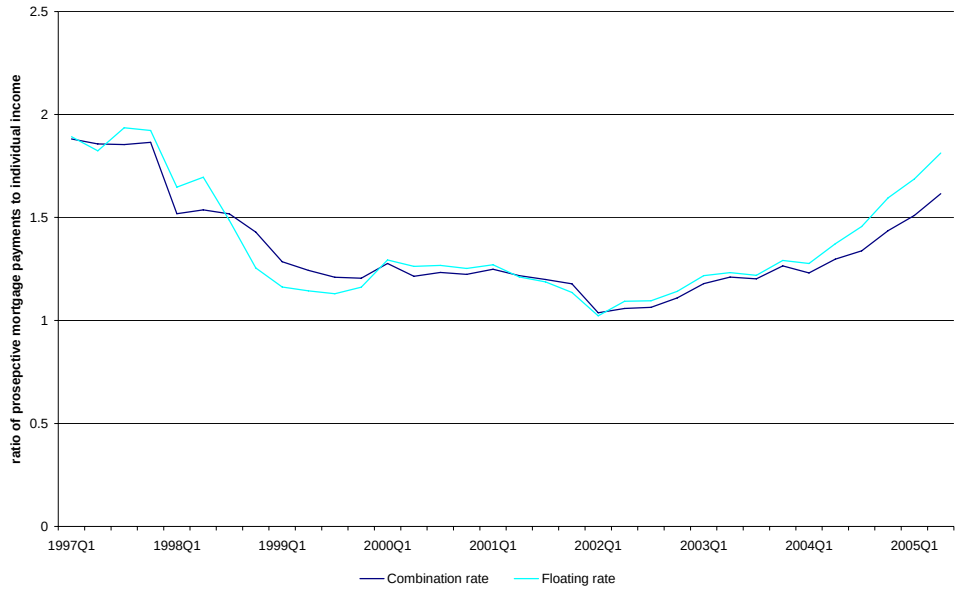
Figure 6 – AMP Home Affordability Index; ratio of prospective mortgage payments to average net household income



The trend shown in the previous two figures is the average repayment relative to the average income. We have also calculated similar ratios for low-income earners and lower priced houses. Figure 7 shows the ratio of prospective mortgage payments to income. But in this case the house price used is the lower-quartile sale price in each quarter, from QVNZ. The income is now the 20th percentile individual income, obtained from the NZIS.

The HES only gives average values, so we use the NZIS for this purpose, requiring us to use gross individual income. The interest rates are the same. The data starts in 1997, since this is when the NZIS began. This implicitly assumes that lower-income people purchase lower-priced houses.

Figure 7 – Ratio of prospective mortgage payments to income; LQ house price & 20th percentile gross individual income



The trend is roughly similar to that for the average. Affordability improves (values get smaller) from 1997 to 1999. There is a small hump in 2000-2001 (which we also see on the average figure, only it is dwarfed by the larger humps). Affordability then deteriorates from 2002 to present. However in this figure, the high point in 2005 (for the combination rate) is lower than that of 1997. Even though affordability has deteriorated in recent years, it is still currently better than in 1997.

This trend for low-income and low-cost households compares favourably to the trend for the average. Although the general pattern is similar, the recent deterioration in affordability is greater for the average households than for the lower quartile households, relative to the level in the late 1990s. However this carries the caveat that the data used are not directly comparable.

4.1.4 Existing home-owners' housing costs

We have calculated the proportion of households spending more than a given percentage of their income on housing, for those households where the owner is also the occupant. The data used is the same as for all households in section 4.1.1.

The data follows the same general trend as for all households. But the upward trend continues until 2001 for all four benchmarks, before falling in 2004 (Figure 8); ie, the peak value is in 2001, whereas the peak was in 1997 or 1998 for the all-households ratios.

For the low-income home-owning households, the improvement in affordability from 1995 to 2004 is even more marked. By 2004 the ratios have returned to roughly their 1984 levels (Figure 9). This trend is in contrast to all home-owning households where there was little improvement after 1997, and to all low-income households where the improvement was not nearly as substantial.

Figure 8 – Proportion of home-owning households spending more than a given percentage of net household income on housing costs

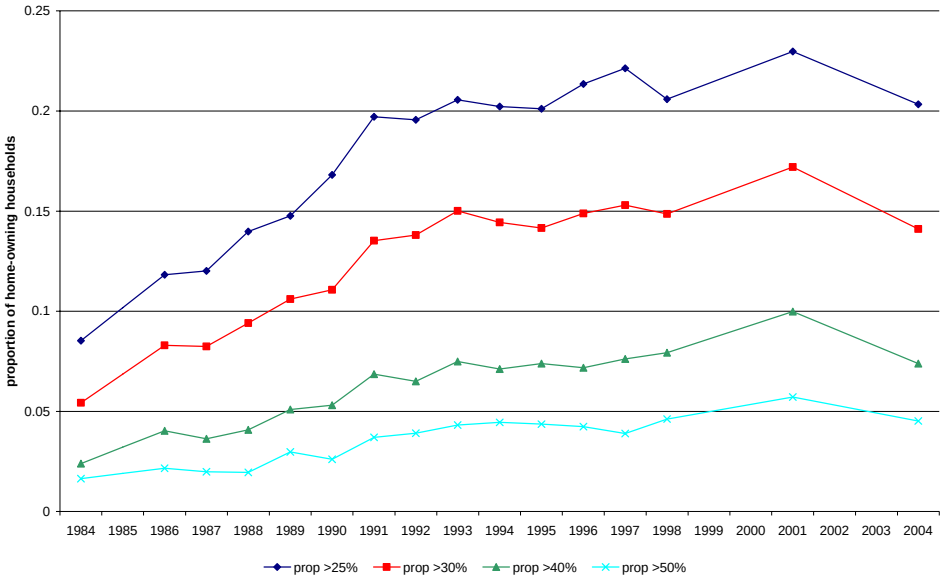
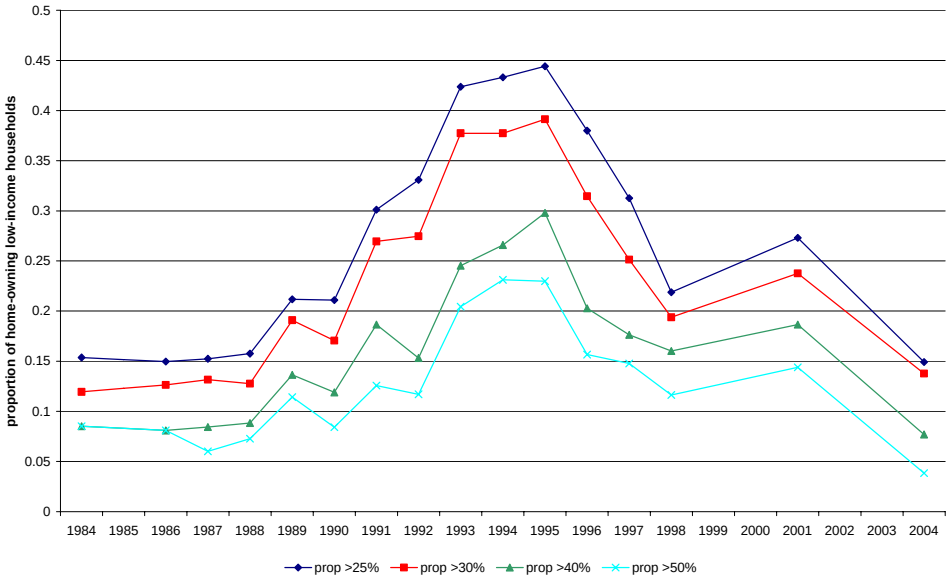


Figure 9 – Proportion of home-owning low-income households spending more than a given percentage of net household income on housing costs



4.1.5 House prices and incomes

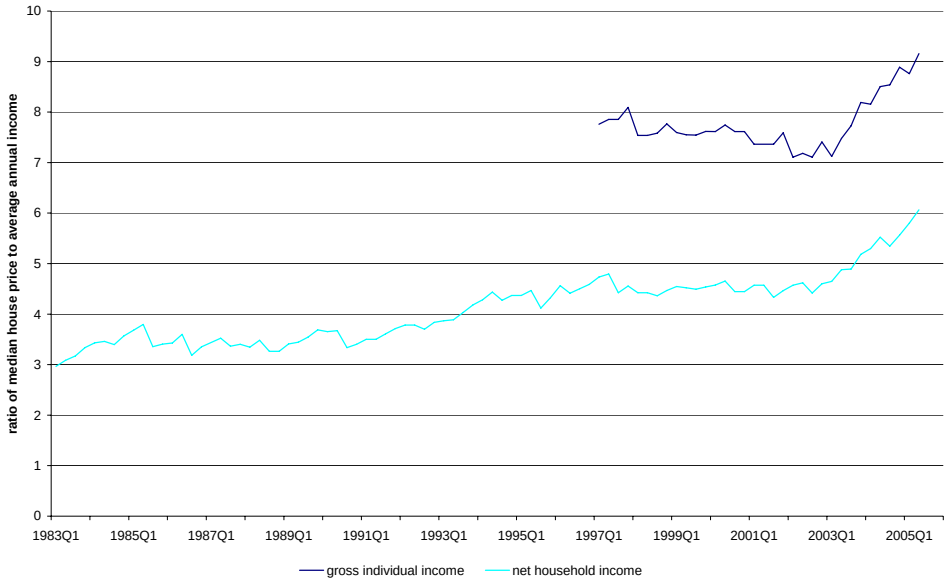
We have calculated the ratio of median house price to the average income. We again use the median house sale price from QVNZ, the average household income from HES (with estimates for non-survey years, and TAXMOD to derive net values) and the average gross individual income from NZIS. Figure 10 shows these ratios.

Since 1983 there have been periods of upwards trends and periods of stability. The ratio to household income rose in 1983 and 1984, was stable until 1992 before rising to 1998. Then the ratio was stable until 2003, when the current upward trend began.

The ratio of median house price to average individual income declined from 1997 when our series begins. This slow decline ended in 2003 when the ratio went steeply upward to

its current level. In terms of this ratio, the current level of unaffordability is easily the highest on record.

Figure 10 – Ratio of median house prices to average income



4.2 Regional Variations in Trends

4.2.1 Regional Councils

There is significant variation in affordability across regions in New Zealand. We have calculated ratios of average house price to average individual income for each regional council area, for June 2005. It is sufficient to use these ratios, rather than prospective mortgage payments to income, because adding an interest rate component that is constant across all regions would not alter the comparisons.[18]

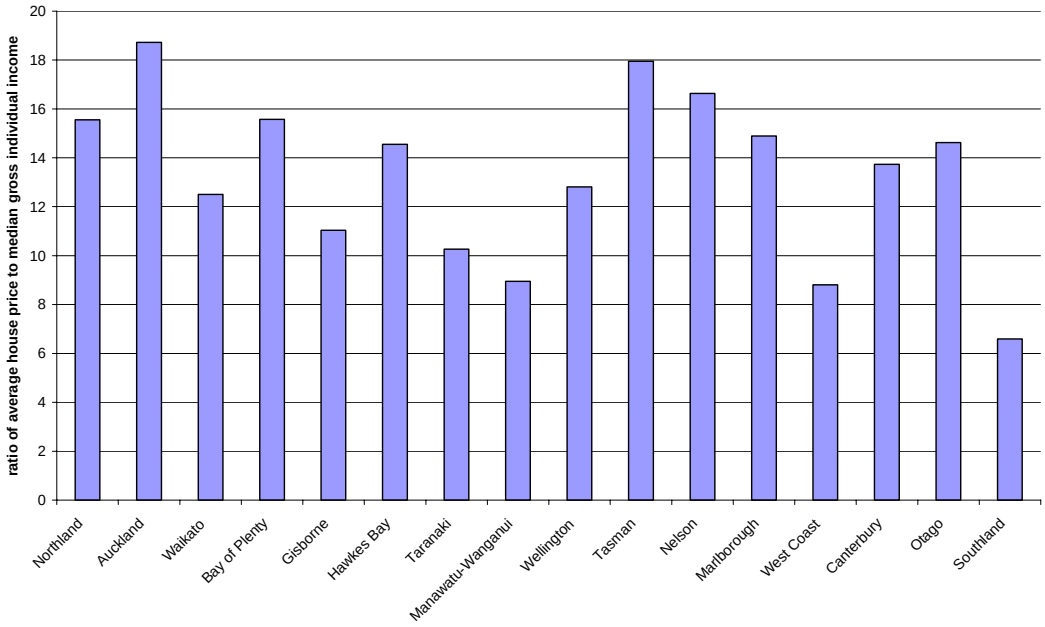
House prices are the average sale price in the first six months of 2005, obtained from QVNZ. Our raw data was for each TLA, from which we derived figures for each region by calculating an average, weighted by the number of house sales (in the first six months of 2005).

Average gross individual income is derived from the 2001 Census figures. The actual 2001 figures for each TLA have been adjusted using the National Bank's Indices of Regional Economic Activity, to obtain estimated figures for the June quarter of 2005. To obtain regional council figures, we then calculated the average for each region weighted by the 2001 usually resident population.

The house price to income ratios are shown in Figure 12. Auckland is the least affordable region, followed by Tasman and Nelson. Southland is the most affordable region, followed by West Coast and Manawatu-Wanganui.

[18] It should be noted that the regional comparisons in this paper are for a point in time and do not allow for the fact that different regions can be at different points in a business cycle.

Figure 11 – Average house price to average gross individual income ratios, 2005, by Regional Council



However, there is little obvious pattern to this data. Regions with large urban areas vary quite a lot in terms of affordability (Auckland is significantly less affordable than Wellington or Canterbury), as is the case with predominantly rural regions (Tasman is substantially less affordable than West-Coast or Manawatu-Wanganui). Obviously there is much variation within regions, which is discussed below.

Appendix Table 1, which shows the average house price, median individual income, and the respective ratio, for all Regional Council areas, as used to produce the above graph. The data allows greater analysis of the underlying patterns in the headline ratios.

Some regions with high house prices are relatively unaffordable (Tasman, Auckland) while others are reasonably affordable (Wellington). Conversely some regions with high incomes have comparatively reasonable affordability (Wellington again) while others are relatively unaffordable (Auckland). West Coast has low incomes but is very affordable in a relative sense, while Northland has low incomes but its housing is much less affordable than most other regions.

The difference between Auckland and Wellington is interesting, since they have the two highest incomes and house prices, yet Wellington is significantly more affordable. The difference lies in the fact that their incomes are relatively the same, yet Auckland's house prices are far greater than those of Wellington.

Southland has the lowest house prices in New Zealand, but a significant reason for it being easily the most affordable region is that its incomes are relatively high (4th highest region).

There is little pattern to the differences in house price to income ratios. Reasons for the regional affordability variations are complex, and can arise from differences in average house price, average income, degree of urbanity, the extent to which it has holiday destinations, and its neighbouring regions. These factors are interrelated to varying degrees.

4.2.2 Variations within Regional Councils

We have calculated the same ratios for each Territorial Local Authority (TLA). The method used is explained above. There are large differences in affordability within each region. Figures showing the intra-regional variations are in the Appendix.

There appear few stylised facts regarding these differences. Within some regions it is the urban areas with larger ratios, and for others it is the rural areas. However the most unaffordable areas within each region tend to be the main urban centres (e.g. Auckland, Tauranga, New Plymouth, Palmerston North, Wellington) or so-called holiday areas (Far North, Thames-Coromandel, Kaikoura, Queenstown Lakes). The most affordable areas are rural and not considered tourist destinations. Obviously this last point only considers house prices, and areas with relatively low incomes also produce high ratios.

In Northland, the Far North is the most unaffordable TLA, significantly more so than the urban Whangarei (Figure 22). In Auckland, Auckland City is the most unaffordable followed by the North Shore (Figure 23). Of note is that Rodney is almost as unaffordable as the North Shore, despite being further from the city and much more rural. In Waikato, Thames-Coromandel is substantially more unaffordable than any other TLA, with Taupo the next worst (Figure 24). Both of these areas are seen as tourist spots, with Taupo being somewhat urban as well. Hamilton, the only large urban TLA in the region, comes next with a ratio less than half of Thames-Coromandel.

In the Bay of Plenty, Tauranga is the least affordable TLA (Figure 25). It is the largest urban area and also a tourist spot. In comparison, Rotorua, the next largest urban area, is over twice as affordable as Tauranga, and more affordable than the largely rural coastal TLAs of Western BoP and Opotiki. In Hawke's Bay, the urban areas of Napier and Hastings are the least affordable (Figure 26). The same occurs in Taranaki, where New Plymouth is over twice as unaffordable as any other TLA (Figure 27).

Urban Palmerston North is the most unaffordable TLA in Manawatu-Wanganui (Figure 28). Wellington has relatively little variation. The urban Wellington City and the semi-urban and coastal Kapiti Coast are the least affordable TLAs. The most affordable TLAs in Wellington are on the eastern coast (Figure 29).

Tasman, Nelson and Marlborough are quite similar, with the rural Tasman being the least affordable (Figure 30). The three West Coast TLAs are all very similar (Figure 31). The urban Christchurch is the third least affordable TLA in Canterbury. Even less affordable are the rural Kaikoura and the semi-rural Banks Peninsula (Figure 32). Queenstown Lakes is the least affordable TLA in Otago. Dunedin is significantly more affordable, even more so than the rural Central Otago TLA (Figure 33). In Southland, Invercargill is slightly more unaffordable than the rural TLAs (Figure 34).

The most affordable TLA in New Zealand is South Waikato, significantly better than second-placed Tararua. The least affordable TLA is Thames-Coromandel, followed by Auckland and then Queenstown Lakes.

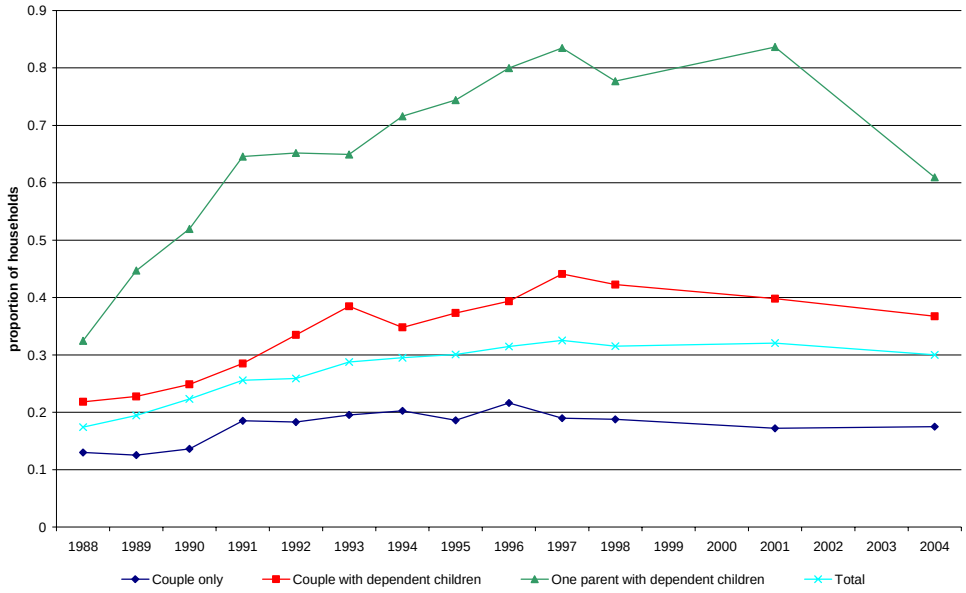
One thing to note with this analysis is that these ratios do not require that people live and work in the same TLA. Some areas may be quite affordable to live in, but only if an individual's income was sourced from another area. For example, Lower Hutt is more affordable than Wellington, but part of that is likely to be due to many of those living in Lower Hutt working in Wellington and earning incomes that they could not obtain by working in Lower Hutt.

4.3 Other Cross-sectional Variations

4.3.1 Variations across household types

We have calculated the proportion of households who spend more than 25% of their disposable income on housing costs[19], for various housing compositions (Figure 12). This data was sourced from Statistics New Zealand (HES), and uses the methods described earlier.

Figure 12 – Proportion of households spending more than 25% of disposable income on housing costs, by household type



All compositions follow a similar trend to the Total line (discussed in Section 4.1.1), involving declining affordability through the late 1980s and early 1990s, followed by some improvement. Unsurprisingly, households with one parent and dependent children fare the worst of these types, with their affordability significantly worse than for a couple with dependent children.

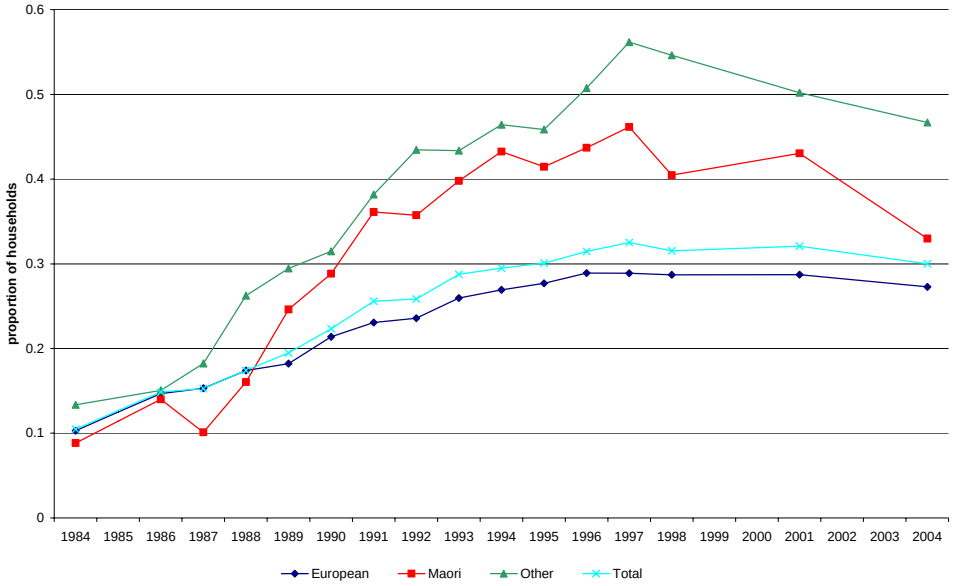
However the 'one parent with dependent children' households has experienced the greatest improvement from their late 90s peak. In 2004, 'couples only' had similar affordability on this measure to 1998 and 1995. ' Couples with dependent children' had similar affordability to 1995. But 'one parent with children's' affordability was the best since 1990, and over 25% better than in 1997 and 2001.

4.3.2 Variations across ethnicities

Figure 13 shows the proportion of households spending more then 25% of their disposable income on housing costs, by ethnicity. A respondent's ethnicity is self-identified, and multiple ethnicities are possible. The data is the same as for the similar calculations above.

[19] We chose the somewhat arbitrary benchmark of 25% because that is what Statistics NZ uses.

Figure 13 – Proportion of households spending more than 25% of their household disposable income on housing costs, by ethnicity



In the mid-80s, all ethnicities shown here had similar affordability values. While all groups experienced deteriorating affordability from 1984-1997, it was much more marked for the 'Other' and Maori ethnic groups. However, since 1997 Maori affordability has improved significantly to a similar value in 2004 to that of Europeans, whose value has largely remained constant since the mid-90s. The Other group's figure has improved since 1997, but their housing remains substantially less affordable than that of Maori and Europeans.

4.4 Drivers of Trends

4.4.1 Drivers of aggregate New Zealand trends

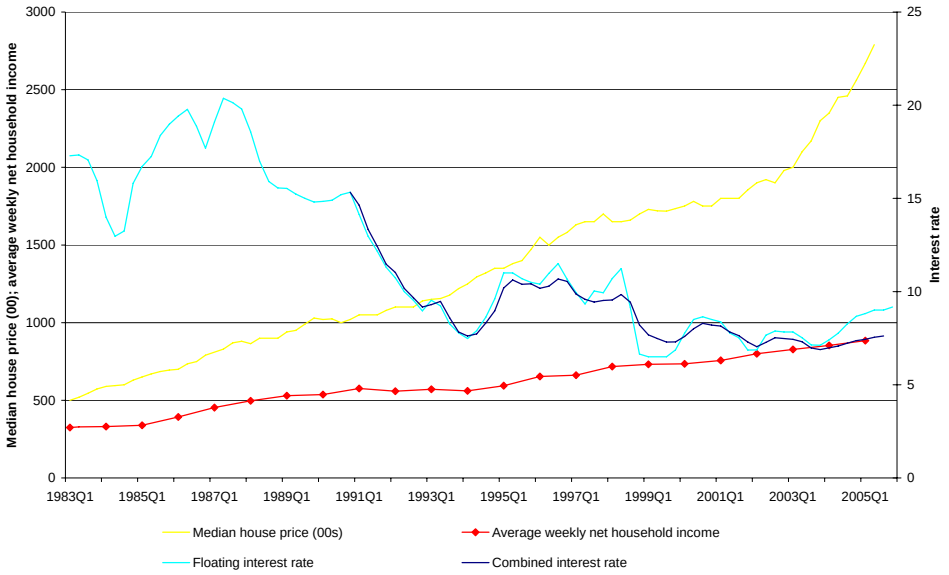
Ratio of prospective mortgage payments to net household income

The analysis of the proportion of mortgage payments to household income (including the AMP affordability index) indicates that there have been three 'bubbles' of relative unaffordability since 1983. The first was from 1985-1988, the second from 1995-1998, and the third from 2002 to present (Figure 5).

These ratios are driven by several factors. House prices and interest rates affect the nominal mortgage payments, and then household income affects the overall ratio (any other factor influences these three factors). Changes in any of these three factors will influence the ratio, and will do so without lags.

Figure 14 shows the median house price, average household income (gross and net), and interest rate (the RBNZ derived combined rate, and the floating rate), since 1983.

Figure 14 – Median house price, average household income, interest rates



The above graph shows some distinct trends. House prices rose reasonably steadily over the period, with some periods of slower growth from 1990-1993 and 1998-2002. Average household income rose steadily also, except for a period of unchanging incomes from 1990-1995. However interest rates show extreme volatility, with several local peaks.

The first bubble of unaffordability occurred from 1985-1988. This period was also associated with by far the highest interest rates since 1983. The second bubble occurred from 1995-1998. This period was also associated with higher interest rates than immediately before or after. This local interest rate peak was lower than in the 1980s, and unsurprisingly the unaffordability bubble wasn't as high as that of the 1980s either.

The third is occurring at present. While interest rates have only started to slowly trend upward, house prices have been growing faster than ever before (at least since 1983). The start of the increasing house price inflation (2002) coincided with affordability beginning to deteriorate.

Thus it appears that the main drivers of the short periods of relative unaffordability since 1983 have been high interest rates (the first two periods) and high house price inflation (the current period).

Proportion of households spending more than a given percentage of household income on housing costs

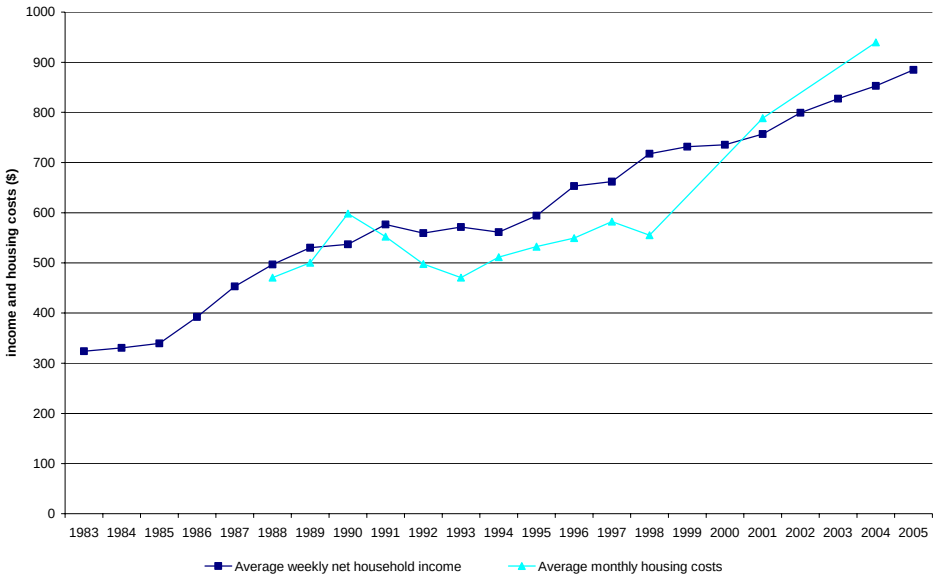
The other measures of affordability are not driven by current prices and interest rates to the same extent as those analysed above. The proportion of households spending more than a given percentage of their disposable income reflects many changes over time, and many effects will be quite heavily lagged.

We have already seen that the proportion of households spending more than a given percentage of their income on housing costs was rising from 1990-1997. This was the case for all households, home-owning households, and low-income households (Figures 1,2,8,9). After 1997, low-income households fall back from this bubble, and the all household figure levels off.

At the simplest level, these ratios are affected by net household income and housing costs. Obviously many things influence these two factors. Figure 15 shows average

household income and average housing costs since 1983. This data is from the HES, the same data as used in the OTIs.

Figure 15 – Average incomes and housing expenditure



However the average income and housing costs shown above don't show the same pattern as in the earlier ratios. Comparing average net income with average housing costs (which is simply an average OTI), doesn not exhibit the same pattern as the figure representing the proportion of households with OTIs above certain levels. Affordability on the average OTI improves from 1990-93 and deteriorates from 1998-2004 (both of which are different to the proportional OTI). Since the data is obtained from the same source, we must assume that the difference lies in the composition of individual households' OTIs.

Whatever the particular intricacies are, the ratios shown earlier exhibit improving affordability after 1997 for low-income households (Figures 2,9), while affordability only stabilises for the all households figure (Figures 1,8).

The difference between low-income and all households is obviously the middle-to-high income earners. For the all households figure to remain stable there must have been increasingly more of these households spending large proportions of income on their house. It is possible that rising house prices mean that some (high-priced) households simply spend more on housing costs, and are quite happy to do so.

These ratios show no sign of any deterioration in affordability at present. Indeed all measures, against all benchmarks, were better in 2004 than in 2001. It appears that the rapidly increasing house prices have had little effect, if any, on these ratios.

One likely reason for this apparent anomaly is that current mortgage payments of households in general are largely based on historic house prices, rather than current ones. The data indicate that 'other' housing costs have increased at the same rate as incomes[20], and we have already seen that this is the case with rent (Figure 4). Thus, it is mortgage payments' apparent failure to rise in 2004 that is causing this lack of a bubble. Any mortgage that was financed prior to 2002 will show no effects of rising house prices. Further any recently financed mortgage may be offset by the capital gains received by the

[20] Source: HES, Statistics NZ.

sale of any previously owned property at the same time. The relatively small numbers of first-home buyers[21] seems unable to influence this ratio to any significant degree.

Another possible reason is the relevance of the Accommodation Supplement (AS). The AS is included as income for these OTIs for all households, but not for the prospective OTIs for would-be home owners. The AS is intended to make housing more affordable, and this may contribute to these results. However we were unable, with the data we obtained, to establish how much of an influence the AS has had.

Relationship with policy regimes

New Zealand had a National Government between 1990 and 1999. A Labour Government was in office before this period and a Labour-led Government afterwards. The National Government introduced a more market-based housing policy.

National implemented its policies in 1992 and 1993. These included the introduction of the Accommodation Supplement. When Labour regained power, many policies were altered. Also some new policies were introduced, such as the Income Related Rent Subsidy.[22] These policies were implemented in around 2000.

The following three graphs show affordability over time, and have already been analysed. But in this case the two vertical lines on each graph represent the transition from one policy regime to the next. Note the lines are shown when policies were implemented, not election dates.

Figure 16 – Households spending more than some proportion of disposable income on housing costs, under different policy regimes

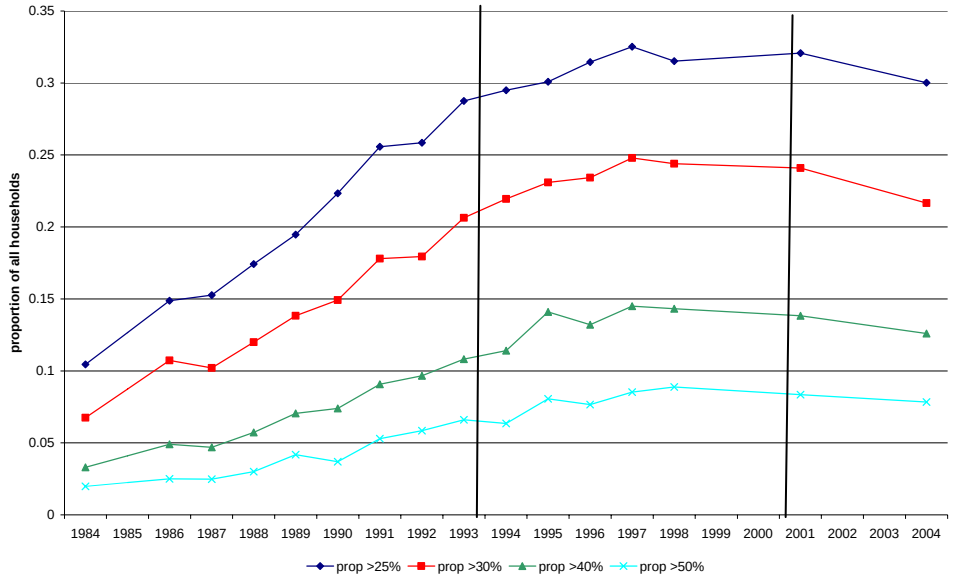
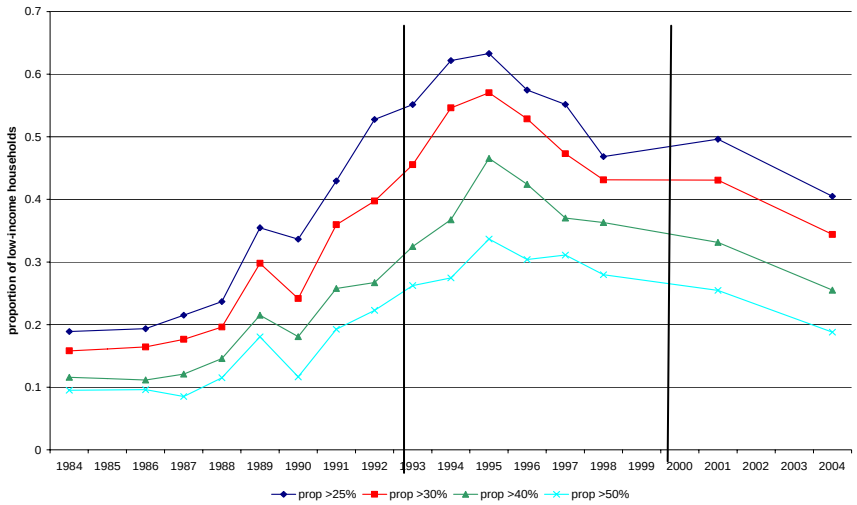


Figure 17 – Low-income households spending more than some proportion of disposable income on housing costs, under different policy regimes

21 For 2003 the Real Estate Institute of New Zealand Consumer Survey reports 25% of buyers were first-home buyers (http://www.reinz.org.nz/shadomx/apps/fms/fmsdownload.cfm?file_uuid=9BEF564B-BFC7-7238-9396-0F254549A2DA&siteName=Reinz), while the Australian figure is 18.3% in November 2005 (Australian Bureau of Statistics).

22 Tenants in Housing New Zealand Corporation-owned or –managed state houses pay a maximum of 25% of their income in Income Related Rent.



In Figures 16 and 17, the period of decreasing affordability in the late 1980s and 1990s began while Labour was in office and continued on under National's regime. In Figure 16, the affordability deterioration exists for all tenures of housing, yet the policies only significantly impacted those on the lowest-incomes and in the lowest-cost housing (especially state housing). In Figure 17, the improvement for low-income households began between regime changes.

Figure 18 – Ratio of prospective mortgage payments to average net household income, under different policy regimes

In Figure 18, there seems to be much cyclical variation without any long-term trend. There also does not appear to be a pattern between the affordability lines and the policy regimes.

One could argue that some of the changes shown in the above figures are the result of policy change and had a significant lag. However such lags are not consistently shown across the time-series or across the different measures. For example, the improvement in affordability in Figure 17 in 1995 began two years after the policy change (1995). But in Figure 18, 1995 was the start of a deterioration in affordability.

Overall, there does not appears to be a significant relationship between policy regime changes and affordability, under any measure. However, a more comprehensive approach would involve comparing housing costs with and without government intervention. The difficulty here is that of forming a counterfactual. We can observe the outcomes in the presence of the various housing policies. In contrast we would meed to be able to determine the way in which people might have reacted had those policies not bee in place.

This does not imply that some specific policies have not influenced affordability. We have not attempted to analyse the effect of individual policies, only policy regimes.

4.4.2 Drivers of regional variations

We earlier analysed regional variations in affordability for home-buyers. As mentioned before, interest rates are the same for all regions, so the difference lies in house prices and incomes.

House prices are driven by demand and supply. Demand for housing is a function of many factors, but mainly the desirability of each location. Supply is driven by the availability of land and construction, and local planning regulations.

House prices are highest in areas which are predominately urban or sunny coastal spots (Table 1 – Appendix). It is likely that these areas would have high demand, given that urban areas have the best employment opportunities and coastal spots are desirable for lifestyle reasons. These areas may also have low supply of housing. Urban areas have precious few undeveloped places, and many city councils impose restrictions on subdivision, urban sprawl and intensity of residential development. Also, the geography of coastal locations often restricts the amount of development that can take place, especially in the most desirable areas closest to the coast. Similarly it is unsurprising that the TLA with the lowest house prices (also the most affordable area), South Waikato, is a rural inland area (i.e. a relatively undesirable location with few supply constraints).

Areas with the highest average incomes include the main urban areas but also some smaller urban areas and even rural areas. One determinant of incomes in an area is the type of work which takes place there, and the earnings the workers receive. Large urban areas tend to have a greater proportion of their population working in high-paying white-collar occupations than semi-urban or rural areas. Rural areas can also have high average incomes (e.g. when farmers earn high returns, which may explain the high incomes in Franklin and Matamata-Piako). Queenstown Lakes has very high incomes, possibly because businesses are forced to pay their workers more to ensure they are able to reside in such a high-priced area.

4.5 The Future

Whether any affordability “problem” exists on more than a temporary basis largely depends on the course of house prices, incomes and interest rates in the near future.

Prospective home-owners are currently enduring an ‘unaffordability bubble’. This deteriorating affordability of purchasing a house may continue, stabilise, or reverse.

It is expected that the New Zealand economy will slow in 2006/07 (The Treasury 2005), causing growth in GDP to fall. This will adversely affect wage growth, and consequently the disposable incomes of individuals and households.

The Reserve Bank of New Zealand (2005), The Treasury (2005) and the New Zealand Institute of Economic Research (2005) are all predicting that house prices will stabilise somewhat and actually fall for a period sometime in 2006/07. Furthermore the Reserve Bank predicts that OCR rises are likely to be finished for this cycle, and markets are already pricing in falls in interest rates in 2006/07.

If the change in house prices is smaller than the change in household incomes (e.g. if house prices fall), which seems at least possible, then the ratio of prospective mortgage payments to household income will fall, meaning improved affordability for would-be home owners. However in the medium term, if house prices continue to rise faster than household incomes then we would expect deterioration on several indicators.

The proportion of households spending more than a given percentage of their income on housing costs does not show any affordability problem at present. The future of this measure depends also on the strength of the housing market, interest rates and income. If house prices remain historically high, more mortgages will be financed at these higher prices, resulting in higher regular costs. Any slowing in household income growth will add to the problem. If these two factors occur to any significant degree, we may find this measure shows deteriorating affordability in the near future.

The Treasury and The Reserve Bank of New Zealand are presently investigating potential Supplementary Stabilisation Instruments, at the request of the Minister of Finance. Some of the possible recommendations to come out of this process may involve the housing sector, specifically related to mortgage lending practice. If any of these recommendations are implemented in the future, they may have some impact on the housing market. The extent to which these may affect affordability is unclear.

4.6 Affordability Influencing Home Ownership?

The affordability of housing is linked to the level of home ownership. A deterioration in the affordability of owning a house is generally seen to adversely affect the level of home ownership.

The rate of home ownership in New Zealand fell from 73.8% in the 1991 census to 67.8% in 2001[23]. Affordability is often cited as one factor causing this.

The literature is unclear as to the primary reasons for the change, and the relative impact that different factors had. Reasons cited, other than affordability, have included changing preferences, increasing tertiary education enrolment, rising average age of marriage and first child, and a correction from a period with conditions excessively conducive to home ownership.

Australia has experienced a similar decline in home ownership rates. Much debate has centred on whether this is due to decreasing affordability or to delays in family formation. The Australian Housing and Urban Research Institute (Baxter and MacDonald 2004) argue for the latter.

[23] Source: Statistics NZ, Census figures.

Delaying family formation and increasing tertiary education enrolment are part of the same phenomenon. The impact they have is that less young people wish to purchase a house, preferring to delay this also. Although this factor is sure to be part of the reason home ownership rates are falling, it seems unlikely that it is the sole cause. Ownership rates have fallen for all age cohorts of the population in New Zealand, meaning middle-aged and older people are also less likely to own their own home. Delaying family formation cannot be the cause of this.

The proportion of households not answering the relevant ownership question in the census has risen from 0.6% in 1981 and 1.5% in 1991 to 4.7% in 2001. One possible reason for this is the impact of family trusts, with a household effectively owning the house through a trust and being unwilling to state this on the census form, or unsure of how to answer. Furthermore, almost 10% of houses were unoccupied on census night in 2001. The ownership status of these houses could potentially significantly alter the headline rate.

Lastly, in 1971 the home ownership rate was 68.1%, marginally higher than the current figure. Over the next 20 years this rate rose 5.7 percentage points. It has been suggested that ownership rates are simply settling down to their natural levels, after an unusual period. This period was associated with very high inflation (especially at the start), negative real mortgage rates and negative net returns on other investments. This is all conducive to investment in housing, and to households purchasing a home (Littlewood 2004). All the above factors are feasible causes of declining home ownership figures over the last decade. The relative influence each has had is unclear. Specifically it is unclear as to what extent affordability has played a part, if it has played one at all.

5 International Comparisons

5.1 International House Price Comparison

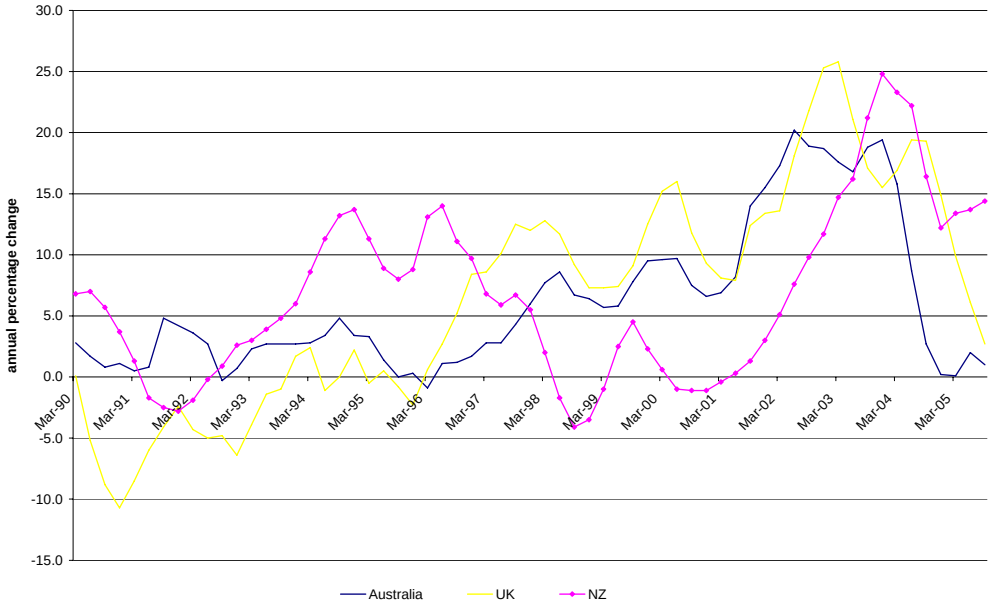
Figure 19 shows the annual house price inflation for New Zealand, Australia and the United Kingdom.

All three countries have experienced rising house price inflation recently, up until 2003. While New Zealand's rising inflation only begun in 2000, Australia and UK have experienced this since around 1995. In the last 5 years, New Zealand follows a similar trend to the others, with around a 12 month lag. Australia and UK experienced a housing downturn around 2002, and both now have house price inflation close to zero. New Zealand has followed a similar trend so far, having reduced the inflation to some extent. If New Zealand continues to follow the UK/Australia trend, house prices will stagnate around the end of 2006. This situation is similar to the predictions of the RBNZ, The Treasury and the NZIER.

5.2 NZ / UK Affordability Comparison

Figure 20 shows the ratio of average house price to average income over time for New Zealand and the UK. The NZ line is the same as that shown in Figure 10.

Figure 19 – House prices, annual percentage change; New Zealand, UK, Australia



Source: QVNZ, Australian Bureau of Statistics, Nationwide Anglia Building Society (all obtained through the RBNZ).

Note that both house prices and income are calculated differently for the UK line. House prices are the average sale price, but are weighted by various things (like floor area) which differ depending on the year. Average income is gross, for individuals, and seasonally-adjusted (none of which is the case for NZ). This data is sourced from the Nationwide Building Society.

Figure 20 – NZ ratio of average house price to average net household income; UK ratio of average house price to average gross individual income

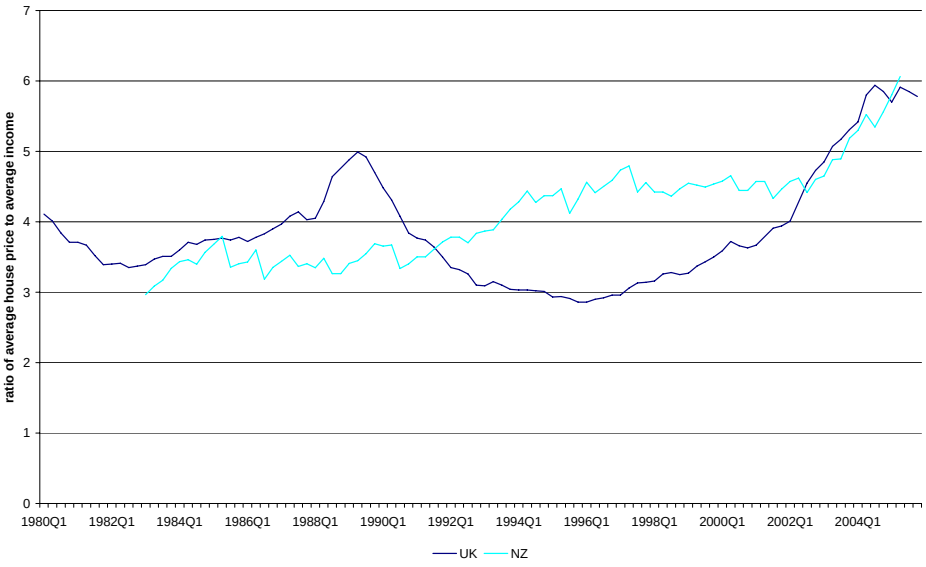
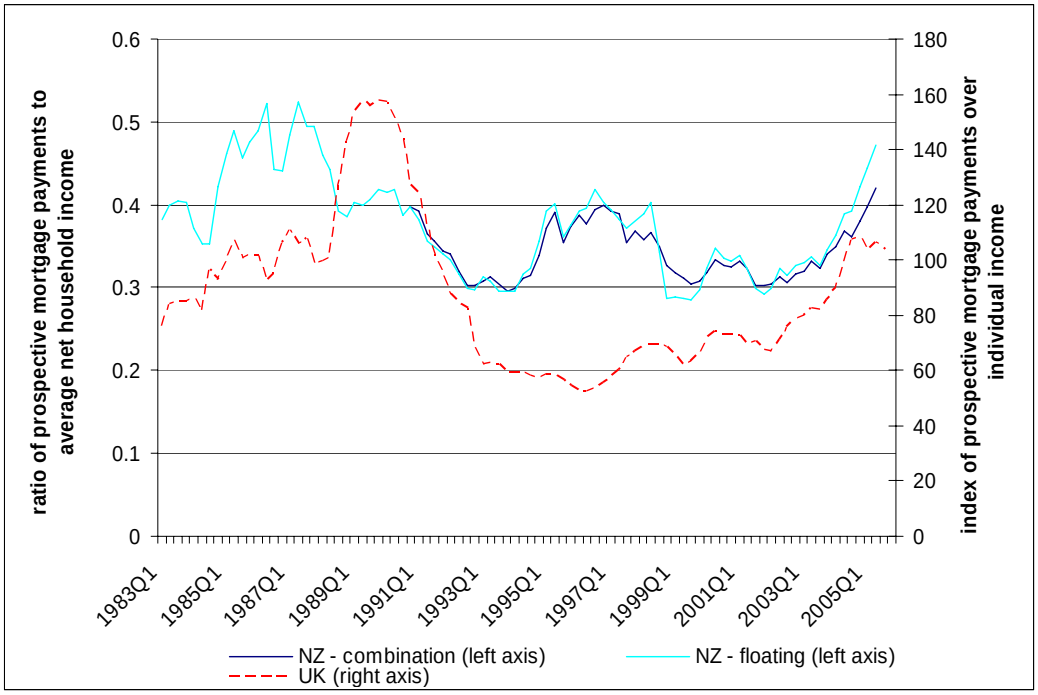


Figure 21 shows the ratio of prospective mortgage payments to average income over time for New Zealand and the UK. The NZ lines are the same as those shown in Figure 5.

The UK line is calculated quite differently and displayed against a different axis – the chart shows the trends of change in both the UK and NZ rather than directly comparing the same data for each country. The income and house price figure used are those used for

Figure 10, and discussed above. Interest rates are calculated in a similar fashion to the 'combination rate' used for NZ. A 10% deposit is also assumed. Finally, the ratios are indexed to 100 at 1985 Q1.

Figure 21 – ratio of prospective mortgage payments to income; indexed for UK



We cannot establish any definitive conclusions from this comparison. There is nothing in the data to suggest that New Zealand's experience is out of line with the rest of the world.

6 Discussion and Conclusions

6.1 Discussion

Even though economists are reluctant to use the term affordability in relation to housing, it has come into widespread usage and we are able to establish a usable, if unspecific, definition. Affordability refers to the relationship between housing costs and some ability to pay criterion.

Whether or not a household considers some particular level of housing to be affordable is contingent on the amount of income which is spent on this housing, and how much is left over for other expenditure.

Affordability is best considered as a continuum. A particular point on the continuum represents the financial stress that housing exerts. We need to consider affordability for renters, would-be homeowners, and existing homeowners, as the concept is applied differently for all of them.

Simply comparing points on the continuum over time and across subsets of the population only tells us part of the story. We also need to decide if a particular point on the continuum is affordable or not. This cannot be done objectively. We are required to make normative

decisions around how much people should be spending on housing and how much residual income people need for other expenditure.

There are various measures of affordability. Each has its own strengths and weaknesses, and no one measure should be taken by itself as showing a complete picture of the situation.

There is no sector consensus as to the best way to measure affordability. However, among the currently used measures, outgoings to income ratios (OTIs) and residual income measures are still considered the most useful.

Despite outlining the various weaknesses of each common measure, we have still used them in our analysis. Individually, each measure does provide useful information if it is analysed carefully. Collectively they can give a more complete picture of the situation.

Given that the trends generally differ between measures, the ability to establish an overall picture lies in the examination of the components of each measure and the reasons for the variation in trends.

Furthermore, the measures that we were able to use were limited by our ability to access data. Some specific measures simply could not be used because we don't have the requisite data.

The New Zealand evidence shows differing affordability situations depending on the measure used. The proportion of households spending more than a given percentage of household income on housing deteriorated from 1984 to 1997-98 before improving somewhat to 2004. The prospective mortgage payments as a proportion of average household income for would-be homeowners has moved in cycles with periods of relative unaffordability in the mid-1980s, late 1990s, and currently. The ratio of average house prices to average household income is currently the highest on record.

Each of these measures taken individually shows a picture of affordability over time. However, if all of them are considered together, we are unable to establish any long-term trend.

Indeed, apart from the ratio of house prices to income, no individual measure shows a long-term trend. The proportion of households spending more than a given proportion on housing costs has risen and then fallen slightly (it has fallen substantially for the low-income household subset). The prospective mortgage payments as a proportion of household income has moved in cycles. Consequently, fluctuations in affordability appear to be of a cyclical nature, without any long-term trend.

The present spike in unaffordability shown on the prospective mortgage payments to income is largely the result of historically high house price inflation over the last few years. Whether this continues in the near future depends largely on the extent to which house price inflation remains high, and the course of future interest rates and incomes.

These recent deteriorations in affordability are not abnormal compared with the past. On the prospective mortgage payments to income measure, although affordability is currently less favourable than 2001, it is still more favourable than 1986 and at a similar level to 1996. Furthermore, if house price inflation remains high in the future, the proportion of households spending more than a given proportion of income on housing is likely to rise.

Over the last 5 years, the trend in affordability of low-income households (with low-cost houses) is more favourable than that of the average/median. The proportion of households spending more than a given percentage of income on housing has shown more recent improvement among the low-income household subset than for all households. Similarly, the prospective mortgage payments over household income figure has deteriorated less for low-cost and low-income households than it has for all-households.

There is substantial variation in affordability across regions, and other cross-sections of New Zealand's population. Auckland is the least affordable region, with some other cities being relatively unaffordable. There also exist several rural areas with significantly less favourable affordability situations than many urban areas.

No measure exhibits any clear relationship between affordability and housing policy regimes.

Given that each measure shows a differing trend, there seems to be no single policy instrument which provides a solution (if a solution is required). Addressing housing affordability requires the use of a portfolio of instruments.

We have considered relative affordability far more than absolute affordability in this report, despite describing the necessity to use both. The arbitrary nature of absolute affordability limits its usefulness. We simply have little knowledge of whether any particular ratio or residual income (point on the affordability continuum) is 'affordable' or not.

Much thought has gone into benchmarking for this purpose. However the best estimates are still the result of normative decisions, and are essentially an educated guess.

6.2 Concluding Remarks

We need to be careful with the measures that we use. There is no single measure of affordability that can tell us everything, and different measures reveal different movements over time. A basket of measures needs to be considered to obtain a complete picture of affordability trends.

Housing affordability largely follows a cyclical pattern. With the exception of the ratio of house prices to income, none of the affordability measures considered in our study show any long-term trends.

On some measures (but not all), affordability has been deteriorating for the last few years. If house price inflation slows in 2006/07, as The Treasury, RBNZ and NZIER are all forecasting, this deterioration will slow, if not reverse (i.e. affordability will improve).

Affordability for different groups responds differently to changes in influential factors. For example, existing home owners, would-be home owners and renters are affected differently by, say, changes in house prices.

Low-income households fare better than all-households when comparing current affordability situations relative to the recent past.

There is significant regional variation in affordability within New Zealand. Auckland is the least affordable region, while outside Auckland there are certain regional enclaves in coastal areas where affordability is less favourable than in many urban areas.

There is a lack of any apparent relationship between different housing policy regimes and affordability indicators.

Appendix

Household Economic Survey (HES), Technical Notes

Introduction

The Household Economic Survey (HES) was conducted on an annual basis from 1973 until the year ended March 1998; since the year ended June 2001, it has been conducted triennially. The HES provides a comprehensive range of statistics relating to income and expenditure. The statistics presented in the attached table are estimates of private household spending; other tables are available on request.

Definitions

Expenditure: All references to housing and total expenditure in this release refer to expenditure without net capital outlay and related expenses. All expenditure statistics referred to are net of sales and trade-ins and include Goods and Services Tax (GST).

Income: All references to income in this release refer to before-tax (gross) income.

Expenditure changes

Note that changes in spending may reflect changes in price levels, as well as the quantity or quality of the goods and services purchased. The average expenditure figures refer to all households surveyed, including those which did not report spending on the goods and services concerned.

Under-reporting of expenditure

For some items of expenditure, the total annual expenditure for all private households is less than that reported from other data sources. The main reasons for this are:

- Expenditure by residents of non-private households or by those ineligible for the survey (for example, overseas visitors) is excluded from this survey.
- Respondents to the survey forget or omit some types of purchases. This may include such items as cigarettes, alcoholic drinks, confectionery, newspapers and public transport fares.
- Expenditure by children aged under 15 is not recorded in the survey.
- There is a bias associated with non-response that affects some statistics.

No adjustments were made to the data to compensate for any under-reporting. Items for which under-reporting occurs in the HES are generally consistent with items that are under-reported in similar overseas surveys.

Survey scope

The target population for the HES is New Zealand-resident, private households living in permanent private dwellings. This means that the population does not include overseas visitors who expect to be resident in New Zealand for less than 12 months; people living in non-private dwellings such as hotels, motels, boarding houses, hostels, motor camps, homes for the elderly; patients in hospitals; residents of psychiatric and penal institutions; members of the permanent armed forces; members of the non-New Zealand armed forces; and overseas diplomats. Children at boarding schools are not surveyed, but

expenditure on behalf of those children is included in the record-keeping of the parent or guardian.

For survey purposes, a 'household' comprises a group of people who share a private dwelling and normally spend four or more nights a week in the household. They must share consumption of food or contribute some portion of income towards the provision of essentials for living as a group.

Change in estimation methodology

Estimates for the 2000/01 survey have been revised due to improvements made to the estimation methodology used. The benchmarks used as part of the integrated weighting process have been updated.

Survey period

The survey was carried out over the period from 1 July 2003 to 30 June 2004. People were asked about their spending up to 12 months prior to the interview.

Expenditure data was collected by the following methods:

- 12-month recall (for single payments of $200 or more)
- latest payment (for regular commitments such as electricity, telephone, rates, rent, insurance and superannuation)
- 14-day diary keeping.

Note that expenditure data collected by the diary covers a one-year period (from 1 July 2003 for households interviewed in that month, to 30 June 2004 for those interviewed then). Expenditure data collected by recall in the Expenditure Questionnaire covers a two-year period (one year back from 1 July 2003 for households interviewed in that month, through to 30 June 2004 for households interviewed then). Reported expenditure has not been adjusted for the effects of that difference in coverage.

Similarly, for information on income, each household member aged 15 years and over was asked about their income in the year prior to their interview date. As a result income data covers a two-year period depending on the month each household was interviewed.

Reliability of the survey estimates

The HES sample comprises 2,854 private households, sampled on a statistically representative basis from rural and urban areas throughout New Zealand. Information is obtained for each member of a sampled household that falls within the scope of the survey and meets survey coverage rules.

Two types of error are possible in estimates based on a sample survey: sampling error and non-sampling error. Sampling error can be measured, and quantifies the variability that occurs by chance because a sample rather than an entire population is surveyed. Relative sampling errors are calculated for average weekly expenditure and aggregate annual expenditure. Expenditure group and subgroup sampling errors are attached to Table 1 in the Hot Off The Press. For example, in 2003/04 the estimated average weekly household expenditure (excluding net capital outlay) was $888.40. This is subject to a percentage sampling error at the 95 percent confidence interval of plus or minus 3 percent. This means there is a 95 percent likelihood that the true value lies between $861.80 and $915.10.

The HES estimates are also subject to non-sampling error. Non-sampling errors include those arising from biases in the patterns of response and non-response, inaccuracies in reporting by respondents, and errors in the recording and coding of data. Statistics New Zealand endeavours to minimise the impact of these errors through the application of best practice survey methods and the monitoring of known indicators (eg non-response). The overall response rate was 73 percent for the 2003/04 year.

Source for all of the above: Statistics New Zealand (www.stats.govt.nz)

Table 1 – Average house price and median individual income, Regional Councils

	Estimated average income	Estimated median house price	House price to income ratio
Northland	17,659	274,694	15.6
Auckland	24,068	450,589	18.7
Waikato	21,501	268,807	12.5
Bay of Plenty	19,653	306,180	15.6
Gisborne	17,775	196,121	11.0
Hawkes Bay	19,373	281,854	14.6
Taranaki	20,945	214,930	10.3
Manawatu-Wanganui	19,327	172,935	9.0
Wellington	25,236	323,301	12.8
Tasman	19,001	341,141	18.0
Nelson	20,125	334,742	16.6
Marlborough	19,951	297,047	14.9
West Coast	17,388	153,090	8.8
Canterbury	20,661	283,728	13.7
Otago	18,650	272,719	14.6
Southland	21,093	138,925	6.6

Ratios of average house price to average individual income, June 2005.

Figure 22 – Northland TLAs

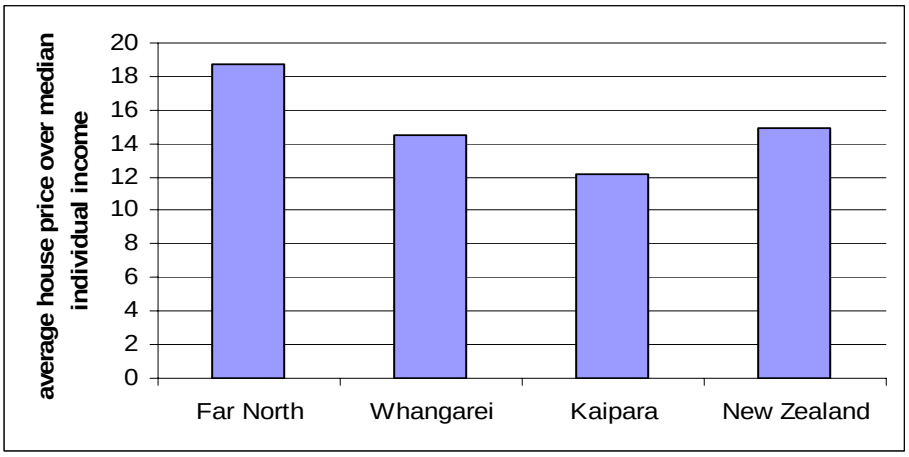


Figure 23 – Auckland TLAs

Figure 24 – Waikato TLAs

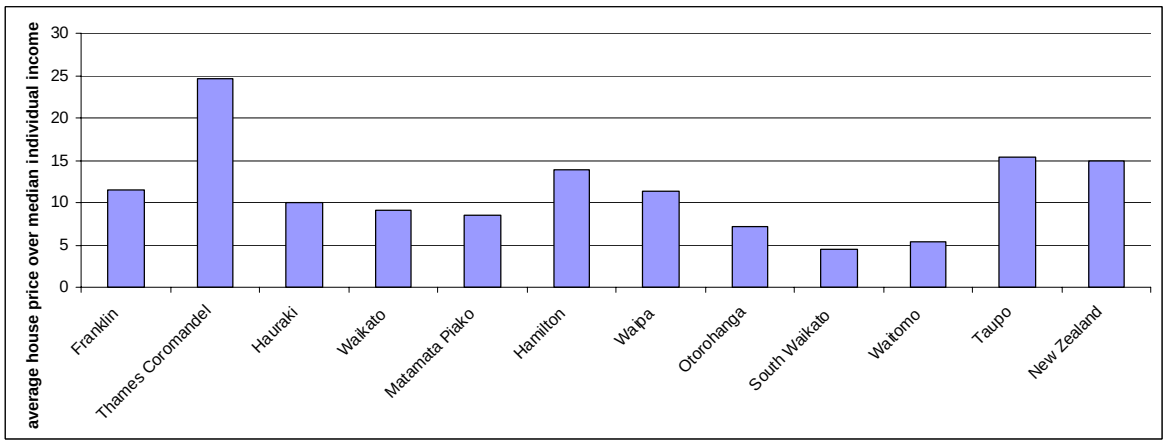


Figure 25 – Bay of Plenty TLAs

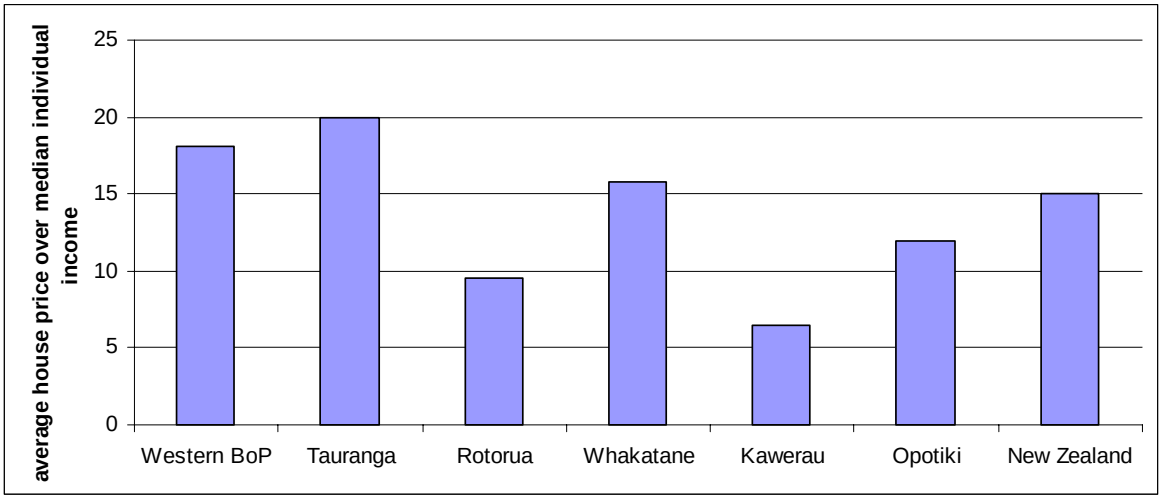


Figure 26 – Hawke's Bay TLA

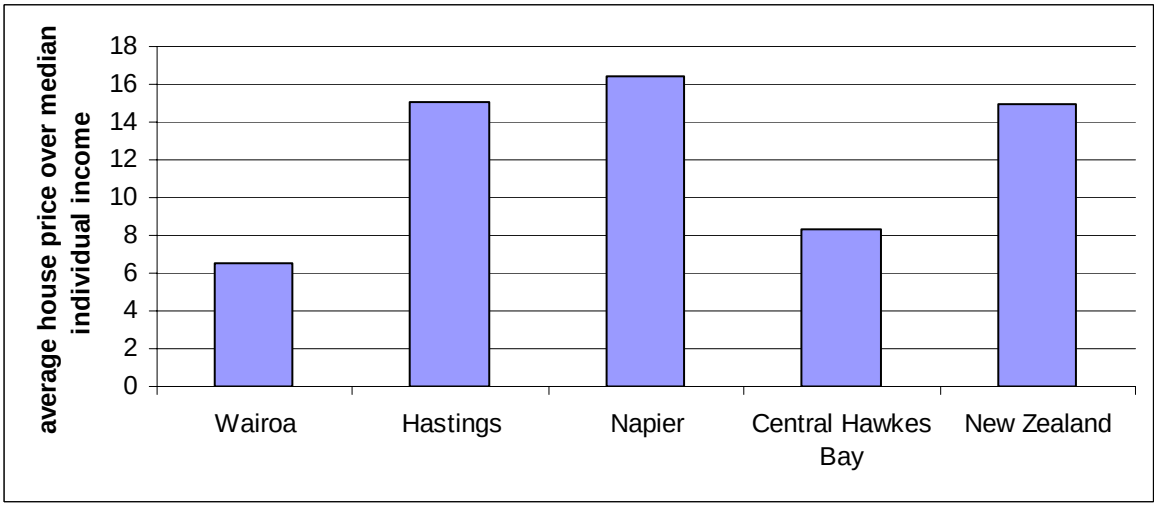


Figure 27 – Taranaki TLAs

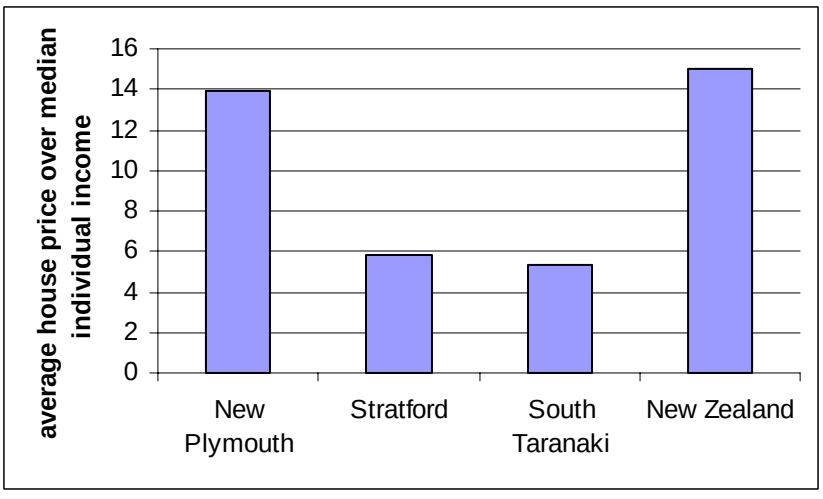


Figure 28 – Manawatu-Wanganui TLAs

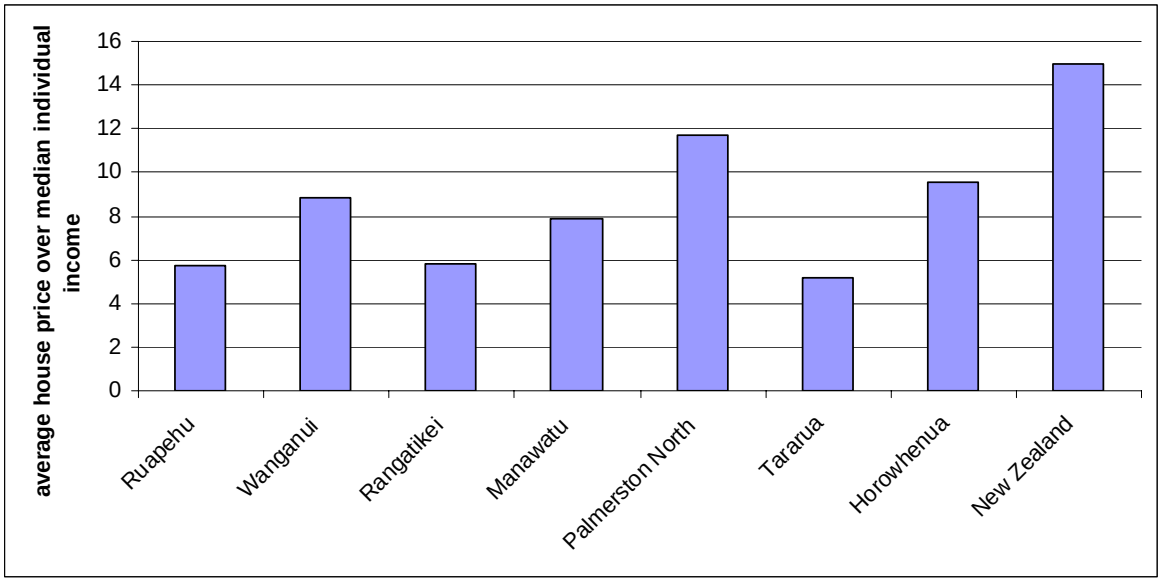


Figure 29 – Wellington TLAs

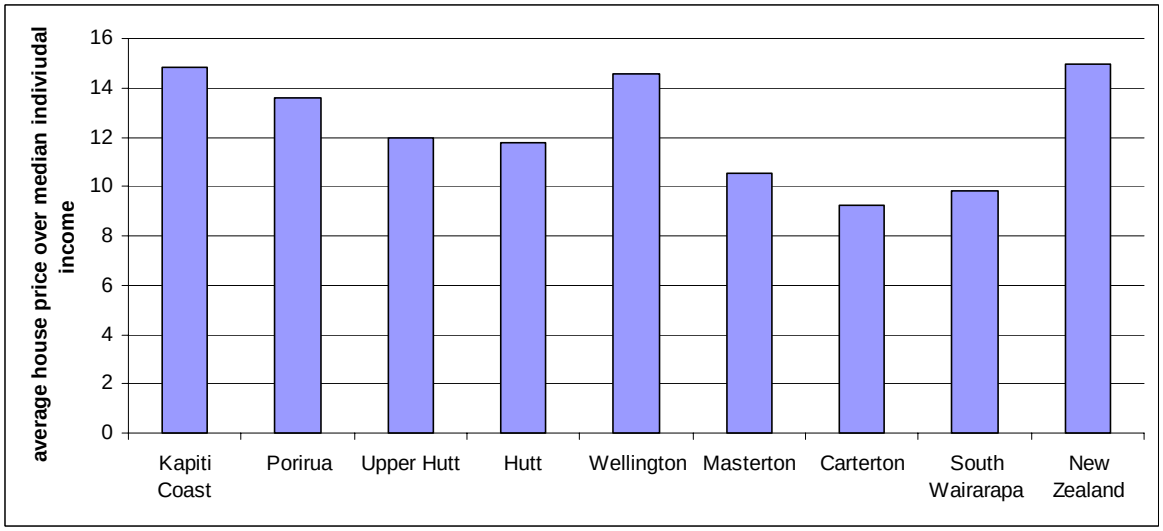


Figure 30 – Tasman/Nelson/Marlborough

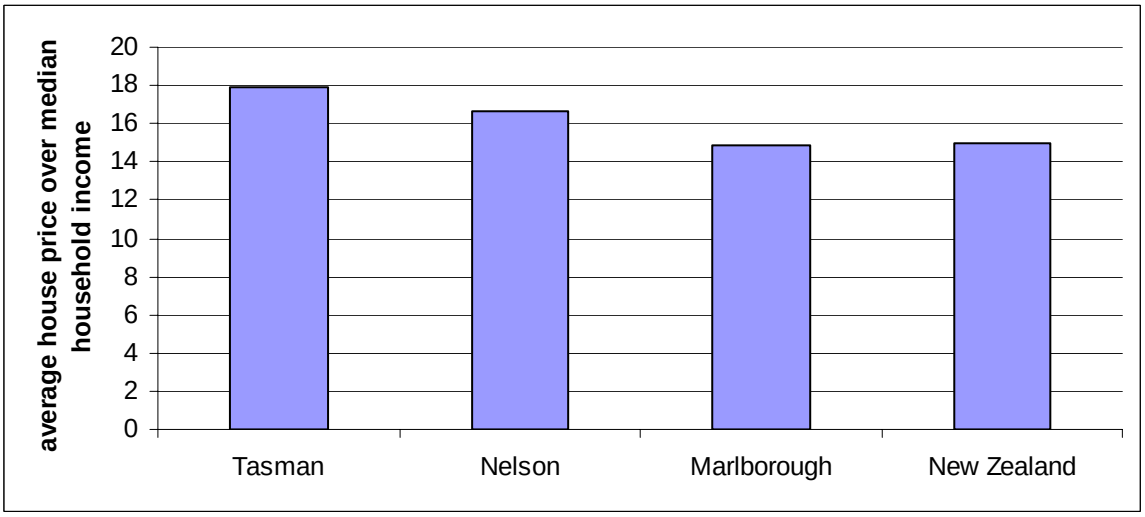


Figure 31 – West Coast TLAs

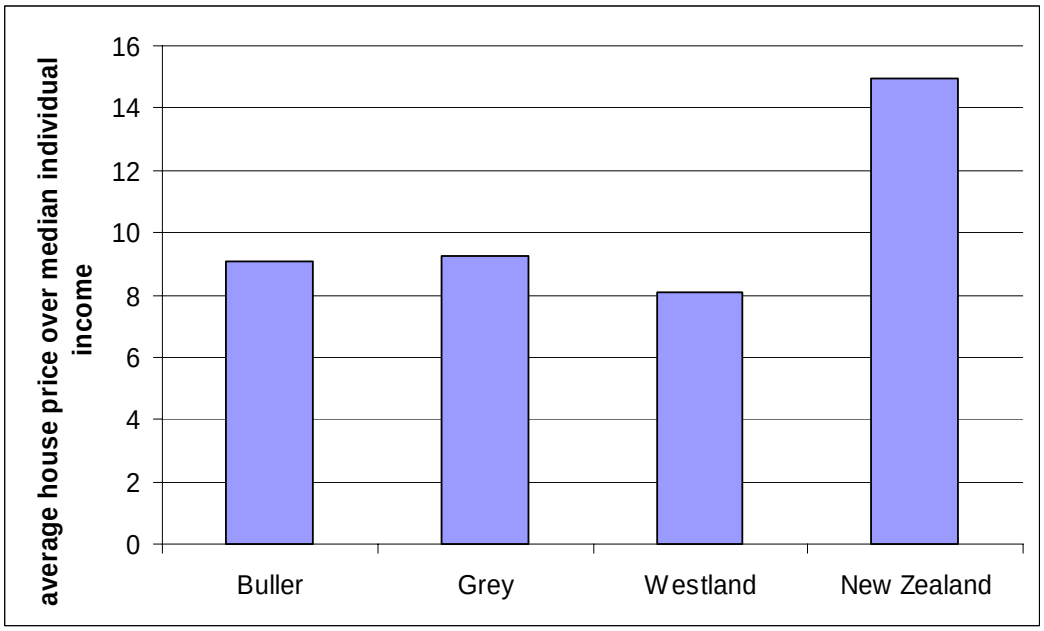


Figure 32 – Canterbury TLAs

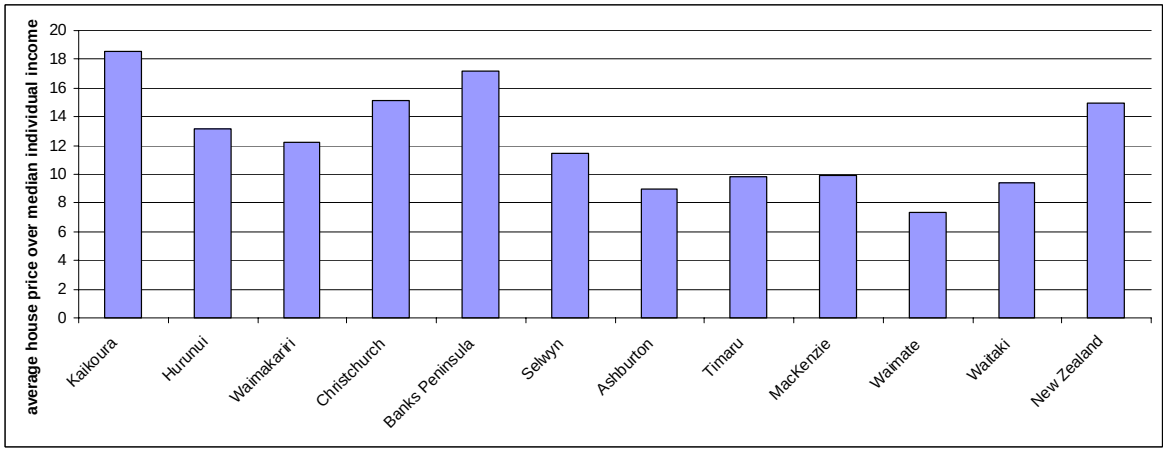


Figure 33 – Otago TLAs

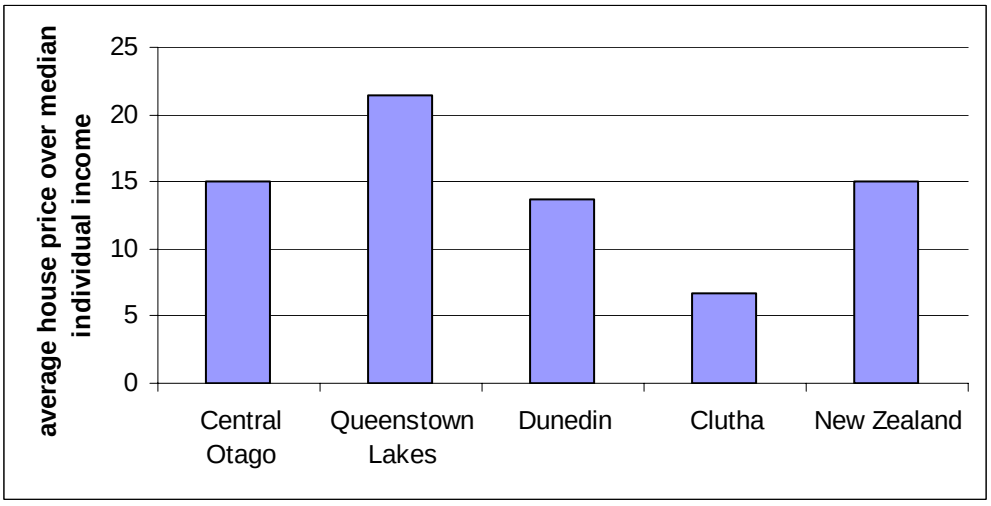
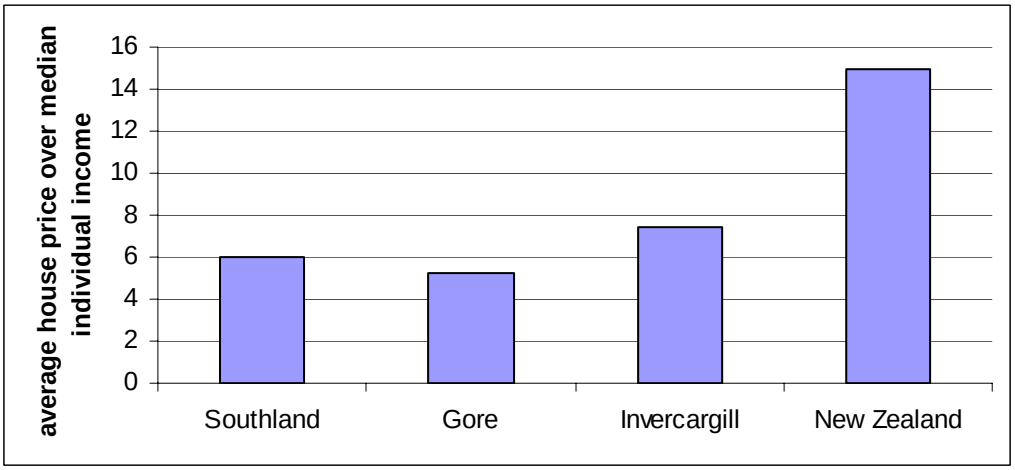


Figure 34 – Southland TLAs



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