

Auckland's Housing Market: Spatial Trends in Dwelling Prices and Affordability for First Home Buyers

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Auckland's housing market: Spatial trends in dwelling prices and affordability for first home buyers

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Executive Summary

Housing affordability is an important issue for many urban economies, as it can affect the economic growth, individual and social well-being and ultimately the liveability of a city. This has been an issue in Auckland as a rapid increase in dwelling prices over the past decade (particularly between 2001 to 2007) has raised concerns about housing affordability, particularly for first home buyers. In response to this issue, Auckland Council has initiated a number of policies to moderate dwelling prices by increasing the supply of developable land and housing.

The objective of this report is to develop an evidence base on trends in house prices and housing affordability at a detailed spatial level. This evidence can be used to inform future policy changes, decision-making and research. Although Auckland's housing market and housing affordability has been extensively researched in recent years, the majority of the analysis has been done at a national or regional level, rather than a sub-regional or local level. This report extends this research, by examining the trends of local house prices and housing affordability over time.

This report is divided into two parts. The first part examines the trends in dwelling prices at a localised level across Auckland, while the second analyses the geographic patterns of affordability for first home buyers in Auckland and changes over time.

The trends in dwelling prices were examined by comparing dwelling sales data from 1982 to 2012 at the Census Area Unit (CAU) level to the regional average. The analysis showed:

- Areas within the central city, such as Parnell, Herne Bay, Ponsonby, Devonport and Epsom have the highest dwelling prices relative to the Auckland average. In contrast, many of the areas within Western and Southern Auckland, such as Otara-Papatoetoe, New Lynn and Mangere have lower dwelling prices relative to the Auckland average. The city centre also has lower dwelling prices relative to the Auckland average.
- Between 1982-1990 and 2008-2012, dwelling prices have increased most rapidly in areas around Hobsonville and Whenuapai, in central city areas close to the city centre such as Ponsonby and Grey Lynn, in Devonport, and on Waiheke Island. The areas with the lowest rate of change include areas of southern Auckland including Wiri, Bombay, Papatoetoe and Papakura.

Housing affordability for first home buyers in this report was defined using the '30 per cent rule' with a house deemed 'affordable' if the housing costs were less than 30 per cent of a first home buyer's household income. First home buyers were defined as an employed couple aged 25-34. This definition is broader than that used in other similar reports produced in New Zealand. The results showed:

- The share of sales categorised as affordable has fallen substantially during the study period, from 74 per cent in 1999 to 39 per cent in 2013. This trend has been relatively consistent throughout Auckland, for both larger dwellings and the total market. Overall, 95 per cent of CAUs measured in this analysis showed an absolute decrease in affordability between the 1999-2001 and 2011-2013 periods. However, lower interest rates and slower

increases in dwelling prices following the Global Financial Crisis led to a temporary improvement in the share of affordable dwelling sales after 2008 at the regional level.

- Many areas around the urban periphery in northern and western Auckland have experienced relative decreases in affordability when compared to Auckland as a whole. Conversely, some areas such as the City Centre and fringe, Helensville/Parakai, Waiuku and Wellsford had an overall increase in relative affordability.

These results suggest that the nature of housing affordability is complex and varies widely throughout Auckland and also over time.

These findings have particularly important issues for the development and implementation of housing policy. In particular, the consistent variation in dwelling prices could affect the implementation of Special Housing Areas (SHAs) across Auckland. This is because the relative dwelling prices within a particular SHA could influence the timing and profitability of development. Therefore, it is important to recognise and take account of this variation during the implementation phase of the development.

This study also shows that since 1999, affordability has decreased across most areas of Auckland, for both large dwellings and the total market. This means that although the housing affordability problems are more obvious in areas with higher prices, it does provide some evidence that housing affordability is an Auckland-wide issue. The study indicates that the ratio measure of affordability is heavily influenced by interest rates. This means when using the ratio measure for policy setting, such as establishing the price for retained affordable housing, it would be important to conduct sensitivity testing to determine how much the affordability level is affected by short-term changes in interest rates.

This report provides an initial evidence base that can be used for policy development, decision making and research. However, while it describes spatial changes in Auckland's housing market, it does not investigate the causes of these changes. Consequently, an important area for future research is to study the determinants of house prices and housing affordability, including localised factors, such as proximity to employment, transport infrastructure and services, local amenity, and the size and quality of the housing stock. It could also be useful to extend this work to examine the issue of nominal vs real interest rates and incomes.

Similarly, further research would be needed in order to understand the housing development process. This research could consider the interaction between land and capital value, construction costs, and land use regulations within Auckland's housing market.

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1.0 Introduction

1.1 The housing market and Auckland's urban economy

Housing affordability has become a major policy issue in Auckland. The prominence of this issue has in part been due to a rapid increase in median house prices, particularly between 2001-2007¹ (Auckland Council, 2012). The price, geographical location and characteristics of housing are important determinants of the liveability of Auckland for households and communities. These factors determine the consumption of space by households along with their access to amenity, employment and other aspects of the region.

Auckland is New Zealand's largest urban economy, acting as the country's major commercial hub and international gateway. Its industrial structure contains a high share of higher value (and higher wage) jobs, many of which are located within Auckland's main commercial centres and are strongly influenced by issues such as agglomeration (Maré and Graham, 2009; Maré, 2008). In this respect, Auckland is following global trends. Cities have assumed an increasingly important role in most developed economies, while cities' economic bases have shifted from industry to tertiary sector activities. Coupled with this is the growing importance of major cities as core commercial nodes within global economic networks. In addition to growth in higher wage jobs, cities are also becoming places of advantage for access to education, healthcare and other household goods, services and urban amenity. These trends are evident in the direction and nature of growth within Auckland.

Since the 1940s, Auckland has developed a dispersed urban form with a complex hierarchy of centres and other urban nodes. While employment and residential population in the City Centre has increased substantially over the last decade, major suburban nodes such as Albany and Manukau also act as key hubs of amenity for households and communities in Auckland's suburbs.

Like many other major cities, Auckland faces strong demand for land from both households and businesses as they seek to realise the advantages offered by a large city. Coupled with Auckland's constrained geography, historic lower density development patterns and urban expansion, have resulted in scarcity of land for housing and business development (New Zealand Productivity Commission [NZPC], 2012). A lack of land supply and relatively low levels of intensification in areas of high amenity has also contributed to a shortfall of dwellings in desirable areas (Auckland Council, 2012).

1.2 Housing affordability policy in Auckland

Housing affordability is an important issue for many urban economies, as it can affect the economic growth, individual and social well-being and ultimately the liveability of a city. Housing affordability is a multi-dimensional issue, and there are many different methods to define and conceptualise housing affordability. The most visible factor in Auckland in recent years has been

¹ Other issues consist, under supply housing, lack of housing choice, poor quality housing and unhealthy and overcrowded housing.

the relatively large increases in nominal median house prices, which have increased from \$262,000 in June 2002 to \$600,000 in June 2014 (REINZ, 2014). Due to this, understanding and addressing the factors underpinning housing affordability is a significant policy issue for Auckland Council and is specifically addressed within chapter 11 of the Auckland Plan (Auckland Council, 2012).

The Auckland Plan recognised that there is no internationally agreed and defined measure of housing affordability, but utilised the common median multiple of income (MMI) as a working definition. Using this measure, it demonstrated that housing affordability for owner-occupiers was a significant issue, particularly for those on low-middle income. To address this issue, the plan suggested a number of policy directives outlined in the Auckland Plan to increase the quantity and quality of Auckland's housing stock to alleviate long-term housing affordability (Auckland Council, 2012).

Some of these policy directives are now in the process of being operationalised through the establishment of the Housing Project Office (HPO) within Auckland Council to assist with the delivery of fast-tracked special housing areas in association with central government. The Proposed Auckland Unitary Plan (PAUP) also has provisions to support the development of affordable housing. These provisions include supporting more compact development by reducing barriers to infill development and medium density housing, as well as implementing a flexible rural-urban boundary (RUB) that will facilitate new land supply on greenfield sites (Auckland Council, 2013). The other major provision is the objective to increase the level of affordable housing in an area by retaining a percentage of some consented developments for affordable housing through inclusive zoning. These policies are aimed at increasing both the stock of housing, but also the number of choices (in terms of size and type of dwelling) available to different groups of home-buyers (Auckland Council, 2013).

In order to effectively implement these policies it is important to understand how affordability in Auckland has changed spatially over time. It is also a requirement of Auckland Council's governance legislation, which is described in more detail in the following section.

1.3 Auckland Council Legislation: Developing an evidence base for policy implementation.

The Local Government (Auckland Council) Amendment Act 2010 states that Auckland Council must produce a spatial plan for Auckland (79) and that this must "provide an evidential base to support decision making for Auckland, including evidence of trends, opportunities, and constraints within Auckland (79)(4)(c)". The plan must also understand how growth is likely to occur (including for individual geographic areas (79)(4)(d)) and the supply of infrastructure, land and other investment to cater for this growth (79)(4)(b), (d) and (f).

A central government position paper Developing an Evidence Base for the First Auckland Spatial Plan states that "(t)he government considers it very important that the Auckland spatial plan is underpinned by a strong evidence base" (p2) and that "(t)his means appropriate data, accurate interpretation of this data, and rigorous analysis techniques, contributed to by Government agencies as well as the Auckland Council" (p2) (Department of Internal Affairs, 2011). Moreover, it

states that “successful spatial planning is underpinned by a credible evidence base, which includes social, economic and environmental information from a range of sources, and integrates this on a spatial basis [emphasis added] (p5)” (Department of Internal Affairs, 2011). This evidence is also to be expanded on an ongoing basis.

1.4 Report objectives

It is important to understand how the spatial structure of Auckland’s housing market has changed through time. The location of residents has important implications for urban planning and transport planning as it influences peoples’ access to employment and services, demand for travel, and other urban amenities. Changes in the spatial structure of the market also have significant implications for the location and type of housing available to first home buyers in Auckland. Together, these factors influence the liveability of Auckland.

The objective of this report is to demonstrate how housing affordability has changed over time using the ratio method described in the PAUP, as this provides an initial evidence base that can be used to inform future policy changes, decision making and research.

This report builds upon previous research which has generally explored housing affordability at a regional or more aggregated sub-regional level. It examines housing affordability at a detailed spatial level. The subject area of housing and housing affordability draws together social and economic evidence, which are typically inseparable when considering effects and processes within an urban economy. All of these processes contribute to the spatial structure of Auckland’s housing market. In this context, the spatial structure refers to where housing is located across Auckland, as a response to the level of economic activity, infrastructure and amenity.

Part 1 of this report aims to demonstrate how the spatial structure of Auckland’s housing market has changed over time by measuring changes in sales prices of dwellings at a local level, relative to the Auckland average, over the past two decades. Highlighting these local level changes is important as it provides greater context around the general trends within Auckland’s housing market.

Part 2 of this report aims to investigate how affordability has changed spatially for first-home buyers between 1999 and 2013 at a localised level. This is achieved by incorporating the methods for measuring affordability included within Auckland’s proposed unitary plan.

2.0 Background

2.1 Measuring housing affordability

Housing affordability is a complex issue, as there are many different ways to define and measure affordability. The issues around housing affordability have been extensively explored by The Australian Housing and Urban Research Institute (AHURI), which produced a detailed report investigating the different approaches that have been used to measure housing affordability in recent decades (Stone, et al., 2011). The three most common methods include a multiple measure of income; the ratio method; and the residual method. Stone et al, (2011) particularly note that the recent academic literature on housing affordability has tended to focus on using methods that are more reflective of the 'lived experience' of homeowners, rather than a more abstract 'average' household. This issue is particularly important when comparing housing affordability for different home-purchasing groups.

2.1.1 Median Multiple of Income

The Median Multiple of Income (MMI) is a common approach, used widely by many groups, particularly by the banking and real estate industry (Stone, et al., 2011). It was also used in the Auckland Plan (Auckland Council, 2012). The indicator computes that ratio of the median sale prices of houses in a given area to the annual median income of people living in that area. This ratio can then be used to examine temporal or geographic variances in house prices. Demographia produces an annual report comparing this ratio across different cities. This report classifies a ratio of 3.0 or less as 'affordable', with higher thresholds defined as 'moderately', 'seriously' and 'severely' unaffordable (Demographia, 2014)

The major advantage of the MMI is that it gives a consistent and understandable ratio to compare different areas, however its major limitation is that it cannot assess 'how many and which kinds of households can and cannot afford which properties that are for sale' (Stone, et al., 2011). It also is not able to assess the impact of mortgage and lending rates, which vary between countries and over time, and which can have a major impact on households' ability to purchase a home.

2.1.2 Ratio Measure

The ratio method takes the approach that if households need to spend more than a certain proportion of their income on housing, then they may not be able to cover all other household expenses and have the potential to experience 'housing stress'. A common acceptable level is 30 per cent (also known as the '30 per cent rule'), which has been used in numerous estimates of housing affordability (Stone, et al., 2011). The ratio method is particularly useful, as it is relatively straightforward to estimate given the sometimes limited data available. However, the literature describes some limitations with this approach. In particular, like the MMI, it isn't able to accurately compare different household sizes or groups – a potential issue given the fact that higher-income households may be able to spend a greater share of their incomes on housing while still paying for

other necessities (Wight, et al., 2011). This issue is common to all affordability measures (see section 2.1.3). The ratio method is particularly useful as a basis for exploring changes in housing affordability in a particular group, and is more accurate than the MMI method (Wight, et al., 2011).

The ratio method has been incorporated into the PAUP, as a measure of affordability and follows the '30 per cent rule' described above. The specific rule is described below:

"Price in the case of retained affordable housing means:

1. Dwellings must be sold or rented at a rate that means households on 80 to 120 per cent of the median household income for Auckland spend no more than 30 per cent of their gross income on rent or mortgage repayments, where:
 - a. median household income shall be determined by reference to Statistics New Zealand
 - b. in the case of purchase, normal bank lending criteria shall apply, and shall at a minimum be based on a 10 per cent deposit, a 30 year loan term and the average published interest rate of the 4 main trading banks." (Auckland Council, 2013).

2.1.3 Residual measure

The residual measure uses a budget approach to measuring housing affordability. Its premise is that the amount that can be spent on housing by a household is the "residual" amount left over after all other house expenses have been met. Different budget profiles can then be estimated for different types of households to show how they vary in terms of housing affordability. A key limitation with this approach is that budget profiles are highly subjective, and are reliant on assumptions about how an average household spends its income. AHURI has applied this measure to Melbourne by incorporating specialised budget profiles produced in conjunction with the Australian Bureau of Statistics (Wight, et al., 2011). Some of the affordability measurements and GIS techniques developed in Wight et al (2011) have been used as a framework in this report (see section 3.0 for more information).

This section shows that there are different methods to conceptualise and define housing affordability, however, each method has distinct advantages and disadvantages. The next section will describe some methods that have been utilised to estimate and measure housing affordability within Auckland and New Zealand.

2.2 Housing affordability research in Auckland and New Zealand

Housing affordability has generated a high level of interest in recent years, with in-depth investigations of the drivers of housing costs from both demand and supply-side perspectives.

The literature is wide ranging and includes analysis of the implications of planning for different types of outcomes, including density (Beattie, et al., 2012), gentrification, new urbanism (Austin

and Whitehead, 1998; Dixon and Dupris, 2003) and urban boundary and metropolitan urban limit issues (DTZ, 2004; Leggatt-Cooke, 2007; MacLennan, 2009; Zheng, 2013). Previous research has also examined the drivers of housing prices from a perspective of population growth and migration (DTZ, 2004; Department of Building and Housing, 2010; Mare and Coleman, 2011, Jackson, 2012;), infrastructure development (Grimes, 2007; Grimes and Young, 2010) and construction costs (Department of Building and Housing, 2010). More recent studies have incorporated many of these drivers, to measure their impacts simultaneously (Grimes, et al., 2013), and measure the impact of credit shocks relating to the Global Financial Crisis (Grimes and Hyland, 2013).

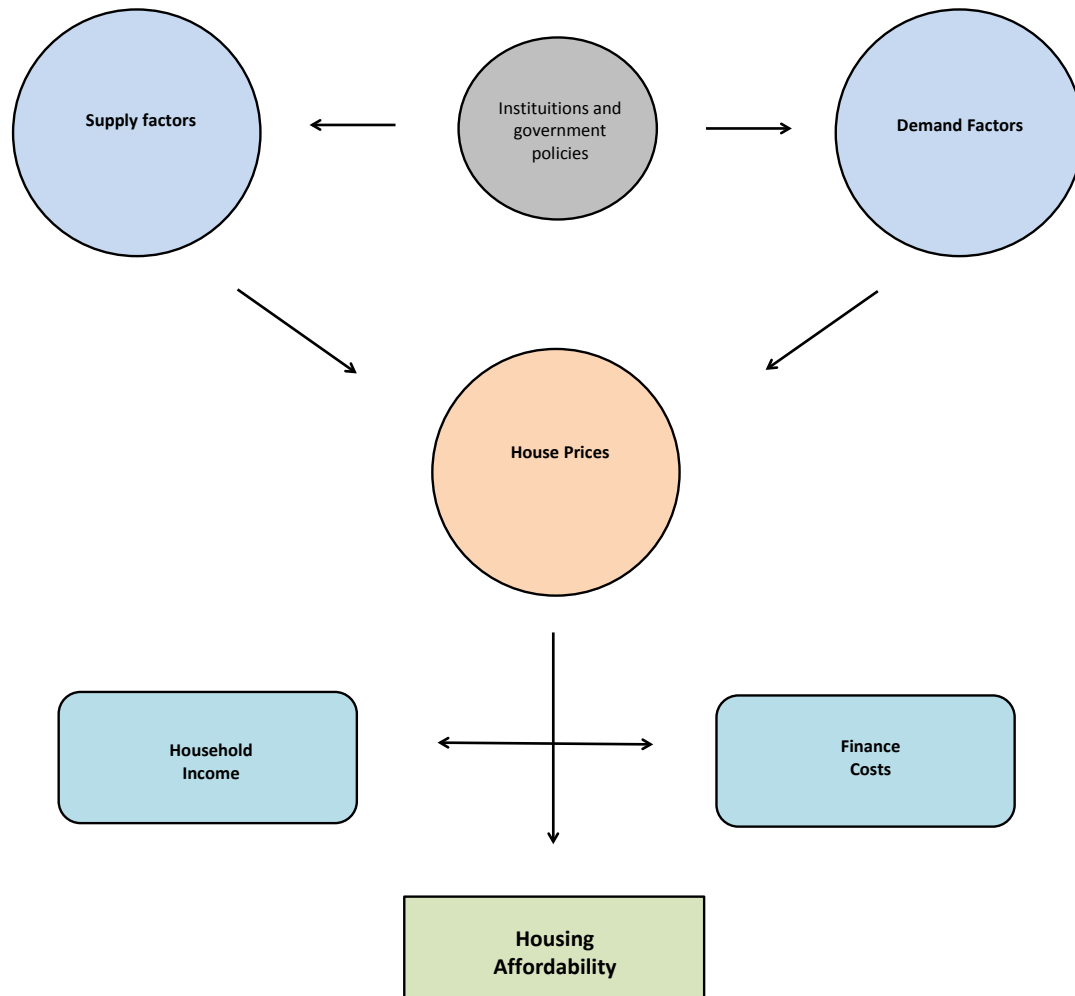
In 2012, the New Zealand Productivity Commission (NZPC) released its findings of the housing affordability inquiry, which summarised and discussed many of the drivers and determinants of housing affordability and are outlined in Figure 2-1. The NZPC report in particular argued that the supply-side drivers of construction costs and land prices were important factors in the recent increase in house prices, particularly in Auckland. The Commission found that overall the average house prices were approximately five times the national average annual disposable income, and have increased from twice the national income in 1980. The NZPC also noted that affordability issues in Auckland were far more acute, with Auckland among the most unaffordable regions in New Zealand and was classed as 'severely unaffordable' (Demographia, 2011 cited by NZPC, 2012). The subsequent releases of the Demographia report between 2012-2014, continued to use the MMI methodology to show that Auckland has remained 'severely unaffordable' (Demographia, 2014).

Another study which has specifically examined housing affordability is the Massey University Home Affordability Report. It compares regional house affordability across New Zealand. In June 2014, it found that Auckland house prices were 38 per cent higher than the national average, and that housing affordability had declined by 9.1 per cent since June 2013 (Massey University, 2014). The Treasury has also examined housing affordability by analysing results from national household surveys, including the Household Economic Survey (HES) and the Survey of Family, Income and Employment (SOFIE) between 2004 and 2008 (Law and Meehan, 2013). Overall, it found that although house prices rose rapidly between 2004 and 2008, there was only a slight decline in home ownership rates. It also noted that factors associated with higher ownership rates included being partnered, female and older. Housing affordability and home ownership was shown to be lower within Auckland compared to other regions of New Zealand, due to a complex range of demographic and economic factors (Law and Meehan, 2013).

At a sub-regional level, Roost Mortgage Brokers publish indicators based on a variant of the ratio method. Specifically the indicators measure the proportion of the average take home pay in a given area, which is required to service a mortgage for 'typical' homebuyers. It found that the ratio was 71 per cent for the North Shore, 67 per cent for Central Auckland, 65 per cent for South Auckland and 58 per cent for West Auckland (NZPC, 2012). These results were similar to those discussed in the comprehensive Auckland Housing Market Assessment prepared by Darroch (2010) for the Centre for Housing Research, Aotearoa New Zealand (CHRANZ) in 2010, which incorporated a wide variety of measures of housing affordability. It showed that in general, housing affordability

had decreased across Auckland between 1996-2009, and that one person and single parent households and retired people who rent experienced the highest levels of ‘financial housing stress’ in the region (paying more than 30 per cent of gross household income). It also showed that the areas North and Central Auckland had the lowest levels of affordability in Auckland (Darroch, 2010).

Figure 2-1: The multiple determinants of housing affordability



Source: New Zealand Productivity Commission, 2012

These findings are also consistent with survey research undertaken by Beacon Pathway Ltd in 2010, around the determinants and location choices of 20-40 year-olds in Auckland, on behalf of CHRANZ. The research noted that housing demand among 20-40 year olds was most likely to be situated around areas in central and northern Auckland. This research also emphasised the relationship between housing choice and locational amenity, and the effect that rising house prices can have in terms of limiting future choices (Beacon Pathway, 2010). Overall, this report aims to add depth to this analysis, by examining the trends of local house prices and housing affordability over time.

3.0 Methodology

The spatial analysis of Auckland's housing market has been undertaken in two parts. The first identifies trends in changes to the spatial structure of the market overall; the second investigates geographic changes to housing affordability for first home buyers across Auckland.

3.1 Data sources

The house sales data in this report was obtained from Property IQ Ltd. This dataset covered the average dwelling² sales price for each Census Area Unit (CAU)³ for each calendar year from 1982 to 2012⁴ (Property IQ, 2012). This is the main data source used in Part 1. The dataset used in Part 2 is also sourced from Property IQ, and provides the number of dwelling sales (by dwelling size) above and below the threshold of affordability (identified in section 3.3.4) for each Auckland CAU between 1999 and 2013 (Property IQ, 2013). Supplementary data used to identify affordability thresholds such as incomes and interest rates, was drawn from Statistics New Zealand and the Reserve Bank of New Zealand. Sections 3.2 and 3.3 provide more specific detail about how this data was used.

The rationale for using CAU level data is that it provides a greater opportunity to understand the localised effects of house price and affordability trends. It better reflects the geography at which the real estate market operates and at which Auckland Council plans, manages, and delivers city services and key infrastructure.

3.2 Part 1: Measuring trends the spatial structure of Auckland's housing market

To effectively measure the spatial changes in the housing market, it is important to compare changes relative to the Auckland average, as this allows changes to be put into a regional context. To achieve this, part 1 of the analysis implements two related measures:

1. Relative sale price
2. Change in relative sales price over time

² Dwellings include all residential dwellings that would ordinarily house a private household(s).

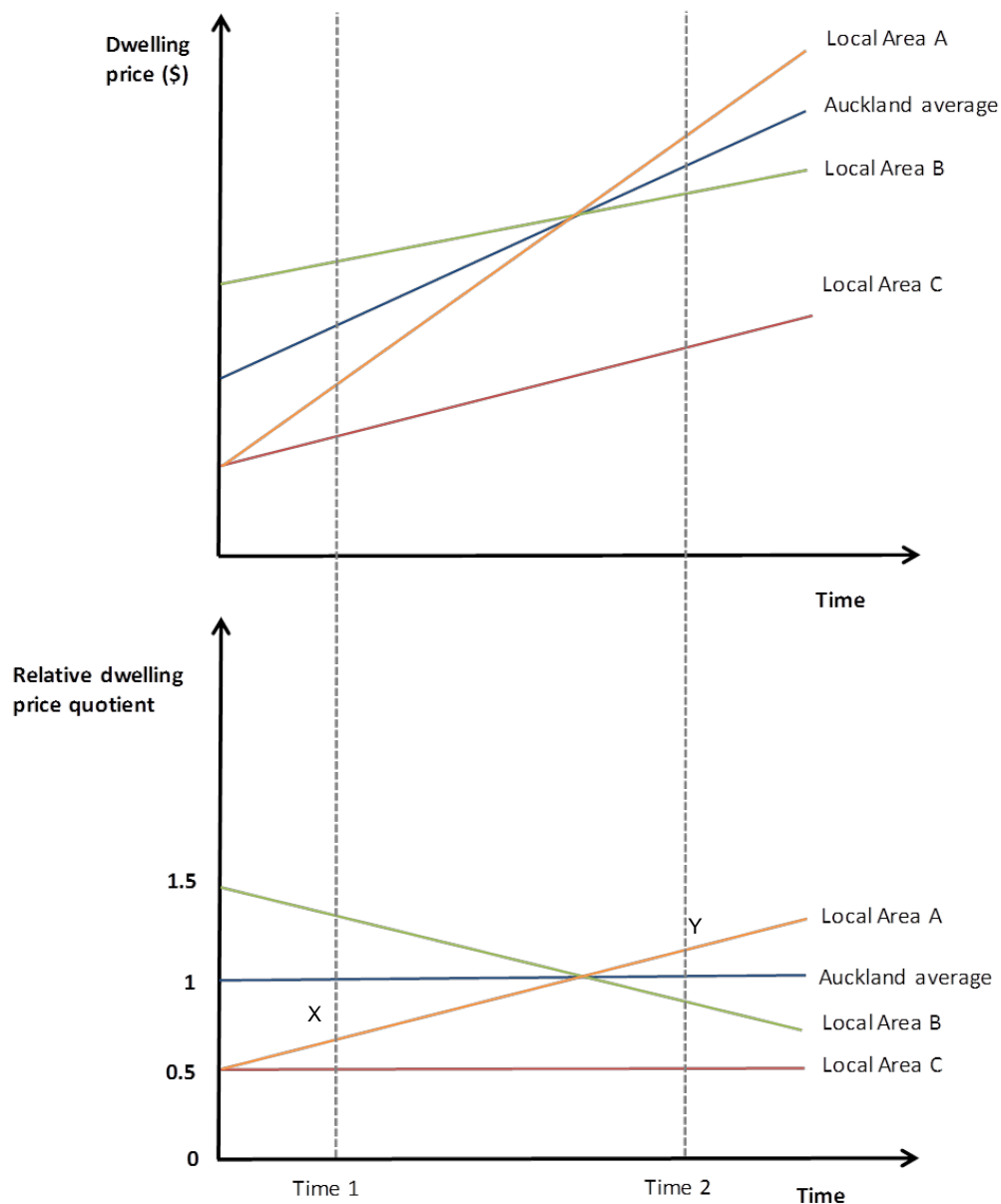
³ CAUs are an official statistical geographic division and are approximately the size of a neighbourhood/suburb within an urban area. They are geographically larger in rural areas due to lower population densities. The 2006 census CAU geography has been used given the historic data coding.

⁴ In the first stage of analysis, data was only available to the end of the first quarter of 2012.

3.2.1 Relative sales price

Relative sales price provides a quotient of sales price relative to the Auckland average. The top graph in Figure 3-1 shows trends in dwelling prices in CAUs A, B, and C and compares them with the Auckland average. The bottom graph shows prices in CAUs A, B, and C indexed to the Auckland average. At any given time, a CAU with an average dwelling price equal to the Auckland average would have a relative price quotient of 1. In this example, at Time 1, CAUs A and C have a relative price quotient below 1, indicating that area is below the Auckland average. CAU B is above the Auckland average, so its quotient is above 1. This paper uses the relative price measure to examine the structural shifts and changes in dwelling prices, as it can show variations in dwelling prices in a point in time and identify spatial shifts in the market over time.

Figure 3-1: Conceptual graphs show relationship between dwelling price and relative price quotient



3.2.2 Change in relative dwelling sales price over time

The second measure is the change in these relative dwelling prices sales price over time, which highlights the areas that have changed their position relative to the Auckland average through time. For example, Figure 3-1: shows that CAU A has moved from below the Auckland average in Time 1 to above the Auckland average in Time 2. The change in the relative dwelling sales price is therefore the difference between point Y and point X in the lower graph. Figure 3-1: also shows that between Time 1 and Time 2, the relative dwelling sales price fell for CAU B, while CAU C showed no change relative to the Auckland average.

3.2.3 Mapping trends and spatial structure

The results of the housing market measurements are displayed using a GIS system in order to identify and analyse the spatial patterns of these changes across Auckland. In order to highlight the changes over time, the data between will be analysed across four time periods:

- 1982-1990 compared to 1991-1999
- 1991-1999 compared to 2000-2003
- 2000-2003 compared to 2004-2007
- 2004-2007 compared to 2008-2012

These time periods are not uniform and have been aggregated together to effectively capture the cycle of housing trends, as house prices rose faster between 1999-2012. Previous research (NZPC, 2012) has noted that house price growth remained relatively steady until the early 2000s, when there was a significant general increase in dwelling prices between 2000 and 2007. Dwelling and house price growth stagnated following the GFC, but began to increase again after 2010 (Property IQ, 2012). To capture these effects, the time periods between 1982 and 1999, are in 8 year increments, while after 2000 the reference periods are in 4 to 5 year increments.

3.3 Part 2: Measuring geographic patterns of affordability for first home buyers in Auckland

Part 2 of this report analyses the regional and sub-regional, spatial patterns of housing affordability for first home buyers in Auckland, and how these have changed across the medium term. It uses GIS mapping to display spatial patterns in the Auckland's housing market. In doing so, it defines affordability as specified in the Auckland Unitary Plan.

3.3.1 Defining affordability

This report uses the ratio method to define affordability and incorporates the '30 per cent rule', which considers a house being as affordable if the total amount spent on mortgage repayments (housing costs) accounts for 30 per cent or less of household income. As discussed in Section 2.1, this measure incorporates financing costs (i.e. interest rates on mortgages). As the ratio method has been incorporated into the PAUP, it is relevant in an Auckland policy context.

3.3.2 Defining first home buyers

First home buyers have been defined in this report as households composed of two people aged between 25 and 34 years, with both people employed (full time). Very few statistics are available on the characteristics and number of first home-buyers of New Zealand. Therefore, this definition is drawn from the findings of recent housing literature in Australia. In particular, a study incorporating many surveys of housing demographics found that more than 50 per cent of first home buyers were aged between 25-34 years old (Kupke, 2008). This definition does not represent the full spectrum of people who may desire to buy their own home, particularly within Auckland. However, it is generally characteristic of the household composition and life stage (more secure employment) of when people first begin considering the purchase of a home. Other measures of affordability for first home buyers in New Zealand, such as the Roost Home Loan Affordability Report tends to have a narrower definition of people aged between 25 to 29 (Roost Mortgage Brokers, 2014).

3.3.3 Calculating first home buyer average household incomes

Average income⁵ for representative first home buyers in Auckland was calculated from a customised order of the Linked Employer Employee Database (LEED) for 25-34 year olds (Statistics New Zealand, 2013), and was estimated from people employed in continuing jobs (from the previous quarter) in Auckland⁶. This was multiplied by two to align it with the affordability definition of a two-person household. This definition is for a 'theoretical' average of household income, as it does not take into account gender-wage gaps, sole-employee households, or part-time work. Therefore it is possible that this definition may overstate the incomes of some potential

⁵ It is acknowledged that an 'average' differs to the 'median' as specified in the Auckland Unitary Plan. However, median values were not available for specific age and employment status groups required to reflect this report's definition of first home buyers. Furthermore, the Auckland Unitary Plan does not provide clear guidance on exact Statistics New Zealand income data sources to use. The difficulty in navigating a range of income data sources available was also identified by Wight, et al (2011) when measuring affordability in Melbourne.

⁶ The LEED data on income was decided to be best suited for this study as it was available for the correct time period, disaggregated by age, was reported by businesses based on tax records, and continuing employment was likely to give a better indication of first home buyers eligible for mortgages given their stable employment situation. Other potential household income data sources included self-reporting of income, people not in paid employment (including those receiving benefits) and other non-employment sources of income, which are less likely to be considered when applying for a mortgage.

first-home buyers. However, the objective of this study is to identify trends in dwelling affordability, and measuring from a slightly higher baseline income, decreases the likelihood that these trends are spurious. This limitation is important to recognise when interpreting the results and conclusions of this study.

3.3.4 Calculating maximum affordable dwelling prices for first home buyers

In order to calculate 30 per cent threshold of gross income, the maximum affordable mortgage repayments for first home buyers need to be estimated. It was assumed that first home buyers would have 10 per cent equity, meaning that home buyers would have borrow and make repayments on the remaining 90 per cent of the house price. The loan term was assumed to be 30 years.

To equate this to house sale price thresholds, a time series of mortgage interest rates was obtained from the Reserve Bank of New Zealand. It was assumed that the lowest rate (for new lending) applied (i.e. fixed or floating) as this defined the ease of entry to the market (in relation to interest rates). No information was available on the share of bank lending to new customers vs. refinancing of existing loans, or on whether borrowers were first home buyers or existing home owners (Reserve Bank of New Zealand, 2013).

Mortgage rates and shares of weekly/fortnightly income were combined to calculate the house sale prices that were affordable to typical first home buyers during each year in the study period. Therefore, the affordable dwelling price thresholds are a function of income and mortgage lending rates. This was calculated using the continuous annuity formula in Microsoft Excel, which is stylised in the equation below.

$$P_0 = x * \left(\frac{1 - (1 + i)^{-n}}{i} \right)$$

P_0 = Price of dwelling (minus 10% deposit)

x = fortnightly payment

i = interest rate from RBNZ (based on fortnightly timeframe)

n = periods, 30 years (based on fortnightly timeframe)

This produced a time series of maximum affordable dwelling prices for first home buyers in Auckland.

As a comparison, 'unaffordable' and 'very unaffordable' threshold were also estimated. The unaffordable category would require more than 30 per cent, but less than 50 per cent of gross household income for first homebuyers, while the very unaffordable category would require more than 50 per cent of the gross household income of first homebuyers.

3.3.5 Mapping geographic patterns of affordability

The mapping of affordability follows the approach outlined by Wight et al (2011) to understand patterns of affordability spatially within the urban housing market. Specifically, it recognises the presence of underlying dwelling price gradients that occur spatially across the city. Put simply, dwelling sales are more expensive in some areas than others, reflecting differences in accessibility, amenity and dwelling stock. These are established in Part 1 of the research. As such, it identifies the share of dwellings in each local area (suburb) that are affordable to first home buyers.

Using the threshold data from Property IQ described in 3.1, two measures were obtained:

1. The share of dwelling sales in each CAU that was affordable to typical first home buyers in each year.
2. The CAU's share and number of total regional affordable sales, which follows a similar methodology to the quotient analysis described in section 3.2.

The former shows levels of affordability within each area across Auckland, while the latter shows the geographic distribution of affordable sales across Auckland (i.e. where affordable sales were located). Similar to Part 1 of the analysis, the results were displayed within a GIS system to enable spatial patterns to be observed and mapped. The house sales data was grouped together for 1999 to 2001, 2002 to 2004, 2005 to 2007, 2008 to 2010 and 2011 to 2013⁷ years due to the large variation in sales in individual years. This level of aggregation was required in order to determine the longer term trends of affordability. This analysis is presented in section 5.2.

3.3.6 Identifying characteristics of affordable sales by three-bedroom dwellings compared to the total housing market

While sales provide an important aspect of affordability, they mask any changes and differences of housing types within the different price points of the housing market. For example, if dwelling prices rise faster than incomes and reductions in mortgage interest rates, people may respond by consuming less space (e.g. purchasing dwellings with fewer bedrooms or smaller lots). In other words, first home buyers may still be able to find affordable dwellings by changing their requirements. Therefore it is important to control for land-size and dwelling characteristics, when conducting this type of analysis.

To take this into account, the affordability analysis outlined in section 5.2.2 includes an examination of larger dwellings, by restricting the analysis to dwellings with three or more bedrooms. This made it possible to contrast the effects of the total market, with that of larger dwelling to create a more complete picture of how affordability has changed over time.

⁷ Only the first three quarters of data were available for the 2013 calendar year as information was purchased in 2013.

3.3.7 Mapping changes in affordability relative to the Auckland average

Some of the mapping undertaken in this report moves beyond the analysis produced in Wight et al (2011) to clearly illustrate changes in the spatial structure of the market. This mapping is presented in section 5.3. This section uses a similar approach to the measure of relative price changes in Part 1; however, prices are substituted for shares of affordable dwellings within a CAU. This means the level of affordability in each area was expressed as a ratio to the Auckland average share of affordable sales. For example, if the Auckland average share of sales as affordable was 60 per cent, and a local area 75 percent, then the areas ratio value would be 1.25. The next step was to calculate the net change in these ratios of each area between time periods. Thus, areas experiencing an increase in their affordability position relative to the Auckland average would result in a positive value, while areas showing a decrease in their relative position, a negative value. Therefore, these show spatial structural changes as they illustrate how areas have shifted differentially relative to the Auckland average through time.

Importantly, the above approach illustrates *change* and provides a major difference to measures that show each CAU's position relative to the Auckland average at a point in time. To demonstrate this difference, an area may be less affordable than the Auckland average in time period one, with a ratio value of 0.8. Through time, affordability may have increased in this area slightly faster than the Auckland average, but the area may still remain below the Auckland average in period two, with a ratio value of 0.9. When considered from a structural *change* perspective, the area would have a positive value of 0.1 (i.e. $0.9 - 0.8$), showing that although the area remains below the average affordability level, it has improved in affordability relative to the Auckland average. This method makes it possible to separate financial (and other) factors that affect the whole of Auckland equally (interest, rates, economic conditions, macro-prudential tools) with those that are driven by spatial shifts within the housing market.

4.0 Part 1 – Spatial trends in Auckland’s housing market

The results are presented in two parts. The first part (section 4.0) presents the results of the analysis that investigates the changes to the spatial structure of Auckland’s housing market in terms of changes in dwelling prices. The second part (section 5.0) outlines the results from the investigation into the patterns of housing affordability across Auckland taking account of incomes and interest rates.

4.1 Analysing changes to the spatial structure of Auckland’s housing market

The spatial structure of Auckland’s housing market was examined across the following time periods:

- 1982-1990 compared to 1991-1999
- 1991-1999 compared to 2000-2003
- 2000-2003 compared to 2004-2007
- 2004-2007 compared to 2008-2012

Details about the specific methodology used in this section and the rationale of these time periods are described in section 3.2.

4.1.1 1982-1990 compared to 1991-1999

Figure 4-1 shows that in the 1982-1990 and 1991-1999 periods there were differences in dwelling prices and price gradients that occurred in broad areas across Auckland. Areas in blue had the highest relative dwelling prices. These were located in the eastern central suburbs (including Parnell, Remuera, Kohimarama), the eastern isthmus (such as Whitford and Flat Bush) and some outer rural lifestyle areas in both the north and the south (Dairy Flat and Ardmore). Areas in red had the lowest dwelling prices relative to the Auckland average. They included areas of south and western Auckland (such as Favona, Otahuhu, Otara; Henderson, New Lynn), parts of the western isthmus, and western North Shore.

Figure 4-2 shows the change in relative prices between the periods 1982-1990 and 1991-1999. Specifically, this map shows which areas in the region experienced the highest levels of change between the 1982-1990 and the 1991-1999 periods. Green coloured areas had highest increases in relative dwelling prices, while red coloured areas had the largest decreases in relative dwelling prices. It is important to note that Figure 4-2 shows a *change* and not the absolute positioning of an area relative to the regional average⁸. Central areas close to the City Centre experienced the highest relative positive change (i.e. prices rose faster than the Auckland average), especially in the inner western areas. In contrast, the highest relative negative changes in prices were in parts

⁸ For example, an area can be red, but still experience an increase in absolute dwelling prices as it increased at a lower rate compared to the Auckland average.

of western and southern Auckland and the North Shore, indicating that prices rose more slowly compared to the Auckland average. The areas with the largest relative decreases were centred on the areas around Flat Bush, Clover Park and Dannemora.

Figure 4-1: Dwelling prices relative to Auckland average, 1982-1999

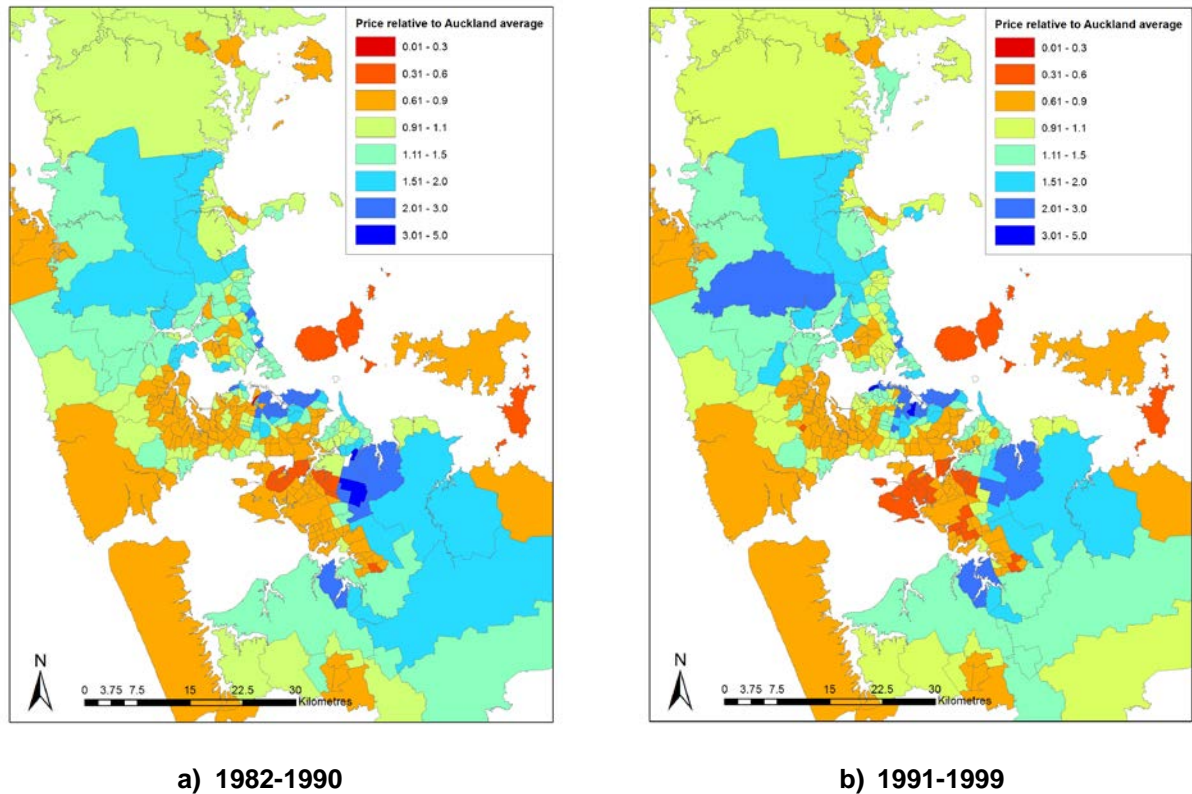
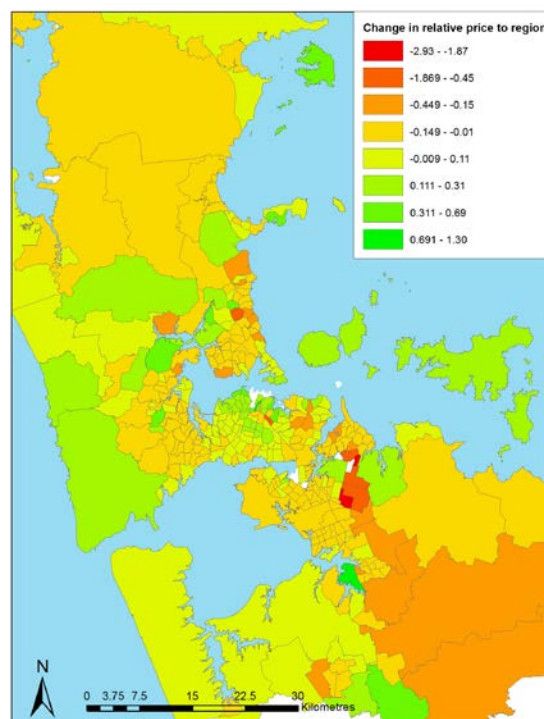


Figure 4-2: Change in dwelling prices relative to the Auckland average, 1982-90 compared to 1991-99



4.1.2 1991-1999 compared to 2000-2003

Figure 4-3b shows that in the 2000-2003 period, the areas with the highest relative prices within the metropolitan area included East Tamaki, Parnell, Milford and Saint Marys/Herne Bay. Some semi-rural areas such as Dairy Flat also had higher prices relative to the Auckland average. The areas with the lowest relative prices included areas of West Auckland (Massey and New Lynn), and South Auckland (Manukau, Mangere, Otahuhu and Papatoetoe).

Figure 4-4 outlines the change between the 1991-1999 and the 2000-2003 periods. Overall, more areas around the City Centre increased in price relative to the Auckland average. Previously, relatively high prices were almost entirely concentrated on the eastern side of the City Centre. However, over this period, the area increased at a rate lower than the Auckland average. Other areas of southern and western Auckland also fell in relative price. Many non-coastal areas around the North Shore, also decreased in price relative to the Auckland average.

Figure 4-3: Dwelling prices relative to Auckland average, 1991-2003

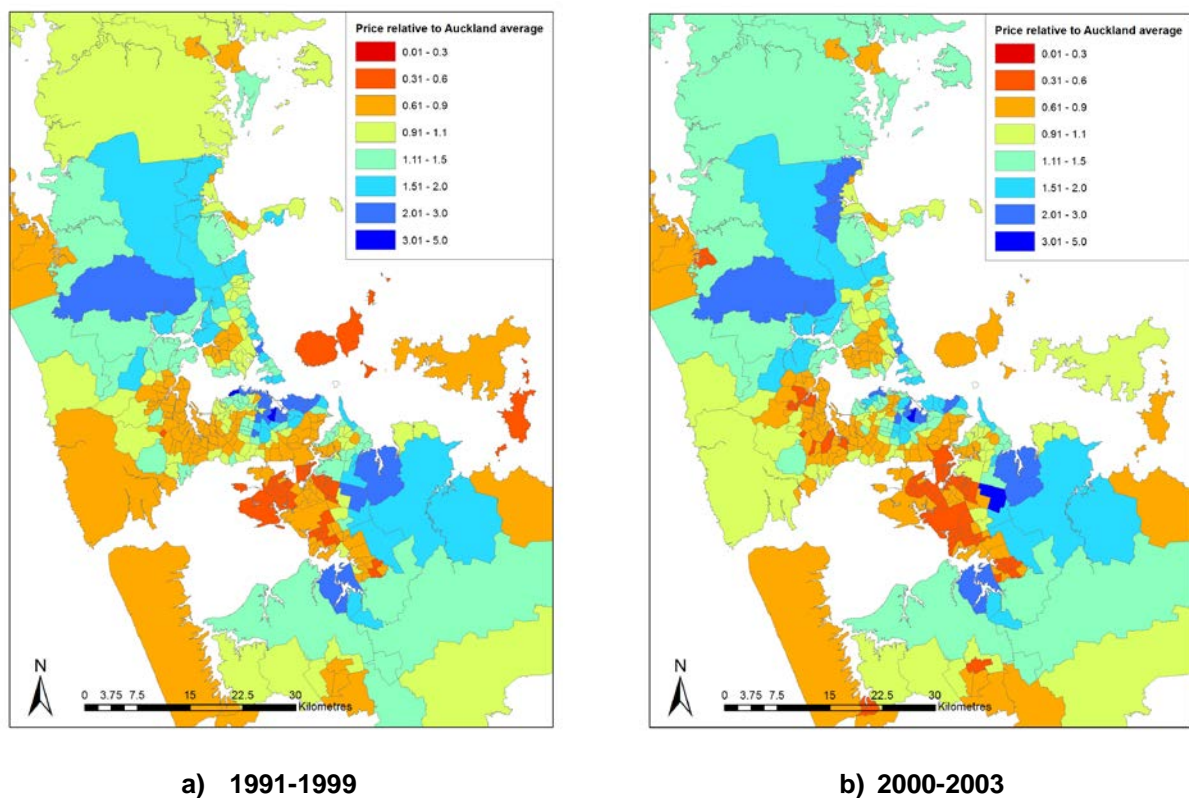
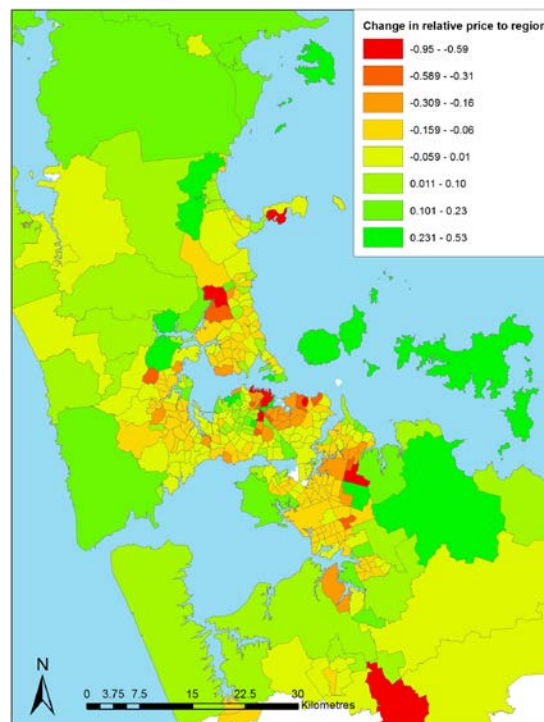


Figure 4-4: Change in dwelling prices relative to the Auckland average, 1991-1999 compared to 2000-2003



4.1.3 2000-2003 compared to 2004-2007

Figure 4-5b shows that in the 2004-2007 period, the areas with the highest relative prices within the metropolitan area included Remuera, Orakei, Herne Bay, and Saint Heliers. In rural areas, Dairy Flat, Riverhead, Whitford, Ardmore and Karaka maintained relatively high prices compared to the Auckland average. The areas with the lowest relative prices, were mainly located in South Auckland, and included areas around Manukau, Mangere and Otara.

Figure 4-6 shows the relative price changes over this period compared to 2000-2003. Some urban fringe areas (particularly in the north), and central city suburbs, such as Ponsonby, continued to increase in price relative to Auckland. In comparison, prices in the city centre rose more slowly, relative to Auckland, possibly due to the construction of new apartments leading to relatively lower dwelling prices in the area. Dwelling prices around Flat Bush also rose at a rate lower than the Auckland average; however, prices in the area were already below the Auckland average.

Figure 4-5: dwelling prices relative to Auckland average, 2000-2007

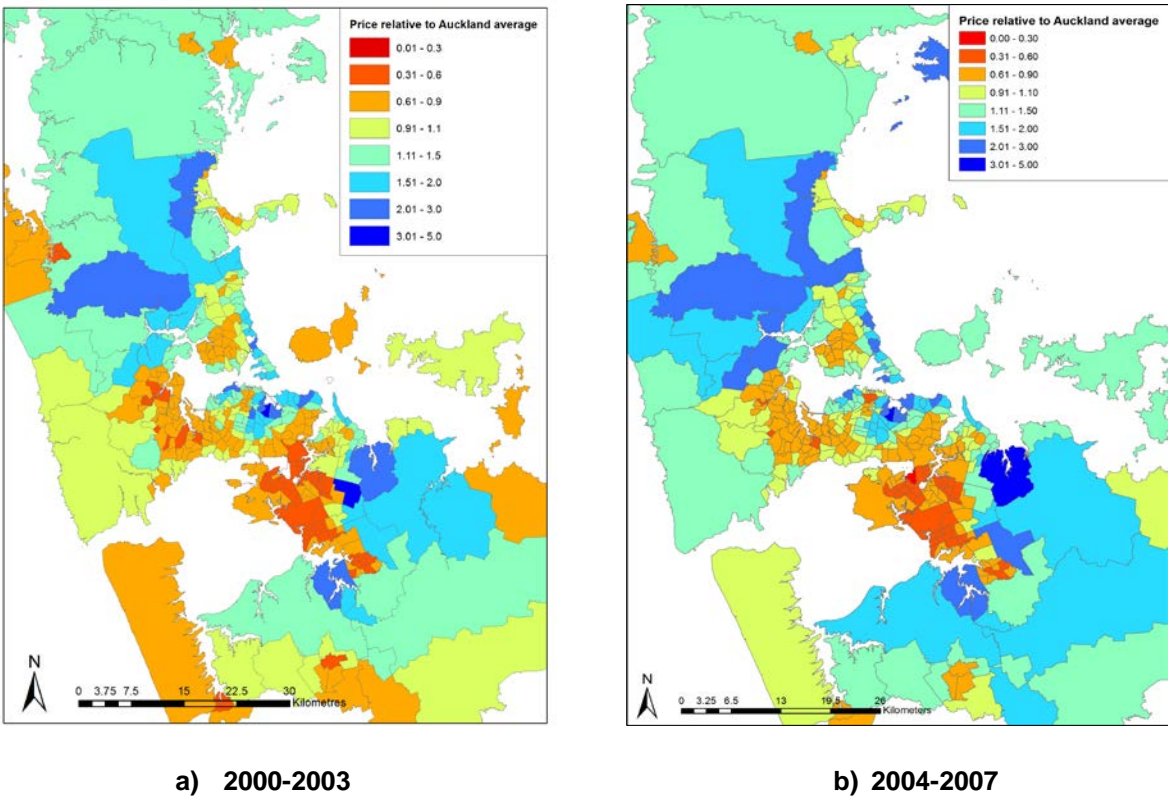
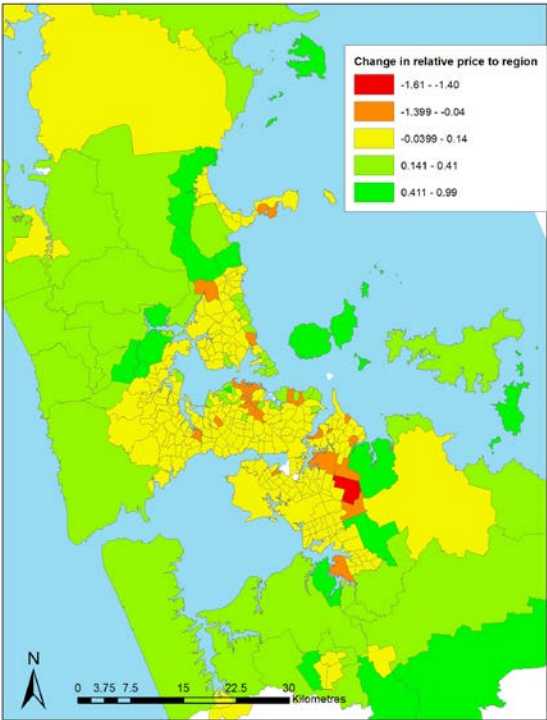


Figure 4-6: Change in dwelling prices relative to the Auckland average, 2000-2003 compared to 2004-2007



4.1.4 2004-2007 compared to 2008-2012

Figure 4-7 and Figure 4-8 show that between the 2004-2007 and 2008-2012 periods, the areas that had the largest increases in relative prices mostly were situated in the central areas of the Auckland isthmus, including the Mount Eden, Panmure and Penrose suburbs. Albany also experienced an increase. The areas with the largest decreases in relative dwelling prices were located in Auckland's urban fringe areas. These include Wainui and Whenuapai in north-western Auckland, and areas around Karaka in Southern Auckland. The relative price map for 2008-2012 (Figure 4-7b), shows that inner isthmus areas (excluding the City Centre), the eastern coast of the North Shore, and the eastern suburbs had high house prices relative to the Auckland average. Relative prices were lower across some parts of western and southern Auckland, and in the city centre. Figure 4-8 also shows that the highest relative house price increases occurred mainly in central areas of the Auckland isthmus.

Figure 4-7: House price relative to Auckland average, 2004-2012

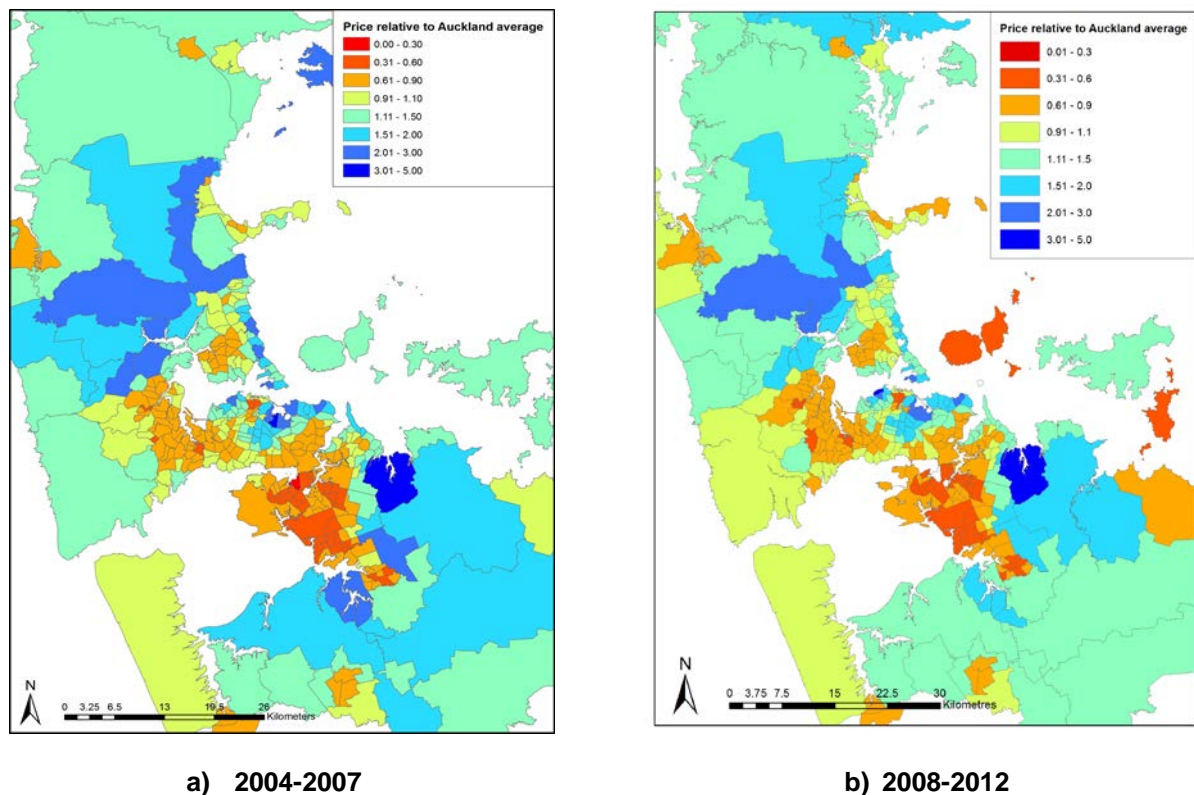
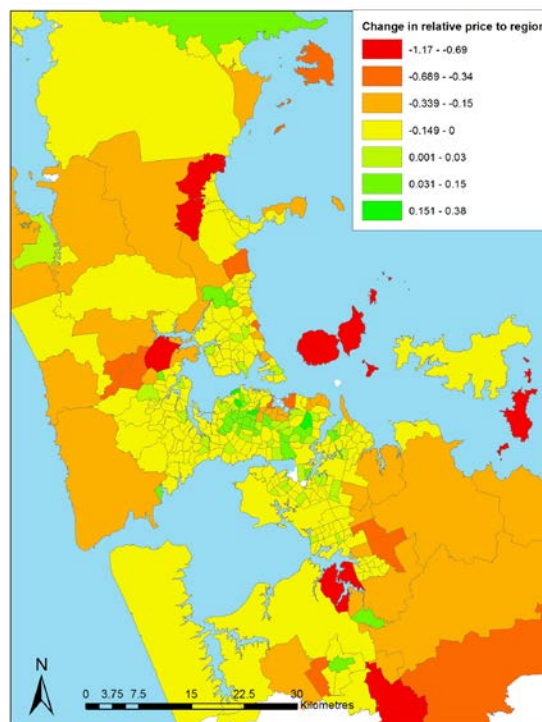


Figure 4-8: Change in dwelling prices relative to the Auckland average, 2004-2007 compared to 2008-2012



Part 1 has examined the relative price changes in Auckland from 1982 to 2012, and has highlighted where significant areas of change have occurred. The reasons underpinning these changes are multifaceted and complex, many of which are beyond the scope of this analysis. This analysis has established the context for the analysis of housing affordability in Part 2.

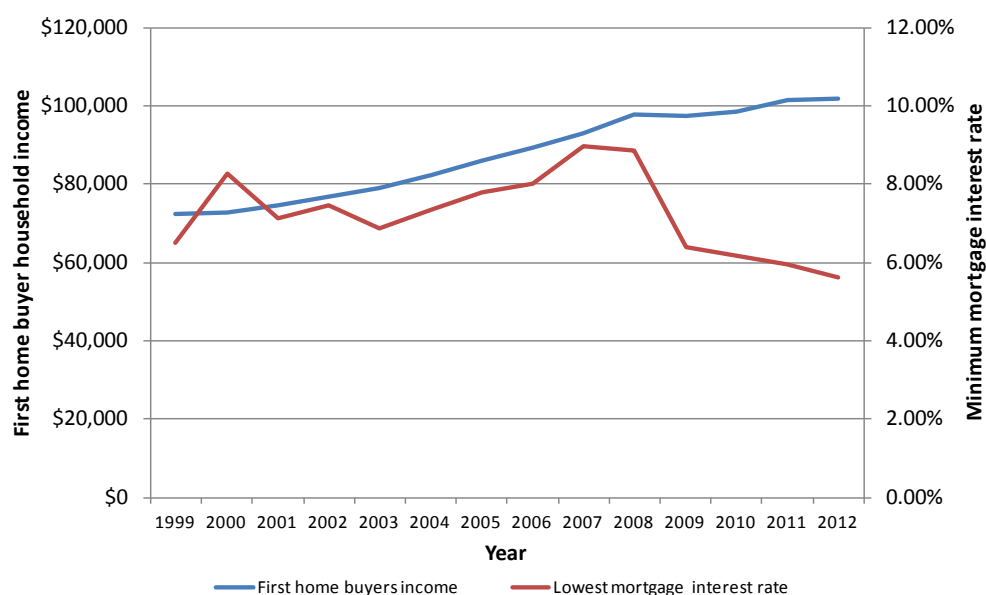
5.0 Part 2 - Geographic patterns of affordability for first home buyers in Auckland

This section identifies patterns of affordability for first home buyers in Auckland through time. It begins with a regional level analysis (section 5.1) of some of the determinants of affordability: house prices, mortgage interest rates, and dwelling size. Section 5.2 presents and discusses geographic differences in affordability levels within Auckland over time. Section 5.3 outlines the changes in affordability compared to the Auckland average, and provides a more detailed understanding of the overall trends in affordability in Auckland. These sections together allow for a comparison between absolute and relative affordability across Auckland.

5.1 Regional level analysis of housing affordability

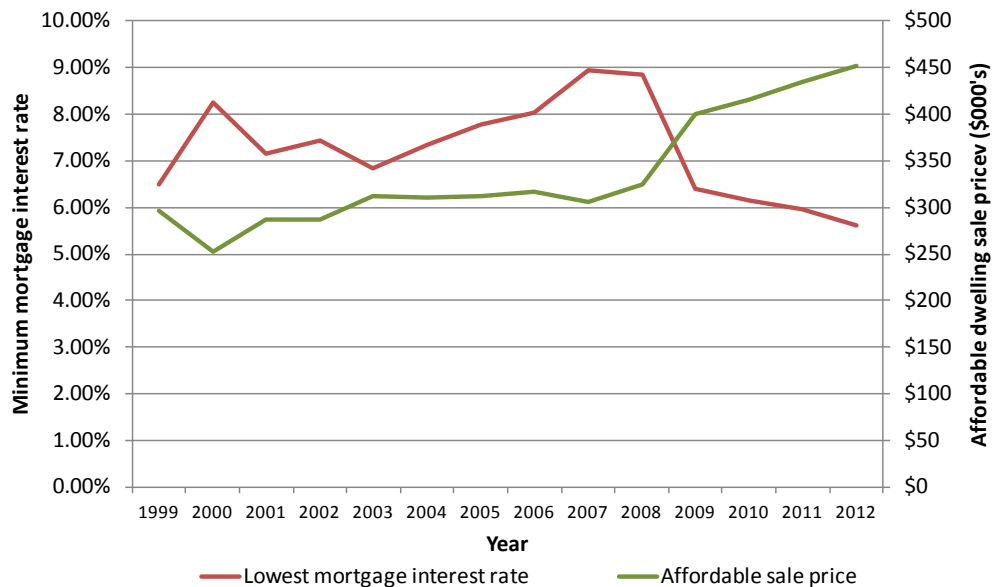
Figure 5-1 and Figure 5-2 together show the income and interest rates, and the effect on affordable house prices for first home buyers in Auckland. These graphs indicate that the analysis period can be divided into two parts. From 1999 to 2007, incomes rose rapidly while interest rates trended upwards. Over this period, the minimum mortgage interest rate rose from 6.5 per cent to 9.0 per cent. As there was a similar percentage increase in incomes, the housing price that would be affordable (spending 30 per cent of income) remained largely unchanged at around \$300,000. From 2007 to 2012, income growth slowed significantly while interest rates dropped sharply and stayed at a comparatively lower level. From 2008 to 2009, interest rates dropped sharply to just over 6 per cent, so the threshold for housing affordability increased to \$400,000 despite a slowdown in income growth rates. By 2012 interest rates were below 6 per cent, and \$450,000 housing was within the affordable threshold using the ratio method. In other words, financial factors – i.e. lower mortgage interest rates – have been the main driver of affordability since the GFC.

Figure 5-1: Auckland first home buyers estimated income and minimum mortgage lending interest rate, 1999-2012



Data source: Statistics New Zealand, LEED data; Reserve Bank of New Zealand, Mortgage Interest Rate series.

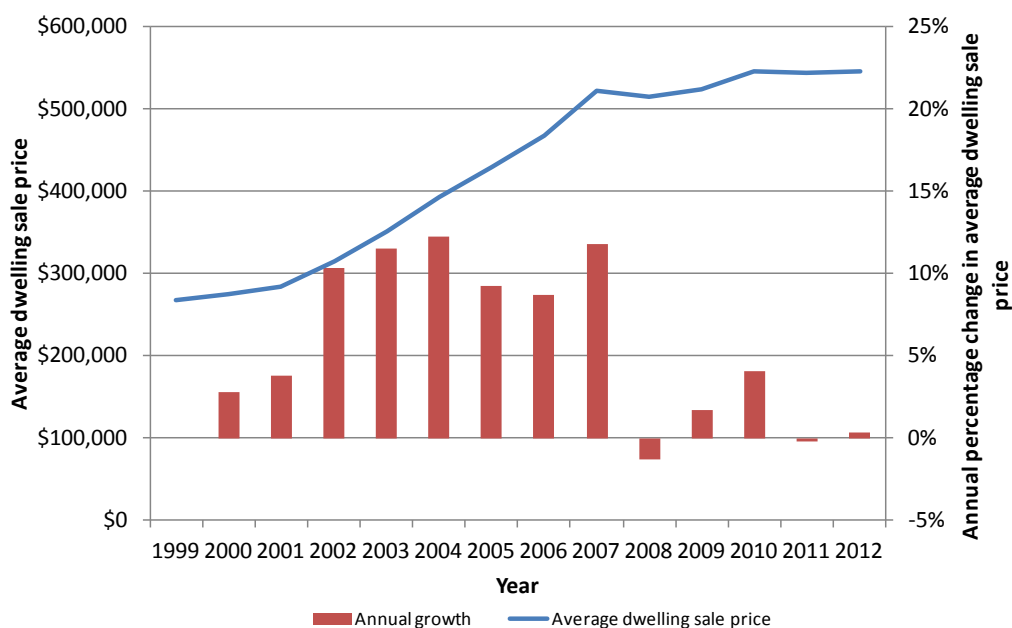
Figure 5-2: Affordable dwelling sale price for Auckland first home buyers and minimum mortgage lending interest rates, 1999-2012



Data source: Statistics New Zealand, LEED data; Reserve Bank of New Zealand, Mortgage Interest Rate series.

Figure 5-3 shows the change in average dwelling sales prices through time. Average sale prices rose sharply between 1999 and 2007. During this period, average house prices almost doubled in nominal terms, rising from \$267,000 to \$523,000. The effect of increased sale prices, combined with comparatively small changes in the affordable dwelling price (as outlined above), resulted in decreased affordability within the market from 1999 to 2007. Since 2007, increases in dwelling sales prices slowed considerably. As a result, falls in the interest rates have resulted in improvements in housing affordability from 2008 to 2012.

Figure 5-3: Average Auckland dwelling sales prices, 1999-2012

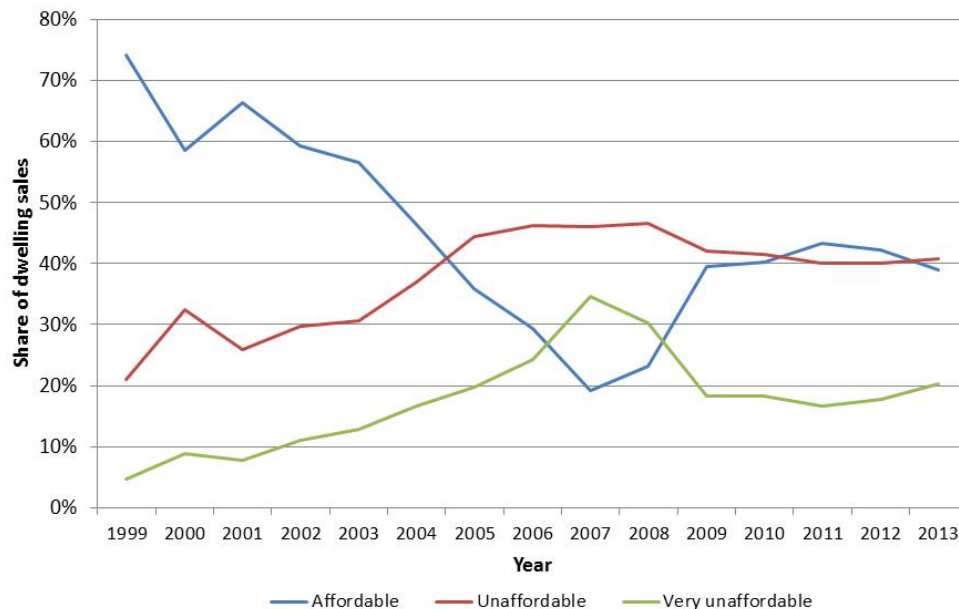


Data source: Property IQ Ltd.

The blue line in Figure 5-4 shows the share of dwelling sales that were affordable for first home buyers in Auckland through time, while the red and green line show the unaffordable and very unaffordable categories respectively. The share of Auckland's sales that were affordable to first home buyers decreased sharply across the first half of the study period. It fell from 74 per cent in 1999 to a low point of 19 per cent in 2007. This corresponds with a period of rapid growth in dwelling sale prices. Since 2007, slower growth in dwelling sales prices coupled with substantial drops in interest rates have seen the share of dwelling sales classified as affordable increase to 43 per cent in 2011. The share has dropped slightly to 39 per cent in 2013 due to the continued effect of rising prices relative to interest rates.

Conversely, the share of sales in the 'very unaffordable' category has broadly exhibited the opposite trend. From 1999 to 2007, the share of sales classified as 'very unaffordable' rose from 5 per cent to 35 per cent. The rise in 'very unaffordable sales' reversed to an extent after the GFC, falling to 18 per cent in 2009 and remaining at similar levels in subsequent years.

Figure 5-4: Share of Auckland dwelling sales by affordability for first home buyers, 1999-2013

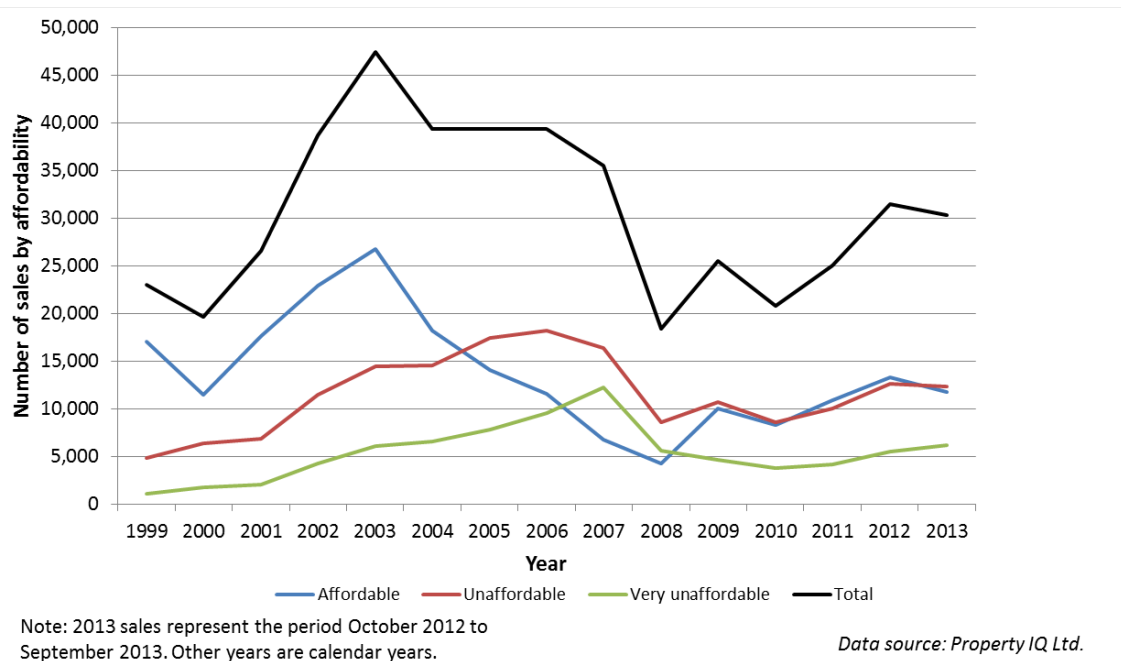


Note: 2013 sales represent the period October 2012 to September 2013. Other years are calendar years.

Data source: Property IQ Ltd.

Changes in the share of affordable sales broadly correspond with changing levels of activity (i.e. sales) in the Auckland housing market. Figure 5-5 shows the number of sales within each category, along with the total number of sales in the housing market. Sales in all affordability categories rose sharply until 2003. After 2003, total market sales gradually declined, coinciding with a switch from affordable to unaffordable prices. Sales numbers dropped dramatically in 2008 in all categories, coinciding with the global financial crisis, rising again in subsequent years, although at a slower rate in the 'very unaffordable' category. Since 2010, factors such as Auckland's continued population growth, lowering interest rates and the recovery from the global financial crisis are likely to have contributed to growth in housing demand⁹, flowing through to a greater number of dwelling sales.

Figure 5-5: Number of Auckland dwelling sales by affordability category for first home buyers, 1999-2013



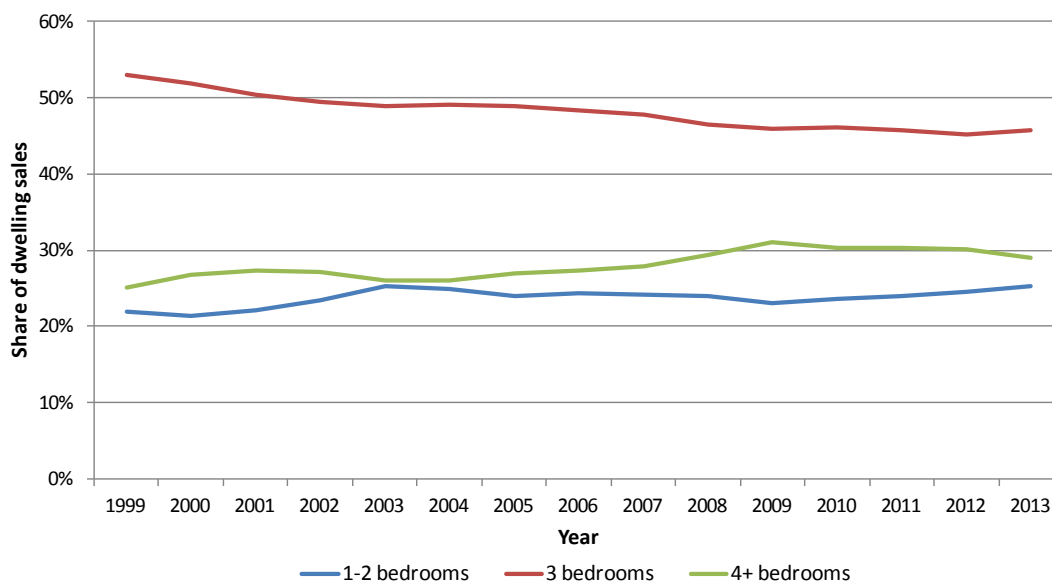
5.1.1 Sales trends by dwelling size

Figure 5-6 shows that three bedroom dwellings have historically been the largest category of sales in the Auckland housing market, making up nearly half (46 per cent) of sales in 2013. Their share of sales however, has decreased through time from 53 per cent in 1999. The sales shares of all other sizes have correspondingly grown slightly over the period¹⁰.

⁹ Despite the recession, demand is likely to have continued to grow, albeit at a slower rate, due to the overall longer-term housing shortage with the imbalance between supply and demand.

¹⁰ A small amount of sales data did not contain information on the number of bedrooms. This was removed from the calculation.

Figure 5-6: Share of Auckland dwelling sales by number of bedrooms, 1999-2013



Note: 2013 sales represent the period October 2012 to September 2013. Other years are calendar years.

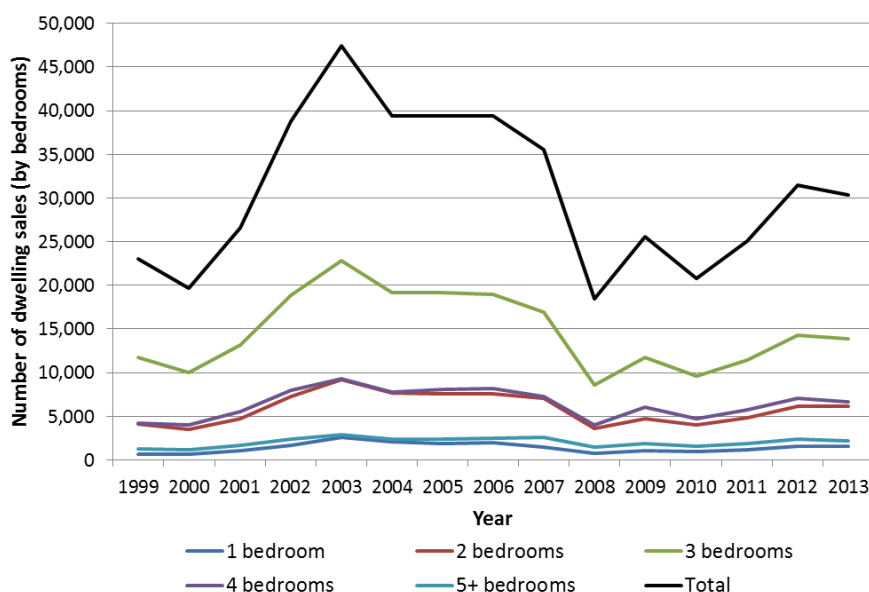
Data source: Property IQ Ltd.

It is likely this decrease has been driven by growth in the construction of other dwellings and types in other parts of the housing market. Residential building consents data suggests that there were substantial increases in apartment developments (which typically have fewer than three bedrooms) from 2002 to 2005. Additionally, newer subdivisions are likely to consist of larger houses, reflecting increasing consumer expectations and consumption¹¹ (Beattie, et al., 2012).

Figure 5-7 presents data on the number of sales, by number of bedrooms, over the analysis period. This data suggests that changes in the number of sales within each dwelling size category are more influenced by factors influencing the regional market overall (such as the construction boom, migration peaks and financial crisis), rather than major structural change within the market by dwelling type. Sales volumes in some dwelling sizes grew faster than the region as a whole during some periods within these broader fluctuations of activity. Sales of smaller dwellings (one bedroom in particular) grew fastest in the early 2000s, correlating to a period when many new apartments were constructed in Auckland.

¹¹ The Auckland Council residential building consent data show that the average floor area size of single unit dwelling consents has increased through time (Auckland Council, 2012).

Figure 5-7: Number of Auckland dwelling sales by number of bedrooms, 1999-2013



Note: 2013 sales represent the period October 2012 to

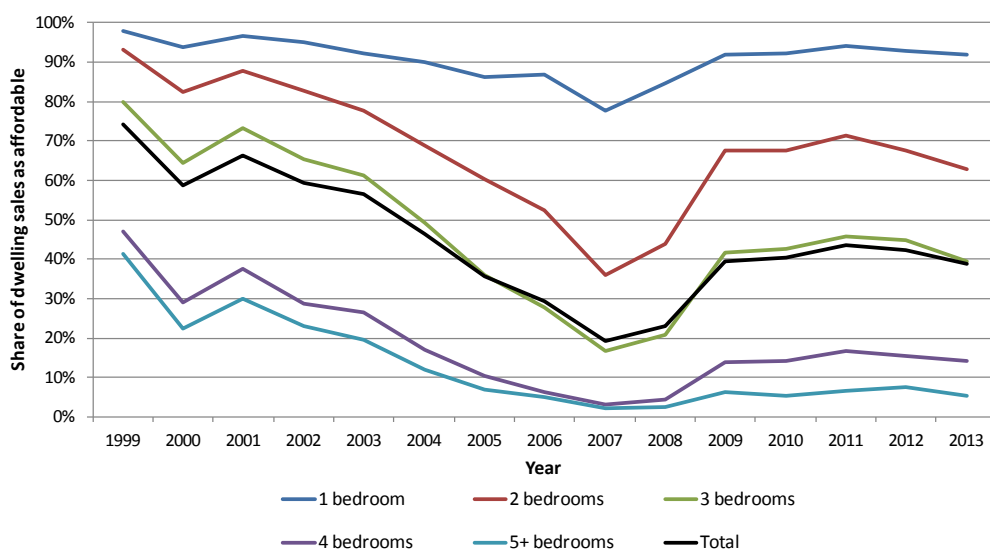
Data source: Property IQ Ltd.

Figure 5-8 shows the proportion of dwelling sale that were affordable for first home buyers within each dwelling size category. Throughout the entire time period, larger house sales were less likely to be affordable:

- Almost all one-bedroom dwelling sales were categorised as affordable; the proportion declined below 80 per cent in 2007, but in 2013, this returned to over 90 per cent.
- Earlier in the period almost all sales of two and three bedroom housing were categorised as affordable, but by 2007 less than half was (and only 20% for 3-bedroom). Even after recent reductions in interest rates, only 60 per cent of two bedroom and 40 per cent of three bedroom dwelling sales are categorised as affordable.
- At the beginning of the period, almost half of four and five bedroom dwelling sales were within the affordable category. However, this category of dwellings had become almost entirely unaffordable by 2007, with minor improvements in affordability since then.

While the share of dwelling sales categorised as affordable remains above 2007 levels for all dwelling sizes, affordability has begun to decrease over the last one to two years.

Figure 5-8: Share of total Auckland dwelling sales categorised as affordable for first home buyers, by number of bedrooms, 1999-2013

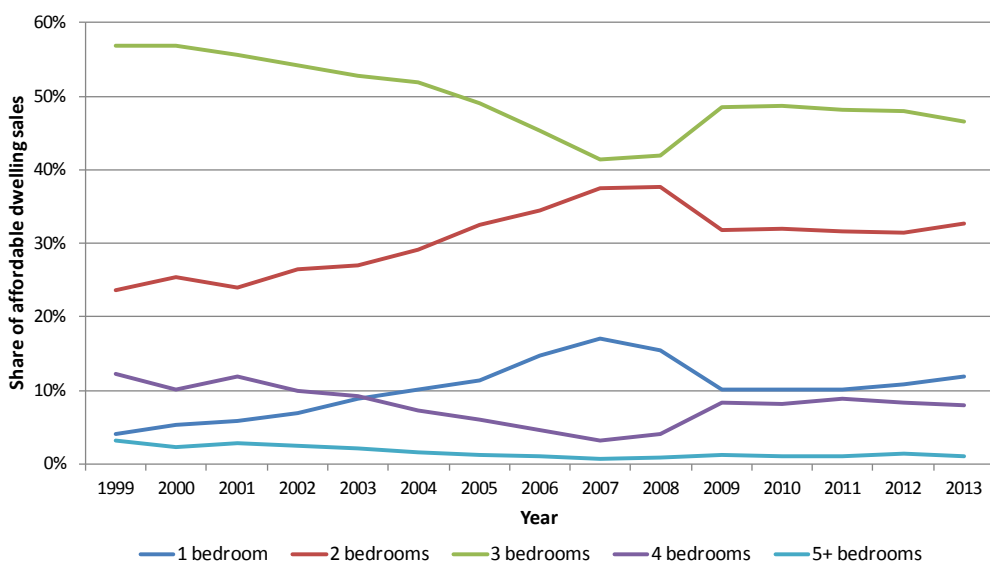


Note: 2013 sales represent the period October 2012 to September 2013. Other years are calendar years.

Data source: Property IQ Ltd.

Figure 5-9 shows the share of affordable house sales that fall into each dwelling size category (i.e. number of bedrooms). This graph combines the information seen in the preceding graphs – i.e. the affordability of each dwelling size category as well as the proportion of total sales accounted for by each size category. This graph shows that smaller dwellings have made up an increasing share of the affordable sales over time. In 1999, one to two bedroom dwellings accounted for 28 per cent of all affordable sales; by 2013 this proportion had increased to 45 per cent. Larger dwellings made up a correspondingly smaller share of affordable sales.

Figure 5-9: Affordable dwelling sales (for first home buyers) in Auckland by number of bedrooms, 1999-2013



Note: 2013 sales represent the period October 2012 to September 2013. Other years are calendar years.

Data source: Property IQ Ltd.

5.2 Spatial analysis of dwelling affordability in Auckland

5.2.1 Distribution of affordable sales across Auckland

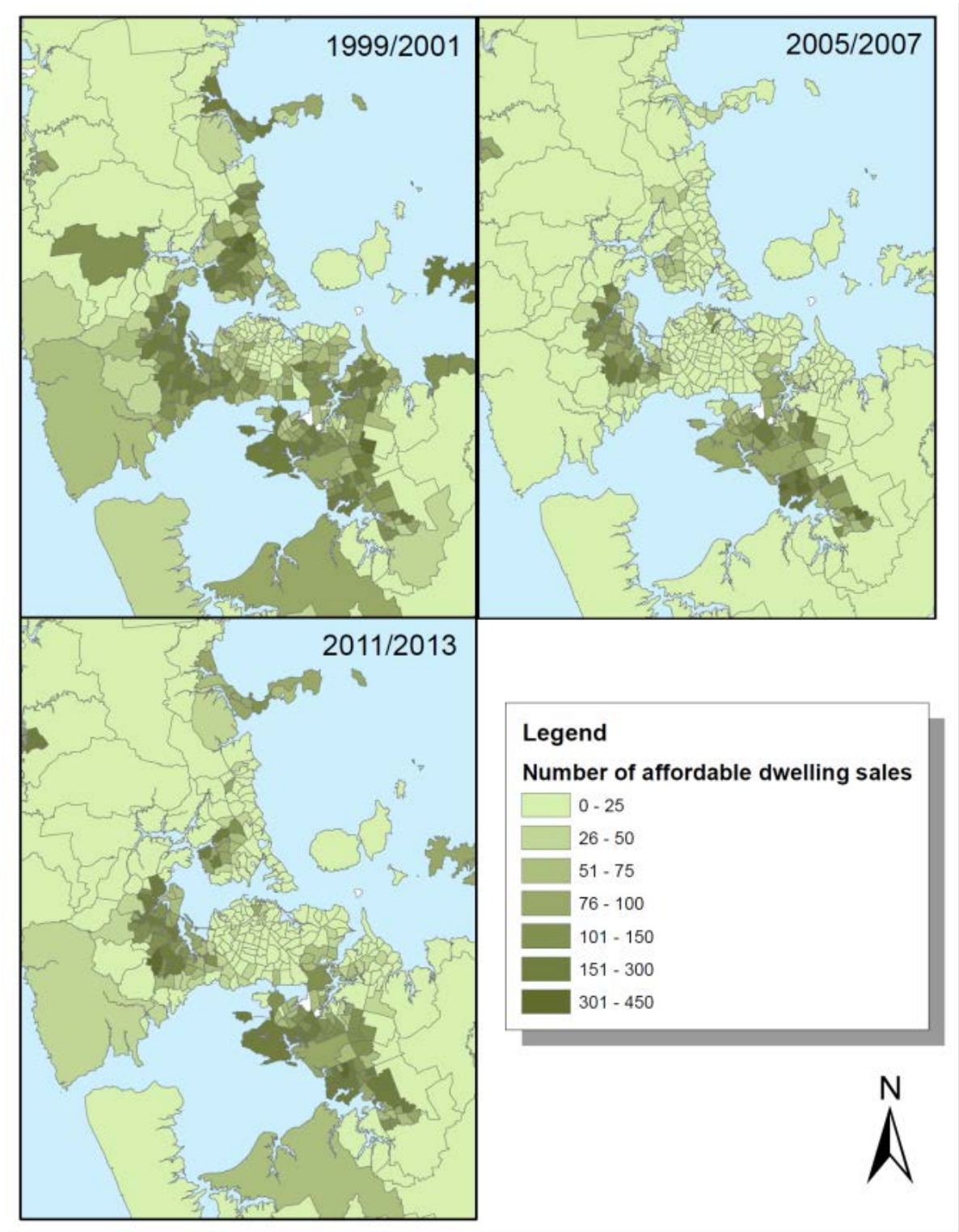
The geographic distribution across Auckland of affordable house sales for first home buyers is shown in Figure 5-10. It shows the absolute number of sales that were affordable within each area unit, with darker shading representing a higher number of affordable sales. As shown earlier in the report, the overall number of affordable sales has decreased between 1999-2001 and 2005-2007, and increased slightly between 2005-2007 and 2011-2013.

Southern and western Auckland in general had relatively higher levels of Auckland's affordable house sales. At the start of the study period (in 1999-2001) affordable sales were considerably more widespread across Auckland. During this time, there were a substantial number of affordable sales in northern and central areas of the North Shore, eastern Auckland areas, lower isthmus locations, and outlying centres in Auckland's rural-urban periphery¹².

As levels of affordability decreased across the first half of the study period, the number of affordable sales became more limited to areas of southern and western Auckland (and some rural-periphery satellite centres). During the second half of the study period, the number and share of sales as affordable increased slightly (following the peak of the housing market and a fall in interest rates in 2007). This can be seen in the increase in the number of affordable sales in other parts of Auckland, mainly the inner North Shore and to a lesser extent the Whangaparaoa Peninsula. Unlike the rest of Auckland, the number of affordable sales in the City Centre has increased through time. It is likely this is driven by growth in the number of apartments within the City Centre.

¹² The peripheral areas are not displayed on the map as a wider frame would prevent legibility within metropolitan Auckland areas.

Figure 5-10 Distribution of affordable dwelling sales, by CAU, 1999-2013



5.2.2 Spatial patterns of affordability for larger (3+ bedroom) dwellings and the total market.

The maps in Figure 5-11 illustrate the share of larger dwelling sales (3+ bedrooms) within each CAU that were classified as affordable within each time period. As a comparison, the maps in Figure 5-12 show the share of sales that were affordable across the total market. Green colours correspond with higher shares of affordable sales within an area, while blue shaded areas are those with lower share of sales that were affordable for first home buyers.

Comparing the total market against a subset of larger dwellings is particularly important, as it partially controls for the trade-off between the price of land and the consumption of space, where people tend to consume more space (or live in a relatively larger dwelling) in places where land is relatively less expensive.

At the beginning of the analysis period, for both larger dwellings and the total market, many of the outer areas on the urban periphery and rural satellite centres had relatively high shares of house sales under the 30 per cent affordability threshold for first home buyers. These included areas around Silverdale/Orewa, north-western Auckland, Helensville, Warkworth, Wellsford, Snells Beach, Pukekohe, Drury and Waiuku, along with several more affordable suburban areas of Beach Haven/Birkdale, Glen Innes, Lynnfield, Pakuranga and several of the upper East Coast Bays suburbs. From 1999-2007, the share of affordable sales for in many of these areas decreased substantially. It is likely that part of this effect is driven by urban expansion in areas on the urban periphery such as Silverdale/Orewa, the north-western urban edge and Warkworth/Snells Beach. Similarly, over the same period area units with relatively low dwelling prices, such as Beach Haven/Birkdale, Lynfield, eastern Auckland, upper East Coast Bays and Glen Innes, have experienced rising prices and declining affordability. This has resulted in a decrease in the overall share of affordable dwellings in the area.

The maps show that the areas of Southern and Western Auckland have maintained relatively higher levels of housing affordability, for both the total market and larger dwellings. The most prominent area of difference between the shares of affordable larger dwellings and the total has occurred within the central Auckland isthmus. Since 2005, there were more area units within the lowest affordability category (0-20% share, dark blue) for larger dwellings than for the compared the total market.

The absolute changes in affordability between 1999-2001 and 2011-2013 at the area unit level for larger dwellings and the total market are shown in Figure 5-13 and Figure 5-14 respectively. Each point on these graphs represents an area unit, with the diagonal line representing areas that had the same share of their dwellings being affordable in both periods. Points below the diagonal line had a fall in the share of their dwellings that were affordable between 1999-2001 and 2011-2013. This is the case for most areas for both the total market and larger dwellings, as might be expected given the overall reduction in affordability over this time-period. Only five per cent of CAUs indicated an absolute increase in affordability for both larger dwelling and the total market.

However, some points are closer to the diagonal than others, indicating areas that had smaller changes in affordability between the two periods.

For both the total market and larger dwellings there appears to be a cluster at the top right, of areas where almost all sales were affordable in 1999-2001, and remain largely affordable (60% to 100%) in 2011-2013. Similarly, at the bottom left there are areas that had generally low proportions of affordable sales (0% to 35%) in 1999-2001, and were still largely unaffordable in 2011-2013 – and particularly in the case of larger houses, where there were almost no affordable sales. Areas at the bottom right represent extreme reductions in affordability, from mostly affordable in 1999-2001 to very low affordability in 2011-2013. Only a small minority of areas are in this category, and almost no areas are shown in the corresponding top left corner representing areas that improved from very low affordability in 1999/2001 to mostly affordable in 2011-2013. The graphs demonstrate a consistent trend of a falling share of affordable dwellings for both large dwellings and the total market.

Figure 5-11: Share of three or more bedroom dwellings that were affordable to first home buyers, by CAU, 1999-2013

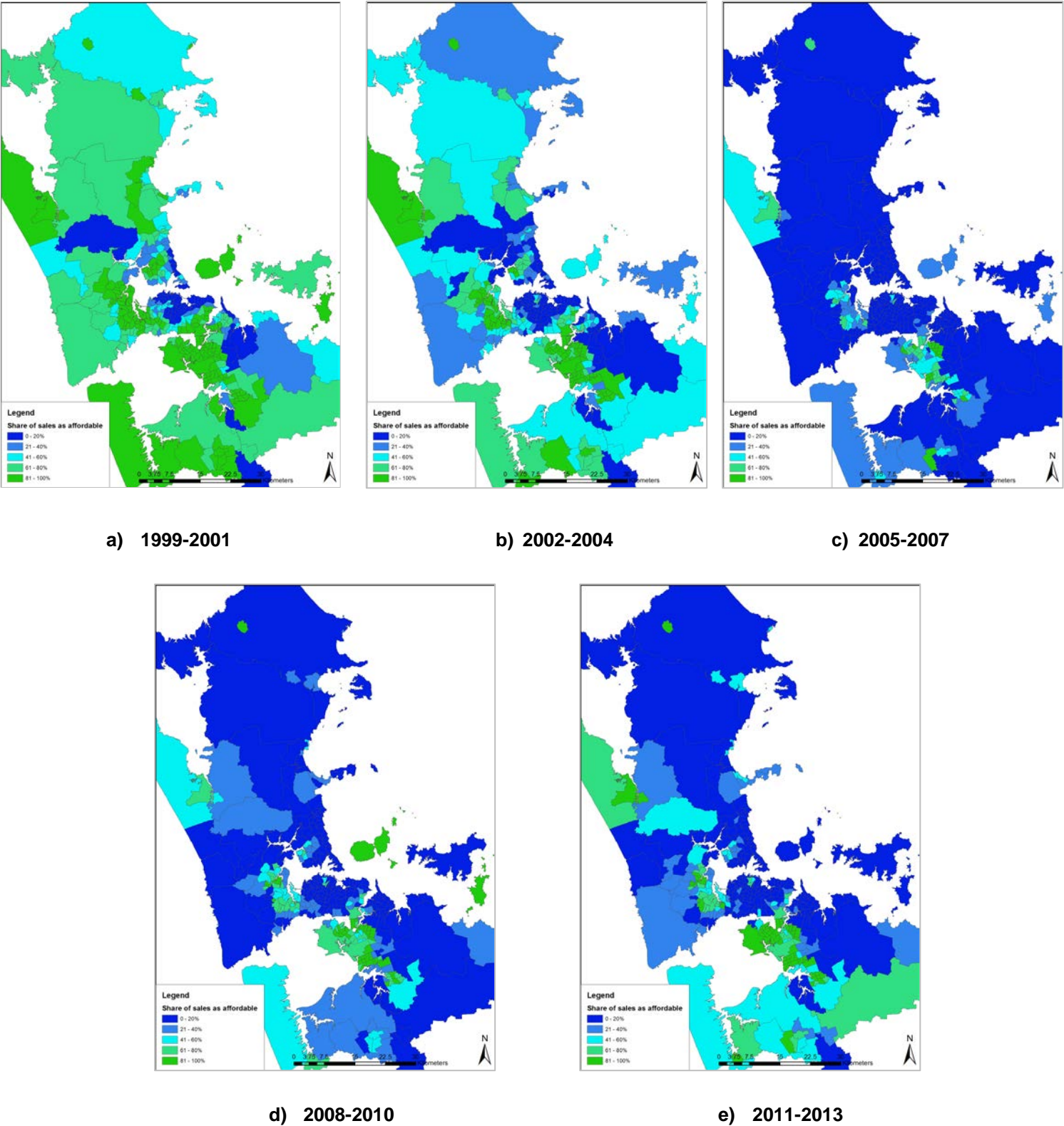


Figure 5-12: Share of dwelling sales classified as affordable for first home buyers, by CAU, 1999-2013

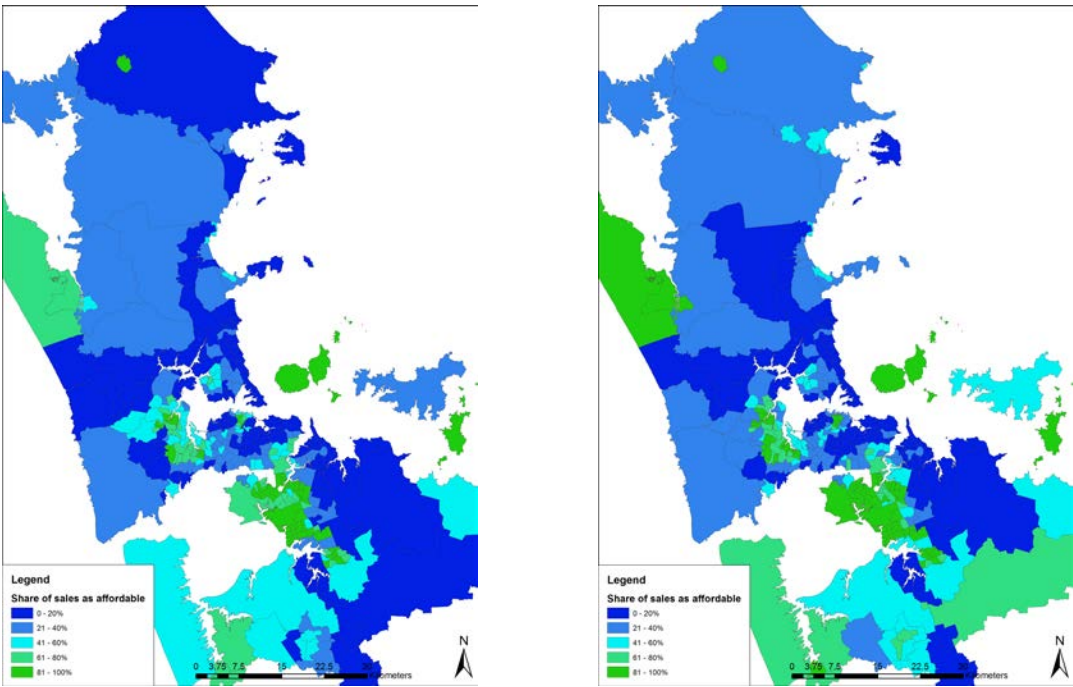
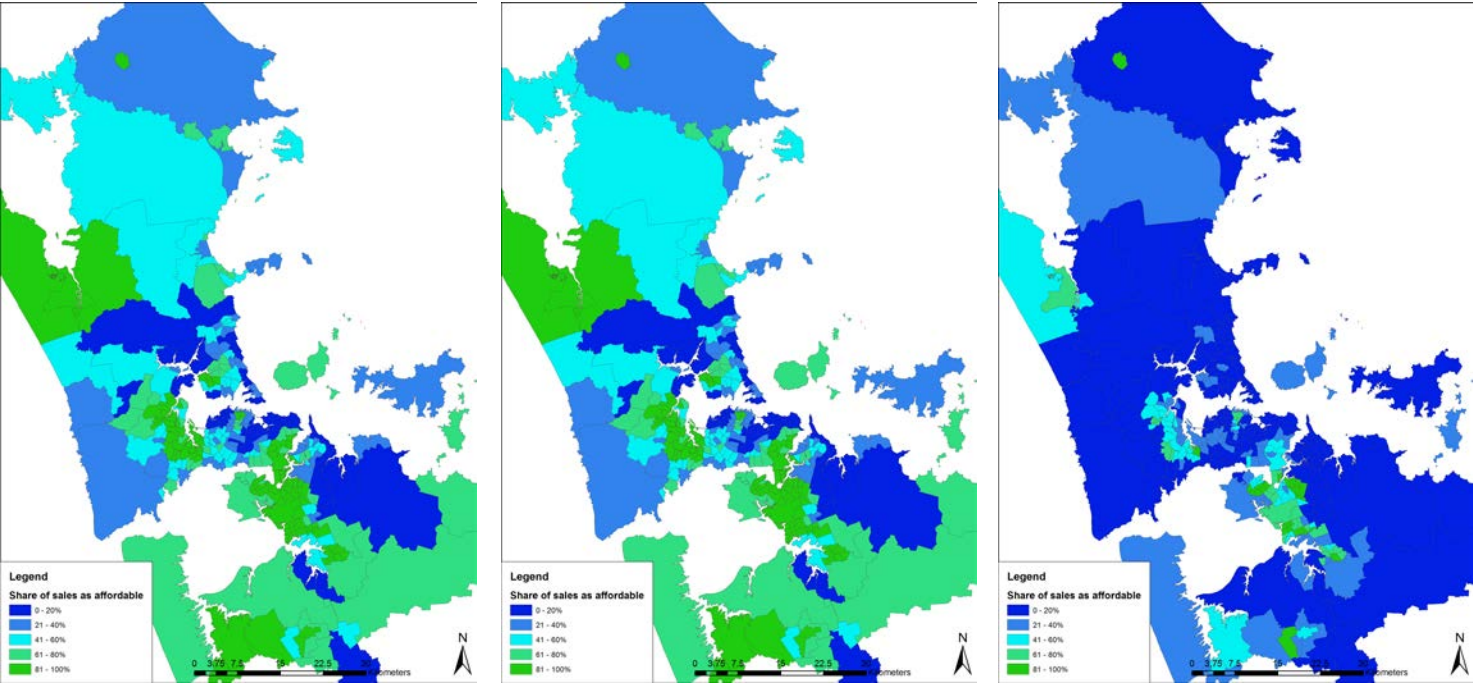
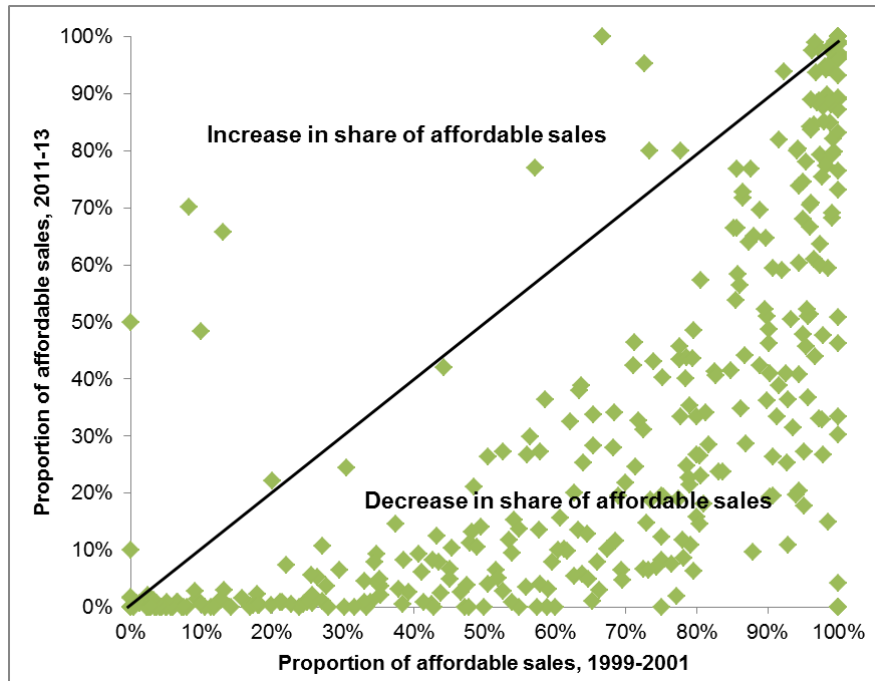
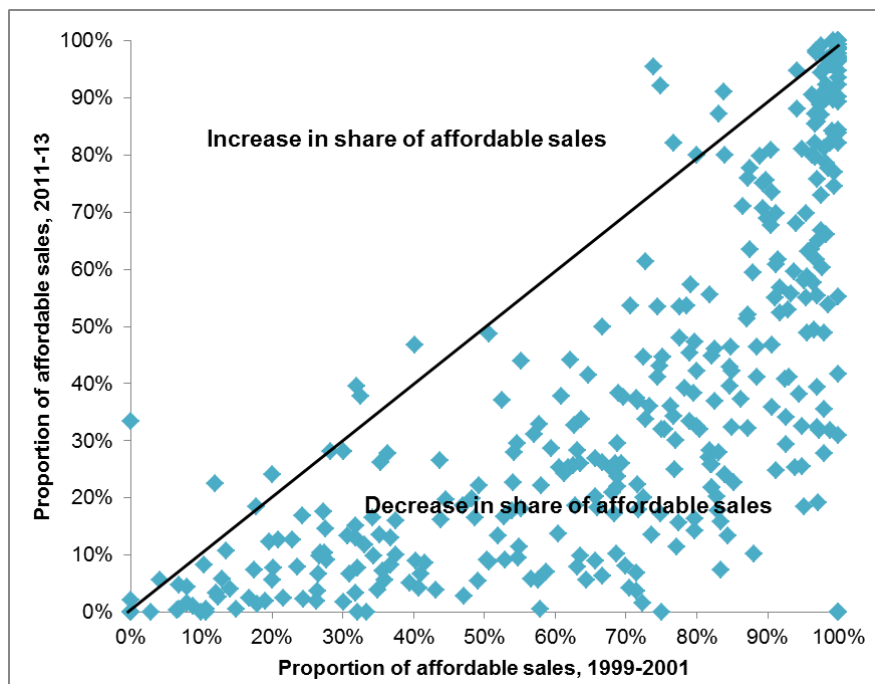


Figure 5-13: Proportion of sales that were affordable by CAU, large dwellings (3+ bedrooms), 1999 compared to 2013



Data Source: Property IQ Ltd.

Figure 5-14: Proportion of sales that were affordable by CAU all dwellings, 1999-2001 compared to 2011-2013



Data Source: Property IQ Ltd.

5.3 Relative changes in housing affordability between 1999-2013

The maps in Figure 5-15 and Figure 5-16 show the changes in affordability between area units over time, relative to the Auckland average. This measure is particularly important as it shows where the areas of largest changes in affordability have occurred, and provides a comparison to the absolute measures in section 5.2. In these maps, the area units decreased (relative to the Auckland average) in the share of sales categorised as affordable for first home buyers are coloured in red, while those that have experienced increases in affordability are coloured green.

5.3.1 Changes in housing affordability between 1999-2001 and 2005-07

The changes to the spatial structure of the market between 1999-2001 and 2005-07 are presented in Figure 5-15a. The distribution and relative level of change across the area units are similar to the trends shown in the previous section, with the highest relative decreases in the share of affordability located along the urban periphery, particularly in north and west Auckland.

In contrast, there were relative increases in affordability within the urban parts of western and southern Auckland, particularly around Henderson and New Lynn and Manurewa and Otara.

5.3.2 Changes in housing affordability between 2005-07 and 2011-13

Figure 5-15b shows that the affordability of many areas increased during this time period, driven by a fall in general mortgage interest rates as discussed in section 5.1. In particular, several areas on the North Shore, Tamaki, Helensville and Whangaparoa increased in affordability compared to Auckland as a whole. The effect within the inner city central areas within the isthmus was more variable, with many areas decreasing in affordability, particularly to the west of the City Centre. There were also decreases in relative affordability in some areas of South Auckland and East Tamaki.

5.3.3 Changes in housing affordability between 1999-2001 and 2011-13

Figure 5-16 summarises the total structural changes to housing affordability by location in Auckland across the full study period. It suggests that there has been further spatial polarisation of the market. Southern and western areas have generally experienced fewer reductions in affordability relative to Auckland as a whole. This is seen in the large areas of green shading across these area units. The City Centre and fringe, Helensville/Parakai, Waiuku and Wellsford have increased in relative affordability. Relative increases in the City Centre are likely to be due to growth in the number of smaller apartments constructed, which has brought overall prices down.

In contrast, many areas around the urban periphery in northern and western Auckland have experienced relative decreases in affordability when compared to Auckland as a whole. These changes are likely to have been driven by relative increases in demand and sales in these areas from outward urban expansion in these areas that are adjacent to areas of higher housing prices.

Figure 5-15: Change in affordability relative to the Auckland average for first home buyers in Auckland, 1999-2013

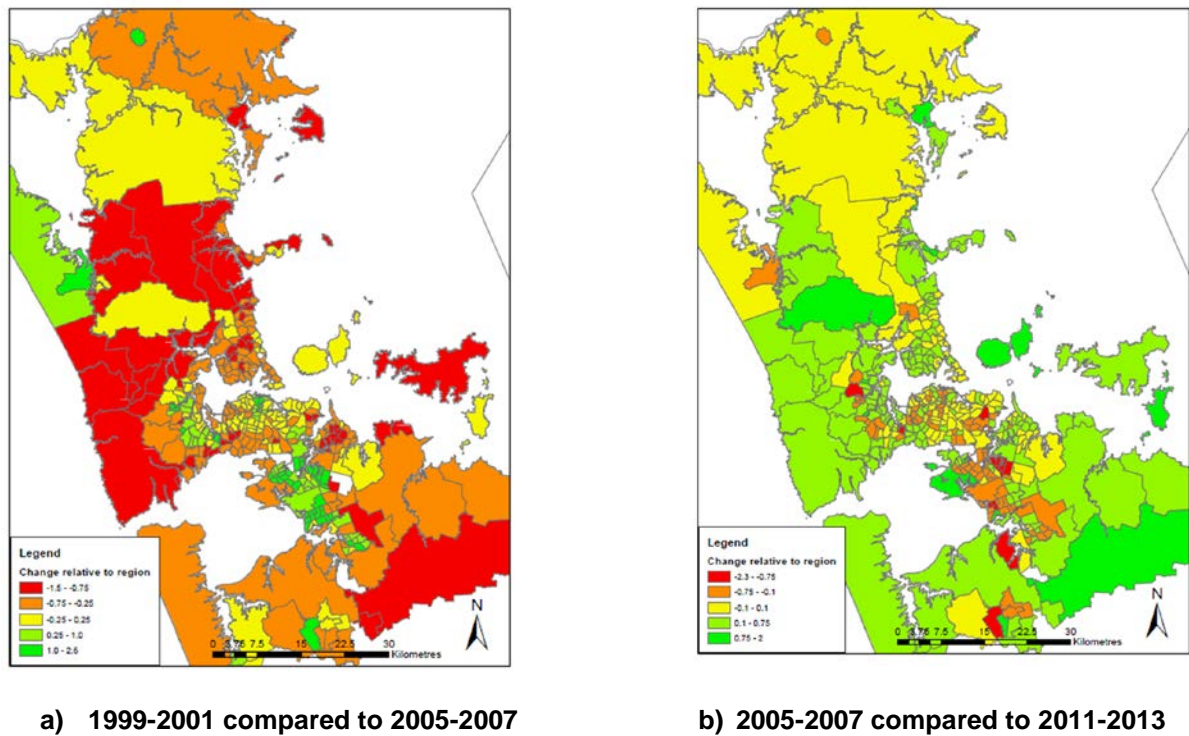
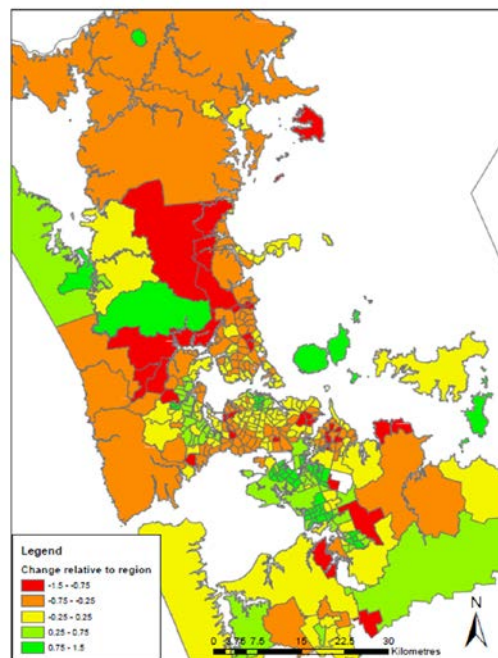


Figure 5-16: Change in affordability relative to the Auckland average for first home buyers in Auckland, 1999-2001 compared to 2011-13



6.0 Discussion

6.1 Summary of key findings

The results of this analysis have shown that dwelling sale prices and their impact on housing affordability have varied across Auckland. Specifically the analysis has shown that:

- Areas within the central city, such as Parnell, Herne Bay, Ponsonby, Devonport and Epsom have the highest dwelling prices relative to the Auckland average. In contrast, many of the areas within Western and Southern Auckland, such as Otara-Papatoetoe, New Lynn and Mangere have lower dwelling prices relative to the Auckland average. The city centre also has relatively lower dwelling prices relative to the Auckland average.
- Between 1982-1990 and 2008-2012, dwelling prices have increased most rapidly in areas around Hobsonville and Whenuapai, in central city areas close to the city centre such as Ponsonby and Grey Lynn, in Devonport, and on Waiheke Island. The areas with the lowest rate of change include areas of southern Auckland including Wiri, Bombay, Papatoetoe and Papakura.
- The share of sales categorised as affordable has fallen substantially during the study period, from 74 per cent in 1999 to 39 per cent in 2013. This trend has been relatively consistent throughout Auckland, for both larger dwellings and the total market. Overall, 95 per cent of CAUs measured in this analysis showed an absolute decrease in affordability between the 1999-2001 and 2011-2013 periods. However, lower interest rates and slower increases in dwelling prices due to the Global Financial Crisis, led to a temporary improvement in the share of affordable dwelling sales after 2008 at the regional level.
- Many areas around the urban periphery in northern and western Auckland have experienced relative decreases in affordability when compared to Auckland as a whole. Conversely, some areas such as the City Centre and fringe, Helensville/Parakai, Waiuku and Wellsford had an overall increase in relative affordability.

The analysis also indicated that the nature of affordability is complex and varies widely throughout Auckland and also over time. This variation is likely to be due to a number of local factors, such as transport accessibility and access to amenities and local infrastructure, which need to be taken into account when developing policies relating to housing affordability.

6.2 Limitations

This study applies the ratio method to calculate and measure affordability. This method incorporates the cost of borrowing into affordability, and therefore may provide a level of affordability closer to the experience of homebuyers, compared to the multiple median income method. However, neither method accounts for other barriers to accessing finance, such as loan criteria and loan to value ratio (LVR) restrictions, which are currently important factors within the New Zealand market (Roost Mortgage Brokers, 2014).

The definition of first home buyers used in this study (couples composed of two employed 25-34 year olds), is relatively narrow and may not capture all types of first-home buyers. This age group was chosen as it was characteristic of the life-stage of when people generally first begin to consider the purchase of a home. The age range is also broader when compared to some other New Zealand housing affordability reports such as the Roost home affordability report, which uses an age range of 25-29 year olds. An important limitation of this study is that it does assume that both household members will remain in the workforce after the purchase of a home, which may not hold in practice, for example if the couple has children, one partner may choose to stay at home to care for them. This means that the estimates in this study may overstate the level of affordability for some people.

Finally, the goal of this report was to provide disaggregated spatial information to provide local level data on affordability for the longer-term planning process, rather than a description of short-term market trends. As such, it was necessary to aggregate annual data into multi-year groups to ensure that outcomes at the CAU level were not influenced by year-to-year fluctuations. While this is more appropriate for medium to longer-term planning purposes, it does not necessarily account for recent price rises and consequent changes in affordability observed near the end of the study period.

6.3 Potential implications for policy

The consistent variation in dwelling prices could affect the implementation of Special Housing Areas (SHAs) across Auckland. This is because the relative dwelling prices within a particular SHA could influence the timing and profitability of development. Therefore, it is important to recognise and take account of this variation during the implementation phase of the development.

This study also shows that since 1999, affordability has decreased across most areas of Auckland, for both large dwellings and the total market. This means that although the housing affordability problems are more obvious in areas with higher prices, it does provide some evidence that housing affordability is an Auckland-wide issue.

Finally, this study indicates that the ratio measure of affordability is heavily influenced by interest rates. This means when using the ratio measure for policy setting, such as establishing the price for retained affordable housing, it would be important to conduct sensitivity testing to determine how much the affordability level is affected by short-term changes in interest rates.

6.4 Areas for future research

This report provides an initial evidence base that can be used for policy development, decision making and research. However, while it describes spatial changes in Auckland's housing market, it does not investigate the causes of these changes. Consequently, an important area for future research is to study the determinants of house prices and housing affordability, including localised factors, such as proximity to employment, transport infrastructure and services, local amenity, and the size and quality of the housing stock. It could also be useful to extend this work to examine the issue of nominal vs real interest rates and incomes.

Similarly, further research would be needed in order to understand the housing development process. This research could consider the interaction between land and capital value, construction costs, and land use regulations within Auckland's housing market.

Finally, while the majority of Auckland households live in owner-occupied dwellings, renting has risen significantly in recent decades. Therefore, although the Auckland Council's current policy focus is targeted towards improving affordability of owner-occupied dwellings, it could be important to understand the relationship between house prices and rents at a spatial level within Auckland and the issues associated with rental housing in Auckland.

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Appendix A Areas described this in report

To aid the understanding of the locations and areas described in this report, the map below outlines the names of the major geographical areas in Auckland.



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