



**Housing, Employment
and Regional Development.
An Issues and Scoping Paper
Applied to the Northland
and Canterbury Regions**

PREPARED BY

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FOR THE

**Centre for Housing Research,
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A research brief for the
Centre for Housing Research, Aotearoa New Zealand
– Kainga Tipu (CHRANZ)

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Executive summary

This paper provides a critical assessment of the Northland and Canterbury regions and makes several recommendations on applying CHRANZ's regional affordable housing, employment (labour market) and regional development research programme in order to deliver solutions based research. This scoping paper is designed to help a guide CHRANZ's regional housing programme purchasing in 2007/08.

In addition to addressing trends and reviewing the previous literature the two person team of Morrison and Murphy spent a total of four days in Northland 31 Jan through 3 Feb, 2007 and three days in Christchurch, 21-23 February 2007 conducting interviews and undertaking field reconnaissance under guidance and advice of both the Northland and Wellington offices of Housing New Zealand and, to a lesser extent, the Canterbury office.

The two regions are quite different historically and geographically and this colours the nature of their contemporary housing issues. There are however common institutions, demographics, market pressures and parallel experiences can be identified. Pressures on rental accommodation and on coastal properties are two examples.

The contemporary market context in both regions is historically unique. The demand for labour, both skilled and less skilled, remains high despite a slowing economy. Housing prices are persistently high and with continuing high interest rates there are real home entry barriers for an increasing number of households. Housing market pressures in both regions are a result of international, national as well as local conditions. However economic conditions could change and this will have negative implications for the way sustainable 'solutions' are identified and developed. The most 'knowable' of these futures is the age structure and the dynamics already built into the respective populations and these are already serving as a basis for national as well as regional and local planning.

While demand issues lie behind many of the pressures we find in regional housing markets it is the supply related issues that provide leverage for local government response which is why previous studies in this research programme have focused largely on land and regulations relating to its release and pricing. While not discounting the presence of short term supply constraints, most of these supply and regulatory issues are already being investigated elsewhere, most recently in the Bay of Plenty and in Auckland. The general thrust of these recommendations are directly applicable to the two regions being investigated here.

It is now time, we believe, for the affordable housing research program to turn to the *demand* drivers behind contemporary and *future* housing issues and we suggest a study of these two regions as a way of leveraging such insights. The benefits of taking a demand side approach we argue, lie in the deeper *understanding* of contemporary pressures on the

housing market – where, when and how buyers are expressing their preferences. Insights gleaned from a study of local demand will not necessarily translate into actions which can be taken locally but, depending on the results of the proposed studies, it may be possible to motivate issues locally in ways that brings pressure nationally through taxation, immigration and other macro policy levers. It will also however put the spotlight on a range of possible local actions that could affect demand, particularly as it relates to choices among alternative types of housing and locations.

We emphasise the demand side in this report for two reasons. Firstly, because the housing issues raised in the field and in the local literature are essentially distributional, that is they have to do with *relative* access of different socio-economic groups to housing of socially acceptable quality at a time of buoyant overall demand, unprecedented residential investor activity, low unemployment and a complex redistribution of workers and their families between local labour markets. Such conditions are patently redistributing wealth by inflating the value of assets held by those who purchased under relatively lower price structures and disadvantaging those new to the owner occupier housing market and those entering as renters. The particular issue of ‘Maori housing’, having been dealt with almost exclusively as a supply issue over several decades, is in particular need of repositioning as a demand issue in ways which shift the emphasis to training, local labour market conditions and issues around income sustainability. The redistributive consequences of contemporary housing demand also have to be seen in the context of the highly selective character of out and in migration to such areas both inter-regionally and internationally.

The second reason for our focus on housing demand is its central role in issues of environmental sustainability. Housing consumption decisions have downstream consequences for environmental sustainability that exceed those of any other single purchase households make. They involve issues of dwelling and section size, energy use, location relative to other sites and of course modal choice. Purchase decisions also bear on equally important issues of *social* sustainability that are affected by dwelling and neighbourhood choice, socioeconomic and ethnic segregation as well as issues of social inclusion (through differential access to schools for example). Supply responses and the regulatory environment in which they occur remain important but the fundamental drivers come from the demand side.

Three specific areas of housing pressure emerged from our field work, albeit with different local weightings: the debate over the relative benefits and costs of consolidation, the net social and environmental costs of continued pressure on high amenity land, especially coastal properties, and the long standing issue of substandard rural ‘Maori housing’.

These are not isolated or stand alone issues and for this reason we are recommending that they be folded into a broader study of local housing demand which focuses on drivers of local demand within particular housing submarkets. Central among these is the relationship between the local labour and local housing market. These relations are

taking place within a world of increasing internal and international migration and capital flows; one in which the 'independence' of local markets is increasingly reduced by their closer connections to both other places within New Zealand as well as the more frequent investment and relocation decisions made from outside the country. There is a need on one hand to reposition what is happening 'locally' within this broader framework of networks, influences and greatly expanded vulnerability to 'shocks' from outside the region. On the other hand there is also need to trace how these influences impact within the region. There is no single impact for everyone or every place; there are differential impacts and measuring these is one of the challenges we raise in the following recommended research.

The vehicle we are proposing to uncover the choices people are making with respect to their housing is residential location choice analysis, an application of choice modeling using methods which allow the research team to identify the attributes different sets of consumers use to discriminate among alternative housing packages. Based primarily on access to unit record files from the 2006 census supplemented via GIS modeling of a range of proximity and accessibility measures as well as possible supplementary use of Quotable Value Ltd records we believe most of what we need to know about location specific demand can be learned without having to resort to the surveying of households. The ability to apply a consistent methodology to existing data sources in two very different regions also enhances the likely portability of the analytic framework to other regions in New Zealand. In short we see the proposed demand side analysis as a valuable complement to the supply based response work currently being implemented via the CHRANZ research programme.

Recommendations

Modeling sub-regional housing demand

Apart from monitoring the usual range of aggregate indicators, relatively few studies of housing demand have been undertaken in New Zealand. This is ironic given the widespread concern over differential access to housing in general and ownership in particular. This scoping paper argues that the appropriate level at which to model demand are those sub-national areas loosely organized around the major metropolitan centres and cities in which most of the demand is concentrated.

In 2007 we still know little about who consumes housing: what size and type, what quality and where this housing is located within our regions, and how consumption decisions are related to price and to tenure choice, modal choice and their relationship to employment type and location. Correspondingly, while we know that external shocks do find their way into the housing market we do not know the paths they taken or what the distributional consequences are likely to be.

A few examples of the kinds of questions we want to be able to address are as follows.

Example 1: How does the entry of new migrants (from inside or outside New Zealand) impact the local housing submarkets within the region? How are direct effects manifest in realized demand for housing bundles of particular types of dwelling, different neighbourhoods at different price levels? What indirect effects do such entrants have on the purchase/rental decisions of others in the housing market? What impact do relative preferences for new over existing housing have for the filtering process and the possible supply of older stock for lower income households?

Example 2: How does the exit of people, their out-migration, affect local housing demand: what, where and when? What are the vacancy chain and price effects of such exits within the region?

Example 3: How does the tenure decision relate to the type of house and location? Given the high price of entry to many city markets how important is the tenure decision, the decision to own, in driving demand in to lower cost ex-urban and even rural sites?

We propose the application of a residential location choice modeling framework to unit record 2006 census data in Canterbury and Northland regions which, together with supplementary data, will allow different choice profiles to be estimated for different groups of recent buyers and renters within the two regions. From these estimates it will be possible to generate useful scenarios of future housing demand given assumptions about population growth, their antecedents in natural increase, as well as both internal and international migration. Details of the method and the likely research team skill sets are given in section 4, page

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Introduction

This scoping report comes on the heels of three other investigations within the CHRANZ work programme: in Nelson/Marlborough/Tasman (Grimes and al., 2006), Bay of Plenty (Capital_Strategy_Ltd, 2007) and the on-going research into Auckland (Grimes et al., 2006a). In each case a great deal of attention is paid to the relationship between housing supply and prices particularly their interrelated behaviour in the short-run. We believe that there are now considerable advantages in devoting resources to a study of the housing demand choices which are currently helping to drive many of the supply issues. Our recommendation therefore constitutes a point of departure for the CHRANZ and the New Zealand research more generally. Specifically, we are recommending attention be paid to contemporary *intra*-regional expressions of housing demand.

As we detail below, there has already been considerable research which recognizes sub-national differences in both the New Zealand economy and a few on the way local markets actually work (e.g. Grimes et al., 2006b). Over the last decade we have collectively compared regions, territorial local authorities, area units and even mesh blocks (Maré et al., 2001b). Solid use has also been made of specially constructed functional regions such as local labour market areas (Maré and Timmins, 2004). Despite this attention, when it comes to housing itself the main focus has been on housing supply. It is true that there has been research on economic growth, incomes as well as on migration both at a descriptive and analytic level which bears on the choice of region of residence, and there has also been ongoing work focusing on *intra*-regional settlement patterns including; their demography (Migration_Research_Group, 2006). Note however focuses explicitly on housing demand within the primary local labour markets of the regions themselves.

The major gap we believe lies in our understanding of *intra*-regional demand for housing particularly the location decisions taken by different types of households with different life style and investment preferences and budget constraints. We currently know little about what drives contemporary house (and section) purchasers to lives at particular locations within a region, in what kind of dwelling and under what tenure. SWe also know little about what the actual and potential environmental and distributional consequences might be. What we do know is that collectively we are exhibiting increasing diversity in our housing choices.

The diversity in contemporary housing choice has been well illustrated in the recent CHRANZ funded research on the future of housing in which Bates and Kane use scenario

planning techniques to develop five housing scenarios depicting different regional, demographic and socio-economic contexts within which hypothetical households make decisions on their housing consumption (Bates and Kane, 2006). Implicitly their work invites a much deeper understanding of the reasons for, and spatial correlates of their contrasting housing preference scenarios.

In this scoping report we argue that there is a logical and valuable next step within the CHRANZ research programme which is to model and possibly even simulate a range of housing demand profiles in a spatially explicit way but to do so within the specifics of contrasting regional contexts. As many reports now stress, regions in New Zealand *are* different; they depend on different ‘exports’, they rest on quite different geographies, and their labour is differently distributed over the occupation x industry matrix, their housing market responses are often quite different and uncorrelated and their demand profiles and revealed preferences are modified by location conditions.

That our brief includes Northland and Canterbury is particularly fortuitous because at present these two regions are positioned at opposite ends of current regional development continuums (Neary, 2001, NZIER, 2004). Northland remains *relatively* rural, returns a low median family income, is home to a high proportion of Maori, experiences relatively high out-migration of their young men and women, takes relatively few settlers from overseas, and for each of these reasons carries high dependency loads both demographically and economically. The links to neighbouring Auckland are manifold and this proximity may help explain why house prices in the region remain surprisingly high despite hosting sluggish markets in other respects. The resulting competition for dwellings from within and just beyond Northland puts pressures on the rental markets both urban and rural especially for the relatively young and lower income Northland population. It also places related pressures on amenity locations.

Canterbury is the mirror opposite. Although still resting on a primary export base, a much larger proportion of its substantially larger population live in a more highly urbanized settlement structure, enjoy a highly developed transport infrastructure and more highly accessible environment. Although resident to almost as many of Maori descent as Northland, Maori in Christchurch are younger, more recent settlers, remain a small minority and carry relatively fewer iwi ties to their location. In contrast to Northland, Canterbury is also host to larger and increasing number of overseas migrants as well as new settlers from a wider range of regions across the country. Although interacting intensively with its neighbour Otago, Canterbury does not exhibit the dependency structure apparent in Northland’s relationship with its vastly bigger and more powerful neighbour, Auckland.

Intriguingly, and in spite of these many differences both regions face similar pressures within their housing markets and associated urban environments. It is this paradox which opens up opportunities for research because, for all their differences, these two regions are subject to many of the same pressures: an aging population, on-going housing affordability constraints, unprecedented levels of immigration from often

culturally different origins similar media and commercial driven pressures to consume in ways which are closely tied to establishing rank, status and identity through the dwelling purchase decision.

The housing (and associated employment) issues we raise in this scoping report focus on the demand side of the housing equation. This reflects the fact that the issues we have identified in the field have a great deal to do with the (re)distributional consequences of current demand trends within the housing market particularly the changing relative access of different socio-economic groups to housing of socially acceptable quality. Ironically these (re)distributional issues prevail at a time of buoyant overall demand, low unemployment, and unprecedented residential investor activity.

Many issues of (re)distribution – who gets what - have to do with the extension of residential development into greenfield sites as well as residential intensification within existing built up areas and the ability of local authorities to reconcile competing political pressures. They also have to do with the broader societal consequences of particular expressions of contemporary demand and how this demand gets expressed in the physical *and social and* cultural environments (Murphy et al., 2003).

We begin in **section 1** with a summary of the characteristics of the two regions. The purpose of this section is to highlight the scope for a detailed comparison of the different ways in which demand for housing and associated labour market conditions might vary by geographical context.

Section 2 introduces a simple conceptual framework whose purpose is to highlight three different spheres within which housing demand is currently being transmitted. We introduce these as ‘employment’, ‘amenity’ and ‘club’ housing markets, the latter referring to the growing presence of exclusionary regimes. While the concepts are quite general the returns to their application lie in highlighting the *range* of the ways demand can be expressed in regions with otherwise quite different housing geographies.

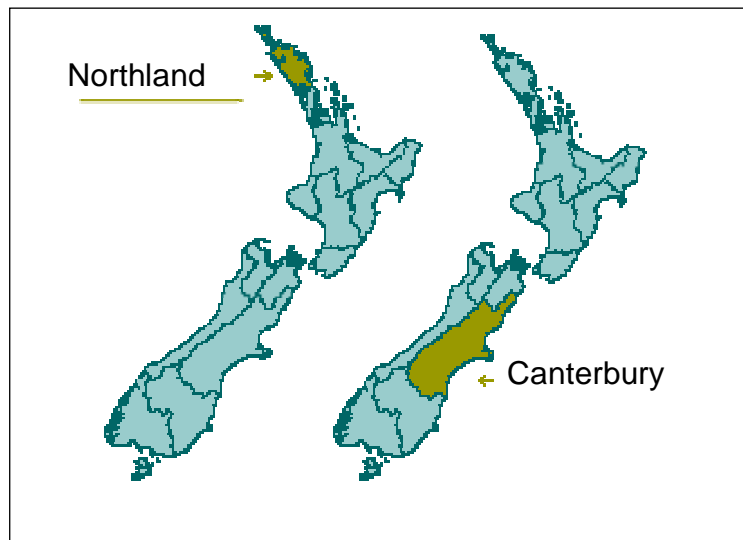
Section 3 considers three specific issues identified in the field. The first is the on-going debate over consolidation (intensification) of residential development. Particularly pertinent to the Christchurch case, this also has relevance to the case of Whangarei and its surrounding smaller settlements. The second issue concerns the pressure of demand on high amenity land, most particularly coastal properties. The third, largely confined to Northland, addresses is the issue of Maori rural housing.

Section 4 focuses on how research into the demand drivers and their expression might be undertaken. The central research question is posed and a residential choice analysis is suggested as an appropriate research strategy.

Section 1. Northland and Canterbury

We are dealing in this scoping report with two New Zealand regions whose differences in most salient respects are quite marked. In population terms Northland with a March 2006 population of 148,470 is under a quarter the size of Canterbury which has over half a million people, 537,492. In 2006 these populations were housed in 39,456 and 142,059 dwellings that were distributed over quite different sized areas: 13,789 km² and 44,638 km² respectively. Both are still very low population density regions by New Zealand metropolitan (and of course by OECD) standards – at 10.8 and 11.7 people per square kilometer respectively. This low density feature of these two regional markets is particularly central to understanding the nature of housing demand as it is in Australasia as a whole.

Figure 1. Location of Northland and Canterbury regions in New Zealand



Source: Statistics New Zealand maps

A brief introductory reference to their topography helps explain much that differentiates these two regions. While Northland is distinctive in having few mountain ranges (the highest point in the south Hokianga is only 781 metres above sea level), much of the region still consists of rolling hill country with the main flat lowlands around the Awanui and Northern Wairoa Rivers.¹ Northern summers are warm and humid while winters are generally mild, a feature of some importance in considering comparative housing, design, heating and running costs in the two regions. Twenty two percent of the region remains in indigenous forest but only 5 percent of the original coastal and freshwater wetlands remain.

¹ The Northland Community plan, which may be found in http://www.nrc.govt.nz/reports.and.news/annual.plan/06%20LTCCP%20Finals/NRC_LTCCP_2006_V1.pdf

The economy is largely agricultural with well over half the land devoted to dairy, beef and sheep farming. Northland produces 26 percent of the country's meat exports and 10 percent of its milk production. The expansion of forestry, horticulture and fishing is contributing to the region's growth and diversity. As a popular holiday destination, tourism is a significant industry. The country's only oil refinery is located at Marsden Point as a recent deepwater port. About 55, 000 employees work for almost 17,000 businesses and Northland's gross regional product of \$3.4 billion annually represents about 3 percent of the national total. There has been a steady growth in regional economy activity although average annual incomes remain relatively low.

In contrast, Canterbury is characterized by a variety of distinct physical landscapes that include coastal areas, the Canterbury Plains, hill country, high country and alpine areas. The Alps lie at an angle to the prevailing westerly air flows and have a significant influence on regional weather patterns. The Alps act as a rain shelter and Christchurch has an average annual rainfall of 648 millimetres (approximately half that of Auckland and Wellington). Moreover Nor'wester winds are hot and dry and ensure that the Canterbury Plains are subject to drought, which influences the nature of agricultural activities in the region and renders water control a major feature of environmental management. Pastoral farming is dominant and forestry is a relatively minor agricultural activity.²

Canterbury occupies an important role in agriculture at a national level. In 2002 the region accounted for 12.5% of the national sheep flock, and grew 60.7% of the country's wheat, 51.1% of the barley and 43.7% of the oats. Agriculture is dependent on irrigation and the region has over 188,000 hectares of irrigated land, which is almost half of the New Zealand total. Most of the irrigation took place in the post 1980s period (Wilson, 2007).

Notwithstanding the significance of the agricultural sector, the regional economy is dependent on manufacturing, particularly the fast growing food, beverage and tobacco manufacturing sector. In addition, Canterbury is dependent on trade and tourism and other services which are also fast growing industries (NZIER, 2004). In a review of regional economies in New Zealand, Canterbury was a star performer. Regional GDP in 2004 amounted to \$19.9 billion and the "Canterbury economy accounted for 14.6% of total economic activity in New Zealand" (NZIER, 2004 p64). Significantly, for the period 2000 to 2004, Canterbury experienced the second fastest regional economic growth rate in the country, averaging 4.8% compared to a national figure of 3.5% (NZIER, 2004)

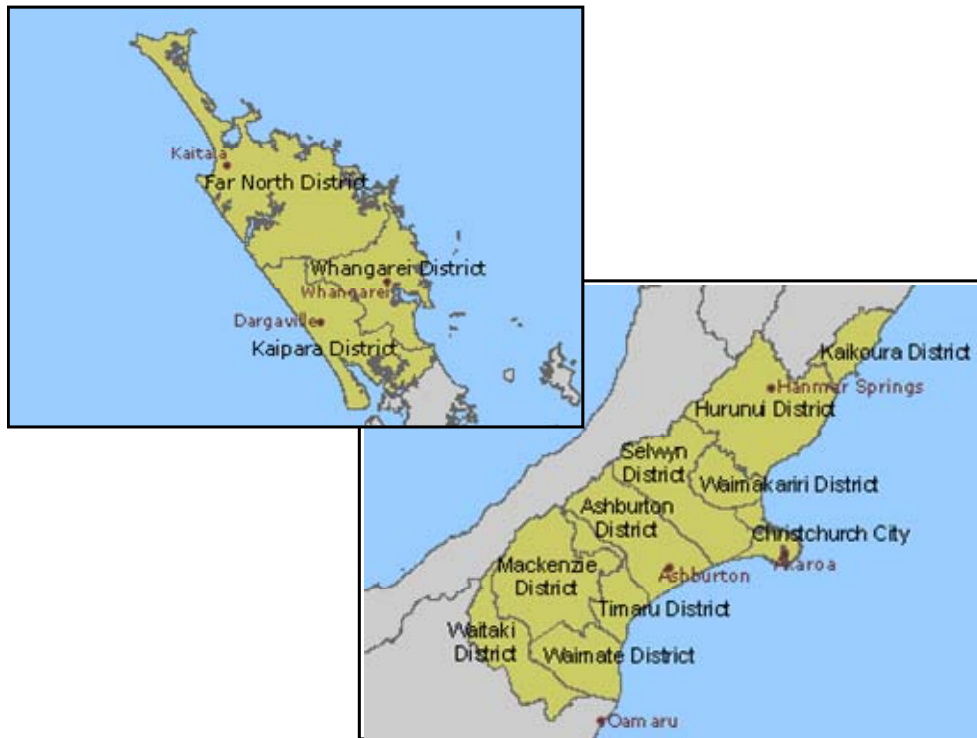
One of the ways in which the two regions differ most is in their infrastructure. Highly accessible throughout, the Canterbury region with its river dissected but otherwise

² Full details may be found on the Environment Canterbury web site and links:
<http://www.ecan.govt.nz/home/>

relative flat topography stands in marked contrast to the elongated, hilly and water separated Northland where roads are often narrow with a predominantly north-south access making east-west travel difficult and expensive. In comparison with all other regions less than 30 percent of the rural roads in Northland are sealed although major investments are now under way. As in other regions provision of an adequate electricity supply is a concern particularly with the likely development of new timber processing plants to cater to the region's extensive and rapidly maturing exotic pine forests. The use of the internet is also lower in Northland than the national average due to current limitations in broadband capacity and a matter of some significance in a highly dispersed settlement system.

Northland is broken down administratively into three Territorial Local Authorities: Far North, Whangarei and Kaipara Districts as shown in Figure 2. By contrast Canterbury has one city, Christchurch, and ten separate districts: Hurunui, Waimakariri, Banks Peninsula, Selwyn, Ashburton, Timaru, Mackenzie, Waimate, Chatham Islands and Waitaki. Table 1 shows their respective populations in 2001 and 2006.

Figure 2. Local authority boundaries for Northland and Canterbury Regions



Source: Statistics New Zealand maps

While aggregate statistics help in contrasting regions within one another they are typically a very poor guide to what is happening *within* regions. As recent work on the income distribution has shown for example, while *inter*-regional variations may be converging, *intra*-regional differentiation is increasing (Karagedikli et al., 2000, Karagedikli et al., 2003) In fact, as a Treasury report observed recently much of the variation (in deprivation) is actually contained *within* the much smaller meshblocks (Maré et al., 2001a).³

In addition to highlighting jurisdictions Table 1 also reminds us how unevenly the populations are distributed within both regions. This same table also highlights differential growth rates within each region in the Canterbury region, where excluding the continuing loss of population from the Chathams, growth rates range from the virtually static Waitaki population through an increase of over one fifth in the Selwyn District. Net additions also vary significantly with over 24 *thousand* being added in Christchurch City compared to only 84 people in the MacKenzie District. Meanwhile, the Whangarei District continues to absorb much of the population growth in Northland. Common to both regions is the disproportionate growth being experienced within their metropolitan centres and their expanding peripheries.

Table 1. Population counts 2001 and 2006 by Territorial Local Authority, Canterbury and Northland regions.

Region	2001	2006	Growth	Percentage growth
Northland				
Far North District	54576	55845	1269	2.30%
Whangarei District	68094	74463	6369	8.94%
Kaipara District	17460	18132	672	3.78%
Canterbury				
Hurunui District	9885	10476	591	5.81%
Waimakariri District	36900	42834	5934	14.88%
Christchurch City*	324057	348435	24378	7.25%
Selwyn District	27312	33666	6354	20.84%
Ashburton District	25443	27372	1929	7.30%
Timaru District	41964	42870	906	2.14%
Mackenzie District	3717	3801	84	2.23%
Waimate District	7098	7206	108	1.51%
Chatham Islands District	717	609	-108	-16.29%
Waitaki District	20088	20223	135	0.67%

* includes Banks Peninsular

Source: Statistics New Zealand, Table Builder

Canterbury grew more rapidly than Northland in both the previous inter-censal periods but the difference accelerated over the 2001-2006 period. In three of the four periods

³ Also see CRAMPTON, P., SALMOND, C. & KIRKPATRICK, R. (2004) *Degrees of deprivation in New Zealand. An atlas of socioeconomic difference*, Auckland David Bateman.

the dwelling stock grew faster than the population (see Table 2), the exception being the slower rate of dwelling growth in Canterbury between 2001-2006. While the occupancy rate has continued to fall in both regions, Northland dwellings continue to house more people per dwelling.

The internal diversity of both regions is well illustrated in Table 3 for the usually resident population and occupied dwellings respectively. Not only do their districts vary markedly in size – from 348.4 thousand in Christchurch City through to 612 in the Chathams in the Canterbury case, and 74.5 thousand in Whangarei compared to 18 thousand in Kaipara - their rates of growth are also highly variable from outright declines through to double digit growth.

Most striking is the growth in areas surrounding the two major cities; evident here in the recent 23.3 and 16.1 percent growth in Selwyn and Waimakariri Districts respectively. More remote areas meanwhile are either declining or growing much more slowly – as evidence in Waimate, Mackenzie and Kaikoura Districts. A more sensitive picture of the Northland case requires area unit data whose detail lies beyond the coverage of this scoping report but is easily accessible from the recent 2006 census.

**Table 2. Usually resident population and occupied dwellings.
Northland and Canterbury regions, 1996, 2001, 2006**

	Northland	Canterbury
Land area, km ²	13,789	44,638
People per km ²	10.77	11.69
Population 2006	148,470	521,832
Population 2001	140,133	481,431
Population 1996	137,052	468,039
Population % increase 1996-2001	2.2	2.9
Population % increase 2001-2006	5.9	8.4
Occupied dwellings 2006	55,932	202,698
Occupied dwellings 2001	52,089	187,584
Occupied dwellings 1996	48,666	176,256
Dwelling % increase 1996-2001	7.0	6.4
Dwelling % increase 2001-2006	7.4	8.1
Occupancy rate 2006	2.7	2.6
Occupancy rate 2001	2.7	2.6
Occupancy rate 1996	2.8	2.7

Source: http://www.localcouncils.govt.nz/LGIP.nsf/wpg_URL/Councils-A-z
<http://www.stats.govt.nz/NR/rdonlyres/C2D66480-191C-4E9A-99A0-D644>

What a comparison of Tables 2 and 3 reveal is the relatively slow response of the housing stock to changes in population. Population growth rates are much more variable than the dwelling stock in the same area. While we now know more about supply responses to price/development cost differentials, as well as how these vary across Regions and TLAs (Grimes and Aitkin, 2004), we have much to learn about how these relationships operate in different housing submarkets as well as the consequences they have for the way an increasing population of buyers is redistributed across a relatively stable stock.

Table 3. Usually resident population. City and Districts within Northland and Canterbury regions, 1996, 2001, 2006

Territorial Authority	1996 Census Usually Resident Population Count	2001 Census Usually Resident Population Count	2006 Census Usually Resident Population Count	Increase or Decrease (-) 1996–2001		Increase or Decrease (-) 2001–2006	
				Number	Percent	Number	Percent
Northland							
Far North District	52,935	54,576	55,845	1,641	3.1	1,269	2.3
Whangarei District	66,747	68,094	74,463	1,347	2.0	6,369	9.4
Kaipara District	17,370	17,460	18,132	90	0.5	672	3.8
Canterbury							
Kaikoura District	3,516	3,483	3,621	-33	-0.9	141	4.0
Hurunui District	9,402	9,885	10,476	483	5.1	591	6.0
Waimakariri District	32,346	36,900	42,834	4,554	14.1	5,934	16.1
Christchurch City ⁽¹⁾	316,608	324,057	348,435	7,449	2.4	24,378	7.5
Selwyn District	24,783	27,312	33,666	2,529	10.2	6,354	23.3
Ashburton District	25,179	25,443	27,372	264	1.0	1,929	7.6
Timaru District	42,633	41,967	42,867	-666	-1.6	900	2.1
Mackenzie District	4,077	3,717	3,804	-360	-8.8	87	2.3
Waimate District	7,620	7,101	7,206	-519	-6.8	105	1.5
Chatham Islands Territory	729	717	612	-12	-1.6	-108	-15.1

Source: www.stats.govt.nz/NR/rdonlyres/C2D66480-191C-4E9A-99A0-D64813DF2797/0/FinalCountTablesRCandTA1.xls

Table 4. Occupied Dwellings. City and Districts within Northland and Canterbury regions, 1996, 2001, 2006

Territorial Authority	1996 Census Occupied Dwelling Count	2001 Census Occupied Dwelling Count	2006 Census Occupied Dwelling Count	Increase or Decrease (-) 1996–2001		Increase or Decrease (-) 2001–2006	
				Number	Percent	Number	Percent
Northland							
Far North District	18,276	19,806	20,712	1,530	8.4	906	4.6
Whangarei District	24,069	25,647	28,149	1,578	6.6	2,502	9.8
Kaipara District	6,324	6,630	7,044	306	4.8	414	6.2
Canterbury							
Kaikoura District	1,341	1,413	1,527	72	5.4	111	7.9
Hurunui District	3,693	3,978	4,332	285	7.7	357	9.0
Waimakariri District	11,652	13,647	15,948	1,995	17.1	2,304	16.9
Christchurch City ⁽¹⁾	119,760	126,645	135,261	6,885	5.7	8,613	6.8
Selwyn District	8,085	9,396	11,634	1,311	16.2	2,235	23.8
Ashburton District	9,699	10,227	10,974	528	5.4	747	7.3
Timaru District	16,707	17,109	17,688	402	2.4	579	3.4
Mackenzie District	1,620	1,560	1,608	-60	-3.7	48	3.1
Waimate District	2,940	2,907	3,003	-33	-1.1	93	3.2
Chatham Islands Territory	270	258	258	-12	-4.4	-	0.0

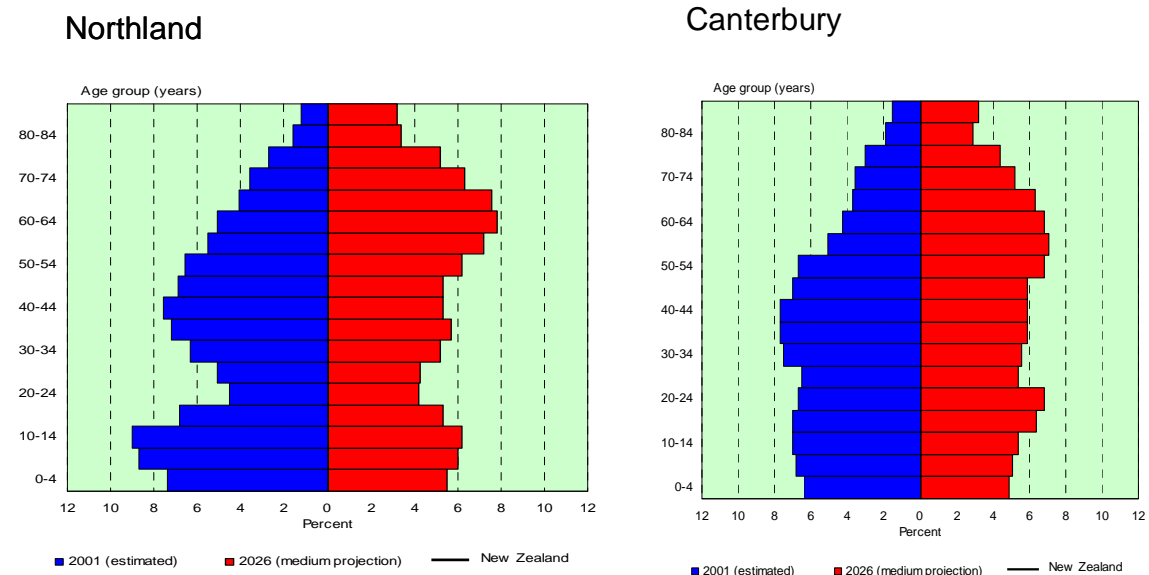
Source: www.stats.govt.nz/NR/rdonlyres/C2D66480-191C-4E9A-99A0-D64813DF2797/0/FinalCountTablesRCandTA1.xls

In summary the two very different regions of Northland and Canterbury offer something of a ‘natural experiment’ which we can use to assess the way in which otherwise similar housing demand drivers end up yielding different magnitudes, types and geographies of consumption. Central to any systematic enquiry into the pattern of regional demand are differences in population structures to which we now turn.

Regional demographics

The contrast in the age distribution of the two regions is striking: see Figure 3 with the 2001 on the left and projections to 2026 on the right *within* each graph. Canterbury’s age pyramid has all the ‘coffin’ shaped characteristics of a mature economy with its much more even distribution of population over the age groups. The distribution is only *relatively* even however and when it is projected through the next quarter century will bring with it altered dependency ratios and housing demand, requiring housing supply to be increasingly orientated to the needs of an older population.

Figure 3. The current and median projected distribution of population by age group in Northland and Canterbury regions, 2001-2026



Source: Statistics New Zealand

By contrast Northland has many of the hall marks of a less developed economy with its heavy child and parent based age distribution. Whereas Christchurch’s projections are largely of an aging of the 2001 distribution, the expected out-migration of the young in Northland is expected to decrease the numbers resident in those cohorts. Their parents aging in situ is clearly visible by comparison. The result is a much more marked shift in the age composition projected for the Northland region.

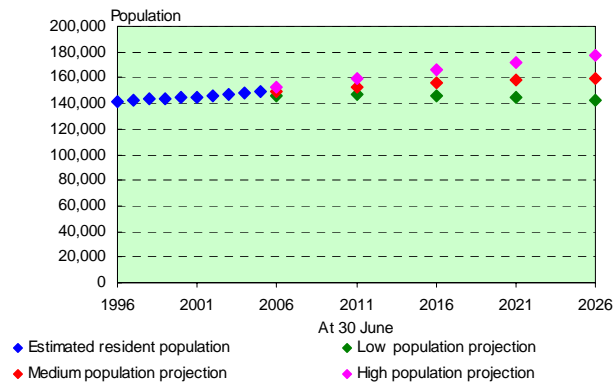
The future

The recent past and present demography of each region is basic to an understanding of contemporary patterns of housing demand but so too are expectations of the future changes in population, age and income structures. Indeed, it is speculative behaviour that governs much of the real estate market. Projections therefore have contemporary consequences.

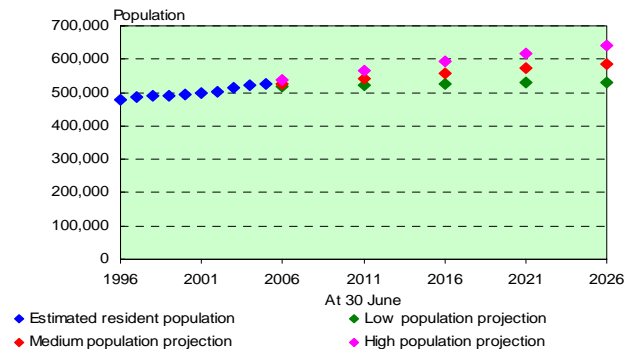
The following graphs for the two regions, Figure 4, depict past and projected growth. Over the last decade Northland’s population grew from 140,700 to 148,900, an increase of 5.8 percent but the medium projected increase over the next decade is for a decreased growth of 4.6 percent and an estimated total of 155,700 residents by 2016. By 2026 numbers are only expected to rise a further 3,900.⁴

Figure 4. Population growth and projections for the Northland and Canterbury regions, 1996 - 2026

Northland Region



Canterbury Region



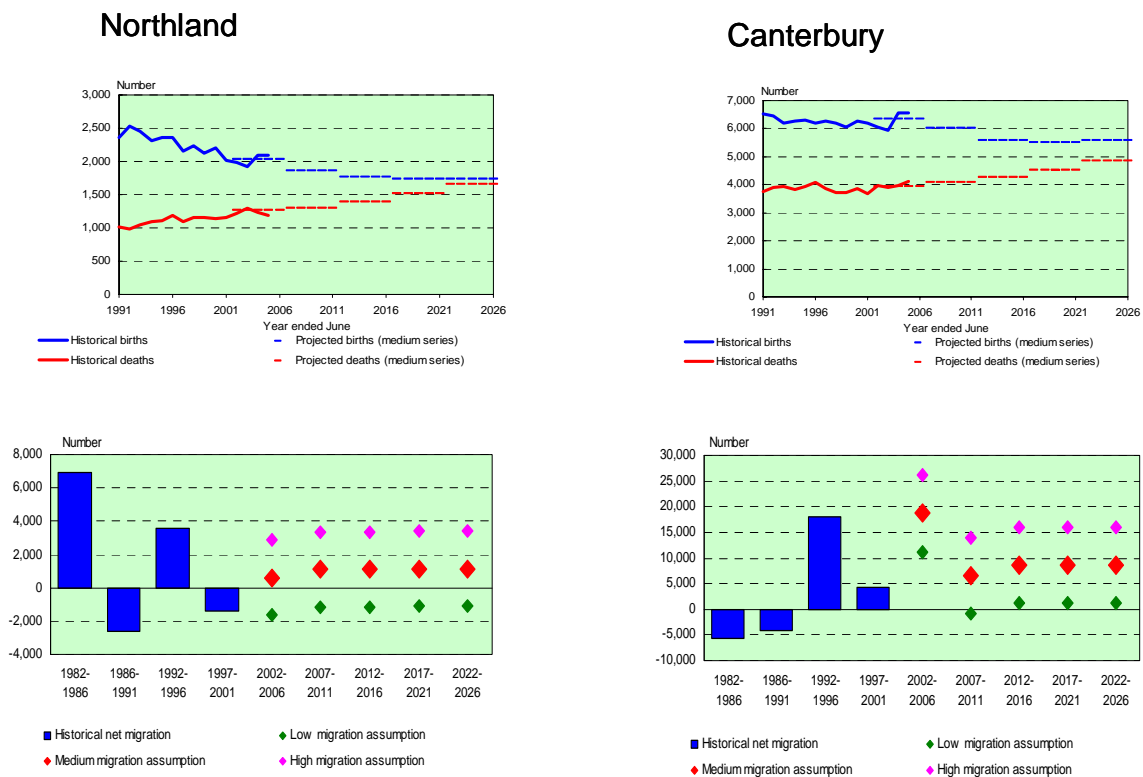
Source: Statistics New Zealand population projections by region

⁴ Figures used here come directly from the Statistics New Zealand subnational projects as presented on their website.

By contrast Canterbury’s growth was almost twice that of Northland over the same period: 9.9 percent from 1996 to 2006 generating a population in March of last year of 527,400. In fact, Canterbury was the second fastest growing region after Auckland over this last decade. Although also expected to decrease through to 2016 the rate of 5.9 percent is not as slow as expected for Northland. Canterbury’s projected growth through to 2026 is for an addition of 25,800, a full 6.6 times the numbers expected in Northland.

These foregoing projections were constructed from past behaviour of two components of population growth, natural increase and migration.⁵ Figure 5 shows how the behaviour of these components differ for the two regions between 1991 to 2006 with projections through to 2026; note in particular the rapidly falling number of births in Northland compared to Canterbury as well as the more rapidly rising deaths. The consequences is a much higher net addition via natural increase in Canterbury through to 2026.

Figure 5. Population growth and projections for the Northland and Canterbury regions, 1991 - 2026

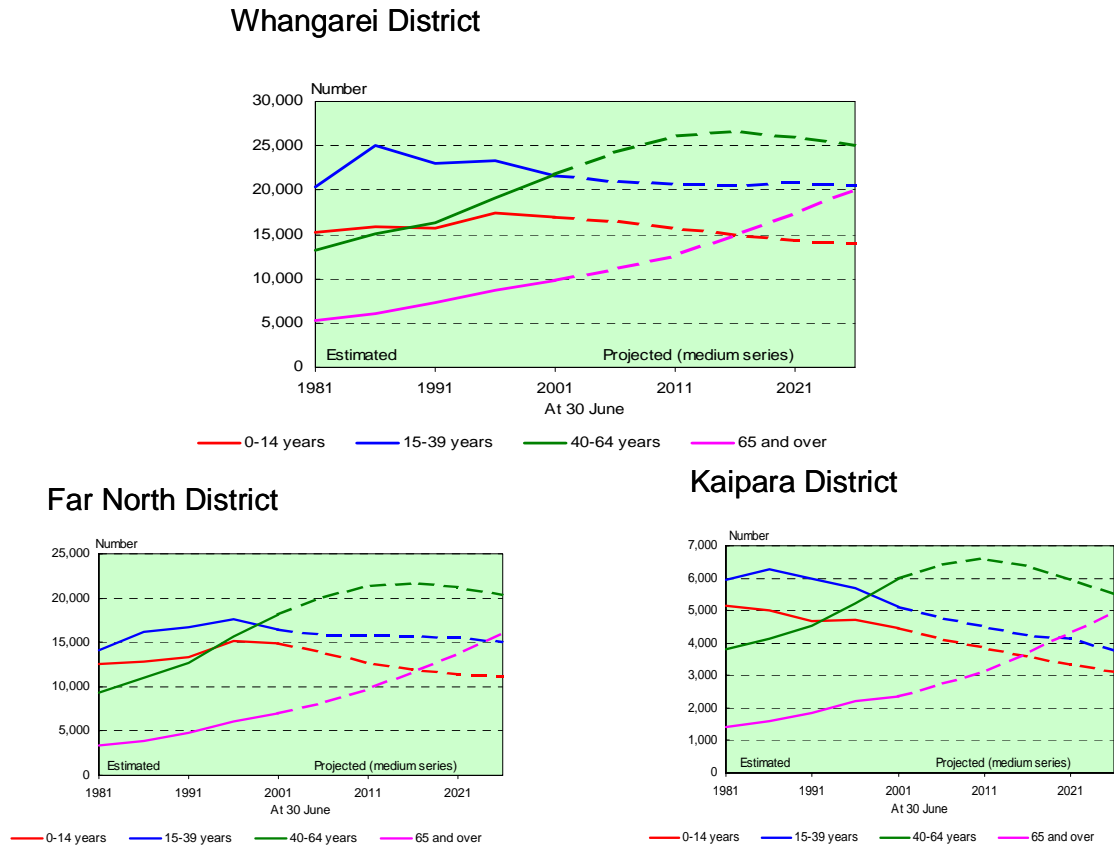


Source: Statistics New Zealand population projections by region

⁵ For a further discussion of these components in a regional context see DEPARTMENT_OF_LABOUR (2007) Regional labour market overview 2006. Wellington Department of Labour.

Useful though they are, projections for aggregates contain no information on the variation of population growth *within* the regions. The three districts in Northland, shown in Figure 6, provide contrasting expectations of growth within that region, both in aggregate but also by age group. Such diversity is quite relevant for this scoping paper because it points to the uncertainty of sub-regional population change

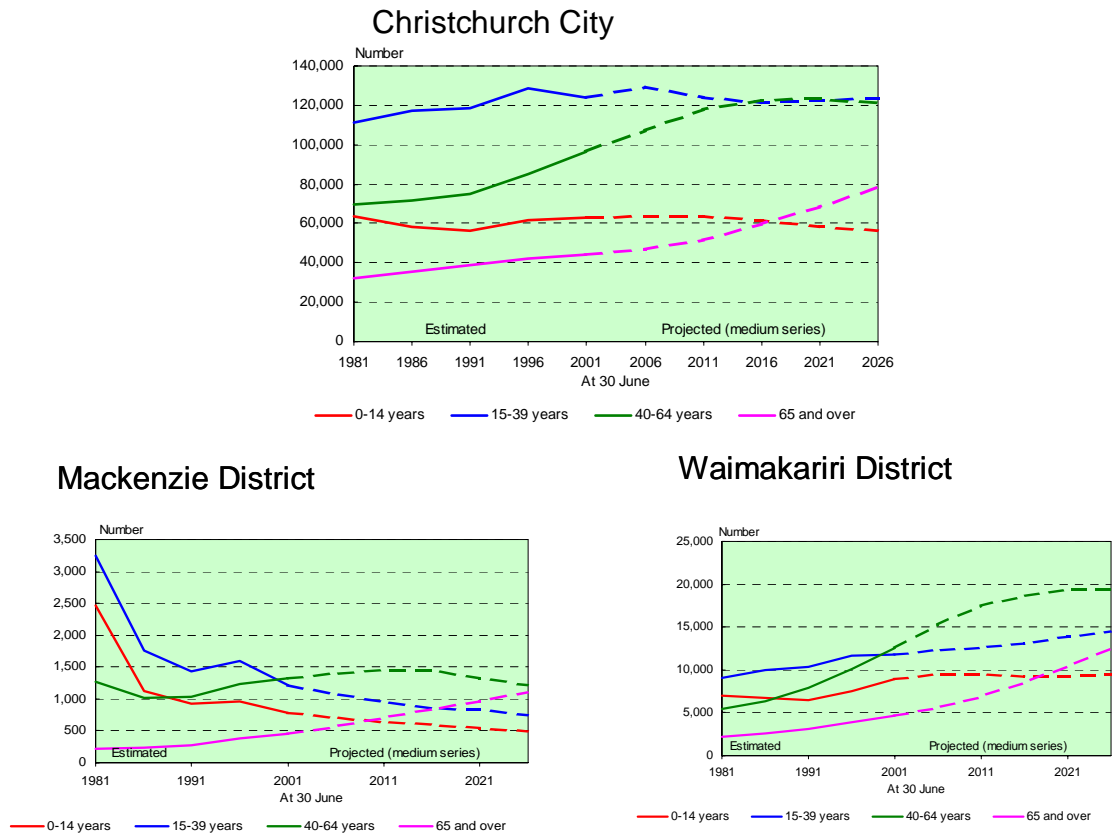
Figure 6. Population projections for districts in the Northland region, 1981 to 2021



Source: Statistics New Zealand population projections by region

Canterbury, with many more districts, also presents a highly variable picture in terms of where its growth is projected to occur; see Figure 7. Just three districts including Christchurch city are sufficient to draw attention to this diversity. In each case the four age groups take quite different trajectories relative to each other, underscoring again the importance of locational choice in housing demand.

Figure 7. Population projections for selected districts in the Canterbury region, 1981 to 2021



Source: Statistics New Zealand population projections by district

Households

While many future investments in real estate are tied closely to population growth, when it comes to housing, the key unit of analysis is actually the household. One of the dramatic shifts in New Zealand society over the post war period has been the changing relationship between population and households. The story is one of increased fragmentation of the population into finer and finer household units. Not only have the number of households (and hence dwellings) grown more rapidly than the population but the composition of these households has shifted, largely out of nuclear families into a much wider variety of single, couples without children as well as new mixes of blended families. These trends challenge not only the planning of housing but also the planning of work (see Callister, 2000) but also the relationship between the two.

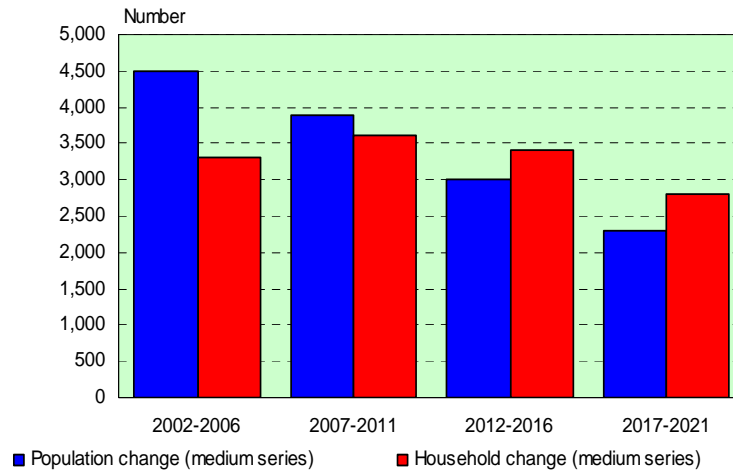
The difference between population and household projections are clearly depicted by Statistics New Zealand whose graphs are reproduced in Figure 8. As they counsel on their web site, although houses are being built, this may not translate into more people

residing in an area. This could be due to such factors as fewer people per household on average, the building of holiday homes, or new buildings replacing demolished houses.

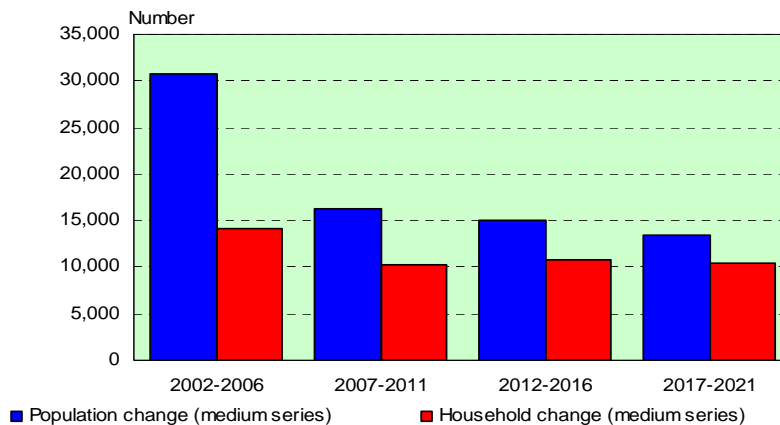
The general aging of the population and its association with couples living without children or as one person households helps account for why, when quinquennial population increments are projected as falling through to 2021 (according to the median series), the number of dwellings is projected to hold steady or grow, Figure 8.

Figure 8. Population and household projections for the Northland and Canterbury regions, 2002 through 2021

Northland



Canterbury



Source: Statistics New Zealand population projections by population and household

What is striking in Figure 8, and this underscores the value of the inter-regional comparisons being proposed here, is just how much more rapidly households are expected to grow relative to population in Northland compared to Canterbury: see 2012-2016 and 2017-2021 in Figure 8. The implication of course is that occupancy rates are going to fall more rapidly in the north, largely as a consequence of the difference in age structure: recall Figure 3. The difference between the two regions does not end here of course but is exaggerated by their different migration experience.

Migration

The future composition of a region is heavily influenced by the assumptions made about both internal and international migration, as indicated recently in the forecasts prepared for the Bay of Plenty (Bedford et al., 2006). The differential migration behaviours of young and older residents is well known and is reflected in the experience of both regions over the 1997 to 2001 period in the following graphs prepared by Statistics New Zealand.

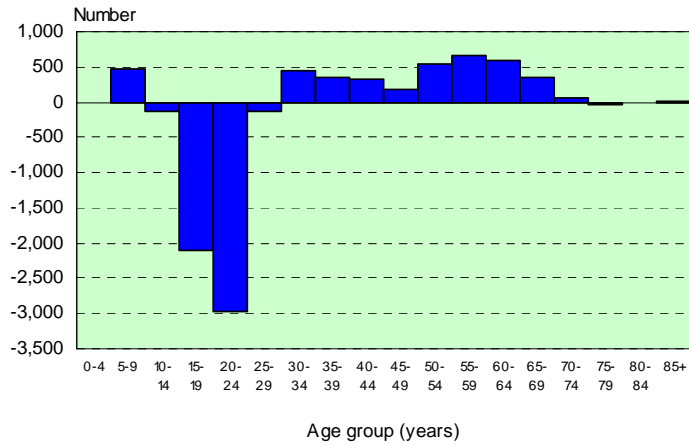
Figure 9 shows net migration by age in the two regions. The marked outflow of young people in Northland contrasts with their net inflow into Canterbury. As Statistics New Zealand point out in their commentary, university cities generally experience large net migration flows in the 15-19 and 20-24 age groups, while most other areas experience large net migration outflows in these age groups.

As our local and regional economies become more open, turnover increases and localities experience higher levels of ‘traffic’ or ‘churning.’ Demand for local housing is dependent in other words on what is happening elsewhere in the country and internationally. Knowing the origins *and* destinations of migrants within New Zealand, their demographic and socio-economic characteristics and why they migrate, is becoming more and more important in understanding the kind of pressure local housing markets are under. What we lack at present is a way of formally identifying the likely impact of these movements on local housing markets: on prices, elasticities of supply and on the way existing properties are adapted or adjusted to accommodate demand expectations that internal and international migrants bring with them. Any planning for these impacts presupposes we know how demand expresses itself.

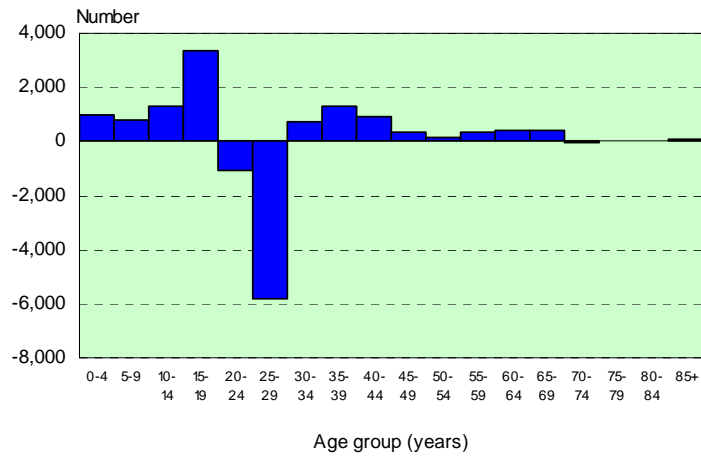
We discuss the kind of research that might redress the gap in our understanding of local housing demand in more detail below but for now it is instructive simply to illustrate the in and out migration profiles for the two regions over the 2001-2006 period. As Figure 10 A and B shows, both regions experienced a net in-migration but even with its larger population Canterbury was clearly attracting a much larger proportion from the rest of the country and in fact experienced the largest net gain of any region over this period. In fact Canterbury’s only net *loss* over this period was to Wellington.

Figure 9, Net migration by age in Northland and Canterbury regions, 1997-2001

Northland



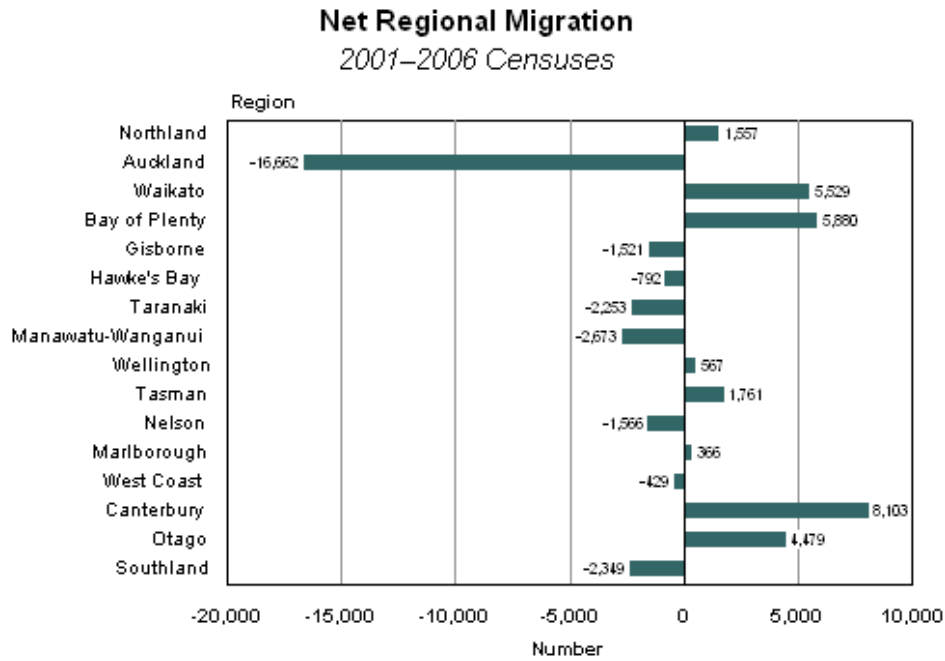
Canterbury



Source: Statistics New Zealand net migration migration by age.

Figure 10. Net and gross in and out migration by region, 2001-2006

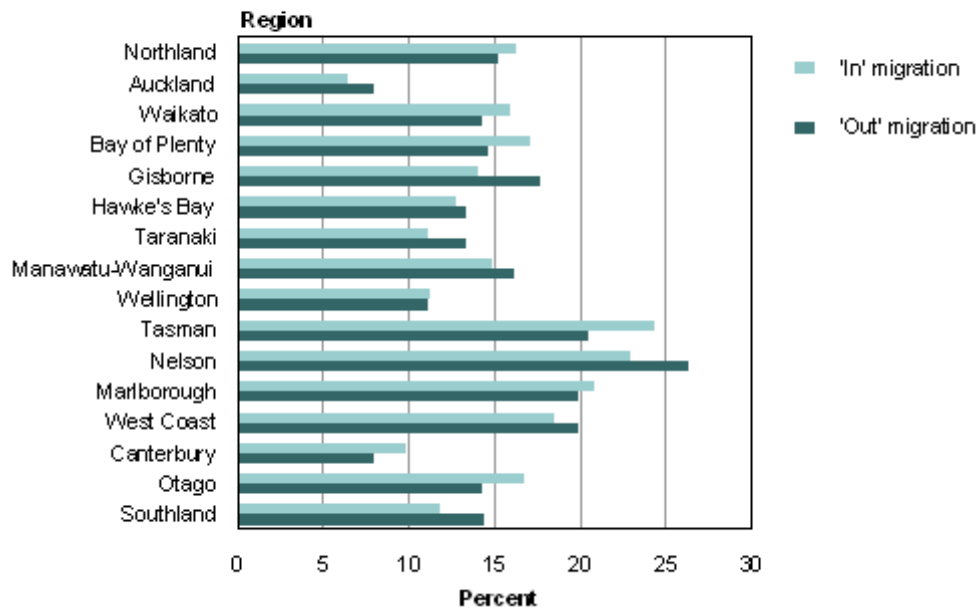
A.



Source: <http://www.stats.govt.nz/census/2006-census-data/quickstats-about-population-mobility/quickstats-about-population-mobility.htm?page=para009Master>

B.

Proportion of the Population Moving Into and Out of Regions
2001–2006 Censuses



Source: <http://www.stats.govt.nz/census/2006-census-data/quickstats-about-population-mobility/quickstats-about-population-mobility.htm?page=para009Master>

The different exposure of the two regions to new entrants is reflected in their different duration of residence distributions, Table 5. The 2001-2006 residential mobility rates were higher than the previous five years throughout New Zealand. By 2006 over half of Canterbury's population had lived in their current address for less than five years, and even those settling in the last 10 years were relatively higher in Canterbury. By comparison, Northland residents were more stable and experienced relatively fewer in-movers. (However Northland respondents were also less able to respond accurately and ended up being much more likely to be included in the Not Elsewhere included category.)

HERE

Table 5. The distribution of population by duration of residence in Northland and Canterbury regions, 2006

Years	Northland	%	Canterbury	%	Difference
Under 5	71,874	48.4	284,028	54.4	6.0
10	22,590	15.2	84,951	16.3	1.1
15	13,743	9.3	50,709	9.7	0.5
30	16,119	10.9	54,762	10.5	-0.4
Over 30	6,309	4.2	23,976	4.6	0.3
NEIncl	17,835	12.0	23,403	4.5	-7.5
Total	148,470	100.0	521,832	100.0	0.0

Source: <http://www.stats.govt.nz/NR/rdonlyres/893AD0B2-9AAA-49BF-A94C-5141B7733FBB/17882/2006censusqapm.xls>

One of the noticeable features of Canterbury is its much greater recent exposure to the overseas born. As the following table shows, of the overseas born currently living in Canterbury 47.1 percent had only been in the country for less than 10 years, compared to the 35.5 percent living in Northland. This difference in exposure to the overseas migrants born although diminished, also applied to those arriving in Canterbury a further 10 years back, Table 6.

Table 6. Years since arrival in New Zealand, for the overseas born (for the census usually resident population count). Northland and Canterbury regions, 2006

Years	Northland	%	Canterbury	%	Difference
Under 10	6,873	35.5	42,714	47.1	11.6
20	2,622	13.5	13,272	14.6	1.1
30	1,680	8.7	6,108	6.7	-1.9
40	3,195	16.5	10,290	11.4	-5.1
50	2,313	11.9	8,145	9.0	-3.0
Over 50	1,749	9.0	6,546	7.2	-1.8
NEIncl	933	4.8	3,537	3.9	-0.9
Total	19,362	100.0	90,615	100.0	0.0

Source: <http://www.stats.govt.nz/>

Having made these points about the importance of migration for population growth and composition, it is worth remembering that in no region was migration the primary source of growth (Pool et al., 2005), the primary point here being that the local housing markets in these two regions are still primarily subject to the way natural increase affects an existing population and hence to its age structure.

Overwhelmingly, the two regions remain subject to demand by quite different population compositions, a feature we see in some detail in the following table on the ethnic composition of in-migrants, Table 7. The rightmost column reminds us of the considerable difference in the ethnic make up of the two regions where the 75 percent European in Canterbury contrasts the much lower 63 percent in Northland. The difference is primarily due to the much higher proportion of Maori in Northland, nearly 30 percent compared to only 7 percent in Canterbury but also to the proportion of Asian, 7 percent vs 1.7 percent.

Much is made of the fact that not only is Northland the most rural of New Zealand regions but that it also has one of the highest proportion of Maori. The combination of rurality, the relative size of the Maori population and history is very important. In quantitative terms however it is worth noting that there is little difference between the number of people claiming Maori descent in the two regions, 47,295 in Northland compared to 46,131 in Canterbury. The difference of course is that the former make up 31.9 percent of the Northland population but only 8.8 percent of Canterbury's.

What is instructive, again when contemplating the housing market implications, is the combined difference in origins of movers into the two regions and their ethnicity. The proportions are shown in the table that follows the counts of Table 7. Not surprisingly, more Maori are coming into Canterbury from other places within New Zealand (but fewer Pacific people are for a larger proportion come directly from outside the country). In Northland by contrast natural increase plays a greater role than migration in increasing the number of Maori of course but also of Pacific Peoples. The other differences in the table are not as marked except to note how Canterbury is far more subject to migration directly from overseas than is Northland. Again, this difference may play an influential role in setting housing preferences, altering sensitivities to different financial constraints and in altering settlement behaviour. Migrants from outside an area are more likely to rent prior to buying for example.

Finally, with respect to migration, the substantial inter-change across the regions is apparent from the 2006 inter-regional migration matrix in Table 8. With flows in and out of the two regions highlighted it is clear how closely connected they are to each of the other regions in the country and therefore how employment and environmental impulses generated elsewhere can influence the two regions. Labour market conditions have been shown to play a role in explaining some of this movement (Maré and Timmins, 2004).

Table 7. The distribution of usually resident population by usual residence five years ago by ethnicity. Northland and Canterbury regions, 2006

Regional Council and Ethnic Group (Level 1 grouped total responses) ⁽¹⁾	Usual Residence Five Years Ago Indicator								
	Same as Usual Residence	Elsewhere in New Zealand	Not Born Five Years Ago	Overseas	No Fixed Abode Five Years Ago	Total Stated	Not Stated	Total	Percentage
Northland Region									
European	38,049	41,442	6,012	5,292	12	90,804	2,550	93,351	62.9
Māori	15,279	20,634	4,728	780	3	41,427	2,100	43,527	29.3
Pacific Peoples	951	1,821	636	144	0	3,552	150	3,702	2.5
Asian	645	912	228	723	0	2,511	69	2,580	1.7
Middle Eastern/Latin American/African	69	105	42	126	0	345	0	348	0.2
Other Ethnicity ⁽³⁾	6,357	6,807	792	423	3	14,379	357	14,739	9.9
Total Stated	54,564	61,686	9,492	6,984	18	132,744	4,563	137,304	92.5
Not Elsewhere Included ⁽⁴⁾	504	8,838	780	93	3	10,218	948	11,166	7.5
Total	55,065	70,524	10,272	7,077	21	142,959	5,514	148,470	100.0
Canterbury Region									
European	160,296	174,030	24,720	24,198	36	383,280	9,942	393,222	75.4
Māori	9,954	20,016	4,443	885	6	35,304	1,365	36,669	7.0
Pacific Peoples	3,240	4,752	1,476	969	0	10,440	486	10,926	2.1
Asian	6,201	8,493	1,635	12,192	3	28,518	651	29,172	5.6
Middle Eastern/Latin American/African	507	1,086	351	1,344	0	3,288	75	3,363	0.6
Other Ethnicity ⁽³⁾	30,450	31,554	4,353	2,295	9	68,664	1,593	70,254	13.5
Total Stated	199,974	222,570	31,737	40,623	48	494,949	13,233	508,185	97.4
Not Elsewhere Included ⁽⁴⁾	969	10,788	723	342	3	12,828	819	13,647	2.6
Total	200,943	233,358	32,460	40,965	51	507,777	14,055	521,832	100.0

	Same as Usual Residence	Elsewhere in New Zealand	Not Born Five Years Ago	Overseas	No Fixed Abode Five Years Ago	Total Stated
Northland Region						
European	41.9	45.6	6.6	5.8	0.0	100.0
Māori	36.9	49.8	11.4	1.9	0.0	100.0
Pacific Peoples	26.8	51.3	17.9	4.1	0.0	100.0
Asian	25.7	36.3	9.1	28.8	0.0	100.0
Middle Eastern/Latin American/African	20.0	30.4	12.2	36.5	0.0	100.0
Other Ethnicity ⁽³⁾	44.2	47.3	5.5	2.9	0.0	100.0
Total Stated	41.1	46.5	7.2	5.3	0.0	100.0
Not Elsewhere Included ⁽⁴⁾	4.9	86.5	7.6	0.9	0.0	100.0
Total	38.5	49.3	7.2	5.0	0.0	100.0
Canterbury Region						
European	41.8	45.4	6.4	6.3	0.0	100.0
Māori	28.2	56.7	12.6	2.5	0.0	100.0
Pacific Peoples	31.0	45.5	14.1	9.3	0.0	100.0
Asian	21.7	29.8	5.7	42.8	0.0	100.0
Middle Eastern/Latin American/African	15.4	33.0	10.7	40.9	0.0	100.0
Other Ethnicity ⁽³⁾	44.3	46.0	6.3	3.3	0.0	100.0
Total Stated	40.4	45.0	6.4	8.2	0.0	100.0
Not Elsewhere Included ⁽⁴⁾	7.6	84.1	5.6	2.7	0.0	100.0
Total	39.6	46.0	6.4	8.1	0.0	100.0

Source: <http://www.stats.govt.nz/NR/rdonlyres/893AD0B2-9AAA-49BF-A94C-5141B7733FBB/17882/2006censusqpm.xls>

The yellow shaded rows in Table 8 indicate where movers into Northland and Canterbury came from over the five years prior to March 2006. Both drew strongly from Auckland and Waikato but in addition Canterbury also drew substantial numbers of migrants from Otago, Manawatu-Wanganui, Wellington and Marlborough. By contrast Northland's migration catchment, was more concentrated and relatively local with an almost 60 percent of Northlands in-migrants coming from Auckland.

Table 8. The inter-regional migration matrix highlighting the Northland and Canterbury regions, 2006

Regional Council	Regional Council of Usual Residence Five Years Ago (2001)															People Moving into Region Between 2001	
	Northland Region	Auckland Region	Waikato Region	Bay of Plenty Region	Gisborne Region	Hawke's Bay Region	Taranaki Region	Manawatu-Wanganui Region	Wellington Region	Tasman Region	Nelson Region	Marlborough Region	West Coast Region	Canterbury Region	Otago Region		Southland Region
Northland Region	...	11,193	2,262	1,152	204	381	375	735	867	90	102	108	81	693	330	153	18,726
Auckland Region	7,773	...	12,936	7,026	1,065	2,532	1,785	4,482	9,951	384	564	612	282	6,042	3,192	678	59,301
Waikato Region	2,973	18,786	...	9,126	897	1,953	2,067	4,275	3,237	282	261	234	192	1,971	1,056	447	47,754
Bay of Plenty Region	1,494	10,446	10,800	...	1,050	1,395	864	2,640	2,751	273	198	231	144	1,365	699	351	34,704
Gisborne Region	135	1,137	633	717	...	684	66	429	579	39	30	39	18	201	120	54	4,884
Hawke's Bay Region	372	3,300	1,794	1,248	903	...	363	2,814	2,685	90	138	159	48	735	369	141	15,168
Taranaki Region	306	2,100	1,416	699	81	336	...	1,857	1,248	111	108	69	60	480	261	132	9,267
Manawatu-Wanganui Region	843	4,434	3,129	1,989	564	2,658	2,106	...	7,752	171	240	393	150	1,524	612	333	26,898
Wellington Region	936	8,067	3,510	2,622	861	3,408	2,007	7,695	...	534	945	747	213	4,620	2,880	471	39,516
Tasman Region	105	732	270	219	42	162	93	255	591	...	3,420	441	375	1,422	420	213	8,760
Nelson Region	132	927	315	207	30	159	84	279	744	2,229	...	558	315	1,323	519	147	7,965
Marlborough Region	147	933	351	279	66	228	114	390	840	348	438	...	276	1,965	516	288	7,179
West Coast Region	75	288	219	201	15	87	78	153	186	414	396	237	...	1,797	423	177	4,749
Canterbury Region	936	7,638	2,292	1,791	339	1,182	792	2,259	4,488	1,527	1,926	2,304	2,427	...	7,437	3,120	40,464
Otago Region	678	5,034	1,566	1,194	210	639	507	1,002	2,589	372	579	465	399	6,444	...	4,560	26,238
Southland Region	264	948	729	351	78	156	219	309	435	138	186	213	189	1,782	2,916	...	8,916
People Moving Out of Region Between 2001 and 2006	17,172	75,963	42,225	28,821	6,405	15,957	11,520	29,571	38,943	7,002	9,534	6,810	5,175	32,367	21,753	11,271	360,483

Source: <http://www.stats.govt.nz/NR/rdonlyres/893AD0B2-9AAA-49BF-A94C-5141B7733FBB/17882/2006censusqpm.xls>

The blue shaded columns in Table 8 indicate where those migrants from our two regions reside at the time of the last census (March, 2006). Over 45 percent of those leaving Northland for another New Zealand region moved to Auckland for example. In the case of Canterbury 14 percent and nearly 20 percent moved to Wellington and Otago respectively. In summary, regions are differentially connected to the rest of the country and these differences will be reflected in quite different demand profiles facing local housing markets. The same general point can of course be made at the level of the district.

Families

Northland reported 39, 456 families in 2006 and Canterbury 142, 059. While they had a similar proportion of couples without children. Canterbury had a larger proportion with children but a much smaller proportion of single parents with children, Table 9.

Table 9. The distribution of population by family type in Northland and Canterbury regions, 2006

Regional Council Description	2006 Census, Total Families in Private Occupied Dwellings	2006 Census, Family Type for Families in Private Occupied Dwellings			
		Couple without children	Couple with child(ren)	One parent with child(ren)	Total
Northland Region	39,456	16,695	14,700	8,058	39,456
Percentage	100	42.3	37.3	20.4	100.0
Canterbury Region	142,059	61,791	57,954	22,317	142,059
Percentage	100	43.5	40.8	15.7	100.0

Source: <http://www.stats.govt.nz/>

As the following more complex table on dwelling type shows (Table 10), the low population densities in both these regions are reflected in large degree by the fact that well over three quarters of all dwellings are separate houses. In most other areas outside the main city the two main centres this proportion rises to over 90 percent. Dwellings in multiunit properties are a minority and almost exclusively large city phenomena.

Our two regions also differ noticeably in both their level and distribution of income, Table 11. Between 2000 and 2004 Northland had the lowest growth at 1.2 % per annum and Canterbury the second highest at 4.8% (compared to the New Zealand average of 3.5%) (NZIER, 2004).

The income distributions in the two regions are also instructive. The most relevant for understanding household demand is family income. The difference in their median incomes are substantial: Canterbury's median family income was a full 22 percent higher than Northland's in 2006. The relative buoyancy and structure of the Canterbury economy is particularly evident in the much higher proportion of families earning \$100k or more. At the other end of the scale Northland continues to have a noticeably higher proportion of families on very low incomes.

Table 10. The distribution of population by dwelling type in Northland and Canterbury regions, 2006

Regional council	Occupied private dwelling type					Percentage of occupied private dwelling type				
	Separate House	Two or More Flats/Units/Townhouses/Apartments/Houses Joined Together	Other Occupied Private Dwellings ⁽¹⁾	Occupied Private Dwelling Not Further Defined ⁽²⁾	Total Occupied Private Dwelling	Separate House	Two or More Flats/Units/Townhouses/Apartments/Houses Joined Together	Other Occupied Private Dwellings ⁽¹⁾	Occupied Private Dwelling Not Further Defined ⁽²⁾	Total Occupied Private Dwelling
Northland Region	44,406	5,376	1,077	4,665	55,524	80	10	2	8	100
Canterbury Region	157,947	35,559	1,308	6,843	201,657	78	18	1	3	100
Far North District	16,446	1,455	447	2,130	20,478	80	7	2	10	100
Whangarei District	22,017	3,549	483	1,986	28,035	79	13	2	7	100
Kaipara District	5,943	375	132	546	6,996	85	5	2	8	100
Hurunui District	3,813	171	72	216	4,272	89	4	2	5	100
Waimakariri District	13,857	1,230	294	537	15,918	87	8	2	3	100
Christchurch City	99,552	29,898	501	4,770	134,721	74	22	0	4	100
Selwyn District	10,716	396	120	336	11,568	93	3	1	3	100
Ashburton District	9,495	1,113	87	228	10,923	87	10	1	2	100
Timaru District	14,688	2,316	96	501	17,601	83	13	1	3	100
Mackenzie District	1,350	108	24	48	1,530	88	7	2	3	100
Waimate District	2,700	174	30	78	2,982	91	6	1	3	100
Chatham Islands Territory	213	12	6	18	249	86	5	2	7	100
Waitaki District	7,611	585	93	300	8,589	89	7	1	3	100

Source: <http://www.stats.govt.nz/>

Table 11. The distribution of the resident population across categories of family income in the Northland and Canterbury regions, 2006

Regional Council Description	2006 Census, Total Family Income, for Families in Private Occupied Dwellings								
	\$20,000 or Less	\$20,001 - \$30,000	\$30,001 - \$50,000	\$50,001 - \$70,000	\$70,001 - \$100,000	\$100,001 or More	Not Stated	Total	Median Income
Northland Region	3,975	5,910	7,713	6,105	5,046	4,410	6,297	39,456	\$47,100
Percentage	10.1	15.0	19.5	15.5	12.8	11.2	16.0	100.0	
Cum Per.	10.1	25.1	44.6	60.1	72.9	84.0	100.0		
Canterbury Region	10,329	17,058	25,599	25,866	23,856	22,251	17,100	142,059	\$57,300
Percentage	7.3	12.0	18.0	18.2	16.8	15.7	12.0	100.0	
Cum Per.	7.3	19.3	37.3	55.5	72.3	88.0	100.0		

Source: <http://www.stats.govt.nz/>

One of the ways the higher income in Canterbury is expressed is through the choice of tenure; Table 12.⁶ As been the case for several decades now home ownership remains lower in Northland with just over half of occupants owning their own property. The figure is not that much higher in Canterbury at 55 percent, certainly lower than one might have expected on the basis of their current median incomes. The variation is higher across the districts however (even excluding the Chathams) with rates ranging from 48.6 percent in the Far North to 66.9 percent in the Waimakariri District.

Table 12. The distribution of the resident population across categories of dwelling tenure in the Northland and Canterbury by region and district, 2006

Regional council	Tenure holder				Percentages			
	Own or Partly Own Usual Residence	Do Not Own Usual Residence	Not Elsewhere Included ⁽³⁾	Total	Own or Partly Own Usual Residence	Do Not Own Usual Residence	Not Elsewhere Included ⁽³⁾	Total
Northland Region	59,091	44,208	10,392	113,691	52.0	38.9	9.1	100
Canterbury Region	231,156	169,959	18,234	419,343	55.1	40.5	4.3	100
Northland								
Far North District	20,541	16,461	5,235	42,237	48.6	39.0	12.4	100
Whangarei District	30,786	22,530	4,194	57,510	53.5	39.2	7.3	100
Kaipara District	7,743	5,214	963	13,917	55.6	37.5	6.9	100
Canterbury								
Huruni District	5,037	2,787	411	8,241	61.1	33.8	5.0	100
Waimakariri District	22,167	9,687	1,281	33,132	66.9	29.2	3.9	100
Christchurch City	145,221	124,452	13,089	282,765	51.4	44.0	4.6	100
Selwyn District	15,939	9,045	942	25,926	61.5	34.9	3.6	100
Ashburton District	13,272	7,857	576	21,705	61.1	36.2	2.7	100
Timaru District	21,915	11,463	1,239	34,614	63.3	33.1	3.6	100
Mackenzie District	1,662	1,194	189	3,042	54.6	39.3	6.2	100
Waimate District	3,645	1,854	216	5,715	63.8	32.4	3.8	100
Chatham Islands Territory	213	219	39	471	45.2	46.5	8.3	100
Waitaki District	10,416	5,238	747	16,404	63.5	31.9	4.6	100

Source: <http://www.stats.govt.nz/NR/rdonlyres/BD25043D-6D86-4F53-9976-2AA9D3CA2142/18944/2006CensusQARevised.xls>

While the ability of different types of households to secure tenure of their choice is primarily a function of the characteristics of the household, location also matters and as Morrison have intimated elsewhere, the demand for tenure has now become very sensitive to location with decisions increasingly made jointly (Morrison, 2005a). Learning how these choices across the various attributes or bundles of dwelling

⁶ In interpreting the 2006 tenure categories we have to recognise the change in the way ownership is defined. With family trust ownership no longer included, ownership rates look much lower than we are used to. Incidentally, the proportion in family trusts does not vary across these districts (although there is a small increment in the predominantly farming areas).

characteristics is played out in each of the regions is one of the drivers for the research we propose below.

While the census conveys structural characteristics of regions and districts, and indicators such as crowding and occupancy rates and even differences in the relative growth of dwellings and population point to market pressures, it is primarily through rents and the price of dwellings that market pressures are actually registered. The following Table 13 is salient in this respect for median *rents* show a much greater difference across regions than do dwelling *prices*.

Table 13. Weekly rent paid by region, 2006

Regional council	Median weekly paid rent (\$)
Auckland Region	275
Nelson Region	211
Wellington Region	211
Canterbury Region	200
Bay of Plenty Region	196
Tasman Region	186
Marlborough Region	185
Otago Region	181
Waikato Region	180
Hawke's Bay Region	171
Northland Region	161
Taranaki Region	151
Manawatu-Wanganui Region	146
Gisborne Region	146
Southland Region	131
West Coast Region	126
Area Outside Region	100
Total	201

(1) Dwelling not owned by usual resident(s) who ma

Canterbury is now among the top four most expensive rental markets in the country with median market rents of \$200 per week. The slower growth of Northland, its relative exodus of younger people and fewer in-movers all point to less pressure on the rental market although field anecdotes would suggest there is greater pressure locally as more seek accommodation within the Whangarei area in particular. It is instructive in light of these figures therefore to look briefly at the behaviour of the housing market in the two regions.

Housing prices and the market for dwellings and sections

In this section we compare the two regions over the 15 year time horizon, 1992 through mid 2007.⁷ Before undertaking this comparison it is worth briefly reviewing what we already know about regional house price variations in New Zealand.

Despite its quality the New Zealand research has still only scratched the surface in terms of understanding regional housing markets. In their 2003 work Hall, McDermott and Tremewan compare REINZ and Quotable value deflated (by CPI excluding interest costs) quarterly series for cycles over the period 1981q1 to 2004q2 (Hall et al., 2003). They observe that house price cycles differ considerably across the 14 regions, and from the national cycle; price cycles are asymmetric with upswings generally longer than downswings - a feature now known to be common to other OECD countries (The National Bank, 2007). They also found regional expansions were more similar than where contractions.⁸

Although there is greater evidence for real economic activity in the regions driving the expansions they find that house price cycles are only weakly and inconsistently associated with the business cycles in the regions: “We could find no statistically significant evidence for any region or for New Zealand, or either QVNZ or REINZ house prices leading economic activity” and “evidence of real economic activity driving real house price cycles pro-cyclically ...is far from consistent across regions” (Hall et al., 2003 p9)⁹

Grimes and Aitken (2004) explore this same connection between local economic activity and housing prices by estimating a model relating exogenous economic shocks to local house prices. Working at Territorial Local Authority level, and following up work of Grimes at Regional Council level (Grimes et al., 2003), they use quarterly data from the Quotable Value New Zealand single dwelling sales to estimate the impact of specific production, price and demographic variables on local housing prices. They go on to demonstrate close links between real house prices and real commodity prices, increases in the local participation rate, density and service provision. They also identify a clear settlement size effect, over and above any dwelling density and community income effects. They find that a 1% increase in population raises the real house price of an area by almost 1%, which, “is consistent with the view that a denser population facilitated greater provision of (private and public) services, so increasing the desirability of living in a particular community...” (Grimes and Aitkin, 2004 p14). In short, they argue, [Hall

⁷ <http://www.reinz.org.nz/reportingapp/?RFOPTION=Report&RFCODE=R100> Canterbury is combined with West Coast in REINZ's data base.

⁸ Several of their conclusions are of interest in more general terms: that housing price level data display a high degree of autocorrelation, substantial variability, some skewness and kurtosis (creating difficulty for time series methods). They also make a number of valuable observations on the correlation between the Quotable Value and REINZ series and how this differs across regions.

⁹ Northland in particular exhibits “no significant association with (its) own economic activity or national activity.

et al above notwithstanding], “house prices are an extremely useful indicator of community fortunes”; and that “communities with generally declining economic and demographic trends experience low (or negative) real house price growth relative to other regions” (Grimes and Aitkin, 2004 p19).

What this work does not do is explore the local geography of these price increases and their possible redistributive effects within the communities concerned. The Grimes and Aitken emphasis was on the aggregate price effects associated with external ‘shocks’ rather than how these price changes impact particular categories of people buying certain types of houses at different locations. However, by establishing the close linkages between local economic performance (particularly world prices of local commodities), they have given us a good reason for trying to learn more about how ‘shocks’ to the local economy transmit through the housing market: by what actions, by whom and under what conditions *and* with what redistributive consequences. Addressing such demand side questions at a regional level will complement not only the links they establish between local economic growth and local housing prices but also their subsequent work on regulatory impediments to more responsive supply adjustments (Grimes et al., 2006a). It is against this back ground that we address, in a descriptive way befitting of a scoping report, the recent housing market experience of Northland and Canterbury.

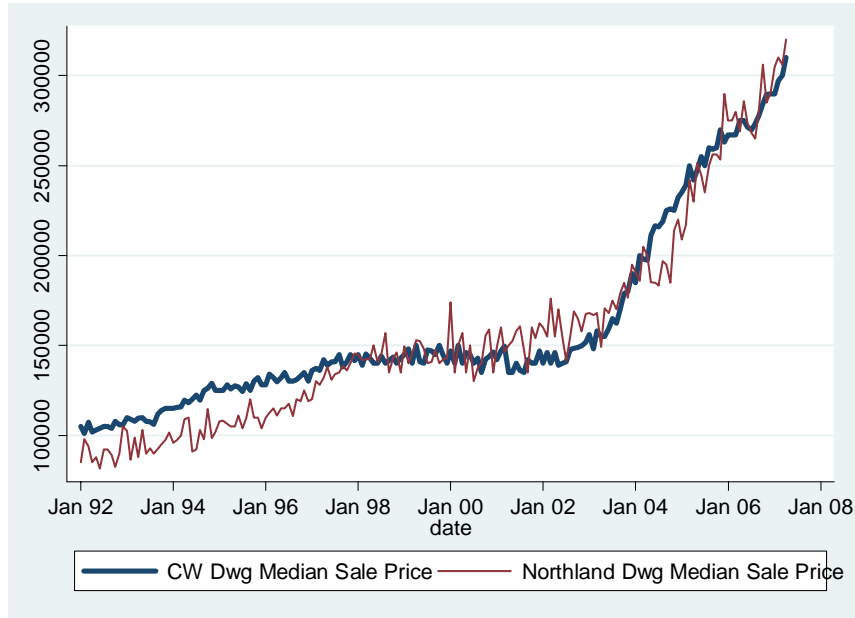
Regional housing market fluctuations

Figure 11 shows the dwelling median monthly sale prices in the two regions; Canterbury/West coast is the thick line. What is remarkable is how close the median housing sale prices are despite the marked differences in the economies and patterns of economic growth in the region over the recent period. While the smaller market of Northland does generate greater volatility in its median prices the two series track remarkably closely.

One of the answers as to why two quite unequal economies should experience similar housing prices may lie in the differential behaviour of vendors under different market conditions. In almost every month for the last 15 years Northland properties have taken substantially longer to sell. Reluctant to reduce prices, sellers hold out longer in weaker markets (a point repeatedly made by commentator Rodney Dickens when observing prices in Northland). Under these circumstances those home owners unable to realize the prices they want can be expected to withdraw thus reducing the number of properties eventually traded. Withdrawals are unobservable in the above series but supporting evidence is available in the following graph on days to sell, Figure 12.

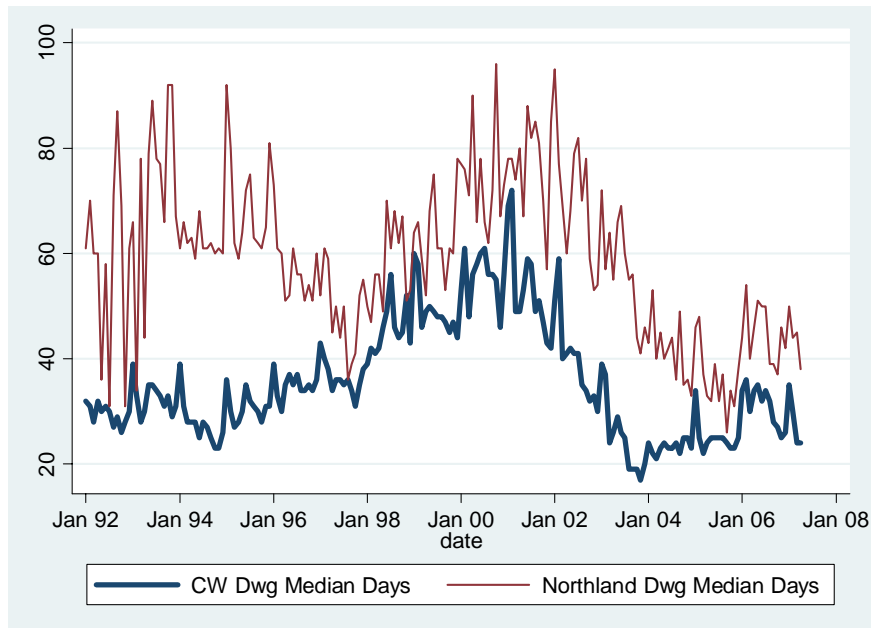
It takes much longer to sell a house in Northland compared to Canterbury, Figure 12. The gap in the time to sell in strong and weak markets narrows as the market strengthens, and expands (considerably) when the market weakens. Days to sell drop earlier and more rapidly in the south when demand picks up.

Figure 11. Northland vs Canterbury/West Coast, Jan 1992- April 2007.
Monthly median dwelling sale prices



Source: REINZ <http://www.reinz.org.nz/>

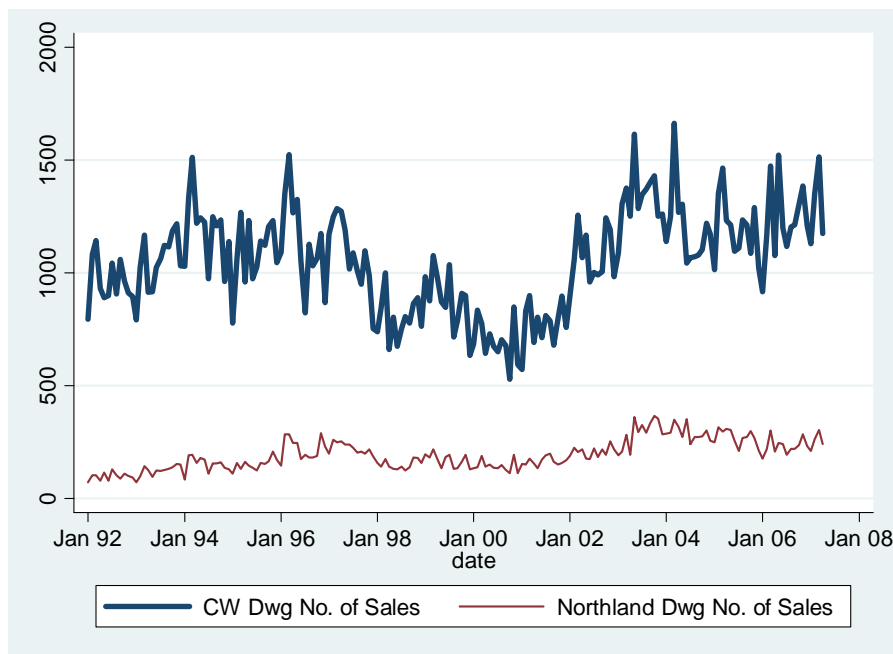
Figure 12. Northland vs Canterbury/West Coast, Jan 1992- April 2007.
Median days for dwellings to sell.



Source: REINZ <http://www.reinz.org.nz/>

When it comes to numbers of properties sold, apart from the fewer sales in the smaller Northland region, the most noticeable feature is the greater volatility in the Canterbury/West coast series, a feature that has persisted over the 15 years, Figure 13. According to Rodney Dickens, again this is a reflection of a more elastic supply response in Canterbury in which the resulting overshooting of response during upturns exacerbates the downturn. What remains unexplained of course is why Canterbury's building industry should be unique in this respect.

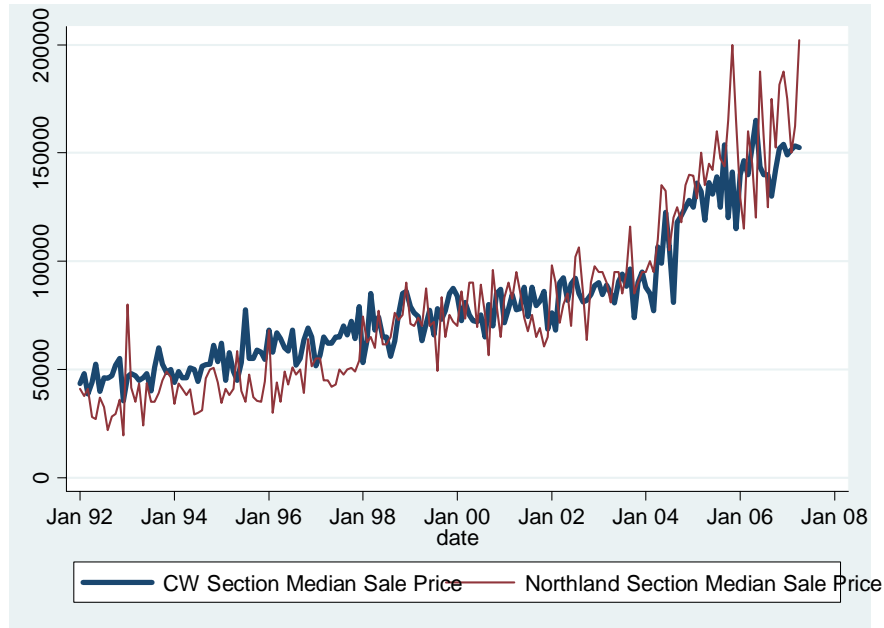
Figure 13. Northland vs Canterbury/West Coast, Jan 1992- April 2007.
Number of dwelling sales per month.



Source: REINZ <http://www.reinz.org.nz/>

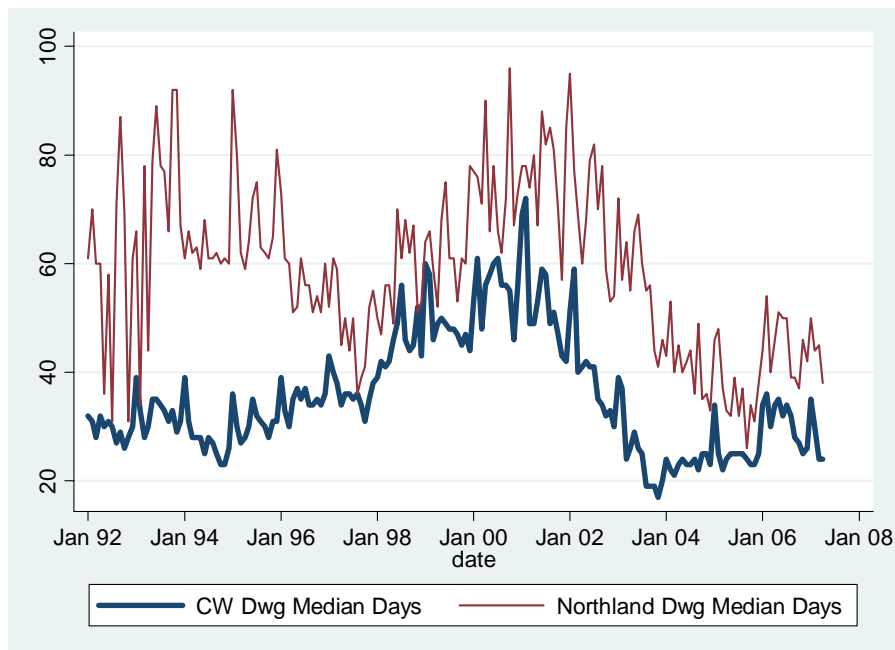
Similar differences are apparent between the two regions when it comes to section activity. Median section sale prices in Figure 14 also track each other closely but the smaller numbers of sales again mean the medians are more volatile in both markets. The time to sell differences observed for dwellings in the two regions also holds for sections as does the periodic convergence in the number of sales series, Figure 15.

Figure 14 Selected section market series: Northland vs Canterbury/West Coast, Jan 1992- April 2007. Monthly median section sale prices



Source: REINZ <http://www.reinz.org.nz/>

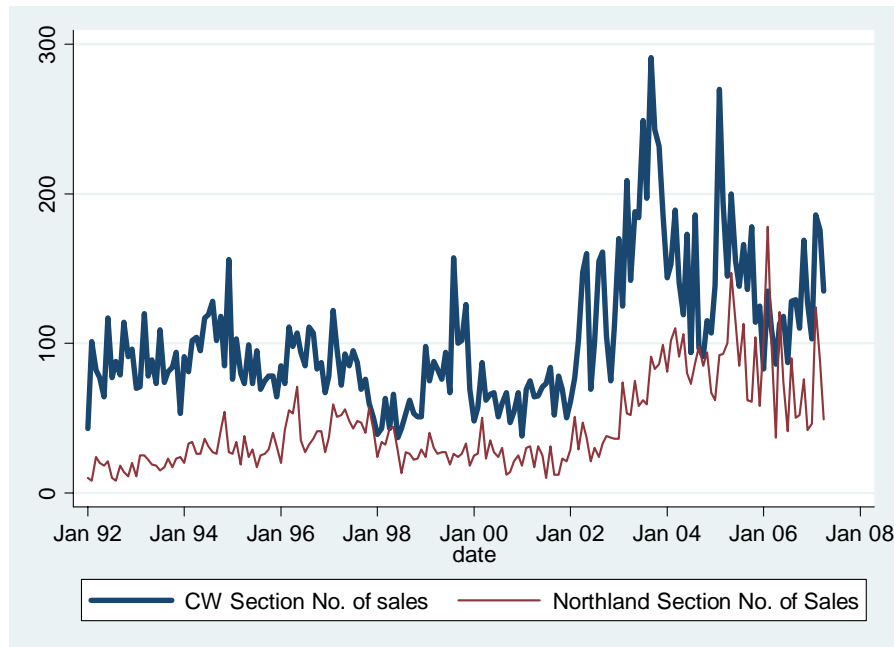
Figure 15. Selected section market series: Northland vs Canterbury/West Coast, Jan 1992- April 2007. Median days for sections to sell



Source: REINZ <http://www.reinz.org.nz/>

The days to sell were much closer in the two regions when it comes to sections but the greater volatility of Northland's market is still apparent.

Figure 16. Selected section market series: Northland vs Canterbury/West Coast, Jan 1992- April 2007. Number of section sales per month



Source: REINZ <http://www.reinz.org.nz/>

There is considerable potential in more systematic comparisons of these real estate market series – by using co-integration analysis for example - and we are fully aware of the limitations of simply visually comparing such time series. One interesting possibility is to using the coincidence of these series to draw inferences about the ‘proximity’ of any two regional markets, the argument being that the closer they move together the more integrated they are – although Grimes apparently found little evidence at TLA level for such spatial autocorrelation (Grimes et al., 2004).

Since these same data are available for Districts one could examine for example how long it took for the more distant Districts to become integrated into the metropolitan orbit within each region and whether that process speeded up during the price boom. Theoretically it should have. And also the extent to which say Whangarei and Christchurch are in fact more integrated as markets (judging from their market responsiveness) than either of these centres and their more distant Districts.

In summary, when we compare the history of the two regional housing markets at first we find little evidence for their differences in sale price, but we do find market demand reflected in differences the willingness of vendors to *market* their properties for it is in

speculative markets that one might expect to find quantity adjustments rather than price adjustments (a point made repeatedly in Rodney's Dicken's commentaries especially in the case of coastal properties).

One of the perplexing characteristics of contemporary property markets remains however, namely the extent to which current price structures and levels of market activity reflect an underlying speculative demand for housing and under what circumstances the longer term underlying generators of demand – demographic and employment fundamentals – are actually making themselves felt. These last time series would suggest not. It is important therefore that we turn, finally to the labour market and their differences between the two regions.

Regional labour markets

As of 2007, Northland and Canterbury sit at opposite ends of the current economic growth spectrum and this is reflected in a variety of statistics on income, education, tenure, age distribution and migration patterns. This difference in the regions has long been recognized with respect to their regional labour markets for example (Morrison, 1999, Morrison, 1997).¹⁰ In 2006 Canterbury had the highest of the regional labour force participation rates at 71% (with Southland) while Northland had the lowest at 66 percent – even though contemporary regional participation and employment rates appear to be converging (Department_of_Labour, 2007 p6).

The most striking difference between the two regions in 2006 is the difference in the proportion of families drawing income from wage work: 75.8 percent of families in Canterbury compared to only 65.5 percent in Northland. There is a commensurably higher reliance in the north on self employment, New Zealand superannuation, and every one of the benefits listed with the exception of student allowances. By contrast, not only is there a more solid base of wage work in Canterbury but income from investments and other sources are also noticeably higher in Canterbury

¹⁰ Reference to the local labour market reports by the Department of Labour confirms the contemporary difference between these regional markets, PAPPS, K. L. & NEWELL, J. O. (2002) Identifying functional labour market areas in New Zealand: a reconnaissance study using travel-to-work data. Bonn, Institute for Study of Labour, NEWELL, J. O. & PERRY, M. (2003a) Functional labour markets revealed by travel to work data 1991 and 2001. Wellington, New Zealand, Labour Market Policy Group, Department of Labour, NEWELL, J. O. & PERRY, M. (2003b) Labour market catchments in a small country. IN GAO, J., LEHERON, R. & LOGIE, J. (Eds.) *Windows on a changing world*. Their forthcoming annual in-depth regional labour market reports will look at the drivers of regional labour market dynamics.

Table 13. The distribution of the employed population across the major sources of family income in the Northland and Canterbury regions, 2006

Regional Council Description	2006 Census, Sources of Family Income (Total Responses), for Families in Private Occupied Dwellings																
	Wages, Salary, Commissions, Bonuses, etc	Self-employment or Business	Interest, Dividends, Rent, Other Invest.	Payments from a Work Accident Insurer	NZ Superannuation or Veterans Pension	Other Super., Pensions, Annuities	Unemployment Benefit	Sickness Benefit	Domestic Purposes Benefit	Invalids Benefit	Student Allowance	Other Govt Benefits, Payments or Pension	Other Sources of Income	No Source of Income During That Time	Total Families Stated	Not Stated	Total Families
Northland Region	25,827	12,468	11,214	1,407	7,098	1,584	2,223	1,566	3,999	1,449	684	2,556	1,269	267	38,709	747	39,456
Percentage	65.5	31.6	28.4	3.6	18.0	4.0	5.6	4.0	10.1	3.7	1.7	6.5	3.2	0.7	98.1	1.9	100.0
Canterbury Region	107,613	40,227	49,929	4,680	22,989	6,282	3,858	3,972	9,186	4,350	4,041	9,006	5,820	846	140,919	1,140	142,059
Percentage	75.8	28.3	35.1	3.3	16.2	4.4	2.7	2.8	6.5	3.1	2.8	6.3	4.1	0.6	99.2	0.8	100.0

It is not just that Canterbury has more wage work available but also these jobs are distributed differently over the range of occupations. Table 14 highlights the differences in the occupational structure of the two regions: Northland has a higher proportion of ‘managers’ (including self employed) and labourers as well as those unable to state their occupation. By contrast Canterbury has a higher proportion of professional, sales and also clerical and administrative workers. It also has a slightly higher proportion of community and personal service workers as well as machinery operators and drivers. On the basis of their respective occupational profiles Northland appears as a far less ‘developed’ economy.

Table 14. The distribution of the employed population across major group occupations in the Northland and Canterbury regions, 2006

Regional Council	Managers	Professionals	Technicians and Trades Workers	Community and Personal Service Workers	Clerical and Administrative Workers	Sales Workers	Machinery Operators and Drivers	Labourers	Not Elsewhere Included ⁽²⁾	Total
Northland Region	0.198	0.154	0.128	0.082	0.105	0.084	0.058	0.128	0.063	1.000
Canterbury Region	0.162	0.174	0.128	0.086	0.115	0.097	0.064	0.121	0.054	1.000
Difference	0.037	-0.020	0.000	-0.004	-0.010	-0.013	-0.006	0.007	0.010	0.000

These differing distributions of employment opportunities reflect in part the current representation of industries within these two regions and a more detailed understanding of the structure of these two economies would be obtained by inspecting their respective occupation by industry matrices as well as their regional input output tables which are currently being developed. Such steps lie beyond the range of this scoping report.

What we will observe however is how contemporary structure of employment opportunities is largely reflected in the educational qualifications of the population, a relationship which is much when unemployment rates are low. As Table 15 shows, Northland has a less educationally developed population; a higher proportion have no qualifications, more post-school qualifications but fewer degrees at all levels and again a much higher proportion unable to adequately answer the question (a disproportionate number of whom will come from the no qualification category).

Table 15. The distribution of the resident population across categories of highest educational qualification in the Northland and Canterbury regions, 2006

Regional Council	No Qualification	Level 1 Certificate Gained at School	Level 2 Certificate Gained at School	Level 3 or 4 Certificate Gained at School	Overseas Secondary School Qualification	Level 1, 2 or 3 Certificate Gained Post-school	Level 4 Certificate Gained Post-school	Level 5 Diploma	Level 6 Diploma	Bachelor Degree & Level 7 Qualifications	Post-Graduate and Honours Degree	Masters Degree	Doctorate Degree	Not Elsewhere Included ⁽²⁾	Total
Northland Region	0.274	0.142	0.076	0.029	0.035	0.041	0.102	0.031	0.051	0.056	0.011	0.009	0.002	0.141	1.000
Canterbury Region	0.235	0.132	0.092	0.060	0.044	0.035	0.095	0.037	0.054	0.091	0.018	0.016	0.006	0.086	1.000
Difference	0.039	0.010	-0.016	-0.031	-0.009	0.006	0.007	-0.006	-0.003	-0.035	-0.007	-0.007	-0.004	0.055	0.000

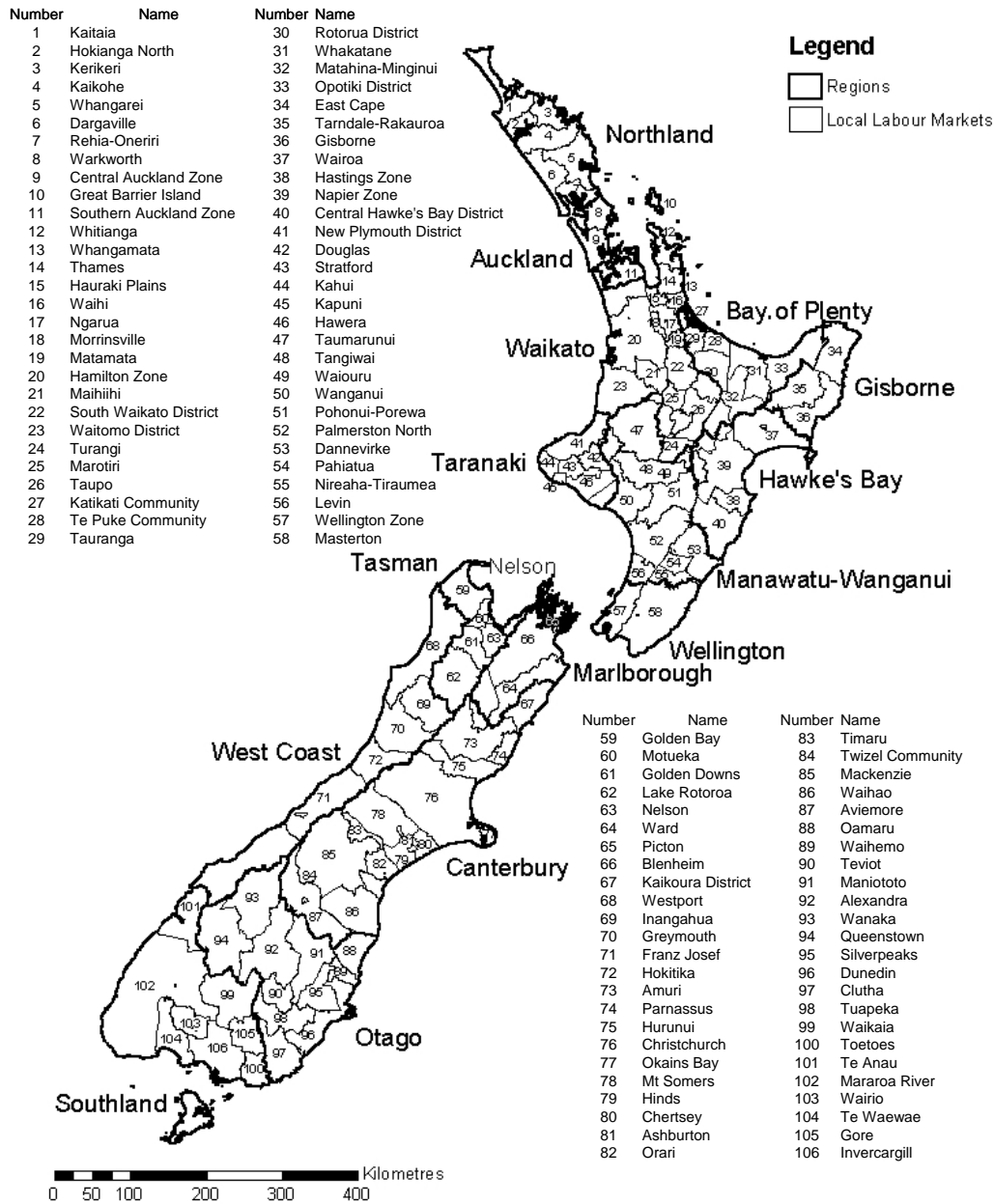
Source: *Census of Population and Dwellings, 2006*

Again, while these data are useful in generating inter-regional contrasts, these aggregate figures are misleading guides to the possible experience of housing markets *within* each region. Price levels and even trends are far from uniform within each region. Indeed one of the central thrusts of our scoping report is the emphasis we place on understanding how and why this is the case. Housing demand is highly localized for example because of the way accessibility to employment and services are constrained by location. There is value therefore in identifying ‘regions’ on a functional basis rather than simply accepting the administrative boundaries. Our collective understanding of local labour markets has been greatly enhanced by the purposeful creation of local labour markets, defined in this instance on the basis of commuting patterns; see Figure 17 (Papps and Newell, 2002).

While the delimitation of local labour markets has been very helpful in advancing our understanding of the sub-national labour market, there have been no such steps taken on the delimitation of local *housing* markets despite the intense interest in subnational behaviour in that market. We simply flag this as a challenge for future researchers because the issue is not as straightforward as it might seem. For reasons we partly cover in section 2 there is no simple equivalent of the commute in local housing markets and it is therefore necessary to think about what a local *housing* submarket might be in a somewhat different way.

What is clear is that the shift we are proposing from thinking primarily in terms of supply response issues in the local housing market to confronting the underlying differences in demand requires a new take on the way we think about local housing markets, and their relationship to local labour markets. What the *comparison* of the two regions does is merely reinforce the importance of context in thinking about these questions.

Figure 17. Local labour markets and Regional Council boundaries



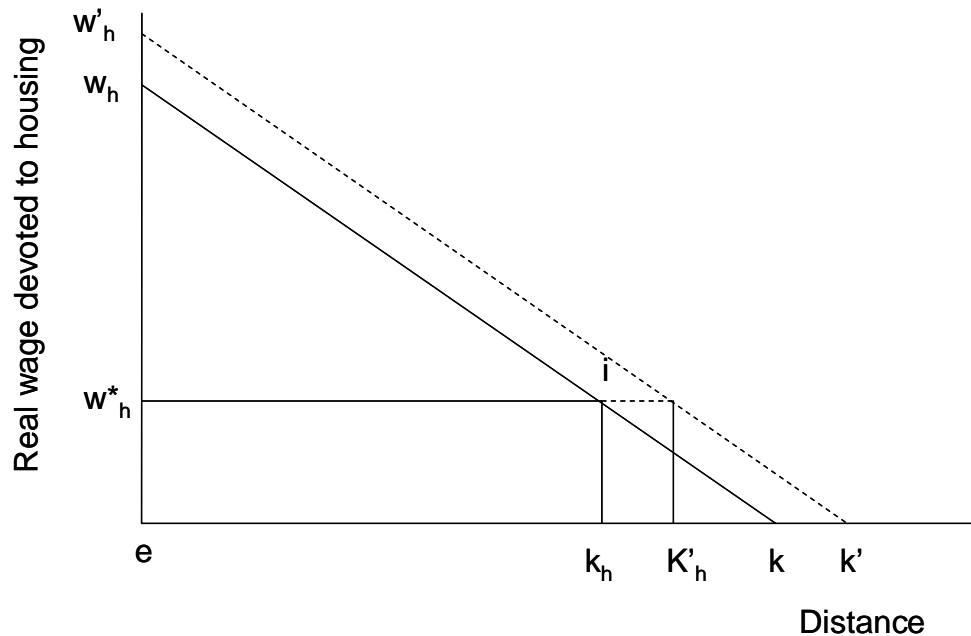
With these broader points in mind the following section is designed to introduce concepts for thinking through some of the local housing pressure points we have observed in the field and as a way of linking them to the literature.

Section 2. A conceptual framework

Although we offer qualifications later on, it is useful initially to think of the local housing market as a spatial expression of the local labour market. In the simplest of all possible worlds *all* households generate income (both current and future) from employment in a central work place, e , and apply a proportion of their wage to current expenditure (and future expenditure via the mortgage) to housing, w_h . Lets assume initially that both labour and housing quality is homogenous and that supply is perfectly elastic even in the short run. In other words there are no supply constraints. Under these conditions what form will the spatial demand for housing take?

The key to answering this question lies in the role of the commute and the price surface resulting from it. Other things equal, the amount of housing that can be purchased is reduced by the amount spent on commuting (c , the cost per kilometer \times t , the number of trips \times d , distance); assuming the appropriate capitalization. The amount available to spend on housing w_h declines as commuting costs rise; $w_h^k = w_h - (c.t.k)$. At some distance from work, k , the amount that can be spent on housing falls to zero which implies a closer maximum distance k_h if we assume a minimum socially acceptable stream of housing services are consumed. The kinked line $w_h - i - k_h$ depicts the 'zone' within which employees at the work site can consider purchasing housing services (whether as renters or owners). Between k_h and k implies successively substandard housing.

Figure 18. Local housing as a spatial expression of the local labour market



As far as any individual is concerned the boundary of the labour shed generated by the worksite at e depends only on their wage level and their commuting costs (and on their

meeting socially accepted minimum level of housing consumption). Therefore the higher the wage, the more extensive the potential local housing market. A buoyant local labour market will be reflected in higher wages (through both per hour and overtime, w_h to w_h') which will extend the local labour market beyond its previous periphery, k to k' , and hence from k_h to k_h' .

Since workers will want to maximize that portion of their wage they can spend on housing they will want to live as close to work as possible. Since this is characteristic of all workers (by assumption) the limited space around the work site has to be rationed - through the land market. The result is a negative sloping land rent surface extending away from the work site. As a result, workers now have to make a choice between the higher land costs closer to work or the cheaper land but more expensive commute further away. Their choice of where to live is based on their relative preferences (at the margin) for proximity vs commuting and respective budget constraints they face. Since the per unit cost of land falls with distance from the employment site, so more land can be purchased per dollar but at the compensating expense of commuting. Such is the basis of the standard Alonso and Muth location models of housing demand (Muth, 1969, Alonso, 1960).

Implications

Despite its simplicity there are several important implications we can draw from this base model with implications for the research we are proposing. Firstly, the spatial extent of the local housing market generated from employment at e is a function of the wages paid on site and the relative costs of transportation (including value of time which we pick up below).

Secondly, any increases in the number employed at the site e will be reflected in housing density although how the workers and their households are distributed between e and k will depend on their relative preferences for space and travel. It is convenient to simply assume for now that these preferences are randomly distributed across the population. However the increased density means that the price of space would rise relative to other goods and become relatively more expensive (and relative to commuting as long as additions to the catchment did not create congestions or otherwise raise commuting costs).

At this point the model abstracts from many other influences observed in the field. For example the demand for local housing is not simply a function of what happens at the employment site e . It is instructive therefore to ask what happens to the housing demand surface within the catchment when we relax the assumption that everyone demanding housing within the catchment has to be employed at the worksite e . If we allow other employment sites to operate *and* for their catchments to extend into the original labour shed then the impact on housing within the catchment will depend on the proximate location of *other* employment sites. As we have shown elsewhere (and assuming competing pay rates are the same for the homogeneous labour) the primary effect of any

neighbouring competition is to raise the demand for properties on the periphery of the catchment (Morrison, 2005b).

Employment sites which can pay more generate more extensive labour catchments. From a regional perspective the shapes (and degree of overlap) of local labour catchments will therefore depend not only on the buoyancy of local demand but on the spatial arrangement of employment sites and the distribution of jobs over them.

We have only covered some of the implications of this model. However the basic ideas are sufficient to build on. I now want to introduce another basis for the local housing market one that does not derive from the labour shed and is therefore not fixed conceptually and spatially to the employment site. This second major factor in housing decisions is amenity. A third factor is social mix which I introduce below in the context of the theory of clubs.

Amenity

By amenity we include views, aspect, aesthetics and topography as well as proximity to facilities and services. The question is how the introduction of this market affects the spatial housing demand surface we have derived above. A way forward is to relax the uniform plane assumption and introduce the possibility that different sites have different amenity value: elevation (views), proximity to water, and proximity of greenspace being some prime examples. For others it may be access to services; entertainment, retail, educational, health for example.¹¹

To continue to keep things simple lets assume the level of amenity increases monotonically with distance from the employment site. Proximity to “green fields” is an example we use in Figure 19. Assuming that worker and their families work less than 5/7 of the available year and 8/24 of the available work day then access to recreation based amenity assumes some importance and therefore claims a portion of the remaining available wage, say a .

If amenity levels differ across the labour catchment (and if amenity is a superior good and therefore its demand rises disproportionately with income) then it too will be rationed by the price mechanism and an *amenity* rent surface will develop from a . The closer to the amenity, the more costly the location. Hence those with the income and housing

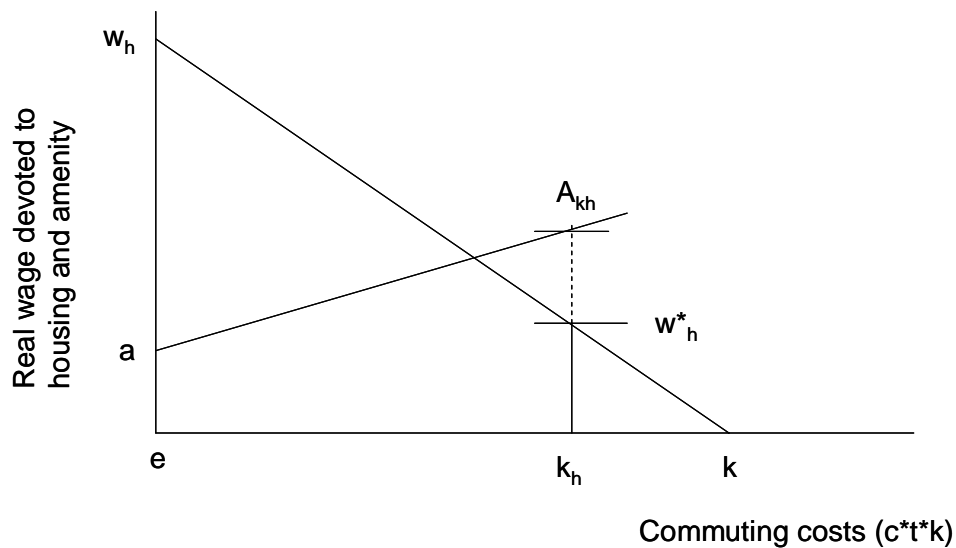
¹¹ As we write this we are reminded of the following observations made in the context of demographic forecasts in another region in New Zealand. “Another challenge for planners..is the extensive and increasing population that uses the Bay of Plenty for recreation – the second home dwellers, the tourists, the visitors, all of whom place demands on the region’s infrastructure and services. These non-residents are not captured in conventional definitions of populations, or addressed in conventional projections. Yet they area very important component of what might be called a region’s ‘effective’ population – the population that uses places. These ideas are developed more extensively elsewhere BEDFORD, R., ARUNACHALAM, D. & HO, E. (2006) Demographic forecast 2051. Movement and change in population and households in the Bay of Plenty. *Strategic Policy Publication 2006/01*. Hamilton, Migration Research Group, The University of Waikato.

preferences outbid others for these sites. What this last example implies is that it is not just distance to the work site e but distance from also amenity that influences where within the catchment housing is sought by employees at e . Given the additional housing expenditure, a larger proportion of the total housing budget w_h is now constrained by location access to the employment site e on one hand and access to the amenity on the other. If we allow two otherwise similar households into the local housing market, one whose income is tied to the employment site and one that has no such spatial constraints, the if both prefer the same amenity level (beyond the labour catchment) it is clear that the household whose location is unconstrained by employment needs will outbid the others for sites closest to the amenity. Employment constraints to sites are therefore of central importance in spatially differentiating the market.

Numerous other examples of amenity surfaces could be considered. The general point however has been made. The contemporary demand for housing is not governed simply by access to employment. Indeed, as the population ages according to the projections presented above, so a larger and larger share of all housing demand *will* be based on non-employment income and therefore to demand which is not locationally constrained to employment sites. Moreover, it is amenity that will predominantly govern housing demand under these circumstances.

We turn now to a related but conceptually distinct dimension of housing demand which although garnering attention in the abstract has not been subject to empirical formulation in the housing market context where its role we believe is growing in importance. This is what we are calling club markets.

Figure 19. The addition of amenity and the relationship between the real wage for housing and location at distance from the workplace



Club markets

The implied institutional setting for neo-classical economic theory, including theoretical welfare economics, is a regime of private property, in which all goods and services are privately (individually) utilized or consumed. So began James Buchanan's seminal paper on an economic theory of clubs (Buchanan, 1965). At the time he wrote, a sharp distinction existed between public and private goods (which could include the family). What Buchanan was aiming for was a theory that dealt with goods that could be owned by more than one person, but not everyone, that is goods that had different 'consumption-membership' arrangements (ibid). One of the reasons club theory has stimulated so much research is that it addresses a fundamental problem: people voluntarily cooperate for mutual advantage (Sandler and Tschirhart, 1980).

The key objective of what became known as club theory is to identify the optimal sharing arrangement, the preferred club membership. "The central question is that of determining the membership margin...the size of the most desirable cost and consumption sharing arrangement"(Buchanan, 1965). The essential feature of club goods is that they must be shared so that generally speaking the more you share them with the less you consume i.e. "the utility that the individual receives from this quantity will be related functionally to the number of others with whom he shares" (equally, assume) (Buchanan p 3). Since the amount consumed by the individual depends upon the membership of the group the critical economic question is the rate at which the individual is prepared to pay for reduction in membership. Since number of members also affects the costs to the consumer, membership size also enters the production function.¹²

There are two instances in this report in which the theory of clubs is useful. One is in thinking about Maori housing. The other is in addressing the phenomena of those planned communities in which private space is used to control the activities of purchasers. The planned Pegasus community in North Canterbury is an example. These are also known loosely in the literature as 'gated' communities. We will not distinguish between the Maori housing and privately owned communities at this stage (and thereby pose some interesting similarities albeit at quite different positions on the socio-economic spectrum).¹³

¹² Buchanan then showed that "the individual attains full equilibrium in club size only when the marginal benefits that he secures from having an additional member (probably negative) are just equal to the marginal costs incurred from adding a member (probably also negative) (Buchanan p 5) The graphic representation has a rising (then falling) benefit function with number of members, and a concave decreasing cost function. The optimal size of the club is when the derivatives of the total cost and total benefit functions are equal (Buchanan p 8).

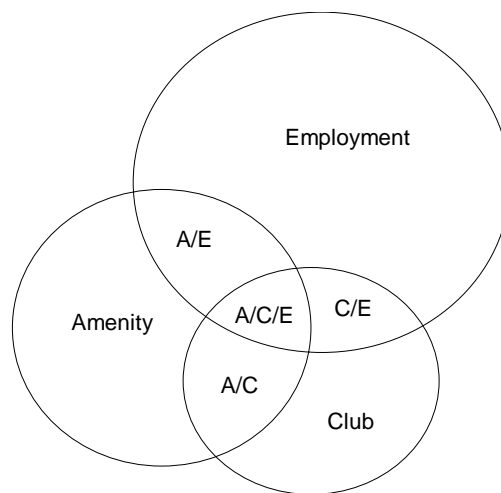
¹³ More generally clubs can be included in the fourfold distinction which includes private, common and public land each positioned according to whether membership is excludable and whether 'consumption' of the services therein are subtractable, that is whether one persons consumption detracts or subtracts from another. Buchanan used the example of the swimming pool whose use value diminishes with the numbers using the pool.

Closely related to the housing ‘club’ is the influence of social mix on housing demand. Clubs are essential ways of constraining membership; the degree of control can vary substantially from minimum control via the market through to fully gated communities. Clubs have the benefit (to owners) of allowing other non-market rules to be imposed. These apply to the use of Maori land just as they do to the use of private land purchased for the development of private communities or neighbourhoods (Webster, 2002).

What we are witnessing in both regions we argue, is an increasing competition between these three market types we have just described: employment markets, amenity markets and club markets. The following Venn Diagram suggests their points of interaction and competition, Figure 20.

The central message from our field visits in both Northland and Canterbury was how the points of tension in those communities were focused on those locations where these three markets overlapped, either pairwise e.g. A/C or jointly, A/C/E. They included examples where those in the recreational (amenity) market were competing for some of the same dwellings as those within local labour markets (A/E), where those seeking recreational amenity come with a market demand that out compete the resources of those granted entry on the basis of ‘club’ membership, (A/C), the case of beach front Maori land for example, or where either club membership competes with demand from local labour markets or visa versa (C/E). And then there were those locations in which pressures from all three domains compounded to raise prices well above average (A/C/E).

Figure 20. Employment, amenities and club housing markets



		Excludable	
		Yes	No
Subtractable (rivalrous)	Yes	Private	Common
	No	Club	Public

The reasons why the conflict between these three market types are so important is that as one sphere encroaches on another there is a redistribution of wealth, often from an existing group of owners to an 'invading' group, a conflict that is often accompanied by calls for regulation in favour of one group or another. Caught in the middle are the local authorities who are being asked to develop 'solutions' that mitigate the conflict.

Section 3. Issues

Behind the interaction of the markets for amenity, employment and exclusivity sit three trends: a) the openness of local and regional economies, b) the increasing importance of non-employment income, c) increasing social inequality and commensurate pressure to exclude.

Collectively they have the effect of exacerbating the tensions implied in the Venn diagram above. Openness and mobility is in large part a (world wide) search for amenity enabled by employment (past and present). As pressures to protect access to amenities grows so there is a greater tendency to form clubs and to specify rules of association. Clubs grow to protect access to amenity which are sustained by increasing openness (which ensures sufficient numbers to form and sustain the club). Therein lie both threats and opportunities.

The competition between employment, amenity and club markets is fostered by a global and interregional openness, freedom from the ties to local labour markets and the commensurate pressures to exclude finds expression in three local issues: the debate over consolidation, pressures on high amenity land and the long standing issue of Maori rural housing. Each is well documented in other sources to which we refer and will only be briefly covered in this scoping report.

The consolidation debate

If there is a central 'housing' issue that prevails in the Canterbury context it is over how to make containment work. During the 1990s a large amount of rural land was rezoned for urban development in Christchurch, the environmental consequences of which have led to continued political conflict particularly between regional and local tiers of government. The impression gained from both the literature and field interviews in Christchurch is that city based governments and the Regional Council (Environment Canterbury) are promoting containment while other local bodies together with a range of high profile developers are encouraging settlement well beyond the present built up area. The wider metropolitan authorities are trying to contain the excesses of both - largely driven by an environmental protection mandate to which enhanced awareness of global warming is now adding further weight.

Both sets of local authorities are responding to a segmented demand for housing. What is at issue are the wider societal consequences of the alternative approaches to

accommodating demand for additional housing. The consequences are environmental, they involve public health and wellbeing, and they have, as a result of the regulatory environment, distributional consequences.

What the literature lacks, and we suspect the local body politicians and interested public as a result, is a rigorous evaluation of the consequences not of one or the other as the debate is often cast but of alternative mixes of higher housing densities in the older parts of town accompanying a wider range of alternative low density housing at different distances from Christchurch.

The demand for low density housing would appear to be strong and yet the wide variety of household types and smaller households in general together with a growing demand for flexible patterns of paid work and leisure means that there will continue to be a preference among certain types of households for higher density living. What is at issue here is how an expanding settlement complex centred on Christchurch can meet the simultaneous demands of a widening range of household types as well as the broader environmental and societal consequences of doing so (Uslaner, 2002, UDS_Forum, 2006).

There have been several attempts at researching the relevant questions (Memon, 2003, Perkins and Thorns, 2001, Lilly, 2006, Stevenson et al., 2006, Taylor, 2005). What is still lacking however is a comprehensive assessment of who is expressing their preference for housing of given types in particular locations and under what circumstances. This requires a sound, but not overly complicated, modeling of housing choice in which clear links are made to the labour market in its various forms (fulltime, part-time, owner operated, consulting forms) as well as to the range of non-employment drivers (proximity to grandchildren, recreation, family and friends) and the way they mix with household demographics and are reflected in housing choice.¹⁴

Such a study is not 'solutions' based as such. However, distributed over these choice scenarios are a continuum of consequences bearing on relative access to amenity, to employment (and education). An ideal study would attempt to identify, categorize and measure the magnitude of these consequences. It is however designed to understand the pattern of demand, a pattern which is currently responsible for many of the contemporary concerns being debated in both the planning and the academic literature as well as on the council floor.

Many of the issues debated about the development of Northwood in Canterbury are emerging as the public become aware of the new Pegasus settlement further north being

¹⁴ Elements of these questions have been addressed empirically but in a highly resource constrained way BUCHANAN, N. & BARNETT, R. (2006) Peripheral residential relocation and travel pattern change. *Urban Policy and Research* 24, 217-236. They focussed on what was then the largest new peripheral residential development located on the northern rural/urban fringe of Christchurch, Northwood. Despite the lengthening of the journey, commuting, mainly to downtown Christchurch, remained dominated by the motor car.

planned for 5000 residents. Combining element of both club and amenity markets this planned settlement will undoubtedly also appeal to both employment site dependent and employment free households. Although a matter for the future, identifying the demand profile for the range of sites offered in this complex will be a useful guide to future pressures (<http://www.pegasustown.com/>).

Pressure on high amenity land

One of the paradoxes of affluence is the way it destroys the very amenities whose potential acquisition drives the quest for individual wealth. Nowhere is this more keenly felt than in beach front property where overcrowding successively removes the very isolation and exclusivity which is marketed as an attribute of the beach front package. The rise in the demand for coastal properties has been extensively documented by Dickens in several publications¹⁵ with most of the key issues now being identified in the academic literature (Cheyne and Freeman, 2006).

Increasingly a site of social division, affluent buyers are increasingly crowding out – literally and figuratively lower income often older residents. In certain identifiable cases in the field these include Maori through the privatization of previously protected Maori land. The issues here are complex but there is a growing school of thought that argues for much stronger regulatory control over subdivision standards in order to ensure social sustainability and avoid growing exclusory club practices.

These sites of conflict are not isolated but their intensity does vary. What we are arguing here with respect to the ‘amenity’ market identified in the conceptual section is that to a large extent all land use competition is subject to a degree of amenity competition. The contemporary concern is a reflection of the combination of mass affluence and the fact that for an increasing number of households their housing market fields (the areas they can search and acquire housing) has expanded enormously. One expression is the second home – on which there is remarkably little published research in New Zealand. The second expression is the home beyond the commuter belt, fostered by those who are no longer tied (often because of age) to a regular commute and whose skills and incomes are such that they can function in locations without access to conventional employment sites per se.

As also indicated in the conceptual section above, it is when this form of demand overlaps with commuting based demand on the periphery of major labour markets that social conflict can run high. A number of coast settlements throughout New Zealand are experiencing this ‘double demand’ effect.

¹⁵ See for example the ASB Industry Research Northland Coastal section, 14 September, 2005.

Rural Maori housing in Northland

It has been recognized in the many reports prepared since well before the nineteen thirties that Maori on low income living on family land with multiple ownership cannot possibly maintain or build new housing to a standard regarded as adequate by the society of the time. That simple fact remains true today. It follows, that unless society through its government is going to allow many such families to live in substandard conditions State assistance must follow. It is generally recognized that such State assistance has remained quite inadequate through to the present day.

“..poor housing for rural Maori in Northland is a complex interaction of old and deteriorating housing stock, overcrowding, sub-standard facilities, high replacement costs, large families, high dependency rates, low incomes, excessive unemployment, isolation, multiple ownership of land, planning restrictions on rural subdivisions, low levels of local body revenue, inadequate finance arrangements, inflexible building codes and deep attachment to ancestral land.” (Douglas, 1986)¹⁶

Notwithstanding all the effort directed to the housing of rural Maori it is widely believed that relative housing conditions – conditions relative to the rest of New Zealand society – still remain very poor physically *and* that there are important consequences socially, educationally and culturally. In many cases *absolute* housing conditions in parts of the region have not improved in 30 years. Relatively, as the rest of the stock has been upgraded throughout the country, rural housing occupied by many Maori in Northland has fallen further behind. Scores of dwellings remain small, cramped, and continue to be occupied despite being unserved by electricity, sewerage or adequate water. Such conditions are breeding grounds for disease (largely through overcrowding) and a range of health problems experienced by an increasing elderly population. Many of these same elderly are increasingly responsible for the care of young children, children whose own health, education and upbringing are also severely compromised by the prevailing physical conditions.

The essential argument – and one that runs through each of the previous reports cited here – is the profound link between housing, education, employment, social and cultural well-being (Douglas, 1986, Affairs, 1966, Cornwall, 1982, Affairs, 1991, Committee, 1997). The message throughout is that dwelling is not an isolated artifact whose physical condition remains unconnected to the social context (Hoskins, 2004, Team, 1987, Waldegrave et al., 2000).

In 2007, during a period of unprecedented buoyancy in the economy and constructive engagement between the Crown and Maori there is recognized to be a need as well as an

¹⁶ For a pictorial historical account of Maori housing and in particular Moerewa and its recent history see <http://www.netlist.co.nz/communities/Moerewa/History.cfm>

opportunity for a fresh and even radically new approach to upgrading the housing stock especially on Maori owned land and the associated infrastructure but that it needs to be one that is internally sustainable by the communities involved (Committee, 1997, White et al., 1987) The post-war history of debate, proposal and initiatives provide a rich mine of information over what has been attempted and what has worked and not worked – in many different locations throughout Northland (Murphy and Urlich_Cloher, 1995).

Rather than rehearse the same points that have already been made by many before, what we are suggesting in this scoping report is that the issue of low demand for housing in rural Northland be reviewed in the wider context of the relationship between the labour and housing markets in the same framework as we are considering others issues above.

Demand factors are at the root of these issues. Low employment participation rates, low wage returns to unskilled labour and associated benefit dependency translate into low effective demand for housing (Leun_Wai and Nana, 2005). Low income, often accompanied by low skills, often prevent the maintenance and/or upgrading of dwellings let alone the provision of services many such dwellings lack.

There have nevertheless, and in face of the odds, been a number of attempts by iwi to upgrade housing. Those involved however would be the first to admit that the fundamentals of demand are the primary impediment to the delivery of a sustainable stream of housing services. (Te_Hou_Ora_Advisory_Team, 1987, Family_Centre_Social_Policy_Research_Unit, 2006).

Just as in those cases there are groups who wish to adopt what we have called here ‘club housing’ in order to control access. The issues here are not ones of legality but of resources. Regardless of the control exercised over membership ultimately these too are going to come back to issues of labour market engagement on one hand (the employment market) and the competition over amenity (the amenity market) on the other. What we are proposing therefore is that instead of being treated as a separate sub-issue that the issue of low levels of housing consumption in rural Northland be modeled as part of a broader issue of sub-regional housing demand. In that way we will learn more about the choices made under demand constraints and do so in the context of the regional economy as a whole.

Section 4. Demand drivers and expressions

There are several ways in which research into the drivers of demand and its expression can be carried out. In this section we suggest one particular approach based on the use of (mainly) census unit records. But first some prefatory remarks which help explain our recommendations.

We have reached the stage in New Zealand research where we have an unprecedented set of rich data sources to choose from. Never have so few researchers faced so much data, in fact, the data we now have far exceeds our collective capacity to extract its full value.

Furthermore, it is being added to at a much faster rate than we are producing quality researchers.

The implication of this observation is that wherever possible we should be trying to answer new questions from *existing* data – both statistical and administrative - before launching yet another survey. (And of course we should also be training new researchers as an integral part of any new project – a point we expand on below).

Our archives are full of partially and sometimes even largely unanalyzed data drawn from a largely passive population of respondents who, in specific cases such as Northland, have become weary and skeptical of the surveyor. The respondent burden is real and it is one of the reasons why Statistics New Zealand for example is paying increasing attention to administrative data sets and their linkage possibilities.

The question therefore is can we answer the questions we are wanting to ask with existing data without having to burden respondents yet again? The answer we suggest is largely yes.

The research question

The key research question we are posing in the scoping report is quite simple: **what kinds of housing in what kinds of locations are different types of people purchasing and what are the apparent drivers of these decisions?**

The first part of this question is immediately answerable from the 2006 census. *If* a descriptive picture is all that is required then the answers could be run as a set of crosstabs showing who lives where, in what kind of dwelling.

The second part of the question is more challenging. What we want to know is what choices people are making when faced with an array of alternative housing that exists in each of the regions and what it is about the characteristics of the dwellings and their location that leads them to allocate themselves in a particular way.

Does it matter for example that a person has just immigrated to Canterbury from China as to what housing they choose? How does the fact that someone has lived in their dwelling for 20 years affect whether they move and where they next move to? Does it matter that the person who is looking for housing is a single parent with a young child and very little accumulated savings? What factors constrain the choice of housing of a single Maori man who returns from Auckland to his turangawaewae in the Hokianga?

A range of factors matter when it comes to explaining who lives in what kind of housing, but at present we don't know how they matter. We don't know how the information constraints facing the immigrant modifies her housing choice. We don't know how the characteristics of an existing dwelling or the person themselves affects whether they buy or rent and where they decide to live. We don't know quite what influence being a

single mother with few assets has on the eventual purchase of housing except for the fact that it will be highly constrained. We don't know how much the state of the local housing market is likely to matter when family, kinship and general 'membership' issues are involved in housing allocation. One of the ways in which questions like these can be addressed is through residential location choice analysis.

Residential location choice analysis

Residential location choice analysis has a distinct post-war history although to our knowledge it has only ever been applied partially and largely operationally in the context of urban transportation planning. Rarely if ever in New Zealand has it been applied to the understanding of the location housing market and certainly not to addressing questions about labour and housing market linkages (although it is especially suited to the latter).

A recent contribution to the literature put it this way:

For urban and transportation planning, the interest in the causes and consequences of individuals' choice of residence arises from the recognition that it is the values, decisions, and actions of the people who are attracted to certain types of land-use patterns that ultimately shape the transportation, land-use, and urban form. The decision of residential location not only determines the connection between the household and with the rest of the urban environment, but also influences the household's activity time budgets and perceived well-being (Guo and Bhat, 2007)

A population modeling approach is based on the discrete choice formulation pioneered by Mc Fadden (McFadden, 1978). This approach has appealed because the decision on residential location is one that encompasses housing choices as well as the physical and social attributes of the neighbourhood. Based on micro economic random utility theory, the discrete choice approach provides a way of understanding how residents trade-off among the wide range of choice factors that come into play. The other reason the discrete choice model has proved popular is that it allows the sensitivity to choice attributes to vary across socio-demographic segments of the population through the inclusion of interaction terms and spatial characteristics with demographic characteristics of households. For these reasons the modeling results can help in the deliberation over urban (and rural) policies that effectively target specific population groups.

In order to implement such a model it is necessary to have access to the responses of individuals over the range of relevant variables. These include the usual range of demographic and socio-economic characteristics that influence both choice and also constrain purchases to within certain price ranges. The other data that is required are the attributes of the members of the choice set, that is the dwellings, the associated neighbourhood and other relevant attributes (such as accessibility to services and employment, or access to amenities).

Following the successful application of the model the researcher is able to indicate the relative importance different attributes of dwellings play in the housing choice (type, size, location, tenure etc) for households with different characteristics (household type, income range, immigrant status, ethnicity, age etc). In our case, from results obtained from the two regions we can judge say with respect to coastal sites within commuting distance of Whangarei, the relative importance of employment, the employment site, hours worked and other characteristics of the occupant in influencing demand at those locations. We can judge the degree of competition an ‘amenity’ driven location is also subject to an employment shadow, and the degree to which there exist competition between amenity and employment driven imperatives in vulnerable locations.

Similarly, with respect say to lower cost housing in southern Christchurch, we could judge the relative importance of age, employment status, household composition, ethnicity in the choice of multistory units on limited parcels without parks in the immediate vicinity, or whatever critical questions are posed by the stakeholders involved in monitoring the project.

More directly in terms of the consolidation debate such a model could estimate the relative weight buyers place on accessibility versus amenity (being close to the university vs being close to skiing opportunities) in their housing decisions. What *are* the key factors that weight decisions in favor less (more) dense housing?

To date residential choice location models have been primarily applied to unit level (individual) records collected as part of transport planning surveys. Now that unit records from the quinquennial census for example have now become available to *bone fide* SNZ approved researchers the scope for the application of such modeling has been widened considerably. There are caveats however. Any such work would have to take place with all the confidentiality safeguards that accompany access to the SNZ Data Lab. At the same time a growing number of researchers in New Zealand are now familiar with these protocols and with the data currently available.

The second constraint is that approval would have to be given for the release of most of the data currently collected through both the individual and dwelling forms of the 2006 census although there are several precedents.¹⁷ Recall that the modeling requires not only access to the attributes of households but also to the choice set they face in making housing purchase (or rental) decisions. There are ways of defining that choice set to avoid having to consider the full set of possible dwellings. Typically subsets of reasonable choice sets are selected, but this is unlikely to be a trivial decision in practice.

¹⁷ Rights of use are not automatic and there is a fee charged which would have to be built into the contract. Applications for funded research have to be submitted to SNZ with final approval being that of the Government Statistician. The criteria are available upon inquiry but include wider benefits to New Zealand.

There are other strategic and analytic decisions that would be faced by any research team. These include decisions on exactly who to model (within one or both of the regions). We know from the census who has made dwelling choices, their demographic characteristics and where they live etc. What needs to be conceptualized is the notion of choice. In practice this means deciding whether the modeling is to be confined to recent purchasers (and renters) – those who have moved into their dwelling within a year of the census – or whether to extend the notion of choice to a wider or even full population.

The advantage of analyzing recent movers is that both the purchase or rental contract and the attributes of the household *and* the dwelling (and the neighbourhood etc) are measured at the same time. Models based on recent movers do provide insights into how that certain subset of the population who happened to be in the market within a year of the census made their housing decisions. At the same time, recent movers are not a random subset of all those occupying dwellings. Far from it; they are much younger and more mobile compared to stayers. Moreover the picture one gets from an analysis of their behaviour is contingent upon the particular macro and location setting at the time they moved. These are decisions which are generic to the study of the demand for durable goods and are not specific to the census or any other data source.

The more general point however is that the study of recent movers omits the counterfactual – the behaviour of non-movers. Stayers, as they are called, are nevertheless also exercising their housing choice. They are choosing to continue consuming housing services from the dwelling they currently occupy. Understanding demand as expressed by movers and stayers is one of the challenges a research team would face.

If the CHRANZ Board made a decision to run with this proposal then it would have implications for the structure of the research team. Most of these are predictable but we'll spell them out nevertheless.

Implications for the research team.

Any research team bidding for this contract would be expected to have a background in multivariate modeling in a spatial environment, have a sound knowledge of the international housing market literature and ideally some experience in analyzing unit record data from the census. Such experience is certainly available globally given the widespread application of multinomial logistic modeling in general, the growing availability of rich, microlevel spatial data and the widespread availability of geographical information systems (GIS). We are not able to say just how deep the field would be if a search was confined just to New Zealand or Australia.

The last point notwithstanding, knowledge of the New Zealand census and experience with SNZ Data Lab protocols (and previous experience therein) would be a distinct advantage. At the level of modeling being proposed here a thorough knowledge of the *individual record structure* New Zealand census would be highly desirable. These are

distinct from the cross-tabulations most users are familiar with. When it comes to using individual records there are additional issues to consider among the most important of in a multivariate context being the pattern of missing values (which are extensive throughout the census returns). This is bound to be a problem in certain parts of Northland as has been nicely documented with respect to the 1991 census (Kearns and Reinken, 1994). The problem with missing values is that since they are not highly correlated across variables they compound, removing records successively with the addition of each new variable to the model. The result can be a biased sample from the full and largely representative census.

Knowledge of imputation methods, multiple estimations and other behind the scenes work necessary to reach the modeling stage should not be underestimated. One of these steps for example involves computation of accessibility and various distance and possibly 'amenity' variables using GIS. These are typically undertaken for the sample of dwelling bundles included in the choice set.

The census for example does not report the value of the dwelling although these are available for purchase from Quotable Value Ltd and could be matched up for recently traded dwellings. However individual addresses would likely not be released by SNZ even in a lab setting because they would violate confidentiality of households and individuals. Estimating likely dwelling prices using parameters from hedonic modeling of relevant QV data would be one route to obtaining the necessary values to include in the multinomial modeling equations. As any modeler knows, such background work can make up the bulk of any project.

Other limitations

While successful application of residential location choice modeling would allow most of the questions we have raised to be answered – and many more besides – there are some issues which would remain untouched by this approach.

One of these is the role currently being played in the housing market by non-occupier investors. There is no question in the census or any other accessible data set we are aware of on the purchase of second or investor homes for example (although we believe inclusion of such questions in the census was lobbied for). Having said that, we've not investigated special surveys on real estate wealth or asset holding. Nor would there be investigation within the proposed modeling of the purchase decisions of properties by other non-occupiers including those who become landlords. There is a case however for this being the subject of a separate possible 'demand' study drawing on different data and methods as appropriate

Although we have raised the issue of 'club housing' none of the institutional arrangements around land or covenants on use that typically accompany such housing are accessible from the census or any other public data set to our knowledge. The role of

covenants and other restrictive ‘club’ practices does appear to be growing and would warrant its own separate investigation.

Depending on stakeholders rating of the relative importance of the questions we have raised so we would have to consider alternative modes of enquiry if these other issues emerged as equally or more important than those being covered.

Finally, and while not necessarily part of this brief, we believe that any research proposal would benefit the housing research community, including CHRANZ, by having as a requirement explicit provisions to train new researchers. These would typically be graduates with relevant masters or PhDs who would gain valuable hands on experience in analyzing housing data but within the context of an experienced team approach. This is a distinctly different experience to simply offering a scholarship to aid graduate academic research, and could if accompanied by incentives work, gradually raising the researcher: data ratio in New Zealand.

In summary, residential location choice modeling is now a feasible option in New Zealand. In the right hands it stands a real chance of being able to answer most of the questions we have posed in this scoping report. While there is a case for application to just one of the regions to begin with, by comparing two very different regions we would, be able to assess the generality of the method, the possible effect of context on parameters as well as relative costs and timeframes.

In either case, we would expect that the research team would work closely with those locals who have a sound practical knowledge of the respective housing and employment markets. While obviously important at the planning stages with a genuine commitment and buy in from stake holders there should be a keen audience with which to share results at the different stages in the research process. We see this being an extremely valuable interaction, encouraging all parties to consider the substantive meaning of results but also suggesting alternative specifications and formulations in order to get the practical renditions of the on-the-ground research questions right. Informally this would be an extremely valuable forum from which to harness knowledge - both ways – on the workings of our regional housing markets and their connections with their employment base.

Appendix 1. Field contacts

One or more face to face meetings were held with the following.

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