

A State Housing Database: 1993-2009

Alex Olssen, Hugh McDonald, Arthur Grimes & Steven Stillman Motu Working Paper 10-13 Motu Economic and Public Policy Research

November 2010

Author contact details

Alex Olssen Motu Economic & Public Policy Research alex.olssen@motu.org.nz

Hugh McDonald Motu Economic & Public Policy Research hugh.mcdonald@motu.org.nz

Arthur Grimes Motu Economic & Public Policy Research arthur.grimes@motu.org.nz

Steve Stillman Motu Economic & Public Policy Research steve.stillman@motu.org.nz

Acknowledgements

We thank the Royal Society of New Zealand for financial assistance through Marsden grant 07-MEP-003 (Home Ownership and Neighbourhood Wellbeing). We also owe a considerable debt of gratitude to Housing New Zealand Corporation for making the data available to us and to its employees for their assistance. None of the above organisations is responsible for any errors or omissions in the paper; and opinions expressed are solely attributable to the authors.

Motu Economic and Public Policy Research

PO Box 24390 Wellington New Zealand

Email info@motu.org.nz Telephone +64 4 9394250 Website www.motu.org.nz

© 2010 Motu Economic and Public Policy Research Trust and the authors. Short extracts, not exceeding two paragraphs, may be quoted provided clear attribution is given. Motu Working Papers are research materials circulated by their authors for purposes of information and discussion. They have not necessarily undergone formal peer review or editorial treatment. ISSN 1176-2667 (Print), ISSN 1177-9047 (Online).

Abstract

The 1990s saw a significant sell-off of state houses in New Zealand, while the 2000s saw a material rebuilding of the state house inventory. We provide in-depth documentation of a rich spatially-defined dataset of the stock, acquisition and disposal of New Zealand's state houses since the early 1990s. The paper examines the dataset's reliability and outlines major national and regional state housing trends since 1993. We detail the levels and changes in density of state housing in New Zealand's major urban areas, and relate these measures to the areas' deprivation status. The richness and completeness of the dataset, and the fact that it covers two distinct policy periods (driven primarily by exogenous political preferences), means that it can provide a strong basis for detailed studies on the societal and individual impacts of homeownership and related matters. We discuss future research possibilities that utilise this dataset.

JEL codes

H42, H76, R31

Keywords

State housing; public housing; housing assistance; New Zealand

Contents

1.	Introduction	
2.	Background	
	2.1. Early State Housing	2
	2.1.1. Rent setting	
	2.1.2. State finance	
	2.1.3. Changing stock	
	2.2. The 1990s	
	2.2.1. State house sales	6
	2.2.2. Home Buy sales	6
	2.2.3. Vacant sales	7
	2.2.4. Large scale sales	
	2.3. The 2000s	
3.	Data Description	
	3.1. Housing Data	
	3.1.1. Data Cleaning	
	3.1.2. Reliability of Housing Data	
	3.2. Census Data	
	3.3. Deprivation Index	14
4.	Descriptive Statistics	
	4.1. Stock over time	
	4.2. Disposals over time	
	4.3. Sales, Destructions and Acquisitions	
	4.4. Stock, Acquisitions and Disposals, by Region	
	4.5. State Housing Density by Region	
5.	Maps of state housing concentration & deprivation	
	5.1. State Housing Density Maps	
	5.1.1. Auckland Example	
	5.2. Change in Density	
	5.2.1. Auckland Example	
6.	Summary and future data use	
7.	Tables	
8.	Figures	
9.	Bibliography	
10.	Maps	
	10.1. Appendix A: Density of State Housing	
	10.2. Appendix B – Changes in State Housing Density Over Time	

1. Introduction

The 1990s and 2000s were a period of significant public housing reform in New Zealand. Housing policy reform began shortly after the election of the fourth National government in October 1990. The reforms of the 1990s involved the introduction of market based rents for state houses, a major withdrawal of the state from housing finance, and the sale of a large number of state houses. Housing policy changed direction after the election of a Labour government in November 1999. The new government reintroduced social (income-related) rents, developed a new allocation system for state housing tenants, placed a moratorium on sales to tenants, and increased the state housing stock.

These exogenous changes in policy and their resulting effect on home ownership rates in impacted areas offer an opportunity to measure the impact of homeownership and other forms of housing tenure on a range of outcomes, at both the individual and societal level. This paper is the first step in an ongoing homeownership research project which utilises this opportunity. The primary purpose of the paper is to provide in-depth documentation of a rich spatially-defined dataset of the stock, acquisition and disposal of New Zealand's state houses since the early 1990s. The richness and completeness of the dataset, and the fact that it covers two distinct policy periods, means that it is capable of providing the basis for detailed studies on the societal and individual impacts of homeownership and related matters.

In documenting the data, we examine its reliability and outline the major national and regional trends in state housing since 1993. The density of state housing in New Zealand's major urban areas and changes in this density are also examined. We relate the level and prevalence of changes in state house density to deprivation measures in New Zealand's major urban areas. The paper ends with a discussion of future research plans. The paper is structured as follows: Section 2 provides a background on state housing in New Zealand emphasising the period since 1990, Section 3 describes our dataset, its construction, and assesses its reliability; Section 4 presents descriptive statistics relating to the pattern of stock and sales since the 1990s; maps of state housing density by urban area, and changes in density are found in Section 5; while Section 6 looks at future research plans.

2. Background

2.1. Early State Housing

Workers' dwellings were the first form of state provided housing in New Zealand. In 1905, the Workers' Dwelling Bill was passed. The legislation was created in response to slumlike accommodation for workers in the cities. Central government built several dozen houses in Petone. However, they were not cheap enough for the intended tenants and they were too far from Wellington; hence take-up was low.¹ It was not until three decades later that the New Zealand government would again address poor living conditions by developing the state housing stock that we know today. The first of these state houses was completed in 1937 at 12 Fife Lane, Miramar, Wellington. The McGregors were its first inhabitants and when its doors opened, the Prime Minister Michael Savage and his Cabinet were ready to carry in the furniture.

The first Labour government was elected in 1935. Early on it laid the groundwork for its state housing project: it passed the Reserve Bank of New Zealand Amendment Act to give the government access to cheap Reserve Bank Credit; it nationalized the Mortgage Guarantee Corporation renaming it the State Advances Corporation of New Zealand, which would manage state rentals and provide cheap credit to people entering into private home ownership; and it created the Department of Housing Construction – linked to the State Advances Corporation – which would oversee the construction of state rentals.²

With this institutional framework in place, Walter Nash, the Finance Minister, announced the government's goal to build 5,000 state houses at a cost of ± 3 million. These houses were to be built by the private sector as government lacked the necessary skills for their construction.³ The quality of these state houses was to be very high –intended to be equal to or better than the standard house at the time. Furthermore, the government's determination to ensure that the new state houses would not be labelled "workers' dwellings" or "government mass-produced houses" meant that state houses on the same street were to have different elevation and features.⁴ This focus on quality led to increased building costs, and an initial determination that state houses pay for themselves meant that higher than anticipated rents were set.

¹ Schrader, Ben. 2005. We Call It Home, Auckland: Reed Books. pp. 26.

² Davidson, Alexander. 1994. A Home of One's Own: Housing Policy in Sweden, Stockholm: Almqvist & Wiksell International. pp 68-70/Schrader, Ben. 2005. We Call It Home, Auckland: Reed Books. pp. 35

³ Schrader, Ben. 2005. We Call It Home, Auckland: Reed Books. pp. 35

⁴ Davidson, Alexander. 1994. A Home of One's Own: Housing Policy in Sweden, Stockholm: Almqvist & Wiksell International. pp. 71

2.1.1. Rent setting

Setting the level of rent for state houses was a difficult task. For example, in 1949, the average rent was \pounds 1-7-6, around half the estimated minimum profitable rent, resulting in waiting lists in excess of 30,000 people.⁵ The Tenancy Act 1955 defined the 'fair rent' which was based on a property's capital value and an allowance for maintenance costs.⁶ From the 1970s through to 1992 state houses had income related rents of one sort or another.⁷ Tenants were to pay whichever was lower of the fair rent and one sixth of household income – defined as the income of the principal earner plus two thirds of the income of the principal earner's spouse. In 1984, rent was set at 25% of household income – defined as the sum of the principal earner's and their spouse's income. In 1992, income related rents were removed in favour of market rents and income supplementation. Income related rents returned with the election of the fifth Labour government in 1999.

2.1.2. State finance

State finance for home loans has been a significant part of New Zealand housing policy. Often, state finance has been at concessionary rates in order to promote home ownership, especially for low income families. One such policy was the three percent loan. In 1958, Labour introduced 3% home loans for families earning less than £1,000 per year,⁸ resulting in the State Advances Corporation becoming a major source of home financing. By 1973, 18.6% of housing finance was state funded.⁹ However by the 1990s, most concessionary finance had ended and the Housing Corporation of New Zealand sold off the bulk of its mortgage portfolio.

2.1.3. Changing stock

Despite regular institutional restructurings, New Zealand governments have continually acquired and sold state houses. By 1950, the New Zealand government had built 32,238 houses, but waiting lists still stood at 45,370.¹⁰ In 1952, a (National) government introduced the first

⁵ Davidson, Alexander. 1994. A Home of One's Own: Housing Policy in Sweden, Stockholm: Almqvist & Wiksell International. pp. 87.

⁶ Schrader, Ben. 2005. We Call It Home, Auckland: Reed Books. pp. 63.

⁷ Schrader, Ben. 2005. We Call It Home, Auckland: Reed Books. pp. 64.

⁸ Ferguson, Gael. 1994. Building the New Zealand Dream, Palmerston North: Dunmore Press. pp. 195.

⁹ Davidson, Alexander. 1994. A Home of One's Own: Housing Policy in Sweden, Stockholm: Almqvist & Wiksell International. pp. 125.

¹⁰ Ferguson, Gael. 1994. Building the New Zealand Dream, Palmerston North: Dunmore Press. pp. 177.

policy allowing state housing tenants to buy their homes. By 1975, 27,090 of the 77,231 state houses built between 1937 and 1975 had been sold.¹¹ However, it was not until the 1990s that the state would make the move from selling only to state housing tenants to selling state houses generally on the private market.

2.2. The 1990s

New Zealand's state housing policy changed direction significantly in the 1990s under a new National government. In 1993, New Zealand held a stock of approximately 70,000 state houses which were leased at income-based subsidised rents. The new policy moved towards market rents plus a cash supplement to assist with issues of affordability. State involvement in mortgages was reduced with a large proportion of the state mortgage portfolio being privatised. Finally, the stock of state rentals underwent large changes due to new asset management strategies that saw a large fall in state rental stock.

Housing reform began in 1991 after a new National government had been elected the previous year. The Minister of Housing, indicated the new direction of state housing policy.¹² The government considered that the existing housing policy was unfair because benefits were administered in a variety of ways which saw different levels of assistance to people of similar circumstances; of particular concern was the fact that state housing tenants received considerably more assistance than other tenants due to their subsidised rents. Government also considered the system inefficient because subsidised rents, based solely on income, provided no incentives for state tenants to rationally utilise state housing resources – their rent was the same whether they were in a state house with five bedrooms or two, in the centre of the city or on its periphery.

Institutional restructuring occurred in 1992 with Housing Corporation New Zealand split into three separate entities: Housing Corporation New Zealand; Housing New Zealand Limited; and the Ministry of Housing.¹³ Housing Corporation New Zealand now dealt only with the state's mortgage portfolio. Housing New Zealand dealt with all state rentals including their management, maintenance, acquisition and disposal. The Ministry of Housing dealt with tenancy disputes, essentially administering the Residential Tenancies Act 1986, and giving policy advice to

¹¹ Davidson, Alexander. 1994. A Home of One's Own: Housing Policy in Sweden, Stockholm: Almqvist & Wiksell International. pp. 139.

¹² Luxton, John (The Hon). 1991. Housing Accommodation, Accommodation Assistance, Government Print.

¹³ Housing Corporation of New Zealand, Annual Report, Appendix to the Journal of the House of Representatives, B-13, 1993. pp. 5.

the government. Housing New Zealand was created as a Crown entity; its main objective was to operate as a successful business that would assist in meeting the Crown's social objectives and be "as profitable and efficient as comparable businesses that are not owned by the Crown."¹⁴ This shift in priorities was indicative of the new direction of state housing policy.

Institutional restructuring had left Housing New Zealand Corporation in control of the state's mortgage portfolio. The portfolio was considerable – privatization proceeds for Housing Corporation Mortgages between 1988 and 1999 exceeded proceeds from any source other than the sale of Telecom.¹⁵ Financial assistance in the form of mortgages had been a long standing and large part of government housing policy. Many schemes had been in place to assist low income families – such as the Homestart scheme, however most of these schemes were stopped under the new government. By the 1990s, many loans with HNZC were at market rates and the government felt it appropriate to sell them to private banks. Furthermore, throughout the 1990s, the amount of loans made by HNZC fell sharply. In 1990, NZ\$746 million was advanced while only NZ\$36 million was advanced in 1996.¹⁶

The next step in the reforms was to move all state rentals towards market based prices. Rents were set by comparing state houses to a set of benchmarks and choosing rates which matched but did not lead market rates. Market rents were gradually phased in. On 1 July 1993, the Accommodation Supplement was introduced and by 1994 up to 80% of state rentals were to have market rents – the remainder would take longer due to a \$10 cap on rent increases per week.¹⁷ An Accommodation Supplement could enable people to maintain their current living situation or change it if they could find better uses for their money. The combination of market rents and a direct income supplement was favoured for two reasons. First, it was considered fair across all low income households rather than giving privilege to those who obtained tenure with the state. Second, it encouraged people to economise on state housing resources as they would be subject to price pressures.

With efficiency as a new priority, asset management became a new focus with steps designed to ensure that state housing stock was located strategically in areas of high demand. New asset management strategies resulted in the development of the Home Leasing programme,

¹⁴ Housing Restructuring Act, 1992: Section 4 cited in Murphy, Lawrence. 2003. "Reasserting the 'social' in social rented housing: politics, housing policy and housing reforms in New Zealand", International Journal of Urban and Regional Research, 27:1, pp. 90-101.

¹⁵ New Zealand Treasury, 1999 cited in Murphy, Lawrence. 2000. "A profitable housing policy? The privatization of the New Zealand government's residential mortgage portfolio", Regional Studies, 34:4, pp. 395-399.

¹⁶ Murphy, Lawrence. 2000. "A profitable housing policy? The privatization of the New Zealand government's residential mortgage portfolio", Regional Studies, 34:4, pp. 395-399.

¹⁷ Housing New Zealand, Statement of Corporate Intent, 1994, pp. 1.

a new policy aimed at bolstering the state housing stock by leasing properties from private landlords and then letting them to Housing New Zealand tenants. The Home Leasing Programme, introduced in 1995, was seen to have the advantage of giving Housing New Zealand more flexibility in the location of its stock so as to be more responsive to the changed housing demand that resulted from charging market rents on state houses.¹⁸ As well as new acquisition policies, Housing New Zealand's asset management strategies placed a new focus on sales.

2.2.1. State house sales

State house sales led to a large decline in the state housing stock in the 1990s. This decline was attributable to two main types of sales. First, Housing New Zealand's tenants were offered the chance to buy their homes under the Home Buy scheme. This scheme was in line with the objective of previous National governments of increasing home-ownership in New Zealand. Second, Housing New Zealand sold off many vacant houses in a systematic restructuring of its stock. This restructuring was aimed at ensuring state housing stock better suited the demand from its targeted tenant group.

2.2.2. Home Buy sales

The Home Buy scheme offered Housing New Zealand tenants the chance to buy a state house.¹⁹ In most cases, tenants had the opportunity to buy their own house, but some houses were reserved from sale. In these cases, the tenants could apply to Housing New Zealand to buy a vacant state house. The Home Buy scheme sold houses to tenants at market prices. The government had a list of approved independent valuers. A tenant wanting to buy their house could choose a valuer from the list and the government would pay to have a valuation done. The house was then offered at the valuation price. Disputes over valuation could be settled by a process determined by the relevant Ministers. Under the Home Buy scheme the government offered a suspensory loan for 10% of the house's price up to an upper-limit - \$15,000 in 1999 - which was written off over 7 years so long as the purchasers continued to own and occupy the house.²⁰

¹⁸ Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 1995. pp. 10.

¹⁹ Housing New Zealand, Statement of Corporate Intent, 1995, pp. 3.

²⁰ Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 1999. pp. 8.

Between 1995 and 2000, about 500 houses were sold annually under the Home Buy scheme.²¹ Anecdotal evidence suggests that some valuations resulted in sales below market prices with a few people turning large profits in a very short time.²² This is not necessarily surprising due to a standard selection effect. If we assume that tenants had a reasonable idea of the value of the house they were living in, we would expect them not to buy if valuations were high (relative to market) and to purchase the house if valuations were low; thus a system of offering houses to existing tenants according to an independent valuation is likely to lead to some buyers receiving a bargain.

2.2.3. Vacant sales

While Home Buy sales were important, the majority of state house disposals were vacant house sales. The sale of vacant state houses represented a new and significant component of the management of the state housing stock. Earlier state housing policy had seen the state acquire rental properties in diverse locations in order to prevent the clustering of low socio-economic groups – a practice known as "pepper potting".²³ Some of these houses now commanded considerable market rents putting them beyond the budget of low-income households, Housing New Zealand's target group. Hence, they were no longer suited to the needs of targeted state housing tenants and were a high priority on the list of properties to sell.

Vacant state houses were either re-let, sold as a Home Buy sale (to a tenant of another state house), or sold as a vacant sale. Houses to be sold as vacant sales were offered to "anyone through real estate companies and active marketing at the Neighbourhood Unit level."²⁴ Serious housing needs applicants got priority, then Home Buy sales applicants, followed by vacant sales applicants, and finally the house could be let to non-priority applicants. Thus, apart from serious housing needs applicants, house sales were a priority. In order to determine whether a vacant house ought to be offered for sale or re-let to non-priority applicants several criteria were considered. These included whether the house made a good return as a rental, the demand for state housing in the area in which the vacant house was located, the ease and speed with which a

²¹ Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 1995/1996/1997/1998/1999/2000. Facts at a Glance.

²² Schrader, Ben. 2005. We Call It Home, Auckland: Reed Books. pp. 73-75.

 ²³ Schrader, Ben. 2005. We Call It Home, Auckland: Reed Books. pp. 57.

²⁴ Housing New Zealand Corporation. 22 December 2009. Response to an Official Information Act request.

sale could be made – some houses didn't have individual titles making things difficult – and whether or not the achievable price would be affected by the volume of HNZ sales.²⁵

2.2.4. Large scale sales

In some instances, large numbers of state houses were sold to one owner (as a Community Partner sale). The Hawke's Bay and Wairarapa community trusts bought over 500 state houses for \$11.5 million (approximately \$20,000 per unit). However, when the Porirua Community Trust tried to buy or manage up to 3,000 state houses it met considerable resistance.²⁶

2.3. The 2000s

Under the Labour government, state housing policy changed direction again. The new government placed a moratorium on sales – disestablishing the Homebuy Programme. Institutional restructuring again took place. This time several agencies were merged together to form Housing New Zealand Corporation. Income-related rents were re-introduced, a new Social Allocation System was developed to direct housing resources towards pressing housing needs, and several new programmes were developed to increase and modernise the state housing stock and to increase home ownership.

Housing New Zealand Corporation was established in July 2001.²⁷ It was formed through the combination of Housing New Zealand Limited, Community Housing Limited, and Housing Corporation New Zealand. It also took on the policy advice role which was formerly fulfilled by the Ministry of Social Policy. This meant that Housing New Zealand Corporation had two main roles – to administer state housing, and to give the government housing policy advice.

Housing New Zealand Corporation's new Social Allocation System prioritised applicants using several criteria – including their ability to pay private rents, the crowding of their current living arrangements, the discrimination they face in finding housing, and the sustainability of their current living arrangements. It placed applicants in one of four categories – with Segment A applicants being at risk and facing severe and persistent housing need, through to Segment D

²⁵ Housing New Zealand Corporation. 22 December 2009. Response to an Official Information Act request.

²⁶ Schrader, Ben. 2005. We Call It Home, Auckland: Reed Books. 74-75.

²⁷ Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 2002. pp. 4.

applicants who may be able to cope in the private rental market.²⁸ Accompanying the new allocation system was a move back to income-related rents. Income-related rents were introduced as a direct measure to assist housing affordability, with state tenants being required to pay no more than 25% of their total household income on rent.²⁹

The new government also undertook several initiatives with respect to increasing and maintaining the state rental stock. For instance, in their Annual Reports, Housing New Zealand Corporation emphasised the Rural Housing Programme and the Community Renewal project.³⁰

The Rural Housing Programme aimed to address substandard housing in rural areas.³¹ Particular attention was paid to Northland, the East Coast, and the eastern Bay of Plenty (NECBOP). The programme dealt with substandard housing in several ways. First, there was a focus on increasing state housing stock in these areas – approximately 50 houses were added to the state rental stock per year in the NECBOP regions during the period of the programme. Second, money was put aside to be used for loans for essential repairs and infrastructural improvements. Finally, Housing New Zealand Corporation worked to develop partnerships with local community-groups and iwi to ensure adequate housing would be sustainable into the future.

In addition to the focus on the NECBOP areas, emphasis was placed on increasing the state housing stock in Auckland.³² Large developments were begun in Hobsonville and Papakura. The Hobsonville project is still uncompleted. When finished it is expected to add 3,000 units to the state housing stock, with the first tenants moving in by early 2011.³³

Maintenance also became a priority. Modernisation and energy efficiency programmes saw many state houses upgraded. The Community Renewal project aimed to foster strong communities by improving the physical condition and appearance of state owned rentals.³⁴

Home ownership assistance took the form of lending assistance. The Low Deposit Rural Lending scheme gave loan assistance to a couple of hundred people per year who had completed a home ownership course and had saved a 3% deposit.³⁵ The Welcome Home Loan mortgage insurance scheme began in 2005 and assisted around 1,000 modest income households into first time home ownership per year until 2009. It provided loan insurance, enabling participants of

²⁸ Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 2002, pp. 8, 2003, pp. 14, pp. 28.

²⁹ Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 2002. pp. 16.

³⁰ See for example Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 2003. pp. 9.

³¹ Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 2003. pp. 9.

³² Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 2007. pp. 7, 2008, pp. 9, 2009, pp. 27.

³³ Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 2009. pp. 21.

³⁴ Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 2003. pp. 9-10.

³⁵ Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 2003. pp. 10.

the scheme to obtain finance on loans up to \$200,000 without any deposit.³⁶ Other schemes such as the Papakainga housing scheme also helped people into home ownership. This scheme focused on finance for Māori on land held in multiple ownership structures, a situation which often prevented access to regular mortgage finance.³⁷

In 2009, a new National government announced that the sale of state houses to tenants would be reintroduced. The policy would allow non-strategic, freehold, stand-alone state houses to be sold to tenants, with proceeds from the sales being reinvested in state housing in areas of high demand.³⁸

The history of state housing has therefore exhibited cyclical patterns determined by the party of government. Since the 1950s, all governing parties have acted on the presumption that home ownership is desirable and should be promoted. Labour has focused more on retaining the state housing stock and promoting home ownership through finance to buy houses on the private market. National, on the other hand, has generally sought to promote home ownership, in part by selling off state rental stock to tenants. In the 1990s, it supplemented this policy with a more general sale of existing vacant state houses on the open market.

3. Data Description

3.1. Housing Data

Housing New Zealand Corporation (HNZC) generously provided us with a dataset on 80,983 state houses covering the period 31 January 1936 to 16 February 2010. Prior to 1993, a large number of state houses were not managed by HNZC and thus are outside our dataset. . These houses show up in our data as takeovers on 1 November 1992, when HNZC started actively managing them.³⁹ Hence, this data can only be used to examine changes in the housing stock from 1993 onwards.

The dataset includes information on acquisition dates, whether a property has been sold or destroyed, sales dates, sales prices, single and double bedroom numbers, and the location of houses – with each property coded at the meshblock level.⁴⁰ Property type information is also

³⁶ Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 2009. pp. 23.

³⁷ Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 2009. pp. 24.

³⁸ Housing Corporation of New Zealand, Annual Report, AJHR, B-13, 2009. pp. 21.

³⁹ Housing Corporation of New Zealand, Annual Report, Appendix to the Journal of the House of Representatives, B-13, 1993. p. 2.

⁴⁰ Meshblocks are the smallest geographic unit for which Statistics New Zealand collects data. They vary in size, from part of a city block up to large sections of rural land.

recorded and describes the type of building – for example whether a house is a single-unit, or part of a multi-unit or multi-storey building. For sold houses, we have information on sale type: whether the sale was made to a state housing tenant under the Home Buy scheme, sold privately as a vacant sale, or sold to a community group as a Community Partner sale. The dataset also includes information on the construction date of the house, and the most recent change to each house's property status.

One goal of our analysis is to look at trends in state house sales. Sales in this data take place between 30 June 1993 and 12 February 2010. Of the 80,983 houses in our dataset, 12,914 were sold as Home Buy or vacant sales – 3,113 Home Buy sales, and 9,801 vacant sales. A further 542 houses were sold as Community Partner sales – 538 houses in 1999 and 4 houses in 2000. This matches the information in Housing New Zealand annual reports for 1998 and 1999 recorded 541 properties, located in the Southern Hawkes Bay and Wairarapa, as being sold to Trust House Limited, a local community organisation. In addition to sales, another 1,790 houses left the state housing stock for reasons such as fire damage or destruction. We focus our analysis on Home Buy and vacant sales – which increase private homeownership – rather than on institutional ownership. Of the total 12,914 Home Buy and Vacant sales, 11,782 were sold between 1 July 1993 and 30 June 2000. Accordingly, our analysis is broken into two time periods. The first period is 30 June 1993 to 30 June 2000, a period with a large number of sales, resulting from the National government's policy on state housing. The other period runs from 1 July 2000 to 24 June 2009, a period with few state house sales but many acquisitions, resulting from the Labour government's state housing policy.

To ensure a consistent and reliable dataset some of this data had to be 'cleaned'; details of the required adjustments are described below.

3.1.1. Data Cleaning

The majority of adjustments to the data were to ensure that we had full and correct information on the meshblock location for all observations. The dataset included information at the street address level for properties which were sold or destroyed over the observation period (19% of the dataset). However, some of these addresses were of low quality; their treatment is described below. Properties which were in the housing stock at the end of the dataset observation period have location information only at the meshblock level (81% of the total sample). There was initial uncertainty whether the meshblock coding was based on 2001 or 2006 meshblock boundaries (which have some slight differences). Using 2001 meshblock definitions, we summed the meshblocks to area units and territorial authorities; the meshblock data scaled perfectly to the 2001 area unit and territorial authority definitions, indicating that use of 2001 boundaries is appropriate.

For the destroyed or sold properties we used the household address information to define the missing meshblock data. The vast majority of these addresses were reliably coded to 2001 meshblock codes using the government's Core Record System (CRS), or obtained and verified through Google Maps using the Application Programming Interface (API) tool. A small proportion of the data was less reliably coded; 5 observations (of the 80,983) were matched to a meshblock using the town or suburb the household was listed in, and 10 observations were more roughly located due to inconsistencies with their address information. These observations with less certain meshblock coding make up only a tiny proportion of the total sample and, as such, we do not consider these inconsistencies to represent a significant issue.

Along with the meshblock adjustments, the dataset required some further interpolation as a result of missing sales data. The dataset had 73 observations where no sales or destruction data was recorded and instead the observation was recorded as having been in the public housing stock until it was recorded as 'deleted'. Following communication with HNZC staff and by investigating the previous status of the observations, it became apparent that, prior to deletion, these houses were being prepared for sale. As a result we have considered these observations as sold, with the sold date being imputed as the final status change date. While these observations do not have the sales price or sales type data, they again make up only a tiny proportion of the dataset. They are not included in the various summary statistics and diagrams reported in the following pages.

The final alteration made to the dataset was a more significant one. Upon examining the changes to stocks on a day by day basis, it became clear that there was a significant outlier which appeared to have been miscoded. The dataset indicated that 878 units had been taken over on 31 August 1996, where the next highest level of daily takeovers was 132; there were only 8 other cases where takeovers per day exceeded 50. We investigated further and found that the sales were all from different areas (and therefore did not appear to be from one large purchase) and we could not find information to imply that this was anything more than a miscode. As a result, we shifted the data to a takeover period before our analysis period.⁴¹

⁴¹ Specifically, we shifted 859 observations for houses constructed before 1993 from 31 August 1996 to 1 June 1986.

No other imputations or adjustments were performed on the primary dataset, although some interpretation had to be applied when our data was merged with census data. This is discussed below in the census data section. All adjustments have been tagged within the dataset.

3.1.2. Reliability of Housing Data

To test the reliability of our dataset, we compiled a second dataset collecting information on public housing levels from an alternative source, HNZC annual reports. These reports detail how many houses HNZC managed as public housing at the end of the annual report period and (apart from a few exceptions) included the level of housing owned by HNZC.⁴²

The results of the comparison are quite encouraging. Table 1 demonstrates how closely our housing stock data (HNZC dataset) follows the figures quoted in the Housing New Zealand annual reports. We would expect our dataset to follow the owned level of housing and less closely the managed levels, and it does. The figures derived from our dataset are never more than 850 houses different to the number reported as owned in the annual reports, a difference of less than 1.5%, and for more than half of the years the difference is less than 400. Figure 1 demonstrates visually how closely our data follows the state housing levels reported in the HNZC annual reports.

It should be noted that the shifting of the 859 observations which were recorded as acquisitions on 31 August 1996 brings our dataset closer to the numbers officially reported in the HNZC annual reports. Without this shift, the difference between our dataset and the annual report records would be greater than 1,700 houses for the 1993 year.

For the analysis later in the paper we merge our dataset with Census data and NZ Deprivation data. This process is discussed below.

3.2. Census Data

We use unit record data from the 1991, 1996, 2001, and 2006 New Zealand censuses to calculate the number of private dwellings in different geographical areas, as well as the average socio-economic characteristics of the individuals living in these areas.

⁴² Where the annual reports did not include housing levels owned (as opposed to managed) we have imputed this figure by setting the difference between the two as equal to the difference between housing managed and owned in the closest years. These observations are marked.

Analysis later in this paper looks at changes in housing variables between the years 1993, 2000 and 2009; to perform some of this analysis we required numbers of total dwellings per geographical unit. While the New Zealand Census data has observations on the number of private dwellings per meshblock, the census years do not coincide with our years of interest. Hence, we estimate the number of private dwellings per meshblock in 1993 and 2000 by interpolating from the adjacent census data. We then aggregated to get estimates for the number of private dwellings per Regional Council, territorial authority or area unit in those years. To estimate the number of private dwellings in Nelson in 2000, for example, we started by taking all the meshblocks in Nelson's Regional Council. Then, by meshblock, we took the difference between the number of private dwellings in 2001 and 1996 according to census data. By averaging this over the five years we obtained a value that we could use as the average yearly change over the period between censuses. We added the appropriate multiple of yearly changes, four in this case, on to the meshblock data from the census data for 1996. We then aggregated over meshblocks to get the Regional Council estimate. For the 2009 estimates, we extrapolated using the average yearly change from the 2001 to 2006 census period.

3.3. Deprivation Index

We use NZDep2001 as a measure of socioeconomic deprivation. The deprivation index allocates each meshblock in New Zealand a decile score, where 1 represents not deprived and 10 represents highly deprived. It is an ordinal and strictly relative measure of deprivation; it is not a measure of absolute levels of deprivation.

The New Zealand deprivation index is created at the geographical level of small area units – agglomerations of meshblocks chosen to ensure at least 100 people are usually resident in each small area. It is created using census variables – standardised to control for age and sex. It takes into account housing ownership status, equivalised household income (using the revised Jensen scale), unemployment, the number of people without qualifications, the proportion of households on means tested benefits, car access, single-parent families, crowded living conditions, and telephone access.

4. Descriptive Statistics

In this section we present descriptive statistics on the patterns in the stock and sales of state houses over time and by region.

4.1. Stock over time

Table 2 shows yearly stock, sales, additions and destructions of state owned housing for the period 1993-2009 inclusive. There are four main panels. Levels and changes of stock are in the left panel, with sales of, additions to, and destructions of the public housing stock in the panels progressively to the right. The quantity column gives the level of stock at the end of a given year, or the number of additions, sales or destructions during a given year. The yearly change in stock is the difference between the yearly quantity of additions and removals (sales and destructions). The percentage-of-stock columns give the yearly sales, additions or destructions as a percentage of the previous year's total stock.

In the 1990s, there was a general tendency to sell state houses. The sales numbers between 1996 and 1999 are large and increasing – beginning at 2,047 and ending at 3,931. The largest year for sales was 1999 in which 3,931 houses, or 6.2% of the total stock of state owned rentals, were sold. Additions in the 1990s are comparatively small – the largest is 761 in 1999. Overall, the stock fell by 9,982 houses between 1993 and 2000.

In the 2000s, this tendency is reversed; stock levels rose from a low of 59,333 in 2000 to 65,583 in 2009. Between 2000 and 2009, the largest number of yearly sales is 267. Acquisitions, however, are consistently high with an average yearly acquisition rate of 998 houses; 2003 has a particularly large number of additions, with the additions being equal to 3.69% of the former year's stock.

Figure 2 shows stock levels visually on a finer monthly basis. This graph clearly illustrates the two separate policy periods since 1993 with the large decrease of housing stock through the 1990s and the gradual re-building of state housing over the 2000s. The housing stock reaches its lowest level in approximately January 2000, and increased from this point.

Significant sales and acquisitions are visible on this diagram. The sale of 538 houses to local community group Trust House Limited in March of 1999 is visible as a steep drop in the stock of houses during this time period. The purchase of 1616 units of housing stock from the Auckland City Council in February 2003 is also visible as a large step up in the monthly stock of houses.⁴³

⁴³ Both of these transactions have been tagged within the dataset to ensure that these changes in ownership can be left out of further analysis if desired, which may be the case as these transactions have not resulted in changes to private ownership, merely to changes in public sector landlord.

4.2. Disposals over time

Table 3 decomposes removals from the housing stock into four categories. The left panel has data for sales made under the Homebuy scheme which allowed tenants to buy their property off the state with the help of a suspensory loan. The second panel gives data for Vacant Sales, sold to private individuals. The third panel has observations on Community Partner Sales. The right-most panel has data on destructions of housing stock by year.

Homebuy Sales make up less than 21% of removals from the housing stock, almost all of which occurred before 2000. When Labour took office in 1999 they stopped the Homebuy Scheme; however, there are still a significant number of Homebuy sales in 2000 despite the moratorium, due to sales which were initiated prior to the election.

Vacant Sales make up approximately 65% of the removals. They are largest in the period 1996-1999. There were 1,416 vacant sales in 1996 increasing to 2,677 in 1999. Vacant sales then dropped to comparatively low levels – the low hundreds at most – during the 2000s.

Figure 3 displays disposals over time; it combines sales and destructions, and presents the levels of total disposals by month. In order to show the variation in the graph we use an axis break to separate the outlier of 829 sales in March of 1999, this outlier is as a result of the one off sale of 538 houses as part of the community partner sales policy.

Sales took off in 1995 when National began to implement the asset management aspects of its 1990s housing reforms. The Homebuy scheme was introduced and vacant sales increased quickly. Sales grew past a rate of 150 houses per month and stayed at high levels until the election of a Labour government in 1999. Following the change in government and the corresponding change in housing policy, sales fall to levels close to zero and remained there for the rest of the period which our data covers.

4.3. Sales, Destructions and Acquisitions

Figure 4 decomposes monthly housing removals into vacant sales, Homebuy sales and destructions by month, and also includes a graph displaying acquisitions of houses for the state housing stock. The figure illustrates a few overarching themes. As shown in the earlier statistics, sales are largest in the 1990s. Homebuy sales began in 1995 and reached a sale rate of almost 100 houses per month. Sales were consistently near 50 houses per month throughout the rest of the 1990s until the new government ended the Homebuy scheme upon election. (The miniscule, but

non-zero, observations well into the 2000s should be regarded as possible miscodings as the scheme was then no longer in place.)

The diagram shows vacant sales to be demonstrably more significant than Homebuy sales. Vacant sales were at low levels in the early 1990s and increased, peaking at just below 400 sales in a month in late 1999. The level of vacant sales fell away following Labour's election; however they continued to be non-zero.

Monthly disposals by destruction do not follow the pattern set out by the Homebuy and vacant sales graphs. Destruction levels are consistently very low throughout the 1990s and have slowly increased in level and volatility throughout the 2000s, becoming the most significant manner of disposals from the housing stock in the later 2000s. It is unclear what the causes of these trends are. One possibility is an intention to upgrade the quality of the state housing stock over this period.

The acquisitions graph shows that additions to the state housing stock generally increased in size over the period. Acquisitions were at their highest around 2006 and 2007, with monthly acquisitions consistently between 50 and 150. This trend of increasing acquisitions appears to have peaked around 2007/08, and monthly acquisitions have declined since. Also of note is the level of acquisitions through the 1990s, which, while relatively low, is still at a material rate, even as government policy dictated the selling down of the state housing stock. This acquisitions graph does not include the purchase of 1,616 units from the Auckland City Council in February of 2003, which dwarfs other monthly acquisitions.

4.4. Stock, Acquisitions and Disposals, by Region

Table 4 breaks down stock, sales and additions by Regional Council. The first three columns give the stock by Regional Council in 1993m6 (i.e. June 1993) before the reforms began, at 2000m1 when the state rental stock was at its lowest, and in 2009m1, which follows the end of the fifth Labour government. The next two columns give the percentage change in stock over the first period (1993 to 2000) and the second period (2000 to 2009). The percentage change is calculated as the difference between the two periods' stock divided by the initial period stock. Subsequent columns give the acquisitions, sales and destructions over the periods.

Looking at the percentage change in stock column we see that no regions increased their state rental stock during the 1990s. At this time, Wellington and Manawatu-Wanganui were the two Regional Councils to have the largest decline in state rental stock levels, with more than 4,000 state rentals sold between them – Wellington accounting for more than 2,900 sales. Proportionately, the biggest decreases in housing stock were felt in these two regional councils together with Taranaki, Otago, Southland and the West Coast which all saw their state housing stocks decrease by over 24%. By comparison, the Auckland region only experienced a 3.4% decline over the same period.

In the 2000s, Auckland, the Bay of Plenty and Northland all had material increases in state rental stock, with Auckland increasing its stock by nearly 6,000 units, an increase of over 20%. The stock increases in Auckland are consistent with government policy to target state rentals to areas of high demand. The increases in the Bay of Plenty and Northland are consistent with the NECBOP plan to build up the state rental stock in the upper North Island. Canterbury and Waikato also had increases to their stock arising from over 500 acquisitions in each region.

4.5. State Housing Density by Region

Table 5 shows the same variables as Table 4 but presents them in terms of the density of state housing by region; that is the proportion that state housing comprises of total private dwellings by region (i.e. public dwellings such as hotels, schools, retirement villages and prisons are excluded from these figures). The first three columns give the stock as a proportion of total private dwellings; the final two columns give the change in stock as a percentage of (initial) total private dwellings.

The concentration of state owned rentals fell across the whole country over the 1993-2000 period. In Auckland the percentage of state owned rentals to total private dwellings fell by 1.7 percentage points from 7.2% to 5.5%. The Wellington, Canterbury, Otago, Taranaki, West Coast and Manawatu-Wanganui regions also saw large declines in the concentration of state owned rentals. In 1993, 8.3% of dwellings in Wellington were state rentals, falling to 4.0% by 2000.

This trend slowed and even reversed for some regions between 2000 and 2009. The upper North Island, including Auckland, Gisborne, Northland, Waikato and the Bay of Plenty, all increased their concentrations of state owned rentals over the time period. Auckland and Gisborne show the highest concentrations of state owned rentals at 6.7% and 7.2% respectively, a concentration which increased significantly between 2000 and 2009. In the same period, the top of the South Island – Marlborough, Nelson, and Tasman – saw marginal increases in the concentration of state owned rentals while the lower South Island saw marginal decreases in the

2000s significant enough to make up for the decrease in density that occurred over the 1990s; all regions have a lower density of public housing in 2009 than in 1993.

The final two columns of the table show that while the state housing proportion of total dwellings fell during the 1990s, the fall is less material when controlling for total dwelling growth. The sale of state housing through the 1990s was not the sole contributor to the decrease in the proportion of housing represented by public housing; population growth (housed in private dwellings) also played a part. Thus it was a government choice not to invest in new houses as well as sales of existing houses that led to a decrease in the proportion of housing provided by the state over the 1990s.

Table 6 presents the change in the state housing density by Regional Council in a slightly different manner to Table 4. It shows the percentage point contributions of additions, sales and destructions to the change in stock (as a percentage of total starting period private census dwellings) between 1992-2000 and 2000-2009. The three percentage point contributions for each region for each period sum to the corresponding figure in the final two columns of Table 5 (after rounding error). For example, in Auckland, public housing is shown to have decreased by 0.25% of its June 1993 level between 1993 and 2000. Table 6 shows that this comprised sales equal to 0.68% of June 1993 stock, destructions equal to 0.01% of the 1993 stock, offset somewhat by additions to the public housing stock equal to 0.45% of the original stock levels.

5. Maps of state housing concentration & deprivation

5.1. State Housing Density Maps

The maps in Appendix A combine data on the concentration of state owned rentals and a deprivation index – NZDep2001 – for all major urban areas in New Zealand. We divide meshblocks into two categories. Meshblocks are treated as deprived if they have an NZDep2001 score of 8 or higher – all other meshblocks are considered not deprived.

For each map, red shades indicate deprived areas, and those in blue are not deprived. The density of public housing (i.e. the proportion of total dwellings comprised of state housing) is represented by the shading with lighter (darker) coloured areas having lower (higher) density of state houses. A different map is created for each of our three focus time periods, June 1993, January 2000 and January 2009. The Auckland set of maps is interpreted below. Maps for other urban areas are included in the appendix, in north to south order.

5.1.1. Auckland Example

Looking at the 1993m6 map for Auckland we can see that the majority of the city has no state housing, and that the areas that do have dense state housing are clustered in more deprived socio-economic neighbourhoods. Glen Innes, in particular, is a deprived area with a high density of state housing (darker red areas); most meshblocks in this area have at least 50% and often more than 75% state housing. Large clusters of low socio-economic areas with dense state housing also occur in South Auckland, in Mangere, Manurewa and Otara. Low socio-economic areas with a high density of state housing are also common in some of Waitakere's suburbs and more isolated clusters are apparent in the central city and the North Shore. There is little state housing in the less deprived areas (darker blue colours), with the notable exception of the Orakei region, where state housing is relatively dense for a non-deprived area.

The 2000 map shows only slight changes from the 1993 map, with the map appearing lighter in most areas, representing generally lower state housing density relative to the 1993 map. The South Auckland suburbs are an exception to this general observation, with little difference in the density of state housing in this area relative to the 1993 map. The density of state housing in the Orakei area (post-sales) is lower than was the case in 1993.

The 2009 map shows bigger differences, with the map becoming generally darker, representing denser levels of state housing. New areas of state housing are apparent, particularly an increase in the (initially) non-deprived area of East Tamaki, where in two meshblocks the density of public housing sat between 50% and 75% in 2009.

5.2. Change in Density

We have created a second set of maps, presented in Appendix B, that examines the changes occurring between 1993 - 2000 and 2000 - 2009. This second set of maps examines the changes in state-housing density by deprivation level and by mesh block. The change is measured by calculating the change in public housing stock levels in a meshblock over the time period as a proportion of the total number of dwellings in the meshblock at the start of the period. There may be a decrease, increase or no change in the density of public housing. The measure has been further decomposed by the extent of the change. Changes have been marked as a large change if the difference in state housing stock levels over the period is equal to more than 5% of the total number of dwellings in the start of the period. A change is marked small if the change in stock levels is equal to less than 5% of the beginning total dwellings number.

Like the original set of maps, this set includes information on deprivation status. Any meshblock which has an NZDep2001 score of 7 or lower is considered not deprived, while those with a score of 8 or above are considered deprived neighbourhoods. Not deprived areas are those that are in the green-blue spectrum, deprived areas are those in the yellow-red spectrum.

For deprived areas, decreases in the density of state housing are shown by yellow colours, with dark yellow indicating relatively large decreases, lighter yellow smaller decreases, peach no change, orange small increases in state housing density, and red indicating large increases in state housing density.

For non deprived areas large decreases in state housing density are indicated by dark green, light green indicates a smaller decrease, and no change is shown with a very pale blue-grey. A small increase in state housing density in a non-deprived area is shown by light blue, with dark blue indicating a large increase in state housing density in an area over the time period.

5.2.1. Auckland Example

The first map in Appendix B shows changes in density of state housing in Auckland between June 1993 and January 2001. Much of the map shows no change at all in the density of state housing; from the previous set of maps it is clear that most of these areas had no state houses at the start of the period and gained none over 6 years. There were changes in some parts of the city, however, predominantly showing decreases in state-housing density. The map shows significant areas of yellow, both light and dark, indicating deceases in density of state housing in deprived neighbourhoods. This is particularly noticeable in the Glen Innes and Mt Roskill areas, along with more scattered examples through Mangere and Otara. Significant decreases in the stock of state housing in the less deprived areas of Orakei/Mission Bay are also noticeable. There are some increases apparent, with some visible increases in South Auckland, mostly in deprived areas with some scattered increases in non-deprived suburbs in the north of Auckland.

The map showing changes in state housing density between 2000 and 2009 shows very different trends to the previous period's map. Over this decade, policy aimed to increase the stock of state housing in general, and in particular to increase the levels in deprived areas, and in the north of the North Island. While increases in stocks of state housing occurred in Auckland, those increases were as common in (initially) non-deprived neighbourhoods as deprived neighbourhoods. Large increases over this period occurred in non-deprived areas east of East Tamaki, and in Pakuranga, Henderson, and Albany. Deprived areas which saw increases in state

housing include Mangere, Manurewa and Papakura. In line with government policy, very few areas saw a decrease in their stock of state housing over this period.

6. Summary and future data use

The dataset that we have compiled provides a longitudinal unit record level inventory of state houses in New Zealand from 1993 to 2009. It details the stock, acquisition, sale and destruction of state houses over that period. Furthermore, for each house, we have specific details such as location (by meshblock), single and double bedroom numbers, and whether a house is a single-unit, or part of a multi-unit or multi-storey building. For houses that have been sold, we have sale price, date of sale and type of sale (Home Buy versus vacant sale, etc). We have checked the reliability of the dataset by comparing our derived numbers of state houses against HNZC annual report statistics and find that they match closely. This contrasts with census data on state house prevalence for which there is a well-known state house undercount (of the order of 20%). Analyses, especially at small spatial scales, that use census state housing data may therefore suffer from using noisy measures of state house location, where these measures are also likely to be biased owing to a correlation between misreporting and individual/household characteristics. By contrast, we are confident that the cleaned HNZC dataset provides a rigorous base on which to research impacts of changes in tenure status on individual, household and societal outcomes.

We have presented some initial exploratory research in this paper in order to demonstrate the detail available in the data. We provide descriptive evidence showing the relationship between the levels and changes in state house stocks relative to the deprivation status of local areas. As expected, there appears to be a strong relationship between state housing density and high deprivation status. Over the 1990s, there is some indication that state housing density may have declined more in less deprived areas (e.g. Orakei in Auckland) than in more deprived areas, in keeping with government intentions of the time. Over the 2000s, increases in state house density have been witnessed both in areas classified as deprived (e.g. parts of South Auckland) and also in areas that are classed as initially not deprived. Acquisitions in the latter areas (within Auckland) may reflect state house additions in greenfields sites on the fringes of the city that were initially not considered deprived areas.

Details on the location of additions and sales of state houses provide an opportunity to examine the impacts of changing tenure status on socio-economic outcomes. An initial study

could usefully establish the determinants of which state houses were sold through the 1990s, both in terms of location and type (e.g. number of bedrooms, stand-alone versus multi-story apartment, etc). Initial socio-economic characteristics of the neighbourhood and past trends in those characteristics (e.g. whether the neighbourhood had been "improving" or not) may be relevant; and the effects could well differ across sale type and house type. Similarly, determinants of the location of state house acquisitions (of various types) throughout the 1990s and 2000s could be established (determined, for example, by initial state house density in relation to deprivation status, availability of greenfields or brownfields sites, etc). These analyses would be of interest in their own right; they would also assist subsequent analysis of the impacts of state house changes as they would provide detail on the types of variables that need to be controlled for in assessing impacts of tenure changes.

Once the foregoing research has been completed, we envisage a number of potential projects (each controlling for factors that have determined the overall pattern of acquisitions and sales). The data enable us to test whether areas that changed their tenure status proportions due to sales of state houses in the 1990s subsequently underwent socio-economic changes relative to other areas (e.g. changes in crime rates, incomes, employment, etc). We can differentiate between changes due to Home Buy and vacant sale; in the former, the same tenants initially stayed in the house providing more of a controlled experiment of the impact of tenure change, whereas the latter may also have incorporated a change in tenant. Because we have the unit record address data for sold houses, we can also examine whether subsequent house price appreciation (from repeat sales of the same properties) differed between Home Buy and vacant sale properties, and also between repeat sales of Home Buy properties relative to other (non-state) houses. These latter results could be used to infer whether the change to homeownership (via the Home Buy scheme) had differential effects on the quality of the house (and possibly the neighbourhood) after controlling for other factors.

Similar research can be undertaken for the impact of state house acquisition on local outcomes. For instance, we can test whether the decision to locate state houses in one greenfields location but not in another leads to different outcomes between those locations (after controlling for other initial conditions). We can also examine whether the choice of state house density in new state housing locations affects outcomes, and whether there are interactions of this density with other neighbourhood characteristics such as density of home ownership relative to private rental in the area. These results may have implications for future choices over the nature of "pepper-potting" of state houses versus denser concentrations of such houses.

23

The fact that New Zealand experienced two substantially different, and politicallydetermined, policies towards state housing over the 1990s and 2000s, and the convenient delineation of the two policies close to the time of the 2001 census, makes this dataset a rich basis for future research. We envisage many other research opportunities in addition to those detailed above, ranging from detailed examinations of outcomes at the town or city scale, to nationwide analyses of impacts of state housing and changes in tenure. The cleaned dataset that we have derived and described here, forms the basis for this programme of research to flourish.

7. Tables

Table 1: Comparison of HNZC dataset with Annual Report Data

Year**	HNZC Dataset	Annual Report Managed	Annual Report Owned	HNZC Dataset - Annual Report Managed	HNZC Dataset - Annual Report Owned
1993	69,315	70,234	70038*	-919	-723
1994	69,337	70,116	69920*	-779	-583
1995	68,924	69,690	69,494	-766	-570
1996	67,047	67,955	67,201	-908	-154
1997	65,035	65,821	64,955	-786	80
1998	63,369	63,866	63060*	-497	309
1999	60,155	60,626	59,880	-471	275
2000	59,333	59,462	58,683	-129	650
2001	59,885	59,865	59,044	20	841
2002	60,363	61,878	60,786	-1,515	-423
2003	62,354	64,399	62,907	-2,045	-553
2004	62,922	65,304	63,434	-2,382	-512
2005	63,685	66,354	64,078	-2,669	-393
2006	64,367	67,357	64,759	-2,990	-392
2007	65,022	68,128	65190*	-3,106	-168
2008	65,324	68,644	65706*	-3,320	-382
2009	65,583	69,173	65,895	-3,590	-312

* Imputed values where annual reports did not include owned housing data.

**Year ended 30th June. i.e. 2000 is July 1st 1999 to June 30th 2000

Overall Stock				Overall A	dditions	Over	Overall Sales Overall Destroyed		l Destroyed
Year*	Quantity	Yearly Change	% Yearly Change	Quantity	Added % of Stock	Quantity	Sales % of Stock	Quantity	Destroyed % of Stock
1993	69,315	-	-	85	0.12	40	-	0	-
1994	69,337	22	0.03	58	0.08	36	0.05	0	0.00
1995	68,924	-413	-0.60	51	0.07	444	0.64	20	0.03
1996	67,047	-1,877	-2.72	188	0.28	2,047	2.97	18	0.03
1997	65,035	-2,012	-3.00	244	0.38	2,242	3.34	14	0.02
1998	63,369	-1,666	-2.56	601	0.95	2,252	3.46	15	0.02
1999	60,155	-3,214	-5.07	761	1.27	3,931	6.20	44	0.07
2000	59,333	-822	-1.37	537	0.91	1,347	2.24	12	0.02
2001	59,885	552	0.93	634	1.06	61	0.10	21	0.04
2002	60,363	478	0.80	628	1.04	96	0.16	54	0.09
2003	62,354	1,991	3.30	2,302	3.69	267	0.44	44	0.07
2004	62,922	568	0.91	810	1.29	108	0.17	134	0.21
2005	63,685	763	1.21	1,109	1.74	135	0.21	211	0.34
2006	64,367	682	1.07	1,082	1.68	109	0.17	291	0.46
2007	65,022	655	1.02	1,045	1.61	77	0.12	313	0.49
2008	65,324	302	0.46	723	1.11	112	0.17	309	0.48
2009	65,583	259	0.40	646	0.99	190	0.29	197	0.30
Overall	-	-	-	11,504	-	13,494	_	1,697	-

Table 2: Yearly Levels and Changes of Stock, Removals, and Additions

*Year ended 30^{th} June. i.e. 2000 is July 1^{st} 1999 to June 30^{th} 2000

	Homeb	ouy Sales	Vacar	nt Sales	Commun Sa	ity Partner des	Dest	royed
Year*	Quantity	% of Yearly Removals	Quantity	% of Yearly Removals	Quantity	% of Yearly Removals	Quantity	% of Yearly Removals
1993			40	100.0			; ; ;	
1994			34	100.0				
1995	254	55.0	188	40.7			20	4.3
1996	629	30.5	1,416	68.6			18	0.9
1997	465	20.6	1,775	78.7			14	0.6
1998	571	25.2	1,677	74.1			15	0.7
1999	713	18.0	2,677	67.4	538	13.5	44	1.1
2000	441	32.5	902	66.4	4	0.3	12	0.9
2001	34	42.0	26	32.1			21	25.9
2002	4	2.7	92	61.3			54	36.0
2003			302	84.4			56	15.6
2004	2	0.8	106	43.8			134	55.4
2005			132	38.5	 		211	61.5
2006			65	18.3			291	81.7
2007			67	17.6			313	82.4
2008			112	26.6			309	73.4
2009			190	49.1			197	50.9
Overall	3113	20.5	9801	64.6	542	3.6	1709	11.3

Table 3: Yearly Removals from Stock by Sales Type and Destruction

*Year ended 30^{th} June. i.e. 2000 is July 1^{st} 1999 to June 30^{th} 2000

		Stock		% Chang Bety	e in Stock veen	Addition	s between	Sales B	etween	Dest Betv	royed ween
Regional				1993m6	2000m2	1993m6	2000m2	1993m6	2000m2	1993m6	2000m2
Council	1993m6	2000m1	2009m1	- 2000m1	- 2009m1	- 2000m1	- 2009m1	- 2000m1	- 2009m1	- 2000m1	- 2009m1
Northland	1,976	1,840	2,143	-6.9%	16.5%	56	339	192	29	0	7
Auckland	24,124	23,302	28,067	-3.4%	20.4%	1,484	6,092	2,280	338	26	989
Waikato	4,902	4,060	4,457	-17.2%	9.8%	108	587	945	100	5	90
Bay of Plenty	2,365	2,168	2,570	-8.3%	18.5%	130	458	324	36	3	20
Gisborne	1,523	1,281	1,329	-15.9%	3.7%	12	102	252	31	3	23
Hawke's Bay	3,394	3,032	3,120	-10.7%	2.9%	20	173	374	45	8	40
Taranaki	1,801	1,321	1,298	-26.7%	-1.7%	15	41	494	51	1	13
Manawatu-Wanganui	4,603	3,262	3,061	-29.1%	-6.2%	34	80	1342	218	37	63
Wellington	11,923	9,050	9,066	-24.1%	0.2%	64	262	2,926	116	24	130
Tasman	184	150	168	-18.5%	12.0%	4	22	38	4	0	0
Nelson	619	566	610	-8.6%	7.8%	21	51	74	6	0	1
Marlborough	460	406	429	-11.7%	5.7%	25	31	79	5	0	3
West Coast	526	344	346	-34.6%	0.6%	14	15	195	11	1	2
Canterbury	7,501	6,035	6,368	-19.5%	5.5%	139	525	1,601	64	4	128
Otago	2,558	1,808	1,774	-29.3%	-1.9%	23	82	773	109	1	7
Southland	856	545	519	-36.3%	-4.8%	8	7	316	31	3	2
Overall	69,315	59,1 70	65,325	-14.6%	10.4%	2,157	8,867	12,205	1,194	116	1,518

Table 4: Stock, Removals and Additions by Regional Council

	Stock as a Percentage of Current Total Census Private Dwellings		Change in Stock as a Percentage of Total Starting Period Census Private Dwellings		
Regional Council	1993m6	2000m1	2009m1	1993m6- 2000m1	2000m2- 2009m1
Northland	4.4%	3.3%	3.7%	-0.30%	0.60%
Auckland	7.2%	5.5%	6.7%	-0.25%	1.24%
Waikato	4.3%	2.5%	2.7%	-0.73%	0.31%
Bay of Plenty	3.2%	2.2%	2.5%	-0.27%	0.47%
Gisborne	10.4%	6.8%	7.2%	-1.66%	0.32%
Hawke's Bay	6.9%	5.1%	5.0%	-0.74%	0.17%
Taranaki	4.8%	2.2%	1.9%	-1.28%	-0.06%
Manawatu-Wanganui	5.9%	2.4%	2.0%	-1.72%	-0.25%
Wellington	8.3%	4.0%	3.7%	-2.00%	0.01%
Tasman	1.4%	0.7%	0.8%	-0.26%	0.12%
Nelson	4.4%	3.1%	3.2%	-0.37%	0.28%
Marlborough	3.5%	2.2%	2.3%	-0.41%	0.15%
West Coast	4.5%	1.3%	1.1%	-1.56%	0.02%
Canterbury	4.5%	2.4%	2.4%	-0.89%	0.18%
Otago	3.9%	1.5%	1.2%	-1.14%	-0.05%
Southland	2.5%	0.7%	0.5%	-0.90%	-0.07%

 Table 5: Stock of State Housing as a Proportion of Total Private Census Dwellings, by Regional Council

	Additions as a Percentage of Total Private Census Dwellings		Sales Percen chan propo	Sales as a Percentage of change in proportion		tions as a ge of Total Census llings
Regional Council	1993m6- 2000m1	2000m2- 2009m1	1993m6- 2000m1	2000m2- 2009m1	1993m6- 2000m1	2000m2- 2009m1
Northland	0.12%	0.67%	-0.43%	-0.06%	0.00%	-0.01%
Auckland	0.45%	1.58%	-0.68%	-0.09%	-0.01%	-0.26%
Waikato	0.09%	0.46%	-0.82%	-0.08%	0.00%	-0.07%
Bay of Plenty	0.18%	0.53%	-0.44%	-0.04%	0.00%	-0.02%
Gisborne	0.08%	0.67%	-1.72%	-0.20%	-0.02%	-0.15%
Hawke's Bay	0.04%	0.33%	-0.76%	-0.09%	-0.02%	-0.08%
Taranaki	0.04%	0.11%	-1.32%	-0.13%	0.00%	-0.03%
Manawatu-Wanganui	0.04%	0.10%	-1.71%	-0.27%	-0.05%	-0.08%
Wellington	0.04%	0.17%	-2.03%	-0.07%	-0.02%	-0.08%
Tasman	0.03%	0.14%	-0.29%	-0.03%	0.00%	0.00%
Nelson	0.15%	0.32%	-0.52%	-0.04%	0.00%	-0.01%
Marlborough	0.19%	0.21%	-0.59%	-0.03%	0.00%	-0.02%
West Coast	0.12%	0.13%	-1.67%	-0.09%	-0.01%	-0.02%
Canterbury	0.08%	0.29%	-0.97%	-0.03%	0.00%	-0.07%
Otago	0.04%	0.12%	-1.18%	-0.16%	0.00%	-0.01%
Southland	0.02%	0.02%	-0.92%	-0.09%	-0.01%	-0.01%

Table 6: Change in Percentage of Total Census Dwellings by Regional Council, by Additions, Sales and Destructions

8. Figures







Figure 2: Monthly stock of state housing



Figure 3: Monthly Disposals of State Housing



Figure 4: Acquisitions and Disposals of State Housing

9. Bibliography

Davidson, Alexander. 1994. *A Home of One's Own: Housing Policy in Sweden*, Almqvist & Wiksell International, Stockholm.

Ferguson, Gael. 1994. Building the New Zealand Dream, Dunmore Press, Palmerston North.

Housing Corporation of New Zealand. 1993. *Annual Report 1993*, in the Appendix to the Journal of the House of Representatives, Government press, Wellington.

Housing Corporation of New Zealand. 1995. Annual Report 1995, Wellington.

Housing Corporation of New Zealand. 1996. Annual Report 1996, Wellington.

Housing Corporation of New Zealand. 1997. Annual Report 1997, Wellington.

Housing Corporation of New Zealand. 1998. Annual Report 1998, Wellington.

Housing Corporation of New Zealand. 1999. Annual Report 1999, Wellington.

Housing Corporation of New Zealand. 2000. Annual Report 2000, Wellington.

Housing Corporation of New Zealand. 2002. Annual Report 2002, Wellington.

Housing Corporation of New Zealand. 2003. Annual Report 2003, Wellington.

Housing Corporation of New Zealand. 2007. Annual Report 2007, Wellington.

Housing Corporation of New Zealand. 2009. Annual Report 2009, Wellington.

Housing New Zealand. 1994. Statement of Corporate Intent.

- Luxton, John. 1991. Housing and Accommodation: Accommodation Assistance, Government Print, Wellington.
- Murphy, Lawrence. 2003. "Reasserting the 'social' in social rented housing: politics, housing policy and housing reforms in New Zealand", *International Journal of Urban and Regional Research*, 27:1, pp. 90-101.
- Murphy, Lawrence. 2000. "A profitable housing policy? The privatization of the New Zealand government's residential mortgage portfolio", *Regional Studies*, 34:4, pp. 395-399.

Schrader, Ben. 2005. We Call It Home, Reed Books, Auckland.

10. Maps

10.1. Appendix A: Density of State Housing

Maps 1 - 14



Map 1: Percentage of State Houses to Total Houses and Deprivation Status in the Auckland Urban Area

Deprived - 0% = State House Percentage Deprived - 0% < State House Percentage <= 25% Deprived - 25% < State House Percentage <= 50% Deprived - 50% < State House Percentage <= 75% Deprived - 75% < State House Percentage Not Deprived - 0% = State House Percentage Not Deprived - 0% < State House Percentage <= 25% Not Deprived - 25% < State House Percentage <= 50% Not Deprived - 50% < State House Percentage <= 75% Not deprived - 75% < State House Percentage

1993m6	2000m1	2009m1

Map 2: Percentage of State Houses to Total Houses and Deprivation Status in the Whangerei Urban Area

Deprived - 0% = State House Percentage Deprived - 0% < State House Percentage <= 25% Deprived - 25% < State House Percentage <= 50% Deprived - 50% < State House Percentage <= 75% Deprived - 75% < State House Percentage Not Deprived - 0% = State House Percentage Not Deprived - 0% < State House Percentage <= 25% Not Deprived - 25% < State House Percentage <= 50% Not Deprived - 50% < State House Percentage <= 75% Not deprived - 75% < State House Percentage



Map 3: Percentage of State Houses to Total Houses and Deprivation Status in the Hamilton Urban Area



Map 4: Percentage of State Houses to Total Houses and Deprivation Status in the Tauranga Urban Area

39

1993m6	2000m1	2009m1
Deprived - 0%	= State House Percentage	PHOUSE Percentage
Deprived - 0% Deprived - 25% Deprived - 50% Deprived - 75%	 State House Percentage <= 25% State House Percentage <= 50% State House Percentage <= 50% State House Percentage <= 75% Not Deprived - 50% < State Not Deprived - 75% < State 	e House Percentage <= 25% te House Percentage <= 50% te House Percentage <= 75% te House Percentage

Map 5: Percentage of State Houses to Total Houses and Deprivation Status in the Rotorua Urban Area



Map 6: Percentage of State Houses to Total Houses and Deprivation Status in the Gisborne Urban Area

41



Map 7: Percentage of State Houses to Total Houses and Deprivation Status in the Napier-Hastings Urban Area

Deprived - 0% = State House Percentage Deprived - 0% < State House Percentage <= 25% Deprived - 25% < State House Percentage <= 50% Deprived - 50% < State House Percentage <= 75% Deprived - 75% < State House Percentage Not Deprived - 0% = State House Percentage Not Deprived - 0% < State House Percentage <= 25% Not Deprived - 25% < State House Percentage <= 50% Not Deprived - 50% < State House Percentage <= 75% Not deprived - 75% < State House Percentage



Map 8: Percentage of State Houses to Total Houses and Deprivation Status in the New Plymouth Urban Area



Map 9: Percentage of State Houses to Total Houses and Deprivation Status in the Palmerston North Urban Area



Map 10: Percentage of State Houses to Total Houses and Deprivation Status in the Wellington Urban Area

45



Map 11: Percentage of State Houses to Total Houses and Deprivation Status in the Nelson Urban Area



Map 12: Percentage of State Houses to Total Houses and Deprivation Status in the Christchurch Urban Area

47



Map 13: Percentage of State Houses to Total Houses and Deprivation Status in the Dunedin Urban Area



Map 14: Percentage of State Houses to Total Houses and Deprivation Status in the Invercargill Urban Area

Deprived - 0% = State House Percentage Deprived - 0% < State House Percentage <= 25% Deprived - 25% < State House Percentage <= 50% Deprived - 50% < State House Percentage <= 75% Deprived - 75% < State House Percentage Not Deprived - 0% = State House Percentage Not Deprived - 0% < State House Percentage <= 25% Not Deprived - 25% < State House Percentage <= 50% Not Deprived - 50% < State House Percentage <= 75% Not deprived - 75% < State House Percentage

10.2. Appendix B – Changes in State Housing Density Over Time Maps 1 - 14



Map 1: Change in Density of State Houses by Deprivation Status in the Auckland Urban Area



Map 2: Change in Density of State Houses by Deprivation Status in the Whangarei Urban Area



Map 3: Change in Density of State Houses by Deprivation Status in the Hamilton Urban Area



Map 4: Change in Density of State Houses by Deprivation Status in the Tauranga Urban Area



Map 5: Change in Density of State Houses by Deprivation Status in the Rotorua Urban Area



Map 6: Change in Density of State Houses by Deprivation Status in the Gisborne Urban Area



Map 7: Change in Density of State Houses by Deprivation Status in the Napier-Hastings Urban Area



Map 8: Change in Density of State Houses by Deprivation Status in the New Plymouth Urban Area



Not deprived, large decrease Not deprived, small decrease Not deprived, no change Not deprived, small increase Not deprived, large increase



Map 9: Change in Density of State Houses by Deprivation Status in the Palmerston North Urban Area



Map 10: Change in Density of State Houses by Deprivation Status in the Wellington Urban Area



Map 11: Change in Density of State Houses by Deprivation Status in the Nelson Urban Area



Map 12: Change in Density of State Houses by Deprivation Status in the Christchurch Urban Area



Map 13: Change in Density of State Houses by Deprivation Status in the Dunedin Urban Area

