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**Inheritances and their impact on housing
equity withdrawal***

Phil Briggs[†]

Abstract

Housing equity withdrawal (HEW) was very high in New Zealand – in fact it was at unprecedented levels – between 2004 and 2007. It has been postulated that a significant proportion of this equity withdrawal could be the result of inheritances, which would have increased in value as house prices rose over the period. This report looks at how much of recent HEW might be due to the sale of inherited dwellings. It briefly surveys earlier work on inheritances in New Zealand, and reviews various sources of data on inheritances. It then uses data from household wealth surveys, together with mortality data, to estimate the value of inheritances in 2001 and 2006. Estimates of the equity withdrawn from inherited houses are also derived. The results suggest that transactions related to inherited houses probably accounted for no more than about one-seventh of the change in net HEW between 2001 and 2006. Clearly other factors – more ‘active’ forms of equity withdrawal – accounted for most of the change in HEW over the period.

* The views expressed in this paper are those of the author and do not necessarily reflect the views of the Reserve Bank of New Zealand. Thanks to Mark Smith who provided quarterly estimates of equity withdrawal, and to David Dome who provided data on assets transferred via wills. Thanks too to Tim Hampton, Bernard Hodgetts, and Tim Ng for their comments on earlier drafts of this paper. Any remaining errors are the author's sole responsibility.

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1 Introduction

A recent summary article on the Reserve Bank's housing sector work – Briggs (2007) – noted that negative household saving appears to have been sustained by equity withdrawal, including housing equity withdrawal (HEW). It was also noted that:

A significant proportion of HEW is likely to be due to last time [house] sales, where the previous owner has gone into a rest home or died. The resulting HEW will eventually be recycled via bequests to younger generations. (p9)

In short, it was felt that a significant proportion of HEW, which had been very high in recent years, may have simply been the result of the 'natural' recycling of the housing stock via inheritances, together with the sharp rise in house values that had occurred.

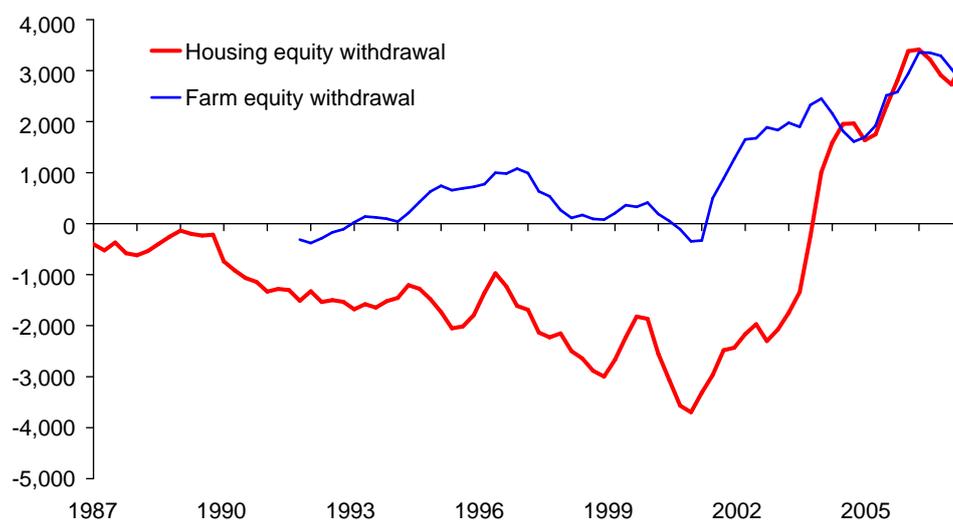
Housing equity withdrawal occurs when a house owner sells a property or increases the existing mortgage on a property. Housing equity injections – the opposite of withdrawals – occur when a person pays an initial deposit on a house, or when the owner makes a repayment on their mortgage. Withdrawals are often made at the time when an owner moves house. For example, a person might sell a house, withdrawing all of their equity, but may decide not to put all of the equity into the house that they are buying.

In any time period, some households will be withdrawing equity while some will be injecting it. However, it is possible to calculate the net value of housing equity withdrawal for the household sector as a whole. *This is equal to the change in total mortgage borrowing less the new investment in housing stock.* In effect, the household sector does not begin to withdraw equity until the level of borrowing exceeds the value of the additional housing stock.²

Figure 1 shows estimates of net HEW as they stood in mid 2007. Net HEW had been high in recent years, especially compared to the 1990s when net equity injections were being made. The question addressed in this paper is: how much of this change in HEW was due to sales of inherited houses?

² For further background material on HEW see Smith (2006) or Briggs (2007), p10.

Figure 1
Net equity withdrawal from housing and farms
 Annual running total, \$million



Source: Smith (2006), with data updated to March 2007.

It seemed likely that in the situation where a house was being passed from one generation to the next, there was a high probability that it would be sold. Also, such a house would have risen greatly in value over recent years, given that Quotable Value's house price index doubled over the five years to March 2007. Furthermore, an inherited house would probably have little debt on it, since most of this would have been paid off by the original owner. Hence, when such a property was sold, a high level of equity would be withdrawn.

Figure 1 also shows net equity withdrawal from farms, which has also been high in recent years. Farm equity withdrawal is calculated in a similar fashion to HEW – it is the change in borrowing on farms, less the investment in farms. This paper touches on the issue of farm equity withdrawal – which like HEW is also related to inheritances and property price growth – although the emphasis is largely on HEW.

Section 2 of this paper reviews earlier studies on inheritances, and section 3 looks at data sources. Section 4 outlines the methodology used in estimating the value of inheritances. Section 5 presents the results and section 6 provides some discussion of these results.

2 Earlier studies on inheritances

In this section, we review earlier studies in order to see how the aggregate value of inheritances, and the value of inherited housing, might best be estimated.

2.1 New Zealand studies

Easton (1983) focuses on the distribution of income and wealth in New Zealand. In estimating total personal wealth, Easton used data from the Inland Revenue Department (IRD) on the wealth of deceased persons. This information was compiled by the IRD in order to assess the estates of the deceased for death duties. For each age group, Easton treats those who die as a random sample of everybody in that age group. Easton notes that this approach had been used in other countries. The IRD data on the assessed value of estates was obtained from official yearbooks.

A 1990 report from the Income Distribution Group (IDG) of the New Zealand Planning Council provides a snapshot of the distribution of income and wealth in New Zealand for the year ended March 1986. It also includes a short section on gifts and inheritances.³ Like Easton, the IDG also used estate data to estimate household wealth. The method is documented in Payne (1990).⁴

Payne has an informative section on estate duty returns. The administrator of any will was obliged to submit a statement of assets and notes of the deceased to the IRD, which then assessed the estate for duty. Up until October 1989, the IRD extracted data on these estates for the Department of Statistics, regardless of whether estate duty had to be paid. From October 1989, only estates declared as having a net value exceeding \$300,000 were required to submit statements of assets and liabilities to IRD.

However, even prior to 1989, some items in an estate were exempt from duty. In the case of the first spouse to die, these included the value of any interest in a joint family home.

³ Income Distribution Group (1990), p95.

⁴ The IDG also used another approach to estimate household wealth. The Household Economic Survey (HES) provides information on cash flows from investments of various kinds, and on insurance expenditures related to dwellings, contents and motor vehicles. Using average investment yields according to the type of security, and market levels of insurance premiums, a picture of imputed wealth was built up. See Income Distribution Group (1990), p91, and Robins (1990).

Death duties were finally abolished in December 1992.⁵

Thorns (1995a) looks at housing wealth and inheritance. The property booms of the 1970s and 1980s in Britain had fuelled a debate on the role of owner-occupation. Some had argued that increasing owner-occupation and rising house prices had redistributed wealth – that in relative terms the gains of those at the lower end of the social scale had been greater than those at the top. However others had looked at inheritances and argued that the majority of housing wealth is transferred within the family to the surviving spouse, where there was one, or to the children. Overall, Thorns concluded that in New Zealand ‘inheritance tends to exacerbate divisions created in the occupational sphere rather than reduce them’ (p11).

Table 1
Housing inheritance patterns

Type of transfer	Sold		Retained		Total	
	No	Percent	No	Percent	No	Percent
To the spouse						
Husband-wife	55	31.8	104	63.0	159	47.0
Wife-husband	25	14.5	35	21.2	60	17.8
Intergenerational						
To child	52	30.1	18	10.9	70	20.7
To niece/nephew	4	2.3	0	0.0	4	1.2
Not sure	1	0.6	1	0.6	2	0.6
To other (parent/sibling/ friend/executor)	36	20.8	7	4.2	43	12.7
Total	173	100.0	165	100.0	338	100.0

Source: Thorns 1995a, p33.

Thorns’ paper reports on a study of housing inheritance in Christchurch. The source of data was the Land Transfer Office through which all transfers

⁵ Stroombergen and Rose 1998, p27.

of property were recorded on the appropriate Certificate of Title. Where the transfer of property occurred on death this was recorded on a transmission document. A random sample of 338 transmission documents for 1989 was obtained and from these the general pattern of bequeathing was examined.

The study showed that 65 percent of the transfers were to spouses (see table 1). A further 22 percent went to sons, daughters, nieces and nephews, with the remaining 13 percent going to other people. In 51 percent of cases, the inherited house was sold to realise capital. Thorns (1995b), which also refers to the Christchurch study, notes that the majority of all transfers were to people aged over 50.

Stroombergen and Rose (1998) uses the Household Economic Survey (HES) to look at inheritances and gifts.

The HES covers only inheritance income received by households in a single year. It does not cover total inheritances received by members of the households over their lifetimes. Also, gifts and inheritances not in the form of income are generally not included. So the survey omits inherited houses and similar assets. The only exception is if an inherited asset has been sold and the proceeds are classified as deriving from an inheritance rather than as irregular income from the sale of property. Furthermore, inheritances received by a surviving spouse are not classed as inheritances as this is an intra-household transfer.

The HES showed that 2.8 percent of households in the survey received an inheritance. The probability of receiving an inheritance was higher in the top 30 percent of income earners and was concentrated among recipients aged 45 to 54.

Stroombergen and Rose note the desirability of knowing the relative size and distribution of inherited wealth in New Zealand and make a number of recommendations for further work. One of these was to use a microsimulation model of wealth accumulation to simulate lifetime savings behaviour, taking into account age, ethnicity, marital status, the existence of dependants, income and inheritance.

Arcus and Nana (2005) looks briefly at recent information and research on intergenerational transfers of wealth and housing. They also propose a framework for thinking about the flows from such transfers.

The report notes the paucity of data on inheritances, other than the HES data as used by Stroombergen and Rose. The report does however point to the fact that household-level data on wealth was now available for New Zealand from the Household Savings Survey (HSS) and the Survey of Family Income and Employment (SoFIE).

Arcus and Nana note that rising prices had made purchasing a first home more difficult. Given this, there may be some ‘generation skipping’: some people may choose to leave a significant part of their estate to grandchildren who are just starting their families rather than leaving it to their own children.

Overall, the review of New Zealand studies suggested that there might be two ways of estimating aggregate inheritances:

- By using household survey data on wealth to estimate the wealth of those people who die in a particular year. In effect, this method would be the reverse of that used by Easton and Payne, who used data on inheritances to estimate household wealth.
- A microsimulation approach, as proposed by Stroombergen and Rose, whereby lifetime savings behaviour is simulated for a representative sample of people.

2.2 Overseas studies

While a number of overseas studies were looked at, only two are commented on here. Both were of interest from a methodological aspect; one used the microsimulation approach while the other used data on housing wealth and deaths.

AMP/NATSEM (2003) notes that during the next 10 to 20 years in Australia, a ‘huge’ amount of money will be transferred between generations. Given this, ‘baby boomers’ may be tempted to continue spending while they count on inheriting large amounts from their parents. However, the report suggests that there could be serious flaws in this hypothesis. Generation skipping, an uneven wealth distribution, a reduced bequest ethic, and parents spending it on themselves or upon higher health and aged care costs, may mean that big inheritances do not occur.

From a technical point of view, the interesting feature of this report is a chart that shows aggregate inheritances rising from around \$A9 billion in

2000 to \$A72 billion in 2030.⁶ On these figures, the average compound growth rate is 7.2 percent per annum.

Of the overseas literature that was looked at, this was the only study that produced figures for aggregate inheritances. And these figures are of course projections rather than estimates of historical values. The projections were produced using DYNAMOD, which is a microsimulation model developed by NATSEM. The model starts with a representative sample of 150,000 people from the census and then simulates events that will occur in their lives – births, deaths, migration, education, forming couples, accumulating wealth etc. Bequests are taken to be the estimated total wealth of people who die in each year and who do not have a spouse still living with them. This microsimulation model is clearly similar to that mentioned by Stroombergen and Rose.

Holmans (2001) looks at housing equity withdrawal in Britain. Most estimates of aggregate (HEW) focus on estimating the net amount withdrawn. As noted earlier, this is generally taken to be the change in mortgage borrowing less the amount of investment in the housing stock.

Holmans takes a different approach. He produces estimates of the component flows for both withdrawals and injections.⁷ His paper is in fact an update of earlier work that he did in 1991. Clearly housing equity withdrawal has been a long-standing issue in the United Kingdom, and this probably results from concerns that arose in earlier United Kingdom housing booms.

Holmans' estimates show that, with respect to withdrawals, most of the variation over time is accounted for by changes in two components: 'over-mortgaging' and 'last-time sales'.

'Over-mortgaging' involves owner-occupiers who are moving and who buy their next house with a mortgage. It occurs when the amount paid on the second house from the buyer's own funds – the 'deposit' – is less than the proceeds from the sale of the first house. Funds are thus released for uses other than house purchase. Holmans notes that over-mortgaging was the aspect of equity withdrawal that attracted most attention in the 1980s when the issue of equity withdrawal first came to the fore.

⁶ AMP/NATSEM (2003), p3.

⁷ See Appendix 1 for charts of Holmans' estimates of withdrawals and injections. Note that net HEW is simply total withdrawals minus total injections.

Last-time sales are sales by households that do not then buy another house. Examples include the houses of people who have died or gone into residential care, and also emigrants and people who move to renting. Holmans notes that last time sales are not identifiable transactions; they have to be estimated from events, such as deaths.

Holmans used a four step process to estimate the equity released by deaths. First, annual estimates were made of households dissolved by deaths; this involved people who were mostly living alone. Second, the average value of dwellings sold as a consequence of death was obtained. The number of dissolved households times average price gave total sales. Third, estimates of the proportion of these houses that had mortgages and estimates of average mortgage debt were obtained in order to estimate total mortgage debt redeemed. As one would expect, total debt on these properties was quite low. Finally, total sales minus total mortgage debt redeemed gave equity withdrawn.

Holmans' work suggested that using household-level data on wealth together with data on deaths would indeed be a viable way of estimating inheritances.

3 Data sources

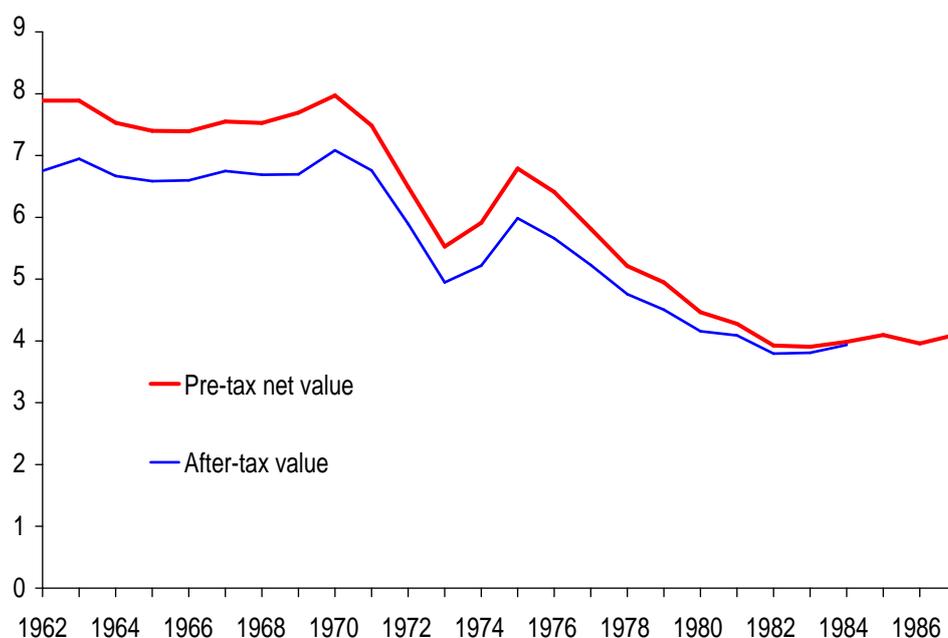
This section reviews data on inheritances in New Zealand. It also looks at data on household wealth.

3.1 Estates

Figure 2 shows the net value of estates passed for duty.⁸ This data is largely of historical interest, given that estate duties were abolished in 1992 and estate data is no longer collected. Nevertheless, there are a few interesting features of the data.

⁸ The data was assembled from official year books. While the chart starts in 1955, the data goes back further. Data was available for most years up to 1988. Exceptions were 1985 and 1987; interpolated values for these years are used in the chart.

Figure 2
Aggregate net value of estates
 Percent of household disposable income



Sources: Duties from official yearbooks; income from RBNZ, Statistics New Zealand.

As the chart shows, the aggregate net values of these estates were substantial, varying from about 8 to 4 percent of household disposable income.⁹ However, not all of this wealth was transferred to younger generations – a significant proportion would have been transferred to surviving spouses.

What caused the decline in the relative value of estates that began in the late 1960s? It may have been due to changes in exemptions from duties, or changes in household behaviour in order to avoid estate duty. Such changes could have involved higher levels of gifting or an increased use of family trusts. Another factor may have been the decline in real house prices in the

⁹ Expressing inheritances as a percentage of household disposable income gives an indication of the impact that inheritances might have on household consumption, were they to be spent by those individuals receiving them. Note that inheritances are not part of measured household sector income, since they are simply transfers between households.

late 1970s, which would have lowered the value of inherited housing relative to household disposable income.

3.2 Household Economic Survey

HES data on the household sector's income from inheritances and gifts for 2001 and 2004 is shown in table 2. As Stroombergen and Rose noted, the inheritance figures in the HES do not include the value of houses that are simply transferred to new owners.

Table 2
HES totals for income from inheritance and gifts
\$million

	2001	2004
Inheritance	1,156	711
Gifts of money from other households	170	637
Total from inheritance and gifts	1,326	1,348
Total before-tax income	81,228	94,042
Inheritances and gifts as % of before-tax income	1.6%	1.4%

Source: Statistics New Zealand

According to this data, money received from inheritances was actually lower in 2004 than in 2001. Gifting increased though. Even so, in 2004 the total amount received from inheritances and gifts was, as a proportion of before-tax income, lower than in 2001.

The figures are a little puzzling. Perhaps they are a reflection of the relatively small sample used in the HES. As we know from other surveys, much of the country's total wealth tends to be concentrated in a relatively small proportion of the population. This group may not be covered

adequately by the HES sample, which means that the results tend to be erratic.¹⁰

3.3 Data on wills

One possible way of estimating inheritances would be to analyse the assets that are transferred via wills. However, there appears to be no centralised databases on wills.

Public Trust made available some data on average inheritances and on the average amounts of particular assets distributed via bequests.¹¹ However, as with the HES data, only houses that were sold were covered in the data. This data showed that the average value of these houses that were sold doubled between 2001 and 2006.

However, Public Trust clients tend to be skewed towards those in low to middle incomes. Hence, Public Trust data were probably understating the amounts being inherited, and was not likely to be useful in estimating total annual values of inheritances.

3.2 HSS 2001 and SoFIE 2004

Both the HSS and SoFIE asked questions on inheritances and gifts. However, these questions were similar to those in the HES. Hence, they would include only the value of inherited houses that were sold, and would exclude those which were transferred directly to their new owners.

On the other hand, the HSS and SoFIE provide data on the wealth held by various age groups, which can be used in conjunction with data on deaths by age group to estimate inheritances. It was decided to use this method for this paper.

Figure 3 shows HSS data for average assets and liabilities by age group.¹² At the time the HSS was being designed, one of the pressing issues, from a government policy point of view, was the need to look at the adequacy of retirement income. Given that the New Zealand Superannuation payout is different for an individual compared to a couple, the HSS sample was

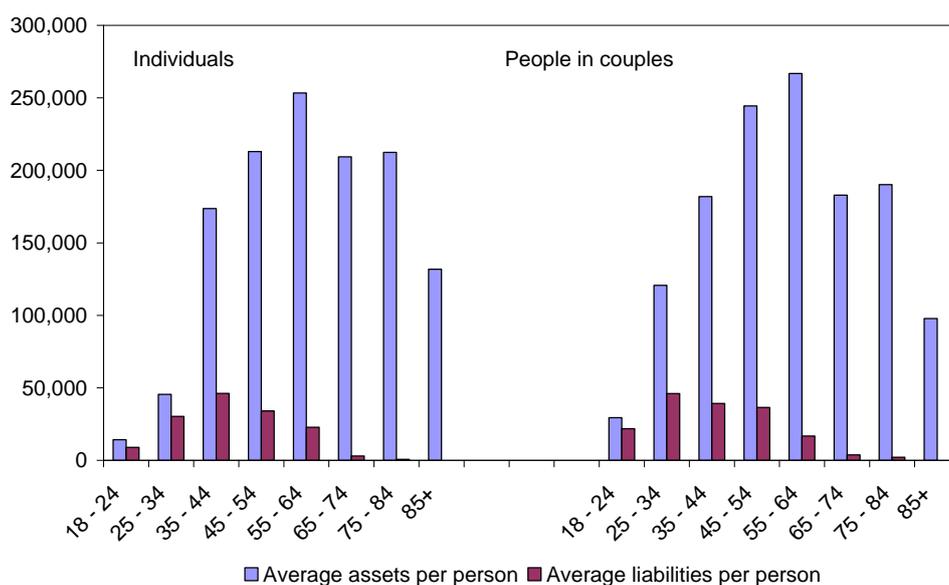
¹⁰ Obtaining accurate wealth aggregates usually involves ‘oversampling’ the wealthy i.e. surveying a large proportion of wealthier households relative to other households.

¹¹ Thanks to David Dome for this.

¹² This HSS data was obtained from Statistics New Zealand while undertaking earlier work on family trusts (Briggs 2006).

designed to survey two population groups – individuals and couples. Note that in Figure 3 the averages for both groups are shown on a ‘per person’ basis, so as to be comparable.

Figure 3
Assets and liabilities in 2001 by age group
 Dollars



Source: *Household Savings Survey*, Statistics New Zealand

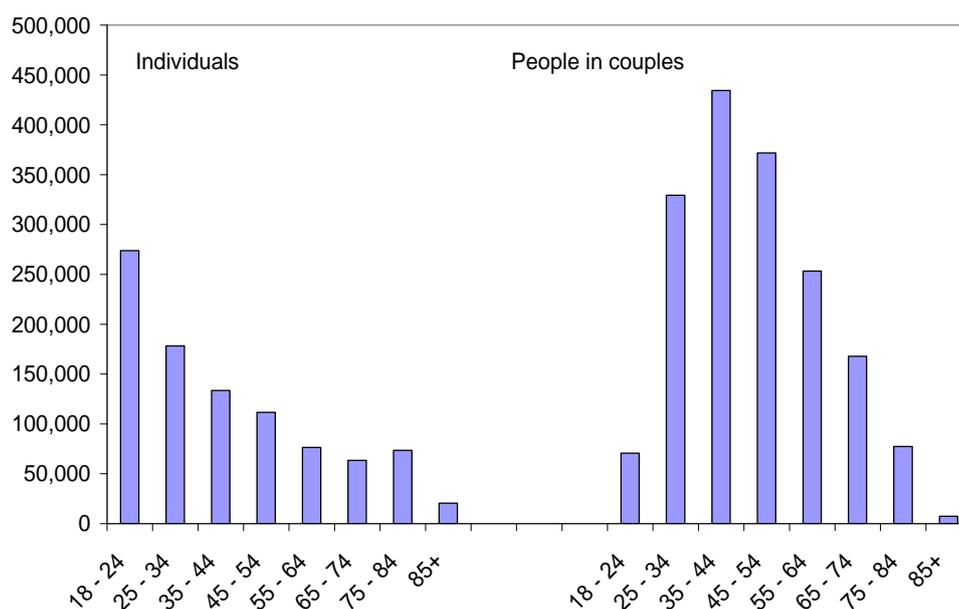
There are however a number of issues regarding the accuracy of the HSS data. The first relates to the distribution of the sample. The HSS sample was relatively large, covering 2,392 individuals and 2,982 couples. However, the numbers of people sampled in the older age groups are quite small. This reflects the actual number of people in these age groups; the numbers are small because the death rates are relatively high for these groups.

Figure 4 illustrates this. It shows the number of people in each group for the expanded HSS sample (i.e. the totals for the HSS after the numbers have been factored up to match the totals for the sample frame).

The low numbers for the older age groups mean that the figures for total assets and liabilities are not likely to be as accurate for these groups as for

others. Unfortunately, in this study, these are exactly the age groups for which we desire accurate estimates of assets and liabilities.¹³

Figure 4
Number of people by age group
 Number of people (expanded HSS sample)



Source: *Household Savings Survey*, Statistics New Zealand

There are also other problems with the HSS data. The asset values shown in figure 3 include what the HSS called ‘trust assets’. When a family trust is set up, a household usually sells family assets to the trust. The trust owes a debt back to the household for these assets, with this debt being forgiven over time. The gradualness of this forgiving of debt is to minimise the impact of gift duties. In the HSS, the ‘trust assets’ category refers to the debt that the trust still owes to the household. That part of the assets which the trust already owns is considered as not being owned by the household.

¹³ Easton and Payne faced similar problems, but in the other direction. They would have wanted the estate data to have been accurate for the middle age groups, which tend to hold most of the wealth. But given that deaths in these groups are low, they could not be confident that averages estimated from the estate data would adequately reflect the averages for the full age groups.

This is correct, in a legal sense. But in effect, the household sector still has access to these assets. And the household balance sheet figures that the Reserve Bank publishes include the assets and liabilities of family trusts.

Another problem with the HSS data is that it tends to understate the level of both assets and liabilities (see Statistics New Zealand 2002, p148). This may be due to the fact that no oversampling of the wealthy was done.

4 Estimating inheritances

4.1 Method

The selected method for estimating inheritances was similar to Holmans' approach to estimating last-time sales:

- Data on deaths by age group was obtained from Statistics New Zealand.
- Data from HSS and SoFIE was used to calculate, for each age group, average values for various types of assets and liabilities held by a person in that age group.
- These two sources of data were used to estimate the total net worth of those who died. For each age group, the number of people dying was multiplied by the average value for each asset/liability type.

This method was used to estimate the value of inheritances in two census years – 2001 and 2006. The procedures used for each year are described in more detail below.

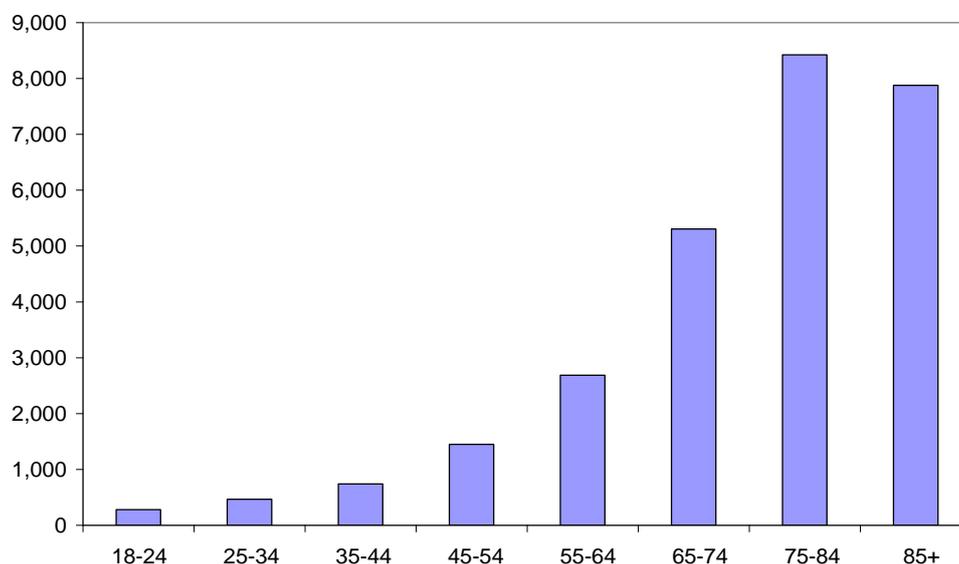
4.2 2001

Figure 5 shows deaths by age group in calendar year 2001. The age groups used were chosen to align with the age groups for which we have HSS data. Nearly 80 percent of total deaths occur in the age groups covering those aged 65 or over.

The HSS figures were adjusted to cover, as far as possible, the total holdings held by family trusts, rather than the 'trust assets'. The adjustments made were similar to those outlined in Briggs (2006). The HSS provides data on the number of trusts which hold various types of assets – like 'own home', 'investment properties', 'farm or business'. For each trust owner it was

assumed that the average value for a particular asset type was the same as that for a non-trust owner in the same age group. This is probably a conservative assumption – it seems likely that the average values of particular assets held in trusts are higher than the averages for assets that are not held in trusts. However, any assumptions that might be made in ‘adjusting up’ the average values used for trusts would probably be seen as being fairly arbitrary.¹⁴

Figure 5
Deaths in 2001 by age group
 Annual total



Source: *Demographic trends 2007*, Statistics New Zealand

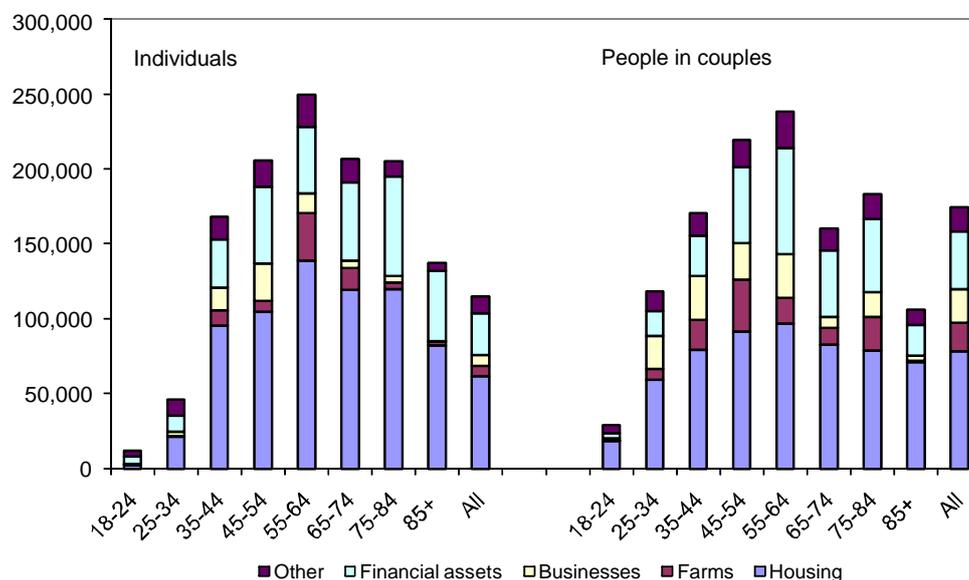
As noted earlier, HSS data tends to understate the level of both assets and liabilities. In view of this it was decided to factor the HSS totals for various types of assets and liabilities so that they matched Reserve Bank aggregates, which were thought to be more accurate. Specifically, this factoring process was undertaken as follows:

¹⁴ The approach used here gave a total for assets held in trusts as around \$36 billion. The HSS showed total trust holdings as being worth \$93 billion. However, the figures for assets in farms and businesses for non-trust owners – the figures which were used in estimating assets held in trusts – were based on net values (i.e. assets minus liabilities). In contrast, total trust holdings as defined in the HSS include the gross values of farms and businesses.

- After incorporation of trust holdings into the age group totals, the assets for each age group were grouped into five categories: housing, farms, businesses, financial assets, other assets.¹⁵ Liabilities were grouped into two categories: mortgage debt, and other debt.
- For each age group the nominal values for four categories – housing, financial assets, mortgage debt, and other debt – were factored so that the category totals equalled Reserve Bank aggregates.
- HSS age group totals for farms, businesses and ‘other assets’ (which include overseas property, motor vehicles and collectibles) were left as is – the Reserve Bank presently does not have values for these.
- Average per person values were derived for all asset and liability types, using census population data as the denominator.

The derived averages for assets are shown in figure 6.

Figure 6
Average assets per person, adjusted, for 2001
 Dollars



Sources: Statistics New Zealand; Reserve Bank of New Zealand.

¹⁵ The business category used here includes commercial property as well as businesses.

Data on deaths, as shown in figure 5, was used in conjunction with census population data on ‘social marital status’ to estimate, for each age group:

- deaths of individuals (labelled DI_i where subscript i indicates the age group)
- deaths of people in couples where both partners die in the same year ($DC2_i$)
- deaths of people in couples where only one of the partners dies ($DC1_i$).

These numbers were then used to calculate the value of each asset type that was transferred. In the notation used below subscript i again refers to the age group. Subscript j refers to the asset type.

Transfers to a surviving partner in age group i of asset type j , which we will label TP_{ij} , were calculated as follows:

$$TP_{ij} = DC1_i * AC_{ij} \quad (1)$$

where AC_{ij} is the average value of assets held by a person in a couple (this is equal to half of the average held by a couple).

Transfers to non-partners in age group i of asset type j , which we will label TNP_{ij} , were calculated as follows:

$$TNP_{ij} = DI_i * AI_{ij} + DC2_i * AC_{ij} \quad (2)$$

where AI_{ij} is the average value of assets held by an individual (i.e. a person who is not part of a couple). Note that $DC2_i$ is expressed in terms of the number of persons who die, not the number of couples.

The same approach was used in calculating liabilities by debt type.

Totals for mortgage debt were subtracted from total housing assets to get net housing assets by age group. Similarly, totals for other debt were subtracted from financial assets to get net financial assets by age group.

Finally, summing across all age groups provided values for the net assets transferred to a surviving partner and net assets transferred to non-partners.

4.3 2006

The method used for 2006 was very similar to that for 2001, with 2006 data on population and deaths being used in place of the earlier data. There were some differences though:

- Data from the 2004 SoFIE survey on the distribution of assets for individuals and couples was used instead of the HSS data.¹⁶ Unfortunately, data from wave four of SoFIE, which like wave two in 2004 collected data on assets and liabilities, was not available at the time this work was being done. In a sense though, the SoFIE data from 2004 is being used largely to estimate the distribution of assets and liabilities across age groups, rather than levels. This is because the SoFIE figures for housing assets, financial assets, mortgage debt and other debt were factored so that the totals matched Reserve Bank aggregates for 2006.
- One difference with SoFIE data, compared to HSS data, was that the assets held in farms and businesses were both included in a new ‘business’ category, which also included commercial property.
- Another difference was that SoFIE data did not include any information on the types of assets held in trusts. In adjusting the SoFIE data for trusts it was assumed that growth in family trusts since 2001 was the same as the growth in IRD returns filed by trusts, and that the distribution of these trusts across age groups was the same as in the HSS. It was also assumed for each age group that the proportions of trusts holding various asset types (‘own home’, ‘investment property’, etc) were the same as in the HSS. However, the average values for these property types, which were used to produce total values, were taken from SoFIE.
- The aggregate total for ‘business assets’ in 2006 was derived using the HSS 2001 totals for assets in farms and businesses (where these businesses included commercial property). The farm total for 2001 was factored up by the growth in ‘shareholders funds and owners equity’ for the agricultural sector as shown by the Annual Enterprise Survey for the 2001-2006 period. Similarly the total for businesses

¹⁶ SoFIE tables had been produced earlier for the Reserve Bank that were, as far as possible, comparable with HSS tables. This processing work was undertaken by Nick Treadgold.

was factored up by the movement in ‘shareholders funds and owners equity’ for the non-agricultural sector. The resulting aggregate total for 2006 was used to factor the SoFIE age group figures.¹⁷

- Determining what the aggregate level for ‘other assets’ should be in 2006 was more problematic. For a start, the components of other assets were not the same in HSS and SoFIE. For example SoFIE included household items while the HSS generally did not. Also, for those components that did more or less match, the SoFIE values seemed to be a little lower than for the HSS, which was a little puzzling. In the end, the total for 2006 was set to the HSS total value multiplied by the growth factor for the adult population between 2001 and 2006. In essence, it was assumed that the nominal assets per person were the same in 2006 as in 2001.

4.4 An alternative method

The HSS and SoFIE are surveys of people living in permanent private dwellings. They do not cover people in non-private dwellings, such as those in rest homes. Hence the methodology used above – which will be referred to as method 1 – was based on distributions that excluded the assets and liabilities of those in rest homes. Overall therefore, the net worth of those in the older age groups, and the level of inheritances, was probably being understated. To overcome this, another method – method 2 – was used.

In method 1 it had been assumed that the age-group totals for assets and liabilities from the HES – once they had been adjusted to sum to Reserve Bank aggregates – were accurate estimates of the age group totals for the full population. These age-group totals had then been converted to averages by dividing by census population totals, rather than by HSS surveyed population totals.

In method 2 it was assumed that people in rest homes had the same average assets and liabilities as those not in rest homes. Hence it was assumed that the age-group averages from the HSS, rather than the age-group totals, applied to the full population.

¹⁷ One advantage of this approach was that it produced separate estimates for farms and businesses in 2006. An alternative approach would have been to simply factor up the SoFIE total for businesses (which included farms) by the growth in total ‘shareholders funds and owners equity’ over the 2004-2006 period.

In method 2 the process of factoring age group values to match the aggregates was as follows:

- As before, the process started with the age group totals for each type of asset, where these values had been adjusted to incorporate trust assets.
- For each age group and asset type, the average per person was calculated, using the *surveyed population* (from the HSS or SoFIE) as the denominator.
- For each age group and asset type, the average per person was multiplied by the *census population* for that age group to get new ‘interim’ values.
- These interim values were factored so that the total equalled the Reserve Bank aggregate.
- New average per person values were derived for all asset types, using the census population as the denominator.

4.5 Aligning estimates to calendar years

As outlined above, our estimates of inheritances were based on data for deaths, population and wealth. This data was adjusted, where necessary, so that it applied to calendar years, and hence gave estimated inheritances for calendar years. Data on deaths needed no adjustment, since it was already for calendar years. Census population data was adjusted to reflect the population at June, the year’s mid point. While HSS and SoFIE data are not for calendar years – HSS data was collected over a period from August to November while SoFIE data is collected over a year ending in September – the major components of these data were adjusted using Reserve Bank aggregates that were for calendar years. While Reserve Bank aggregates as published are year-end figures, these had been adjusted by taking the average of the current year and the previous year; the resulting averages were in effect centred on calendar years.

5 Results

5.1 Estimated inheritances

Results for method 1 and method 2 are presented in Appendix 2. As expected, estimated inheritances were higher for method 2 than for method 1. This largely reflects differences in the average net assets of those in the 85+ age group, which are significantly higher under method 2.

Table 2
Estimated inheritances
\$million

		2001	2006
Transfers to non-partners	Housing	1,410	2,890
	Businesses	160	210
	Other	960	1,150
	Total	2,530	4,250
Transfers to partners	Housing	1,160	2,640
	Businesses	490	560
	Other	990	1,360
	Total	2,640	4,560
Total transfers	Housing	2,570	5,530
	Businesses	650	770
	Other	1,950	2,510
	Total	5,170	8,810

However, in reality it seems unlikely that those in rest homes will have the same average assets as those who are not in rest homes. In fact, until 1 July 2005, only rest home tenants with a very low level of assets – \$15,000 in the case of a single or widowed person – were eligible for a residential care

subsidy.¹⁸ Hence, a substantial proportion of the assets of many rest home residents – those not eligible for a subsidy – would have been spent on rest home fees.

Given this, the figures for method 2 are probably at the high end of the scale. At the same time, the figures for method 1 can be seen as being at the low end. Table 2 uses averages of the figures produced by methods 1 and 2. These averages are used for the remainder of the report.¹⁹

Table 3 shows that inheritances were around 1.3 percent of total household net worth in both 2001 and 2006.

Table 3
Inheritances as a proportion of total household wealth

	2001	2006
Total net worth, \$million	423,995	732,625
Total population (aged 18 and over)	2,833,348	3,089,923
Average net worth per person, \$	149,640	237,100
Net worth of deceased, \$million	5,166	8,798
Total deaths (aged 18 and over)	27,225	27,684
Average net worth per deceased person, percent	189,760	317,790
Net worth of deceased, percent of total net worth	1.22	1.20
Deaths, percent of adult population	0.96	0.90
Average net worth deceased/average total net worth	1.27	1.34

¹⁸ The level for a single person was raised to \$150,000 on 1 July 2005 and has been increased by a further \$10,000 per year since then (see Dyson 2004 for more details of the initial policy change).

¹⁹ Note too that in the remainder of the report the ‘businesses’ category includes assets in farms, businesses, and commercial property.

Inheritances as a proportion of total wealth can be expressed in terms of the proportion of the population that dies and the ratio of average wealth of the deceased to the average wealth of the total population.²⁰

Table 3 shows that deaths as a proportion of the population actually declined between 2001 and 2006. However, the average net worth of the deceased relative to the average net worth of the total population increased slightly. This reflects the fact that the elderly held a little more of their wealth in housing, which was the asset type that showed the strongest price growth over the period.

Figure 7 shows estimated inheritances as a proportion of household disposable income. The first half of the chart – up to 1987 – is exactly the same as figure 2 with the blue line showing the values of estates. The blue dots show our estimates of total transfers for 2001 and 2006.

The new numbers for total transfers – which are equal to 6.9 percent of household disposable income in 2001 and 9.0 percent in 2006 – look high relative to the earlier figures. Remember though that some items, such as joint family homes, were exempt from estate duty and hence were not included in the earlier figures. And as noted earlier, they also exclude assets which had been moved into trusts.

In comparison, the figures for 2001 and 2006 cover all household assets at the time of death. These later figures ‘look through’ trusts – they assume that assets in family trusts are household assets. So it is probably not surprising that these figures are higher than earlier estate values.

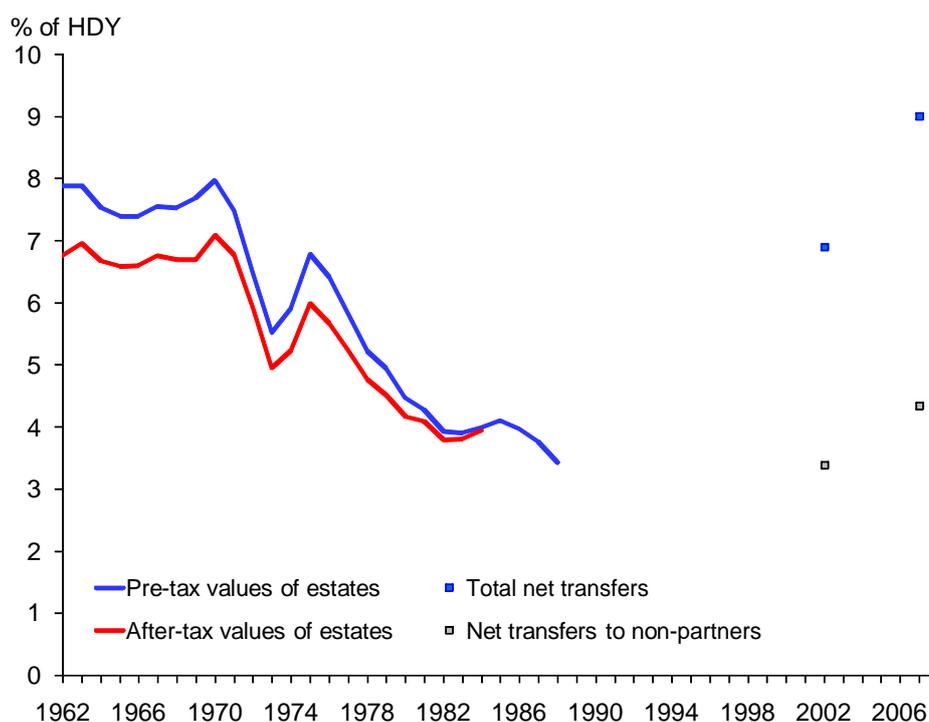
While the figures for 2001 and 2006 cover the value of all assets transferred on death, these assets are not necessarily sold. In fact, it is likely that a large proportion of the assets transferred between partners will not be sold. It is probably more likely that assets transferred to non-partners are cashed up. Transfers to non-partners are shown by the grey dots in figure 7 – these were equal to 3.4 percent of household disposable income in 2001 and 4.3 percent in 2006.

²⁰ $[\text{Inheritances/Total wealth}] = [\text{Deaths} * \text{Ave wealth of deceased}] / [\text{Population} * \text{Ave wealth of population}]$

Rearranging gives

$[\text{Inheritances/Total wealth}] = [\text{Deaths/Population}] * [\text{Ave wealth of deceased/Ave wealth of total population}]$

Figure 7
Estimated inheritances
 Percent of household disposable income



Source: Statistics New Zealand, RBNZ.

5.2 Equity withdrawal

Housing

To estimate the equity withdrawal associated with inherited housing, a similar approach is taken to that of Holmans. That is, we assume that the equity withdrawn is equal to the net value of the housing that is transferred to non-partners. In effect, we assume that all of the houses transferred to non-partners are sold.²¹

²¹ These transferred houses include rental properties as well as owner-occupied properties. It is not clear whether rental properties were included in Holmans' estimates of last-time sales in the United Kingdom. The proportion of rental properties owned by private households has, until recently, been low in the United Kingdom.

This is a simplifying assumption. The survey in Thorns (1995a) indicated that around 80 percent of the houses transferred to non-partners in Christchurch were actually sold. However, the survey also showed that around 35 percent of houses transferred to spouses were sold. Overall, Thorns found that 51 percent of inherited properties were sold.

From table 2 it can be seen that selling all the houses transferred to non-partners would have produced returns of \$1,410 million in 2001 and \$2,890 million in 2006. These returns would have accounted for 55 percent of the value of all inherited properties in 2001 and 52 percent in 2006. These proportions are not too far away from Thorns' value of 51 percent for the proportion of all inherited houses that are sold.

On the basis of our assumption, the equity withdrawn from inherited houses was \$1,410 million in 2001 and \$2,890 million in 2006. However, it has to be remembered that these are flows, or *gross* measures of the equity withdrawn. The *net* equity withdrawal resulting from these sales will probably be less than the flow values. This is because many – probably most – of the people purchasing these inherited properties will be injecting some equity into them in the form of a deposit. The level of net equity withdrawal would equal the sellers' gross equity withdrawal only if the house was being purchased with a loan equal to 100 percent of the property's value.

Focussing on 2001, the net equity extracted from inherited houses would have totalled \$1,410 million only if all the people buying these properties had been buying them with 100 percent mortgages. If the purchasers had however injected say \$800 million of their own funds, then the net equity withdrawn from these properties would have been \$720 million.

We now make two assumptions in order to calculate net equity withdrawn:

- all houses are bought with a mortgage, and
- the average mortgage is equal to 50 percent of the value of the house.

If some houses are bought outright, without a mortgage, our estimates of the net equity withdrawn will be too high. On the other hand, our assumed loan-to-value ratio of 50 percent may be a little low, which would also put our

estimates of the net equity withdrawn on the low side.²² On balance, our results may not be too far away from reality.

Table 4 summarises the results and compares them with the figures for total net HEW. As we saw in figure 1 – which showed total net HEW – a large net injection of equity was made into housing in 2001. But by 2006, a large net withdrawal was being made. As table 4 shows, the annual net withdrawal in 2006 was \$5,100 million higher than it had been in 2001.

Table 4
Total net HEW and HEW from inherited houses

	2001	2006	Change
Total net HEW, \$m	-2,400	2,700	5,100
Gross HEW from inherited houses, \$m	1,410	2,890	1,480
Change as % of change in total net HEW			29.0
Net HEW from inherited houses			
where buyers have 50% loans, \$m	690	1,410	720
Change as % of change in total net HEW			14.1

Clearly, the change in total net HEW was much larger than the change coming from inherited housing. The total change in gross HEW from inherited housing was \$1,480 million, which would account for only 29 percent of the change in total net HEW. However, if we assume that inherited houses are bought with 50 percent loans, the sale of inherited houses would account for only 14 percent of total net HEW.

²² Data from the HSS indicated that for owner-occupied houses that had debt, the ratio of average loan to average value was just over 50 percent. For rental properties it was just over 70 percent.

This figure seems fairly low. It appears that the change in net HEW over the 2001 to 2006 period was being driven by factors other than the ‘passive’ withdrawals associated with inherited houses. These other factors probably include: ‘over-mortgaging’ by those moving house, refinancings (at higher levels of debt), and lower repayments (perhaps by moving to interest-only loans).

However, the values in table 2 suggest that another factor – the selling down of assets by elderly individuals – is also significant. Looking back at this table, it can be seen that in 2006 transfers of housing assets to partners totalled \$2,640 million. Given that a couple’s assets are assumed to be shared equally, the partners receiving the transferred assets would already own housing assets worth \$2,640 million. In total, therefore, the partners receiving the assets would have housing assets of \$5,280 million immediately after the assets had been transferred. Yet table 2 shows that the housing assets of individuals who died in 2006 were valued at less than \$2,890 million.²³

The individuals who died in 2006 had a higher average age than the members of couples who died.²⁴ Hence, individuals’ real lifetime earnings, and accumulated assets, were probably lower than for those who were in a couple, given the trend for real incomes to rise over time.²⁵ Nevertheless the large difference between the two figures of housing wealth – \$5,280 million for the recently bereaved and around \$2,890 million for transfers from deceased individuals – suggests that surviving partners from couples sell down a significant proportion of their housing wealth after their partners have gone. This would probably result in a significant amount of equity withdrawal.²⁶

²³ The figure of \$2,890 million actually relates to the value of houses transferred to non-partners. Some of these transfers were from people in couples, where both partners died in the same year. However, these accounted for only a small part of the total.

²⁴ In 2006 the average age of individuals who died was estimated to be 79 while the average age of people in couples was 71. This difference is not surprising, since many of the individuals who died would have formerly been in couples. These individuals are the longest-lived of the people in those couples.

²⁵ The working lives of older people would span an earlier period of time than those of younger people. Wages would have generally been lower in these earlier periods.

²⁶ Alternatively, surviving partners may gift some of their assets to other people. However, gifting assets to family trusts would not change the figures we are looking at, since this analysis assumes that trust assets are still owned by individuals and couples. Housing assets that are received as gifts may be less likely to be sold than inherited housing assets.

Holmans, in his paper, made estimates of the housing assets that were sold when people went into rest homes, and included the value of these in his ‘last time sales’. We have not estimated such assets here. The best way of deriving estimates of the assets sold by elderly individuals may be to use SoFIE. This is a longitudinal survey and hence would provide information on how the assets elderly individuals have changed between various waves of the survey. SoFIE may provide information on the cases where the elderly ‘downsize’ their home by selling their existing house and moving into a smaller one. However, given that the SoFIE survey covered only people who were in private dwellings, it would not provide data on the homes that were sold by people who had moved into rest homes.

Businesses

Table 2 showed that transfers to non-partners of business assets were not high, relative to housing. These transfers were estimated at \$210 million in 2006, compared to \$2,890 million for transfers of housing assets. It is likely that the estimate for business assets is too low. As noted earlier, the HSS, from which the business figures were derived, did not include an ‘over-sampling’ of the wealthy, and hence tended to understate wealth. In comparison the estimates of housing assets transferred are likely to be more accurate, given that the HSS data for housing was factored so that the total housing stock equalled the Reserve Bank’s aggregate estimate. Nevertheless, it seems that business assets are a much smaller part of inheritances than housing assets.

The estimated *change* in transfers of business assets – from \$160 million in 2001 to \$210 million in 2006 to was also small. This change is much smaller than that estimated by Smith (2006) (see figure 1). Again this may be due to the HSS-based estimates of business assets being too low.

On the other hand, as with housing, our figures suggest that a significant proportion of business assets are sold down, or gifted, by surviving partners. According to the numbers in table 2, recently bereaved partners in 2006 would have been holding businesses worth \$1,120 million (twice \$560 million). In comparison, individuals who died in that year are estimated to have left business assets valued at just under \$210 million. The numbers suggest that bereaved partners tend to dispose of a larger proportion of business assets than housing assets after their partner has died. This is evident, to some extent, from figure 6, which shows that individuals aged 65 and over hold relatively few assets in businesses or farms.

Overall, therefore, it seems that equity withdrawal from businesses is much higher than that which occurs through transfers to non-partners. A large proportion of business equity withdrawal is likely to be due to surviving partners selling businesses after their spouse has died. Furthermore, some people probably sell their businesses earlier, such as when they retire. Again, the longitudinal data in SoFIE may be able to provide some insights into the size and timing of such flows.

5.3 Future flows from inheritances

How are the flows from inheritances likely to change in the future? Will they increase as a proportion of total net worth as the population ages?

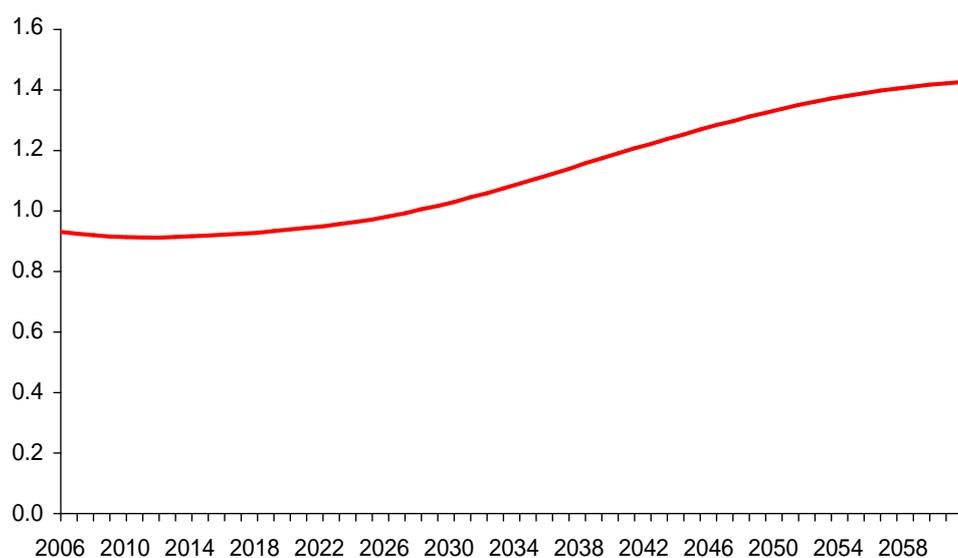
The answer appears to be that population ageing will have only a limited impact over the next 20 years, although the impact will be higher in the subsequent 20 years. We saw earlier that inheritances as a proportion of total net worth were dependent on the proportion of deaths in the adult population and also the average net worth of the deceased relative to the average net worth of the population.

Figure 8 shows deaths as a proportion of the total population. This has been calculated using Statistics New Zealand's Series 5 population projection. This assumes medium mortality, medium fertility and net migration of 10,000 per annum. The proportion of deaths starts at 0.93 percent of the adult population in 2007 and declines slightly through to 2012. It then rises slowly, getting above 1.00 percent by 2028. If the average inheritance to average wealth ratio remained constant at its 2006 level, then inheritances as a proportion of total worth would lift from around 1.25 percent in 2007 to 1.35 percent in 2028.

As noted earlier, the recent rise in the average inheritance to average wealth ratio appears to be the result of the elderly having slightly more assets than the whole population in housing. However, given that the recent rise in house prices was exceptional, it seems reasonable to assume that, over the longer term, the average inheritance to average wealth ratio will be relatively stable.

Overall therefore, it seems that inheritances as a proportion of net worth will not rise markedly over the next 20 years, despite the ageing of the population.²⁷

Figure 8
Adult deaths as a proportion of the adult population 2006-2061
Percent



Source: Statistics New Zealand

However, the ratio of inheritances to household disposable income can be expected to show more variation. Given that the inheritances to net worth ratio is likely to be stable, the inheritances to household disposable income ratio will reflect changes in net worth relative to household income. Since 2001, the net worth to household disposable income ratio has risen from 5.7 to 7.6.²⁸ If house prices were to decline relative to household disposable income in the next year or so, then so would inheritances relative to household disposable income. In general, over time the inheritances to household disposable income ratio is likely to reflect the house price cycle.

²⁷ As figure 8 indicates, stronger rises are likely to occur in later years, beyond 2028.

²⁸ These ratios are calculated using the net worth figures used in this report, which include the value of businesses and 'other' assets (overseas property, motor vehicles, collectibles, etc). Using the household net wealth figures from the Reserve Bank website, which exclude the value of businesses and 'other' assets, the ratios were 3.9 in 2001 and 5.8 in 2006.

6 Conclusions

6.1 Surprises

This work produced three results that – at least at first glance – seemed surprising.

Size of inheritances

The first surprise was how large the inheritances were. Even in 2001, total inheritances were estimated at \$5.5 billion, although only \$2.7 billion of these inheritances were going to non-partners. In the light of the earlier work by Stroombergen and Rose, it seems likely that the recipients of these non-partner transfers were probably concentrated in the 45 to 54 age group.

These intergenerational transfers seem to be higher than those estimated by NATSEM for Australia. NATSEM estimated aggregate inheritances at around 1.4 percent of nominal GDP. In contrast, our estimated intergenerational transfers for 2000 are around 2.1 percent of GDP. The differences between the NATSEM results and the New Zealand results may be due, at least in part, to differences in the assumptions used.²⁹

However, in view of these differences with NATSEM's results, it was decided to cross-check the New Zealand results. It was assumed that the estimates of the deaths per population ratio were robust since they came from demographic data. The main aim was to check the average inheritance to average net worth ratio. This was done using data that was published directly by Statistics New Zealand for the HSS and SoFIE. This data included 'trust assets' – the debt owed by family trusts to households – and was not adjusted to include all the holdings of trusts.

This data showed that the ratio of average net worth of those aged 65 and over relative to average household net worth was 1.34 in 2001 and 1.36 in 2004.³⁰ We can take these figures as being rough estimates of the average inheritance to average net worth ratio. As table 3 showed, this study's estimates of the average inheritance to average net worth ratio were 1.27 in 2001 and 1.34 in 2006. The fact that these figures are slightly lower is

²⁹ For example, from a look at Kelly (2003) it appears that personal assets such as motor vehicles and collectibles are not covered in the Australian model.

³⁰ These ratios were derived using data from supplementary table 2.01 for the HSS and Table 12 from the SoFIE wave 2 release.

probably due in part to the inclusion of trust holdings, which were mainly held by middle aged people rather than the very old.

Overall, the figures derived from published HSS and SoFIE data suggest that this study's values for total transfers are in the right ball park and are not overly high. Furthermore, if it is accepted that around half of all deaths are going to result in transfers to non-partners, this study's values for intergenerational transfers are also likely to be in the right ball park.

Inherited housing as a proportion of net HEW

The second surprise from the study was that housing transferred to non-partners, even if it was all sold, would account for only around 14 percent, or one seventh, of the change in HEW that occurred between 2001 and 2006. Briggs (2007) had suggested that a large part of the rise in HEW might have simply been the result of the rise in house prices. HEW would have occurred as sales of lowly-g geared inherited properties were made; hence the rise in HEW may have simply been the consequence of the 'normal' turnover of housing, where this housing was now of a higher value.

The results, however, suggest that most of the change in HEW was due to more 'active' forms of equity withdrawal, rather than the 'passive' HEW associated with sales of inherited houses. Admittedly, some of these other withdrawals would have involved the sale of properties where elderly owners were either 'downsizing' or going into long term care; such withdrawals may be seen as not being particularly active. Nevertheless, it seems that most of the change in HEW occurred as a consequence of property owners making deliberate decisions to withdraw equity.

It might be tempting to say that the marginal propensity to consume out of equity withdrawn from inherited housing will be relatively high. As we have seen, inherited properties generally go to people in their 40s and 50s, who are probably already well established financially. So it would not be surprising if they spent at least some of their inheritances on consumption. On the other hand, they might use part of the equity withdrawn to pay off their own properties, thereby making equity injections. Such injections would reduce the net impact of inherited housing on total HEW.

Ageing effects

The third surprise from this work is that, over the next 20 years, the ageing of the population is not by itself likely to produce much variation in the ratio of inheritances to total household wealth. The ratio of inheritances to household disposable income is likely to show more variation, but the cause of this variation will be the house price cycle.

6.2 The next few years

Given that much of the change in HEW in recent years has been due to active rather than passive withdrawals, there is clearly scope for HEW to decline substantially in the future as active withdrawals decline.

Housing market conditions have changed recently, with house prices now starting to decline. This market change, together with changes in global credit conditions, has already resulted in tighter lending criteria being applied to people looking to take out mortgages. Furthermore, home owners themselves will be much less inclined to want to access the equity in their houses when that housing is not increasing value.

There are already indications that the growth in mortgage borrowing has begun to ease, and that this will result in significant declines in net HEW.

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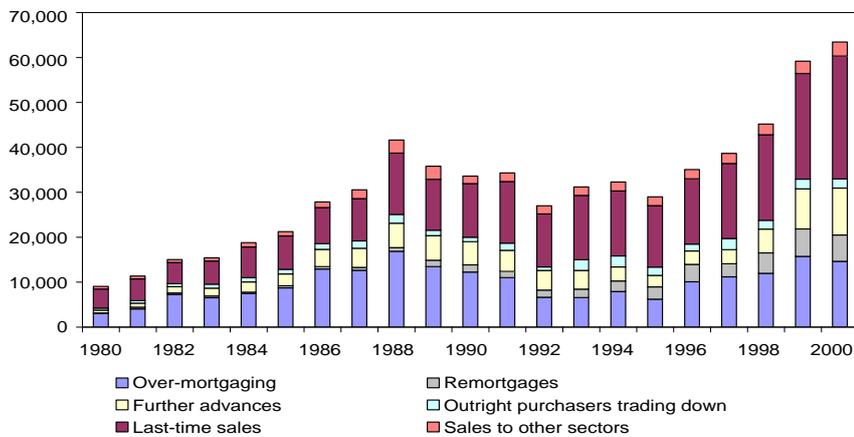
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Appendix A

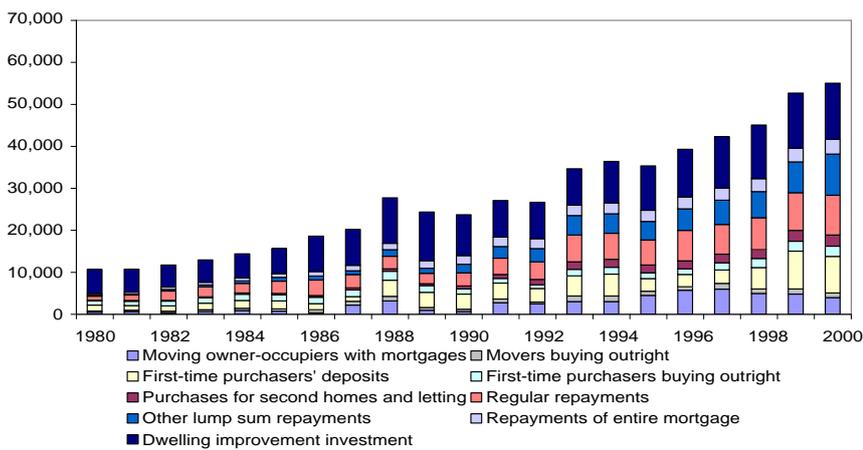
Estimated withdrawals and injections of housing equity in the United Kingdom

Figure A1
Component flows of UK housing equity withdrawal
 Pounds, million



Source: Holmans 2001

Figure A2
Component flows of UK housing equity injection
 Pounds, million



Source: Holmans 2001

Appendix B

Results using method 1 and method 2

Table B1
Estimated inheritances, method 1
\$million

		2001	2006
Transfers to non-partners	Housing	1,270	2,550
	Businesses/farms	150	190
	Other	860	1,060
	Total	2,280	3,800
Transfers to partners	Housing	1,150	2,410
	Businesses/farms	470	540
	Other	990	1,250
	Total	2,610	4,200
Total transfers	Housing	2,420	4,960
	Businesses/farms	620	730
	Other	1,850	2,310
	Total	4,890	8,000

Table B2
Estimated inheritances, method 2
 \$million

		2001	2006
Transfers to non-partners	Housing	1,560	3,220
	Businesses/farms	170	230
	Other	1,060	1,240
	Total	2,790	4,690
Transfers to partners	Housing	1,160	2,860
	Businesses/farms	500	590
	Other	1,000	1,460
	Total	2,660	4,910
Total transfers	Housing	2,720	6,080
	Businesses/farms	670	820
	Other	2,060	2,700
	Total	5,450	9,600