

Timothy Irwin and R. John Irwin

# The Housing Haves and Have-Nots

## the house price boom and inequality of wealth in New Zealand

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### Abstract

The rise in house prices since the turn of the millennium seems likely to have increased the inequality of wealth in New Zealand. On average, house-owners were wealthier than others before the boom, and during the boom real house prices more than doubled. Yet the available data shows little evidence of an increase in inequality in wealth or even of a growing proportional disparity between the net wealth of property owners and others. Difficulties in accurately measuring these changes in wealth are reviewed.

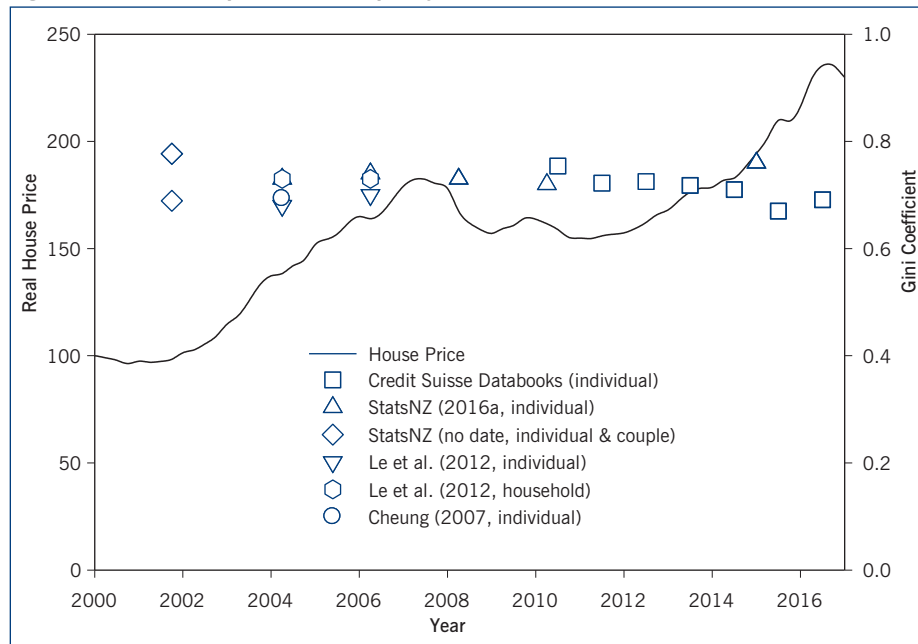
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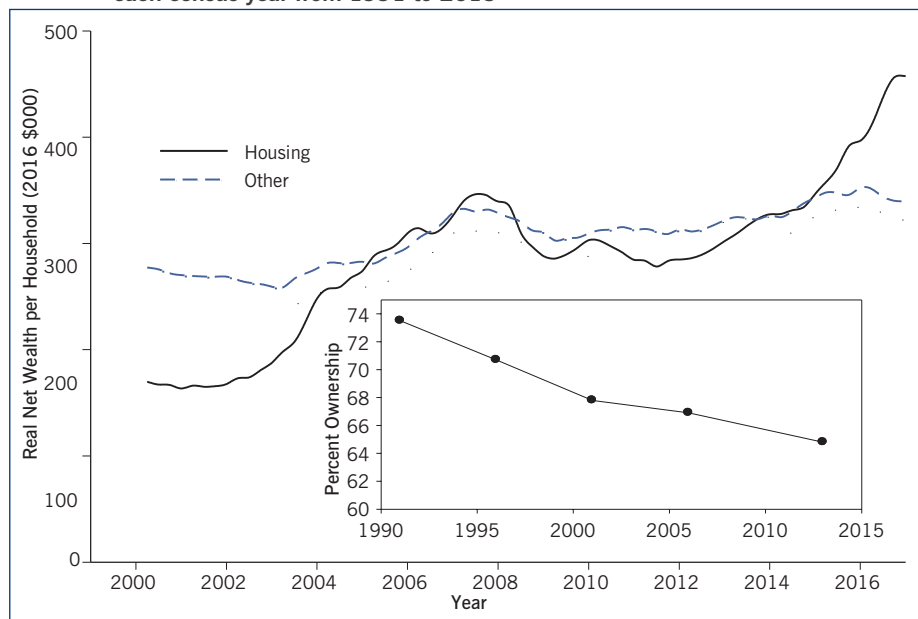
**T**hough house price booms do not necessarily increase the inequality of the distribution of wealth, a plausible case can be made for the New Zealand boom's having done so. As Rashbrooke (2014) writes, 'Fewer and fewer people own their own home; those that do have seen the value of those homes increase sharply. Since half of all our assets are held in the form of housing, this (along with other things) means that wealth inequality has almost certainly been increasing'. Equb and Equb (2015, ch.1), Johnson (2015) and Rashbrooke (2015, ch.3) make similar points. Yet the available data shows little evidence of an increase in the inequality of the distribution of wealth over the period of the boom, or even of a widening gap in wealth between those who own housing (the 'housing haves') and those who do not (the 'have-nots'). This article investigates this puzzle and suggests some possible explanations.

Figure 1: Real house prices and inequality of wealth, 2000–16



Sources: All Residential House Price Index downloaded on 5 June 2017 from <http://www.rbnz.govt.nz/statistics/key-graphs/key-graph-house-price-values>; Consumers Price Index downloaded on 5 June 2017 from <http://www.rbnz.govt.nz/statistics/m1>; Credit Suisse Research Institute (various years); Cheung (2007); Le et al. (2012); Statistics New Zealand (n. d., p. 28); Statistics New Zealand (2016a, p. 25) and email from Michelle Griffin on 9 June 2017.

Figure 2: Real net housing and other wealth per household, 2000–16  
The inset shows the percentage of households owning their own home in each census year from 1991 to 2013



Sources: Reserve Bank aggregate household balance sheet (C22), 30 May 2017, downloaded from <http://www.rbnz.govt.nz/statistics/c22> (accessed 5 June 2017); Consumers Price Index as for Figure 1; Statistics New Zealand, Dwelling and Household Estimates, March 2017, downloaded from [http://www.stats.govt.nz/browse\\_for\\_stats/population/estimates\\_and\\_projections/DwellingHouseholdEstimates\\_HOTPMar17qr.aspx](http://www.stats.govt.nz/browse_for_stats/population/estimates_and_projections/DwellingHouseholdEstimates_HOTPMar17qr.aspx) (accessed 11 June 2017). Home-ownership rates are from censuses.

**The puzzle**

Consider first the housing boom. In real terms, the price of housing rose by 135% between the March quarter of 2000 and the December quarter of 2016 (see Figure 1 and, for a longer view, Easton, 2017). Per household, real net housing wealth increased by 169%, while other net wealth increased by 22%; housing’s share of net wealth thus rose, from 38% to 57%

(Figure 2).<sup>1</sup> All the while, the proportion of households owning houses was falling, from 67.8% in 2001 to 64.8% in 2013 (Figure 2, inset). And at the beginning of the boom the housing haves were already wealthier than the have-nots (see below). Thus, it seems like a case of the rich getting richer and the poor failing to keep up.

As explained below, the available evidence of the distribution of wealth is

less robust, but what evidence there is suggests no clear change in inequality during the period of the boom. Figure 1 summarises the evidence on wealth Gini coefficients, for both individuals and households, from surveys conducted between 2001 and 2015. Stats NZ, for example, reports an increase in the Gini coefficient for individual inequality from 0.73 to 0.74 between 2003/04 and 2005/06, then a fall to 0.72 in 2009/10, before another rise, to 0.76 in 2014/15 (Stats NZ, 2016a, and email from Michelle Griffin, 9 June 2017), but as explained below the significance of the last change is clouded by a difference in survey methods. Over the whole period, and the entire set of estimates, no clear trend emerges. (Chapple et al., 2015, estimate a wealth Gini coefficient for 38-year-olds in about 2010/11, which is not shown in Figure 1.) Some estimates of inequality in income or consumption also show little change over the period (Creedy and Eedrah, 2015; Perry, 2017; Ball and Creedy, 2016; Irwin and Irwin, 2016; Wilkinson and Jeram, 2016), though there is evidence of an increase in income inequality before 2000, which might have been expected to cause a delayed increase in inequality of wealth, assuming it was associated with an increase in the inequality of savings (see Bertram, 2015, p.44).

To investigate this puzzle, we examined previously unpublished data on the net wealth of the housing haves and have-nots. The housing haves are individuals who own property, including ‘owner occupied dwellings, other residential and non-residential real estate (including commercial), timeshares but [excluding] ownership of land only’ (Stats NZ explanatory note included with unpublished data on 26 June 2017). As Table 1 shows, the housing haves were on average much richer than the have-nots throughout the period, but the proportional gap between them did not widen, and if the data is accepted at face value actually narrowed.<sup>2</sup>

What might explain these results? Are there reasons why the housing boom did not cause growing inequality between the housing haves and have-nots or in the total population? Or might problems in the data have concealed the changes?

**Factors that might have caused inequality not to rise**

Contrary to the argument sketched in the first paragraphs of this article, a housing boom could reduce inequality (Davies, 2009; Crampton, 2016; Kuhn, Schularick and Stein, 2018). True, it is likely to increase the gap between the middle class and the poor, but it is also likely to reduce the gap between the middle class and the rich, much of whose wealth is in financial assets. The catch-up might be expected to be particularly important relative to the very rich, making it hard to measure properly in survey data, which tends to undercount the upper tail of the distribution (Cheung, 2007, p.6; Stats NZ, 2016a, p.33; Piketty, 2014). Although this explanation might help explain the lack of strong evidence for an increase in inequality, it does not explain the evidence in Table 1 that the housing have-nots kept up with the haves.

In principle, this evidence could be explained if the housing have-nots saved more than the haves (perhaps in part with the goal of buying a property) and benefited disproportionately from the considerable appreciation in the value of businesses during the period; since its inception in early 2003, the S&P/NZX-50 index of New Zealand share prices appreciated even more rapidly than house prices. That this explains the results is unlikely, however. First, total net housing wealth grew much faster than net other wealth, which also includes bank deposits and other assets that did not appreciate sharply (Figure 2). Second, the housing have-nots appear to save *less* than the haves (Le, Gibson and Stillman, 2012, §3.3) and, consistent with this, business and financial assets are concentrated in decile 10 (Rashbrooke, Rashbrooke and Malano, 2017).

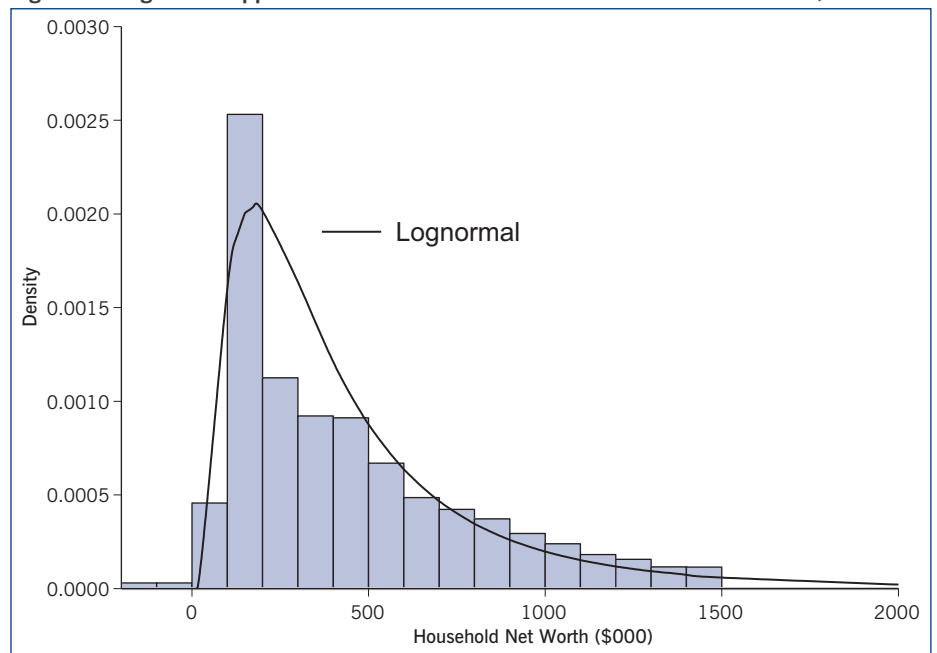
Other factors could also have played a role. At any point in time, some housing haves will have only just bought their property and may thus possess little net wealth, while some have-nots may have recently sold their property and be rich because of the housing boom. In addition, the boom especially affected Auckland (Kendall, 2016) and the median Aucklander was, at least in 2003/04, poorer than the median resident of any of the other five reported regions (Cheung, 2007, p.16).

**Table 1: Mean and median net wealth of housing haves and have-nots, thousands of New Zealand dollars, except shares, 2001–15**

	2001	2003/04	2005/06	2007/08	2009/10	2014/15
<b>Means</b>						
Haves	309	245	309	358	387	435
Have-nots	86	70	99	116	118	191
All	203	156	197	227	241	297
Wealth of have-nots/ wealth of haves	0.28	0.29	0.32	0.32	0.30	0.44
<b>Medians</b>						
Haves	184	146	187	226	246	267
Have-nots	3	10	13	14	16	12
All	68	61	71	84	95	87
Wealth of have-nots/ wealth of haves	0.02	0.07	0.07	0.06	0.07	0.04

Source: Stats NZ, email, 26 June 2017

**Figure 3: Lognormal approximation of New Zealand household net worth 2014/15**



Notes: The minimum and maximum values of the distribution are unavailable and were arbitrarily set to -\$200,000 and \$20,000,000 in estimating the lognormal function with Cowell's (2011) inequality calculator for grouped data.  
Source: Stats NZ, Household Economic Survey, 2014–15, spreadsheet "hh-net-worth-stats-2015-tables", table 1.04, and authors' calculations.

**Limitations of the data**

It is also possible that inequality in the population as a whole and between the housing haves and have-nots did increase without this showing up in the data.

First, there are the limitations of the Gini coefficient in describing changes in the distribution of wealth. For example, it is known that it does not fully capture a shift in wealth towards the upper end of the distribution (Gastwirth, 2014). In addition, Gini coefficients and other indices of inequality may not unambiguously rank degrees of inequality. This can arise when

the Lorenz curves for the distributions intersect (Atkinson, 1970). This possible ambiguity could be ruled out if the distribution of wealth were lognormal, because Lorenz curves for lognormal distributions never intersect (Cowell, 2011, ch.4). That the lognormal distribution can provide a reasonable approximation for the distribution of wealth is illustrated by the example for New Zealand household wealth shown in Figure 3. Other examples are provided by Kleiber and Kotz (2003). Nevertheless, a lognormal fit cannot be exact for net wealth, which can be negative,

and the shape of the distributions may have changed over the period because, for example, the housing boom increased the wealth of the middle-class relative to that of both the poor and the rich. Some indicators of inequality may reflect changes of this kind more readily than the Gini coefficient. We report Gini coefficients because they take into account the whole distribution.

Further, any changes in inequality may have been obscured by sampling and other errors in the surveys underlying the estimates of the Gini coefficient, as well as changes in survey design. The first of the surveys was the household saving survey, conducted during August–November 2001 (Ramsey, 2006; Stats NZ, n.d.). Then there were four surveys of family, income and employment (SoFIEs) that included a module on wealth, in the years ending September 2004, 2006, 2008 and 2010 (SoFIE waves 2, 4, 6 and 8) (see, e.g., Cheung, 2007; Scobie, Le and Gibson, 2007; Rashbrooke, Rashbrooke and Molano, 2017). Finally, there was a household economic survey, conducted in the year ending June 2015 (Statistics New Zealand, 2016a). The differences in survey names are associated with differences in survey methods (Statistics New Zealand, 2016b), so although sampling errors and response biases, as well as questions about the definition of wealth (Crampton, 2016), create problems for the interpretation of all reported changes, the changes between 2001 and 2003/04 and between 2009/10

and 2014/15 may be especially unreliable owing to different survey methods.

Timing issues may also have prevented the surveys from detecting the full effects of the housing boom. On the one hand, as Figures 1 and 2 show, some of the price appreciation took place before the first survey, in mid-2001, or after the last survey, in 2014/15. On the other hand, the surveys do not always report current property values. The SoFIEs may have adjusted official valuations for general movements in house prices (Ramsey, 2006, p.8), but the household saving survey and the household economic survey did not (Stats NZ, n.d., pp.60, 137; 2016a, p.27). As a result, the property values reported in the 2014/15 survey were often several years old: of 809,010 dated valuations, about a third are for 2012 or earlier. In addition, the surveys may also have failed to record fully the appreciation of houses owned by trusts (see Statistics New Zealand, n.d., ch.11; Ramsey, 2006, p.8; Statistics New Zealand, 2016a, pp.11–12).

### Conclusion

To sum up: it is possible that New Zealand's housing boom did not increase wealth inequality in New Zealand, as is suggested by the available Gini coefficients. It is also possible that the effect was concealed by factors including changes in survey methods, problems tracking property owned by trusts, problems recording up-to-date property values, and the precise relationship between the timing

of the surveys and the timing of house-price boom. If the boom turns to bust, as suggested by analyses that detect a bubble (Greenaway-McGrevy and Phillips, 2016), there will be further opportunities to examine the link between house-price changes and inequality.

- 1 In the statistical framework underlying the Reserve Bank data, households' ownership of investment properties is treated as an investment of the business sector, with households' equity in the properties recorded among their financial assets (Reserve Bank of New Zealand, 2017, p.9). We therefore estimate net housing wealth as the difference between the two memo items appended to the household balance sheet; i.e., as QC1 (total housing assets) less QM22 (total housing loans). We estimate net other wealth as households' financial assets (QA) less their liabilities (QB) other than housing loans (QB11), all less their equity in investment properties, which is the difference between the memo items and non-investment housing wealth (QC6 – QB11); i.e., as QA – (QB – QB11) – [(QC1 – QM22) – (QC6 – QB11)]. It follows, after cancelling terms, that the sum of our two series is total net worth: QA – QB + QC6.
- 2 Also worth noting is that the means and medians in Table 1 imply that wealth is distributed very unequally among the housing have-nots. The ratio of the mean to the median is an indicator of inequality because it shows the degree to which wealth is skewed to the right and therefore concentrated above the median. In the 2014/15 survey, the mean–median ratio was 1.6 for the housing haves and 15.9 for the have-nots. If the distribution of the wealth was lognormally distributed (an assumption we discuss below), the Gini coefficient would be 0.52 for the haves and 0.90 for the have-nots. To see why, note that the Gini coefficient,  $G$ , of a lognormal distribution is given by  $G = 2\Phi(\sigma/\sqrt{2}) - 1$ , where  $\Phi(\cdot)$  is the normal distribution function and  $\sigma$  is the standard deviation of the logarithms (see Cowell, 2011, Appendix A). Moreover,  $\sigma = \sqrt{2} \sqrt{\ln(\bar{r})}$ , where  $\bar{r}$  is the mean–median ratio, so  $G = 2\Phi(\sqrt{\ln(\bar{r})}) - 1$ .

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