Wealth Disparities in New Zealand: Preliminary Report Providing Updated Data from SOFIE

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INTRODUCTION

Over the period 2002 to 2010, Statistics New Zealand carried out a longitudinal survey known as the Survey of Family, Income and Employment (SoFIE). Some eight waves of data were collected. Every second wave (2003/2004, 2005/2006, 2007/2008, and 2009/2010), respondents were asked questions about their wealth holdings.

In 2007 Statistics New Zealand published a paper by Jit Cheung, **Wealth Disparities in New Zealand**, based on data from wave 2. That paper provided an overview of net worth disparity, giving information by mean and by median, and other distribution information including the Gini coefficient and other percentile-based information. Results were also analysed by age, by major ethnic group, by family type, and also by gender, personal income decile, and region.

This preliminary paper is the initial part of a project to use data from those waves. The project has two principal purposes:

1. To update the Cheung 2007 paper to include data from waves 4, 6 and 8 of SoFIE; and in addition to extend the format of the results reported by Cheung based on wave 2 of SoFIE to include information as to the extent to which survey respondents in specified wealth sub-divisions moved between such sub-divisions over the course of the survey.
2. To demonstrate the richness of the information gathered by SoFIE and to encourage further exploration of the survey's wealth data.

In view of interest already expressed in the project, this preliminary paper provides updates to the main tables provided in the 2007 Cheung paper, using data from all four waves. As a departure from the usual approach for IGPS working papers, little interpretation of results is given; this will be contained in the final paper.

Researchers are invited to take the results provided in this preliminary paper as a starting point for discussion of policy issues pertaining to the distribution of wealth, and to make their own in-depth investigations to illuminate the disparate processes of wealth accumulation. The authors welcome feedback as to particular areas of analysis suggested by the data in this paper.

The final paper will include the longitudinal analysis mentioned above. This will be based on the data for the surviving respondents in wave 8, and analyse movement between quintiles in their net wealth holdings over the survey period, according to their wave 8 ethnicity, family type, age group, income quintile, gender and region. We plan to include some simple analysis of those who dropped out between waves, to the extent this is feasible.

Finally, please note that the results presented here for wave 2 differ a little from the original results as the result of changes made to SoFIE population weightings after 2007. Also, the separate analysis in the 2007 paper of the position of individuals with negative net worth has not been repeated; we took the view that to be useful, this had to be done in more depth than was possible in the 2007 paper format.

REPORT ON DATA FROM WAVES 2, 4, 6 AND 8: PRELIMINARY RESULTS

1. DATA

The wealth data available in SoFIE is sub-divided into a number of types, such as residential housing, motor vehicles, credit card balance etc. It includes both assets and liabilities. In this paper, we provide only the aggregate figures for total assets, total liabilities, and net worth (total assets less total liabilities), with a principal focus on net worth. We note disaggregating this data would obviously be a useful future line of enquiry to aid understanding of the disparities shown in the aggregate data.

There are a number of caveats that need to be made in respect of the survey data. There is evidence of some lack of consistency in respondent answers from wave to wave. Naturally, despite best efforts by the interviewers, and best practice survey design, respondents may not always be completely accurate, for various reasons. It is likely, based on international work, that the very wealthy may be somewhat under-represented, although this is not proven from the data itself.

Attrition may also have an impact, unless those dropping out are statistically representative of those who remained. Respondent numbers for each wave are as follows:

Wave	Respondents
2	21,600
4	20,000
6	19,100
8	18,500

Responses are weighted according to factors derived by Statistics NZ to give population totals. The totals for each wave, reflecting increases in total population, are as follows:

Wave	Weighted	Ethnicity total
2	3,015,500	*3,222,200*
4	3,109,300	*3,320,300*
6	3,211,800	*3,467,300*
8	3,384,900	*3,674,800*

For ethnic classification, respondents may specify more than one ethnicity; accordingly, totals exceed the weighted population figures as shown above.

2. OVERVIEW

Table 1 provides a summary of results for each wave. It shows, separately for net worth, total assets, and total liabilities, the actual reported (population weighted) numbers in $ millions, together with the mean and the median.

The ratio of mean to median is a measure of dispersion; in an even distribution, the mean and median approach each other. Here the ratios demonstrate "bunching" at higher values, with a long tail of lower values.

Table 1

	Total ($million)	Mean ($)	Median ($)	Mean/Median
		Net worth		
Wave 2	471,174	156,244	61,700	2.5
Wave 4	620,201	199,462	73,550	2.7
Wave 6	734,985	228,837	86,101	2.7
Wave 8	815,581	240,941	95,000	2.5
		Total assets		
Wave 2	561,961	186,349	95,038	2.0
Wave 4	728,430	234,270	112,500	2.1
Wave 6	862,591	268,567	137,500	2.0
Wave 8	963,630	284,678	153,800	1.9
		Total liabilities		
Wave 2	90,788	30,106	2,000	15.1
Wave 4	108,229	34,807	2,500	13.9
Wave 6	127,606	39,730	2,700	14.7
Wave 8	148,049	43,737	3,000	14.6
		Debt ratio (per $100 asset)		
Wave 2		16.2		
Wave 4		14.9		
Wave 6		14.8		
Wave 8		15.4		

The debt ratio for each wave measures the proportion liabilities bear against assets.

Figures 1.2, 1.4, 1.6 and 1.8 chart the distribution of net worth value for each wave in line with the presentation provided in the 2007 Cheung paper. Following that format, the axis is truncated at (50,000) and $350,000. Quintile points are indicated with vertical lines.

Figure 1.2 – wave 2

Figure 1.4 – wave 4

Number of people / Net worth value. Quintiles Q1, Q2, Q3, Q4, Q5 marked across the net worth value axis (-$50,000 to $350,000).

Figure 1.6 – wave 6

Number of people / Net worth value. Quintiles Q1, Q2, Q3, Q4, Q5 marked across the net worth value axis (-$50,000 to $350,000).

Figure 1.8 – wave 8

Number of people / Net worth value. Quintiles Q1, Q2, Q3, Q4, Q5 marked across the net worth value axis (-$50,000 to $350,000).
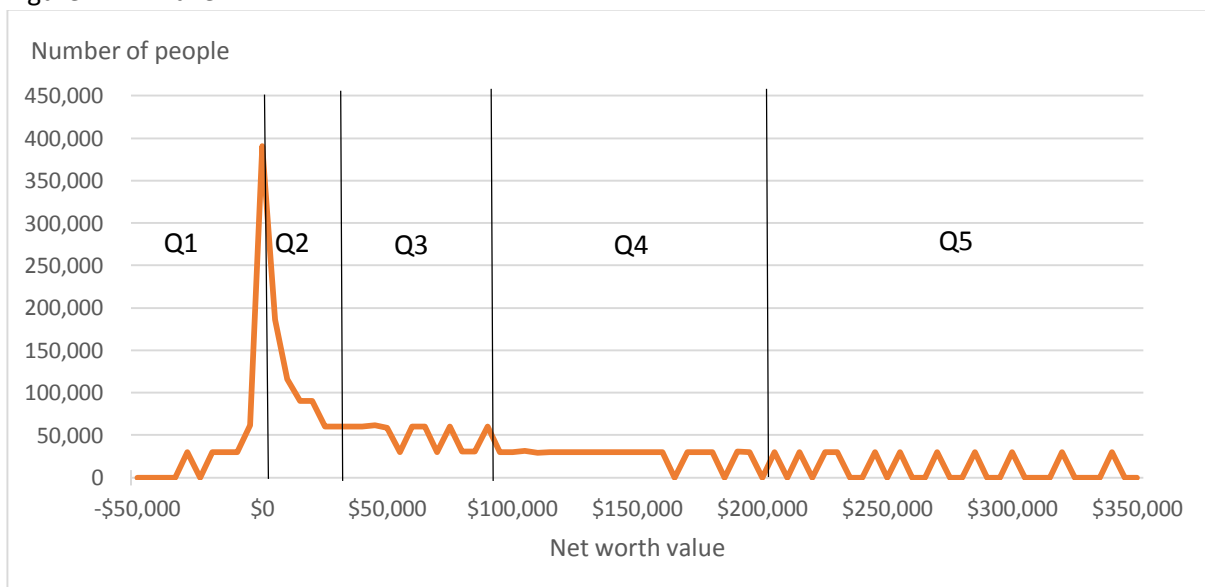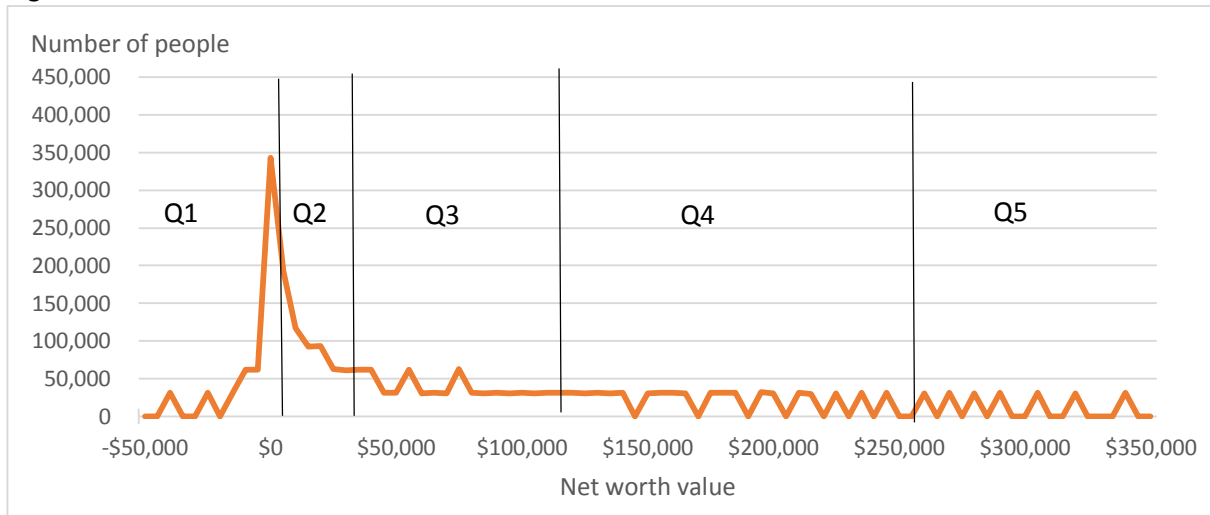
The quintile divisions have widened over the period; the table below shows the movement.

End of:	Wave 2	Wave 4	Wave 6	Wave 8
Q1	$4,350	$5,000	$5,450	$6,000
Q2	$33,050	$36,000	$39,165	$45,100
Q3	$94,111	$115,230	$140,700	$154,870
Q4	$206,679	$260,000	$306,100	$327,400

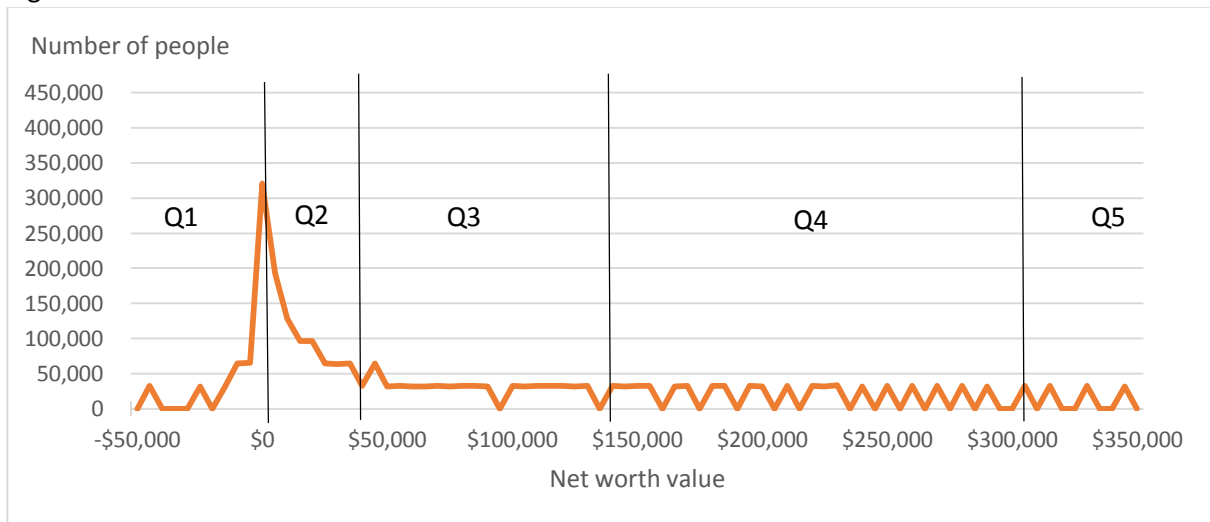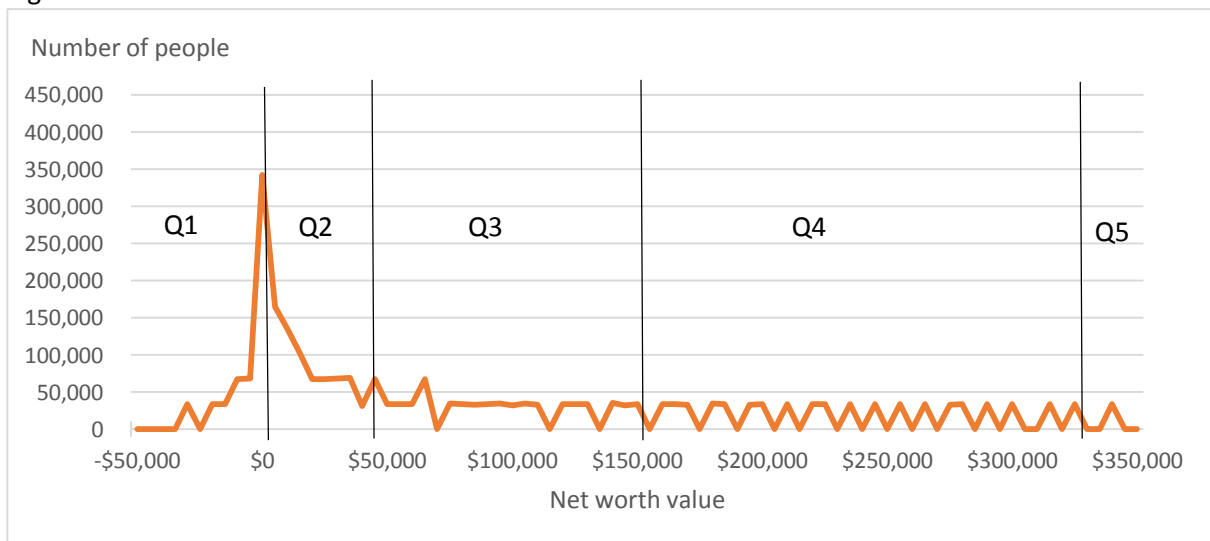Another useful way of considering this data is to look at particular points on the distribution. The table below, table 1A, shows mean net wealth for the 10th, 20th, 33rd, 50th, 66th, 80th, 90th and 100th percentile points.

Percentile	10	20	33	50	66	80	90	100
Wave 2	$201	$4,350	$19,601	$60,020	$120,450	$206,679	$342,000	$2,073,100
Wave 4	$200	$5,000	$21,000	$71,500	$150,750	$260,000	$423,000	$3,060,850
Wave 6	$300	$5,450	$22,000	$83,600	$181,000	$306,100	$501,500	$3,460,100
Wave 8	$500	$6,000	$25,250	$92,000	$196,175	$327,400	$535,400	$3,335,250

Figure 2 below shows the Lorenz curves for the distribution data. The curvature is an indication of the extent of the distance from complete equality.
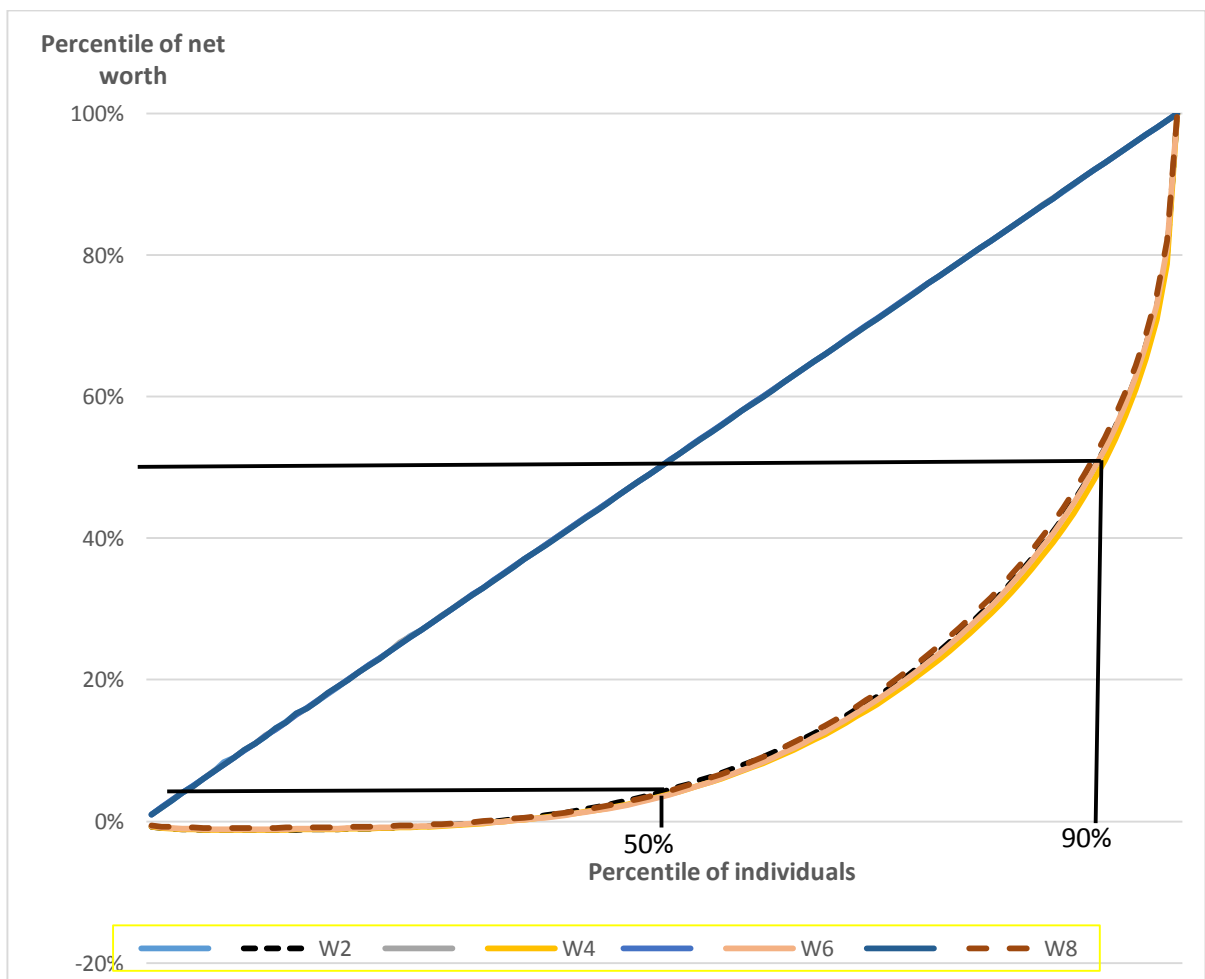

In general the curve became a little more concave in waves 4 and 6, but returned closer to the wave 2 position by wave 8. This is thought to possibly reflect some diminution of wealth at the highest end of the distribution due to the impact of the 2008 global financial crisis on financial asset holdings.

Table 2 shows the change in percentile distribution of net worth ownership over the four waves. Note these figures take into account the significant negative net worth of around 7% of the population.

	Wave 2	Wave 4	Wave 6	Wave 8
	Percent of total net worth			
Top 1%	20.1	21.3	19.2	18.1
Next 4%	21.0	21.5	21.9	21.3
Next 5%	13.8	13.8	14.0	14.1
Next 40%	41.1	40.0	41.6	42.6
Bottom 50%	4.0	3.4	3.3	3.8
	Cumulative percent			
Top 1%	20.1	21.3	19.2	18.1
Top 5%	41.1	42.8	41.1	39.4
Top 10%	54.9	56.6	55.1	53.5
Top 50%	96.0	96.6	96.7	96.2
All	100.0	100.0	100.0	100.0
	Actual net worth amounts in $ billions are			
Top 1%	94.4	132.1	141.1	147.4
Next 4%	98.9	133.3	161.0	173.7
Next 5%	65.0	85.6	102.9	115.0
Next 40%	193.7	248.1	305.8	348.3
Bottom 50%	18.8	21.1	24.3	31.0
Bottom 10%	-5.7	-7.4	-8.1	-7.4

## 3. DISPARITIES BY POPULATION DISTRIBUTION

Firstly, Figure 3 shows mean and median net worth by 10 year age group bands for each wave.
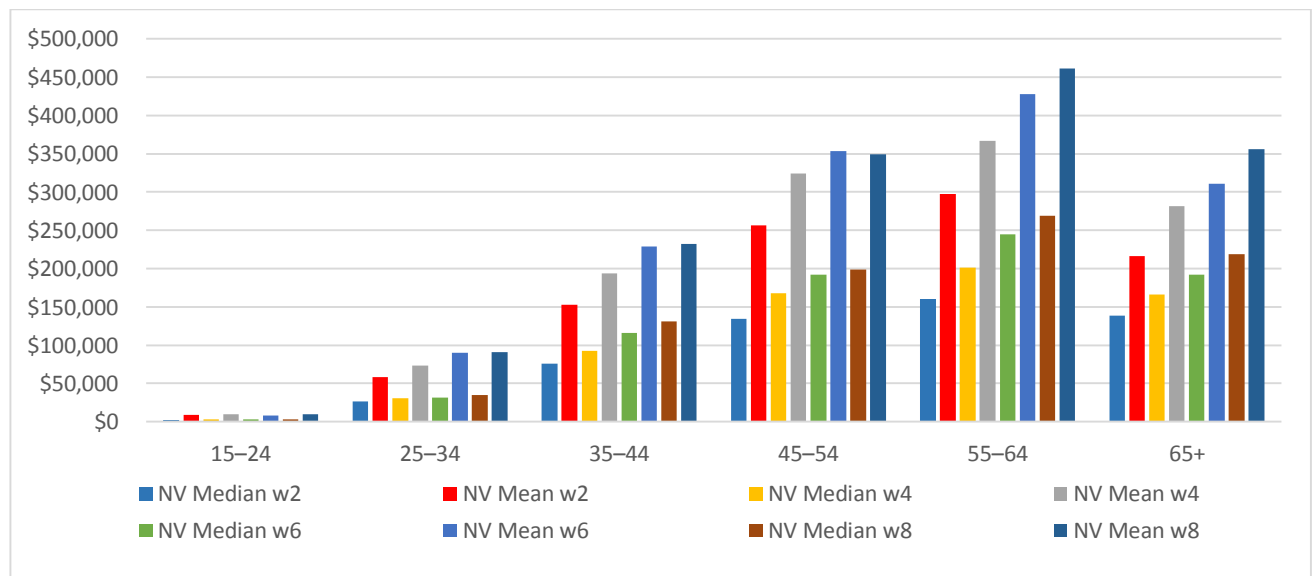
The feature of the mean being appreciably higher than the median is present at all ages, indicating skewness is not age-dependent. The mean broadly levels off for waves 6 and 8, except for the two older age bands.

Further research here would investigate narrower age bands and continue to 75+ rather than the 65+ here, as was done in the 2007 Cheung paper. Further, disaggregation into types of wealth would provide useful information as to what is driving the age differences, and whether wealth holding change in nature as age increases, and between early and late retirement periods.

Figure 4 shows the ratio of liabilities to total assets for each age group by age band over the four waves.
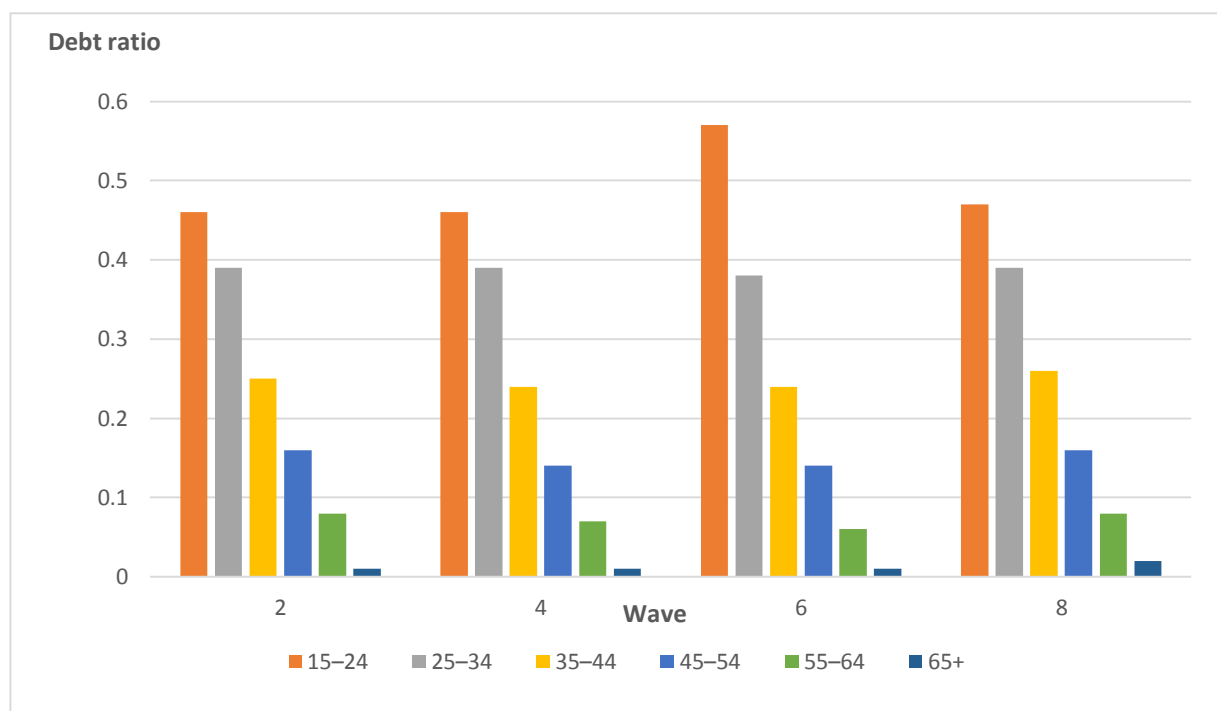
This shows high relative debt at younger ages decreasing close to zero with age. Not a great deal of change is evident over the period; but wave 6 shows a spike for the age 15-24 group, and there is an indication by wave 8 of a slight increase for the 65+ which may warrant further investigation.

Table 4 provides information in respect of major ethnic groups. The share of population is shown for each wave, together with the share of net worth. As noted earlier, respondents could identify with more than one group, hence population share adds up to more than 100%.

	Wave 2		Wave 4		Wave 6		Wave 8	
	Popln	Share	Popln	Share	Popln	Share	Popln	Share
European	80%	87%	78%	88%	78%	86%	77%	85%
Māori	12%	6%	12%	5%	12%	5%	13%	5%
Pacific Peoples	4%	1%	4%	1%	5%	1%	5%	1%
Asian	9%	6%	9%	5%	10%	6%	11%	7%
Other	2%	1%	2%	2%	3%	2%	3%	2%

A measure of dispersion is the ratio of mean to median. Table 4A below shows the mean net worth and the ratio of mean to median. Māori and Pacific Peoples have clearly wider dispersion; Asian has moved closer to European over the period.

	Wave 2		Wave 4		Wave 6		Wave 8	
	Mean	Ratio	Mean	Ratio	Mean	Ratio	Mean	Ratio
European	$175,861	2.2	$230,684	2.3	$261,603	2.2	$276,096	2.2
Māori	$78,556	5.2	$77,908	4.1	$90,258	4.7	$98,369	5.2
Pacific Peoples	$34,660	4.9	$41,508	6.9	$55,457	6.9	$56,170	6.6
Asian	$107,638	6.8	$107,279	4.7	$149,426	5.2	$160,876	3.5
Other	$89,367	6.0	$173,275	5.3	$159,910	5.7	$162,196	3.9

Looking at gender differences, tables 5 and 5A give results in the same format as above.

Table 5

	Wave 2		Wave 4		Wave 6		Wave 8	
	Popln	Share	Popln	Share	Popln	Share	Popln	Share
Female	52%	47%	52%	49%	52%	48%	51%	46%
Male	48%	53%	48%	51%	48%	52%	49%	54%

Table 5A

	Wave 2		Wave 4		Wave 6		Wave 8	
	Mean	Ratio	Mean	Ratio	Mean	Ratio	Mean	Ratio
Female	$142,465	2.4	$186,925	2.7	$213,669	2.5	$215,849	2.4
Male	$171,034	2.7	$212,949	2.7	$245,019	2.8	$267,559	2.7

For family types, the information is given in tables 6 and 6A, and for regions, in tables 7 and 7A.

Table 6

	Wave 2		Wave 4		Wave 6		Wave 8	
	Popln	Share	Popln	Share	Popln	Share	Popln	Share
Couple only	27%	37%	27%	38%	27%	38%	27%	40%
Couple with child(ren)	43%	42%	43%	41%	44%	40%	44%	37%
One parent with child(ren)	9%	4%	9%	5%	9%	4%	9%	5%
Not in family nucleus	21%	17%	21%	17%	20%	18%	20%	18%

Table 6A

	Wave 2		Wave 4		Wave 6		Wave 8	
	Mean	Ratio	Mean	Ratio	Mean	Ratio	Mean	Ratio
Couple only	$215,364	1.8	$278,378	1.8	$328,169	1.8	$360,497	1.8
Couple with child(ren)	$151,868	3.0	$189,146	3.2	$207,538	3.1	$204,899	2.8
One parent with child(ren)	$73,324	5.4	$102,378	7.3	$98,200	7.6	$126,637	8.7
Not in family nucleus	$124,826	2.9	$160,545	3.6	$202,035	3.7	$215,789	3.6

Table 7

	Wave 2		Wave 4		Wave 6		Wave 8	
	Popln	Share	Popln	Share	Popln	Share	Popln	Share
Auckland	31%	29%	31%	30%	32%	31%	32%	30%
Waikato	10%	10%	10%	10%	10%	11%	10%	10%
Wellington	12%	11%	11%	12%	12%	11%	11%	12%
Canterbury	13%	14%	14%	14%	13%	14%	13%	13%
Rest N Island	23%	20%	22%	21%	22%	21%	22%	22%
Rest S Island	12%	15%	11%	13%	11%	13%	11%	12%

Table 7A

	Wave 2		Wave 4		Wave 6		Wave 8	
	Mean	Ratio	Mean	Ratio	Mean	Ratio	Mean	Ratio
Auckland	$146,346	3.5	$190,839	4.0	$218,956	4.4	$230,371	3.2
Waikato	$180,484	2.7	$252,254	4.1	$260,106	3.2	$273,769	3.4
Wellington	$140,756	2.1	$177,384	2.3	$212,370	2.1	$212,993	2.0
Canterbury	$166,994	2.4	$199,991	2.3	$244,118	2.1	$242,341	2.2
Rest N Island	$136,822	2.1	$186,118	2.3	$213,629	2.2	$236,379	2.3
Rest S Island	$204,139	2.7	$226,223	2.4	$259,841	2.3	$277,414	2.3