

WEALTH DISPARITIES IN NEW ZEALAND



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Information

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1. Introduction

Wealth disparity persists in New Zealand, as in other societies. Disparity in wealth holdings is of significant interest in respect of its implications for health outcomes, economic and social wellbeing, opportunities for social participation, ability to withstand life-shocks, and so on. Our first step is to get the best picture we can of the distribution of wealth. To the extent that this shows significant disparities, there are further questions as to what are the causes and the consequences of these disparities, and hence what policy interventions may be required.

This paper presents an empirical analysis of net worth, the difference between total assets and total liabilities, and the distribution of this net worth in New Zealand. The paper focuses on the distribution of net worth, and in doing so highlights the unbalanced nature of the current distribution. The Survey of Family, Income and Employment (SoFIE) conducted in 2003/04 provides the necessary data. The analysis is based on individuals, the value of their assets, liabilities and net worth¹.

Section 2 of this paper provides an overview of the SoFIE data source. Sections 3 and 4 present information on disparity by first looking at the overall distributions and then turning to finer breakdowns by major socio-demographic variables. Section 5 focuses specifically on individuals reporting negative net worth and discusses their characteristics. Section 6 concludes by discussing what might help to identify the background drivers of the wealth disparity revealed by SoFIE, and suggests some areas requiring further research.

2. Background to SoFIE data source

SoFIE is the first official national longitudinal survey on individual and family dynamics in New Zealand. The aim of the survey is to look at changes in income and labour force participation in association with changes in individual, family and household circumstances. The population covered by SoFIE is the usually resident population of New Zealand living in private dwellings. It excludes people living in institutions or in establishments such as boarding houses, rest homes, hotels, motels or hostels.

The survey consists of eight waves of an annual cycle (1 October to 30 September the following year). The same individuals are re-interviewed once every 12 months over the eight waves in order to build up a picture of how their circumstances have changed over time.

In waves two, four, six and eight an asset and liability module is included which collects information on the type and value of assets and liabilities of respondents. Wave two was conducted from 1 October 2003 to 30 September 2004 and is the source of the data for this paper.

Attrition is inevitable in a longitudinal survey. SoFIE has been managed in an effort to minimise attrition. For wave one 77 percent of eligible households responded. For the

¹ While SoFIE collects data on individuals, it is constructed in a way that it allows output of data at multiple levels: the individual, household or family within household.

second wave 87 percent of all individuals who responded in wave one responded again. Over 20,000 individuals responded in wave two. The achieved sample was then weighted up to represent 2.9 million people in the usually resident population of New Zealand who are aged 15 and over living in private dwellings (hereafter referred to as the subject population).

A summary of the subject population by key demographic characteristics can be found in the Appendix. Note that ethnic classification is based on total response of individuals to the question on ethnicity, and hence number and percentage shares add up to more than 100 percent in total.

3. An overview of net worth disparity

In 2003/04 the SoFIE subject population of 2.9 million recorded a combined net worth of \$467.67 billion, representing the difference between \$559.41 billion of total assets and \$91.73 billion of total liabilities (see Table 1). This corresponds to an aggregate debt ratio of 16.4; that is, for every \$100 dollars in asset a \$16.40 debt is owed. A detailed summary table of total and median asset, liability and net worth values by key demographic distribution can be found in the Appendix.

Table 1. Summary of results

	Total (million) \$	Mean \$	Median \$	Mean / Median ratio
Net worth	467,668	159,600	69,800	2.3
Total assets ²	559,414	191,000	106,100	1.8
Total liabilities	91,726	31,300	2,400	13.0
Debt ratio (per \$100 asset)	16.4			

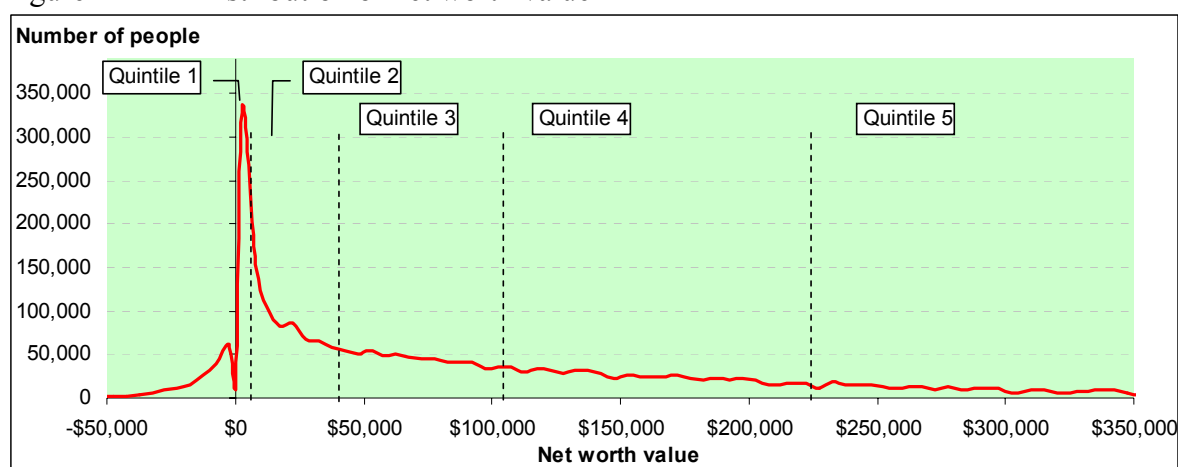
It is not only the absolute values of net worth that are of research and policy interest, but also the distribution, as evidenced by these and following results. Figure 1 shows a skewed distribution of net worth. There is a concentration of individuals with low net worth and relatively few individuals with very high values.

The mean and the median are commonly used statistics, and they are identical if the distribution is symmetric. In the case of a rightward skewed net worth distribution, however, the median is less than the mean due to the large proportion of values at the low end. The more the net worth distribution is skewed, the larger the difference between the mean and the median. A ratio of mean to median is calculated to measure how much the distribution is skewed. A ratio significantly above 1 indicates the presence of inequalities in the distribution.

² Superannuation accounted for 2.1 percent of the total asset value. An unspecified amount of superannuation value was not recorded under the superannuation asset category. Some of these data might have been recorded under the life insurance asset category. The net impact would be insignificant when analysing by total asset or total net worth.

Since the mean is more sensitive to extremely high values where the data are sparse, the median is used in preference to the mean. Half of the population have net worth values below the median and half above.

Figure 1 Distribution of net worth value



Note: excludes 14,900 (0.5 percent) individuals whose net worth is less than -\$50,000 and 316,500 (1.1 percent) individuals whose net worth is more than \$350,000

Cut-off points between quintiles are also shown in Figure 1. Each quintile represents 20 percent of the subject population, or approximately 586,000 individuals.

The skewed net worth distribution in Figure 1 is not untypical of a developed economy (see for example Jappelli and Pistaferri 2000, US Census Bureau 2003). For over half (52.0 percent) of all individuals their personal net worth falls within a relatively narrow range of \$0 to \$100,000. It is even further concentrated at the lower end, with one-third (33.2 percent) in the range of \$0 and \$40,000. For the other half of the subject population individual net worth is widely spread over the upper positive end of the distribution.

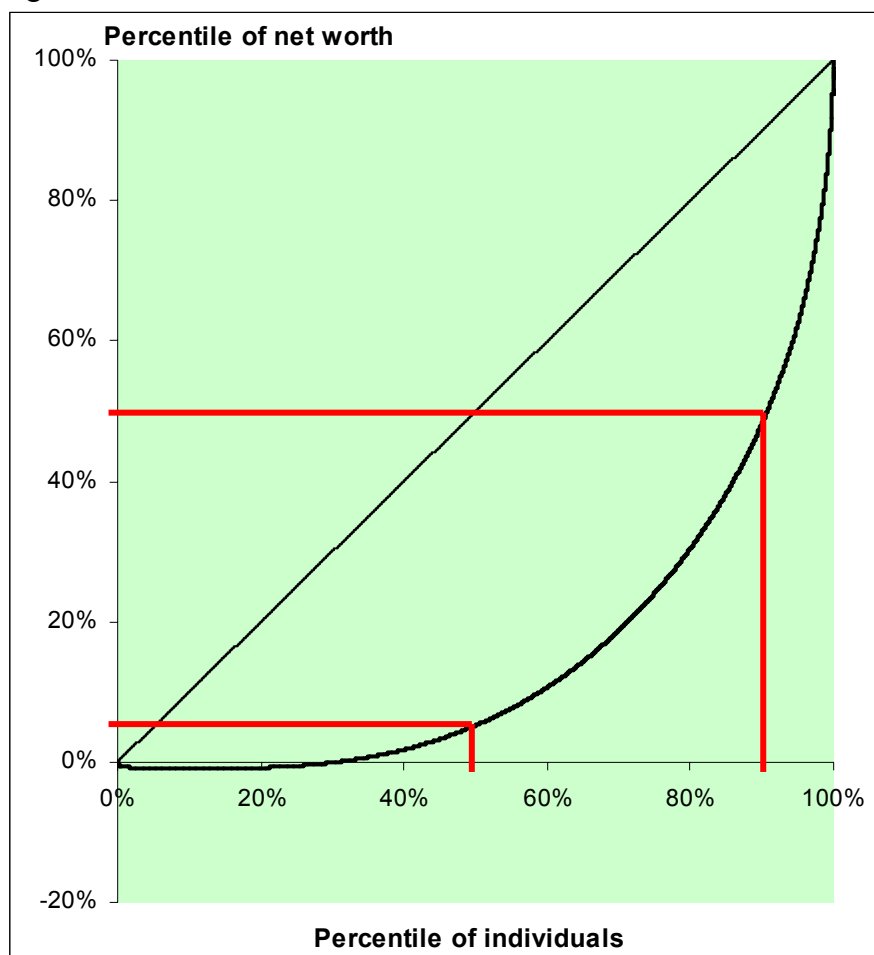
A number of notable features emerge in Figure 1. The quintile ranges show a highly uneven distribution. While quintile 2 has the narrowest range (\$6,000 to \$41,000), the heaviest concentration occurs in quintile 1 but is masked by the open-ended tail distribution of those who report high negative net worth. In fact the number of individuals with negative net worth is substantial, representing 6.5 percent of the subject population. This group is looked at in further detail in section 5 of this paper. At the other end of the spectrum the stretch of the upper-end tail is much longer than can be displayed visually, and the individuals' net worth value runs into tens of millions. This is not an unusual pattern and is often observed in other developed countries. Note also that population based surveys are known to have difficulties in capturing the most wealthy, and hence the upper end of the net worth distribution is more likely to be underestimated when compared with other parts of the distribution.

A Gini coefficient is calculated as a summary measure of the inequalities. The concept of Gini coefficient is explained by the Lorenz Curve in Figure 2. By sorting all individuals from the lowest net worth (or the highest negative net worth) to the highest net worth, the accumulated percentile distribution of individuals (the x-axis) is plotted against the corresponding accumulated net worth percentile distribution (the y-axis). In a situation of complete equality where everyone owns the same amount of net worth, the accumulated percentile plot will produce a straight diagonal line at 45

degree to the origin. The further away from complete equality the more concave the Lorenz Curve will appear.

The Gini coefficient has a theoretical range between 0 and 1, the closer the value to 1 the greater inequalities. The Gini coefficient is calculated here by using the method of Chen, Tsaur and Rhai (1982) to account for negative net worth of individuals.

Figure 2 Net worth Lorenz Curve



The Lorenz Curve in Figure 2 takes on a distinctive concave shape, dipping below 0 among the 30 percent least wealthy individuals in their accumulated aggregate net worth as a result of the substantial negative net worth owned by the first 6.5 percent of individuals. The Gini coefficient is calculated at 0.693, a level comparable to other sources, notably the 2001 Household Savings Survey of 0.689 for all economic units (Statistics New Zealand 2002). The result confirms that inequalities in net worth persisted between the two surveys.

Table 2 highlights selected percentages of ownership statistics behind the Lorenz Curve. The top 10 percent of wealthy individuals own over half (51.8 percent) of total net worth³. Some 16.4 percent of total net worth is shown as owned by the top 1 percent of wealthy individuals, and as noted above this is likely to be an under-

³ The top 10 percent of wealthy individuals, corresponding to the 90th percentile of individuals and marked in Figure 2 by the long vertical bar on the right, intersects the Lorenz Curve where the accumulated percentile of net worth equals to 51.8 percent. Similarly, the 50 percent (median) intersects the Lorenz Curve where the accumulated percentile of net worth equals to 5.2 percent.

estimate. Perhaps a more revealing statistic is that at the halfway mark, the bottom half of the population collectively owns a mere 5.2 percent of total net worth, although this takes into account the considerable negative net worth of 6.5 percent of the population.

Table 2 Percentile distribution of net worth ownership

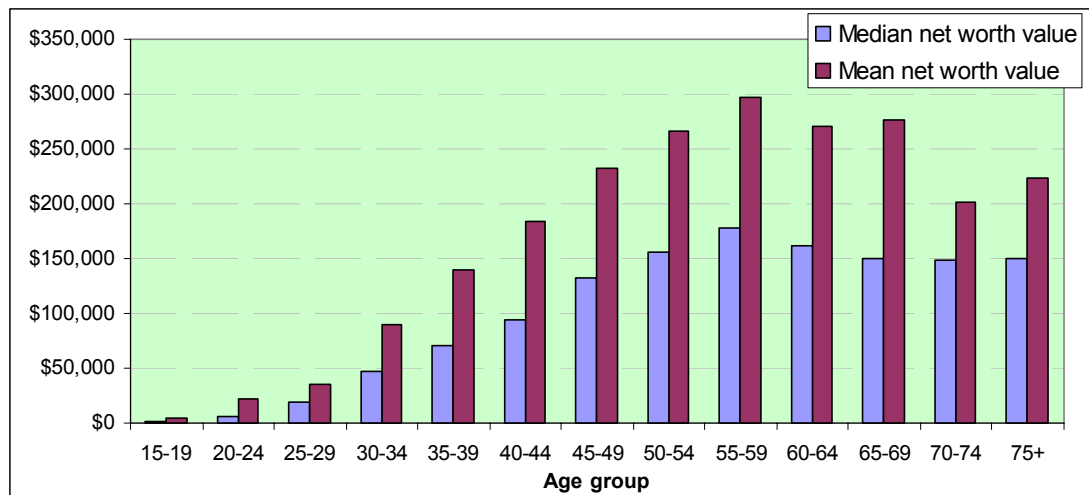
Percent of total net worth		Cumulative(%)	
Top 1%	16.4	Top 1%	16.4
Next 4%	21.3	Top 5%	37.7
Next 5%	14.1	Top 10%	51.8
Next 40%	43.0	Top 50%	94.8
Bottom 50%	5.2	All	100.0

4. Disparities by population distribution

In this section net worth inequalities are examined across some key social and demographic groups. Attention is given to differences between ages, ethnic groups and family structures, as these are known to exhibit significant variability at the population level.

Figure 3 presents median and mean net worth of individuals by 5-year age group. Age is a particularly useful variable in analysing net worth distribution because income and net worth accumulation exert strong age-dependency. The cross-sectional data used in this analysis provide a glimpse to the likely lifetime net worth accumulation trajectory.

Figure 3 Median and mean net worth value by 5-year age group



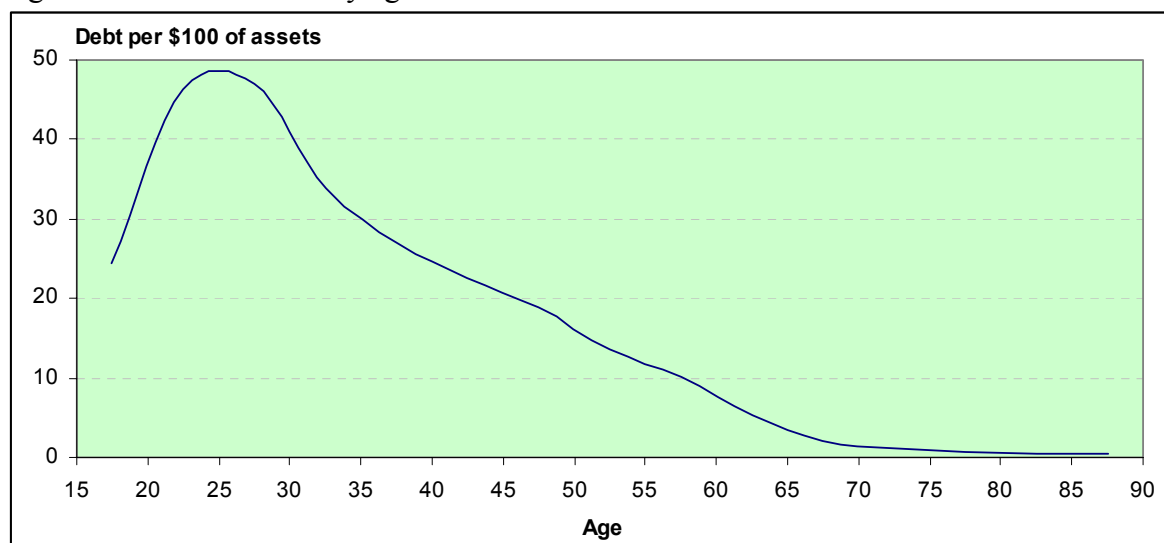
Individual net worth is expected to be at a very low level among youth. Net worth accumulation can be expected to accelerate through the working ages, from ages 25-29 to peak between ages 55 and 69; the spread of the peak may reflect variation in ages at which labour force retirement occurs. The level of median net worth stays relatively unchanged at post-retirement ages.

Table 3 Percentage distribution of population and net worth, mean and median net worth, by age

	Percentage share in		Net worth		
	Population	Total net worth	Mean \$	Median \$	Mean / Median ratio
15-24	18.0	1.5	13,300	2,400	5.6
25-34	17.3	7.0	65,000	31,100	2.1
34-44	20.0	20.4	162,400	82,400	2.0
45-54	17.2	26.8	247,800	142,900	1.7
55-64	12.8	22.8	285,300	170,000	1.7
65+	14.7	21.5	233,700	149,500	1.6
Total	100.0	100.0	159,600	69,800	2.3

Figure 4 explores the relationship between asset and liability holdings or the debt ratio by age. The level of indebtedness climbs rapidly at young ages, and peaks at around age 25 at a level of nearly \$50 for every \$100 in assets. The decline of the debt ratio between ages 25 and 35 is no less impressive, coinciding with the start of accelerated net worth accumulation, as shown in Figure 3. The debt ratio declines steadily over the remaining working life. By retirement age, the level of indebtedness is reduced to near zero.

Figure 4 Debt ratio by age



Effects arising from age-dependency of net worth accumulation play out when analysing other socio-demographic factors. For example, significant disparities may also be observed between major ethnic groups, which in part are driven by the differences in their age structures. Table 4 presents net worth distribution between major ethnic groups and contrasts that with the population distribution. Between Māori and Pacific Peoples, however, despite having similar young population age structures Pacific Peoples stand out as particularly worst off.

Table 4 Distribution of population and total net worth, mean and median, by major ethnic group*

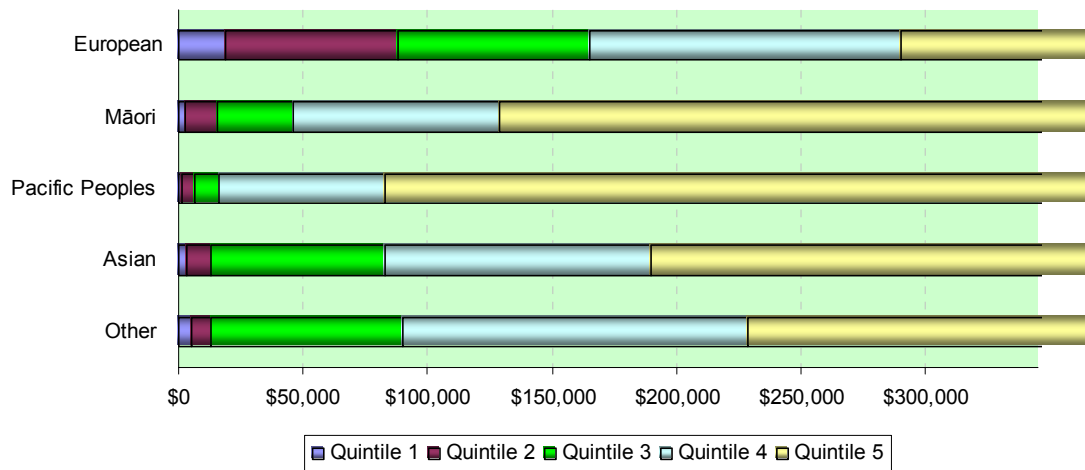
	Percentage share in	Net worth
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	population	total net worth	Mean \$	Median \$	Mean / Median ratio
European	83.0	92.7	178,400	86,900	2.1
Māori	10.4	4.3	65,800	18,000	3.6
Pacific Peoples	4.9	1.3	41,400	6,700	6.2
Asian	6.4	3.8	95,600	21,000	4.6
Other	1.9	1.2	100,200	19,000	5.3

* The classification of ethnic group is based on total responses to the question on ethnicity and hence adds up to more than 100 percent

Figure 5 contrasts disparities between as well as within ethnic groups by showing net worth quintiles bands for each major ethnic group. Each quintile represents 20 percent of the ethnic subject population. The location of successive quintile bands correspond to the cut-off points between quintiles, and each band width indicates the spread within the quintile (except quintiles 1 and 5 which are essentially open-ended).

Figure 5 Net worth quintiles by major ethnic group



Pacific Peoples' net worth distribution is heavily compressed at the lower end, with quintile 1 barely registering in Figure 5 with a cut-off point of just over \$1000; that is, 20 percent of Pacific Peoples have individual net worth of \$1000 or less. Quintiles 1 to 3 (or 60 percent) of Pacific Peoples have an individual net worth of \$16,000 or less. In contrast, Europeans show a far more even spread between quintiles. The cut-off for European quintile 2 (the lowest 40 percent) already exceeds that for quintile 3 for Māori and Asian, and even quintile 4 for Pacific Peoples.

Table 5 and Figure 6 present a similar analysis by family type⁴. Individuals' family status at a point in time is likely to be driven by life cycle changes, which explains differences in the demographic make-up of different family types. Notwithstanding this temporal effect, the cross-sectional data highlight that individuals in one parent families⁵ have significantly lower net worth than any other comparison group.

⁴ The definition of family is based on the concept of a family nucleus. A family nucleus is a couple, with or without child(ren), or one parent and their child(ren) where the children do not have partners or children of their own living in the same household.

⁵ Including adult children age 15 or above.

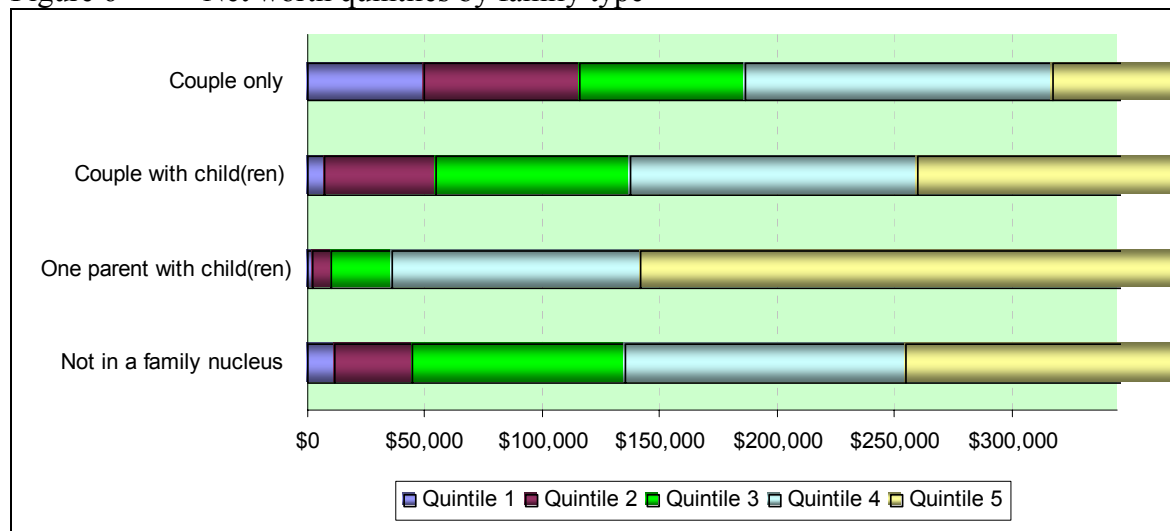
Furthermore, considerable disparities exist within the one-parent family type, as evident by the high mean to median ratio.

The median net worth value of individuals who are in a couple relationship but without children is nearly double that of their counterparts who are not in a family nucleus. This is likely to be at least partially reflective of the different age effects referred to above. The former family type is dominated by couples in middle and old ages who are at a more advanced point of their wealth accumulation trajectories, while the latter family type contains an almost equal split between the young and those who are close to retirement or retired.

Table 5 Distribution of population and total net worth, mean and median by family type

	Percentage share in		Net worth		
	Population %	total net worth %	Mean \$	Median \$	Mean / Median ratio
Couple only	28.6	37.4	209,300	120,300	1.7
Couple with child(ren)	40.7	37.7	148,000	54,800	2.7
One parent with child(ren)	9.1	4.9	84,900	15,000	5.7
Not in a family nucleus	21.6	20.0	147,600	62,700	2.4
Total	100.0	100.0	159,600	69,800	2.3

Figure 6 Net worth quintiles by family type



5. Individuals with negative net worth

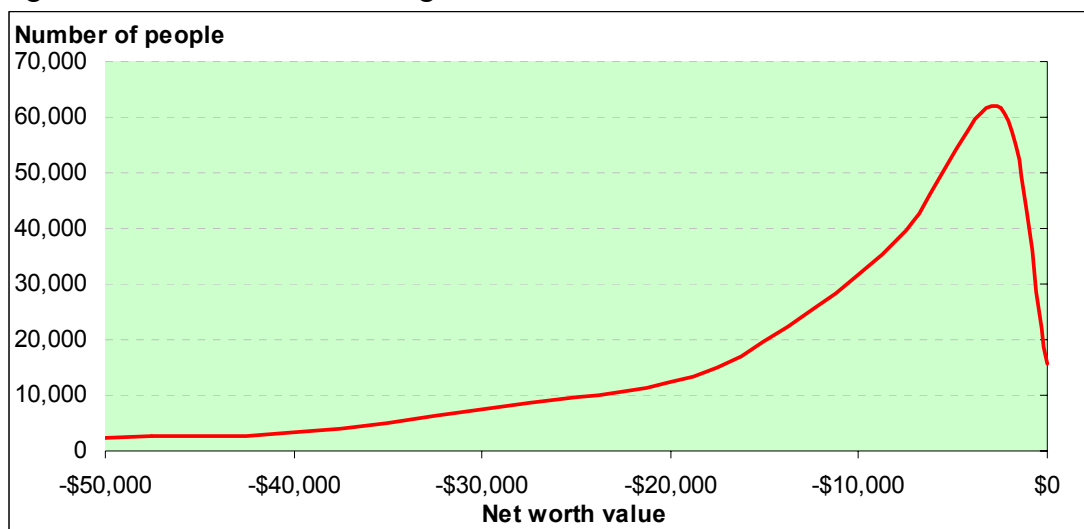
Earlier analysis noted that individuals with negative net worth represent 6.5 percent of the subject population (or 191,700 individuals). The wellbeing of this group of individuals could raise concern were this situation of a persistent nature. This is a subject SoFIE is likely to shed more insight on when its eight waves are completed, but is beyond the immediate scope of this paper. This section progresses the investigation by looking at who the individuals are and the extent of their indebtedness.

Table 6 and Figure 7 provide an overview of this sub-set of the subject population. The same formats as in Table 1 and Figure 1 for the total subject population are used. Collectively the 191,700 individuals owed \$4.69 billion, though for the most part individual amounts are typically small. Among them one in ten have a negative net worth of \$1,500 or less, and one in three have a negative net worth of \$5,000 or less. The tail, on the other hand, stretches far to the left corresponding to very small percentage of the population who are extremely in debt.

Table 6 Summary of negative net worth results

	Total (million) \$	Mean \$	Median \$	Mean / Median ratio
Net worth	-4,690	-24,500	-9,400	2.6
Total assets	5,844	30,500	6,700	4.6
Total liabilities	10,533	55,000	18,500	3.0
Debt ratio (per \$100 asset)		180.2		

Figure 7 Distribution of negative net worth value

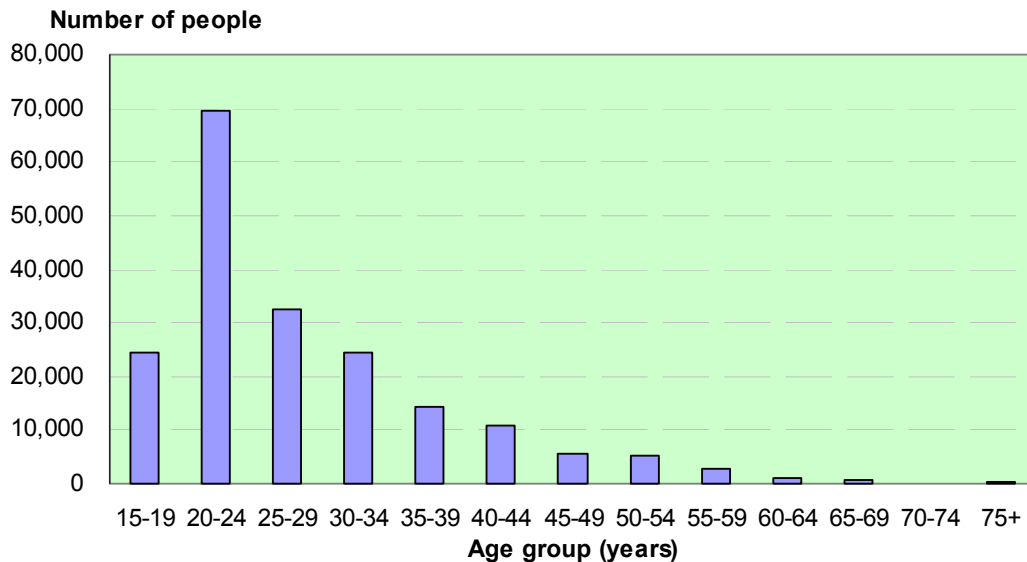


Note: excludes 14,900 (0.5 percent) individuals who reported negative net worth in excess of -\$50,000

Not surprisingly, the incidence of negative net worth turns out to be strongly age dependent. Figure 8 plots the age frequency distribution of negative net worth. Note that the figure simply counts the incidence of negative net worth, and makes no attempt to separate out those who are more in debt from those who are less so.

Nearly half of all cases are between ages 15 and 24, and who might therefore be expected to be predominantly students. The number reduces rapidly over the working ages, almost a reverse mirror image of the accelerated median net worth in Figure 3. The number of individuals with indebtedness is minimal at post-retirement ages.

Figure 8 Number of people reporting negative net worth by 5-year age group



Identifying by major ethnic group or family type in Tables 7 and 8 reveals a distinct over-representation of individuals with negative net worth among Maori and Pacific Peoples, and those not in a family nucleus. More than one in every ten people in those population groups is having negative net worth. This high percentage can be partly explained by the young age structure among these population groups.

Table 8 also shows over-representation of negative net worth among one parent families. This is consistent with relatively low net worth but high inequality for this family group as shown in Table 5. While there may also be some age effects, nonetheless the potential implications in terms of social wellbeing and education outcomes of children from these families are clear.

Table 7 Number and percentage of population reporting negative net worth, by major ethnic group*

	Number	% of ethnic population
European	143,600	5.9
Māori	32,000	10.5
Pacific People	17,000	11.8
Asian	15,300	8.2
Other	4,700	8.7
Total	191,700*	6.5

* The classification of ethnic group is based on total responses to the question on ethnicity and hence adds up to more than the total

Table 8 Number and percentage of population reporting negative net worth, by family type

	Number	% of population by family type
Couple only	25,700	3.1
Couple with child(ren)	74,900	6.3
One parent with child(ren)	24,600	9.2
Not in a family nucleus	66,500	10.5

Total	191,700	6.5
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A note of caution is however warranted. A critical dimension so far missing to the understanding of negative net worth among individuals is the family context in which these individuals operate. To illustrate this point, Table 9 cross-tabulates all individuals (with either positive or negative net worth) and their corresponding family net worth.

Table 9 Cross-tabulation of number and proportion of people with positive or negative individual and family net worth

		Family net worth		Total
		negative	zero or positive	
Individual net worth	Negative	120,247 (4.1%)	71,446 (2.4%)	191,693 (6.5%)
	zero or positive	21,546 (0.7%)	2,716,324 (92.7%)	2,737,869 (93.5%)
Total		141,792 (4.8%)	2,787,770 (95.2)	2,929,562 (100.0%)

A third of individuals with negative net worth (or 2.4 percent of the subject population) reside in families reporting positive net worth. It is likely these are children ages 15 or over living in families headed by their parents. Resource sharing and transfers that can be expected to occur in these families may mean that the situation of living with negative net worth is less acute than what might otherwise be suggested by the statistics. The other extreme example is the smaller number of individuals with zero or positive net worth and living in families whose aggregated net worth is negative. Their financial and general well-being may be compromised.

The analysis becomes complex when examining by couple relationship (data not shown here). Asset and liability holdings are not always equally split between a couple. Indeed, it is not uncommon for partners in a relationship to report diametrically opposing fortunes. Yet the intensity of resource sharing in this context may rival or even exceed those in cross-generation families. Further complicating scenarios are couples with positive net worth living in a family with negative net worth, or vice versa.

6. Discussion

Sustainable wealth creation is one of the central themes for New Zealand's economic and social development. Measuring income, asset and net worth in the household sector of the economy is an integral contribution to the development path.

This paper sets out a preliminary description of inequalities in the distribution of individual net worth. In doing so the paper highlights a number of areas that call for further analysis. For example, the somewhat narrow base of net worth ownership and the position of the Pacific Peoples ethnic group raise concern, as does that of the sole-parent families.

In keeping with an empirical descriptive analysis, the scope of this investigation has been limited in a number of aspects. Asset and net worth are analysed here in isolation from the means of their accumulation, such as qualifications, occupation and income which all have explanatory value. Future efforts might, for example, usefully incorporate a multivariate description of net worth accumulation process.

Another area highlighted in the later part of the paper is the family context in which individuals operate. Individual-based analysis can sideline the rich contextual family information which plays a vital role in determining the general well-being of individuals. A life course perspective could be a useful starting framework analytically for integrating individual and family net worth accumulation processes, thus informing policy response.

Appendix. Number of people, total and median values of asset, liability and net worth, by population distribution

	Population	Asset Value		Liability Value		Net Worth Value	
		Total (million) \$	Median \$	Total (million) \$	Median \$	Total (million) \$	Median \$
Population (15+)	2,926,600	559,414	106,100	91,726	2,400	467,668	69,800
Age group							
15-24	526,700	12,407	5,100	5,421	0	6,986	2,400
25-34	506,800	52,881	54,500	19,947	10,800	32,934	31,100
34-44	586,600	126,267	137,300	30,989	22,300	95,278	82,400
45-54	504,800	149,690	187,500	24,580	15,000	125,110	142,900
55-64	374,200	116,349	190,500	9,586	700	106,763	170,000
65+	430,500	101,819	151,500	1,203	0	100,617	149,500
Sex							
Male	1,413,300	294,369	108,200	48,472	3,000	245,897	70,800
Female	1,516,300	265,045	104,000	43,255	2,000	221,790	68,500
Ethnicity (total response)							
European	2,430,700	515,642	125,500	81,924	2,900	433,717	86,900
Māori	303,800	25,858	25,100	5,876	2,400	19,982	18,000
Pacific Peoples	143,900	8,647	10,600	2,683	1,500	5,964	6,700
Asian	186,800	22,236	25,500	4,376	400	17,861	21,000
Other	54,300	7,151	25,400	1,709	2,900	5,442	19,000
Family type							
Couple only	837,000	199,677	147,800	24,541	900	175,136	120,300
Couple with child(ren)	1,191,400	222,512	98,000	46,177	7,000	176,335	54,800
One parent with child(ren)	267,800	27,581	20,300	4,852	1,000	22,728	15,000
Not in a family nucleus	633,400	109,644	87,400	16,156	1,500	93,488	62,700
Personal income (deciles)							
(1) ≤1,500	291,700	21,510	4,500	4,258	0	17,253	3,200
(2) 1,501 - 9,300	293,000	28,379	20,900	4,993	1,300	23,386	15,100
(3) 9,301 - 13,400	294,300	35,908	77,700	3,700	100	32,208	67,000
(4) 13,401 - 18,000	293,900	38,004	98,000	3,344	-	34,660	81,500
(5) 18,001 - 24,100	292,200	41,506	74,300	5,133	1,300	36,373	50,800
(6) 24,101 - 30,400	291,200	45,177	90,000	7,501	3,500	37,676	53,500
(7) 30,401 - 38,100	295,800	50,295	105,500	10,675	6,700	39,620	64,100
(8) 38,101 - 48,100	291,600	61,276	143,600	12,510	15,000	48,766	88,500
(9) 48,101 - 65,200	296,700	86,231	192,000	17,043	25,900	69,188	132,300

(10) 65,201+	289,000	151,126	333,800	22,570	26,000	128,556	255,000
Region							
Auckland	871,400	166,907	101,300	33,454	3,000	133,453	52,400
Waikato	301,700	70,793	107,500	11,281	2,500	59,512	77,000
Wellington	334,300	61,107	115,000	11,298	4,300	49,809	69,500
Canterbury	398,200	79,511	111,300	11,427	2,500	68,085	73,500
Rest of North Is	671,100	114,245	102,000	15,682	1,500	98,563	73,300
Rest of South Is	352,800	66,851	104,800	8,585	1,600	58,266	79,600

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