

# **The New Zealand Longitudinal Study of Ageing**

**Summary Report**

**- NZLSA Cohort Profile -**

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A research Collaboration between

The Health and  
Ageing Research  
Team, School of  
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The  
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Centre Social  
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## Introduction

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The New Zealand Longitudinal Study of Ageing (NZLSA) was developed in a decade in which those aged 60 and over have become the fastest growing population in the world (United Nations, 2012). The proportion of the population aged 65+ (14% in 2012) will increase to 23% in 2036 and 26% in 2061, while the number of oldest-old (those aged 85 and over) will expand from 1.7% of the total population in 2012 to nearly 4% by 2026 (Statistics New Zealand, 2012). Recognising the significant growth of this older population, their range of skills, and their value within the wider community, the New Zealand government sought to empower older adults by establishing the New Zealand Positive Ageing Strategy (Ministry of Social Policy, 2001). This strategy encourages greater community participation of older adults. The strategy focused on empowering older adults to independently engage with their communities on their own terms, and sought to eliminate prejudice towards this growing sector of the community.

Two factors uniquely compound New Zealand's population ageing concerns in comparison to OECD counterparts, and remain key issues in the quest towards meeting successful ageing goals. First, New Zealand is unique among OECD countries in its historical provision of a single-tier, universal pension system, combined with universal health and injury coverage for all ages. These systems provide New Zealand's older population with the lowest poverty rates in the OECD, (OECD, 2011) and its general population with the OECD's highest rates of self-rated health (OECD, 2009). However, health expenditure alone accounts for 20% of total government expenditure (NZ Treasury, 2013) and New Zealand's projected increase in age-related spending to 2025 is now one of the highest in the OECD (OECD, 2010). Compounding pension provision concerns is the reality that New Zealanders have historically poor rates of personal savings (Scobie, Gibson & Le, 2004) and many citizens enter retirement with no income streams to supplement their state-provided pension. Thus, despite the need to maintain pension and health provision, there are serious concerns that these systems are not sustainable in their current form (Bryant, Teasdale, Tobias, Cheung & McHugh, 2004). The maintenance of these systems therefore represents a key fiscal challenge for New Zealand's future (NZ Treasury, 2006; 2009)

The second factor that impacts on the goals of the positive ageing strategy is the health and wellbeing of a rapidly ageing Māori population, New Zealand's indigenous people. Māori constitute 15% of the New Zealand general population but only 5% of the population aged 65 and over, (Statistics New Zealand, 2006) and they face considerable economic and health disparities with non-Māori, especially in retirement. On average, Māori earn significantly less than non-Māori, are almost three times as likely to be welfare beneficiaries, and are more likely to be unemployed, retired, or simply not in the labour force (Dixon & Mare, 2007; Ministry of Women's Affairs, 2002). Consequently, Māori have poorer health and higher mortality throughout the lifespan (Ajwani, Blakely, Robson, Tobias & Bonne, 2003; Ministry of Health, 2006) and are more likely than non-Māori to retire earlier, with fewer assets and higher living costs, and have government pensions as their sole income source (Robson, 2004). Māori thus constitute a significant proportion of New Zealand's burgeoning older population who are poor and sick, and the absolute number of

this older Māori population is projected to almost treble within the next two decades (Statistics New Zealand, 2006b).

Over the last decade the New Zealand government has taken four major steps to address its population ageing issues. First, the government established the New Zealand Superannuation Fund (McCulloch & Francis, 2001) to partially pre-fund the existing pension scheme and smooth expected future cost increases. Second, the government established the KiwiSaver programme, a voluntary, incentive-backed, second-tier to the national pension scheme analogous to the US 401K system (Kritzer, 2007). Third, the Ministry of Health implemented a broad health strategy aimed at future-proofing the health system, including enhanced and integrated primary healthcare services for older people (Ministry of Health, 2000). Fourth, the government initiated plans to enhance health services for all Māori (Ministry of Social Development, 2009), and to enhance social services for Māori welfare recipients including extensive work training (OECD, 2007) in addition to targeting improved healthcare access and participation for older Māori (Ministry of Health, 2006).

In 2004 the Health and Ageing Research Team (HART) was established in the School of Psychology, Massey University. In 2005 researchers from HART and the Research Centre for Māori Health and Development at Massey University, in collaboration with researchers from the New Zealand Institute for Research on Ageing at Victoria University, were awarded 3-years funding from the Health Research Council of New Zealand to establish the Health, Work and Retirement Longitudinal Study (HWR: 2006-2008). The HWR study undertook a two-wave national survey of New Zealanders aged 55-70, and specifically aimed to identify the factors underpinning health and wellbeing in New Zealanders transitioning from work to retirement. In 2008 the New Zealand Foundation for Research, Science and Technology awarded 5 years funding to develop the *New Zealand Longitudinal Study of Ageing* (NZLSA: 2009-2013) which expanded on the existing HWR sample. The NZLSA research team comprises the principal investigators from the HWR study and research leaders from New Zealand's Family Centre Social Policy Research Unit. The NZLSA was funded for two data collection waves (2010 and 2012) and had two specific objectives: (1) to establish a nationally representative longitudinal study of the health, wealth and social factors that contribute to positive ageing in New Zealand, and (2) to compare the data gathered with that of similar studies in Australia, UK, the USA and Europe in order to best inform public policy and practice from an international perspective.

### **What Does the Study Cover?**

The NZLSA is a population-level study which aims to identify the health, wealth and social factors underpinning successful ageing in New Zealand's community dwelling population aged 50-84. The specific aims of NZLSA are to make observations and test hypotheses about the contributions to ageing people's quality of life within four broad areas:

1. Economic participation (e.g. meaning of work, employment, retirement);
2. Social participation (e.g. family support, social capital, civic participation);
3. Intergenerational transfers (e.g. family care, income, wealth and knowledge);
4. Resilience and health (e.g. control, coping, physical, emotional, cognitive).

Surveys therefore cover broad aspects including physical and mental health, quality of life, social support and network affiliations, work/retirement status, work stress and commitment, care giving commitments, travel and safety issues, and various demographic characteristics.

## **The Sample**

The NZLSA sample has (1) subsumed the longitudinal sub-sample of the HWR study, (2) expanded the sample size, and (3) increased the target age range to New Zealanders aged 50-84. Irrespective of whether participants came from an existing study (e.g., HWR) or were new to the study all participants were originally identified via equal probability random sampling from the New Zealand Electoral Roll (for HWR methodology see Alpass et al., 2007). Those participants previously enrolled in another study were only asked to participate in NZLSA if they had provided prior consent to participate in longitudinal research. A total pool of 4339 older New Zealanders were invited to participate in the first NZLSA postal data collection wave in 2010, and comprised (1) HWR participants who participated in the 2008 data collection wave, (2) HWR participants from 2006 who consented to re-enter the study, (3) participants from a related cross-sectional study of retirement planning at Massey University, (4) participants from a pilot study conducted on the NZLSA survey questionnaire, and (5) New Zealanders randomly selected from the New Zealand Electoral Roll to increase the numbers of respondents at the younger (i.e., 50-54) and older (i.e., 70-84) age groups. A total of 3311 (76%) from the pool completed NZLSA 2010 questionnaires.

Māori over-sampling was specifically undertaken during participant selection for NZLSA (both for prior studies and new participants) to combat the historically poor research participation rates found in older ethnic minority populations (Moreno-John et al., 2004). Reflecting the procedure established for the HWR study, in each case a general population sub-sample was first randomly selected from those on the electoral roll eligible for the study (e.g., aged 50-84) then, using a 'Māori-descent' indicator on the roll, a Māori sub-sample was selected. Thus, as well as constituting New Zealand's largest, nationally-representative survey sample of New Zealanders aged 50-84, the NZLSA sample is also one of the only studies internationally that is capable of comparing the health and ageing of a significant indigenous Pacific population with its general population counterpart. Furthermore, the HWR sample reflects a significant longitudinal sub-sample of Māori and non-Māori for whom it is now possible to explore the factors dictating their health, wealth and social wellbeing overtime.

Table 1 below compares the 2010 characteristics of the NZLSA sample with age-matched responders from their representative populations (Statistics New Zealand, 2006). The baseline characteristics are displayed for Māori and non-Māori separately.

Table 1.  
*Demographic characteristics of the NZLSA 2010 Māori and non-Māori participants in comparison with their age-matched New Zealand populations.*

	Māori Ethnicity		Non-Māori	
	NZLSA 2010 (aged 50-84)	NZ aged 50-84 (2006)	NZLSA 2010 (aged 50-84)	NZ aged 50-84 (2006)
<b>Sex</b>				
Male	45% <sup>(459)</sup>	47% <sup>(36762)</sup>	45% <sup>(998)</sup>	48% <sup>(473631)</sup>
Female	55% <sup>(572)</sup>	53% <sup>(41115)</sup>	55% <sup>(1231)</sup>	52% <sup>(510681)</sup>
<b>Age (year groups)*</b>				
50-54	7% <sup>(86)</sup>	31% <sup>(24192)</sup>	21% <sup>(328)</sup>	22% <sup>(218493)</sup>
55-59	11% <sup>(132)</sup>	24% <sup>(18627)</sup>	15% <sup>(372)</sup>	21% <sup>(205785)</sup>
60-64	31% <sup>(282)</sup>	16% <sup>(12816)</sup>	22% <sup>(504)</sup>	16% <sup>(159972)</sup>
65-69	23% <sup>(237)</sup>	13% <sup>(10158)</sup>	16% <sup>(411)</sup>	13% <sup>(132744)</sup>
70-74	20% <sup>(209)</sup>	8% <sup>(6513)</sup>	15% <sup>(356)</sup>	11% <sup>(106086)</sup>
75-79	6% <sup>(61)</sup>	5% <sup>(3807)</sup>	7% <sup>(172)</sup>	10% <sup>(93567)</sup>
80-84	4% <sup>(28)</sup>	2% <sup>(1764)</sup>	4% <sup>(93)</sup>	7% <sup>(67659)</sup>
<b>Marital Status</b>				
Partnered	66% <sup>(807)</sup>	51% <sup>(37413)</sup>	78% <sup>(1557)</sup>	67% <sup>(638388)</sup>
Separated	13% <sup>(155)</sup>	22% <sup>(16197)</sup>	8% <sup>(168)</sup>	15% <sup>(145155)</sup>
Widowed	14% <sup>(169)</sup>	16% <sup>(11400)</sup>	10% <sup>(196)</sup>	12% <sup>(118974)</sup>
Never Married	8% <sup>(100)</sup>	11% <sup>(7593)</sup>	4% <sup>(85)</sup>	6% <sup>(55290)</sup>
<b>Work Status</b>				
Working Full-time	30% <sup>(361)</sup>	43% <sup>(33189)</sup>	35% <sup>(693)</sup>	40% <sup>(389721)</sup>
Working Part-time	21% <sup>(250)</sup>	13% <sup>(10029)</sup>	21% <sup>(416)</sup>	13% <sup>(127449)</sup>
Unemployed	9% <sup>(112)</sup>	3% <sup>(2127)</sup>	4% <sup>(77)</sup>	1% <sup>(10851)</sup>
Other (including retired)	40% <sup>(488)</sup>	42% <sup>(32532)</sup>	40% <sup>(786)</sup>	46% <sup>(456297)</sup>
<b>Educational Qualifications<sup>†</sup></b>				
No Secondary	37% <sup>(452)</sup>	54% <sup>(35418)</sup>	20% <sup>(409)</sup>	34% <sup>(305265)</sup>
Secondary	20% <sup>(245)</sup>	19% <sup>(12603)</sup>	24% <sup>(489)</sup>	28% <sup>(249111)</sup>
Post-Secondary	23% <sup>(282)</sup>	20% <sup>(13071)</sup>	29% <sup>(579)</sup>	26% <sup>(230472)</sup>
Tertiary	21% <sup>(261)</sup>	6% <sup>(3867)</sup>	26% <sup>(525)</sup>	12% <sup>(108798)</sup>
<b>Annual Income</b>				
0-20,000	17% <sup>(69)</sup>	49% <sup>(32724)</sup>	17% <sup>(486)</sup>	44% <sup>(406494)</sup>
20,001-35,000	36% <sup>(144)</sup>	24% <sup>(15945)</sup>	35% <sup>(988)</sup>	22% <sup>(197649)</sup>
35,001-70,000	39% <sup>(159)</sup>	22% <sup>(14922)</sup>	37% <sup>(1052)</sup>	24% <sup>(218526)</sup>
70,001+	8% <sup>(33)</sup>	4% <sup>(2775)</sup>	10% <sup>(294)</sup>	10% <sup>(91680)</sup>

NOTE: Sub-sample N in parentheses. Group N may vary from sample total due to missing data.

\*A number of participants are excluded from this age-group analysis as they were less than 50 years old at the time of the wave 1 survey. This reflects the imprecision of the Electoral Roll's age indicator which is based on participants' 'birth year' rather than their specific birth date.

<sup>†</sup>Secondary = High School; Post-Secondary = trade or Polytechnic; Tertiary = University

## Follow-up

The HWR sub-sample which forms a substantial cohort within the NZLSA sample were initially surveyed in 2006 (henceforth 'HWR Wave 1') and re-surveyed in 2008 (henceforth 'HWR Wave 2'). HWR Wave 1 was considered a cross-sectional study for recruitment purposes, so consent to participate in HWR Wave 2 was not a stipulation of wave 1 participation. The longitudinal sample was instead gained with a specific request within the HWR Wave 1 questionnaire to participate in the HWR Wave 2 survey. A total of 3127 participants in wave 1 consented to take part in HWR Wave 2, and 2476 had returned completed surveys at the end of HWR Wave 2 data collection. Two sets of interviews were conducted in parallel to the postal survey in each wave of HWR. First, structured interviews, based on the wave 1 questionnaire items, were conducted during wave 1 on a representative sample of Māori in the same age range but recruited from the on-going longitudinal study Te Hoe Nuku Roa: Best Outcomes for Māori (Forster, 2003). This data is held separately to the data from the HWR sample. Second, qualitative semi-structured interviews investigating work force status and work preferences were conducted in wave 1 with a sub-sample of 60 participants from the lower North Island. We re-interviewed 50 of these interviewees in wave 2 concerning changes to their workforce status, and the spouses/partners of 15 of these participants consented to interviews regarding the role of relationships in retirement planning and adjustment.

The first data collection wave for NZLSA was undertaken in 2010 (henceforth 'NZLSA Wave 1') and the second was conducted in 2012 (henceforth 'NZLSA Wave 2'). While NZLSA includes a subsample unique only to the NZLSA study, this combined HWR-NZLSA cohort also contains a large subsample from HWR who have now undertaken 5 consecutive waves of data collection from 2006-2014. Interviews with a large subsample of consenting participants (N = 1001) were conducted in NZLSA Wave 1 and 903 of these participants were re-interviewed in NZLSA Wave 2. Both interviews contained a cognitive assessment instrument assessing cognitive function. In NZLSA Wave 1 this was paired with an in depth assessment of personal and household wealth, while in NZLSA Wave 2 it was paired with an older adult-specific measure of hazardous drinking (i.e., the Alcohol-Related Problems Survey).

## Measures

Table 2 illustrates the seven topics measured in the two waves of the HWR and two waves of the NZLSA studies including the two face-to-face interview panels. Full descriptions of study measures are reported elsewhere (Stevenson, 2014).

## Attrition

Table 3 illustrates the total pool of potential participants (and their eventual response rate) by sub-sample and participants. Of the 3127 HWR Wave 1 participants who consented to be part of the longitudinal study, 2487 returned completed HWR Wave 2 surveys. Of these responses 14 were identified as originating from people other than the originally intended participant and were therefore excluded from the longitudinal sample, resulting in confirmed HWR Wave 2 sample return of 2473 (79%). In NZLSA Wave 1 the retention rate for HWR participant sub-sample had dropped further (74%) with 1833 participating; however

Table 2.  
*Measures in both HWR and NZLSA data collection waves.*

	HWR Wave 1 (2006)	HWR Wave 2 (2008)	NZLSA Wave 1 (2010)	NZLSA F-to-F* (2010)	NZLSA Wave 2 (2012)	NZLSA F-to-F* (2012)
<b>Health &amp; Well-being</b>						
Physical and mental health	✓	✓	✓	✓	✓	✓
Chronic health conditions	✓	✓	✓	-	✓	✓
Hazardous alcohol use	✓	✓	✓	-	✓	✓
Health service utilisation	✓	✓	-	-	✓	-
Tobacco use	✓	✓	✓	-	✓	✓
Physical activity	✓	✓	✓	-	✓	-
Sensory impairment	-	✓	-	-	✓	-
Prescription drug use	-	✓	-	-	✓	-
Quality of life	-	✓	✓	-	✓	-
Sexual functioning	-	-	✓	-	✓	-
Religiosity/faith	-	-	✓	-	✓	-
Cognitive functioning	-	-	-	✓	-	✓
<b>Social Support &amp; Context</b>						
Social support, networks & interaction	✓	✓	✓	-	✓	-
Volunteerism & trust	✓	✓	-	-	✓	-
Care giving (provided/received)	✓	✓	✓	-	✓	-
Perceived safety/abuse/discrimination	-	-	✓	-	✓	-
Recreation choices	-	-	✓	-	✓	-
Travel & access	-	-	✓	-	✓	-
<b>Work &amp; Retirement</b>						
Self & partner work status	✓	✓	✓	-	✓	-
Preferred work status	✓	✓	✓	-	✓	-
Current & past work context	✓	✓	✓	-	✓	-
Retirement planning	✓	✓	-	-	✓	-
Retirement reasons & expectations	✓	✓	✓	-	✓	-
<b>Income &amp; Assets</b>						
Personal & household income	✓	✓	✓	✓	✓	-
Sources of income	✓	✓	✓	✓	✓	-
Key assets & liabilities	✓	✓	✓	✓	✓	-
Superannuation	✓	✓	✓	✓	✓	-
Economic living standard	✓	✓	✓	-	✓	-
<b>General Demographics</b>						
Date of birth, age & sex	✓	✓	✓	✓	✓	✓
Marital status	✓	✓	✓	✓	✓	-
Education	✓	✓	✓	✓	✓	-
Ethnicity	✓	✓	✓	✓	✓	-
Driving status	-	✓	-	-	✓	-
Household composition	✓	✓	✓	✓	✓	-
House type/ownership	-	-	✓	-	✓	-
Migration	-	✓	✓	-	✓	-
Cultural identification	✓	✓	✓	-	✓	-

\* F-to-F: Face to face interviews with NZLSA subsample

152 participants who had consented to the longitudinal study in HWR Wave 1 but had not been part of HWR Wave 2 were reintroduced in 2010 giving a NZLSA Wave 1 total of 1985 for the HWR sub-sample. In NZLSA Wave 2 approximately 1865 (94%) of the HWR sub-sample in NZLSA Wave 1 provided completed questionnaires.

Table 3.

*Response rate for the NZLSA data collection in total and by sub-sample.*

	N (retention %)			
	HWR Wave 1 (2006)	HWR Wave 2 (2008)	NZLSA Wave 1 <sup>1</sup> (2010)	NZLSA Wave 2 (2012)
HWR General Sample	1496	1274 (85%)	1016 (80%)	978 (96%)
HWR Māori Oversample	1631	1199 (74%)	817 (68%)	758 (93%)
HWR 2006 Opt-in Sample			152	129 (85%)
<b>HWR Total</b>	<b>3127</b>	<b>2473 (79%)</b>	<b>1985 (74%<sup>2</sup>)</b>	<b>1865 (94%)</b>
NZLSA Family Centre			358	298 (83%)
NZLSA Family Centre (Māori Descent)			210	151 (72%)
Noone Retirement Planning Study			555	491 (89%)
NZLSA Pilot			203	179 (88%)
<b>NZLSA Total</b>			<b>1326</b>	<b>1119 (84%)</b>
<b>Total</b>			<b>3311</b>	<b>2984 (90%)</b>

<sup>1</sup>21 eligible HWR participants had died since being surveyed in 2008.

<sup>2</sup>Response Rate does not include HWR 2006 Opt-in Sample

The 1326 participants unique to the NZLSA study (i.e., those included in NZLSA Wave 1 who were not from the HWR sub-sample) had a cross-wave retention rate of 84%, leaving 1119 participants in NZLSA Wave 2. Table 4 compares the demographic characteristics of the HWR Wave 1 longitudinal sample to age-matched population figures for the 2006 New Zealand population aged 50+, and how this NZLSA sub-sample changes over time. Māori descent was used rather than ethnicity as it is stable over time.

## Summary

The main strength of the NZLSA cohort is that it builds on an established longitudinal cohort of significant size and national representativeness (i.e., the HWR cohort) but expands this cohort with additional sub-samples stemming from random samples within the same selection framework (i.e., the New Zealand Electoral Roll). It is thus nationally representative of the young-old New Zealand general population and representative of the age-matched Māori population. The Māori sub-sample is perhaps the greatest strength of the NZLSA cohort, as it represents a multi-wave, nationally representative sample of older Pacific indigenous peoples.

However, despite NZLSA replenishing the HWR cohort in 2010, there has still been observable cross-wave attrition up to 2012. In addition, the use of the Māori-descent

identifier on the New Zealand Electoral Roll as the primary tool for Māori oversampling highlighted the complexities of ‘descent’ versus ethnic group affiliation. Approximately 16% of the Māori sub-sample selected via the descent indicator subsequently indicated (via questionnaire) that they identified as non-Māori, such as New Zealand European, Dutch, South African or Asian. While this had little impact on the current project due to the substantial over-sampling of Māori, it may have repercussions for subsequent studies using this method who intend to include Māori on a smaller scale.

Analyses of the HWR and NZLSA data and the numerous panel studies that these combined studies have fostered have resulted in a broad set of publications, presentations and reports, a list of which is available on the HART website. All waves of HWR and NZLSA data are freely available for scientific use. Interested researchers can contact the research officer for the HART project or use the contact email address found on the HART project website as follows: <http://hart.massey.ac.nz/>.

Table 4.  
*Changes in the demographic characteristics of the HWR Wave 1 longitudinal sub-sample across waves (unweighted).*

		NZ aged 50+ (2006)	HWR Wave 1 (2006)	HWR Wave 2 (2008)	NZLSA Wave 1 (2010)	NZLSA Wave 2 (2012)
<b>Total N<sup>1</sup></b>			<u>3127</u>	<u>2470</u>	<u>1833</u>	<u>1734</u>
	Māori Descent	93,381	1,712	1,283	882	811
	Non-Maori	919,503	1,415	1,187	954	923
<b>Mean Age<sup>(SD)</sup></b>						
	Māori Descent	-	60.8 <sup>(4.6)</sup>	63.1 <sup>(4.6)</sup>	65.4 <sup>(4.6)</sup>	67.3 <sup>(4.6)</sup>
	Non-Maori	-	61.1 <sup>(4.5)</sup>	63.3 <sup>(4.5)</sup>	65.5 <sup>(4.5)</sup>	67.6 <sup>(4.5)</sup>
<b>Females</b>						
	Māori Descent	53%	54%	55%	54%	54%
	Non-Maori	53%	50%	51%	53%	53%
<b>Partnered (married/de facto)</b>						
	Māori Descent	53%	64%	67%	67%	68%
	Non-Maori	64%	76%	77%	79%	78%
<b>Working (full &amp; part-time)</b>						
	Māori Descent	77%	63%	58%	51%	44%
	Non-Maori	63%	68%	60%	51%	42%
<b>Lives in Urban Centre (30,000+)</b>						
	Māori Descent	58%	78%	79%	79%	79%
	Non-Maori	69%	82%	81%	81%	81%
<b>Educational Qualifications</b>						
	No secondary	56%	44%	40%	35%	31%
Māori	Secondary	22%	21%	23%	19%	18%
Descent	Post-secondary	17%	27%	15%	21%	24%
	Tertiary	5%	9%	22%	25%	27%
	No secondary	38%	26%	23%	20%	19%
Non-Maori	Secondary	22%	27%	28%	24%	22%
	Post-secondary	21%	35%	18%	23%	24%
	Tertiary	11%	13%	32%	34%	35%
<b>Personal Income</b>			n=2204	n=2031	n=1760	n=1677
	0-20,000	56%	52%	41%	41%	45%
Māori	20,001-35,000	21%	19%	22%	27%	24%
Descent	35,001-70,000	18%	24%	30%	25%	26%
	70,000+	4%	5%	7%	7%	5%
	0-20,000	53%	44%	35%	36%	41%
Non-Maori	20,001-35,000	21%	20%	20%	23%	24%
	35,001-70,000	20%	26%	32%	30%	27%
	70,000+	7%	10%	13%	12%	9%

<sup>1</sup>Participants present in all 4 sampling waves.

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