

## **Comparison of Demographics in the NZAVS and New Zealand Census**

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### **Overview**

The NZAVS is based on a random sample of registered voters from the New Zealand Electoral Roll. This represented all citizens over 18 years of age who were eligible to vote regardless of whether they chose to vote, barring people who had their contact details removed due to specific case-by-case concerns about privacy. The NZAVS also contains other booster samples collected using random and stratified booster samples from the Electoral Roll, as well as a sample collected as part of an online newspaper advertisement at Time 3. The various booster samples focused on area units with higher proportions of ethnic minorities, specific regions of the country (Auckland, Christchurch), those in more deprived regions, and those aged between 18-60 years. Full details about the sampling procedure employed during each wave of the NZAVS are reported in Sibley (2014a). The NZAVS cannot thus be considered representative of the population, as it focuses on registered voters aged 18 and older, with a particular focus during the Time 5 booster on those aged 18-60 at the time of first sampling. All comparisons referred to in text (and many more that are not) are included in tabulated form at the end of this appendix.

### **Coding of Census Data**

We calculated proportions using available data from the census that matched the age range of the NZAVS sample frame wherever possible. We compared each wave of the NZAVS to the census collected at the closest point in time. The census provides estimates for most demographics in five-year age bands. This includes a band for 15-19 years of age, which only partially overlaps with the electoral roll sample frame of 18 years and older. We thus estimated the frequency of people in this census age band as  $.40 * n$ , which weighted this age band to be equivalent to 2 years (e.g., 18-19 years, as in corresponding NZAVS band). This correction assumes that all counts are evenly distributed across 15-19 year olds, which we thought more reasonable to including data from 15-17 year olds in the census but not NZAVS estimates, or excluding those aged 18-19 from our estimates.

### **NZAVS Time 1 – 2009**

*Gender and ethnicity.* We compared sample frequencies from the Time 1 (2009) NZAVS with the 2006 Census. According to census estimates, women formed 52% of adult population were women, and men 48%. In contrast, 59.5% of respondents in the NZAVS were women, and only 40.5% men. The NZAVS thus oversampled women by about 7.5%. This is probably the most dramatic sampling bias in the NZAVS, and likely occurs because women are more willing to participate in surveys of their attitudes and values generally. According to the census, 68.7% of the adult population were European, 11.6% were Maori, 5.22% were of Pacific ancestry, and 9.1% were of Asian ancestry. In contrast, 81.9% of NZAVS participated were European, 17.9% were Maori, 4.3% were Pacific and 4.9% were Asian. It is important to note that both census and NZAVS estimates count people who reported multiple ethnicities in each ethnic count. The NZAVS thus oversampled Europeans and Maori, relative to Asian and Pacific peoples, who were under sampled. This is probably due at least in part to language, as the NZAVS questionnaire was administered in English

only, and English is likely to be the second language for many more recent Asian and Pacific immigrants.

**Age.** With regard to age, the 2009 Time 1 NZAVS tended to undersample younger people in their 20s, oversample those in their 50s, and then under-sample those aged 75 and over. Specifically, the NZAVS under-sampled those in the 20-24 (9.5% census, 5.5% NZAVS) and 25-29 (8.5% census, 5.9% NZAVS) age brackets. The census and NZAVS proportions matched closely for those in the 35-39 (10.5% census, 9.6% NZAVS) and 40-44 (11% census, 11.2% NZAVS) age brackets. The NZAVS oversampled those in the 50-54 (8.8% census, 11.2% NZAVS) and 55-59 (8.2% census, 9.9% NZAVS) age brackets, and under-sample those in the 75-79 (3.5% census, 2.7% NZAVS) age bracket. Thus, young adults were less likely to respond relative to those in their 40-60s. Elderly persons were also slightly less likely to respond, probably because the NZAVS was explicitly framed as a 20-year longitudinal study, and this may have held less appeal to people who did not expect to be able to complete the questionnaire over the full time-span. Tabulated data presenting the full statistics for different age-ranges are presented in Table A.1.

**Socio-economic status.** The NZAVS assessed socio-economic status using the NZ Deprivation Index. The New Zealand Deprivation Index (Atkinson et al., 2013; Salmond et al., 2007) uses aggregate census information about the residents of each meshblock to assign a decile-rank index from 1 (most affluent) to 10 (most impoverished) to each meshblock unit. The index is based on data from roughly 44,000 area units. Because it is a decile-ranked index, the mean score across units is 5.50 (see Sibley, 2014b, for full technical details about the use of the NZ Deprivation index in the NZAVS sample). These comparisons should be viewed as an approximation only, as decile scores refer to area units, whereas our sample mean scores refer to participants *within areas*. That said, the boundaries of area units are explicitly derived to reflect areas with roughly 80 people each. The deprivation index in the 2009

NZAVS ( $M = 5.06$ ,  $SD = 2.9$ ) was about .5 of a point (5%) lower than that of the population value. This indicates that the NZAVS tended to oversample those in wealthier deciles and undersample those in more deprived deciles. For example, 12.8% of NZAVS respondents were in the wealthiest decile (10% of the population), whereas only 7.2% of the NZAVS were in the most deprived decile.

**Region.** The 2009 Time 1 NZAVS sample was close to census estimates in terms of sampling across the 16 council regions of the country. We compared the proportion of people living in each of the 16 regional council areas of New Zealand in the NZAVS with estimates of these same proportions for those aged 5 years and over in the 2013 New Zealand census. Regional proportions in the NZAVS were fairly close to those based on census estimates, with estimates for 13 of the 16 regions being within 1% of each other. The NZAVS did however tend to under-sample Aucklanders by 4.1%, with the census indicating that 33.4% of those aged 5 and over lived in Auckland, whereas 29.3% of the NZAVS sample lived in this region. Conversely, the NZAVS tended to oversample the second largest city, Wellington, by 1.0% (Census 11.2%, NZAVS 12.2%). It is important to note that NZAVS and census estimates of these regional proportions are not directly comparable, as the census provides estimates for the total population and those aged 5 years and older in 2013, whereas the NZAVS sampled those aged 18 and over in 2009. The under-sampling Auckland residents may be due to sampling bias that was also observed in the under-sampling of Asian and Pacific peoples, who tend to be more likely to live in the Auckland region.

### **NZAVS Time 2 – 2010**

**Gender and ethnicity.** We compared sample frequencies from the Time 2 (2010) NZAVS with the 2006 Census. According to census estimates, women formed 52% of adult population were women, and men 48%. In contrast, 61.6% of respondents in the NZAVS were women, and only 38.4% men. The NZAVS thus oversampled women by about 9.5%.

According to the census, 68.7% of the adult population were European, 11.6% were Maori, 5.2% were of Pacific ancestry, and 9.1% were of Asian ancestry. In contrast, 86.9% of NZAVS participated were European, 15.5% were Maori, 3.9% were Pacific and 4% were Asian. It is important to note that both census and NZAVS estimates count people who reported multiple ethnicities in each ethnic count. The NZAVS thus oversampled Europeans and Maori, relative to Asian and Pacific peoples, who were under sampled. This is probably due at least in part to language, as the NZAVS questionnaire was administered in English only, and English is likely to be the second language for many more recent Asian and Pacific immigrants.

*Age.* With regard to age, the 2010 Time 2 NZAVS tended to undersample younger people in their 20s and oversample those in their 50s. Specifically, the NZAVS under-sampled those in the 20-24 (9.5% census, 4.2% NZAVS), 25-29 (8.5% census, 4.2% NZAVS), and 35-39 (10.5% census, 8.6% NZAVS) age brackets. The census and NZAVS proportions matched closely for those in the 40-44 (11% census, 10.08% NZAVS) age bracket. The NZAVS oversampled those in the 50-54 (8.8% census, 12.1% NZAVS) and 55-59 (8.2% census, 11% NZAVS) age brackets. Because the NZAVS is a longitudinal panel study, our sample ages each year (barring booster sampling) relative to the population. Tabulated data presenting the full statistics for different age-ranges is presented in Table A.2.

*Socio-economic status.* The NZAVS assessed socio-economic status using the NZ Deprivation Index. The New Zealand Deprivation Index (Atkinson et al., 2013; Salmond et al., 2007) uses aggregate census information about the residents of each meshblock to assign a decile-rank index from 1 (most affluent) to 10 (most impoverished) to each meshblock unit. The index is based on data from roughly 44,000 area units. Because it is a decile-ranked index, the mean score across units is 5.5 (see Sibley, 2014b, for full technical details about the use of the NZ Deprivation index in the NZAVS sample). These comparisons should be

viewed an approximation only, as decile scores refer to area units, whereas our sample mean scores refer to participants *within areas*. That said, the boundaries of area units are explicitly derived to reflect areas with roughly 80 people each. The deprivation index in the 2010 NZAVS ( $M = 4.9$ ,  $SD = 2.8$ ). However, the NZAVS distribution of deprivation scores was slightly skewed. For example, 12.7% of NZAVS respondents were in the wealthiest decile (10% of the population), whereas only 5.9% of the NZAVS were in the most deprived decile.

**Region.** The 2010 Time 2 NZAVS sample was close to census estimates in terms of sampling across the 16 council regions of the country. We compared the proportion of people living in each of the 16 regional council areas of New Zealand in the NZAVS with estimates of these same proportions for those aged 5 years and over in the 2013 New Zealand census. Regional proportions in the NZAVS were fairly close to those based on census estimates, with estimates for 12 of the 16 regions being within 1% of each other. The NZAVS did however tend to under-sample Aucklanders by 3.7%, with the census indicating that 33.4% of those aged 5 and over lived in Auckland, whereas 29.7% of the NZAVS sample lived in this region. Conversely, the NZAVS tended to oversample the second largest city, Wellington, by .7% (Census 11.2%, NZAVS 11.9%). It is important to note that NZAVS and census estimates of these regional proportions are not directly comparable, as the census provides estimates for the total population and those aged 5 years and older in 2013, whereas the NZAVS sampled those aged 18 and over in 2010. The under-sampling Auckland residents may be due to sampling bias that was also observed in the under-sampling of Asian and Pacific peoples, who tend to be more likely to live in the Auckland region.

### **NZAVS Time 3 – 2011**

**Gender and ethnicity.** We compared sample frequencies from the Time 3 (2011) NZAVS with the 2013 Census. According to census estimates, women formed 52.1% of adult population were women, and men 47.9%. In contrast, 62.5% of respondents in the NZAVS

were women, and only 37.4% men. The NZAVS thus oversampled women by about 10%. This is probably the most dramatic sampling bias in the NZAVS, and likely occurs because women are more willing to participate in surveys of their attitudes and values generally. According to the census, 75.1% of the adult population were European, 12% were Maori, 5.7% were of Pacific ancestry, and 11.7% were of Asian ancestry. In contrast, 74.8% of NZAVS participants were European, 7.2% were Maori, 1.7% were Pacific and 2.4% were Asian. It is important to note that both census and NZAVS estimates count people who reported multiple ethnicities in each ethnic count. In particular the Time 3 NZAVS undersampled Asian and Pacific peoples. This is probably due at least in part to language, as the NZAVS questionnaire was administered in English only, and English is likely to be the second language for many more recent Asian and Pacific immigrants.

*Age.* The 2011 Time 3 NZAVS tended to undersample younger people in their 20s and oversample those in their 50s. Specifically, the NZAVS under-sampled those in the 20-24 (9.4% census, 6.8% NZAVS), 25-29 (8.4% census, 4.5% NZAVS) and 30-34 (8.3% census, 5.8% NZAVS) age brackets. The NZAVS oversampled those in the 50-54 (9.7% census, 12% NZAVS) and 55-59 (8.5% census, 11.1% NZAVS) age brackets. Because the NZAVS is a longitudinal panel study, our sample ages each year (barring booster sampling) relative to the population. Tabulated data presenting the full statistics for different age-ranges are presented in Table A.3.

*Socio-economic status.* The NZAVS assessed socio-economic status using the NZ Deprivation Index. The New Zealand Deprivation Index (Atkinson et al., 2013) uses aggregate census information about the residents of each meshblock to assign a decile-rank index from 1 (most affluent) to 10 (most impoverished) to each meshblock unit. The index is based on data from roughly 44,000 area units. Because it is a decile-ranked index, the mean score across units is 5.50 (see Sibley, 2014b, for full technical details about the use of the NZ

Deprivation index in the NZAVS sample). These comparisons should be viewed as an approximation only, as decile scores refer to area units, whereas our sample mean scores refer to participants *within areas*. That said, the boundaries of area units are explicitly derived to reflect areas with roughly 80 people each. The deprivation index in the 2011 NZAVS had a sample mean of 4.7 (SD = 2.8). For example, 14.1% of NZAVS respondents were in the wealthiest decile (10% of the population), whereas only 4.9% of the NZAVS were in the most deprived decile.

**Region.** The 2011 Time 3 NZAVS sample was close to census estimates in terms of sampling across the 16 council regions of the country. We compared the proportion of people living in each of the 16 regional council areas of New Zealand in the NZAVS with estimates of these same proportions for those aged 5 years and over in the 2013 New Zealand census. Regional proportions in the NZAVS were fairly close to those based on census estimates, with estimates for 12 of the 16 regions being within 1% of each other. The NZAVS did however tend to oversample residents of the second largest city, Wellington, by about 4% (Census 11.2%, NZAVS 15.4%). It is important to note that NZAVS and census estimates of these regional proportions are not directly comparable, as the census provides estimates for the total population and those aged 5 years and older in 2013, whereas the NZAVS sampled those aged 18 and over in 2011.

#### **NZAVS Time 4 – 2012**

**Gender and ethnicity.** We compared sample frequencies from the Time 4 (2012) NZAVS with the 2013 Census. According to census estimates, women formed 52.1% of adult population were women, and men 47.9%. In contrast, 62.6% of respondents in the NZAVS were women, and only 37.4% men. The NZAVS thus oversampled women by about 10%. As in previous years, this is probably the most dramatic sampling bias in the NZAVS, and likely occurs because women are more willing to participate in surveys of their attitudes and values



generally. According to the census, 75.1% of the adult population were European, 11.2% were Maori, 5.7% were of Pacific ancestry, and 11.7% were of Asian ancestry. In contrast, 84.4% of NZAVS participants were European, 16.6% were Maori, 5% were Pacific and 5.1% were Asian. It is important to note that both census and NZAVS estimates count people who reported multiple ethnicities in each ethnic count. The 2012 NZAVS thus oversampled Europeans and Maori, was within 1 percentage point for Pacific peoples, and undersampled Asian peoples by about 6.5%. This is probably due at least in part to language, as the NZAVS questionnaire was administered in English only, and English is likely to be the second language for many more recent immigrant groups.

*Age.* With regard to age, the 2012 Time 4 NZAVS tended to undersample younger people in their 20s and oversample those in their 50s. Specifically, the NZAVS under-sampled those in the 20-24 (9.4% census, 6.1% NZAVS), 25-29 (8.4% census, 5.1% NZAVS) and 30-34 (8.3% census, 6.4% NZAVS) age brackets. The census and NZAVS proportions matched closely for those in the 35-39 (8.7% census, 8.2% NZAVS) and 40-44 (9.9% census, 9.8% NZAVS) age brackets. The NZAVS oversampled those in the 45-49 (9.8% census, 11.9% NZAVS), 50-54 (9.7% census, 12.7% NZAVS) and 55-59 (8.5% census, 11.9% NZAVS) age brackets. Because the NZAVS is a longitudinal panel study, our sample ages each year (barring booster sampling) relative to the population. Tabulated data presenting the full statistics for different age-ranges is presented in Table A.4.

*Socio-economic status.* The NZAVS assessed socio-economic status using the NZ Deprivation Index. The New Zealand Deprivation Index (Atkinson et al., 2013) uses aggregate census information about the residents of each meshblock to assign a decile-rank index from 1 (most affluent) to 10 (most impoverished) to each meshblock unit. The index is based on data from roughly 44,000 area units. Because it is a decile-ranked index, the mean score across units is 5.50 (see Sibley, 2014b, for full technical details about the use of the NZ

Deprivation index in the NZAVS sample). These comparisons should be viewed as an approximation only, as decile scores refer to area units, whereas our sample mean scores refer to participants *within areas*. That said, the boundaries of area units are explicitly derived to reflect areas with roughly 80 people each. The deprivation index in the 2012 NZAVS had a sample mean of 4.8 (SD = 2.8). For example, 12.9% of NZAVS respondents were in the wealthiest decile (10% of the population), whereas only 7.1% of the NZAVS were in the most deprived decile.

**Region.** The 2012 Time 4 NZAVS sample was close to census estimates in terms of sampling across the 16 council regions of the country. We compared the proportion of people living in each of the 16 regional council areas of New Zealand in the NZAVS with estimates of these same proportions for those aged 5 years and over in the 2013 New Zealand census. Regional proportions in the NZAVS were fairly close to those based on census estimates, with estimates for 13 of the 16 regions being within 1% of each other. The NZAVS did however tend to oversample residents of Auckland (Census 33.4%, NZAVS 35.8%) and Wellington (Census 11.2%, NZAVS 12.7%). It is important to note that NZAVS and census estimates of these regional proportions are not directly comparable, as the census provides estimates for the total population and those aged 5 years and older in 2013, whereas the NZAVS sampled those aged 18 and over in 2012.

### **NZAVS Time 5 – 2013**

**Gender and ethnicity.** We compared sample frequencies from the Time 5 NZAVS with the 2013 Census. According to census estimates, women formed 52.1% of adult population were women, and men 47.9%. In contrast, 62.8% of respondents in the NZAVS were women, and only 37.2% men. The NZAVS thus oversampled women by about 10.5%. As in previous years, this is probably the most dramatic sampling bias in the NZAVS, and likely occurs because women are more willing to participate in surveys of their attitudes and

values generally. According to the census, 75.1% of the adult population were European, 11.2% were Maori, 5.7% were of Pacific ancestry, and 11.7% were of Asian ancestry. In contrast, 85.5% of NZAVS participants were European, 12.7% were Maori, 3.4% were Pacific and 4.5% were Asian. It is important to note that both census and NZAVS estimates count people who reported multiple ethnicities in each ethnic count. The 2013 NZAVS thus undersampled Pacific and Asian peoples by 2.2% and 7.2%, respectively. This is probably due at least in part to language, as the NZAVS questionnaire was administered in English only, and English is likely to be the second language for many more recent immigrant groups.

**Age.** With regard to age, the Time 5 NZAVS tended to undersample younger people in their 20s and oversample those in their 50s. Specifically, the NZAVS under-sampled those in the 20-24 (9.4% census, 5.7% NZAVS), 25-29 (8.4% census, 5.5% NZAVS) and 30-34 (8.3% census, 6.8% NZAVS) age brackets. The NZAVS oversampled those in the 45-49 (9.8% census, 12.7% NZAVS), 50-54 (9.7% census, 14.9% NZAVS) and 55-59 (8.5% census, 14.9% NZAVS) age brackets. Because the NZAVS is a longitudinal panel study, our sample ages each year (barring booster sampling) relative to the population. Tabulated data presenting the full statistics for different age-ranges is presented in Table A.4.

**Socio-economic status.** The NZAVS assessed socio-economic status using the NZ Deprivation Index. The New Zealand Deprivation Index (Atkinson et al., 2013) uses aggregate census information about the residents of each meshblock to assign a decile-rank index from 1 (most affluent) to 10 (most impoverished) to each meshblock unit. The index is based on data from roughly 44,000 area units. Because it is a decile-ranked index, the mean score across units is 5.50 (see Sibley, 2014b, for full technical details about the use of the NZ Deprivation index in the NZAVS sample). These comparisons should be viewed as an approximation only, as decile scores refer to area units, whereas our sample mean scores refer to participants *within areas*. That said, the boundaries of area units are explicitly derived to

reflect areas with roughly 80 people each. The deprivation index in the 2013 NZAVS was about .50 points (5%) lower than that of the population value, with a sample mean of 5.0 (SD = 2.9). For example, 12.9% of NZAVS respondents were in the wealthiest decile (10% of the population), whereas only 7.1% of the NZAVS were in the most deprived decile.

**Region.** The Time 5 NZAVS sample was close to census estimates in terms of sampling across the 16 council regions of the country. We compared the proportion of people living in each of the 16 regional council areas of New Zealand in the NZAVS with estimates of these same proportions for those aged 5 years and over in the 2013 New Zealand census. Regional proportions in the NZAVS were fairly close to those based on census estimates, with estimates for 13 of the 16 regions being within 1% of each other. The NZAVS did however tend to undersample residents of Auckland (Census 33.4%, NZAVS 31.6%) and oversample Wellington (Census 11.2%, NZAVS 13.8%). It is important to note that NZAVS and census estimates of these regional proportions are not directly comparable, as the census provides estimates for the total population and those aged 5 years and older in 2013, whereas the NZAVS sampled those aged 18 and over in 2013. The under-sampling Auckland residents may be due to sampling bias that was also observed in the under-sampling of Asian and Pacific peoples, who tend to be more likely to live in the Auckland region.

#### **NZAVS Time 6 – 2014**

**Gender and ethnicity.** We compared sample frequencies from the Time 6 NZAVS with the 2013 Census. According to census estimates, women formed 52.1% of adult population were women, and men 47.9%. In contrast, 63.2% of respondents in the NZAVS were women, and only 36.6% men. The NZAVS thus oversampled women by about 11%. As in previous years, this is probably the most dramatic sampling bias in the NZAVS, and likely occurs because women are more willing to participate in surveys of their attitudes and values generally. According to the census, 75.1% of the adult population were European, 11.2%

were Maori, 5.7% were of Pacific ancestry, and 11.7% were of Asian ancestry. In contrast, 89.5% of NZAVS participants were European, 12.5% were Maori, 3.3% were Pacific and 4.3% were Asian. It is important to note that both census and NZAVS estimates count people who reported multiple ethnicities in each ethnic count. The Time 6 NZAVS thus undersampled Pacific and Asian peoples by 2.4% and 7.4%, respectively. This is probably due at least in part to language, as the NZAVS questionnaire was administered in English only, and English is likely to be the second language for many more recent immigrant groups.

**Age.** With regard to age, the Time 6 NZAVS tended to undersample younger people in their 20s and oversample those in their 50s. For example, the NZAVS under-sampled those in the 20-24 (9.4% census, 4.7% NZAVS), 25-29 (8.4% census, 5.2% NZAVS) and 30-34 (6% census, 6.8% NZAVS) age brackets. Because the NZAVS is a longitudinal panel study, our sample ages each year (barring booster sampling) relative to the population. Tabulated data presenting the full statistics for different age-ranges is presented in Table A.4.

**Socio-economic status.** The NZAVS assessed socio-economic status using the NZ Deprivation Index. The New Zealand Deprivation Index (Atkinson et al., 2013) uses aggregate census information about the residents of each meshblock to assign a decile-rank index from 1 (most affluent) to 10 (most impoverished) to each meshblock unit. The index is based on data from roughly 44,000 area units. Because it is a decile-ranked index, the mean score across units is 5.50 (see Sibley, 2014b, for full technical details about the use of the NZ Deprivation index in the NZAVS sample). These comparisons should be viewed as an approximation only, as decile scores refer to area units, whereas our sample mean scores refer to participants *within areas*. That said, the boundaries of area units are explicitly derived to reflect areas with roughly 80 people each. The deprivation index in the Time 6 NZAVS was about .80 points (8%) lower than that of the population value, with a sample mean of 4.7 (SD

= 2.8). For example, 14.7% of NZAVS respondents were in the wealthiest decile (10% of the population), whereas only 5.1% of the NZAVS were in the most deprived decile.

**Region.** The Time 6 NZAVS sample was close to census estimates in terms of sampling across the 16 council regions of the country. We compared the proportion of people living in each of the 16 regional council areas of New Zealand in the NZAVS with estimates of these same proportions for those aged 5 years and over in the 2013 New Zealand census. Regional proportions in the NZAVS were fairly close to those based on census estimates, with estimates for 13 of the 16 regions being within 1% of each other. The NZAVS did however tend to undersample residents of Auckland (Census 33.4%, NZAVS 30.6%) and oversample Wellington (Census 11.2%, NZAVS 14.1%). It is important to note that NZAVS and census estimates of these regional proportions are not directly comparable, as the census provides estimates for the total population and those aged 5 years and older in 2013, whereas the NZAVS sampled those aged 18 and over in 2013. The under-sampling of Auckland residents may be due to sampling bias that was also observed in the under-sampling of Asian and Pacific peoples, who tend to be more likely to live in the Auckland region.

#### **NZAVS Time 6 – 2014**

**Gender and ethnicity.** We compared sample frequencies from the Time 7 NZAVS with the 2013 Census. According to census estimates, women formed 52.1% of adult population were women, and men 47.9%. In contrast, 62.6% of respondents in the NZAVS were women, and only 37.3% men. The NZAVS thus oversampled women by about 10.5%. As in previous years, this is probably the most dramatic sampling bias in the NZAVS, and likely occurs because women are more willing to participate in surveys of their attitudes and values generally. According to the census, 75.1% of the adult population were European, 11.2% were Maori, 5.7% were of Pacific ancestry, and 11.7% were of Asian ancestry. In contrast, 89.7% of NZAVS participants were European, 12% were Maori, 3.1% were Pacific

and 3.9% were Asian. It is important to note that both census and NZAVS estimates count people who reported multiple ethnicities in each ethnic count. The Time 7 NZAVS thus undersampled Pacific and Asian peoples by 2.6% and 7.8%, respectively. This is probably due at least in part to language, as the NZAVS questionnaire was administered in English only, and English is likely to be the second language for many more recent immigrant groups.

**Age.** With regard to age, the Time 7 NZAVS tended to undersample younger people in their 20s and oversample those in their 50s. For example, the NZAVS under-sampled those in the 20-24 (9.4% census, 3.5% NZAVS), 25-29 (8.4% census, 5.2% NZAVS) and 30-34 (6% census, 5.3% NZAVS) age brackets. Because the NZAVS is a longitudinal panel study, our sample ages each year (barring booster sampling) relative to the population. Tabulated data presenting the full statistics for different age-ranges is presented in Table A.4.

**Socio-economic status.** The NZAVS assessed socio-economic status using the NZ Deprivation Index. The New Zealand Deprivation Index (Atkinson et al., 2013) uses aggregate census information about the residents of each meshblock to assign a decile-rank index from 1 (most affluent) to 10 (most impoverished) to each meshblock unit. The index is based on data from roughly 44,000 area units. Because it is a decile-ranked index, the mean score across units is 5.50 (see Sibley, 2014b, for full technical details about the use of the NZ Deprivation index in the NZAVS sample). These comparisons should be viewed as an approximation only, as decile scores refer to area units, whereas our sample mean scores refer to participants *within areas*. That said, the boundaries of area units are explicitly derived to reflect areas with roughly 80 people each. The deprivation index in the Time 7 NZAVS was about .80 points (8%) lower than that of the population value, with a sample mean of 4.7 (SD = 2.8). For example, 15% of NZAVS respondents were in the wealthiest decile (10% of the population), whereas only 5.1% of the NZAVS were in the most deprived decile.

**Region.** The Time 7 NZAVS sample was close to census estimates in terms of sampling across the 16 council regions of the country. We compared the proportion of people living in each of the 16 regional council areas of New Zealand in the NZAVS with estimates of these same proportions for those aged 5 years and over in the 2013 New Zealand census. Regional proportions in the NZAVS were fairly close to those based on census estimates, with estimates for 13 of the 16 regions being within 1% of each other. The NZAVS did however tend to undersample residents of Auckland (Census 33.4%, NZAVS 29.6%) and oversample Wellington (Census 11.2%, NZAVS 14.3%). It is important to note that NZAVS and census estimates of these regional proportions are not directly comparable, as the census provides estimates for the total population and those aged 5 years and older in 2013, whereas the NZAVS sampled those aged 18 and over in 2013. The under-sampling Auckland residents may be due to sampling bias that was also observed in the under-sampling of Asian and Pacific peoples, who tend to be more likely to live in the Auckland region.

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## Appendix: Tabulated Comparisons of NZAVS and Census Proportions

Note that Census figures for gender and ethnicity in these tables refer to those aged 18 and over only. These figures were estimated by summing all age brackets from 20 and older, and weighting the frequency of the 15-19 year age bracket by .40. Proportions for ethnicity in both the census and NZAVS counted people once for each ethnic affiliation they listed, and thus these counts are non-independent. Census figures for region are based on frequency counts of those aged 5 and older.

Table A.1. Comparison of Time 1 2009 NZAVS and 2006 Census Proportions

	Census 06 Estimate	NZAVS 09 Estimate	Deviation (NZAVS - Census)	Ratio (NZAVS/ Census)
<b>Gender</b>				
Women	52.01%	59.50%	7.49%	1.14
Men	47.99%	40.50%	-7.49%	0.84
<b>Ethnicity</b>				
European	68.68%	81.90%	13.22%	1.19
Maori	11.58%	17.90%	6.32%	1.55
Pacific	5.22%	4.30%	-0.92%	0.82
Asian	9.05%	4.90%	-4.15%	0.54
<b>Gender x Ethnicity</b>				
<b>Women</b>				
European	34.73%	49.37%	14.64%	1.42
Maori	5.89%	10.97%	5.08%	1.86
Pacific Peoples	2.61%	2.36%	-0.25%	0.91
Asian	4.64%	2.95%	-1.69%	0.63
<b>Men</b>				
European	31.02%	32.56%	1.54%	1.05
Maori	5.19%	6.95%	1.76%	1.34
Pacific Peoples	2.39%	1.93%	-0.46%	0.81
Asian	4.03%	1.99%	-2.04%	0.49
<b>Age</b>				
Prop 20–24 Years	9.47%	5.51%	-3.96%	0.58
Prop 25–29 Years	8.48%	5.92%	-2.56%	0.70
Prop 30–34 Years	9.67%	7.86%	-1.81%	0.81
Prop 35–39 Years	10.54%	9.62%	-0.92%	0.91
Prop 40–44 Years	10.97%	11.22%	0.25%	1.02
Prop 45–49 Years	10.26%	11.69%	1.43%	1.14
Prop 50–54 Years	8.84%	11.18%	2.34%	1.27
Prop 55–59 Years	8.17%	9.86%	1.69%	1.21
Prop 60–64 Years	6.28%	9.16%	2.88%	1.46
Prop 65–69 Years	5.19%	6.18%	0.99%	1.19
Prop 70–74 Years	4.09%	4.48%	0.39%	1.10
Prop 75–79 Years	3.54%	2.68%	-0.86%	0.76
Prop 80–84 Years	2.53%	1.47%	-1.06%	0.58
Prop 85 Years and Over	1.98%	0.94%	-1.04%	0.47

Deprivation (SES)				
Decile 1	10.00%	12.78%	2.78%	1.28
Decile 2	10.00%	11.69%	1.69%	1.17
Decile 3	10.00%	10.62%	0.62%	1.06
Decile 4	10.00%	9.44%	-0.56%	0.94
Decile 5	10.00%	10.49%	0.49%	1.05
Decile 6	10.00%	9.71%	-0.29%	0.97
Decile 7	10.00%	9.40%	-0.60%	0.94
Decile 8	10.00%	9.02%	-0.98%	0.90
Decile 9	10.00%	7.70%	-2.30%	0.77
Decile 10	10.00%	7.24%	-2.76%	0.72
Region (based on Census 13)				
Northland Region	3.54%	3.90%	0.36%	1.10
Auckland Region	33.37%	29.30%	-4.07%	0.88
Waikato Region	9.42%	8.30%	-1.12%	0.88
Bay of Plenty Region	6.27%	6.10%	-0.17%	0.97
Gisborne Region	1.00%	1.30%	0.30%	1.30
Hawke's Bay Region	3.53%	3.80%	0.27%	1.08
Taranaki Region	2.56%	2.60%	0.04%	1.02
Manawatu-Wanganui Region	5.21%	5.60%	0.39%	1.07
Wellington Region	11.21%	12.20%	0.99%	1.09
Tasman Region	1.12%	1.00%	-0.12%	0.89
Nelson Region	1.11%	1.30%	0.19%	1.17
Marlborough Region	1.03%	1.30%	0.27%	1.26
West Coast Region	0.76%	0.70%	-0.06%	0.92
Canterbury Region	12.85%	13.30%	0.45%	1.04
Otago Region	4.84%	5.00%	0.16%	1.03
Southland Region	2.19%	1.00%	-1.19%	0.46

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Table A.2. Comparison of Time 2 2010 NZAVS and 2006 Census Proportions

	Census 06 Estimate	NZAVS 10 Estimate	Deviation (NZAVS - Census)	Ratio (NZAVS/ Census)
<b>Gender</b>				
Women	52.01%	61.60%	9.59%	1.18
Men	47.99%	38.40%	-9.59%	0.80
<b>Ethnicity</b>				
European	68.68%	85.90%	17.22%	1.25
Maori	11.58%	15.50%	3.92%	1.34
Pacific	5.22%	3.60%	-1.62%	0.69
Asian	9.05%	4.00%	-5.05%	0.44
<b>Gender x Ethnicity</b>				
<b>Women</b>				
European	34.73%	53.62%	18.89%	1.54
Maori	5.89%	9.82%	3.93%	1.67
Pacific Peoples	2.61%	2.12%	-0.49%	0.81
Asian	4.64%	2.48%	-2.16%	0.53
<b>Men</b>				
European	31.02%	32.28%	1.26%	1.04
Maori	5.19%	5.72%	0.53%	1.10
Pacific Peoples	2.39%	1.51%	-0.88%	0.63
Asian	4.03%	1.55%	-2.48%	0.39
<b>Age</b>				
Prop 20–24 Years	9.47%	4.23%	-5.24%	0.45
Prop 25–29 Years	8.48%	4.23%	-4.25%	0.50
Prop 30–34 Years	9.67%	5.99%	-3.68%	0.62
Prop 35–39 Years	10.54%	8.60%	-1.94%	0.82
Prop 40–44 Years	10.97%	10.81%	-0.16%	0.99
Prop 45–49 Years	10.26%	11.98%	1.72%	1.17
Prop 50–54 Years	8.84%	12.11%	3.27%	1.37
Prop 55–59 Years	8.17%	11.03%	2.86%	1.35
Prop 60–64 Years	6.28%	10.58%	4.30%	1.68
Prop 65–69 Years	5.19%	7.72%	2.53%	1.49
Prop 70–74 Years	4.09%	5.88%	1.79%	1.44
Prop 75–79 Years	3.54%	3.20%	-0.34%	0.90
Prop 80–84 Years	2.53%	2.09%	-0.44%	0.83
Prop 85 Years and Over	1.98%	0.90%	-1.08%	0.45
<b>Deprivation (SES)</b>				
Decile 1	10.00%	12.74%	2.74%	1.27
Decile 2	10.00%	11.23%	1.23%	1.12
Decile 3	10.00%	10.54%	0.54%	1.05
Decile 4	10.00%	9.46%	-0.54%	0.95
Decile 5	10.00%	9.64%	-0.36%	0.96
Decile 6	10.00%	9.34%	-0.66%	0.93

Decile 7	10.00%	8.42%	-1.58%	0.84
Decile 8	10.00%	8.62%	-1.38%	0.86
Decile 9	10.00%	6.66%	-3.34%	0.67
Decile 10	10.00%	5.88%	-4.12%	0.59
Region (based on Census 13)				
Northland Region	3.54%	3.60%	0.06%	1.02
Auckland Region	33.37%	29.70%	-3.67%	0.89
Waikato Region	9.42%	7.80%	-1.62%	0.83
Bay of Plenty Region	6.27%	5.90%	-0.37%	0.94
Gisborne Region	1.00%	1.00%	0.00%	1.00
Hawke's Bay Region	3.53%	3.60%	0.07%	1.02
Taranaki Region	2.56%	2.70%	0.14%	1.05
Manawatu-Wanganui Region	5.21%	5.70%	0.49%	1.09
Wellington Region	11.21%	11.90%	0.69%	1.06
Tasman Region	1.12%	1.10%	-0.02%	0.98
Nelson Region	1.11%	1.30%	0.19%	1.17
Marlborough Region	1.03%	1.00%	-0.03%	0.97
West Coast Region	0.76%	0.50%	-0.26%	0.66
Canterbury Region	12.85%	11.80%	-1.05%	0.92
Otago Region	4.84%	5.10%	0.26%	1.05
Southland Region	2.19%	0.90%	-1.29%	0.41

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Table A.3. Comparison of Time 3 2011 NZAVS and 2013 Census Proportions

	Census 13 Estimate	NZAVS 11 Estimate	Deviation (NZAVS - Census)	Ratio (NZAVS/ Census)
<b>Gender</b>				
Women	52.13%	62.50%	10.37%	1.20
Men	47.87%	37.40%	-10.47%	0.78
<b>Ethnicity</b>				
European	75.13%	74.80%	-0.33%	1.00
Maori	11.95%	10.80%	-1.15%	0.90
Pacific	5.69%	2.60%	-3.09%	0.46
Asian	11.66%	3.70%	-7.96%	0.32
<b>Gender x Ethnicity</b>				
<b>Women</b>				
European	37.31%	46.97%	9.66%	1.26
Maori	6.06%	7.22%	1.16%	1.19
Pacific Peoples	2.81%	1.66%	-1.15%	0.59
Asian	5.83%	2.43%	-3.40%	0.42
<b>Men</b>				
European	33.67%	27.82%	-5.85%	0.83
Maori	5.22%	3.91%	-1.31%	0.75
Pacific Peoples	2.56%	0.92%	-1.64%	0.36
Asian	5.18%	1.24%	-3.94%	0.24
<b>Age</b>				
Prop 20–24 Years	9.44%	6.78%	-2.66%	0.72
Prop 25–29 Years	8.38%	4.50%	-3.88%	0.54
Prop 30–34 Years	8.33%	5.75%	-2.58%	0.69
Prop 35–39 Years	8.68%	7.52%	-1.16%	0.87
Prop 40–44 Years	9.93%	9.36%	-0.57%	0.94
Prop 45–49 Years	9.79%	10.55%	0.76%	1.08
Prop 50–54 Years	9.74%	11.96%	2.22%	1.23
Prop 55–59 Years	8.45%	11.14%	2.69%	1.32
Prop 60–64 Years	7.57%	11.17%	3.60%	1.48
Prop 65–69 Years	6.36%	8.37%	2.01%	1.32
Prop 70–74 Years	4.87%	5.97%	1.10%	1.23
Prop 75–79 Years	3.46%	3.25%	-0.21%	0.94
Prop 80–84 Years	2.63%	1.76%	-0.87%	0.67
Prop 85 Years and Over	2.38%	0.74%	-1.64%	0.31
<b>Deprivation (SES)</b>				
Decile 1	10.00%	14.09%	4.09%	1.41
Decile 2	10.00%	11.96%	1.96%	1.20
Decile 3	10.00%	11.53%	1.53%	1.15
Decile 4	10.00%	9.99%	-0.01%	1.00
Decile 5	10.00%	9.94%	-0.06%	0.99

Decile 6	10.00%	9.01%	-0.99%	0.90
Decile 7	10.00%	8.09%	-1.91%	0.81
Decile 8	10.00%	7.15%	-2.85%	0.71
Decile 9	10.00%	5.64%	-4.36%	0.56
Decile 10	10.00%	4.87%	-5.13%	0.49
Region (based on Census 13)				
Northland Region	3.54%	2.60%	-0.94%	0.73
Auckland Region	33.37%	29.80%	-3.57%	0.89
Waikato Region	9.42%	6.90%	-2.52%	0.73
Bay of Plenty Region	6.27%	4.40%	-1.87%	0.70
Gisborne Region	1.00%	0.60%	-0.40%	0.60
Hawke's Bay Region	3.53%	3.00%	-0.53%	0.85
Taranaki Region	2.56%	2.10%	-0.46%	0.82
Manawatu-Wanganui Region	5.21%	4.70%	-0.51%	0.90
Wellington Region	11.21%	15.40%	4.19%	1.37
Tasman Region	1.12%	1.00%	-0.12%	0.89
Nelson Region	1.11%	1.40%	0.29%	1.26
Marlborough Region	1.03%	1.20%	0.17%	1.17
West Coast Region	0.76%	0.50%	-0.26%	0.66
Canterbury Region	12.85%	12.10%	-0.75%	0.94
Otago Region	4.84%	4.50%	-0.34%	0.93
Southland Region	2.19%	0.70%	-1.49%	0.32

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Table A.4. Comparison of Time 4 2012 NZAVS and 2013 Census Proportions

	Census 13 Estimate	NZAVS 12 Estimate	Deviation (NZAVS - Census)	Ratio (NZAVS/ Census)
<b>Gender</b>				
Women	52.13%	62.60%	10.47%	1.20
Men	47.87%	37.40%	-10.47%	0.78
<b>Ethnicity</b>				
European	75.13%	84.40%	9.27%	1.12
Maori	11.95%	16.60%	4.65%	1.39
Pacific	5.69%	5.00%	-0.69%	0.88
Asian	11.66%	5.10%	-6.56%	0.44
<b>Gender x Ethnicity</b>				
<b>Women</b>				
European	37.31%	52.94%	15.63%	1.42
Maori	6.06%	10.82%	4.76%	1.78
Pacific Peoples	2.81%	3.42%	0.61%	1.22
Asian	5.83%	3.24%	-2.59%	0.56
<b>Men</b>				
European	33.67%	31.50%	-2.17%	0.94
Maori	5.22%	3.42%	-1.80%	0.66
Pacific Peoples	2.56%	1.58%	-0.98%	0.62
Asian	5.18%	1.84%	-3.34%	0.36
<b>Age</b>				
Prop 20–24 Years	9.44%	6.07%	-3.37%	0.64
Prop 25–29 Years	8.38%	5.18%	-3.20%	0.62
Prop 30–34 Years	8.33%	6.35%	-1.98%	0.76
Prop 35–39 Years	8.68%	8.23%	-0.45%	0.95
Prop 40–44 Years	9.93%	9.78%	-0.15%	0.98
Prop 45–49 Years	9.79%	11.87%	2.08%	1.21
Prop 50–54 Years	9.74%	12.72%	2.98%	1.31
Prop 55–59 Years	8.45%	11.86%	3.41%	1.40
Prop 60–64 Years	7.57%	10.71%	3.14%	1.42
Prop 65–69 Years	6.36%	8.09%	1.73%	1.27
Prop 70–74 Years	4.87%	3.98%	-0.89%	0.82
Prop 75–79 Years	3.46%	2.22%	-1.24%	0.64
Prop 80–84 Years	2.63%	1.04%	-1.59%	0.40
Prop 85 Years and Over	2.38%	0.52%	-1.86%	0.22
<b>Deprivation (SES)</b>				
Decile 1	10.00%	12.86%	2.86%	1.29
Decile 2	10.00%	11.65%	1.65%	1.16
Decile 3	10.00%	11.17%	1.17%	1.12
Decile 4	10.00%	10.57%	0.57%	1.06
Decile 5	10.00%	9.67%	-0.33%	0.97
Decile 6	10.00%	9.34%	-0.66%	0.93

Decile 7	10.00%	8.79%	-1.21%	0.88
Decile 8	10.00%	8.55%	-1.45%	0.85
Decile 9	10.00%	8.14%	-1.86%	0.81
Decile 10	10.00%	7.13%	-2.87%	0.71
Region (based on Census 13)				
Northland Region	3.54%	3.00%	-0.54%	0.85
Auckland Region	33.37%	35.80%	2.43%	1.07
Waikato Region	9.42%	7.30%	-2.12%	0.77
Bay of Plenty Region	6.27%	5.50%	-0.77%	0.88
Gisborne Region	1.00%	0.80%	-0.20%	0.80
Hawke's Bay Region	3.53%	3.30%	-0.23%	0.93
Taranaki Region	2.56%	2.00%	-0.56%	0.78
Manawatu-Wanganui Region	5.21%	4.80%	-0.41%	0.92
Wellington Region	11.21%	12.70%	1.49%	1.13
Tasman Region	1.12%	0.90%	-0.22%	0.80
Nelson Region	1.11%	1.30%	0.19%	1.17
Marlborough Region	1.03%	1.00%	-0.03%	0.97
West Coast Region	0.76%	0.60%	-0.16%	0.79
Canterbury Region	12.85%	13.10%	0.25%	1.02
Otago Region	4.84%	4.40%	-0.44%	0.91
Southland Region	2.19%	1.50%	-0.69%	0.68

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Table A.5. Comparison of Time 5 2013 NZAVS and 2013 Census Proportions

	Census 13 Estimate	NZAVS 13 Estimate	Deviation (NZAVS - Census)	Ratio (NZAVS/ Census)
<b>Gender</b>				
Women	52.13%	62.76%	10.63%	1.20
Men	47.87%	37.23%	-10.64%	0.78
<b>Ethnicity</b>				
European	75.13%	85.50%	10.37%	1.14
Maori	11.95%	12.70%	0.75%	1.06
Pacific	5.69%	3.40%	-2.29%	0.60
Asian	11.66%	4.50%	-7.16%	0.39
<b>Gender x Ethnicity</b>				
<b>Women</b>				
European	37.31%	53.70%	16.39%	1.44
Maori	6.06%	8.60%	2.54%	1.42
Pacific Peoples	2.81%	2.40%	-0.41%	0.85
Asian	5.83%	2.80%	-3.03%	0.48
<b>Men</b>				
European	33.67%	31.70%	-1.97%	0.94
Maori	5.22%	4.20%	-1.02%	0.80
Pacific Peoples	2.56%	1.10%	-1.46%	0.43
Asian	5.18%	1.60%	-3.58%	0.31
<b>Age</b>				
Prop 20–24 Years	9.44%	5.70%	-3.74%	0.60
Prop 25–29 Years	8.38%	5.49%	-2.89%	0.66
Prop 30–34 Years	8.33%	6.82%	-1.51%	0.82
Prop 35–39 Years	8.68%	8.81%	0.13%	1.01
Prop 40–44 Years	9.93%	11.02%	1.09%	1.11
Prop 45–49 Years	9.79%	12.74%	2.95%	1.30
Prop 50–54 Years	9.74%	14.93%	5.19%	1.53
Prop 55–59 Years	8.45%	14.85%	6.40%	1.76
Prop 60–64 Years	7.57%	7.18%	-0.39%	0.95
Prop 65–69 Years	6.36%	5.56%	-0.80%	0.87
Prop 70–74 Years	4.87%	2.87%	-2.00%	0.59
Prop 75–79 Years	3.46%	1.55%	-1.91%	0.45
Prop 80–84 Years	2.63%	0.68%	-1.95%	0.26
Prop 85 Years and Over	2.38%	0.41%	-1.97%	0.17
<b>Deprivation (SES)</b>				
Decile 1	10.00%	14.24%	4.24%	1.42
Decile 2	10.00%	12.29%	2.29%	1.23
Decile 3	10.00%	12.12%	2.12%	1.21
Decile 4	10.00%	11.40%	1.40%	1.14
Decile 5	10.00%	10.25%	0.25%	1.03
Decile 6	10.00%	9.39%	-0.61%	0.94

Decile 7	10.00%	9.03%	-0.97%	0.90
Decile 8	10.00%	8.10%	-1.90%	0.81
Decile 9	10.00%	7.42%	-2.58%	0.74
Decile 10	10.00%	5.76%	-4.24%	0.58
Region (based on Census 13)				
Northland Region	3.54%	3.27%	-0.27%	0.92
Auckland Region	33.37%	31.59%	-1.78%	0.95
Waikato Region	9.42%	8.10%	-1.32%	0.86
Bay of Plenty Region	6.27%	5.83%	-0.44%	0.93
Gisborne Region	1.00%	0.08%	-0.92%	0.08
Hawke's Bay Region	3.53%	3.37%	-0.16%	0.95
Taranaki Region	2.56%	2.27%	-0.29%	0.89
Manawatu-Wanganui Region	5.21%	5.07%	-0.14%	0.97
Wellington Region	11.21%	13.81%	2.60%	1.23
Tasman Region	1.12%	1.30%	0.18%	1.16
Nelson Region	1.11%	1.40%	0.29%	1.26
Marlborough Region	1.03%	1.10%	0.07%	1.07
West Coast Region	0.76%	0.80%	0.04%	1.05
Canterbury Region	12.85%	13.70%	0.85%	1.07
Otago Region	4.84%	5.40%	0.56%	1.12
Southland Region	2.19%	1.90%	-0.29%	0.87

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Table A.6. Comparison of Time 6 2014 NZAVS and 2013 Census Proportions

	Census 13 Estimate	NZAVS 14 Estimate	Deviation (NZAVS - Census)	Ratio (NZAVS/ Census)
<b>Gender</b>				
Women	52.13%	63.20%	11.07%	1.21
Men	47.87%	36.60%	-11.27%	0.76
<b>Ethnicity</b>				
European	75.13%	89.50%	14.37%	1.19
Maori	11.95%	12.50%	0.55%	1.05
Pacific	5.69%	3.30%	-2.39%	0.58
Asian	11.66%	4.30%	-7.36%	0.37
<b>Gender x Ethnicity</b>				
<b>Women</b>				
European	37.31%	56.71%	19.40%	1.52
Maori	6.06%	8.44%	2.38%	1.39
Pacific Peoples	2.81%	2.30%	-0.51%	0.82
Asian	5.83%	2.84%	-2.99%	0.49
<b>Men</b>				
European	33.67%	32.80%	-0.87%	0.97
Maori	5.22%	4.05%	-1.17%	0.78
Pacific Peoples	2.56%	1.03%	-1.53%	0.40
Asian	5.18%	1.49%	-3.69%	0.29
<b>Age</b>				
Prop 20–24 Years	9.44%	4.70%	-4.74%	0.50
Prop 25–29 Years	8.38%	5.20%	-3.18%	0.62
Prop 30–34 Years	8.33%	6.00%	-2.33%	0.72
Prop 35–39 Years	8.68%	8.10%	-0.58%	0.93
Prop 40–44 Years	9.93%	10.50%	0.57%	1.06
Prop 45–49 Years	9.79%	12.40%	2.61%	1.27
Prop 50–54 Years	9.74%	14.80%	5.06%	1.52
Prop 55–59 Years	8.45%	15.10%	6.65%	1.79
Prop 60–64 Years	7.57%	9.00%	1.43%	1.19
Prop 65–69 Years	6.36%	6.60%	0.24%	1.04
Prop 70–74 Years	4.87%	3.70%	-1.17%	0.76
Prop 75–79 Years	3.46%	2.00%	-1.46%	0.58
Prop 80–84 Years	2.63%	0.90%	-1.73%	0.34
Prop 85 Years and Over	2.38%	0.50%	-1.88%	0.21
<b>Deprivation (SES)</b>				
Decile 1	10.00%	14.70%	4.70%	1.47
Decile 2	10.00%	12.20%	2.20%	1.22
Decile 3	10.00%	12.20%	2.20%	1.22
Decile 4	10.00%	11.40%	1.40%	1.14
Decile 5	10.00%	10.10%	0.10%	1.01
Decile 6	10.00%	9.40%	-0.60%	0.94

Decile 7	10.00%	8.60%	-1.40%	0.86
Decile 8	10.00%	7.70%	-2.30%	0.77
Decile 9	10.00%	7.00%	-3.00%	0.70
Decile 10	10.00%	5.10%	-4.90%	0.51
Region (based on Census 13)				
Northland Region	3.54%	3.20%	-0.34%	0.90
Auckland Region	33.37%	30.60%	-2.77%	0.92
Waikato Region	9.42%	8.20%	-1.22%	0.87
Bay of Plenty Region	6.27%	5.80%	-0.47%	0.93
Gisborne Region	1.00%	0.80%	-0.20%	0.80
Hawke's Bay Region	3.53%	3.50%	-0.03%	0.99
Taranaki Region	2.56%	2.30%	-0.26%	0.90
Manawatu-Wanganui Region	5.21%	4.90%	-0.31%	0.94
Wellington Region	11.21%	14.10%	2.89%	1.26
Tasman Region	1.12%	1.30%	0.18%	1.16
Nelson Region	1.11%	1.40%	0.29%	1.26
Marlborough Region	1.03%	1.10%	0.07%	1.07
West Coast Region	0.76%	0.70%	-0.06%	0.92
Canterbury Region	12.85%	13.60%	0.75%	1.06
Otago Region	4.84%	5.40%	0.56%	1.12
Southland Region	2.19%	1.80%	-0.39%	0.82

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Table A.7. Comparison of Time 7 2015 NZAVS and 2013 Census Proportions

	Census 13 Estimate	NZAVS 15 Estimate	Deviation (NZAVS - Census)	Ratio (NZAVS/ Census)
<b>Gender</b>				
Women	52.13%	62.60%	10.47%	1.20
Men	47.87%	37.30%	-10.57%	0.78
<b>Ethnicity</b>				
European	75.13%	89.70%	14.57%	1.19
Maori	11.95%	12.00%	0.05%	1.00
Pacific	5.69%	3.10%	-2.59%	0.54
Asian	11.66%	3.90%	-7.76%	0.33
<b>Gender x Ethnicity</b>				
<b>Women</b>				
European	37.31%	56.50%	19.19%	1.51
Maori	6.06%	8.00%	1.94%	1.32
Pacific Peoples	2.81%	2.10%	-0.71%	0.75
Asian	5.83%	2.40%	-3.43%	0.41
<b>Men</b>				
European	33.67%	33.20%	-0.47%	0.99
Maori	5.22%	4.00%	-1.22%	0.77
Pacific Peoples	2.56%	1.00%	-1.56%	0.39
Asian	5.18%	1.50%	-3.68%	0.29
<b>Age</b>				
Prop 20–24 Years	9.44%	3.50%	-5.94%	0.37
Prop 25–29 Years	8.38%	5.20%	-3.18%	0.62
Prop 30–34 Years	8.33%	5.30%	-3.03%	0.64
Prop 35–39 Years	8.68%	7.50%	-1.18%	0.86
Prop 40–44 Years	9.93%	9.90%	-0.03%	1.00
Prop 45–49 Years	9.79%	12.00%	2.21%	1.23
Prop 50–54 Years	9.74%	14.40%	4.66%	1.48
Prop 55–59 Years	8.45%	15.50%	7.05%	1.83
Prop 60–64 Years	7.57%	10.90%	3.33%	1.44
Prop 65–69 Years	6.36%	7.40%	1.04%	1.16
Prop 70–74 Years	4.87%	4.50%	-0.37%	0.92
Prop 75–79 Years	3.46%	2.30%	-1.16%	0.66
Prop 80–84 Years	2.63%	1.00%	-1.63%	0.38
Prop 85 Years and Over	2.38%	0.60%	-1.78%	0.25
<b>Deprivation (SES)</b>				
Decile 1	10.00%	15.00%	5.00%	1.50
Decile 2	10.00%	12.20%	2.20%	1.22
Decile 3	10.00%	12.00%	2.00%	1.20
Decile 4	10.00%	11.00%	1.00%	1.10
Decile 5	10.00%	9.80%	-0.20%	0.98
Decile 6	10.00%	9.20%	-0.80%	0.92
Decile 7	10.00%	8.70%	-1.30%	0.87

Decile 8	10.00%	7.50%	-2.50%	0.75
Decile 9	10.00%	7.00%	-3.00%	0.70
Decile 10	10.00%	5.10%	-4.90%	0.51
Region (based on Census 13)				
Northland Region	3.54%	3.40%	-0.14%	0.96
Auckland Region	33.37%	29.60%	-3.77%	0.89
Waikato Region	9.42%	8.00%	-1.42%	0.85
Bay of Plenty Region	6.27%	6.10%	-0.17%	0.97
Gisborne Region	1.00%	0.90%	-0.10%	0.90
Hawke's Bay Region	3.53%	3.50%	-0.03%	0.99
Taranaki Region	2.56%	2.20%	-0.36%	0.86
Manawatu-Wanganui Region	5.21%	5.00%	-0.21%	0.96
Wellington Region	11.21%	14.30%	3.09%	1.28
Tasman Region	1.12%	1.40%	0.28%	1.25
Nelson Region	1.11%	1.40%	0.29%	1.26
Marlborough Region	1.03%	1.20%	0.17%	1.17
West Coast Region	0.76%	0.70%	-0.06%	0.92
Canterbury Region	12.85%	13.50%	0.65%	1.05
Otago Region	4.84%	5.30%	0.46%	1.10
Southland Region	2.19%	1.80%	-0.39%	0.82

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