

## Iwi Sex Ratios in the New Zealand Population Census: Why are Women So Dominant?

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### Abstract

Recent census-based studies of iwi (tribal) population growth have revealed a high degree of volatility that cannot be explained by demographic factors alone. Although focused on a small number of iwi, these studies have shown that changing patterns of identification are an important driver of iwi population growth, and that the propensity to identify with an iwi appears to be much stronger among Māori women than men. Thus, the vast majority of iwi in the census have far more females than males, and female domination has increased over time. This paper describes the key features of female-favoured iwi sex ratios in the census and explores possible explanations. Focusing on sex ratios for the ten largest iwi, we find that female domination is highest in the 25–44 age group, and that this pattern is consistent over time. Further analysis shows that Māori women aged 25–34 years are more likely than their male counterparts to know detailed aspects of their pepeha (tribal identity), to explore whakapapa (genealogy) and to speak te reo Māori. Our results underscore the importance of Māori women as cultural connectors within their whānau, as well as in a broader iwi context.

Recent census-based studies of iwi (tribal) population growth have revealed a high degree of volatility that cannot be explained by demographic factors alone (Kukutai & Rarere, 2013, 2015; Rarere, 2012). Although focused on a small number of iwi, these studies have shown that changing patterns of identification are an important driver of iwi population growth, and that the propensity to identify with an iwi appears to be much stronger among Māori women than Māori men.

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Consequently, the vast majority of iwi in the census have far more females than males, and female domination has increased over time.

This paper describes the key features of female-favoured iwi sex ratios in the context of the census and explores possible explanations. While gendered differences in migration and mortality feature prominently in the demographic literature on sex ratios, we also consider more culturally grounded explanations that emphasise the role of Māori women in sustaining identity and culture, and the particular ways in which this might play out in the census context. We preface our analysis with a brief discussion of skewed sex ratios internationally and in Aotearoa New Zealand, as well as the wider context within which iwi identities are formed and expressed.

## **Background**

### *Skewed sex ratios*

The sex ratio is a common measure used to describe the balance between males and females in a population. The balance between sexes may seem like a relatively banal aspect of human demography but skewed sex ratios have major social, economic and political consequences. Many studies have shown that, in the absence of external intervention, the sex ratio at birth (the number of male live births for every 100 female births) is consistently male favoured, with 105–107 male births for every 100 female births (Hesketh & Xing, 2006). However, providing that there is equal access to nutrition and health care, females generally come to outnumber males due to lower mortality across all age groups. Despite this, there are many countries in the world where males greatly outnumber females due to practices arising from systematic ‘son preference’. These practices include pre-natal sex selective screening and abortion, post-natal neglect and unequal access to health care. The number of ‘missing females’ due to these factors has been estimated at between 90 and 100 million, with the highest number occurring in the Indian subcontinent (Hesketh & Xing, 2006; Sen, 1992). An excess supply of men in these countries has been linked to spouse shortages, lower fertility, and higher levels of violence and antisocial behaviours.

In contrast to concerns over ‘missing females’ in developing countries, low sex ratios in some wealthy countries such as Aotearoa New

Zealand have given rise to a rather different scenario, that of ‘missing men’ (Bedford, Callister, & Didham, 2010; Callister, Didham, & Bedford, 2006). This term, and others such as ‘man drought’ (Salt, 2008), refer to the imbalance between men and women in the prime working and family-formation ages of 20–49 years. In Aotearoa New Zealand, the number of women relative to men at ages 20–49 years has been increasing since the 1980s, and the imbalance is more marked than in other wealthy industrialised countries (Callister, Didham, & Bedford, 2006). In the United States, the sex ratio at ages 20–49 years is 1.00 (2010 Census); this compares with 0.98 in Canada and Australia (2016), and 0.92 in Aotearoa New Zealand (2013).

Female-favoured sex ratios among those of prime working age in Aotearoa New Zealand have been attributed to several factors including gendered differences in under-enumeration and migration, and inconsistencies in how census and arrival/departure data are recorded. Men, along with young adults and Māori and Pacific peoples, are more likely than other population groups to be missed from the census (Statistics New Zealand, 2007, 2014). Permanent and long-term (PLT) migration losses also tend to be higher for males than females at those ages, and gains higher for females than for males (Bedford, Callister, & Didham, 2010). In addition, female migrants at peak working ages are more likely than men to be recorded as short-term migrants and to then stay longer than intended, resulting in ‘unexpected’ gains of women (Bedford, Callister, & Didham, 2010).

In Aotearoa New Zealand, the balance of males and females also varies significantly by ethnicity. Sex ratios at prime working ages are much more female dominated for Māori than for other major ethnic groups (Callister, Didham, & Bedford, 2006),<sup>1</sup> and sex ratios for many iwi are even more skewed. Indeed, in some iwi, the excess of women at peak working ages matches the excess of men in parts of India where the phenomenon of ‘missing women’ has been most extreme. The dynamics are, of course, quite different and, in the context of Aotearoa New Zealand, have little to do with gender differences in mortality. Rather, female domination in census-based iwi counts is likely to reflect historical, political and cultural factors that shape contemporary expressions of tribal belonging, as well as the relatively fluid and open character of the census as a forum for self-identification. We discuss this in more detail below.

## The changing context of iwi identification

Nowadays ‘Māori’ is the term most often used to reference indigenous peoples in Aotearoa New Zealand, but it is a relatively recent label, only emerging in the 19th century amidst increasing contact with tau iwi (immigrants) (Broughton, 1993). In pre-colonial times, identity was rooted in genealogical connection, typically expressed in terms of three distinct but overlapping kinship units: whānau (family group), hapū (kinship family groups) and iwi (larger kinship groups, often now referred to as tribes). Hapū consisted of a number of related whānau groups and were the most significant independent political units, exercising mana motuhake (authority) over a defined territory (Taonui, 2012). As Ballara (1998) notes, hapū and iwi were fluid entities: “...the Māori political and social system was always dynamic, continuously modified like its technology in response to such phenomena as environmental change and population expansion” (p. 21).

This inherent dynamism, coupled with frequent migratory movements, made early colonial census taking challenging. Iwi have a long history of being quantified and qualified in the census, with the earliest census of iwi undertaken in 1874. (For a detailed overview of iwi enumeration in the census, see Kukutai, 2012).<sup>2</sup> The census provided a ready forum within which to monitor the size, distribution and material circumstances of tribes as part of the colonial government’s attempt at statecraft. Many iwi viewed censustaking with suspicion, perceiving it to be linked with taxation or conscription. Census enumerators observed that tribes linked with the Kīngitanga (Māori King Movement) were especially resistant to being counted (Kukutai, 2012). After the 1901 census, iwi enumeration ceased. Divested of much of their land and living in rural poverty, iwi were perceived as far less of an economic and political threat and the impetus for government surveillance waned.<sup>3</sup>

It was another 90 years before iwi were once again counted in the census with the introduction of a self-identified iwi question in the 1991 census. The government of the day was pursuing a pathway of ‘devolution’ through the Runanga Iwi Act 1991 which included the transfer of limited responsibilities and service functions to iwi. The collection of iwi data was integral to the Act and though the legislation was repealed soon after its passage, the legacy of centralised corporate structures remained (Barcham

1998). The 1980s and 1990s were periods of significant iwi reinvigoration, stimulated, in part, by the progression of settlements between iwi and the Crown over its historic wrongdoings. Although the Waitangi Tribunal was set up in 1975 in response to Māori political pressure and activism, changes in 1985 enabled it to investigate claims of Treaty breaches dating back to 1840. In 1995, the Office of Treaty Settlements was established to negotiate the settlement of historical Treaty claims, superceding the Treaty of Waitangi Policy Unit in the Department of Justice. Since that time, more than 100 Waitangi Tribunal claims reports have been published and, by 2015, 68 directly negotiated settlements had been completed, with many more outstanding (Office of Treaty Settlements, 2015, p. 21).

While the history of Māori enumeration has been about the imposition of state categories to drive state development agendas, how individuals choose to respond is influenced by a range of factors. These include the revitalisation of Māori and iwi identities, changes in the broader political context including settlement processes described above, economic incentives and opportunities, and the gradual de-stigmatising of Māori identity and culture. Patterns of identification also reflect the high level of cultural and socio-economic diversity among Māori. At times, this diversity has been oversimplified into binary categories of 'iwi Māori' and 'urban Māori'. Such binaries are misleading in that they imply that urban Māori cannot also be connected to their iwi. In reality, not only are the vast majority of Māori both iwi affiliated and living in urban areas,<sup>4</sup> but the increased propensity to identify with an iwi in the census has been most pronounced among city-dwelling Māori (Kukutai, 2013).

Contemporary iwi growth trajectories are complex and somewhat unpredictable. A recent study by Kukutai and Rarere (2013) analysed growth trajectories for four iwi (Ngāi Tahu, Waikato, Ngāti Awa, Tūhoe) between 1991 and 2006, and found marked variation in growth rates between iwi, and over time. In most instances, iwi birth cohorts increased rather than decreased in size and gains from 'new' members were especially marked among children, the middle-aged and women. Growth patterns did not appear to be directly linked to the timing of settlements with the Crown, nor iwi size. For example, the growth trajectories of Waikato and Ngāi Tahu differed greatly, despite being the first iwi to reach directly negotiated settlements with the Crown around the same time.

It is important to recognise that the concepts and processes employed to define iwi membership in the census varies greatly from those used in iwi registers. A growing number of iwi have established electronic membership registers as a precursor to, or condition of, settlement. Whereas iwi affiliation in the census is based solely on self-identification (at least for adults), registers usually require some form of external recognition, along with information about whakapapa (for example, the names of grandparents and great-grandparents), and hapū and marae affiliation (Walling et al., 2009). Moreover, while individuals can and do change their responses to the iwi question in the census, they are very unlikely to de-register with an iwi once enrolled. These contextual differences often mean that the size and age-sex structure of an iwi vis-à-vis the census can vary significantly from its enrolled population (see, for example, Walling et al. 2009). This paper is solely concerned with census-based iwi enumeration; the balance of males and females on iwi registers is beyond the scope of our analysis. It may well be that skewed sex ratios are not a feature of iwi-controlled registers because of the conceptual and procedural differences. Thus, it would be inaccurate to try to generalise our observations beyond the census context. We note, however, that many iwi lack the internal capability and resources to generate their own whole-of-iwi statistics and are heavily dependent on the population census for their informational needs. As such, understanding identification patterns in the census context is an important starting point for a wider discussion on how iwi statistics can inform good decision making to advance tribal well-being and development aspirations.

## Methods

The data used in this paper are extracted from the New Zealand Census of Population and Dwellings obtained from Statistics New Zealand via their website or custom data. Iwi responses are coded and reported on using a two-tier classification (rohe and iwi) used in the Iwi Standard Classification (hereafter, referred to as the classification; Statistics New Zealand, 2009). New iwi categories have been added over time and, at the time of the 2013 Census, the classification had 128 categories (excludes Level 1 rohe categories). Iwi data are outputted using the total response method, meaning that individuals are counted in all groups with which they identify. As such, the sum of all iwi exceeds the sum of Māori descendants reporting an iwi affiliation. In cases where hapū or waka are self-reported, a codefile is used to assign these responses to an iwi grouping or waka confederation respectively. Hapū that affiliate to more than one iwi are assigned to a separate category.

Both the question wording and response categories of the iwi question changed between 1991 and 2006. In 1991, the two-part question asked respondents of Māori descent if they knew their iwi and those ticking “yes” were prompted to write in the name of their *main* iwi. Those stating a main iwi could then indicate up to two other iwi with which they had strong ties (Statistics New Zealand, 1998). At the request of Māori, the main iwi prompt was dropped in 1996 and the question simply asked if respondents knew the names of their iwi, with space to write up to six iwi names and rohe. In 2001, the number of write-in spaces reduced to five, and a supplementary list of iwi from the classification was included in the help notes accompanying the census questionnaire. The question and format were retained in 2006 and 2013.<sup>5</sup> In 1996, just over 27 per cent of those stating an iwi reported two or more iwi. By 2006, the share had increased to nearly 40 per cent (Kukutai & Rarere, 2015).

Our analysis employs the standard sex ratio (males to females), by functional age group, as well as cohort analysis. For the latter, we track changes in the size of the five-year birth cohorts by sex across two intercensal periods, 1996–2001 and 2001–2006. In theory, indigenous populations such as Māori are closed to spatial migration because there is no source country outside of Aotearoa New Zealand that can provide a long-term source of augmentation. In reality, Māori have high levels of

international mobility and, until very recently, this produced net migration losses in most years, particularly to Australia (Bedford et al., 2010; Kukutai & Pawar, 2013). Given this, iwi birth cohorts should decrease over time as a consequence of mortality and out-migration, and so any increase can thus be attributed to net increases through changing patterns of identification.

## Results

Table 1 shows census sex ratios for the iwi-identified population, which comprises people of Māori descent who reported at least one iwi, as well as for the Māori Ethnic Group (MEG) and total New Zealand population. We also show the median sex ratio across all of the 120 or so individual iwi recognised in the official classification.<sup>6</sup>

Females outnumbered males in all groups and all years, but the imbalance was much more evident for iwi, and became more marked from 2001 onwards. In 1991, there were 97 males for every 100 females of Māori ethnicity, which mirrored the ratio for the total New Zealand population. For the iwi-identified population, there was 96 males per 100 females. By 2013, however, there were only 93 Māori males per 100 Maori females, and for the iwi-identified population, the ratio had dropped to 89 males per 100 females. The median sex ratio across all iwi was lower still, at just 85 males per 100 females. These differences are not due to an imbalance in sex ratios at birth. Māori male births have outnumbered Māori female births since at least 1997, with ratios ranging from 1.03 to 1.09.

**Table 1. Sex ratios for iwi-identified population, total New Zealand and Māori ethnic group, 1991–2013**

Population	1991	1996	2001	2006	2013
Total New Zealand	0.97	0.97	0.95	0.95	0.95
Māori ethnic group	0.97	0.97	0.96	0.95	0.93
Iwi (people stated)	0.96	0.93	0.91	0.90	0.89
Iwi (iwi stated, median)	0.94	0.91	0.87	0.85	0.85
	( <i>n</i> = 97)	( <i>n</i> = 90)	( <i>n</i> = 97)	( <i>n</i> = 100)	( <i>n</i> = 101)
Don't know iwi	1.01	1.03	0.94	0.93	0.92

Source: Statistics New Zealand, Census of Population and Dwellings, various years.



Focusing on the aggregate iwi-identified population is a useful starting point, but also has limitations given the tremendous intra-iwi variation in population size, structure and growth. An analysis of the 100-plus iwi in the census is impractical thus we limit our focus to the 10 largest iwi shown in Table 2. These iwi varied significantly with respect to size, growth, composition, asset base, public profile and settlement histories. Table 2 shows the population size and recent intercensal growth of these 10 iwi along with the MEG, iwi-identified and total New Zealand comparator groups.

In most periods, the number of Māori reporting at least one iwi affiliation exceeded the intercensal growth of the MEG and total national population. In terms of individual iwi, the growth trajectories varied tremendously in size and direction. In some periods, some iwi declined in size, while others stagnated or increased substantially. To illustrate, between 1991 and 1996, the largest iwi (Ngāpuhi) only increased by just under 3 per cent while Ngāti Kahungunu ki te Wairoa grew by more than 50 per cent. Between 1996 and 2001, the number of Ngāti Kahungunu ki te Wairoa increased even more dramatically, by more than 300 per cent. This was due to increased identification, rather than demographic behaviour per se, and seems to have been partly driven by changes in classification practices. Between 1996 and 2001, the number of individuals classified as 'Ngāti Kahungunu – region unspecified' nearly halved, from 40,380 to 24,729, and there were also significant increases for Ngāti Kahungunu ki Heretaunga and Ngāti Kahungunu ki Wairarapa. At the same time, three new Ngāti Kahungunu iwi categories were introduced.

Over the entire period, the iwi that grew the least in relative terms was Ngāpuhi, at just over one-third. This is unsurprising given its much larger base size – in 1991, Ngāpuhi was nearly twice the size of the next largest iwi. Between 2006 and 2013, growth was low to modest for all iwi, suggesting that future iwi population growth (at least for the ten largest iwi) may begin to stabilise.

**Table 2: Growth rates of 10 largest iwi, Maori ethnic group, iwi-stated and total New Zealand population, 1991–2013**

Number	1991	1996	2001	2006	2013
Total New Zealand	3,373,926	3,618,303	3,737,280	4,027,947	4,242,048
Māori	434,847	523,371	526,281	565,329	598,605
<i>Iwi identified (stated)</i>	<i>368,655</i>	<i>425,745</i>	<i>454,479</i>	<i>512,325</i>	<i>535,941</i>
Ngā Puhī	92,973	95,451	102,981	122,214	125,601
Ngāti Porou	48,525	54,219	61,701	71,907	71,049
Ngāi Tahu	20,304	29,133	39,180	49,185	54,819
Waikato	22,230	23,808	35,781	33,429	40,083
Ngāti Tūwharetoa	24,069	28,998	29,301	34,674	35,877
Ngāti Maniapoto	21,936	23,733	27,168	33,627	35,361
Tūhoe	24,522	25,917	29,259	32,670	34,887
Ngāti Kahungunu ki Te Wairoa	2,271	3,465	14,661	20,982	21,060
Te Rarawa	5,916	8,133	11,526	14,892	16,512
Ngāti Awa	9,798	11,304	13,044	15,258	16,182
<b>Intercensal growth (%)</b>					
%	<b>1991–96</b>	<b>1996–01</b>	<b>2001–06</b>	<b>2006–13</b>	<b>1991–2013</b>
Total New Zealand	7.2	3.3	7.8	5.3	25.7
Māori	20.4	0.6	7.4	5.9	37.7
<i>Iwi identified (stated)</i>	<i>15.5</i>	<i>6.7</i>	<i>12.7</i>	<i>4.6</i>	<i>45.4</i>
Ngā Puhī	2.7	7.9	18.7	2.8	35.1
Ngāti Porou	11.7	13.8	16.5	-1.2	46.4
Ngāi Tahu	43.5	34.5	25.5	11.5	170.0
Waikato	7.1	50.3	-6.6	19.9	80.3
Ngāti Tūwharetoa	20.5	1.0	18.3	3.5	49.1
Ngāti Maniapoto	8.2	14.5	23.8	5.2	61.2
Tūhoe	5.7	12.9	11.7	6.8	42.3
Ngāti Kahungunu ki Te Wairoa	52.6	323.1	43.1	0.4	827.3
Te Rarawa	37.5	41.7	29.2	10.9	179.1
Ngāti Awa	15.4	15.4	17.0	6.1	65.2
[Iwi low-high]	[2.7–52.6]	[1.0–323.1]	[-6.6–43.1]	[-1.2–19.9]	[35.1–827.3]

Source: Statistics New Zealand, Census of Population and Dwellings, various years.

Turning to sex ratios, Table 3 shows that between 1991 and 2013, sex ratios varied substantially between iwi and became more unbalanced over time. In 1991, when the iwi question was first re-introduced, all iwi sex ratios were below one. Waikato and Ngāti Kahungunu ki te Wairoa had the lowest ratio at 89 and 88 males per 100 females. Ngāpuhi and Tūhoe had the highest sex ratios at 96 males per 100 females. By 2013, all iwi except Tūhoe had sex ratios below 0.90 and the lowest was 0.82 (Ngāti Kahungunu ki te Wairoa). The biggest decline in the ratio of males to females was for Te Rarawa, which went from 94 males per 100 females in 1991 to just 83 males per 100 females in 2013. By no means was the pattern observed in Table 2 unique to large iwi. By 2001, 97.9 per cent of all iwi recorded more females than males,<sup>7</sup> and in 2013 only four iwi recorded sex ratios above one: Patukirikiri, Ngāti Tama ki Te Upoko o Te Ika, Ngāti Hei, and Te Kawerau. Of these iwi, the largest had just over 500 affiliates.

**Table 3: Sex ratios of ten largest iwi in 2013, 1991–2013**

Iwi	1991	1996	2001	2006	2013
Ngā Puhi	0.96	0.92	0.90	0.89	0.88
Ngāti Porou	0.94	0.91	0.89	0.89	0.87
Ngāi Tahu	0.95	0.90	0.86	0.86	0.86
Waikato	0.89	0.90	0.88	0.86	0.87
Ngāti Tūwharetoa	0.94	0.90	0.89	0.86	0.86
Ngāti Maniapoto	0.94	0.90	0.89	0.87	0.84
Tūhoe	0.96	0.93	0.91	0.90	0.90
Ngāti Kahungunu ki Te Wairoa	0.88	0.88	0.85	0.85	0.82
Ngati Awa	0.94	0.91	0.87	0.87	0.86
Te Rarawa	0.94	0.90	0.87	0.84	0.83
<i>Total iwi identified</i>	<i>0.96</i>	<i>0.93</i>	<i>0.91</i>	<i>0.90</i>	<i>0.89</i>

Source: Statistics New Zealand, Census of Population and Dwellings, various years.

As noted earlier, studies of female-favoured sex ratios for Aotearoa New Zealand generally have revealed significant age differences, with male deficits more apparent at the peak working and family formation ages. Table 4 shows age-specific sex ratios for the aggregate iwi-identified population, as well as for the MEG. In all years, iwi sex ratios varied significantly by age, with the excess of females to males most evident at ages 25–44 years. In each year, the ratio of men to women aged 25–44

years in the iwi identified population was considerably lower than for Māori at the same ages. Thus, in 2001 there were only 80 males for every 100 females aged 25–44 years in the iwi-identified population, compared with 88 males per 100 females at those ages in the MEG. In 2013, the respective ratios declined further to 77 and 83 males per 100 females. Sex ratios were also unbalanced at older ages (65+ years) where gendered differences in survivorship are likely to have a greater impact. In all years, sex ratios for tamariki in the iwi-identified population exceeded one suggesting that parents did not make gender distinctions when identifying their children with an iwi.

**Table 4: Age-specific sex ratios for iwi-identified population and Māori ethnic group, 2001–2013**

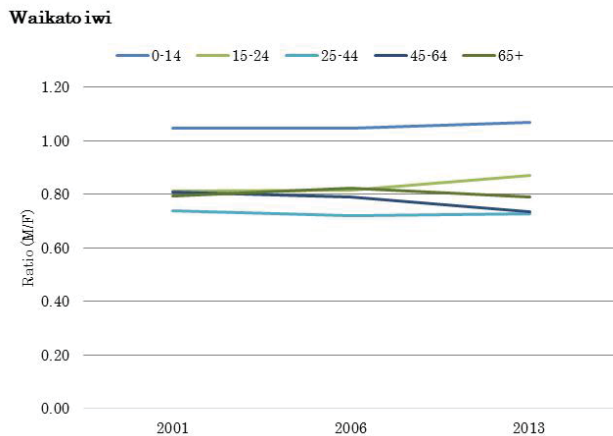
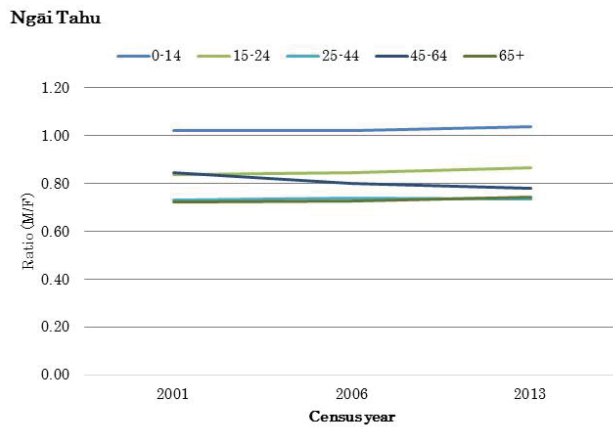
Age groups	2001	2006	2013
<b>Iwi identified population</b>			
0–14	1.04	1.04	1.05
15–24	0.88	0.87	0.90
25–44	<b>0.80</b>	<b>0.79</b>	<b>0.77</b>
45–64	0.89	0.86	0.82
65+	0.81	0.81	0.81
<b>Total</b>	<b>0.91</b>	<b>0.90</b>	<b>0.89</b>
<b>Māori ethnic group</b>			
0–14	1.05	1.06	1.05
15–24	0.96	0.95	0.97
25–44	<b>0.87</b>	<b>0.86</b>	<b>0.83</b>
45–64	0.94	0.90	0.87
65+	0.83	0.83	0.82
<b>Total</b>	<b>0.96</b>	<b>0.95</b>	<b>0.93</b>

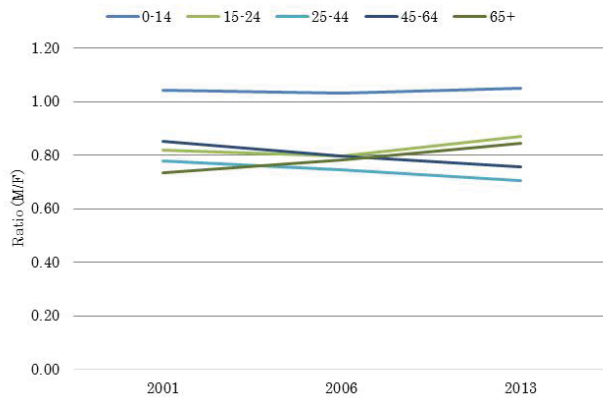
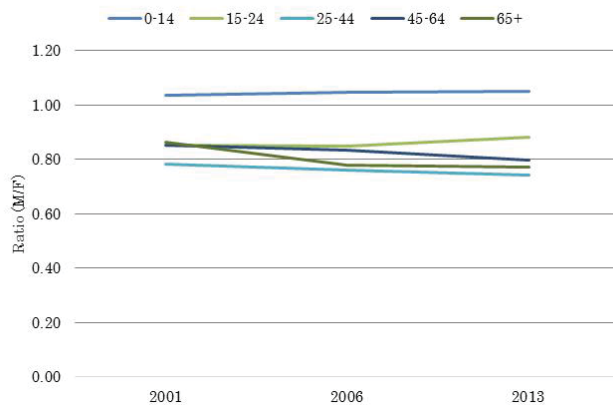
Source: Statistics New Zealand, Census of Population and Dwellings, various years .

To what extent is the pattern of female domination in the aggregate iwi-identified population also reflected in sex ratios of specific iwi in the census? Figure 1 shows age-specific sex ratios for four of the ten largest iwi – Ngāi Tahu, Waikato, Ngāpuhi and Ngāti Tūwharetoa. As with the aggregate iwi population, sex ratios are male favoured (above one) at the youngest ages, and then become clearly female dominated. In all three census years and for all four iwi, the excess of females to males was

most evident at ages 25–44 years, followed by 45–64 years. For each iwi, the magnitude of female domination at ages 25–44 years was remarkably consistent over time. Of the four iwi, Ngāti Tūwharetoa had the lowest ratio of men to women at 25–44 years, with just 71 men per 100 women in 2013. The majority of Māori women at these ages are parents with dependent children. Only about one in ten Māori women have not given birth to a child by age 44, which is much lower than the level of childlessness among New Zealand-born non-Māori women (Boddington & Didham, 2009). Until 2012, age-specific fertility rates for Māori women peaked at 20–24 years, but then shifted upwards to 25–29 years (compared with 30–34 years for non-Māori women).

**Figure 1: Age-specific sex ratios for Ngāi Tahu, Waikato, Ngāti Tūwharetoa and Ngāpuhi, 2001–2013**



**Ngāti Tūwharetoa****Ngāpuhi**

Source: Statistics New Zealand, Census of Population and Dwellings, various years.

Given that iwi sex ratios have major age-related patterns, we tracked five-year birth cohorts of males and females across the 1996, 2001 and 2006 censuses to identify changes in patterns of identification for specific cohorts as they passed through a small window of their life cycle. For consistency, we again focus on Ngāi Tahu, Waikato, Ngāpuhi and Ngāti Tūwharetoa.

We begin with Waikato and Tūwharetoa, both of which had similar overall sex ratios across the focal period, but very different growth trajectories. Between 1996 and 2001, the overall number identifying as Waikato increased by 50 per cent. As Figure 2 shows, the increase was steeper for females than for males at all ages up to 49 years (in 2001), with

differences especially marked for those aged 15–19 and 25–34 years. Thus, for the 1967–1971 cohort who were aged 25–29 years in 1996, the number of women affiliated with Waikato iwi increased by 41 per cent by 2001, while the number of males in that birth cohort only increased by 28 per cent. Similarly, for the 1977–1981 cohort who were aged 15–19 years in 1996, the number of women affiliated with Waikato iwi increased by 28 per cent by 2001, but the number of males in that cohort only rose by 9 per cent. Between 2001 and 2006, the overall number of Waikato declined by 6.6 per cent but the losses were steeper for males, especially those aged 15–24 years.

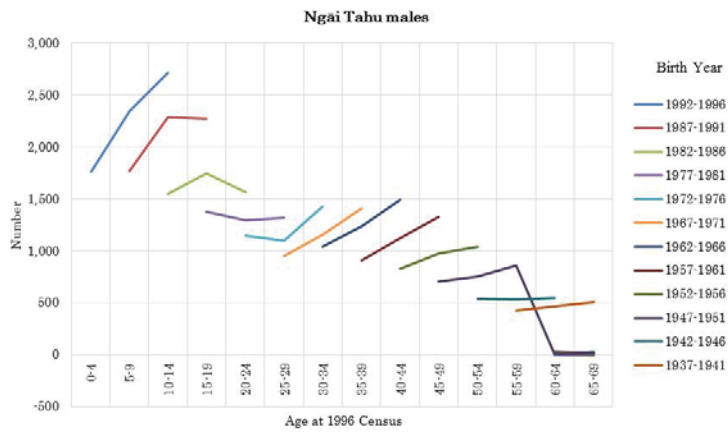
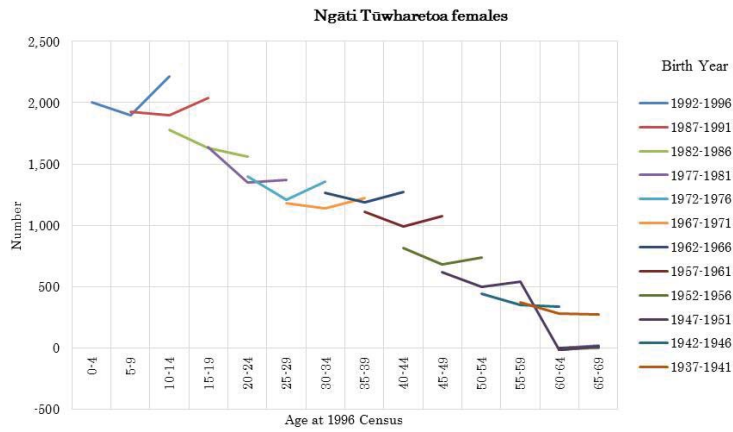
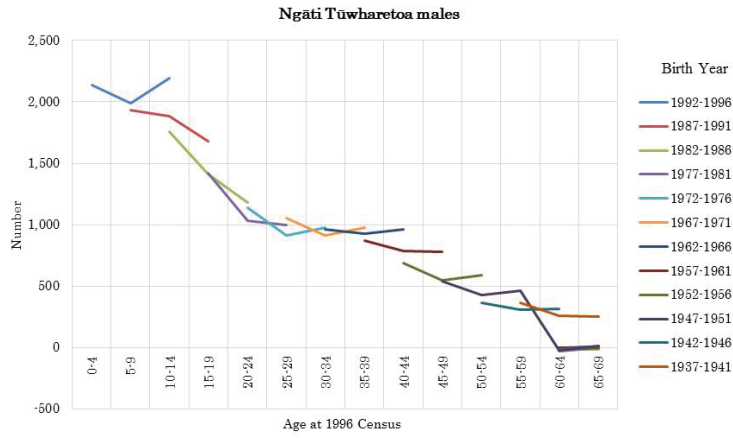
The age pattern for Ngāti Tūwharetoa was somewhat different. Between 1996 and 2001, the overall number only increased by 1 per cent, which was due entirely to births as every cohort decreased in size. The decline was most marked for boys who, in 1996, were aged between 10 and 19 years. The number of Ngāti Tūwharetoa males aged 15–19 in 1996 (born between 1977–1981) decreased by 28 per cent by the time they reached 20–24 years; for their female counterparts, the reduction was significantly smaller at 18 per cent. Between 2001 and 2006, Ngāti Tūwharetoa increased by 18 per cent overall but the gains were greater for females, and the number of males again declined upon reaching ages 15–24 years (in 2006).

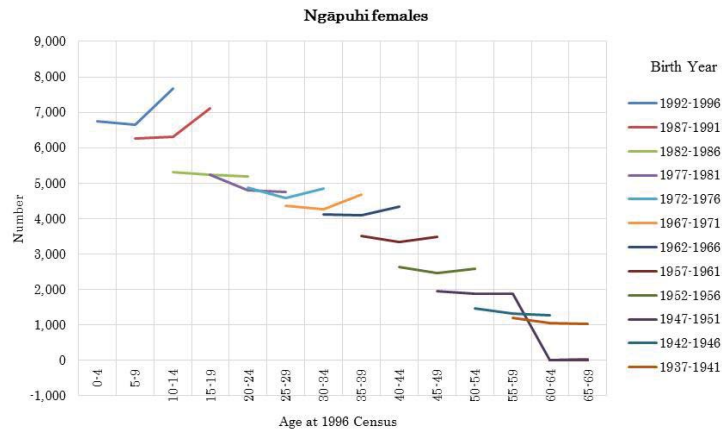
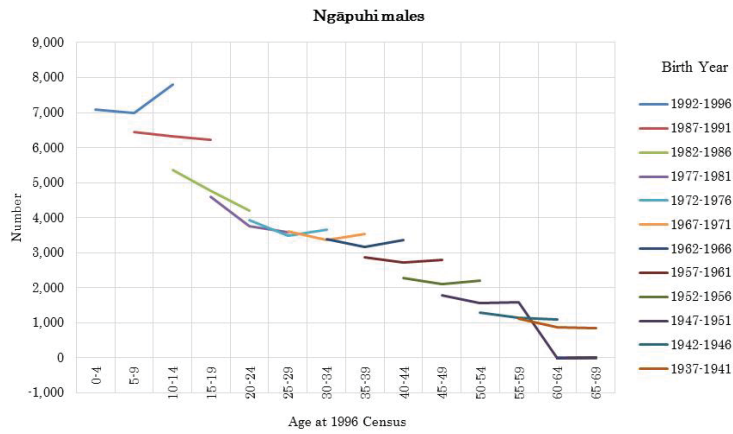
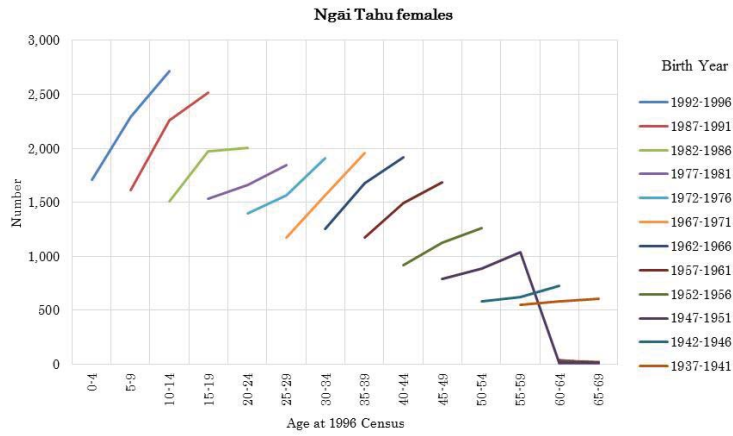
The pattern of greater male losses upon reaching ages 15–24 is also evident with Ngāpuhi and Ngāi Tahu. Thus, while Ngāi Tahu increased by 35 per cent between 1996 and 2001, and by 26 per cent between 2001 and 2006, male birth cohorts tended to decrease when reaching ages 15–24 years whereas the number of females in those birth cohorts tended to increase. Thus, the number of males born between 1982–1986 who identified as Ngāi Tahu declined by 10.6 per cent upon reaching age 20–24, but the number of Ngāi Tahu women in the same birth cohort increased by nearly 2 per cent.

A similar pattern of amplified losses among males upon reaching ages 15–24 years is also evident for Ngāpuhi.









Source: Statistics New Zealand, Census of Population and Dwellings, various years.

While we have only analysed a small subset of the 100+ iwi counted in the classification, the results confirm that gendered patterns of identification are the key factor underlying increasing female domination of tribes in the census context, and that these vary by age. There are two main points to note about the patterns. One is that when Māori males move into young adulthood (15–24 years), and are at an age when they are likely to be self-completing their census form, they are far less likely than Māori women to retain their iwi affiliation. The other is that Māori women reaching their thirties are more likely to retain their iwi affiliation, or to become newly affiliated. This cohort analysis is helpful for understanding how iwi sex ratios become more unbalanced over time through cumulative and complex processes of identification that are both gendered and life cycle related.

### **Towards an explanation of female-favoured iwi sex ratios in the census**

Before exploring the factors underlying gendered patterns of iwi identification in the census, we consider how migration, mortality and under-enumeration might contribute to unbalanced iwi sex ratios. Because Aotearoa New Zealand does not collect ethnicity on passenger arrival and departure cards, there is no direct way of estimating Māori permanent long-term migration (PLT), and the extent of Māori male losses through migration. However, we are able to look at age-specific sex ratios for Māori migrants resident in Australia where most of the Māori diaspora live. If Māori men dominate migration flows to Australia, then sex ratios should be male favoured for the New Zealand-born Māori population resident there.

In the 2011 Australian census, sex ratios for New Zealand-born Māori were male favoured for all five-year age groups 0–29 years (1.00 to 1.11), but female favoured at all ages from 30–54 years (0.88 to 0.99, Kukutai & Pawar, 2013, Table 4). The greater number of Māori women at peak working ages may partly reflect the higher propensity of Māori women resident in Australia to report Māori ancestry in the Australian census (compared with their Māori male counterparts), as well as sex-selective migration. For the non-Maori New Zealand-born population

resident in Australia, there were more women than men in every five-year age group over 25 years in 2011 (Kukutai & Pawar, 2013, Table 4).

Another factor linked to female-favoured sex ratios in the census is the higher likelihood of men being missed from the census. In 2011, the net undercount for Māori was 6.1 per cent which was double the 2006 Māori undercount. Young adults (aged 15–29 years) had the highest net undercount (4.8 per cent) of all age groups, and males were slightly more likely to be undercounted than females (2.6 compared with 2.1 per cent). The post-enumeration results reported by Statistics New Zealand (2014) do not report undercounts for Māori by age or/and sex, so we cannot quantify the level of Māori male under-enumeration at peak working ages. That said, the differences cannot be so large as to explain the marked female-favoured sex ratios and increasing female dominance over time. Likewise, while Māori male mortality exceeds female mortality at all ages, and increases at the middle ages, gender differentials in mortality cannot account for the dearth of men at peak working ages, nor the major differences across iwi (unless one was prepared to believe that there are large inter-iwi differences in mortality). To summarise, migration, under-enumeration and mortality will together account for some of the skewed sex ratios within iwi, but cannot explain the greater sex imbalance within iwi by comparison with the general Māori population, nor the very substantial inter-iwi variation documented here. A more plausible explanation lies in the existence of a gendered ‘identification gap’.

To what extent does this identification gap in the census context reflect a broader phenomenon in which Māori women are more likely to be engaged with aspects of Māori identity and culture? Traditionally women play a significant role in developing and sustaining the cultural, social and economic lives of Māori communities and in the intergenerational transmission of identity and culture (Jahnke, 1997; Mikaere, 1994; Ruwhiu, 2009). Māori women were guardians and transmitters of *mātauranga Māori* (traditional knowledge), evident in the range of *waiata* composed by women and handed down intergenerationally (Te Awekotuku, 1991; Mikaere, 2003). Within the context of Te Ao Māori, the roles and responsibilities associated with nurturing future generations inevitably include nurturing and sustaining identity. According to Ruwhiu, “In child rearing practices women provided the foundation of knowledge about *whakapapa* via *oriori*, *waiata* and motherly guidance. This all assisted

with the child's sense of attachment and belonging as well as their identity and cultural characteristics" (Ruwhiu, 2009, 24). In more recent times, women were the driving force behind Māori language revitalisation through *kōhanga reo* and *kura*, and other Māori development initiatives. It is not difficult to see how these forms of leadership could include the revitalisation of iwi identity, not only in public political contexts but also in intimate spheres and within broader *whānau* relationships.

If female-favoured sex ratios are indicative of a broader role of Māori women as bearers of identity, then we might expect to see gender differences in other indicators of Māori identity beyond the census. The 2013 Māori Social Survey, *Te Kupenga*,<sup>8</sup> asked a wide range of identity questions, including knowledge about *pepeha*, specifically knowledge about one's *hapū*, ancestral *maunga* (mountain), *awa* (river) and *marae*. *Pepeha* place individuals within a broader context of *whakapapa* relationships to people and place, and are an important way of establishing connections with others. At Māori gatherings, it is common for those present to share their *pepeha* as part of *whakawhanaungatanga* (the process of establishing a relationship) before beginning any discussion of the topic or issue at hand.

Table 5 shows the distribution of responses to the *pepeha* question by sex. For all of these indicators, women are significantly more likely to report knowing some aspect or all aspects of their *pepeha*. Women are also more likely than men to have discussed or explored some aspect of their *whakapapa* in the past 12 months.

When data on tribal identity and *whakapapa* are disaggregated by both age and sex (see appendices, Tables A1a and A1b), the biggest gender identification gap is again at ages 24–34 years which are peak childbearing years: between 57 and 64 per cent of Māori women aged 25–34 years reported that they knew their *hapū*, *maunga* or *awa*, whereas for men at those ages, it was only 50 to 54 per cent. Women at those ages were also more likely than men to engage with *whakapapa* (63 compared with 53 per cent for men, see appendices, Table A1b). It is not clear whether these gender differences reflect cohort differences (for those born between 1979–1988 at the early stages of the *kōhanga reo* movement), age differences (brought about, for example, by entry into family formation ages), or a combination of the two. There is also a large gender gap in reported knowledge of *pepeha* at ages 45–54 years.

**Table 5: Knowledge of pepeha (tribal identity), by sex, Te Kupenga 2013 (%)**

<b>Know ā</b>	<b>Males</b>	<b>Females</b>
Iwi (tribe)	87.6	90.2
Hapū (subtribe)	52.7	56.9
Maunga (mountain)	54.5	62.1
Awa (river)	52.8	59.2
Waka (canoe)	49.6	55.0
Tupuna (ancestor)	51.8	58.1
None of these	9.8	8.5
All these	36.7	43.8
Marae tupuna (ancestral marae)	69.2	71.8
Discussed or explored whakapapa	57.6	63.2

Source: Statistics New Zealand, Te Kupenga Māori Social Survey, 2013.

Note: among those aged 15 and over.

Finally, we consider whether gender differences exist with respect to reported te reo Māori ability. In the 2013 Census, the share of Māori females able to have a daily conversaton in teo reo exceeded the male share by a modest margin at all ages under 40 years (Table 6). These gendered differences were even more pronounced in Te Kupenga, which asked more detailed questions about te reo ability. In the 2013 survey, Māori women were significantly more likely to report that they could speak te reo Māori ‘very well’, ‘well’ or ‘fairly well’ (25.4 women compared with 19.3 per cent men), and the differences were especially marked at younger ages. Thus, while 19 per cent of Māori men aged 25–34 years could speak te reo fairly well to very well, for Māori women at those ages, the share was 30 per cent.

**Table 6. Percentage able to speak by age and sex, 2013 Census and Te Kupenga 2013**

Age group (years)	Male	Female
<b>2013 Census <sup>1</sup></b>		
0-4	13.0	13.5
5-9	16.4	17.7
10-14	17.3	20.6
15-19	18.1	20.8
20-24	18.6	21.2
25-29	20.3	23.7
30-34	21.0	24.3
35-39	20.7	22.9
40-44	21.1	21.3
45-49	21.9	21.9
50-54	24.1	23.6
55-59	25.5	25.0
60-64	29.4	27.6
65-69	35.3	31.0
70-74	39.8	38.3
75+	43.1	43.1
All ages	20.0	21.8
<b>2013 Te Kupenga <sup>2</sup></b>		
15-24	16.4	26.4
25-34	18.9	30.3
35-44	19.8	23.1
45-54	17.3	20.2
55+	26.8	26.6
All ages	19.3	25.4

Source: Statistics New Zealand, 2013 NZ Census of Population; Te Kupenga Māori Social Survey.

Note: Te Kupenga data for adults aged 15 years and older.

(1) Able to have a daily conversation in te reo; (2) Able to speak te reo 'very well', 'well' or 'fairly well'.

This descriptive analysis underscores the importance of Māori women as cultural connectors and suggests that the gendered patterns of identification producing skewed iwi sex ratios in the census are part of a broader gendered identity dynamic within Te Ao Māori (Māori society).

## Concluding remarks

In this paper we explored the possible influence of gendered patterns of mortality, migration and under-enumeration on iwi sex ratios, along with more culturally grounded explanations that emphasise the role of Māori women in sustaining identity and culture. It is clear that the dominance of women in census counts of iwi result from an ‘identification gap’ in which Māori women are more willing to express an iwi affiliation, rather than a reflection of gender differences in underlying demographic behaviour (e.g. higher Māori male mortality or out-migration). While there are more females than males in the wider Māori population, the magnitude of the difference is far smaller than what we have observed here for iwi.

Findings from Te Kupenga suggest that this greater willingness of Māori women to affiliate with an iwi also carries over into other aspects of identity including knowledge of pepeha and engagement with whakapapa. We note that while Te Kupenga respondents were not required to provide the specifics of their pepeha (e.g. to name their hapū, maunga, etc.), it is highly unlikely that the difference is due to Māori women systematically overstating their own knowledge. We see much promise in future work that theorises and explores, in more depth than we have been able to here, the gendered aspects of iwi identity and identification.

Given that we have focused solely on nationally representative surveys controlled by the government, we cannot speculate on whether skewed sex ratios are also a feature of iwi registers. The context of identification in iwi registers is quite different from the census, both in terms of the conceptual basis of belonging and the processes involved. It may well be that gendered differences in the expression of identity are more likely to emerge in settings that are relatively open to expressions of self-identification, such as the census, rather than in contexts where some form of external validation of membership or belonging is required. There are also procedural differences between the census and iwi registers that might lead to different patterns of identification. Anecdotally, we know that it is not uncommon for individuals, particularly mothers and grandmothers, to register other whānau members. If Māori women do take a more active role in assisting their whānau members to get registered, this could result in balanced sex ratios within a registered population.



A point raised by our study is that it is vitally important to understand the strengths and limitations of different data sources, and the implications for their use. With respect to sex ratios, an iwi with a major deficit of males in the census as well as among its registered beneficiaries would be justifiably worried about issues of future sustainability, equity (e.g. resource allocation), succession planning, and engagement and outreach. If substantial numbers of men were ‘missing’ from a registered iwi population, then it would be advisable for governing bodies to try to identify the reasons why and to develop appropriate responses. An iwi that had a deficit of males in the census but balanced sex ratios in their registered population might be less concerned about those issues, but would have to be careful about how they used census data to inform their responses to registered members. For example, Māori girls and women tend to have higher education levels than their same-age male counterparts. Thus, female dominant iwi in the census would need to be careful about generalising their census education profile to their registered population.

Currently most iwi are in a form of data dependency where they are heavily reliant on official statistics, and the census in particular, for demographic and socio-economic data. It is vitally important that the Government meets its Treaty obligations to provide timely, accurate, relevant and accessible data to iwi, and is knowledgeable and transparent about any of the shortcomings therein.

## Notes

- 1 For the Aotearoa New Zealand-born population.
- 2 There were a number of early missionary and colonial enumerations of iwi prior to 1874, but none of these were considered an official census.
- 3 By 1930, Māori retained only 6 per cent of the land in New Zealand (Office of Treaty Settlements, 2015, p. 10).
- 4 In the 2013 Census, 83 per cent of Māori descendants (all ages) reported at least one iwi; in the 2013 Māori Social Survey Te Kupenga (adults 15+ years), 89 per cent of respondents reported that they knew their iwi. Te Kupenga does ask whether respondents are enrolled with an iwi but Statistics New Zealand does not make data for all Te Kupenga variables

freely available on its website.

- 5 The standard and classification was reviewed again in 2016–2017 and is available from <http://m.stats.govt.nz/methods/classifications-and-standards/current-classifications-and-standards-review/review-statistical-standard-iwi.aspx>
- 6 The sex ratio for the iwi-identified population is the ratio of all male Māori descendants who reported at least one iwi to all female Māori descendants who reported at least one iwi. The median sex ratio for all iwi is the median value in a ranked list of sex ratios for all of the 100+ individual iwi recognised in the classification. Those who identify multiple iwi were counted in every iwi with which they identify.
- 7 Specifically defined iwi categories only; i.e. excludes 'Not further defined/undefined' groupings.
- 8 Te Kupenga is nationally representative survey of just over 5500 respondents aged 15 years and older who identified as Māori by descent, ethnicity or both.

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## Appendices

**Table A1a: Percentage of Māori who know their pepeha, by age and sex, 2013**

	Male	Female	Diff
Iwi (tribe)			
15–24	85.1	89.4	4.3
25–34	83.8	90.8	7.1
35–44	90.4	90.3	-0.1
45–54	90.7	91.4	0.7
55+	89.2	89.7	0.5
Hapū (subtribe)			
15–24	39.0	45.4	6.4
25–34	50.0	56.9	6.9
35–44	59.6	57.3	-2.3
45–54	55.8	62.4	6.6
55+	66.7	66.4	-0.3
Maunga / mountain			
15–24	48.1	58.9	10.8
25–34	53.8	64.2	10.5
35–44	59.6	62.1	2.6
45–54	54.7	62.4	7.7
55+	60.2	63.6	3.3
Awa / river			
15–24	44.8	53.9	9.1
25–34	50.0	60.6	10.6
35–44	58.5	59.2	0.7
45–54	53.5	61.3	7.8
55+	61.3	61.7	0.4
Waka / canoe			
15–24	39.6	46.1	6.5
25–34	46.3	56.0	9.7
35–44	58.5	56.3	-2.2
45–54	50.0	59.1	9.1
55+	60.2	58.9	-1.3
Tipuna /ancestor			
15–24	40.9	43.3	2.4
25–34	46.3	56.0	9.7
35–44	58.5	62.1	3.6
45–54	54.7	64.5	9.9

	<b>Male</b>	<b>Female</b>	<b>Diff</b>
55+	65.6	70.1	4.5
All of these			
15–24	24.7	31.2	6.5
25–34	32.5	42.2	9.7
35–44	43.6	43.7	0.1
45–54	37.2	47.3	10.1
55+	48.4	49.5	1.1

Source: Statistics New Zealand, Te Kupenga, Importance of culture, by tribal identity, by age group and sex.

\* RSE range from 5.6–7.7 for females; 5.6–10.3 males (whakapapa)

**Table A1b: Percentage of Māori who have discussed or explored whakapapa in last 12 months, by age and sex, 2013**

	<b>Male</b>	<b>Female</b>	<b>Diff</b>
15–24	48.3	55.1	6.8
25–34	53.3	62.8	9.5
35–44	64.2	64.6	0.4
45–54	64.1	69.9	5.8
55+	63.8	66.9	3.1

Source: Customised Te Kupenga data provided by Statistics New Zealand.