Fertility, Ethnic Diversification and the WEIRD Paradigm: Recent Trends in Maori Fertility in New Zealand

ROBERT DIDHAM *
BILL BODDINGTON **

Abstract

Rapidly increasing ethnic diversity within New Zealand's Māori and Pacific childbearing populations, combined with increased inter-ethnic partnering, may result in a tempering of fertility extremes and convergence to the fertility of the majority group.

Seeing fertility through a WEIRD (Western, Educated, Industrialised, Rich and Democratic) paradigm may be clouding judgment on which fertility regime is likely to dominate. The fertility of Māori and Pacific women of mixed ethnicity is rapidly rising to match that of other Māori and Pacific women. Increased ethnic diversity and inter-ethnic partnering appears to be delaying, but not reducing, the fertility of Māori and Pacific populations.

Seminal work on the history of the family and on fertility in New Zealand by Ian Pool and Janet Sceats over the last few decades has provided significant progress in the understanding of family formation and fertility. This paper draws on many of their perceptive observations on the complexity of historical fertility in New Zealand. It considers the wider picture, and also considers the implications of colonialism, as encapsulated in this passage:

It is necessary to entertain another hypothesis: that the huge inflows of the Vogel period altered the colony’s social fabric and normative systems by the wholesale infusion of new ideas reflective of the changes occurring in the British Isles at the time or immediately before. (Pool et al, 2007, 94)

* Senior Demographic Analyst, Statistics New Zealand.
Email Robert.didham@stats.govt.nz.

** Statistics New Zealand
New Zealand’s post-colonial society was formed largely within the crucibles of English, and to a lesser extent, Scottish, ideas, resulting in social transformations across the British Empire. These normative forces overwhelmed the developing syncretic transformations which had been occurring in the earliest days of the nascent colony. This scenario was played out in other parts of the British Empire and in the northern and western parts of the United States of America. One outcome of this history was the emergence of a set of societies built on the premises of Westminster-style humanism. Each have modified those premises over time, leaving them ‘out of step’ to some degree with the rest of the world—including other societies within their national borders.

There has been a view expressed that people from these WEIRD (Western, Educated, Industrialised, Rich and Democratic) countries (Henrich et al, 2010) often have an egocentric perspective on the world, are not representative of the broader human species, and consequently struggle to understand the drivers and motivations of other societies and cultures (Bang et al., 2007), especially of those societies that occupy the same geographic space as themselves (Herrmann, Thoni & Gächter, 2008; Nisbett, 2003). It is argued that behavioural and psychological differences include: reasoning styles; self-concept and related motivations; what constitutes fairness; cooperation; spatial and moral reasoning (Kohlberg, 1976; Hofstede, 2001). WEIRD societies increasingly acknowledge cultural diversity; nevertheless, they can struggle to accept that these differences extend beyond the superficial to affect economic, health, general beliefs and behaviours (Boyd & Richerson, 1985; Levinson, 2003). There still appears to be a common assumption of assimilation among many of those who aspire to WEIRD norms, in contrast to the “othered” populations’ integrationist ambitions of retaining their own cultural identity (Fessler, 2007). This is particularly so for populations such as New Zealand’s Pacific population, that have migrated to a WEIRD country or for populations such as New Zealand’s Māori population, who were historically subsumed early in the industrialising and urbanising processes by a much larger immigrant population.

Almost without exception, over the last three decades western developed countries have had consistently low fertility (Pool, 2003), later timing and possibly wider birth spacing (Pool et al, 1999) (although the latter is by no means clear because of the limitations of the data sources
available). This fertility regime has long been attributed to the fact that these populations were educated, industrialised, and rich, had a growing rate of female work-force participation and had low mortality, with consequential changes to the value of children. However, as many developing and third world countries also made the transition to low fertility, wealth, labour market participation and education were seen as somewhat secondary to low mortality. Regardless of the drivers, WEIRD societal norms were regarded once again as setting the paradigm for others to follow.

As if to confirm the convergence to WEIRD norms, a “radical decline in family sizes” (Pool, 2005) accompanied the increasing urbanisation of Māori during the 1960s and 1970s. Official measures record the Māori TFR falling from 6.18 to 2.14 in just over two decades (between 1962 and 1986) (Statistics New Zealand, 2008). This fall in fertility was not unexpected given the rapid integration into an industrialised urban environment, changes in socio-economic positioning and levels of inter-ethnic partnering. The speed of the transition from very high fertility to almost replacement level fertility was somewhat unprecedented, although similar patterns have since been reported elsewhere (for example, in Thailand, which experienced almost the same decline over a similar period (Padthaisong-Chaipanich, 2006)).

This decline may be (in part) a result of the vagaries of the data, which have tended to overstate the change. Although almost all births are registered within a short period of the birth event in New Zealand, the correct assignment of these births to the Māori ethnic group or as “non-Māori” has historically been more problematic. Prior to a question change in 1995, the failure to monitor ethnic non-response in New Zealand lead to an understatement of Māori fertility. This was compounded by other methodological issues (Khawaja et al, 2007), as well as by rapid rises in the levels of inter-ethnic partnering (Howard & Didham, 2005). In short, although the downward trend in Māori fertility between the 1960s and mid-1980s is undoubtedly correct, the degree to which Māori and non-Māori fertility converged cannot be accurately determined. Moreover, the levelling of Māori fertility in the 1980s and 1990s as well as the slight increase post-1995 suggests that Māori fertility is no longer converging with that of non-Māori. A number of factors may have contributed to this shift in direction, which Pool (2005) noted as the “changes in the rhythm of
Maori childbearing” resulting in increases in Māori fertility during the late 1990s.

The analysis presented here looks more closely at these “changes of rhythm” using the consistent data from the post-1995 period. But first a caveat needs to be established - because population estimates are not available for sole ethnicity, mixed ethnicity or birthplace, most rates contained in this paper are based on enumerated census populations. Enumerated populations are smaller than the estimated populations because they do not include adjustment for estimated census undercount and ethnic non-response. Therefore, the resulting rates are slightly higher than the official series (Table 1). In an attempt to avoid random volatility for the smaller population groups, rates for 2001 and 2006 are based on three years births data centred around each Census. Given that ethnic questions on vital registrations forms were changed in October 1995, the 1996 rates are, however, based on just one year’s births data. The 1996 data is included to add time depth but does not specifically contribute to the argument being put forward here, and the period covered is not affected by questionnaire change. Therefore data has been collected in a consistent manner, classification changes do not affect the aggregations discussed here, and the major change is real-world response shift.

**Māori and Pacific not conforming to the WEIRD norm**

In general, if two populations of different fertility experiences mix, the fertility experience of the intersect might be expected to be modified in such a way as to lie between the two contributing groups. This should have an effect on the apparent fertility of both groups of which the mothers are members – the higher fertility group dropping in fertility and the lower group rising. The degree to which each group changes should be dependent on the relative group sizes and on resulting changes in contributing drivers in fertility decisions. The WEIRD paradigm points to the high cost of children in an industrialised society as a prime driver, implying that the shift would be strongly influenced by the norm of the more affluent group. For example, in the context of Māori, Pacific and European in New Zealand, the intersect would be expected to move further toward the European norm. This would be expected to reduce the apparent average fertility of the higher fertility groups (Māori and Pacific) and have a small effect on the much larger (European) group.
However, the levelling or slight increase in Māori fertility 1996-2006 is, in this scenario, an enigma, given the increasing proportion of Māori who are partnering with the lower fertility European and Asian ethnic groups (from 38 percent of Māori mothers in 1996 rising to 45 percent in 2006 and 46 percent in 2010) and more generally the increasing proportion of Māori mothers who identify as also belonging to other ethnic groups (33 percent in 1996 rising to 47 percent in 2006 and 51 percent in 2010) (Figure 1). Both of these factors might have been expected to further lower fertility.

**Figure 1: Percentage of Māori and Pacific mothers of sole ethnicity, and percentage of Pacific mothers born overseas, 1996 to 2010**

The rate of ethnic diversification and complexity is striking. Simply examining the proportion of mothers, fathers and children who only identify with a single ethnic group confirms the speed at which the New Zealand’s ethnic groups are diversifying (Figure 2). Almost half of Māori new mothers in 2010 belonged solely to the Māori ethnic groups but only one-third of their new-born children did. In comparison, fathers are less ethnically diverse than mothers. In part this is related to the age profiles of multi-ethnic males - older males are more likely to report only one ethnicity, and fathers are, on average, three years older than mothers.

A simple extrapolation of the mother/child trend would suggest that the age difference probably accounts for about half the difference for European, Māori and Pacific (mother’s proxy responses for the father’s ethnicity may also be contributing to the observed patterns (Boddington & Didham, 2009a)). Implicated in this process are four aspects of ethnic...
mobility: the adoption of Māori as ethnicity in place of a different ethnicity, the replacement of Māori by another ethnicity, the complexity of ethnicity from single to multiple responses, and vice versa. We do not differentiate these processes here, but note that they are elements in the chain of life-stage and partnering events that contribute to the identities chosen by people for themselves and for their babies.

**Figure 2: Percentage of mothers, fathers and children belonging solely to selected ethnic groups*, 2010 births**

![Bar chart showing percentage of mothers, fathers, and children belonging solely to selected ethnic groups.]

Source: Statistics New Zealand

* Based on cases where the ethnicity of the mother, father and child were all specified.

Māori who identify only with the Māori ethnic group (sole-Māori) traditionally have higher fertility than Māori who also belong to another ethnic group(s) (mixed-Māori). Simply partnering someone from a low fertility group might also be expected to reduce a woman’s fertility outcomes, setting aside the hybridity effects, resulting largely from complexity of ethnic reporting noted elsewhere in interethnic partnering (Didham, 2004, 2005; Callister et al., 2005b, 2008). Given these implied compositional changes, if overall Māori fertility is not decreasing there must be an underlying rise in fertility in at least one of the intersections with people of Māori ethnicity and other ethnicities (e.g. mixed-Māori or Māori/non-Māori partnerships).

Comparing the period rates for Māori since 1996 (Table 1) suggests that any increases in overall Māori fertility have been driven largely by women of mixed ethnicity (including Māori) while the fertility of women belonging solely to the Māori ethnic group appears to have fallen slightly,
although remaining relatively high. The decline in fertility of sole-Māori females might in part be due to increases in the proportion of sole-Māori mothers partnered with fathers who are non-Māori or are Māori but also belong to another ethnic group, rising from 30 percent in 1996 to 34 percent in 2006. One of the areas recognised as under-researched is the fertility of males and the contribution of males to ethnic fertility differentials, though indications from cohort studies are that there are similarities between female and male patterns (Marie & Fergusson, 2011).

Table 1: Total fertility rates, Māori population, 1996-2010

<table>
<thead>
<tr>
<th>Year</th>
<th>TFR Māori Estimated Based(1)</th>
<th>Census Based Measures(2)</th>
<th>Total Māori</th>
<th>Sole Māori</th>
<th>Mixed Māori</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>2.70</td>
<td>2.77</td>
<td>3.52</td>
<td>1.97</td>
<td></td>
</tr>
<tr>
<td>1997</td>
<td>2.77</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td></td>
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<tr>
<td>1998</td>
<td>2.56</td>
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<tr>
<td>1999</td>
<td>2.69</td>
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<td></td>
</tr>
<tr>
<td>2000</td>
<td>2.66</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td></td>
</tr>
<tr>
<td>2001</td>
<td>2.64</td>
<td>2.89</td>
<td>3.30</td>
<td>2.48</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>2.50</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td></td>
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<tr>
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<td>2.60</td>
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<td>2.70</td>
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<tr>
<td>2005</td>
<td>2.67</td>
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<td>..</td>
<td>..</td>
<td></td>
</tr>
<tr>
<td>2006</td>
<td>2.74</td>
<td>3.06</td>
<td>3.33</td>
<td>2.82</td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>2.94</td>
<td>..</td>
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<td>..</td>
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<tr>
<td>2008</td>
<td>2.95</td>
<td>..</td>
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<td>..</td>
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<tr>
<td>2009</td>
<td>2.80</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>2.83</td>
<td>..</td>
<td>..</td>
<td>..</td>
<td></td>
</tr>
</tbody>
</table>

Notes
1. TFR for year ended December. The base resident population includes adjustment for Census undercount.
2. TFRs for 2001 and 2006 are based on three year’s birth data, centered on Census. TFRs for 1996 are based on one year's births data. Base enumerated populations do not include adjustment for undercount in Census.

Examining post-1995 Pacific fertility (Table 2) would suggest that Pacific fertility remained fairly constant between 1996 and 2006, at just over 3.3 births per woman. Nevertheless, over the decade 1996-2006, the proportion of New Zealand born Pacific mothers has risen from 34 percent to 48 percent, while the proportion of Pacific mothers who also belonged to a non-Pacific group rose 18 percent to 25 percent. Both these groups have lower fertility than their Island born or sole ethnicity counterparts. The
TFR for island-born Pacific women actually fell from 4.0 to 3.8 births per women between 1996 and 2006, while that for sole-Pacific women fell slightly from 3.4 to 3.3, over the same period. Thus, if the TFR for the total Pacific women remained largely unchanged, the fertility of, respectively, New Zealand born Pacific women, and Pacific women of mixed ethnicity, must have increased since 1996.

### Table 2: Total fertility rates for Pacific women, 1996, 2001 and 2006

<table>
<thead>
<tr>
<th>Ethnicity/Birthplace of Pacific Mother</th>
<th>1996</th>
<th>2001</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sole Pacific</td>
<td>3.90</td>
<td>3.46</td>
<td>3.44</td>
</tr>
<tr>
<td>Mixed Pacific</td>
<td>1.97</td>
<td>2.81</td>
<td>2.86</td>
</tr>
<tr>
<td>Overseas born</td>
<td>4.06</td>
<td>3.96</td>
<td>3.82</td>
</tr>
<tr>
<td>New Zealand born</td>
<td>2.48</td>
<td>2.61</td>
<td>2.84</td>
</tr>
<tr>
<td>Mixed Pacific</td>
<td>3.18</td>
<td>2.64</td>
<td>2.85</td>
</tr>
<tr>
<td>Total Pacific</td>
<td>3.37</td>
<td>3.31</td>
<td>3.30</td>
</tr>
</tbody>
</table>

**Notes**

1. TFRs for 2001 and 2006 are based on three year births data centered on Census. TFRs for 1996 are based on one year's births data. Base enumerated populations do not include adjustment for undercount in Census.

**Changes in Age Specific Fertility**

Between 1996 and 2006 the median age for sole and mixed Māori women giving birth increased by around a year (from 25 to 26 years for sole and 27 to 28 for mixed), indicating a general, albeit slight, delaying in family formation. For sole Māori, decreases in fertility were concentrated at ages below 27 years, while for mixed Māori the increases were more general (see Figure 3). Thus it seems highly improbable that inter-ethnic mobility, at least in the unidirectional sense, between groups is driving patterns. Moreover, a general trend towards delaying fertility should result in a reduction in the period measures - as women who would have normally had children early in the reproductive life, delay fertility. This situation could be contributing to the observed reduction in rates for sole Māori, but not the increases for mixed and total Māori populations.
A tempo effect could account for some of the observed pattern. If women of mixed Māori ethnicity were in the process of transitioning to older childbearing at the time of the 1996 Census, then many at older ages would have already completed their childbearing, while those at younger ages would have yet to begin. Period rates in 1996 would be suppressed by this delay, perhaps partly explaining their very low TFR in 1996. As census data on children ever born indicates that, historically, sole Māori have always had much larger families than mixed-Māori, a complete reversal of the trend to delayed childbearing, increasing the period rates at all ages, would be required to then explain the corresponding 2006 data. Since a flip-flop in fertility timing is theoretically possible, another census is probably needed to confirm that this is not the case. However, it is worth noting that under this scenario, period rates should have fallen again (as the population reverted back to a younger fertility regime), yet the TFR for Māori has remained high since the 2006 census. While all indications are that completed fertility rates for mixed Māori will rise for cohorts who started childbearing during the late 1990s and early 2000s, the alternative explanation posited above – that having shifted to later childbearing, women of mixed ethnicity are now reverting back younger childbearing – is equally deserving of further analysis and explanation. WEIRD logic favours delaying childbearing and particularly disapproves of teenage and very young adult fecundity.
Along with tempo effects, childlessness is implicated in observed fertility patterns as well as affecting the relationship between TFR and replacement fertility levels (Boddington & Didham, 2009b). It has been noted that ‘zero parity women have a proportionally greater effect on fertility rates than women with children’ (Didham, 2001, p11). The proportion of women who are childless increased significantly at all ages for the total population and for those women who identified as Māori only. The proportion also increased for those who were mixed-Māori for all ages over around 30 years. A combination of cohort effects, inter-ethnic partnering, ethnic mobility and changes in age at first birth contributed to the different pattern observed for mixed-Māori women under the age of 30 years. However, the data available does not easily allow us to separate timing effects from change in childlessness.

Analysis of 1996 and 2006 Census data on children ever born suggests that any upward shift in mixed-Māori fertility is a very recent phenomenon (Figure 4). Comparing equivalent age-groups at each census reveals that only at ages below 27 years are average family sizes of mixed-Māori women larger in 2006 than 1996. Differences are small and it is still possible that latest increases in period rates reflect a shift in timing, and that once they have completed their fertility, family sizes may not have increased overall. Above 30 years, the data suggest a strong trend to smaller family size, however it should be noted that these women will have completed a significant proportion of their childbearing prior to the 1996-2006 period (by 25 years of age Māori women have on average completed more than half of their childbearing). This would support the conclusion that, prior to the 1996 Census, fertility rates for both mixed and sole Māori were probably declining.
In comparison to mixed Māori, the average number of children born to sole Māori women, at virtually every age, is lower in 2006 than in 1996. While the series diverge for mixed Māori from age 27, any significant divergence only occurs from about age 45 for sole Māori (see Figure 5). This would suggest that, while there has been a slight reduction in family size for sole Māori women, no single age group is responsible, and their overall age patterns of childbearing have been stable for some time.
Figure 6 shows the age specific fertility for women of sole and mixed Pacific ethnicity between 1996 and 2006. During that time, the median age for childbearing increased by only one-third of a year for both groups. However, as Pacific women of mixed ethnicity have increased as a proportion of Pacific mothers, and have a younger age structure than their sole counterparts, the increase in median age for all Pacific women was only 0.17 years (half the increase for either component group). The sole Pacific group has experienced a reduction of fertility at most childbearing ages up to 34 years, while increases for mixed Pacific women are more general between the ages 17 to 42 years.

Analysis of 1996 and 2006 Census data on children ever born for mixed Pacific women suggests a pattern very similar to that for mixed-Māori, and that any upward shift in fertility is a very recent phenomenon. Comparing equivalent age-groups at each census reveals that only at ages below 26 years are average family sizes of women of mixed-Pacific ethnicity larger in 2006 than 1996. Once again differences are small.

Figure 6: Age specific fertility of sole and mixed Pacific populations, 1996 and 2006

Ethnicity is self-identified and often based on cultural affiliation, thus for some respondents it can alter over the life course or between collections. This situation raises the possibility that rather than measuring changes in
underlying Māori and Pacific fertility, the identified patterns are being largely driven by changes in ethnic reporting. The marked differences in change between sole and mixed-Māori would suggest that this is not the case. For Pacific women we are also able to analyse birthplace (Figure 7); this is an unchanging variable which is highly correlated with a person being of mixed-Pacific ethnicity (most inter-ethnic partnering has occurred within New Zealand). This finding also suggests that changes in ethnic reporting are not primarily driving these changes in Pacific fertility.

**Figure 7: Age specific fertility of New Zealand born and overseas born Pacific populations, 1996 and 2006**

![Age specific fertility of New Zealand born and overseas born Pacific populations, 1996 and 2006](image)

Source: Statistics New Zealand, Census of Population and Dwellings

**Conclusion**

Stepping outside our WEIRD prejudices about fertility, one conclusion is that New Zealand’s European and Asian populations may not be the trend setters for future New Zealand fertility. Under this scenario, the cultural, social and economic value of extra children more than offsets the WEIRD wisdom of having fewer children but investing more deeply in them. As Māori and Pacific populations intermarry and grow, the added cultural value these groups assign to children is likely to proliferate and may gradually lift fertility throughout the country.

Alternatively, if we accept the assumption that low fertility is not just a feature of WEIRD populations, but the natural outcome for population
groups which have low mortality and are deemed to be economically and socially successful, then persistent high fertility, high and increasing fertility, is a symptom of a population under stress and not only failing to achieve its full potential but also not improving in socio-economic standing (MacLeod, 2010). Under this scenario, the increasing fertility of Māori and Pacific of mixed ethnicity, as well as the increasing fertility of NZ born Pacific women, would be of concern.

The latter scenario - of a population under stress - is not supported by continued, if not accelerating, rates of inter-ethnic marriage. These would suggest both New Zealand men and women perceive no disadvantage in partnering and bearing children who, under the WEIRD paradigm, transcend the ethnic divide. Alternatively, this may well be a feature of the blurring of boundaries observed across the ethnic fabric of New Zealand society. Regardless of the cause, if large segments of New Zealand society are diverging from WEIRD fertility norms, it might require a revision of the assumptions made when projecting future populations.

Further investigation into the drivers of the observed patterns is needed. For example, the TFRs for mixed Māori and Pacific populations imply that those currently starting childbearing will have completed family sizes very similar to their sole Māori and Pacific counterparts. Nevertheless, the former retain a very much older pattern of childbearing. There would not appear to be evidence that these mixed groups are transitioning back to younger childbearing. There is some evidence that suggests gradual delays in childbearing among women of sole Māori and sole Pacific fertility. A shift in the tempo of childbearing for these groups could mean that the differential between mixed and sole persists, but is temporarily hidden in period measures. In short, we may be about to witness a corresponding rise in the TFRs for sole-Māori and sole Pacific women.

**Note**

1. The term “non-Māori” is used in this paper as shorthand for “people who have not reported themselves as having Māori ethnicity”. It in no way implies that “non-Māori” is in any respect a coherent ethnic group.
References


___________________________. (2010). Cultural congruence between investigators and participants masks the unknown unknowns: Shame research as an example (Commentary on Henrich, Heine, and Noranzayan’s The weirdest people in the world?). *Behavioral and Brain Sciences*, 33 (2/3), p 92.


