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Indicators of Inequality for Māori and Pacific People

Lisa Marriott¹ and Dalice Sim²

ABSTRACT: *This study investigates a number of inequality indicators in New Zealand. The research examines the current gaps in the indicators between the European population, and Māori and Pacific people. The study also undertakes a comparison of the changes in the gaps over a period approximating 10 years for each of the indicators. A total of 21 indicators are investigated in this study, incorporating measures of health; knowledge and skills; employment; standards of living; cultural identity; and social connectedness.*

The aim of this research is to assess the extent to which indicators suggest that the inequality gap is increasing or decreasing between European and Māori, and European and Pacific people in New Zealand. In general, all ethnic group measurements are moving in the same direction, that is, most ethnic groups are improving or not improving for a specific measure. However, increases are visible in gaps for the majority of the indicators examined in this article, that is, the indicators suggest greater inequality has resulted over the 10-year period for both Māori and Pacific people.

Of the 21 indicators assessed in this study, eight (38 per cent) show improvements in the form of a decreasing gap between European and Māori, although not all of these improvements are significant. Less positive results are visible in 12 indicators (57 per cent), which produce increasing gaps between European and Māori. One indicator is largely unchanged. Not all indicators are available for Pacific people, but of the indicators measured, five (29 per cent) showed an improvement in the form of closing gaps between the European population and Pacific people. Again not all of the decreases in gaps are significant. Worsening differences were found in 11 (65 per cent) of the indicators measuring inequality between the European population and Pacific people. Similarly to the Māori population, one indicator remained unchanged.

1.0 Introduction

Most OECD countries have seen an increase in the gaps between the wealthy and the less-wealthy in recent times (OECD, 2008). Addressing inequality is important for multiple reasons: it assists with creating a fair society where individuals have equality of opportunity by identifying specific areas where improvement is required; it is important for economic

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growth; it is important for social cohesion; and inequality generates fiscal costs on the wider community, such as through increased crime and health expenditure (Cabinet Social Development Committee, 2004a). Perhaps the problem is best captured by the OECD: '*greater inequality raises economic, political and ethical challenges as it risks leaving a growing number of people behind in an ever-changing economy*' (2011:3).

The patterns of inequality in New Zealand are well-established. Regardless of whether income or wealth are used as measures of inequality, New Zealand scores around the average of OECD countries, with similar levels of inequality to Australia, Japan and Canada (Perry, 2013a:1). In terms of how this is reflected in society, the top 10 per cent in New Zealand earn 8.6 times the income of the bottom 10 per cent, once tax and transfers are taken into account (Perry, 2013a:1). Recent polls in New Zealand suggest that poverty, the gap between rich and poor, and the imbalance in wealth in New Zealand are becoming of increasing concern to New Zealanders.³

Inequality captures the distribution of resources across society. While this is an important measure, it is also important to investigate differences in distributions among different ethnic groups. If inequality is equally represented among different ethnic groups, we would expect to find a similar proportion of each ethnic group under each measure. To the extent that a different ethnic group has a different representation in a social indicator, this suggests greater or lesser inequality among that ethnic group. This study focuses on the differences in 21 social indicators that capture a range of inequality measures across three ethnic groups in New Zealand: Europeans, Māori and Pacific people. The aim of the study is to report on differences found among these three ethnic groups for a range of inequality measures.

In December 2003, the Strategic Social Policy Group of the Ministry of Social Development released a report titled *Social Indicators for the Pacific and Māori Populations* (Ministry of Social Development, 2003). A follow up report was produced in the following year: *Reducing Inequalities Indicators for Māori and Pacific Peoples* (Ministry of Social Development, 2004). These reports outlined a number of indicators of inequality in a range of categories: health; knowledge and skills; paid work; economic standard of living; cultural identity; safety; and social connectedness. The reports provided the direction of movement of each indicator, i.e. improving, worsening or no clear trend. Of the 27 indicators in the 2003 report, six showed improvements for Pacific people and 13 showed improvements for Māori populations. However, a number of indicators produced no result, as information was not available, or no clear trend was evident. For Māori populations, none of the indicators produced worsening trends, while one produced a worsening trend for Pacific people.

It is 10 years since these reports were released by the Ministry of Social Development. This study provides a follow up to the report, to review progress on a range of inequality measures in New Zealand over the past decade. Numerous policies were introduced subsequent to the 2003 report with the aim of measuring and improving identified inequalities (Cabinet Social

³ Roy Morgan Research, Finding No. 5111, Available at www.roymorgan.com, Retrieved 8 April 2014.

Development Committee, 2004a, 2004b, 2004c). The initial reports provided absolute and relative measures of improvement against previous measures for the same population and a comparison population, usually Europeans. This research adopts the same approach.

This study commences with a review of some of the recent literature on inequality. This is followed in section three with a discussion of the methodology and data sources used in this study. Section four outlines the data and the data analysis, while section five provides a discussion of the findings. The article concludes in section six.

2.0 Background

The issues relating to inequality have become well known over the past decade. This may, at least in part, be attributed to works such as *The Spirit Level: Why Equality is Better for Everyone* (Wilkinson and Pickett, 2010) and *The Price of Inequality* (Stiglitz, 2013). Studies such as these have raised the profile of inequality and communicated the potential wide-ranging effects from inequality; not just among those who are among the lower deciles in society. A further issue with inequality is the suggestion that it has a long-term effect, with income inequality experienced early in life, resulting in reduced social mobility later in life (Corak, 2013; Rashbrooke, 2014).

There are multiple other reasons why equality is desirable. Inequality limits the opportunities for people to maximise their potential contribution to the economy and to society (Nana, 2013). The economic loss is explained by Nana (2013:60) as *'a very real economic loss incurred by the existence of unemployed, under-employed, untrained, disenfranchised, disconnected, disenfranchised and, indeed, disruptive resources'*. Nana (2013:61) expands on the inefficiency generated by inequality by highlighting the additional resources that are diverted from wealth-enhancing activities and allocated to *'picking up the pieces'*. The impacts of the inefficiency generated from inequality are felt across all of society, including businesses who have a less skilled workforce; higher tax rates to fund the costs of inequality; and the lost potential economic growth from under-utilisation of human resources.

Multiple studies link poor health measures to income inequality. For example, research suggests that national mortality rates are lowest in countries that have smaller income differences (Wilkinson, 1997); income inequality leads to increased mortality (Kawachi, Kennedy, Lochner and Prothrow-Stith, 1997); and income inequality *'is accompanied by many differences in conditions of life at the individual and population levels, which may adversely influence health'* (Lynch, Davey Smith, Kaplan and House, 2000).

While inequality has been shown to produce negative outcomes at the individual level, lower levels of inequality have been shown to produce positive outcomes at a national level. For example, Ostry, Berg and Tsangarides (2014:4) show that lower net inequality is robustly correlated with faster and more durable economic growth. This was recognised by the New Zealand Cabinet Social Development Committee (2004a), with the observation that prosperity depends on improving the productivity of all citizens and that providing greater opportunities for everyone will allow greater participation in, and contribution to, society.

While inequality is not solely related to income inequality, the income inequality measure is one of the most common measures used as a determinant of standard of living. As noted by the OECD (2013:66) high income inequalities '*typically imply a waste of human resources, in the form of a large share of the population out of work or trapped in low-paid and low-skilled jobs*'. However, one of the key difficulties with assessing income inequality is the difficulty in obtaining measures that effectively capture differences in incomes (Cribb, Hood, Joyce and Phillips, 2013). The most common measure of income inequality is the Gini coefficient. The Gini coefficient ranges from zero to one, with higher numbers indicating higher levels of inequality. The Gini coefficient is based on a comparison of cumulative proportions of the population against cumulative proportions of income received (OECD, 2013). Thus, perfect equality is achieved when the Gini coefficient value is zero (that is, where the bottom 10 per cent of the population receive 10 per cent of the income, the bottom 20 per cent of the population receive 20 per cent of the income, etc. (Stiglitz, 2013)). Perfect inequality exists when the Gini coefficient value is one, as this represents a situation where all income goes to one person. While there has been considerable variation in income inequality among OECD countries as measured by the Gini coefficient in recent decades, New Zealand has shown one of the strongest increases in income inequality over the period from the mid-1980s to the mid-2000s (OECD, 2011:228). The most recent Gini coefficient for New Zealand is 2011, where it was 0.32 (OECD, 2014). This is the same as Australia and the OECD average. However, it is higher than Denmark (0.25), Finland (0.27), Norway (0.25) and Sweden (0.27) (OECD, 2014).

The OECD (2008) raises a number of factors that have influenced changes in both income inequality and poverty over time. The primary factors that are visible among OECD countries include:

- Changes in the structure of the population, including the increase in the number of single-person households.
- Earnings becoming more unequal. This is driven by globalisation, skill-biased technical change and labour market institutions.
- Falling employment rates among people who are less educated.
- Unequal distribution of capital income and self-employment income (OECD, 2008).

Historically, on average, general outcomes for Māori and Pacific people have been less positive than those for the European population. Perry (2013b:124) reports that Māori and Pacific ethnic groups typically have poverty rates that are around double those of the European/Pakeha ethnic group, regardless of the measure used. Using the measure of less than 60 per cent of the median income, 23 per cent of Māori, 22 per cent of Pacific people, and 11 per cent of European/Pakeha people had household incomes below this threshold (Perry, 2013b:124). While poverty is a different issue to inequality, to the extent that greater inequalities exist among certain ethnic groups, the result is higher levels of poverty among these ethnic groups.

Other examples of reported gaps in performance include:

- A secondary school retention rate (to age 17) for Māori students of 50.6% (75.4% for non-Māori);
- Unemployment rate for Māori youth of 25.7% (14.2% for non-Māori);
- School leavers achieving University Entrance standard (NCEA Level 2) for Māori Youth of 25% (47.9% for non-Māori);
- A higher rate of Māori youth not in education or employment or training at 22.4 per cent (9.1 per cent for the non-Māori population) (Te Puni Kōkiri, 2012).

At the time of the Ministry of Social Development (2003, 2004) reports that this study replicates a number of policy initiatives were proposed to assist with addressing inequality.⁴

These policies included:

- Ensuring a robust programme of early intervention for at-risk children and families;
- Addressing the income needs of children in low-income families through implementation of the Working for Families programme;
- Continuing the focus on the health needs of families/whānau through improving access to health services;
- Increasing participation in early childhood education where participation is low;
- Improving participation and achievement among young people who are at risk of leaving school with few qualifications;
- Improving access to education, training and employment for economically inactive young people;
- Addressing the barriers to employment;
- Tackling risk factors of poor health and improving access to services for those currently at risk of poor health outcomes (Cabinet Social Development Committee, 2004a:2).

A number of these policies were implemented at or around the time of the Ministry of Social Development (2003, 2004) reports, or are ongoing at the present time, such as addressing the barriers to employment and tackling risk factors relating to health. However, the focus that was visible a decade ago on specifically addressing the drivers of inequality appears to have diminished, with the last six-monthly report on reducing inequalities produced for the period July to December 2003 (Cabinet Social Development Committee, 2004c).⁵ At the time of the last six-monthly report, 109 initiatives were reported on by 12 government agencies. Of the 109 initiatives, 49 were from the Ministry of Education, 14 were from the Ministry of Health and 10 were from the Ministry of Housing.

⁴ Refer to Cabinet Social Development Committee (2004a), p.11, Table 3: Reducing Inequalities Policies and Programmes, for a more comprehensive overview of policies and programmes targeted towards reducing inequalities.

⁵ The six-monthly report was a report of departmental activity on initiatives to reduce inequality.

3.0 Methodology

This study is a comparative study of the European, Māori, and Pacific people in New Zealand using a number of inequality indicators. The study replicates work undertaken by the Ministry of Social Development in New Zealand in 2003 and 2004, where two reports were produced outlining a number of indicators intended to measure inequality among Māori and Pacific people. This research reviews the same indicators after a period as close as possible to 10 years. Not all of the measures reported in the initial studies have been replicated here. For some indicators, data is not available, or due to measurement changes over the 10-year period, it is not comparable over time. The following section outlines the data and statistical methods used to assess the indicators outlined in section four.

3.1 Data

The four primary ethnic groups in New Zealand are European, Māori, Pacific people and Asian. This study investigates European, Māori and Pacific people. Ethnicity is '*the ethnic group or groups that people identify with or feel they belong to*'.⁶ The measure is based on self-perception and it is possible to belong to more than one ethnic group. In census data, and other official statistics, a person identifying with more than one ethnic group will be counted once in each group.

As our primary research focus is on inequality differences between Māori and Pacific people, we have not included Asian people in this analysis. Asian people are the third most common ethnic grouping in New Zealand, with 12 per cent of the population identifying with at least one Asian ethnic group in the 2013 census. Of the four primary ethnic groups, the Asian group is increasing at the fastest pace, with a 33 per cent increase since the previous census in 2006.⁷ Of relevance to this study is that Asian people are often proportionately more highly represented in positive indicators. Thus, this is changing outcomes for the other ethnic groups, which is an important consideration in interpreting some of the indicators discussed in this study.

There are demographic differences between the three populations investigated in this study. In the most recent New Zealand census, 74 per cent of people identified with at least one European ethnicity; 15 per cent identified as Māori; and 7 per cent identified as Pacific people.⁸ The median age is 41 years for those identifying as European; 23.9 years for those

⁶ Statistics New Zealand. 2014. *Statistical Standard for Ethnicity*. Available at www.stats.govt.nz, Retrieved 9 July 2014.

⁷ Statistics New Zealand. 2013 *Census – Major Ethnic Groups in New Zealand*. Available at www.stats.govt.nz, Retrieved 9 July 2014.

⁸ These figures show the proportion of people who identified with this ethnic group. As individuals may identify with more than one ethnic group, the totals of the ethnic groups do not add to 100 per cent. Prioritisation (where the ethnic group of a person with multiple ethnic group identifications is assigned to just one ethnic group) is no longer used in official statistics in New Zealand, as it may mask diversity between ethnic groups. Statistics New Zealand. 2006. *The Impact of Prioritisation on the Interpretation of Ethnicity Data*. Wellington: Statistics New Zealand.

identifying as Māori; and 22.1 years for those identifying as Pacific people.⁹ Thus, the population groups for Māori and Pacific people are younger than the European group.

Each of the indicators is presented in a table showing data in two time periods, with as close as possible to a 10-year gap. Each of the tables also shows the absolute and relative change over the two time periods shown, as well as the gaps between the European population, and Māori and Pacific people over the specified periods.¹⁰ In some cases a negative difference indicates that the gaps have closed, i.e., there is some degree of ‘catching-up’ in the indicator; while in other cases a negative difference indicates that the gaps have widened. For the purposes of clarity, we have also explicitly stated whether the data shows a closing or increasing gap.

3.2 Statistical Methods

Data for this study come from a variety of public sources and institutions, including Statistics New Zealand, the Ministry of Education and the Ministry of Social Development. For some data (e.g. statistics on numbers enrolled in schools as recorded by the Ministry of Education), the numbers presented come from a complete count of individuals or a census of individuals. In such cases, the figures have been used as percentages without error, and no statistical analysis has been done.

Other estimates of percentages come from survey data, for example the Household Labour Force Survey conducted by Statistics New Zealand. In these cases, we have tried to determine the sampling error in the percentages so that we can conduct the appropriate test to determine if there is enough evidence for a difference between ethnic groups. This has not always been possible, but when it has been possible, the relevant statistics and their significance have been presented.

4.0 Indicators of Inequality

This section is comprised of six sub-sections. Each sub-section addresses a different group of inequality indicators. As outlined above, the indicators are those used in earlier studies by the Ministry of Social Development (2003, 2004). The measures are from the following categories: health; knowledge and skills; paid work; economic standard of living; cultural identity; and social connectedness.

4.1 Health

Studies indicate that greater inequality, typically measured by income, results in poorer average health (Barnett, Moon and Kearns, 2004). The extent of inequalities in health in New Zealand was described as ‘unacceptable’ by the Deputy Director-General of Public Health in 2003 (Ajwani, Blakely, Robson, Tobias and Bonne, 2003:iii). Research typically shows health outcomes for Māori people as poorer than other population groupings. For example, research by Bramley, Hebert, Tuzzio and Chassin (2005) reports on differences in

⁹ Statistics New Zealand. *2013 Census – Major Ethnic Groups in New Zealand*. Available at www.stats.govt.nz, Retrieved 9 July 2014.

¹⁰ For some indicators a non-Māori, non-Pacific comparison group, or a non-Māori comparison group, is used.

health outcomes between the numerically dominant population group and the indigenous population in the United States (Europeans and American Indians/Alaska Natives) and New Zealand (Europeans and Māori). In both countries poorer health outcomes are reported among the minority populations. However, in almost every health status indicator assessed in the study, disparities were more pronounced for Māori people than for American Indians/Alaska Natives, despite significant gains in the health measures investigated over recent decades. Similarly, Ajwani et al. (2003) also find that indigenous people tend to have poorer health outcomes when compared to the majority population.

It is also acknowledged that the association between income inequality and health measures is contentious. While studies have shown correlations between income inequality and various measures of health, studies have also reported no convincing evidence to support these assertions. For example, Blakely, Atkinson and O’Dea (2003) find no association of income inequality with all causes of mortality for either men or women in New Zealand.

This study reports on five measures of health over the following sub-sections: life expectancy at birth; prevalence of cigarette smoking; obesity; suicide rates; and infant mortality.

4.1.1 Life expectancy at birth

Table 1 shows life expectancy for Māori and non-Māori, males and females, over a 10-year period. This data is not available for Pacific people. The data in Table 1 shows that, on average, Māori males could expect to live 8.2 years less than non-Māori males and Māori females could expect to live 8.7 years less than non-Māori females in 2000-02. In 2010-2012, the gaps in life expectancy have reduced slightly to show a gap of 7.4 years for males and 7.2 years for females.

Table 1: Life Expectancy at Birth¹¹

	2000-02	2010-2012	Absolute Change (2010-12 - 2000- 2002)	Relative Change
Non-Māori (male)	77.2 years	80.2 years	+3.0 years	3.9%
Non-Māori (female)	81.9 years	83.7 years	+1.8 years	2.2%
Māori (male)	69 years	72.8 years	+3.8 years	5.5%
Māori (female)	73.2 years	76.5 years	+3.3 years	4.5%
Gap (Non-Māori males minus Māori males)	8.2 years	7.4 years	-0.8 years (closing gap)	-9.8%
Gap (Non-Māori females minus Māori females)	8.7 years	7.2 years	-1.5 years (closing gap)	-17.2%

Despite the improvements in life expectancy, both in terms of overall life expectancy and the decline in the gap between life expectancy in non-Māori and Māori, the gap in life

¹¹ Statistics New Zealand. Available at www.stats.govt.nz, Retrieved 13 February 2014. Life expectancy data is based on registered deaths in the period reported.

expectancy for both Māori males and females remains high at over seven years for both males and females. These gaps are, at least in part, attributable to different rates of diabetes and cigarette smoking, as well as socio-economic factors (Statistics New Zealand, 2009:15).

4.1.2 Cigarette Smoking

Smoking is an important social indicator due to its impact on health outcomes. Blakely, Fawcett, Hunt and Wilson (2006) demonstrate a link between tobacco smoking and ethnic inequalities in mortality in New Zealand; while Barnett, Pearce and Moon (2005) find that levels of social inequality between Māori and European people have an independent effect on Māori smoking rates.

Table 2 outlines the prevalence of cigarette smoking for Europeans, Māori and Pacific people. The table shows that there has been a general decline in the proportion of people who smoke cigarettes across all ethnic groups. This indicator assesses a five-year gap, rather than the 10-year gap used for most other indicators, due to issues with data comparability in years prior to 2006/07.

Table 2: Prevalence of Cigarette Smoking¹²

	2006-07	2011-12	Absolute Change (2011-12 - 2006-07)	Relative Change
European	20.3%	18.6%	-1.7%	-8.4%
Māori	40.2%	39.7%	-0.5%	-1.2%
Pacific people	26.2%	25.3%	-0.9%	-3.4%
Gap: European - Māori	-19.9%	-21.10%	-1.2% (increasing gap)	6.0%
Gap: European - Pacific people	-5.9%	-6.7%	-0.8% (increasing gap)	13.6%

Differences in the prevalence of smoking are visible in the three ethnic groups investigated. In 2011-12, 18.6 per cent of Europeans identify as cigarette smokers, while 39.7 per cent and 25.3 per cent of the Māori population and Pacific people, respectively, identify as cigarette smokers. The gap between Māori and European smokers, and the gap between Pacific people and European smokers, has increased over the period investigated, which is driven by a higher decline in smoking among the European population as compared to the Māori and Pacific people populations.

We use a normal statistic to compare binomial proportions to test for differences by year and by ethnic group. All ethnic groups produced statistically significant results as outlined below:

	2006/07	2011/12
European vs Māori	p<.0001	p<.0001
European vs Pacific people	p<.000324	p<.000324
Māori vs Pacific people	p<.0001	p<.0001

¹² Ministry of Health, New Zealand Health Survey, (2006-07 and 2011-12). Available at www.health.govt.nz/, Retrieved 19 May 2014.

For this indicator we find that in terms of the overall reduction in smoking between 2006/07 and 2011/12, the European ethnic group produces a significant reduction. However, the Māori and Pacific people groups do not have statistically significant reductions in overall levels of smoking. The initial Ministry of Social Development report (Ministry of Social Development, 2003) observes that while there were declines in cigarette smoking in the 1980s, the decline had slowed in more recent years. The data outlined above shows that the declining trend remains, although this is weaker for Māori and Pacific people. However, the declining trend in cigarette smoking is forecast to continue as higher taxes are imposed on cigarettes.

4.1.3 Obesity

Table 3 outlines obesity among Europeans, Māori and Pacific people. These figures have been age standardised to control for differences in the age structures of the population. Table 3 shows that, on average, all ethnic groups have increasing proportions of people who are overweight or obese. The group that has the highest increase is Māori, who have increased from 65.3% of people overweight or obese, to 76.3%.

Table 3: Proportions of People who are Overweight or Obese¹³

	2002-03	2011-12	Absolute Change 2011-12 - 2002-03	Relative Change
European	53.7%	60.8%	+7.1%	13.2%
Māori	65.3%	76.3%	+11%	16.8%
Pacific people	79.6%	87.8%	+8.2%	10.3%
Gap: European - Māori	-11.6%	-15.5%	-3.9% (increasing gap)	33.6%
Gap: European - Pacific people	-25.9%	-27%	-1.1% (increasing gap)	4.2%

The gaps in obesity between Māori and the general population, and Pacific people and the general population, both show increases over the time period investigated. The figures also show differences in obesity among the ethnic groups, with Māori people in 2011-12 showing a gap of 15.5 percentage points when compared to the European population. This gap is considerably larger for Pacific people at 27 percentage points. The relative gap with the European population has increased 33.6 per cent for Māori and 4.2 per cent for Pacific people.

Using the same approach as for the previous indicator (prevalence of cigarette smokers), we used the normal statistic to compare binomial proportions to test for differences by year and ethnic group. All ethnic groups had a statistically significant increase in age standardised prevalence between 2002-03 and 2011-12 ($p < .0005$), except for Pacific people, where the

¹³ Ministry of Health, New Zealand Health Survey. Available at www.health.govt.nz, Retrieved 19 May 2014. Obesity is defined as having a Body Mass Index higher than 30 for New Zealand European/other ethnicities, or greater than 32 for Māori and Pacific people. The measure is for those aged 15 years and over.

difference between years was significant at the $p=.0036$ level. In addition, each ethnic group was significantly different from the other two in both 2002-03 and 2011-12 ($p<.00005$).

4.1.4 Age-Standardised Suicide Rates

The age-standardised suicide indicator measures deaths by suicide per 100,000 people. These figures for 2000 and 2010 are shown in Table 4. It is noted that relative to the size of the populations, deaths by suicide are small and therefore significant fluctuations may occur year-on-year. The analysis in this study also investigated the previous three years for variance, which produced similar results to that shown in Table 4. Figures for Pacific people are not available for this indicator.

Table 4: Age-Standardised Suicide Rates for Māori and Non-Māori¹⁴

	2000	2010	Absolute Change (2010-2000)	Relative Change
Non-Māori (male)	18.8	15.4	-3.4	-18.1%
Non-Māori (female)	4.2	5.7	+1.5	35.7%
Māori (male)	25.5	23.9	-1.6	-6.3%
Māori (female)	3.8	8.8	+5.0	131.6%
Gap: Non-Māori male - Māori male	-6.7	-8.5	-1.8 (increasing gap)	26.9%
Gap: Non-Māori female - Māori female	0.4	-3.1	-3.5 (increasing gap)	-875.0%

The male Māori suicide rate is higher than the male non-Māori suicide rate with a rate of 25.5 and 23.9 suicides per 100,000 of population in 2000 and 2010, respectively. This compares to 18.8 and 15.4 suicides per 100,000 of population in 2000 and 2010 for non-Māori males. The female Māori suicide rate increased from 3.8 in 2000 to 8.8 suicides per 100,000 between 2000 and 2010, while non-Māori females increased from 4.2 to 5.7. The general trend for male suicide has been downward, while the trend for female suicide has been increasing, although more so for Māori females than non-Māori females. However, female suicide rates remain lower than males. The gap in suicide rates has increased between the two groups over the 10-year period investigated: Māori male suicides have increased by 1.8 per 100,000 of population (26.9 per cent) while Māori female suicides have increased by 3.5 per 100,000 of population.

4.1.5 Infant Mortality Rates

The infant mortality indicator is measured by infant mortality per 1,000 live births. Infant mortality captures deaths of infants aged less than one year old. Table 5 shows infant mortality rates in 2000 and 2010. The comparison population is to non-Māori, non-Pacific for this indicator.

¹⁴ Ministry of Health (2010). *Suicide Facts: Deaths and intentional self-harm hospitalisations*. Wellington: Ministry of Health.

Table 5: Infant Mortality Rates (per 1,000 live births)¹⁵

	2000	2010	Absolute Change (2010-2000)	Relative Change
Non-Māori; Non-Pacific	6.3	5.5	-0.8	-12.7%
Māori	8.5	7.0	-1.5	-17.6%
Pacific people	10.2	8	-2.2	-21.6%
Gap: Non-Māori; Non-Pacific - Māori	-2.2	-1.5	+0.7 (closing gap)	-31.8%
Gap: Non-Māori; Non-Pacific - Pacific people	-3.9	-2.5	+1.4 (closing gap)	-35.9%

All ethnic groups show improvements in infant mortality rates. However, the greatest improvements are in the Māori and Pacific people groups. While the rates for Māori and Pacific people in 2010 are still higher than the non-Māori; non-Pacific population, the gap is less pronounced than 10 years earlier, with both Māori and Pacific people showing relative improvements in infant mortality rates of over 30 per cent.

4.2 Knowledge and Skills

Enhancing people's knowledge and skills provides them with greater options in life. Education is one of the most well-known keys to success (Stiglitz, 2013). It is generally accepted that educational achievement is linked with multiple positive outcomes: higher incomes, greater employment opportunities and positive health associations.¹⁶ Education has been linked to higher productivity and economic growth, which in turn can lead to improved standards of living. Moreover, possessing knowledge and skills can enhance peoples' sense of self-worth, security and belonging (Ministry of Social Development, 2010). This section provides data on four measures of knowledge and skills: participation in early childhood education; school leaver qualifications; the proportion of the population with a tertiary qualification; and tertiary participation rates.

4.2.1 Participation in Early Childhood Education

The data in Table 6 shows prior participation in early childhood education by Europeans, Māori and Pacific people in 2000 and 2012. This measure captures the proportion of children who have had early childhood education prior to starting school in the year shown.

Table 6: Participation in Early Childhood Education¹⁷

	2000	2012	Absolute Change (2012-2000)	Relative Change
European	94.2%	98%	+3.8%	4.0%
Māori	83.1%	90.9%	+7.8%	9.4%

¹⁵ Ministry of Health, New Zealand Mortality Collection, Available at www.moh.govt.nz, Retrieved 15 February 2014.

¹⁶ Ministry of Education, EducationCounts, Available at www.educationcounts.govt.nz, Retrieved 2 February 2014.

¹⁷ Ministry of Education, Prior Participation in Early Childhood Education: new entrants, Available at www.educationcounts.govt.nz/statistics, Retrieved 2 April 2014.

Pacific people	75.8%	86.7%	+10.9%	14.4%
Gap: European - Māori	11.1%	7.1%	-4.0% (closing gap)	-36.0%
Gap: European - Pacific people	18.4%	11.3%	-7.1% (closing gap)	-38.6%

Table 6 shows that there have been increases in early childhood education for all ethnic groups. The European population increased from 94.2 per cent to 98 per cent (four per cent); the Māori population increased from 83.1 to 90.9 per cent (9.4 per cent); and the Pacific population increased from 75.8 to 86.7 per cent (14.4 per cent). Both the Māori and Pacific people indicators showed decreases of over 30 per cent in the gap between early childhood education of European and Māori, and European and Pacific people.

4.2.2 School Leavers with a Qualification of NCEA Level 2 or Equivalent

Educational achievement is an important indicator of knowledge and skills in society. Moreover, the achievements of students during the period where education is mandatory can influence their transition into higher education and the labour market (Te Puni Kōkiri, 2012). Changes in educational achievement provides information on access to education as well as equity of the education system.¹⁸ The following three indicators all relate to qualifications gained and participation in higher education. Table 7 shows school leavers holding the minimum qualification of National Certificate of Educational Achievement (NCEA) Level 2 or higher. NCEA is the primary secondary school qualification in New Zealand. It comprises three levels, typically undertaken in the final three years of secondary education.

Table 7: School Leavers with a Minimum of NCEA Level 2 or Equivalent¹⁹

	2001	2012	Absolute Change (2012-2001)	Relative Change
European	68.5%	82.1%	+13.6%	19.9%
Māori	40.6%	60.9%	+20.3%	50.0%
Pacific people	54.7%	68.1%	+13.4%	24.5%
Gap: European and Māori	27.9%	21.2%	-6.7% (closing gap)	-24.0%
Gap: European and Pacific people	13.8%	14.0%	+0.2% (increasing gap)	1.4%

Table 7 shows improvements in educational achievement among all groups. The largest improvement is among the Māori students, with a 20.3 percentage point change (50 per cent) over the 11 year period shown. Pacific people and European school leavers both showed close to a 13.5 percentage point improvement (19.9 per cent for European and 24.5 per cent for Pacific people). There was a large difference in attaining educational achievements between the Māori and European students in 2001 at nearly 28 percentage points. While this has improved in 2012, a large gap of 21.2 percentage points remains. Moreover, the 13.8

¹⁸ Ministry of Education, Education Counts, Available at www.educationcounts.govt.nz/statistics, Retrieved 2 April 2014.

¹⁹ Earlier statistical reports show the equivalent qualification as ‘Sixth Form Certificate or Higher’. Data source: Ministry of Education. Percentage of 18-year-olds with a minimum of NCEA Level 2 or Equivalent, Available at www.educationcounts.govt.nz/statistics, Retrieved 2 April 2014.

percentage point gap in school leaver attainment among European and Pacific people has not improved and instead shows a small increase of 1.4 per cent.

4.2.4 Proportion of the Population with a Bachelor's degree or higher

Table 8 shows the proportion of the European; Māori; and Pacific people aged 15 years and over holding a Bachelor's degree or above as their highest qualification. This measure captures people holding bachelor's degrees and other post-graduate qualifications. As census data is used for this measure, a 12-year time period is presented.

Table 8: Proportion of the Population with a Bachelor's Degree or Above²⁰

	2001	2013	Absolute Change (2013-2001)	Relative Change
European	10.8%	18.6%	+7.8%	72.2%
Māori	4.0%	9.1%	+5.1%	127.5%
Pacific people	3.2%	7.1%	+3.9%	121.9%
Gap: European - Māori	6.8%	9.5%	+2.7% (increasing gap)	39.7%
Gap: European - Pacific people	7.6%	11.5%	+3.9% (increasing gap)	51.3%

Table 8 shows that while proportions of the population holding Bachelor degrees or above have increased for all ethnic groups, the gaps between the European population and Māori, and the European and Pacific people have increased. The gap in degree holders among Māori has increased from 6.8 percentage points to 9.5 percentage points, an increase of 39.7 per cent, while the gap between the European population and Pacific people has increased from 7.6 percentage points to 11.5 percentage points, an increase of 51.3 per cent.

4.2.5 Tertiary Participation Rates

Table 9 shows age-standardised tertiary participation rates. This measure shows the percentage of the population aged 15 years and older who are enrolled in tertiary education at any time during the year. The measure does not capture private training establishments.

Table 9: Age-Standardised Tertiary Participation Rates²¹

	2001	2012	Absolute Change (2012-2001)	Relative Change
European	7.5%	8.0%	+0.5%	6.7%
Māori	6.6%	9.9%	+3.3%	50.0%
Pacific people	5.0%	8.2%	+3.2%	64.0%
Gap: European - Māori	0.9%	-1.9%	-2.8% (gap is gone)	-311.1%
Gap: European - Pacific people	2.5%	-0.2 %	-2.7% (gap is gone)	-108.0%

²⁰ Statistics New Zealand, Census 2013 and 2001, Available at www.statistics.govt.nz, Retrieved 10 July 2014.

²¹ Ministry of Education, Education Counts, Available at www.educationcounts.govt.nz, Retrieved 25 February 2014. We include individuals participating in level four certificates (e.g. trade qualifications); diplomas; Bachelors; and other post-graduate qualifications (such as Masters and Doctorates) in the measure.

Table 9 shows increases in tertiary participation among all three groups. However, greater participation rates are visible for Pacific people and Māori, with both achieving growth in participation of over 50 per cent in the 11-year period investigated. This high growth result has resulted in higher age-standardised tertiary participation rates for Pacific people and Māori than the European population. Thus, the gap in tertiary participation rates has now been eliminated. However, a similar trend over the 11-year time period investigated was visible for all three ethnic groups. This pattern shows increases in tertiary participation for the first part of the period examined (to participation levels of 8.7 per cent, 11.4 per cent and 8.5 per cent for Europeans, Māori and Pacific people respectively), which have been in decline in recent years.

4.3 Paid Work

This section examines indicators relating to work. There are multiple reasons why participation in paid work is desirable. The Welfare Working Group (2011:55) outlines these as providing access to higher incomes, increasing social contact, enhancing self-esteem, together with increasing evidence that it is beneficial for mental and physical health. Moreover, the wider community benefits through increased economic activity, as well as reducing the overall burden on the welfare system. This section provides data on five indicators relating to work: unemployment; employment; workplace injury; weekly earnings; and people receiving welfare benefits.

4.3.1 Unemployment

The first indicator of work is the December quarterly unemployment rates for 2003 and 2012. These figures are shown in Table 10.

Table 10: December Quarterly Unemployment²²

	2003	2012	Absolute Change (2012-2003)	Relative Change
European	3.2%	5.5%	+2.3%	71.9%
Māori	10%	14.8%	+4.8%	48.0%
Pacific people	8.8%	16%	+7.2%	81.8%
Gap: European - Māori	-6.8%	-9.3%	-2.5% (increasing gap)	36.8%
Gap: European - Pacific people	-5.6%	-10.5%	-4.9% (increasing gap)	87.5%

Table 10 indicates that unemployment increased for all ethnic groups over the time period examined. Logistic regression shows that the unemployment rate increased significantly from December 2003 to December 2012 ($p < .0005$). Moreover, the unemployment rates were significantly different by ethnic group both at December 2003 and December 2012 ($X^2(2)$, $p < .0005$ in both cases). For both Māori and Pacific people, the gap with the European unemployment rate increased from December 2003 to December 2012. However, the gap

²² Statistics New Zealand, Household Labour Force Survey, December quarter 2005 and December quarter 2012, Available at www.statistics.govt.nz, Retrieved 1 March 2014.

increased by a significantly higher proportion for Pacific people as compared to Māori: 87.5 per cent for Pacific people and 36.8 per cent for Māori.

4.3.2 Employment

The employment indicator investigates the employment rate among Europeans, Māori and Pacific people. The employment rate measure captures those aged between 15 and 64, who work for one hour or more per week. These figures are outlined in Table 11.

Table 11: December Quarterly Employment²³

	2003	2012	Absolute Change (2012-2003)	Relative Change
European	66.7%	65.0%	-1.7%	-2.5%
Māori	58.1%	55.2%	-2.9%	-5.0%
Pacific people	56.7%	50.1%	-6.6%	-11.6%
Gap: European - Māori	8.6%	9.8%	+1.2% (increasing gap)	14.0%
Gap: European - Pacific people	10.0%	14.9%	+4.9% (increasing gap)	49.0%

All ethnic groups show decreases in employment over the period examined. Logistic regression analysis shows that the employment rate decreased significantly between December 2003 and December 2012. Moreover, in both December 2003 and December 2012 the employment rate was significantly different by ethnic group (X^2 , $p < .0005$). The employment rate for both Māori and Pacific people decreased significantly more than the employment rate for Europeans over this time, with a larger decrease for Pacific people than for Māori at 49 per cent for Pacific people and 14 per cent for Māori. While the overall reduction in employment is likely to reflect the harsher economic environment in 2012, as compared to 2002, this does not account for the increasing gaps in employment between Europeans and Māori, or Europeans and Pacific people.

4.3.3 Workplace Injury

Workplace injury rates are outlined in Table 12. This indicator reports the rate of workplace injury per 1,000 full-time equivalent employees.

Table 12: Workplace Injury Claims (per 1,000 full-time equivalent workers)²⁴

	2003	2012	Absolute Change (2012-2003)	Relative Change
European	129	87	-42	-32.6%
Māori	179	90	-89	-49.7%
Pacific people	150	111	-39	-26.0%
Gap: European - Māori	-50	-3	+47 (closing gap)	-94.0%

²³ Statistics New Zealand, Household Labour Force Survey, December quarter 2005 and December quarter 2012, Available at www.statistics.govt.nz, Retrieved 1 March 2014.

²⁴ Statistics New Zealand, Injury Statistics – Work-related claims, Available at www.statistics.govt.nz, Retrieved 14 March 2014.

Gap: European - Pacific people	-21	-24	-3 (increasing gap)	14.3%
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While all three ethnic groups have reduced workplace injury claims over the time period shown, the most significant decline is visible among the Māori population, at 94 per cent. For both 2003 and 2012, there was a significant difference in incidence of workplace injury claims between the three ethnic groups (X^2 test, $p < .0005$). When the data from 2003 was compared with the data from 2012, again there was a significant reduction in incident rate (logistic regression model, $p < .0005$). However, although the gap between Pacific people and Europeans was greater in 2012 than in 2003 ($p < .005$), for Māori, the gap with Europeans was significantly lower in 2012 than in 2003 ($p < .0005$).

4.3.4 Weekly Earnings

The median weekly earnings indicator reports on incomes received from wages and salaries. These figures are outlined in Table 13 for 2003 and 2013.

Table 13: Median Weekly Earnings²⁵

	2003	2013	Absolute Change (2013-2003)	Relative Change (2013-2003)
European	\$614 ± 12.28	\$863 ± 17.26	+\$249	40%
Māori	\$540 ± 10.8	\$767 ± 15.34	+\$227	42%
Pacific people	\$500 ± 10.0	\$712 ± 14.24	+\$212	42.4%
Gap: European - Māori	\$74	\$96	+\$22	29.7%
Gap: European - Pacific people	\$114	\$151	+\$37	32.5%

All groups show increased median weekly earnings over the period investigated. Europeans' median weekly earnings increased by 40 per cent, while both Māori and Pacific peoples' median weekly earnings increased by 42 per cent. Both Māori and Pacific people have significantly lower median weekly earnings in both 2003 and 2013 (z test, $p < .05$). In addition, for each ethnicity, the change from 2003 to 2012 is statistically significant (z test, $p < .05$). However, for both Māori people and Pacific people the difference from the European ethnic group does not change significantly from 2003 to 2013.

4.3.5 Benefit Receipt

The final indicator in the category of paid work investigates the percentage of the population receiving a core welfare benefit. These measures are reported as at 2001 and 2013 as the population prevalence has been calculated using census data. Long-term benefit receipt is strongly associated with low levels of education and training, as well as poorer health (Welfare Working Group, 2011:46). This indicator uses a non-Māori, non-Pacific people

²⁵ Statistics New Zealand, Household Labour Force Survey, Available at www.statistics.govt.nz, Retrieved 15 March 2014. Note: standard errors quoted are ± 2% as per the approach adopted by Statistics New Zealand.

comparison. The figures show the three ethnic groups as people in receipt of an income-tested benefit as a proportion of that ethnic group.

Table 14: Proportion of each Ethnic Group on Income-Tested Benefits²⁶

	2001	2013	Absolute Change (2013-2001)	Relative Change
Non-Māori, Non-Pacific people	8.2%	6.2%	-2.0%	-24.4%
Māori	17.7%	20.0%	+2.3%	+13.0%
Pacific people	11.0%	9.5%	-1.5%	-13.6%
Gap: Non-Māori, Non-Pacific people - Māori	-9.5%	-13.8%	-4.3% (increasing gap)	+45.3%
Gap: Non-Māori, Non-Pacific people - Pacific people	-2.8%	-3.3%	-0.5% (increasing gap)	+17.9%

Benefit receipt is one of only two indicators investigated in this study where different patterns in absolute and relative change are visible among the three ethnic groups (the other is housing affordability, shown in Table 17). Table 14 shows that receipt of welfare benefits has decreased for the non-Māori, non-Pacific people; and Pacific people. However, this indicator shows an increase for Māori people. Despite the improvement for Pacific people, the gap is increasing between non-Māori, non-Pacific people and Pacific people. This gap is also increasing for Māori people.

4.4 Economic Standard of Living

The indicator of economic standard of living relates to the *'physical circumstances in which people live, the goods and services they are able to consume and the economic resources to which they have access'* (Ministry of Social Development, 2010:60). Two of the indicators investigated in this section relate to incomes and the other two relate to housing.

4.4.1 Median Income

The single most important driver in increasing inequality across OECD countries has been greater inequality in wages and salaries (OECD, 2011:17). Increasing household incomes is one tool to improve living standards and reduce poverty. This measure captures the changes in median weekly income over the period from 2003 to 2013. The difference between the median weekly income in Table 15 and the weekly earnings measure outlined in Table 13 is Table 15 incorporates income from all sources, including earnings from employment.

Table 15: Median Weekly Income²⁷

	2003	2013	Absolute Change (2013-	Relative Change

²⁶ Ministry of Social Development, Key Facts at June 2004; and Key Facts at the end of June 2013, Available at www.msd.govt.nz, Retrieved 9 April 2014.

²⁷ Statistics New Zealand, New Zealand Income Survey, 2003 and 2013. Available at www.stats.govt.nz, Retrieved 3 April 2014.

			2003)	(2013-2003)
European	\$439 ± 8.78	\$620 ± 12.4	+\$181	41.2%
Māori	\$373 ± 7.46	\$486 ± 9.72	+\$113	30.3%
Pacific people	\$360 ± 7.2	\$381 ± 7.62	+\$21	5.8%
Gap: European - Māori	\$66	\$134	\$68 (increasing gap)	103%
Gap: European - Pacific people	\$79	\$239	\$160 (increasing gap)	203%

Table 15 shows increases in median weekly income for all ethnicities. However, the European population has increased by a considerably larger amount than for Pacific and Māori people. The median weekly income for Pacific people has increased by 5.8 per cent, while the increase for Māori is 30.3 per cent and Europeans is 41.2 per cent. The gap in median weekly income for both Māori and Pacific people has increased over the ten-year period examined: the gap has increased by \$68 for Māori (103 per cent) and \$160 for Pacific people (203 per cent).

The relative sampling errors for median weekly income from the New Zealand Income Survey are ± 2% and the standard errors quoted in Table 15 are based on this. Using a standard normal statistic to compare these medians we have:

	2003	2013
European vs Māori	p<.0001	p<.0001
European vs Pacific People	p<.0001	p<.0001

4.4.2 Personal Income Distribution

In the original Ministry of Social Development studies (2003, 2004), the measure used for low-income was a low-income family unit indicator, which captured those earning 60 per cent or less of the median income. However, this measure is not available in the same form over an extended time period. Therefore, we are reporting on ethnic representation in the lowest quintile of incomes as collected in the New Zealand Income Survey. The figures shown in Table 16 represent personal income distribution by quintile, as a proportion of that ethnic group.

Table 16: Personal Income Distribution in Lowest Quintile²⁸

	2003	2013	Absolute Change (2013-2003)	Relative Change
European	16.5%	17.1%	+0.6%	3.6%
Māori	20.2%	24%	+3.8%	18.8%
Pacific people	26.2%	31.2%	+5%	19.1%
Gap: European - Māori	-3.7%	-6.9%	-3.2% (increasing gap)	86.5%
Gap: European - Pacific people	-9.7%	-14.1%	-4.4% (increasing gap)	45.4%

²⁸ Statistics New Zealand, New Zealand Income Survey, June 2003 and June 2013 quarters, Retrieved from www.stats.govt.nz, 15 May 2014.

Table 16 shows that all ethnic groups have had increases in their proportional representation in the lowest income quintile over the 10-year period shown. However, the largest increases in representation in the lowest personal income quintile are visible among Pacific people with a 5 percentage point increase (19.1 per cent) and Māori with a 3.8 percentage point increase (18.8 per cent). In addition, the gap in representation in the lowest income quintile between European and Māori has increased 3.2 percentage points (86.5 per cent), while the gap in representation between European and Pacific people has increased 4.4 percentage points (45.4 per cent).

We used the chi-square test to compare percentages between years and between ethnic groups. For all ethnic groups, the percentage in the lowest quintile significantly increased from 2003 to 2013 (chi-squared test, $p < .0005$). For 2003 and 2013, all ethnic groups were significantly different from the other ethnic groups (chi-square test, $p < .0005$).

4.4.3 Housing Affordability

The housing affordability indicator considers the proportion of households that have a housing cost to disposable income ratio of at least 30 per cent. These figures are outlined in Table 17. A 12-year period is investigated for these measures, as the data is from the New Zealand Census.

Table 17: Housing Affordability - Housing Costs Greater Than 30% of Disposable Household Income²⁹

	2001	2013	Absolute Change (2013-2001)	Relative Change
European households as a proportion of European households	22.6%	25.7%	+3.1%	13.7%
Māori households as a proportion of Māori households	34.9%	31.7%	-3.2%	-9.2%
Pacific people households as a proportion of Pacific households	41.6%	41.2%	-0.4%	-1.0%
Gap: European - Māori	-12.3%	-6%	6.3% (closing gap)	-51.2%
Gap: European - Pacific people	-19%	-15.5%	3.5% (closing gap)	-18.4%

Table 17 shows that housing affordability as captured by the measure of the proportion of households where housing costs are at least 30 per cent of disposable income have increased for European households, but reduced for Māori and Pacific households over the 12 year period shown. While Māori and Pacific households retain a higher proportion of households with high housing costs, the gaps between both these ethnic groups and European households have reduced over the 12 year period investigated. The gap has reduced by around half (51.2

²⁹ Data on housing affordability provided by Statistics New Zealand from Census data. Data received 16 June 2014.

per cent) for Māori households, while a smaller reduction of 18.4 per cent is visible for Pacific households.

4.4.4 Household Crowding

The household crowding measure uses the Canadian National Occupancy standard, which allocates bedrooms based on age, sex and relationships of household members. The measure shown in Table 18 is where at least one more bedroom is needed in the household. As census data is also used for this indicator, a 12 year period is used for analysis.

Table 18: Household Crowding³⁰

	2001	2013	Absolute Change (2013-2001)	Relative Change
European households as a proportion of European households	3%	2.7%	-0.3%	-10.0%
Māori households as a proportion of Māori households	13.1%	11%	-2.1%	-16.0%
Pacific people households as a proportion of Pacific households	25.8%	23.7%	-2.1%	-8.1%
Gap: European - Māori	-10.1%	-8.3%	1.8% (closing gap)	-17.8%
Gap: European - Pacific people	-22.8%	-21%	1.8% (closing gap)	-7.9%

Table 18 shows that both Māori households and Pacific households have significantly higher levels of household crowding than European households. All ethnic groups have shown declines in the overall proportions of household crowding and reductions in gaps are visible between Māori households and European households (17.8 per cent), and Pacific households and European households (7.9 per cent). Despite the reductions in these gaps over the 12 year period, large gaps in household crowding remain.

4.5 Cultural Identity

Reference to culture relates to *'the customs, practices, languages, values and world views that define social groups'* (Ministry of Social Development, 2010:84). Cultural identity can contribute to a person's wellbeing (Ministry of Social Development, 2010). Two measures of cultural identity are examined in this study: proportions of Māori people who speak Māori language and proportions of people in Māori medium education.

4.5.1 Māori Language Speakers

The first indicator is the proportion of individuals who identify as Māori who speak the Māori language. Table 19 shows a decline in this indicator of 3.9 percentage points over the 12 year period investigated. The decline was evident in the 2006 census results, where a 1.5 percentage point decline was visible. However, there has been a further 2.4 percentage point decline over the subsequent seven year period since the 2006 census.

³⁰ Data on housing crowding provided by Statistics New Zealand from Census data. Data received 16 June 2014.

Table 19: Māori Language Speakers³¹

	2001	2013	Absolute Change (2013-2001)	Relative Change
Proportion of Māori who speak Māori language	24.8%	20.9%	-3.9%	-15.7%

4.5.2 Māori Medium Education

The second indicator of cultural identity is Māori medium education. Māori medium education captures students who are taught in Māori language for at least 51 per cent of the time (at least 12.5 hours per week). Table 20 shows that in 2013, 17,343 students received at least 51 per cent of course work as Māori medium education. This compares to 16,342 in 2001.

Table 20: Māori Medium Education Participation³²

	2001	2013	Absolute Change (2013-2001)	Relative Change
Māori Medium Education	16,342	17,343	+1,001	6.1%
Māori students	149,473	175,456	25,983	17.4%
Proportion of Māori students in Māori Medium Education	10.9%	9.9%	-1.0%	-9.2%

There has been an increase of 1,001 students participating in Māori medium education. However, as the proportion of Māori students has increased by nearly 26,000 during the time period investigated, this has resulted in a reduced proportion of Māori students participating in Māori medium education, from 10.9 per cent to 9.9 per cent.

4.6 Social Connectedness

In the 2003 MSD report, two social connectedness measures were reported: telephone and internet access in the home and participation in family/whānau activities and regular contact with family/friends. In 2003, indicators captured the proportion of the population with access to a telephone and the proportion of the population with access to the internet. At this time, 97% of the population had access to a telephone. However, in 2012, households with access to a landline have reduced to 87%. As this result is less likely to represent an inequality increase and more likely to indicate changing use of technology, as people replace landlines with mobile telephones, we have chosen to only report on internet access in this social connectedness measure.

³¹ Statistics New Zealand, Census Data and Reports (2001 and 2013), Available at www.stats.govt.nz, Retrieved 15 April 2014.

³² Figures reported are based on the headcount of students enrolled in the school as at 1st July in the year shown. Data source: Ministry of Education, Education Counts, *Māori Language in Education*, www.educationcounts.govt.nz/, Retrieved 3 April 2014; and *Student Numbers by Ethnicity*, Retrieved 5 June 2014.

4.6.1 Internet Access in the Home

Table 21 outlines the proportion of households that have access to the internet. We have not been able to obtain data for this measure from the same data source across the two time periods. Thus, the data provided in Table 21 is unsuitable for further analysis. However, it does provide an indication of increased household internet access for all ethnic groups. While 86 per cent of the European population had access to the internet at home in 2012, only 68 per cent of Māori people and 65 per cent of Pacific people had internet access in the home. The datasets used suggest that the gaps for both ethnicities had increased over the 11 year period investigated. In 2001, the gap between Europeans and Māori was 8 percentage points. This had increased to 18 percentage points by 2012, an increase of 125 per cent. Similarly, the gap between Europeans and Pacific people was 12 percentage points in 2001. This had increased to 21 percentage points by 2012, an increase of 75 per cent.

Table 21: Household Access to the Internet³³

	2001	2012	Absolute Change (2012-2001)	Relative Change
European	38%	86%	+48%	126.3%
Māori	30%	68%	+38%	126.7%
Pacific people	26%	65%	+39%	150%
Gap: European - Māori	8%	18%	+10% (increasing gap)	125%
Gap: European - Pacific people	12%	21%	+9% (increasing gap)	75%

5.0 Discussion

The report produced by MSD in 2003 frequently reports no clear trend or improvements among many of the indicators outlined in section four of this article. This is no longer the case for most of the indicators reported on in this study. The majority of the indicators investigated in this study suggest worsening outcomes for Māori and Pacific people in the form of increasing gaps in indicators when compared to the European population. Moreover, some of the indicators that produce improving outcomes still retain large gaps between the European population and Māori or Pacific people. As noted by the Cabinet Social Development Committee (2004a) most people want a society where everyone has the same opportunity to participate and succeed, and where factors such as ethnicity and family background do not impact on one's future opportunities. However, the data outlined above suggests that significant inequality not only remains in New Zealand, but is also escalating as measured by growing gaps in many inequality indicators.

Of all the health indicators, only infant mortality showed a considerable improvement for Māori and Pacific people. While the gaps between non-Māori and Māori of life expectancy at

³³ Data source: Statistics New Zealand, Household Use of Information and Communication Technology Survey (2012); and Statistics New Zealand 2001, Census of Population and Dwellings. Household Access to the Internet.

birth improved slightly, the gaps remain considerable at over seven years for both males and females. The indicators for cigarette smoking and obesity show increasing gaps between Europeans and Māori, and Europeans and Pacific People. The gaps in suicide rates have also increased between Māori and non-Māori.

The indicator relating to paid work produces a partial positive result for workplace injury claims. Workplace injuries have reduced for all ethnic groups, and particularly so for Māori. However, the gap has increased slightly for Pacific people. The measures of unemployment and employment produce unfavourable results for both Māori and Pacific people. While all ethnic groups have increasing unemployment, the gaps between European and Māori, and between European and Pacific people, have increased. A similar situation is visible with the employment figures. The indicator reporting median weekly earnings produces no clear improvement or worsening of the situation for Māori and Pacific people. While all the measures of paid work show all ethnic groups moving in the same direction, that is, increasing levels of unemployment and decreasing levels of employment, the figures show that Māori and Pacific people are over-represented in both categories, and have increased as a proportion of total welfare beneficiaries. This suggests that the economic downturn has had greater impact on Māori and Pacific people, which may result from Māori and Pacific people being over-represented in lower-skill occupations that are more susceptible to job losses in harsher economic environments.

The Royal Society of New Zealand (2014) observe the contrast between ‘work-rich’ households and ‘work-poor’ households. Work-rich households are generally those where individuals hold post-secondary qualifications. Work-poor households *‘either have qualifications inappropriate to a changed labour market or lack advanced credentials altogether’* (Royal Society of New Zealand, 2014:26).

The economic standard of living indicators examine income and housing measures. The median weekly income shows greater increases for Europeans as compared to Pacific people and Māori. The gap in median weekly income for Māori over the 10-year period has increased by 103 per cent. However, the increase in the gap for Pacific people is 203 per cent. The distribution of income measure used was representation in the lowest personal income quintile, which also shows increases in gaps between Europeans and Pacific people, and Europeans and Māori. The measure of housing affordability shows a decrease in the gap between European households and Māori households, and European and Pacific households. Household crowding shows small improvements. However, these improvements are not significant for any of the ethnic groups shown. Large gaps remain between European and Māori, and European and Pacific people, under both housing measures.

In relation to cultural identity, over the 12 year period from 2001 to 2013 there has been a reduction in the proportion of Māori who speak Māori language. In addition, there has been a reduction in Māori medium education participation. Internet access has increased considerably for all ethnic groups. However, the gaps between European household access to

the internet, and those of Pacific people and Māori have both increased over the 11-year period examined.

New Zealand has a relatively generous welfare system, as well as a system of taxes and transfers that are intended to redistribute income to those in need. Redistribution through taxes and transfers reduces income inequality to well below where it would otherwise be (Perry, 2013a). However, despite the redistribution, the gaps in many of the inequality indicators between Europeans and Māori, and Europeans and Pacific people remain high. This issue is highlighted by the OECD (2008) in observing that inequality, as measured by the gini coefficient, has not improved as significantly as might be expected, given the increased focus on inequality in recent times. However, the OECD (2008) note that the relatively modest increase in inequality over the previous 20 years *'hides a larger underlying trend'*, which is the practice in developed countries to tax more and spend more to offset the movement towards higher inequality. As noted by the OECD, spending on social policy now is higher than at any time in history and *'if governments stop trying to offset the inequalities by either spending less on social benefits, or by making taxes and benefits less targeted to the poor, then the growth in inequality would be much more rapid'* (OECD, 2008:3). Moreover, the OECD (2008:3) observes that relying on taxing more and spending more as a response to inequality can only be a temporary measure.

The OECD (2013) suggest that tax pays a less important role than benefits in reducing income inequalities. This has become more the case over the past decade or two, where income taxes have become less progressive and traditional forms of 'wealth' taxes (such as estate taxes and gift duties) have reduced or been repealed. The New Zealand tax system is no different: goods and services tax has increased; the progressiveness of the income tax system has reduced; no comprehensive capital gains tax exists; and no estate or gift duty is in place.

The OECD (2008, 2013) suggest that the labour market should be the first place that governments look towards to address rising inequality: *'the only sustainable way to reduce inequality is to stop the underlying widening of wages and income from capital. In particular, we have to make sure that people are capable of being in employment and earning wages that keep them and their families out of poverty'*. Well educated, high-income earning workers have achieved higher gains in recent times, while those with fewer skills have not (OECD, 2013). The outcome of greater disparities in wages has contributed to greater involvement of the state in assisting low-income earners to maintain a moderate standard of living.

Reforming tax and benefit policies is *'the most direct and powerful instrument for redistribution'* (OECD, 2011:18). However, the tool that has the most promise for addressing inequality is employment. This has a clear link to education and ensuring that workers have sufficient skills to take on skilled employment. The OECD (2011:19) propose that *'upskilling is singled out as the only force which succeeded not only in reducing wage dispersion but also in increasing employment rates'*. Thus, the OECD note the importance of investing in people – a process that must begin in early childhood and be followed through into more

formal education (OECD, 2011:19) to ensure that children from households with fewer resources have opportunities to engage in education and achieve their full potential.

The knowledge and skills indicators investigated in section four show a mixed result. The indicators measuring participation in early childhood education and tertiary participation show improvement. The gap is also closing between Māori and Europeans in the measure of school leaver qualifications. However, the improvements do not extend to tertiary education outputs, with increases in gaps of those holding bachelor's degrees or above. Thus, it appears that the gains made in early childhood, secondary education and tertiary participation are yet to flow through to achievement of higher levels of qualifications. However, it is the higher levels of qualifications that are most likely to significantly impact on other inequality measures such as employment and income.

The event of Māori and Pacific people being disproportionately poorly represented in social indicators is not a new trend. Despite considerable attention paid to the issue, the data outlined in this research indicates that New Zealand's strategy to address inequality as it relates to Māori and Pacific people has not been successful. Some indicators have improved, but the majority have not. Redistribution minimises the symptoms of the problem, at least to some extent, but it does not address the underlying causes of inequality. Ten years ago, when the MSD reports that this study is based on were produced, there appeared to be a strategic multi-agency approach towards addressing inequality, with reports suggesting 109 initiatives were ongoing in 2004. This no longer appears to be the case. During the course of this research, we found no multi-agency attempts to monitor progress of these social measures. Moreover, the difficulty experienced in obtaining comparable data suggests that, in some cases, data is no longer captured on some of the original measures. We acknowledge the recent release of the *Te Kupenga 2013* survey data, which is an encouraging sign in potential monitoring of Māori indicators of wellbeing. However, currently this is a single survey. A similar survey for Pacific people would appear warranted, along with an indication that the survey will be repeated at regular intervals to allow monitoring to continue.

As observed by the OECD (2011:19) there is nothing inevitable about either high or increasing inequalities. The majority of the indicators investigated in this study show worsening outcomes for Māori and Pacific people. Of those indicators where closing gaps are visible, in many cases, large gaps still remain. This growing gap in inequality between Māori and Pacific people with the European population, warrants greater government attention if the gaps are not to continue increasing into the future.

6.0 Conclusion

This study examines a number of indicators of inequality across a range of categories. The data shows a mixed result. Poor results are found in the measures of health, paid work and economic standard of living. The category that produces the best results is knowledge and skills. However, within this category the results are also mixed, with improvements visible in early childhood education, secondary school achievement, and tertiary participation, but not in tertiary education outcomes.

Inequality in New Zealand is mitigated to some extent through the tax and transfer system. However, this is not a long-term solution to address inequality. The OECD suggests that focusing on ensuring people can engage effectively in employment is crucial to reducing inequality. One way to achieve this is through education and skill development. The measures discussed above suggest that success in education measures for Māori and Pacific people has yet to flow through to the tertiary level where it may have greatest impact.

This research indicates that while New Zealand has had some successes in reducing inequalities, the gaps in inequality among the majority of the indicators investigated in this study show worsening outcomes for Māori and Pacific people. This growing gap in inequality between Māori and Pacific people, and the European population, warrants greater government attention if the gaps are not to continue increasing into the future.

Appendix I: Summary of Indicators and Findings

Group	Table Indicator	European	Māori	Pacific	Gap (European & Māori)	Gap (European & Pacific)
Health	1 Life expectancy at birth	Improved	Improved	N/A	Closing	N/A
	2 Prevalence of cigarette smoking	Improved	Improved	Improved	Increasing	Increasing
	3 Obesity	Worse	Worse	Worse	Increasing	Increasing
	4 Age-standardised suicide rates	Mixed	Mixed	N/A	Increasing	N/A
	5 Infant mortality rates	Improved	Improved	Improved	Closing	Closing
Knowledge and Skills	6 Participation in early childhood education	Improved	Improved	Improved	Closing	Closing
	7 School leavers with a qualification of NCEA Level 2 or higher	Improved	Improved	Improved	Closing	Increasing
	8 Proportion of the population with a Bachelor's degree or higher	Improved	Improved	Improved	Increasing	Increasing
	9 Tertiary participation rates	Improved	Improved	Improved	Gap is gone	Gap is gone
Paid Work	10 Unemployment	Worse	Worse	Worse	Increasing	Increasing
	11 Employment	Worse	Worse	Worse	Increasing	Increasing
	12 Workplace injury claims	Improved	Improved	Improved	Closing	Increasing
	13 Median weekly earnings	Improved	Improved	Improved	Same	Same
	14 Percentage of the population receiving a core benefit	Improved	Worse	Improved	Increasing	Increasing
Economic Standard of Living	15 Median weekly income	Improved	Improved	Improved	Increasing	Increasing
	16 Personal income distribution	Worse	Worse	Worse	Increasing	Increasing
	17 Housing affordability	Worse	Improved	Improved	Closing	Closing
	18 Household crowding	Improved	Improved	Improved	Closing	Closing
Cultural Identity	19 Māori language speakers	N/A	Worse	N/A	Worse	N/A
	20 Māori medium education	N/A	Worse	N/A	Worse	N/A
Social Connectedness	21 Internet access in the home	Improved	Improved	Improved	Increasing	Increasing

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