TRACKING PROGRESS on REDUCING CHILD POVERTY in NEW ZEALAND

CHILD POVERTY MONITOR

Technical Report

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New Zealand Child and Youth Epidemiology Service

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INTRODUCTION

The right of all children to grow up to be healthy, strong, well-educated and capable of contributing to their societies underpins every international agreement to recognise and protect children's rights.[1] Poverty interferes with the capacity of children to enjoy this right and for children in rich countries, relative poverty also perpetuates cycles of disadvantage and inequity. As a result some children miss out on the opportunities to be educated, healthy or nourished compared with their peers.[1] New Zealand is a signatory to the United Nations Agenda 2030 for sustainable development that came into effect in January 2016.[2] The sustainable development goals (SDGs) include a target to, by 2030, reduce at least by half the proportion of children living in poverty in all its dimensions according to national definitions.[3] Consistent measurement is essential to developing successful policies and programmes to end child poverty in all its forms.[1]

The 2017 Child Poverty Monitor Technical Report provides the fifth consecutive annual report on indicators and implications of child poverty in New Zealand, and progress toward achieving selected SDGs that are relevant to children.[2,3] The first part of the report is relevant to the goal of ending poverty in all its forms everywhere[3] and presents data on five measures or dimensions of child poverty in New Zealand.[4] The second group of indicators track progress toward goals to ensure healthy lives and promote wellbeing, ensure inclusive and equitable quality education for all, and promote peaceful and inclusive societies. The third group of indicators provides information about the context in which the specific child-related issues arise, and are particularly relevant to goals to promote full and productive employment and decent work for all and to reduce inequality within and between countries.[3]

The Child Poverty Monitor comprises a partnership between the Office of the Children's Commissioner, the New Zealand Child and Youth Epidemiology Service (NZCYES) at the University of Otago, and the J R McKenzie Trust. The Child Poverty Monitor partners choose indicators taking into consideration the recommendations of the Expert Advisory Group on Solutions to Child Poverty and the indicators previously included in the Children's Social Health Monitor.[4,5]

KEY POINTS

"Poverty is not just about having "less than" it is about "not having enough" [6]

Child poverty measures

Income poverty

The number and proportion of dependent 0–17 year olds living in income-poor households increased significantly between 1988 and 1992, and these figures remain high.

The number and proportion of dependent 0–17 year olds living in households with the most severe income poverty have not declined since 2012.

To meet the United Nations' Sustainable Development Goal target New Zealand must achieve at least a 50% reduction from 2015 levels in all indicators of income poverty by 2030.

- In 2016, 27% of dependent 0–17 year olds were living in households with equivalised incomes **below 60% of the contemporary median income after housing costs**, approximately 290,000 children and young people.
- Using a more severe poverty threshold, 19% of dependent 0–17 year olds were living in households with equivalised incomes **below 50% of the contemporary median income after housing costs** in 2016, approximately 210,000 children and young people. Thirteen percent of dependent 0–17 year olds were living in households with the very lowest incomes, **below 40% of contemporary median after housing costs,** approximately 140,000 children and young people.
- Using a fixed line indicator, 20% of dependent 0–17 year olds were living in households with equivalised incomes **below 60% of the 2007 median income after housing costs**, approximately 220,000 children and young people.
- Using a more severe fixed-line indicator, 7% of dependent 0–17 year olds were living in households with equivalised incomes **below 50% of the 2007 median income before housing costs**, approximately 75,000 children and young people. With inclusion of housing costs 14% of dependent 0–17 year olds were living in households with equivalised incomes **below 50% of the 2007 median income after housing costs**, approximately 155,000 children and young people.

Material hardship

In 2016 the New Zealand Household Economic Survey included child-specific items for the first time. Over half of New Zealand 6–17 year olds experienced no lacks in 12 selected child-specific items.

- Among the 20 percent of 6–17 year olds living in households with the highest levels of material hardship, 42% experienced restrictions in 2 or more items; 28% in 3 or more and 19% in 4 or more. The restrictions most commonly experienced were lack of good access at home to a computer and internet for homework (33%), lack of two pairs of shoes in good condition and suitable for daily activities for each child (23%), involvement in sport had to be limited "a lot" (20%), lack of fresh fruit and vegetables daily (21%) and lack of a meal with meat, fish or chicken (or vegetarian equivalent) at least each second day (20%).
- These restrictions were experienced even more strongly among the ten percent of children living in households experiencing the most severe material hardship. In this group 49% of children lacked 2 or more of the 12 items; 41% lacked 3 or more; 29% lacked 4 or more.

The 2016 household economic survey also included the general household items used to construct a material hardship time series.

- Since 2015 there has been a slight decline in the number and proportion of 0–17 year olds living in households experiencing forced lacks in seven or more essential items listed in DEP-17, and in households experiencing forced lacks in nine or more essential items.
- In 2016 12% of 0–17 year olds lived in households experiencing **forced lacks of seven or more essential items**, approximately 135,000 children and young people.

- Using an indicator of more severe material hardship, 6% of 0–17 year olds lived in households experiencing **forced lacks of nine or more essential items**, approximately 70,000 children and young people.
- To meet the United Nations' Sustainable Development Goal target New Zealand must achieve at least a 50% reduction from 2015 levels in all indicators of material hardship by 2030.
- If New Zealand meets the United Nations Sustainable Development Goal target of reducing material hardship levels to 50% of 2015 national measures, the percentage of children will reduce to 7% in material hardship and 4% in severe material hardship by 2030.

Persistent poverty

New Zealand does not have a current longitudinal survey that collects income data from the same households over time. This is a serious lack in official data to measure indicators of persistent income poverty.

Child poverty related factors

Infant deaths

- The rates of death for infants in the first year of life have remained fairly stable from 2006 to 2013. Infant mortality rates in New Zealand are higher than the OECD average. In 2014 the infant mortality rate for New Zealand was similar to that of the United States, higher than Australia and more than twice the rate in Slovenia, Iceland and Japan.
- From 1996 to 2014 there was a statistically significant fall in the sudden unexpected death in infancy (SUDI) rate. Despite a marked fall in SUDI rates for Māori infants, significant inequity persists with higher SUDI rates for Māori and Pacific infants compared to the rate for European infants.

Conditions with a social gradient

Medical conditions with a social gradient include respiratory and communicable diseases such as asthma, bronchiolitis and gastroenteritis. Injuries with a social gradient include road traffic crashes, drowning and falls.

- From 2010 to 2014 an average of 28 0–14 year olds died each year from medical conditions with a social gradient, and an average of 35 died from injuries with a social gradient.
- From 2011 to 2015, there were on average 41,000 hospitalisations each year of 0–14 year olds for medical conditions with a social gradient and on average 8,800 hospitalisations per year for injury with a social gradient.

Assault neglect and maltreatment

- 108 children aged 0–14 years died from injuries arising from assault, neglect, or maltreatment in the five years from 2010–2014. Data from future years are required to determine whether the lower numbers of such deaths in 2012/13 and 2014 signal the start of a new trend or year-to-year statistical variation.
- From 2012–2016 there were 694 hospitalisations of 0–14 years olds for injuries arising from assault, neglect, or maltreatment. The highest hospitalisation rate occurred in in the first year of life.
- The hospitalisation rate for children living in areas with the highest deprivation scores was more than 8 times higher than the rate for their peers living in areas with the lowest NZDep2013 scores.

Housing

- In 2016, 39% of households in the lowest income quintile were spending more than 30% of their income on housing costs compared with 15% of households in the highest income quintile. Almost all accommodation supplement recipients were paying more than 30% of their income on housing costs and over half of accommodation supplement recipients in rental accommodation were paying over 50% of their income on housing costs
- Major problems with dampness and mould were experienced by 17% of 0–17 year olds in households in the lowest income quintile compared with 1% in the highest income quintile; major difficulties heating and keeping homes warm in winter were experienced by 21% of 0–17 year olds in households in the lowest income quintile compared with 2% in the highest income quintile; frequently being forced to put up with being cold to keep costs down was experienced by 22% of 0–17 year olds in households in the lowest income quintile compared with 1% in the highest income quintile.

- If New Zealand meets the Sustainable Development Goal 11 target of ensuring access to adequate, safe and affordable housing for all people it will mean fewer than 10% of 0–17 year olds living in crowded households and no more than 1-2% of 0–17 year olds living in damp, mouldy, hard-to-heat homes, or being forced to put up with feeling cold to save costs.

Education

- The proportion of school-leavers with NCEA level 1 increased from 80.9% in 2009 to 89.4% in 2016; with NCEA level 2 or above, the proportion increased from 67.5% in 2009 to 80.3% in 2016 and with University Entrance standard, from 41.9% in 2009 to 53.9% in 2016.
- Ethnic and socioeconomic disparities in educational attainment persist despite improvements in all ethnic groups and in schools in areas with different levels of socioeconomic deprivation.

Wider economic factors

- In June 2017 there were 128,000 New Zealanders who were officially unemployed (5%). The unemployment rate for young people aged 15–19 years was 21% compared with rates of around 3% for adults aged 35 years and over**.** Among 20–24 year olds, 9% were not in employment, education or training. The unemployment rates for Māori and for Pacific peoples were higher than the rate for Europeans.
- There were 171,409 0–17 year olds dependent on a benefit recipient in June 2017. Most of these children and young people (118,384; 69%) were reliant on a recipient of sole parent support, with the remainder reliant on recipients of jobseeker support (32,055; 19%), supported living payments (18,027; 11%) or other benefits (2,943; 2%)**.**

CHILD POVERTY MEASURES

The indicators used to measure child poverty in this report were recommended by the Expert Advisory Group on Solutions to Child Poverty. These indicators comprise income measures using both a constant value (fixed-line) and contemporary median (moving-line) as well as measures of material hardship, severe poverty and poverty persistence. The five measures each capture different aspects of child poverty and facilitate monitoring the reduction of child poverty in New Zealand.[4]

The data for these indicators are from two reports produced annually by the Ministry of Social Development about household incomes and about the material wellbeing of New Zealand households.[6,7] The measures of income are updated annually using data from the New Zealand Household Economic Survey (NZHES). The measures of material hardship also use data from the NZHES, analysed using the DEP-17 material deprivation index.

INCOME-BASED MEASURES

Household income is one measure commonly used to monitor child poverty. The income resources of a household are a major factor likely to influence a child's wellbeing, positively or negatively. Household income measures are available from data gathered in the Statistics New Zealand Household Economic Survey (NZHES). They are based on a family's disposable income (market income, less tax, plus social assistance) that has been equivalised (that is, adjusted for family size and composition).

Children who live in households with low family income can experience lifelong damage, with proven effects on health, nutrition, brain development and educational attainment.[3,4] The pathways linking low family income to long term outcomes are complex, and in part may be influenced by other socioeconomic factors.[8]

This section of the child poverty monitor presents data on children aged 0–17 years living in households with low incomes, using the equivalised income of the household that includes the child. The following measures were recommended by the Expert Advisory Group on Solutions to Child Poverty report.[4] Each measure is presented before and after housing costs. Housing costs, which include mortgage and rent payments, often make up a large proportion of household costs.[7]

- The contemporary median (moving line) poverty threshold is defined as an income below 60% of the contemporary median income. The contemporary median poverty threshold compares incomes in a given year to the median income in the same year. It is considered most useful for assessing longer term change. Using this measure, poverty rates fall when the incomes of low-income households move closer to the median, whether or not they actually rise or fall in real terms.[7]
- The fixed-line (constant value) poverty threshold is defined as an income below fixed-line reference values of 50% of the 2007 median (2001–2007) and 60% of the 2007 median (2007–2016) after housing costs. The fixed-line measure compares income in a given year to the median income in a reference year, and is considered most useful for examining short to medium term change. When using a fixed-line the anchored poverty lines can become unrealistically low (or high) relative to the contemporary median, and it is necessary to re-set the reference year, which was set at 1998 until 2010, and at 2007 from 2011, adjusting back and forward using the CPI in both cases. This report uses the fixed-line values of 50% and 60% of the 2007 median income as the reference points. This is because the value of the 60% of the 1998 median is almost the same as the value of 50% of the 2007 median and the trend paths for low-income rates using a 50% CV-07 threshold and those for a 60% CV-98 threshold are virtually indistinguishable.[7]

Data sources and methods

Indicators

- 0–17 year olds in households below the 60% income poverty threshold before housing costs (BHC)
- 0–17 year olds in households below the 60% income poverty threshold after housing costs (AHC)

Data source

New Zealand Household Economic Survey via Perry 2017.[7]

Definitions

Dependent children are all those under 18 years, except for those 16 and 17 year olds who are in receipt of a benefit in their own right or who are employed for 30 hours or more a week.

Equivalised household income is the household after-tax cash income for the previous twelve months adjusted for household size and composition.

Contemporary median poverty measures are set relative to the median income for the same survey year. This gives a low income threshold that rises and falls with changes in contemporary median incomes. This type of measure is also called moving-line or relative approach. Improvement is considered to have occurred when a poor household moves closer to the median irrespective of whether income in real terms has increased or decreased.[7]

Fixed-line poverty measures are anchored in a base year (in this report the base year is 2007) and kept at a constant value in real terms over other years. This type of measure is also called a constant value or anchored approach. Improvement is considered to have occurred when household income rises in real terms irrespective of what is happening to the incomes of other households.[7]

Further information

The median is a more stable measure of household incomes than the mean. A few households with a very high income will shift the mean upwards, and the number of very-high-income households varies from year to year.

Income measures are calculated both before and after housing costs (BHC; AHC). Housing costs, which include mortgage and rent payments, often make up a large proportion of household costs.[7] The focus of this report is on AHC data; BHC data are also included to demonstrate the difference between the two values. Very few international data sources provide AHC values, and BHC data are frequently used in international comparisons.

Children living in income-poor households

In 2016, 27% of New Zealand 0–17 year olds lived in households with equivalised income below 60% of the contemporary median after housing costs (approximately 290,000 children). Using a fixed-line measure, in 2016 20% of New Zealand 0–17 year olds lived in households with equivalised income below 60% of the 2007 median after housing costs (approximately 220,000 children, **Table 1**).

There was a marked increase in rates of income poverty for New Zealand children between 1988 and 1992, with little change overall since 1992 using a contemporary median measure. The rate of income poverty for New Zealand children using a fixed-line measure (60% 2007 median) has fallen from a peak of 25% between 2009 and 2012 to 20% in 2016 (**Figure 1**). The marked increase in both contemporary median and fixed-line measures of child income poverty between 1988 and 1992 can be attributed to rising unemployment, and cuts made to benefits in 1991 which disproportionately reduced incomes for beneficiaries compared with changes in median income.[7] The magnitude of the fall in child poverty rates from 2010–2016 using a fixed line measure cannot be accurately estimated until the 2017 NZHES data are available.[7]

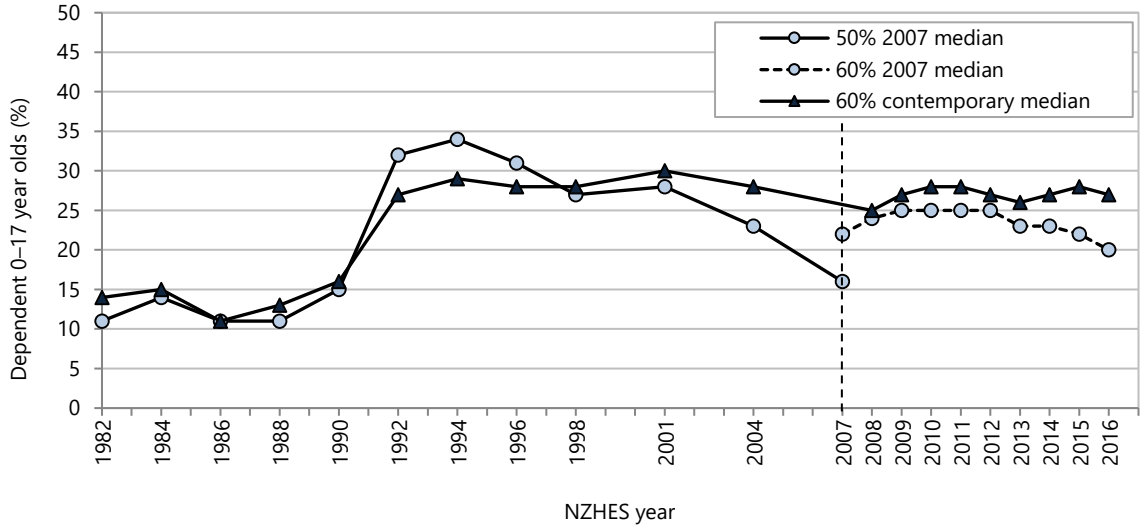
Since 1992 the rates of income poverty for New Zealand children have been higher after housing costs (AHC) compared with the rates before housing costs (BHC) (**Figure 2**, **Figure 3**). A key factor in explaining the longer-term differences between AHC and BHC rates is that housing costs, on average, now make up a higher proportion of household expenditure for low-income households than they did in the 1980s.[7] Income-related rental policies introduced in 2000 for those in Housing New Zealand Corporation houses, and changes to the accommodation supplement settings in the mid 2000s, helped to reduce net housing expenditure for some low-income households and contributed to a fall in AHC child poverty from 2001–2007. No further policy changes were made during 2007–2012 and there was no change to the maximum rates of assistance despite housing costs continuing to increase.[7]

Table 1. Children aged 0–17 years in low-income households by selected poverty thresholds, New Zealand 2001–2016

NZHES year	Before housing costs		After housing costs							
	<60% contemporary median		<40% contemporary median		<50% contemporary median		<60% contemporary median		<60% 2007 median	
	n	%	*n*	%	*n*	%	*n*	%	*n*	%
2001	250,000	24	115,000	11	215,000	21	310,000	30	380,000	37
2004	265,000	26	115,000	11	200,000	19	285,000	28	320,000	31
2007	210,000	20	105,000	10	190,000	18	260,000	25	250,000	24
2009	225,000	21	120,000	11	210,000	20	285,000	27	265,000	25
2010	240,000	22	130,000	12	210,000	20	295,000	28	265,000	25
2011	245,000	23	125,000	12	210,000	20	305,000	28	270,000	25
2012	230,000	22	130,000	13	210,000	20	285,000	27	260,000	25
2013	220,000	21	135,000	13	205,000	19	275,000	26	245,000	23
2014	230,000	22			210,000	20	280,000	27	240,000	23
2015	235,000	22	130,000	12	215,000	20	300,000	28	240,000	22
2016	215,000	20	140,000	13	210,000	19	290,000	27	220,000	20

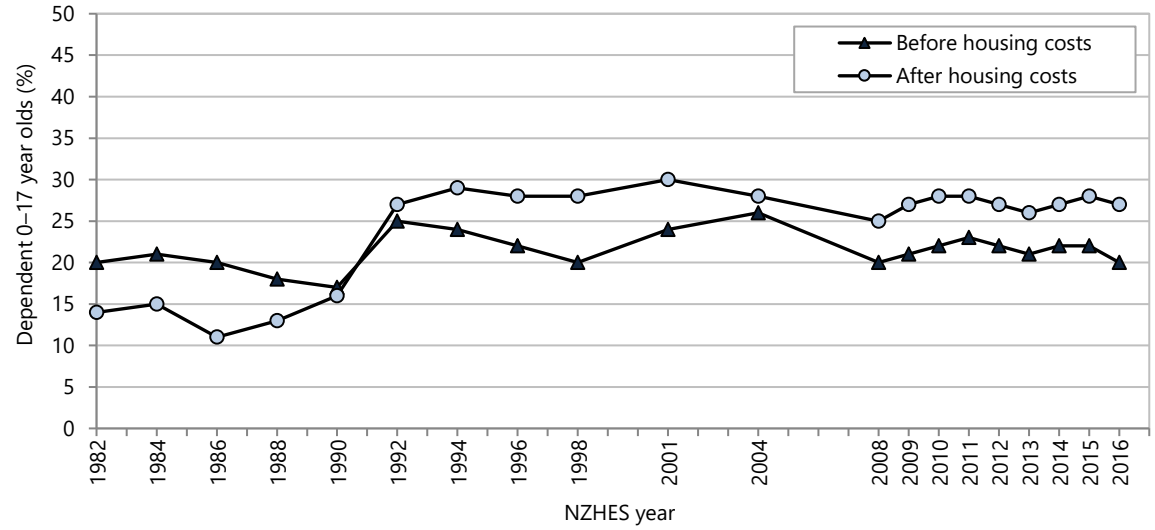
Source: Perry 2017[7] derived from New Zealand Household Economic Survey (NZHES)

Figure 1. Dependent 0–17 year olds in low-income households by selected income poverty thresholds after housing costs, New Zealand 1982–2016



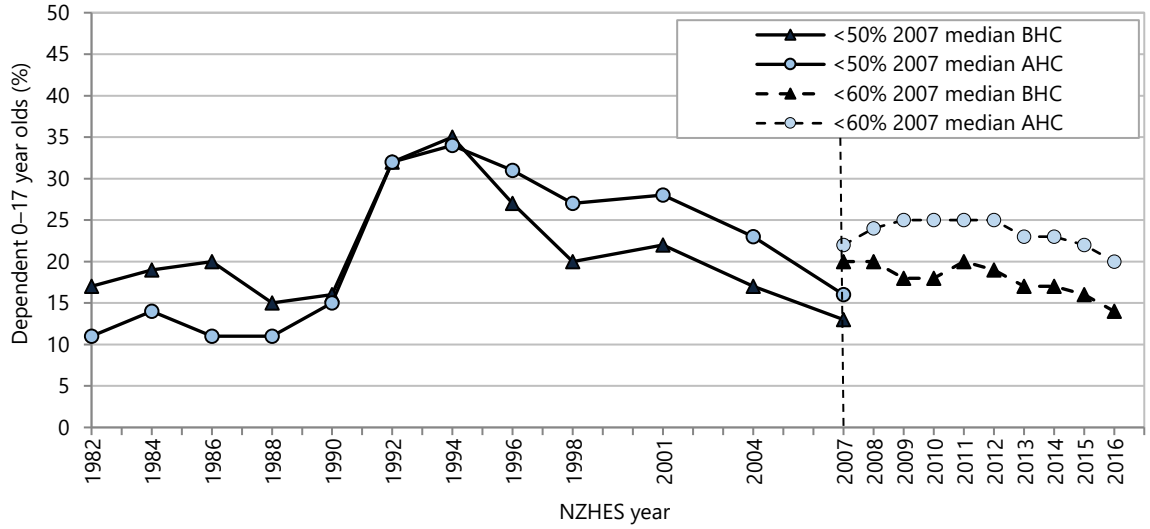
Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES)

Figure 2. Dependent 0–17 year olds in households with equivalised incomes below the 60% income poverty threshold (contemporary median income) before and after housing costs, New Zealand 1982–2016



Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES); Two-year rolling averages used from 2008

Figure 3. Dependent 0–17 year olds in households with equivalised income below selected income poverty thresholds (fixed-line median income) before and after housing costs, New Zealand 1982–2016

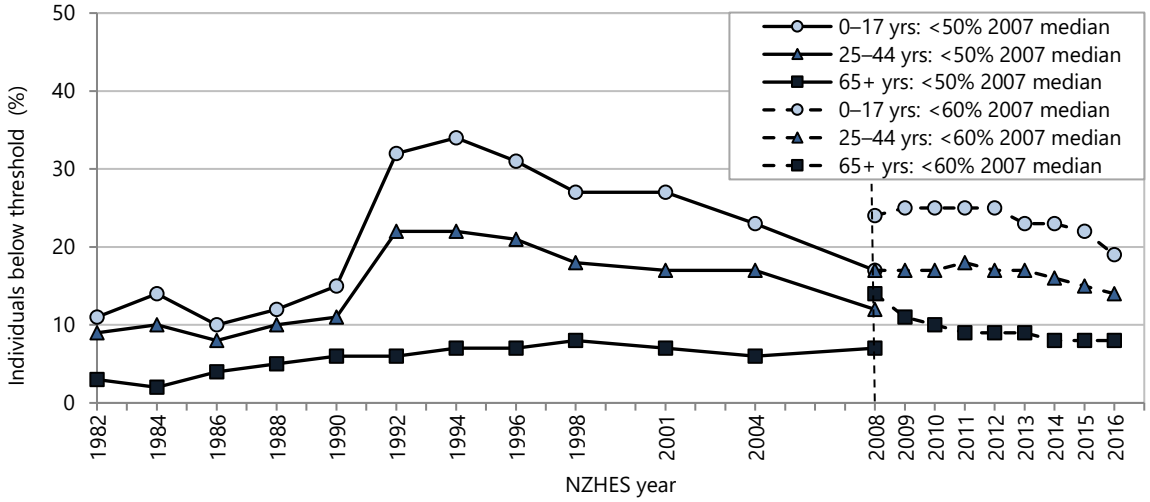


Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES); Two-year rolling averages used from 2008. BHC: Before Housing Costs. AHC: After Housing Costs.

Children compared with adults

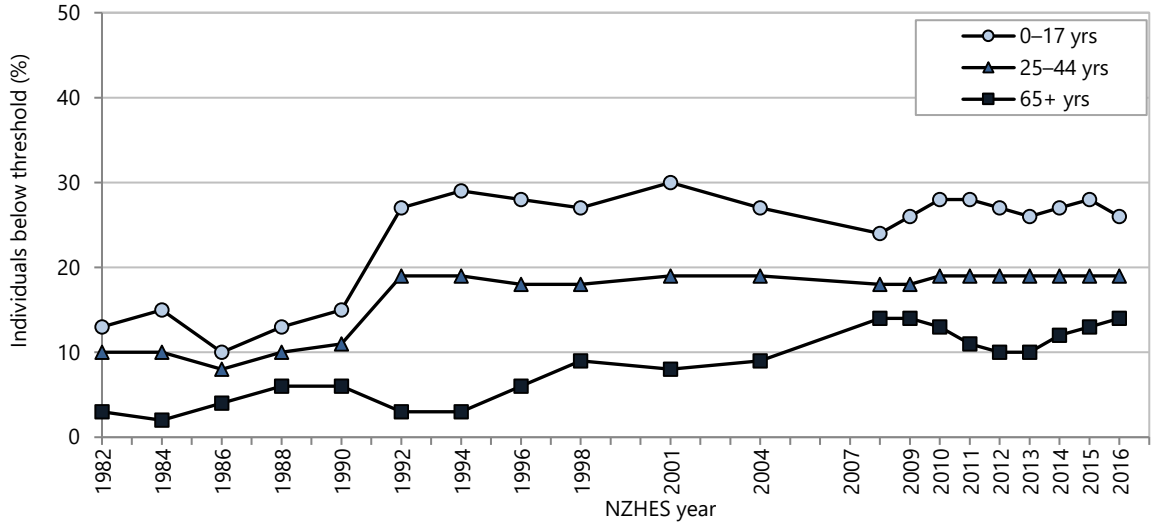
Children and young people aged 0–17 years are more likely than adults to live in low-income households. From 1982 to 2015 income poverty rates were consistently higher for 0–17 year olds than for adults aged 25–44 years with the lowest income poverty rates among adults aged 65 years or older, using both fixed-line and contemporary median poverty thresholds (**Figure 4**, **Figure 5**).

Figure 4. Individuals in households with equivalised income below the 50% and 60% income poverty thresholds (fixed-line median) after housing costs by selected age group, New Zealand 1982–2016



Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES)

Figure 5. Individuals in households with equivalised income below the 60% income poverty threshold (contemporary median income) after housing costs by selected age group, New Zealand 1982–2016



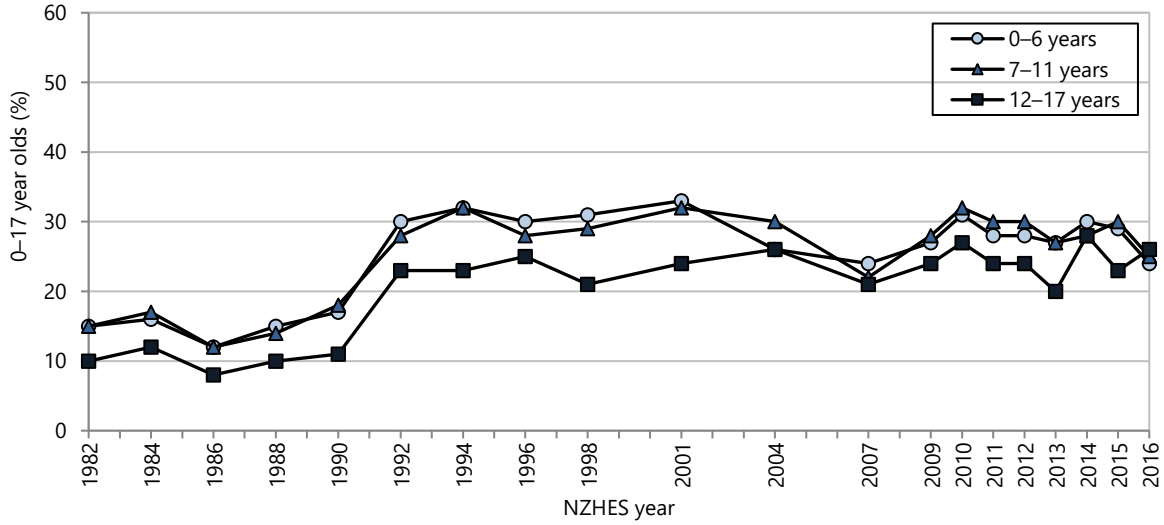
Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES)

Child poverty and demographic factors

Patterns of income poverty for children vary in relation to age, ethnicity, household type, number of children in the household and source of household income.

For most of the time between 1982 and 2016 income poverty rates for younger children (0–6 and 7–11 years) were generally higher than for older children (12–17 years, **Figure 6**). The lines go "off trend" in 2014 for older children and in 2016 for younger children, which illustrates the importance of looking at trends over several surveys rather than relying on year-on-year comparisons when interpreting data.[7]

Figure 6. Children aged 0–17 years in low-income households below the 60% income poverty threshold (contemporary median) after housing costs by age, New Zealand 1982–2016



Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES)

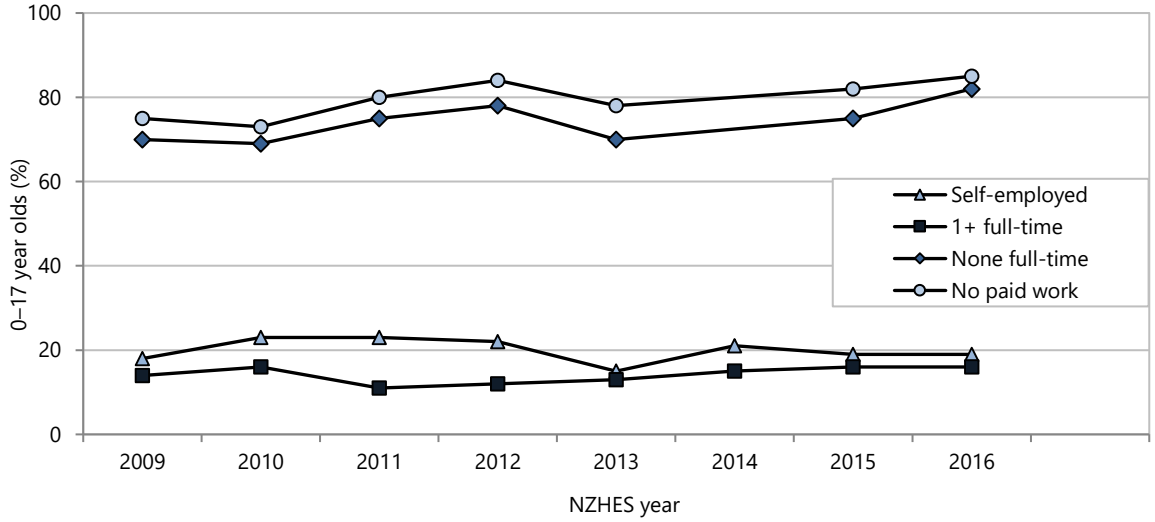
Relatively small sample sizes for Māori, Pacific and Other ethnic groups in the NZHES, especially for children, means that the scope is limited for analysis of income poverty by ethnicity. The following analysis combines data from two surveys (NZHES 2015 and NZHES2016), and uses the AHC 60% anchored line measure to give an indication of the relativities in low-income rates for children by ethnicity.[7]

The low-income rates for children in the Māori and Pacific ethnic groups are consistently higher than for those in the European/Pakeha ethnic group, whatever measure is used. For example, on average over 2015 and 2016, using the AHC 60% anchored line measure, around 14% of European/Pakeha children lived in low-income households, compared to 28% of Māori children, and 26% of Pacific children (double the rate for

European/Pakeha children). The average rate for all children was 20% on this measure. The higher poverty rate for Māori children reflects the relatively high proportion of Māori children living in sole-parent beneficiary families and households (around 47% of all sole parent beneficiary recipients are Māori). On average over 2015 and 2016, just under half (45%) of children in low-income households were Māori or Pacific using this measure whereas overall around 32% of all children are Māori or Pacific.[7]

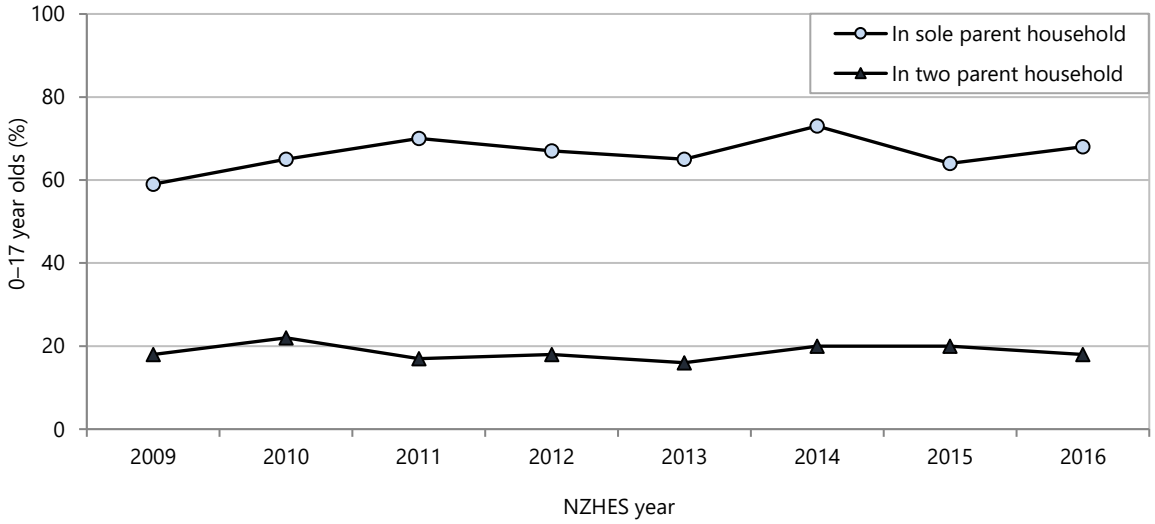
Household composition and the work status of adults in the household affect the proportion of 0–17 year olds living in low-income households. Children in households where at least one adult in the household was self-employed or in full-time employment were much less likely to live in a low-income household than children living in households where there were no adults in full-time work (**Figure 7**). Children living in sole parent households have consistently experienced much higher rates of income poverty compared with children in two parent households (**Figure 8**). In 2016, 31% of 0–17 year olds in in households with equivalised income below 60% of the contemporary median lived in households with no adult in paid work, 11% lived in households where one or more parent had part-time work only, and 44% in households with at least one adult in the household in full-time employment (14% in households with one or more self-employed adults).[7] Also in 2016,

Figure 7. Children in low-income households below the 60% income poverty threshold (contemporary median), after housing costs by work status of adults in household, New Zealand 2009–2016



Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES); Two-year rolling averages used from 2008

Figure 8. Children aged 0–17 years in low-income households below the 60% income poverty threshold (contemporary median threshold) after housing costs by household type, New Zealand 2009–2016



Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES); Two-year rolling averages used from 2008

35% of 0-17 year olds in households with equivalised income below 60% of the contemporary median lived in sole parent households and 55% lived in two-parent households (9% in other types of household).[7]

The NZHES year-to-year sampling fluctuations led to fewer-than-usual beneficiary households with children being interviewed in 2016. Using an AHC fixed line poverty threshold of 60% of the 2007 median, Bryan Perry notes:[7]

- On average from 2013–2015 children living in sole-parent households experienced significantly higher income poverty rates (58%) than those in two-parent households (14%) and those in other family households (19%)
- Although poverty rates for children in sole parent families are much higher than for children in two-parent families, around half of poor children come from two-parent families and half from sole parent families
- On average from 2007–2014 income poverty rates were higher for children in households with three or more children (30%) compared with children living in households with only one or two children (20%). In 2014, children in these larger households made up just under half of all poor children (45%)
- From 2007–2016 children living in workless households were six to seven times more likely to be in income-poor households compared with children in working households
- On average from 2009 –2015 around two in five poor children came from households where at least one adult was in full-time paid employment or was self-employed

MATERIAL HARDSHIP

Non-income measures of wellbeing and hardship focus on day-to-day living conditions, ranking households using a direct measurement approach compared with the indirect and partial approach inherent in household income analysis.[6] Non-income measures include the basics of food, clothing, accommodation, heating, and transport, and also look more widely at measures like a household's ability to maintain or replace broken appliances, purchase desirable non-essentials or cope with unexpected demands on the household budget. Together with income measures they give a comprehensive account of the relative differences between groups and in trends over time.[6]

Material wellbeing is determined by a household's command over resources in relation to the needs of that household. For low-income households an income increase will almost always raise their material wellbeing. However income alone is often not a reliable indicator, as factors other than income which determine whether a household has the resources needed to achieve a minimum acceptable standard of living vary considerably between households.[6,7] For children, material deprivation means missing out on many of the things which the majority of children take for granted, such as adequate and nutritious food, good shoes and clothing, a separate bed, a warm, dry house, participation in school trips and occasional holidays away from home.[4]

The New Zealand Ministry of Social Development has constructed a 17-item index to measure material hardship (DEP-17). The 17 items in DEP-17 are considered essential or almost essential by most New Zealanders.[6] The DEP-17 scores indicative of material hardship and severe material hardship are respectively defined as enforced lacks of seven or more (7+) and nine or more (9+) of these items. For the first time the 2016 NZHES included child-specific items, and these are also presented in this report.[6,7] The material wellbeing index (MWI) is a broader 24-item index which includes desirable non-essential such as an annual holiday away from home, and assigns positive scores to not having to economise on essential items. A higher score on the MWI is associated with improved material wellbeing, and is equivalent to a lower score on DEP-17, i.e. to fewer enforced lacks (see **Appendix 1** and the data sources and methods box for further details).

This section of the child poverty monitor presents data on children aged 0–17 years living in households experiencing material hardship using data gathered in the New Zealand Household Economic Surveys (NZHES) and analysed using DEP-17.

Data sources and methods

Indicators

- 0–17 year olds in households experiencing material hardship
- 6–17 year olds experiencing multiple lacks of child-specific and child-relevant necessities

Data source

New Zealand Household Economic Survey (NZHES) via Perry 2017.[6]

Definition

The CPM reports a range of household material hardship from 7 or more (7+) to 9 or more (9+) lacks on the DEP-17 index.

Further information

The DEP-17 index correlates well with other measures of deprivation and wellbeing.

The DEP-17 index includes items from the Material Wellbeing Index (MWI). The MWI captures the living conditions and consumption across all households from low to high material living standards, rather than focusing only on the families with low material living standards. A DEP-17 score of 7+ is equivalent to an MWI threshold of ≤9 and a DEP-17 score of 9+ is equivalent to an MWI threshold of ≤5.

Child-specific items were included for the first time in the 2016 NZHES.

Children living in households experiencing material hardship

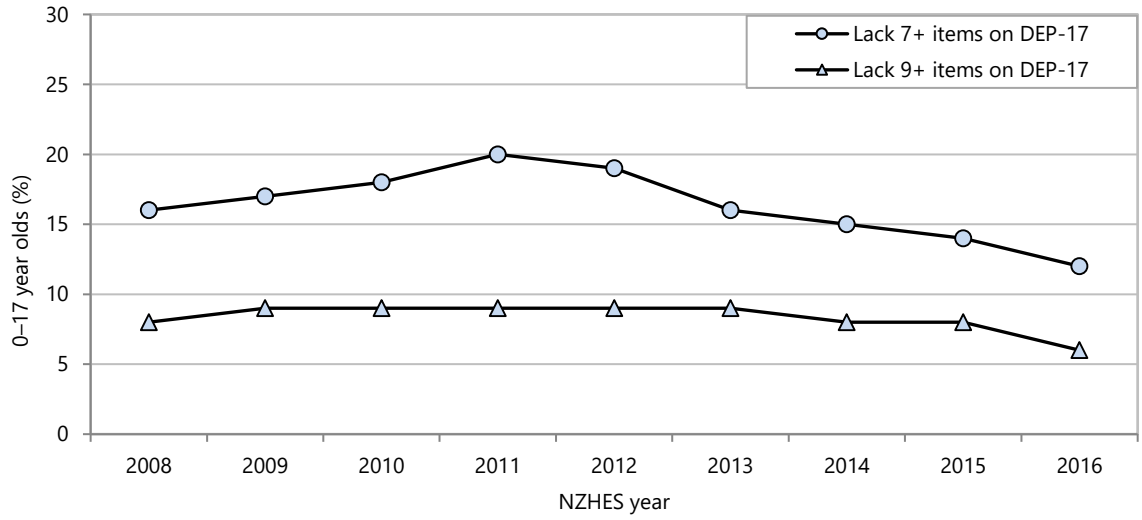
In 2016 there were 12% of New Zealand 0–17 year olds living in households which lacked seven or more of the essentials items in DEP-17, and 6% in households lacking nine or more of these items (**Figure 9**). These hardship levels are indicative only, and should not be read as official or definitive cut-off points.[6]

The proportion of 0–17 year olds living in households experiencing material hardship was consistently higher than the proportion of the total population. Adults aged 65 years or older have consistently had the lowest rate of living in households experiencing material hardship (**Figure 10**).

Hardship is experienced by children in households with a range of incomes. For example, in 2016, 27% of 0–17 year olds living in income-poor households (equivalised income less than 60% of contemporary median after housing costs) and 7% of 0–17 year olds in households with incomes above this level experienced seven or more enforced lacks (**Figure 11**). Because there are many more households with incomes above this income poverty threshold than below it, the number in hardship in each group is broadly similar.[6]

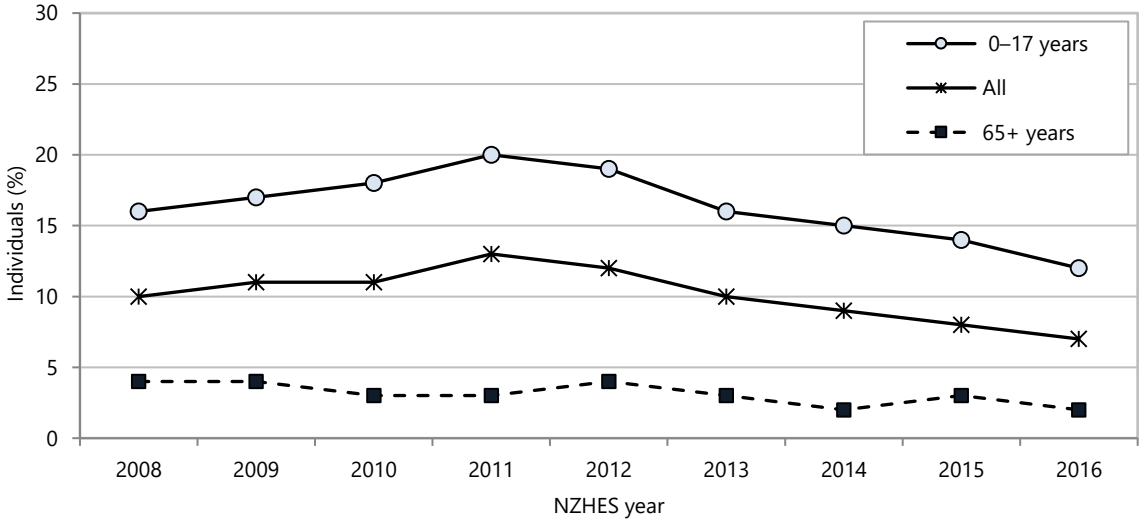
For households with incomes just above 60% of the median income AHC (the "near-poor"), relatively small changes in income or unexpected bills can make a significant difference to their actual day-to-day living conditions. Conversely their circumstances can improve when there are greater employment opportunities and wage growth.[6] Since the peak in material hardship rates in 2011–2012, around 60% of the reduction for 0–17 year olds has come from many "non-poor" households moving out of hardship as their incomes improved following the global financial crisis.[6]

Figure 9. Children aged 0–17 years in households living in material hardship, by hardship level New Zealand 2008–2016



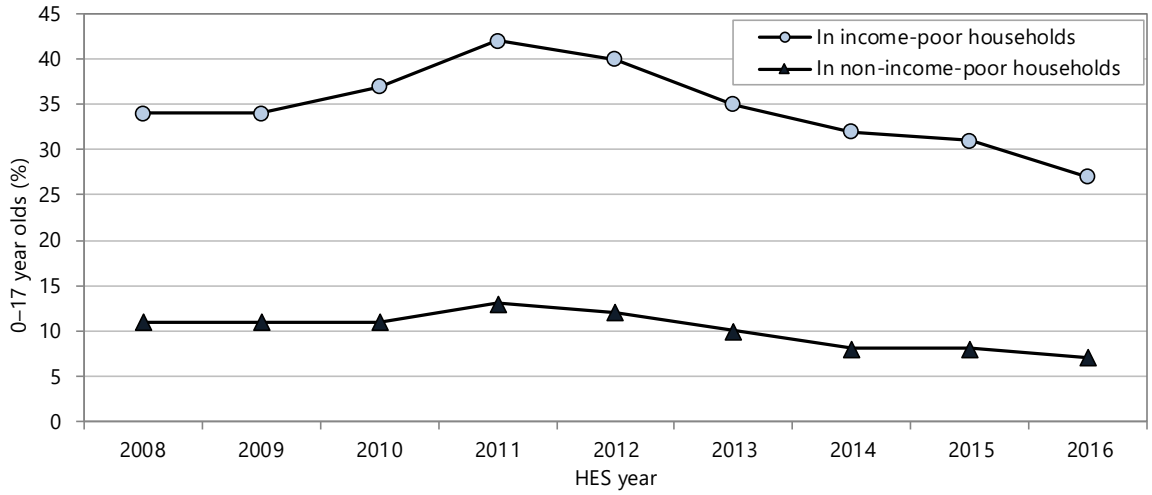
Source: Perry 2017[6] derived from Statistics New Zealand Household Economic Survey (NZHES) using Material Wellbeing Index scores equivalent to DEP-17 lacks; Two-year rolling averages

Figure 10. Individuals living in material hardship (7 or more lacks on DEP-17) by selected age groups, New Zealand 2008–2016



Perry 2017[6] derived from Statistics New Zealand Household Economic Survey (NZHES) using Material Wellbeing Index scores to equivalent to DEP-17 lacks; Two-year rolling averages

Figure 11. Children aged 0–17 years in households living in material hardship (7+ on DEP-17) by income category, New Zealand 2008–2016



Source: Perry 2017[6] derived from Statistics New Zealand Household Economic Survey (NZHES); Income-poor is equivalised household income below the 60% contemporary median

Child specific items

The items used to construct DEP-17 and other indices of material hardship and wellbeing are, of necessity, relevant to all ages and household types. In addition to these general items, the 2016 NZHES included 20 child-specific items (**Table 2**). Almost all the child-specific information is about items and experiences that most would agree every child should have and none should be deprived of.[6]

Table 2. Child-specific items included in the New Zealand Household Economic Survey 2016

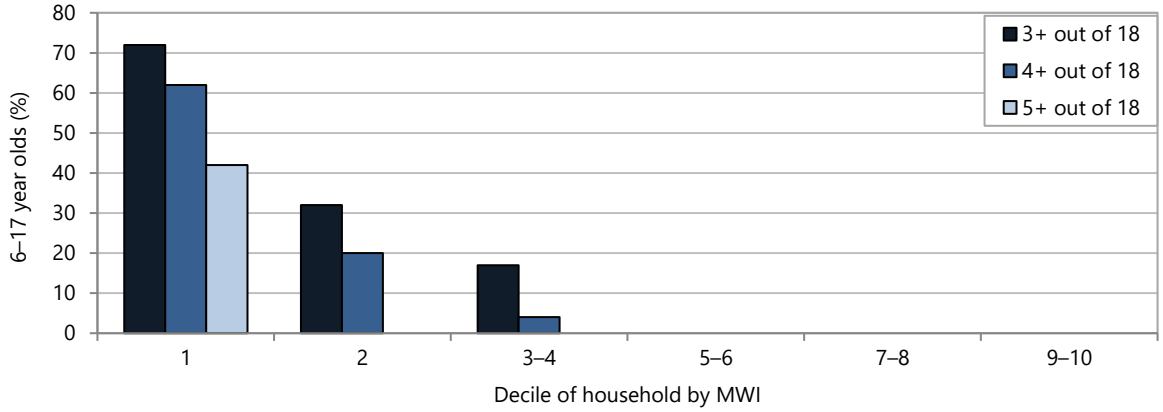
Ownership or participation (have/do, don't have/do and enforced lack)
Two pairs good shoes for each child*
Two sets of warm winter clothes for each child*
Waterproof coat for each child*
All the uniform required by the schools
A separate bed for each child*
Fresh fruit and vegetables daily*
Meal with meat, fish or chicken (or vegetarian equivalent) at least each second day*
A range of books at home suitable for their ages
A suitable place at home to do school homework
Friends around to play and eat from time to time
Friends around for a birthday party
Good access at home to a computer and internet for homework*
Mobile phone if aged 11+
Economising (not at all, a little, a lot) – to keep down costs to help in paying for (other) basic items (not just to be thrifty or to save for a trip or other non-essential). Economising "a lot" is taken as a deprivation in this report.
Postponed visits to doctor
Postponed visits to dentist
Unable to pay for school trips / events for each child*
Had to limit children's involvement in sport*
Children had to go without music, dance, kapa haka, art, swimming or other special interest lessons*
Children continued wearing worn out / wrong size clothes and shoes*
Made do with very limited space to study or play*

*Included in composite measure of 12 selected child-specific and 6 child-relevant household items Source: Perry 2017[6]

In reporting on these measures, Perry 2017[7] selected twelve of the child-specific items and combined with six general household items that are particularly relevant to children. This combination comprised an 18-item list of

potential child-specific or child-relevant restrictions and lacks.[6] Almost 60% of 6–17 year olds experience no restrictions in any of these items (a few lack computer or internet access at home). However a group of children experience multiple restrictions or lacks. This experience of multiple material restrictions or lacks clusters strongly at the hardship end of the spectrum. In the decile of New Zealand children in households with the lowest material wellbeing scores, over 70% lack three or more of these essential items, over 60% lack four or more, and over 40% lack five or more essential items (**Figure 12**, **Table 3**).

Figure 12. Multiple restrictions experienced by children aged 6-17 years, by decile of household material wellbeing index score, New Zealand 2016



Source: Perry 2017[6] derived from Statistics New Zealand Household Economic Survey (NZHES); 18 items composed of 12 selected child-specific items and 6 child-relevant household items (see Table 3 for details)

Table 3 presents the proportions of children who experience child-specific restrictions and lacks of child-relevant general household items, by child MWI decile. Within this table are 12 selected child-specific items. Over half of New Zealand 6–17 year olds experience no lacks of the selected child-specific items in **Table 3**. Six percent of the children in quintile 3 lack "good access at home to a computer and internet for homework".

In quintile 2 there were 18% of children who experienced restrictions in two or more of the 12 selected child specific items; 13% lacked three or more and 7% lacked four or more. Restrictions experienced were:

- Good access at home to a computer and internet for homework (18% lacked)
- 2 pairs of shoes in good condition and suitable for daily activities for each child (12% lacked)
- Meal with meat, fish or chicken (or vegetarian equivalent) at least each second day (9% lacked)
- 8% had to go without music, dance, kapa haka, art, swimming or other special interest lessons "a lot"
- Involvement in sport had to be limited "a lot" for 7%
- 5% made do with very limited space for children to study or play
- Waterproof coat for each child, because of the cost (5% lacked)
- Fresh fruit and vegetables daily (4% lacked)

Forty-two percent of 6–17 year olds in quintile 1 experienced restrictions in 2 or more items; 28% in 3 or more and 19% in 4 or more. Restrictions experienced were:

- Good access at home to a computer and internet for homework (33% lacked)
- 2 pairs of shoes in good condition and suitable for daily activities for each child (23% lacked)
- Involvement in sport had to be limited "a lot" (20%)
- Fresh fruit and vegetables daily (21% lacked)
- Meal with meat, fish or chicken (or vegetarian equivalent) at least each second day (20% lacked)
- Waterproof coat for each child (17% lacked because of the cost)
- Separate bed for each child (13% lacked)
- Continue to wear shoes or clothes that are worn out or the wrong size (11%)
- Made do with very limited space for children to study or play (10%)
- 10 % had to go without music, dance, kapa haka, art, swimming or other special interest lessons "a lot"
- Unable to pay for school trip or other school event "a lot" (6%)

Table 3. Restrictions experienced by 6-17 year olds, by household Material Wellbeing Index score, grouped in quintiles of children, New Zealand 2016

	All	D1	D2		*Q1	Q2	Q3	Q4	Q5
Distribution of children (6-17yrs) across MWI deciles of children (%)	100	10	10		20	20	20	20	20
Don't have									
2 pairs of shoes in good condition and suitable for daily activities for each child	8	34	10		23	12	.	.	.
2 sets of warm winter clothes for each child	2	.	.		.	.	.	.	.
Waterproof coat for each child (because of the cost)	5	24	8		17	5	.	.	.
Separate bed for each child	4	.	.		13	.	.	.	.
Fresh fruit and vegetables daily	5	32	9		21	4	.	.	.
Meal with meat, fish or chicken (or vegetarian equivalent) at least each second day	6	30	.		20	9	.	.	.
Good access at home to a computer and internet for homework	12	43	21		33	15	6	.	.
Economised "a lot" on children's items to keep down costs to enable other basic things to be paid for (not just to be thrifty or to save for a trip or other non-essential)									
Had to go without music, dance, kapa haka, art, swimming or other special interest lessons ("a lot")	4	13	6		10	8	.	.	.
Unable to pay for school trip or other school event ("a lot")	1	.	.		6	.	.	.	.
Involvement in sport had to be limited ("a lot")	6	28	11		20	7	.	.	.
Made do with very limited space for children to study or play	4	11	10		10	5	.	.	.
Continue to wear shoes or clothes that are worn out or the wrong size	3	17	.		11	.	.	.	.
Multiple restrictions of child-specific items (the 12 above)									
2+ out of 12	13	49	34		42	18	.	.	.
3+ out of 12	8	41	13		28	12	.	.	.
4+ out of 12	5	29	7		19	6	.	.	.
Child-relevant general household items									
Received help (food, clothes, money) from a community organisation more than once in the last 12 months	5	33	12		23	.	.	.	.
Accommodation severely crowded (2+ extra bedrooms needed)	4	14	9		11	4	.	.	.
Dampness or mould a "major problem" in the accommodation	8	31	19		25	10	.	.	.
Respondent reports putting up with feeling cold to keep down costs for other basics (a lot)	7	34	19		27	5	.	.	.
delayed replacing or repairing broken or damaged appliances to keep down costs for other basics (a lot)	8	54	13		33	8	.	.	.
household has no access to car or van for personal use	4	18	10		14	3	.	.	.
Multiple restrictions out of 12 child-specific and 6 general child-relevant household items (18 in all)									
3+ out of 18	10	72	32		54	17	.	.	.
4+ out of 18	6	62	20		43	4	.	.	.
5+ out of 18	4	42	.		25	.	.	.	.
Postponed doctor's visits "a lot" to keep down costs to enable other basic things to be paid for (not just to be thrifty or to save for a trip or other non-essential)									
For children (a lot)	.	.	.		.	.	.	.	.
For respondent (a lot)	11	58	23		40	12	.	.	.
For children (a little or a lot)	5	.	.		15	6	.	.	.
For respondent (a little or a lot)	27	79	58		68	47	21	.	.
Respondent reports being dissatisfied or very dissatisfied with life	8	22	28		25	7	.	.	.
Respondent reports being satisfied or very satisfied with life	76	29	35		32	75	83	92	96

Source: Perry 2017[6] derived from Statistics New Zealand Household Economic Survey (NZHES). *Q1 Quintile 1 is further divided into Deciles 1 and 2.

Within quintile 1 the restrictions were experienced even more strongly among the ten percent of children living in households experiencing the most severe material hardship. In decile 1 49% of children lacked 2 or more of the 12 items; 41% lacked 3 or more; 29% lacked 4 or more. Restrictions experienced were:

- Good access at home to a computer and internet for homework (43% lacked)
- 2 pairs of shoes in good condition and suitable for daily activities for each child (34% lacked)
- Fresh fruit and vegetables daily (32% lacked)
- Meal with meat, fish or chicken (or vegetarian equivalent) at least each second day (30% lacked)
- Involvement in sport had to be limited "a lot" (28%)
- Waterproof coat for each child (24% lacked because of the cost)
- Continue to wear shoes or clothes that are worn out or the wrong size (17%)
- Separate bed for each child (13% lacked)
- 13% had to go without music, dance, kapa haka, art, swimming or other special interest lessons "a lot"
- Made do with very limited space for children to study or play (11%)

POVERTY SEVERITY AND PERSISTENCE

The Expert Advisory Group on Solutions to Child Poverty identified that measures of severe and persistent poverty were needed to monitor long term implications of experiencing poverty over time.[4] Measures for both severity and persistence have not been gathered consistently over time. However, given that the sustainable development goals include reducing all measures of poverty,[2] it is essential that the data available are included in this report, and that improving their reliability is considered a priority for ongoing monitoring of child poverty.

Income poverty and material hardship exist on a continuum from less to more severe.[7] There are several ways to conceptualise severe hardship or severe poverty, including:[6]

- Very high material hardship scores (say, 9+ lacks on DEP-17)
- Very low incomes (say, less than 40% or less than 50% of median AHC incomes)
- Having both low income and in material hardship

The second and third groups reflect the observation that, although important, household income is only one factor involved in determining household material wellbeing.[6] Other factors such financial assets, the range and quality of household goods, help in cash and help in kind from outside the household vary greatly from household to household. Households also vary in the budgetary demands related to debt servicing requirements, health- and disability-related costs, transport costs and expectations to assist others outside the immediate household. In relation to income poverty and material hardship households fall into four categories as listed below:

- Neither income poor nor experiencing material hardship
- Experiencing material hardship but not income poor
- Income poor but not experiencing material hardship
- Both income poor and experiencing material hardship

The last group, where both income poverty and material hardship overlap, is the one where the stress and need is likely to be the greatest.[6]

Data sources and methods

Indicators

- 0–17 year olds in households living below 40% and 50% moving line income poverty thresholds
- 0–17 year olds in households experiencing 9 or more lacks on DEP-17
- 0–17 year olds in households experiencing both income poverty and material hardship
- 0–17 year olds exposed to persistent poverty using 60% gross median threshold (after housing costs)
- 0–11 year olds who were exposed to persistent poverty using 50% gross median threshold

Data sources

Perry 2017.[7]

Definitions

Persistent Poverty: People whose average income across all seven SoFIE years was below the average low income (poverty) line. As income was averaged across all seven years, participants may have been above the income poverty line in some years, but still classified as being in persistent poverty.[9]

Current Poverty: People whose income was below the income poverty line for the particular survey year.

Further information

Note that there are no current data for indicators of persistent poverty. The persistent poverty information in this section is based on the analysis of SoFIE data to 2008, as published by Carter and Imlach Gunasekara[9] with some unpublished data provided to Perry by Carter and Imlach Gunasekara.

Poverty severity

Severe material hardship

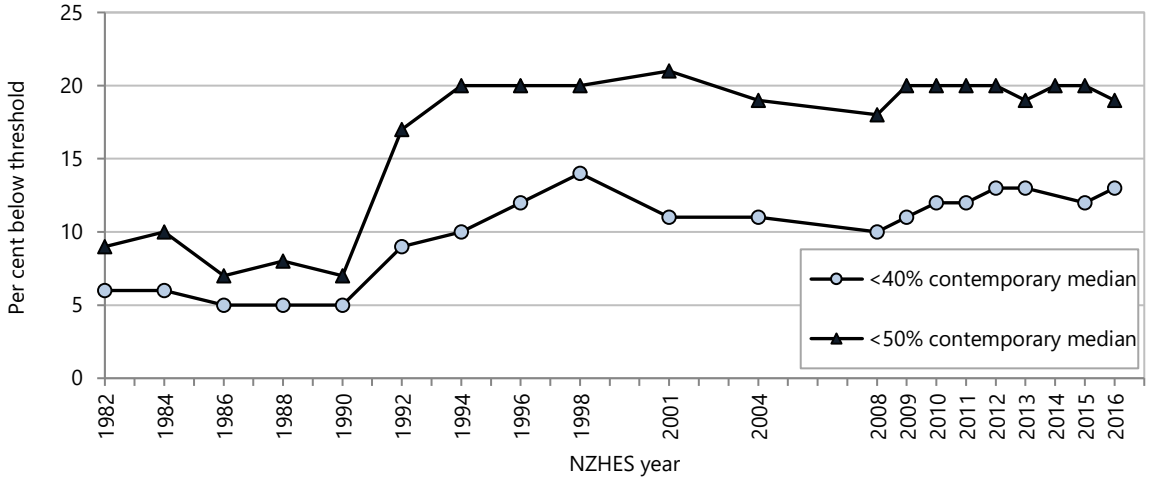
The proportion of 0–17 year olds living in households with nine or more lacks on DEP-17 was fairly stable from 2013–2015 at 8–9%. The proportion was lower in 2016 (6%). It will be important to review trends in later NZHES surveys to see whether this fall in rates is due to a new trend or statistical variation.

Severe income poverty

In 2016 there were an estimated 210,000 dependent 0–17 year olds (19%) living in households with equivalised income below 50% of the contemporary median after housing costs (AHC) and 140,000 (13%) living in households with equivalised income below 40% of the contemporary median AHC. Between 1990 and 1994 there was a marked increase in the proportion of dependent 0–17 year olds living in households with equivalised incomes below 50% of the contemporary median after housing costs. This high rate has not declined significantly since 1994. Within this group the proportion living in households with the lowest incomes (below 40% of contemporary median AHC) continued to increase until 1998, decreased over the following ten years, and then increased from 2008–2016 (**Figure 13**).

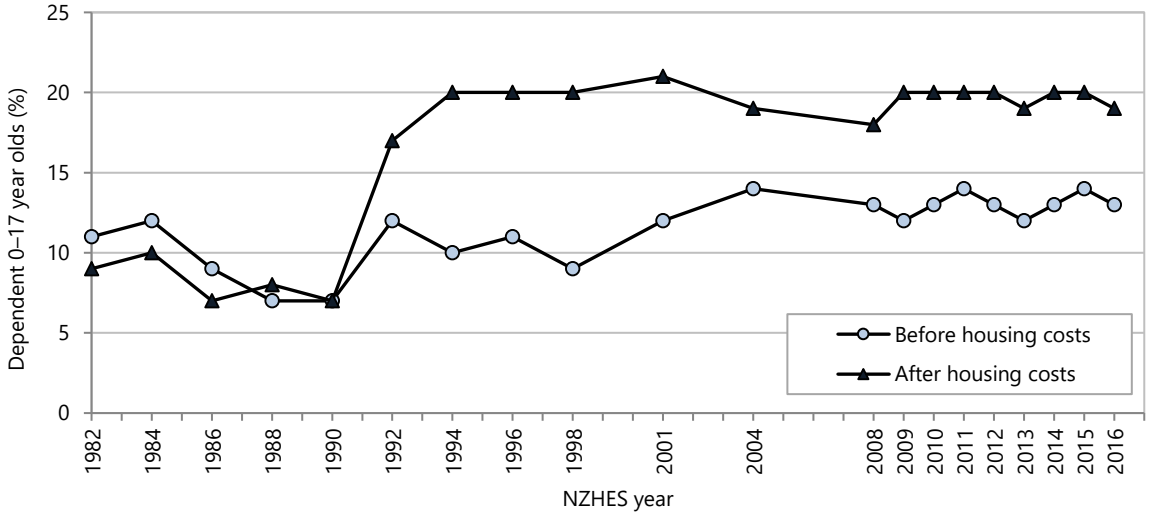
The contribution of housing costs to severe income poverty for children is illustrated by comparing the changes in after housing costs rates with the smaller increases in the proportion of dependent 0–17 year olds living in households with equivalised incomes below 50% of the contemporary median before housing costs since 1990 (**Figure 14**).

Figure 13. Dependent 0–17 year olds in very-low-income households (below 40% and 50% poverty threshold, contemporary median) after housing costs, New Zealand 1982–2016



Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES)

Figure 14. Dependent 0–17 year olds in very low income households (below the 50% poverty threshold, contemporary median) before and after housing costs, New Zealand 1982–2016



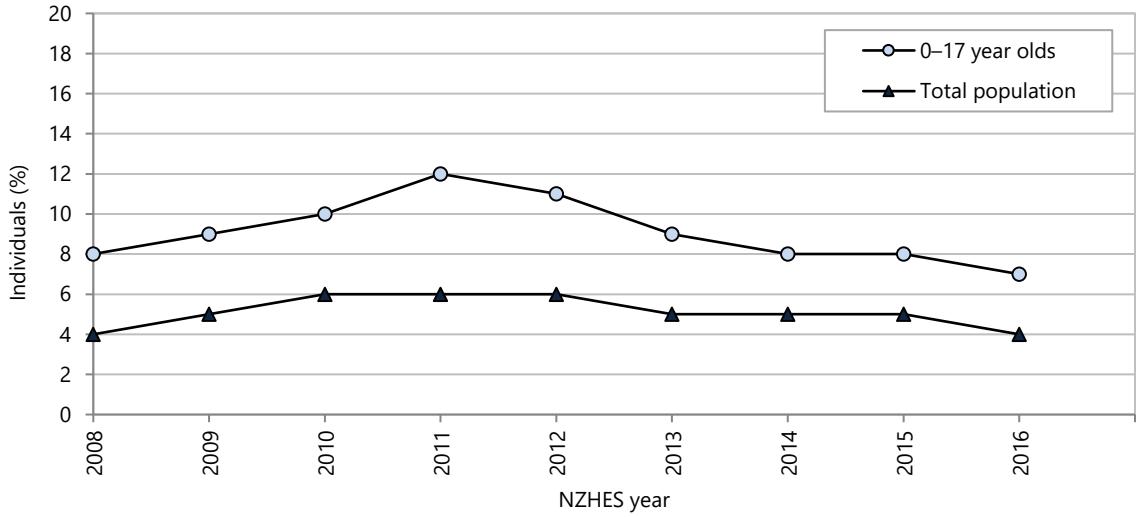
Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES)

Income poor and material hardship

In 2016, 7% of New Zealand children were living in households that were both income poor and in material hardship compared with 4% of the total population (**Figure 15**).

In 2015, across the whole New Zealand population, 8% of people lived in households experiencing seven or more (7+) lacks on DEP-17. Almost half of these people (48%) lived in very low income households (equivalised income below the 50% median AHC) and a further 8% lived in households with equivalised incomes between 50% and 60% of the median. Over one-quarter (27%) lived in households with equivalised incomes higher than 60% of the median but below the median (close to low-income) and the remaining 17% were experiencing material hardship with equivalised incomes above the median.[6]

Figure 15. Individuals in households that are both income-poor (below the 60% threshold, contemporary median, after housing costs) and in material hardship (7+ lacks on DEP-17), by selected age groups, New Zealand 2008–2016



Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES)

Persistent income poverty

Surveys like NZHES are valuable, providing a repeated snapshot information of a different sample of households each survey but they cannot tell us, for example, how many of the poor in one survey are still among those counted as poor in the next survey.[7] The most recent national measure of persistent poverty is the Statistics New Zealand Survey of Family, Income and Employment (SoFIE). This survey finished in 2009 and obtained longitudinal data from the same group of people over seven years. SoFIE confirmed that the risk of higher material hardship increases the longer that households have low income.[6] Persistent income poverty is determined by looking at people's average income over the seven SoFIE waves and to compare that with the average low income threshold (poverty line) over the whole time period. People whose average income is below the average poverty line over all of the seven waves are defined as being in persistent income poverty (or chronic low income). The poverty benchmarks used in SoFIE analysis were 50% and 60% of gross income. This is different to the disposable income benchmarks used in the earlier income poverty section. The 50% gross income benchmark is the SoFIE benchmark closest to a 60% median disposable income benchmark.[7]

New Zealand does not have a current longitudinal survey that collects income data from the same households over time. The SoFIE findings do however allow us to look at and interpret cross-sectional rates with an eye to the way that household experience of income poverty changed over time from 2002–2008:[7]

- In any wave, around half were in both persistent income poverty and current income poverty, the other half being only in current income poverty (i.e. more temporary or transient poverty)
- The people in this more transient group changed a lot over seven waves which is why the number in low income at least once in the seven waves was around double the number in low income at any one time
- Persistent income poverty rates were around 70% of the cross-sectional rates for the population as a whole and closer to 80% for children

INCOME INEQUALITY

Income inequality raises economic as well as social and political concerns, because rising inequality tends to drag down GDP growth. When lower income people are prevented from realising their human capital potential, it is bad not only for them but for the economy as a whole.[10] The level of income inequality can also be regarded as an indicator of the fairness of a society. A population with a high level of inequality may be considered less socially connected than a society with less inequality.[11] A population with high income inequality is one where human resources are wasted through a high proportion of the population out of work or trapped in low-paid and low-skilled jobs.[10] In 2014 the World Bank set a shared prosperity goal to promote income growth of the lowest 40 percent of the population in each country.[12] The United Nations extended this goal to include a target of sustained income growth of the bottom 40 per cent of the population at a rate higher than the national average in Sustainable Development Goal 10.[2]

This section uses data from the New Zealand Household Economic Survey (NZHES) to describe income distribution in New Zealand.

Data sources and methods

Indicators

- Trends in real income
- Income Inequality as measured by the P80:P20 ratio

Data sources

Statistics New Zealand Household Economic Survey (NZHES) via Perry 2017.[7]

OECD income distribution database http://www.oecd.org/social/income-distribution-database.htm

Definitions

Real income: Income adjusted for changing prices over time.

Income percentiles: Calculated by ranking individuals on the equivalised income of their respective households and dividing them into 100 equal-sized groups or percentiles. If the ranking starts with the lowest income then the income at the top of the 10th percentile is denoted P10, the median or top of the 50th percentile is P50 and so on.

P80:P20 ratio: Ratios of values at the top of selected percentiles, such as P80:P20, are often called percentile ratios. Percentile ratios summarise the relative distance between two points in the income distribution: In the case of P80:P20 ratio this is the relative distance in the income distribution between high household incomes (those in the 80th percentile) and low household incomes (those in the 20th percentile). The higher the P80:P20 ratio, the greater the level of inequality; a P80:20 ratio of 3.0 indicates that the incomes of individuals in households at the top of the 80th percentile are three times higher than for those at the top of the 20th percentile.

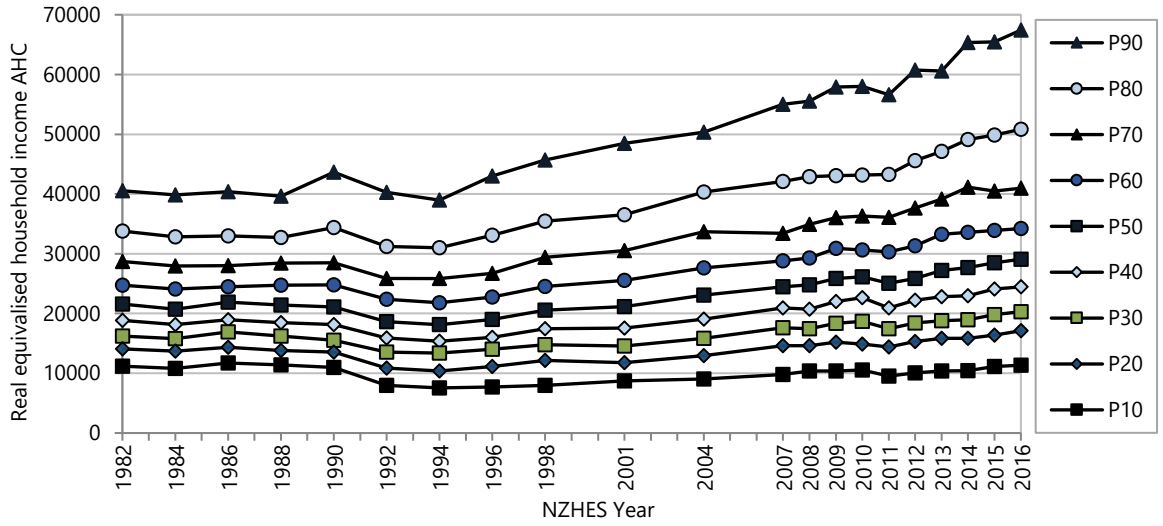
Trends in real income

The incomes of households in higher income deciles rose more quickly than incomes for households in lower deciles, both in proportion and in absolute terms between 1994 and 2016. This led to a greater gap between those on "higher" and those on "lower" incomes (**Figure 16**).

The P80:P20 ratio gives an indication of the degree of dispersion, or gap between "higher" and "lower" equivalised household incomes. The ratio includes a range of incomes for most of the population. It also avoids the volatility associated with the top and bottom ten percent of incomes that would be included if the full spread of the distribution was included.[7] An increasing P80:P20 ratio means that incomes for the 20% of the population with highest incomes have increased more than the increase in incomes for the 20% of the population with the lowest incomes suggesting that there is more income inequality.

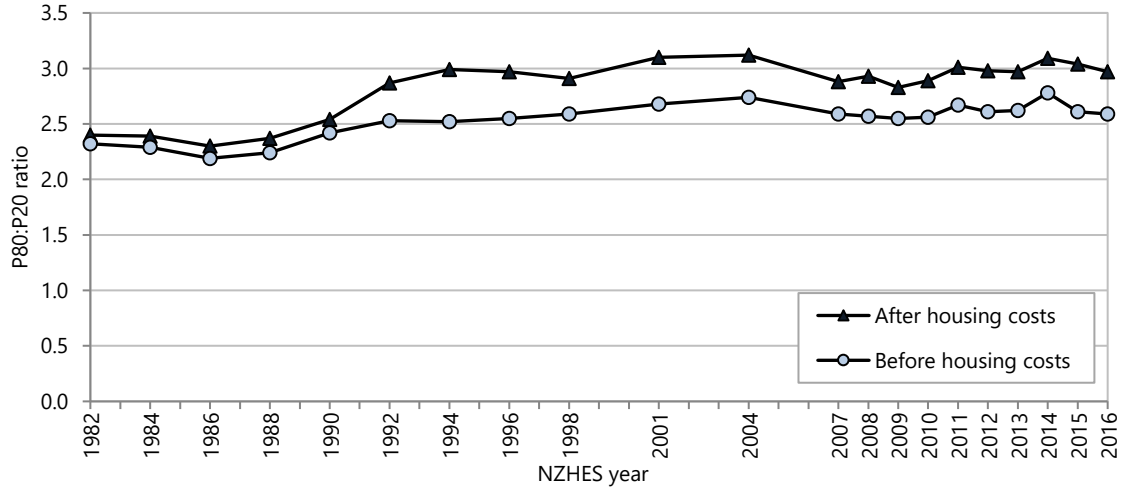
In New Zealand the most rapid rises in income inequality occurred between 1988 and 1992. Between 2004 and 2007 income inequality fell after introduction of the Working for Families (WFF) package. These changes were most noticeable for income inequality after housing costs (**Figure 17**).

Figure 16. Real equivalised household incomes after housing costs, by income decile New Zealand 1982–2016



Source: Perry 2017[6] derived from Statistics NZ Household Economic Survey (NZHES); Income expressed in 2016 NZ dollars; P10 is highest income in decile 1 (cut point between decile 1 and decile 2) and so on; P50 is the median income

Figure 17. Ratio of 80th percentile to 20th percentile (P80:P20 ratio) of equivalised disposable housing income before and after housing costs, New Zealand 1982–2016



Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES)

INTERNATIONAL COMPARISONS

Income inequality comparisons between countries can be made using the Gini coefficient and the Palma ratio. The Gini coefficient takes the incomes of all individuals into account and gives a summary of the income differences between each person in the population and every other person in the population. A difference of, say, $1,000 between two high-income people contributes as much to the index as a difference of $1,000 between two low-income people. The Gini scores in this report range from 0 to 100 (Gini co-efficient x 100); a score closer to 100 indicates higher inequality and a score nearer zero indicates greater equality (lower inequality) within the country concerned. The Palma ratio is an alternative indicator of income inequality, it represents the share of all income received by the 10% people with highest disposable income divided by the share of all income received by the 40% people with the lowest disposable income. The Palma ratio correlates well with the Gini co-efficient and is much easier to explain.[7] A Palma ratio of two means that the 10% of individuals with the highest incomes receive twice as much as the 40% of individuals with the lowest incomes.

The use of non-income measures provides a useful way of assessing relative material wellbeing. The European Union (EU) has developed and adopted an official measure of material hardship (deprivation) using non-income measures, which provides a robust way to make comparisons between countries. The 2008 New Zealand Living Standards Survey and the 2016 NZ Household Economic Survey include the same non-income measure items. The comparative New Zealand data cannot be presented until the EU publishes a full range of official and updated figures based on the EU 13-item deprivation index (EU-13).[6]

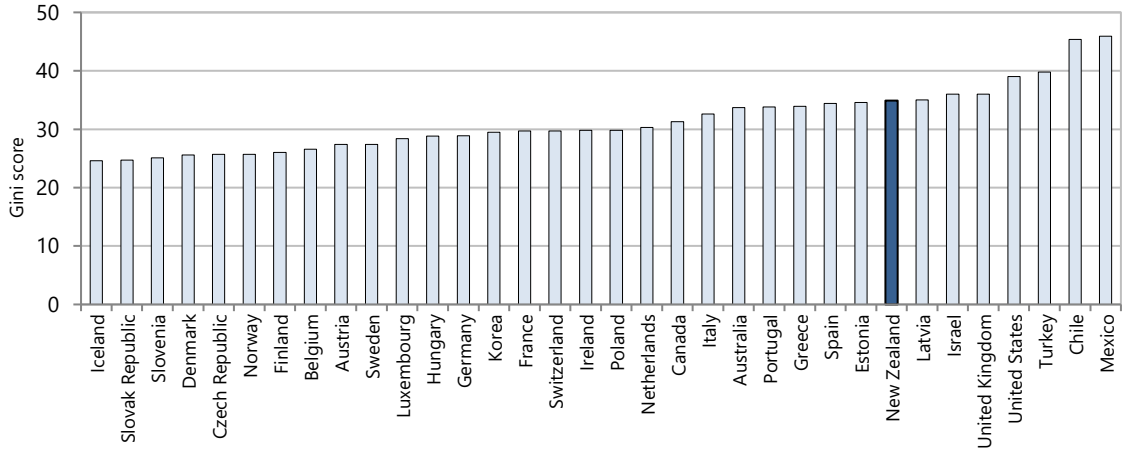
International comparisons of income poverty estimate the proportion of children in each country living in households below an agreed low-income threshold. This type of comparison is not presented in detail in this report, because this approach can lead to incongruities when making comparisons between in rich countries with very different median income levels.[7]

In this section, international comparisons of income inequality and distribution are derived mainly from the Organisation for Economic Co-operation and Development (OECD) Income Distribution Database[13] and the Eurostat for the EU database, with reference to other additional sources taken from Perry 2017.[6] In interpreting these data it is important to realise that they use before housing costs analysis only, and that there are differences in the way that children are included in equivalised income calculations.[7]

Income inequality

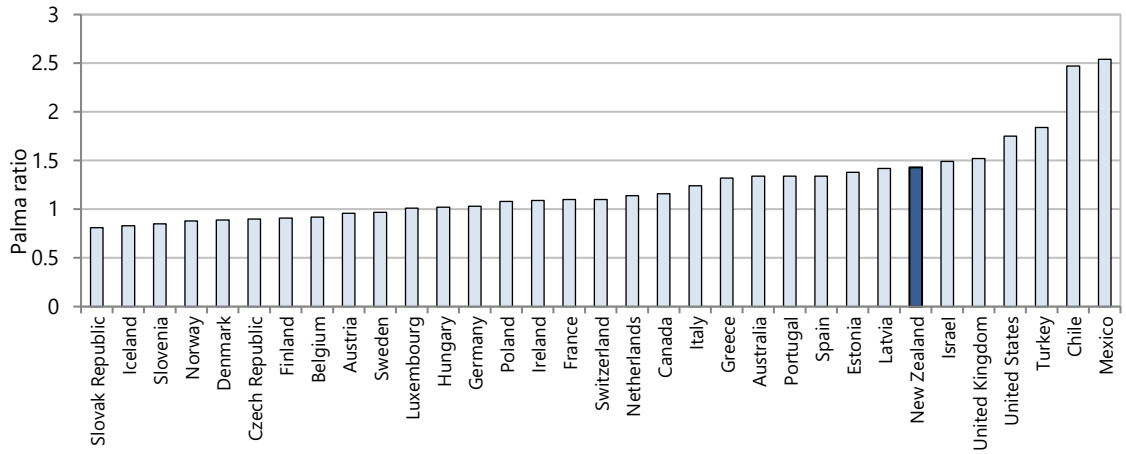
In 2014 New Zealand had a Gini score of 34.9, higher than the OECD median of 29.8 and also higher than Canada and Australia. Gini scores for the UK and USA were higher than for New Zealand (**Figure 18**). New Zealand has very similar ranking using the Palma ratio (**Figure 19**).

Figure 18. Gini score, by country, whole population OECD members 2014



Source: OECD[13] with no recent data available for Japan, Gini score = Gini co-efficient x 100

Figure 19. Palma ratio, by country whole population OECD members 2014



Source: OECD[13] with no recent data for Japan, Korea

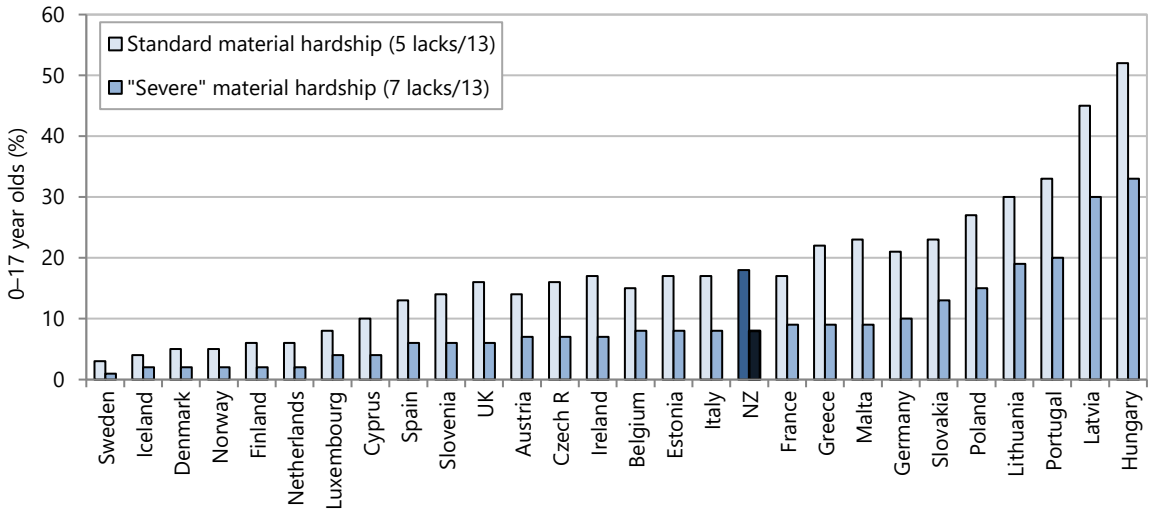
Material hardship

In May 2017, the EU formally adopted the 13-item deprivation index (EU-13) as its official measure of social and material deprivation. Starting with the 2015-16 survey the NZHES collected the information needed to create the EU-13 index. Although comparative New Zealand data cannot be presented until the EU publishes a full range of official and updated figures, in the meantime it is possible to present data from the 2008 Living Standards Survey to give some international comparisons, using the earlier EU-SILC (European Union statistics on income and living conditions) index. Preliminary analysis based on the 2016 NZHES and 2015 EU data indicates that New Zealand's international ranking for the population overall is similar to what it was in 2008-2009.

Using these 2008 data, 18% of New Zealand 0-17 year olds were living in households experiencing "standard" material hardship, and 8% in households experiencing "severe" material hardship. The New Zealand values were a little higher than the EU median of 17% and similar to those for Italy and France (**Figure 20**).

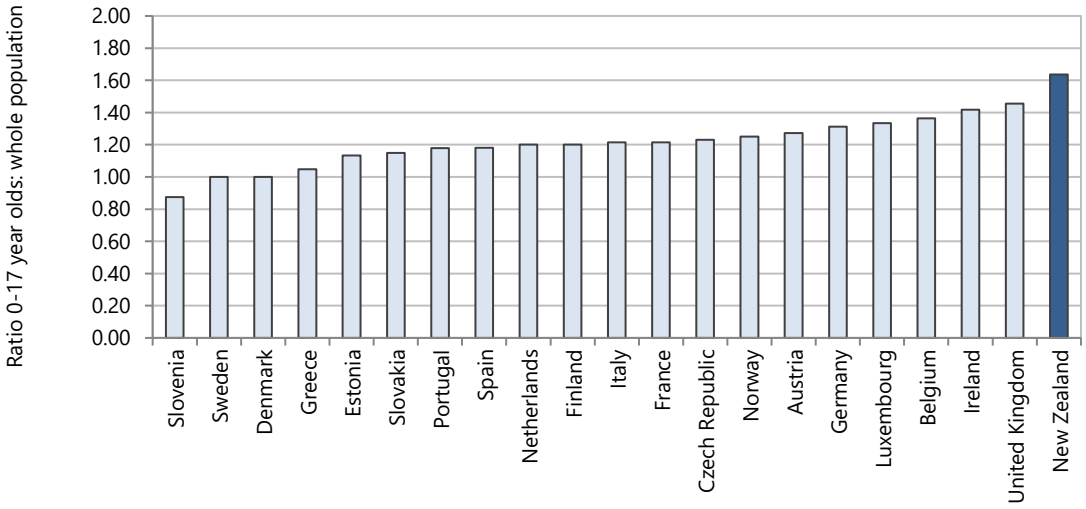
The hardship (or deprivation) risk ratio summarises the extent to which a specific group is over- or under-represented in material hardship categories compared with the whole population. A hardship risk ratio greater than one means that children are over-represented in hardship statistics.[6] As shown in **Figure 21**, the risk ratio for New Zealand 0-17 year olds is higher than the 20 European countries in the comparison. The reason for this high risk ratio is that New Zealanders aged 65 and older have low rates of material hardship, pulling down the population rate more than for other countries. When both the risk ratio and the actual rates of material hardship are considered, New Zealand 0–17 year olds experienced both above median material hardship rates and an above median risk ratio.[6]

Figure 20. Children aged 0–17 years in households by degree of material hardship, EU members cf. NZ 2008, 2009



Source: : Perry 2017[6] estimated using EU-SILC 2009 for EU countries and NZ LSS 2008 for New Zealand

Figure 21. Material hardship risk ratio for 0–17 year olds compared with total population 20 European countries cf. New Zealand 2008, 2009



Source: Perry 2017[6] international comparisons using EU-SILC 2009 for EU countries and NZ LSS 2008 for New Zealand

Income measures

Income share

Income is not distributed evenly across a population, even after taxes and transfers are taken into account. In the 2016 NZHES the 20% of New Zealand households with the highest equivalised incomes (the top households) received 42% of total income, whereas the 20% of households with the lowest equivalised incomes received 7% of total income (**Table 4**). **Table 4** further shows that the household income distribution in New Zealand, the UK, Canada and Australia is broadly similar; Finland and Norway show less dispersed income distribution.

Table 4. International comparison of the shares of total income by quintile of equivalised disposable household income, selected countries c.2012

	Percentage of total income (%)				
Equivalised disposable household income	Q1 (low)	Q2	Q3	Q4	Q5 (high)
Norway	10	16	19	23	33
Finland	10	14	18	23	36
Sweden	9	15	19	23	34
France	9	13	17	22	40
New Zealand (NZHES 2013)	8	13	17	23	40
New Zealand (NZHES 2016)	7	12	16	22	42
UK	8	13	17	22	41
Australia	8	12	17	22	41
Canada	7	12	17	24	40
Italy	7	13	18	23	39
Spain	6	12	17	24	41
Greece	6	12	18	24	40

Source: Perry 2017[7] derived from national statistics compilations: Australia (Table 1 in ABS (2015) for 2014; Canada (Table 202-0606 in Statistics Canada (2011) for 2009; European countries (Eurostat statistical database for Population and Social Conditions for 2012). NZHES: New Zealand Household Economic Survey.

Income poverty

In 2012 New Zealand ranked a little above the OECD median for the percentage of children living in households with equivalised incomes below 50% of the median income before housing costs. The New Zealand value of 13% of children was similar to the rate for Canada (14%) and Australia (13%) and higher than the UK (10%). The lowest rates were in Finland and Denmark (3%) and the highest in Turkey and Mexico (26%). However it must be remembered that these rankings do not necessarily reflect the actual day-to-day living conditions experienced by children in these countries.[7]

SUSTAINABLE DEVELOPMENT GOALS

The 17 sustainable development goals of the United Nations 2030 Agenda for sustainable development officially came into force in January 2016. New Zealand is one of the signatories to this Agenda, and is expected to take ownership and establish national frameworks for the achievement of all 17 Goals. The first goal is to end poverty in all its forms, everywhere, with a specific target to reduce at least by half the proportion of men, women and children of all ages living in poverty in all its dimensions by 2030.[2]

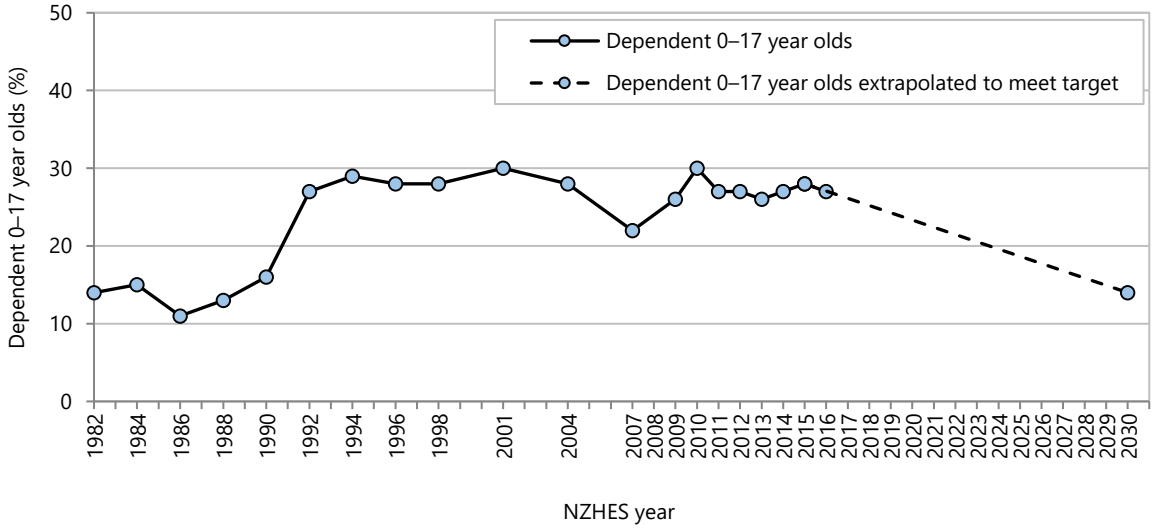
This section of the report shows the changes required for New Zealand to halve the rates of 0–17 year olds living in low-income households and in households experiencing material hardship, using the measures presented in the Child Poverty Monitor and a 2015 baseline.

A 50% reduction in the proportion of dependent 0–17 years olds living in households with equivalised incomes less than 60% of the contemporary median AHC will bring child poverty levels on this measure close to those in the early 1980s (**Figure 22**). The extrapolation indicates that New Zealand needs continued sustained reductions in relation to this measure to meet the 2030 target.

Sustained efforts to reduce rates of material hardship are also required to reduce these measurements to half of the 2015 benchmark by 2030. Since 2015 there has been a reduction in proportion of dependent 0–17 year olds living in households that experience forced lacks of 7 or more of the 17 essentials in the material deprivation index (DEP-17) and in the proportion in more severe hardship, who experience forced lacks of 9 or more essentials (**Figure 23**).

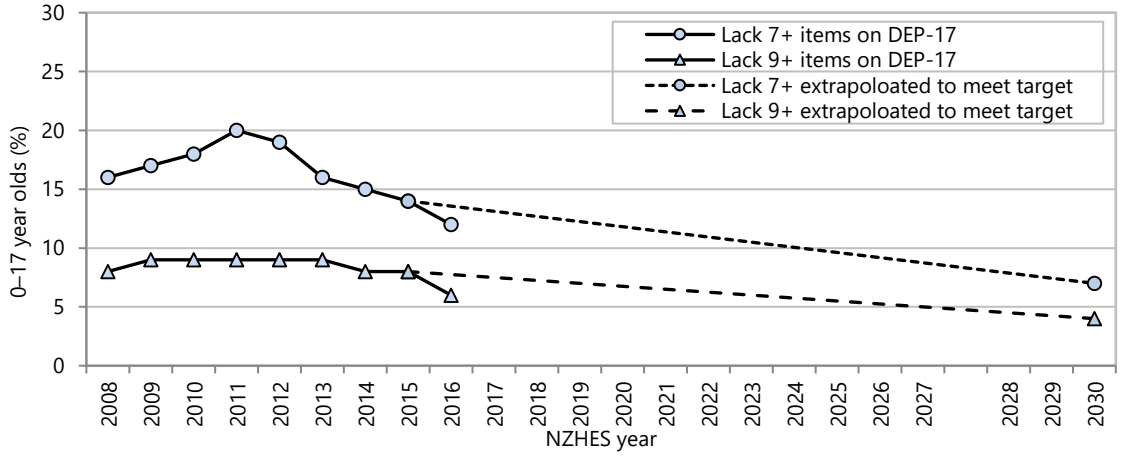
Figure 24 shows no sustained reduction in the proportion of dependent 0–17 year olds in households with equivalised incomes below 50% of the contemporary median (very-low-income households). It is essential that measures taken to meet the 2030 target address the most severe income poverty within this group. The proportion of 0–17 year olds living in the most income poor households, with equivalised incomes below 40% of the contemporary median, has not decreased and may have increased since 2015.

Figure 22. Dependent 0-17 year olds in households living in low-income households (below the 60% threshold, contemporary median) after housing costs, New Zealand 1982–2016 and extrapolated to 2030



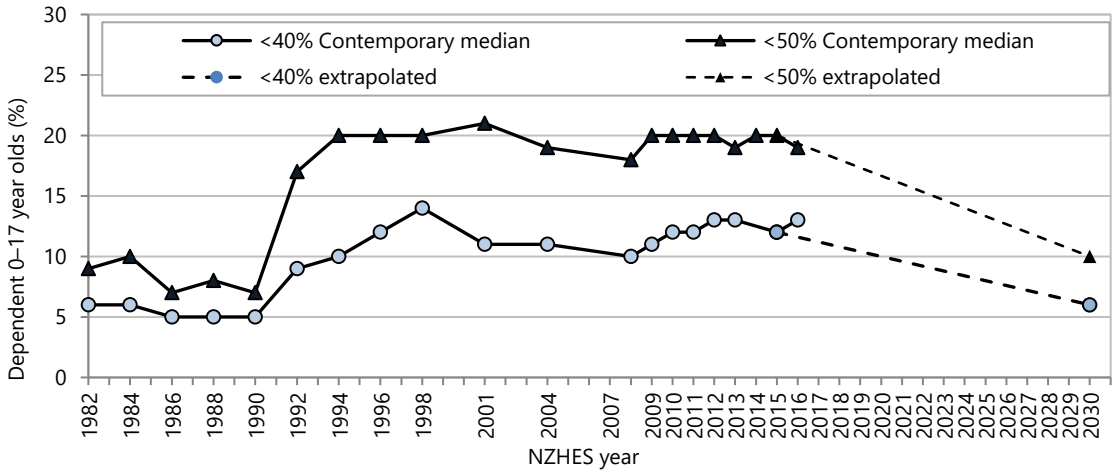
Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES) 1982–2016; Two-year rolling averages

Figure 23. Children aged 0–17 years in households living in material hardship, by hardship level, New Zealand 2008–2016 and extrapolated to 2030



Source: Perry 2017[6] derived from Statistics New Zealand Household Economic Survey (NZHES) using Material Wellbeing Index scores equivalent to DEP-17 lacks; Two-year rolling averages

Figure 24. Dependent 0–17 year olds in very low income households (below the 40% and 50% thresholds, contemporary median) after housing costs, New Zealand 1982–2016 and extrapolated to 2030



Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES) 1982–2016; Two-year rolling averages

SOCIAL AND ECONOMIC ENVIRONMENT

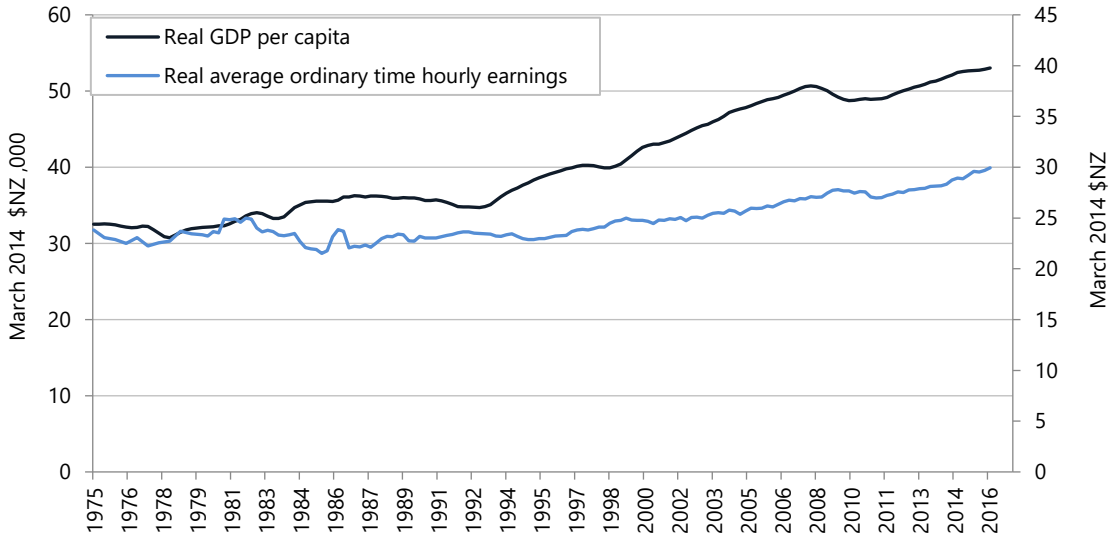
The health and social circumstances of individual children, as well as their whānau and families, are affected by forces in the broader social and economic environment beyond their control that may impact their wellbeing.[14] The following section shows the changes over time in New Zealand's economic growth relative to average hourly income, in employment and underutilisation, and in the number and proportion of children dependent on a benefit recipient. A rise in the unemployment rate is a key marker of an economic downturn in a community, with effects on a wide range of outcomes for all children and young people in a community, not only for those directly affected by job loss within their own household.[15] Underutilisation is an indicator of insufficiencies in the volume of work.[16] Children in New Zealand households where the main income is from an income support benefit are more likely than other children to experience material deprivation and to live in income-poor households.[17]

ECONOMIC GROWTH AND INDIVIDUAL EARNINGS

The gross domestic product (GDP) remains the official measure of economic growth in New Zealand.[16] Economic reforms in the decade from 1984–1994 successfully halted a decline in GDP per capita, and also contributed to large increases in income inequality and poverty.[18,19] In most OECD countries over the last three decades the share of national income paid to workers for their labour services has been declining while the owners of capital have been receiving an increasing share. Key drivers of this disparity include rapid technological change, globalisation and decreases in labour's bargaining power.[20] This section compares growth in GDP with average hourly earnings using data from Statistics New Zealand.

Gross domestic product and average hourly earnings have both increased in New Zealand since 1975, with a steeper increase in GDP compared with the benefits received by workers. In 2014 New Zealand dollars, real GDP per capita increased by 63% from $32,498 in the March quarter of 1975, to $53,022 in the June quarter of 2016, while real average ordinary time hourly earnings increased by 23% from $23.81 to $29.94 during the same period (**Figure 25**).

Figure 25. Real gross domestic product per capita and real average ordinary time hourly earnings, New Zealand March quarter 1975 to June quarter 2016



Source: Lattimore and Eaqub[21] and Statistics New Zealand.

Data sources and methods

Indicators

- Real per capita gross domestic product (RPC-GDP)
- Real ordinary time average hourly earnings (ROT-AHE)

Data sources

Numerator: Base series from Lattimore and Eaqub[21] and supporting web page 1975–1987Q1. Statistics New Zealand: GDP (production) chain volume seasonally adjusted total 1987Q2–2016Q2

Denominator: Statistics New Zealand: Estimated de facto population 1975–1990; Estimated resident population 1991-2016

ROT-AHE: Statistics New Zealand: Average hourly rates, all sectors EMP013AA 1980–1986; Average hourly earnings index ERN001AA was used to calculate back from EMP013AA data for 1975–1979; Quarterly Employment Survey 1987–2016

Definitions

Real GDP is adjusted for changing prices and reflects the extent to which growth in the value of goods and services is due to increased production rather than an increase in the absolute value of the goods and services produced.

RPC-GDP divides the national GDP by the population.

Real AHE are adjusted for changing prices.

ROT-AHE represent the number of hours usually worked and the usual income in a reference week.

Further information

The production approach to GDP measures the total value of goods and services produced in New Zealand, after deducting the cost of goods and services used in the production process.[16]

GDP data were re-expressed in March 2014 prices using a constant ratio based on the ratio of the nominal and real values in the March 2014 quarter; AHE data were re-expressed in March 2014 prices using 2014 rebased Consumer Price Index.

While the different data series used to develop a composite AHE data set may have had different underlying methodologies, this is not likely to have a significant effect on the overall pattern of quarterly change in AHE.

The important comparison in the section on RPC-GDP and ROT-AHE is the quarterly percentage change in each variable rather than the absolute monetary value. The graph axes have been scaled to make it easier to compare the relative changes in each variable over time.

UNEMPLOYMENT AND UNDERUTILISATION

The unemployment rate provides a picture of overall economic conditions.[22] A rise in the unemployment rate is associated with a wide range of adverse outcomes for all children and young people in a community, not just those whose parents lose employment.[15] Underutilisation is a concept that is supplementary to unemployment and measures lack of employment from a worker's perspective. It reflects not only total lack of work but also insufficient volume of work.[23]

The following section is a review of unemployment from 1986–2017 and underutilisation from 2004–2017 using data from Statistic New Zealand's Household Labour Force Survey.

Data sources and methods

Indicators

- Persons unemployed and unemployment rate
- Persons underutilised and underutilisation rate

Data source

Statistics New Zealand Household Labour Force Survey (HLFS).

Definitions[24]

Unemployed: All people in the working-age population who, during the reference week, were without a paid job, available for work, and had either actively sought work in the past four weeks or had a new job to start within the next four weeks.

Unemployment rate: Number of unemployed people expressed as a percentage of the labour force.

Working age population: Usually resident, non-institutionalised, civilian population of New Zealand aged 15 years and over.

Underutilised: Sum of those unemployed, underemployed, and in the potential labour force.

Underutilisation rate: Number of underutilised people expressed as a proportion of those in the extended labour force.

Underemployment: People who are in part-time employment who would like to, and are available to, work more hours.

Potential labour force: People who are not actively seeking work but are available and wanting a job, and people who are actively seeking but not currently available for work, but will be available in the next four weeks.

Extended labour force: people in the labour force, or in the potential labour force.

Further information

The estimates from the HLFS were revised in March 2015 using 2013 Census data.

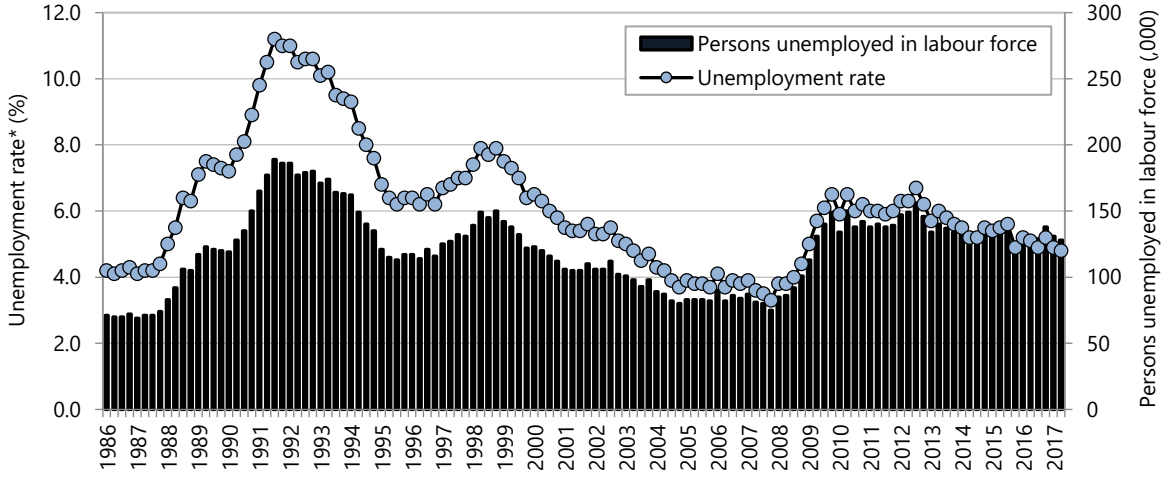
Seasonal adjustment removes the seasonal component present when dealing with quarterly data and makes the underlying behaviour of the series more apparent.

A redesigned HLFS was implemented from the June 2016 quarter and will enable more accurate reporting of underutilisation statistics in line with International Labour Organisation recommendations.

Underutilisation measures in the HLFS replace previously produced "jobless" data.

In June 2017 there were 128,000 New Zealanders who were officially unemployed (4.8%). The seasonally adjusted unemployment rate has remained under 6% since September 2013. Looking back over the past 30 years the unemployment rate peaked at 11% in 1991 and again at 7.9% in 1998, fell to a low of 3.3% in 2007 before peaking again at 6.7% in 2012 (**Figure 26**).

Figure 26. Seasonally adjusted quarterly unemployment numbers and rates, New Zealand March 1986 to June 2017



Source: Statistics NZ Household Labour Force Survey;
*Rates have been seasonally adjusted

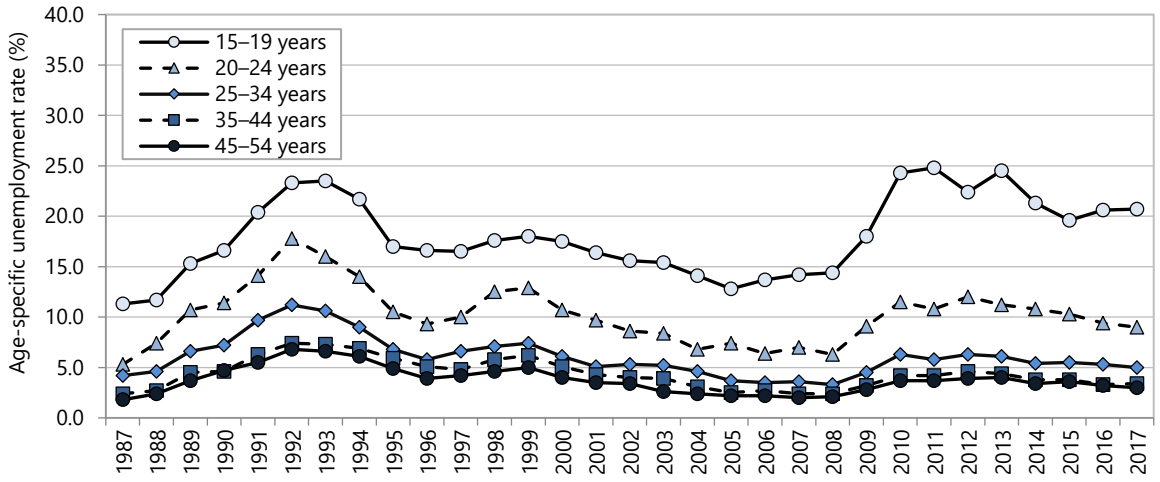
Unemployment rates, in absolute terms, differ by age, with the highest rates consistently observed for young people aged 15–19 years. In June 2017 the unemployment rate for young people aged 15–19 years was 21% compared with rates of around 3% for adults aged 35 years and over**.** Among 15–19 year olds, 8.3% were not in employment, education or training. From 2008 to 2010 unemployment rates for 15–19 year olds rose more steeply and peaked higher than unemployment rates for other age groups, and have remained much higher than rates for other age groups (**Figure 27**).

In June 2017 the unemployment rate for Māori was 11% and for Pacific peoples 10% compared with 3.4% for Europeans Following the 2008 global financial crisis, unemployment rates for Māori and Pacific New Zealanders rose more steeply than unemployment rates for other New Zealanders and have remained higher than 2008 rates for these ethnic groups (**Figure 28**).

The underutilisation rate includes persons underemployed and in the potential labour force, as well as those unemployed. In June 2017 there were 327,000 New Zealanders seeking additional hours of work, actively seeking work but not available in the next week, or available but not actively seeking work. The underutilisation rate increased following the 2008 global financial crisis and remains high (**Figure 29**).

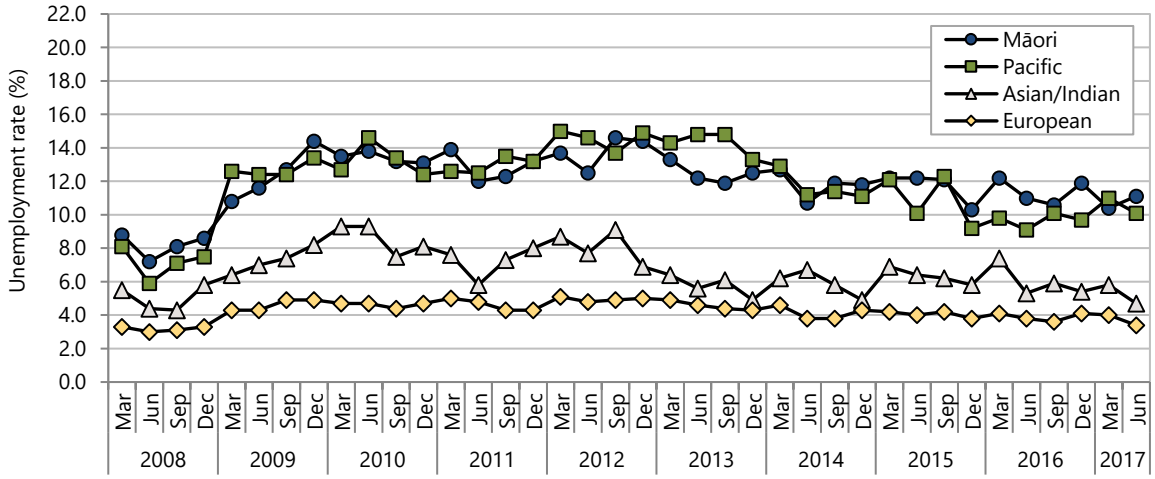
Analysis by Statistics New Zealand showed that from 2004–2016 unemployment and underutilisation data followed similar patterns over time with the underutilisation rate much higher than the unemployment rate. In the June 2016 quarter, underutilisation and unemployment rates followed the same pattern across the ethnic groups; Māori and Pacific people had the highest rates of all ethnic groups. The highest underutilisation rates in the June 2016 quarter were observed for 15–19 year olds (over 45%). These 15–19 and 20–24 year old age groups had both the highest numbers and rates of underemployment, unemployment, potential labour force, and underutilisation.[25]

Figure 27. Unemployment rates by selected age groups, New Zealand 1987–2017



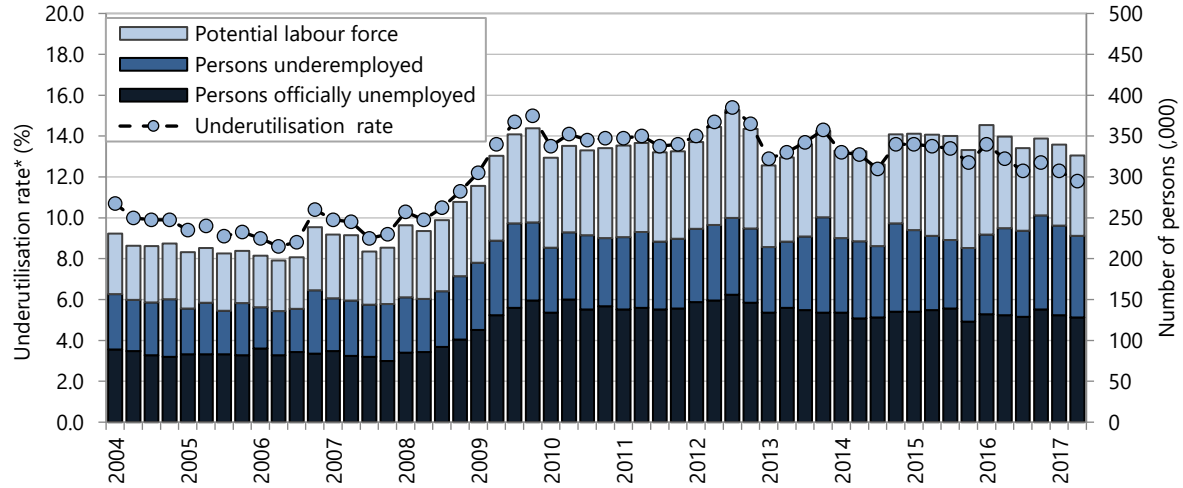
Source: Statistics NZ Household Labour Force Survey

Figure 28. Quarterly unemployment rates by ethnicity, New Zealand March 2008–June 2017



Source: Statistics NZ Household Labour Force Survey;
Ethnicity is total response

Figure 29. Quarterly underutilisation by extended labour force status, New Zealand March 2004 to June 2017



Source: Statistics NZ Household Labour Force Survey;
*Underutilisation = Number of underutilised persons as a percentage of the extended labour force; See DSM box for further definitions, Rates have been seasonally adjusted

CHILDREN RELIANT ON RECIPIENTS OF A BENEFIT

Children in New Zealand households where the main income is from an income support benefit are more likely than other children to live in income-poor households and to experience material deprivation.[17] Cuts in the real value of most welfare benefits was a contributor to the dramatic increase in child poverty rates in the early 1990s. Government policies in areas such as access to and value of income support benefits have a substantial effect on household incomes for families dependent on benefit payments.[4]

The following section uses data from the Ministry of Social Development to review the proportion of children who are reliant on a recipient of a benefit.

Data sources and methods

Indicator

- 0–17 year olds reliant on a recipient of a benefit

Data sources

Numerator: SWIFTT Database: Number of children aged 0–17 years who were reliant on a recipient of a benefit.

Denominator: Statistics NZ Estimated Resident Population as at 30 June each year.

Further information

The SWIFTT database provides information on the recipients of financial assistance through Work and Income.

All figures refer to the number of children reliant on a recipient of a benefit at the end of June and provide no information on the number receiving assistance at other times of the year. Figures refer to the number of children not the number of benefit recipients; in a household with more than one child each will be included in the count.

Welfare reform in July 2013 introduced three new benefits (Jobseeker Support, Sole Parent Support, and Supported Living Payment), which replaced many of the previously existing benefits, and changed the obligations to be met by recipients of a benefit. The welfare reform changes have been described at https://www.msd.govt.nz/about-msd-and-our-work/work-programmes/welfare-reform/july-2013/

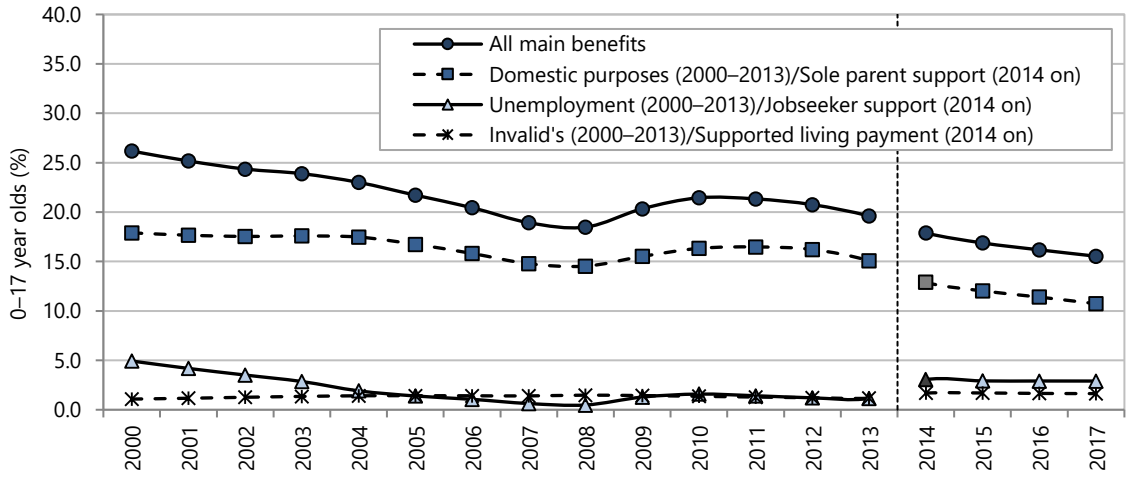
The benefits prior to the June 2013 reform are not directly comparable with the benefits as at June 2014. Prior to 2014, "Other benefits" included: Domestic Purposes Benefit - Women Alone and Caring for Sick or Infirm, Emergency Benefit, Independent Youth Benefit, Unemployment Benefit Training, and Unemployment Benefit Training Hardship, Unemployment Benefit Student Hardship, Widows Benefit, NZ Superannuation, Veterans and Transitional Retirement Benefit. "Other Benefits" did not include Orphan's and Unsupported Child's Benefits, and Non-benefit assistance. From 2014, "Other benefits" included: Emergency Benefit, Youth Payment, Young Parent Payment, Unemployment Benefit Student Hardship, NZ Superannuation, Veterans and Transitional Retirement Benefit.

To be eligible for a benefit, clients must have insufficient income from all sources to support themselves and any dependents, and meet specific eligibility criteria. Information about current eligibility criteria for benefits can be found at http://www.workandincome.govt.nz/eligibility/

Patterns over time

The number and percentage of 0–17 year olds who were reliant on a recipient of a benefit declined from 271,463 (26%) in June 2000 to 171,409 (16%) in June 2017 (**Figure 30**). In June 2017 most of these children (118,384; 69%) were reliant on a recipient of sole parent support, with the remainder reliant on recipients of jobseeker support (32,055; 19%), supported living payments (18,027; 11%) or other benefits (2,943; 1.7%)**.**

Figure 30. Children aged 0–17 years who were reliant on a recipient of a benefit recipient, New Zealand as at end of June 2000–2017

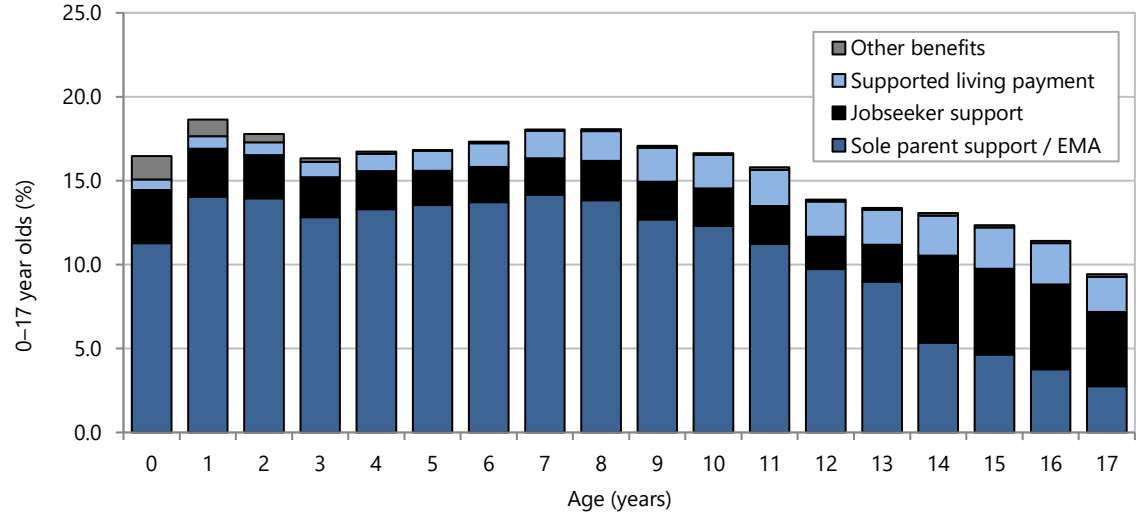


Numerator: MSD SWIFTT Database, Denominator: Statistics NZ Estimated Resident Population;
The benefits prior to the June 2013 reform are not directly comparable with the benefits as at June 2014

Patterns by age

The percentage of 0–17 year olds who were reliant on a recipient of a benefit reduced with increasing age, from 16% to 18% of children aged 1–10 years to less than 10% of children aged 17 years. The percentage of children reliant on a recipient of sole parent support declined from around 14% of 1–8 year olds to less than 3% of 17 year olds. For 15–17 year olds the percentage of children reliant on a recipient of sole parent support was lower than the percentage of children reliant on recipients of jobseeker support (**Figure 31**).

Figure 31. Children aged 0–17 years who were reliant on a recipient of a benefit, by age and benefit type, New Zealand as at end of June 2017



Numerator: MSD SWIFTT Database, Denominator: Statistics NZ Estimated Resident Population

CHILD POVERTY RELATED INDICATORS

Social inequities are responsible for a high proportion of death and illness among children in both poor and rich countries. Health effects of poverty arise from complex interactions between social and environmental factors such as education, poor quality housing and household crowding.[14] Within countries differences in health status are closely linked with degrees of social disadvantage.[26]

This section of the Child Poverty Monitor brings together data from several sources, each giving valuable insights into factors in the health, education, housing and social sectors that relate to the conditions in which children are born, live and grow, which affect their capacity to develop and thrive. The health-related factors infant mortality, medical conditions with a social gradient, assault, neglect and maltreatment are considered in detail along with housing and education. Household crowding is included in this report because it has been linked to several health conditions including communicable diseases such as gastroenteritis, hepatitis A and B, and respiratory infections.[27,28] Socioeconomic background has a significant effect on educational outcomes in New Zealand and underpins observed variation in student performance.[19]

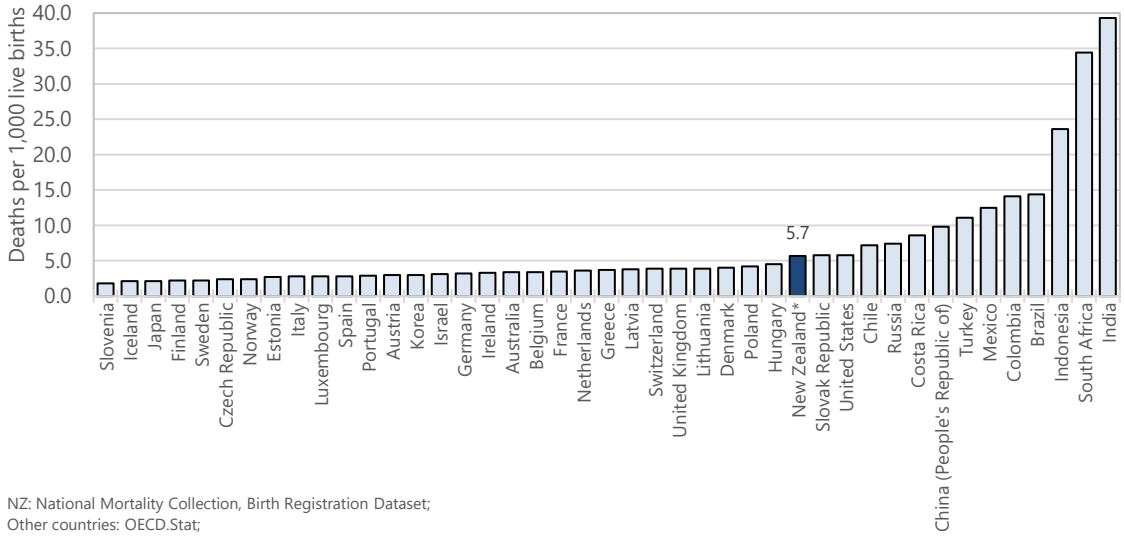
INFANT DEATHS

The infant mortality rate reflects the effects of economic and social environments on the health of mothers and newborns and can be read as an indicator of national commitment to universal maternal and child health, particularly for poor and marginalised families.[29,30]

In all developed countries, the rates of death in the first year of life (infant mortality rates) have been reduced to fewer than 10 infant deaths per thousand live births.[29] Infant mortality rates in New Zealand, however, are higher than the OECD average. The 2014 infant mortality rate for New Zealand was similar to that of the United States, higher than Australia and more than twice the rates in Slovenia, Iceland and Japan (**Figure 32**).[30]

This section reviews infant deaths, including sudden unexpected death in infancy (SUDI), using information from the National Mortality Collection and the Birth Registration Dataset.

Figure 32. International comparison of infant mortality rates, 2014



NZ: National Mortality Collection, Birth Registration Dataset;
Other countries: OECD.Stat;
Infant mortality: No minimum threshold of gestation period or birthweight

Data sources and methods

Indicators

- Infant deaths and infant mortality rate
- Sudden unexpected deaths in infancy (SUDI) and SUDI rates

Data sources

Numerator: National Mortality Collection

Denominator: Birth Registration Dataset (live births only)

Definitions

Infant death: Death of a live born infant prior to 365 days of life (includes neonates).

Infant mortality rate: Deaths of live born infants prior to 365 days of life per 1,000 live births.

Sudden unexpected death in infancy (SUDI): Death of a live born infant prior to 365 days of life, where the cause of death was sudden infant death syndrome (SIDS), accidental suffocation or strangulation in bed, inhalation of gastric contents or food, or ill-defined or unspecified causes.

SUDI rate: SUDI per 1,000 live births.

Sudden infant death syndrome (SIDS): Refers to refer to the sudden, unexpected death in an infant that is unexplained, even after a complete death scene investigation, thorough post-mortem (autopsy) and review of the infant's clinical history.[31]

Further information

Cause of death is the main underlying cause of death. Refer to **Appendix** 2 for relevant codes.

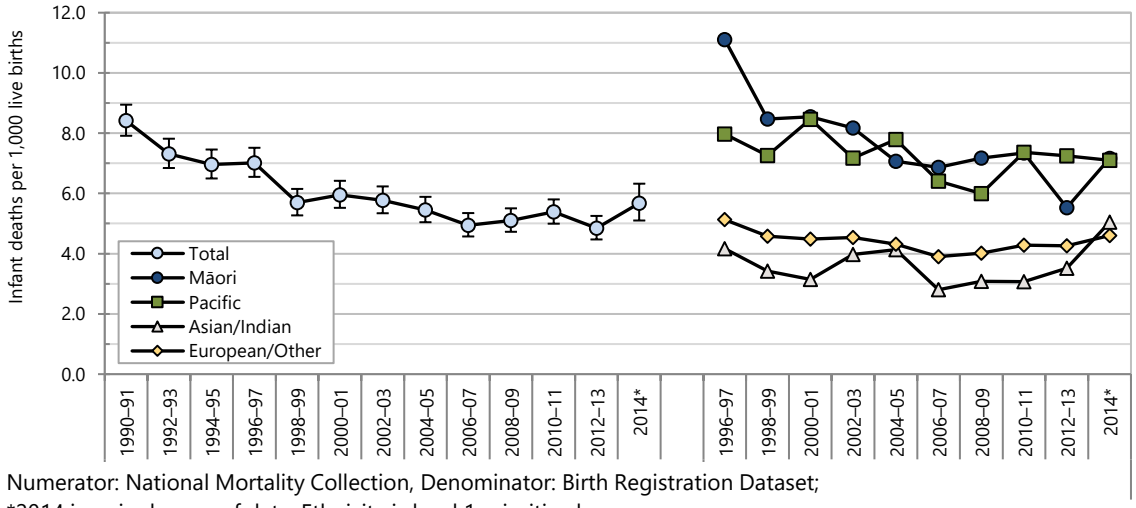
Population patterns

Infant mortality rates fell overall from 1990 to 2014, with the majority of the decrease occurring between 1990 and 1999 and a more gradual decline from 2000 to 2007. Infant mortality rates were stable from 2006–2014. From 1996 to 2014 the decline in infant mortality rates occurred in Māori, Pacific and European/Other ethnic groups and was most marked for Māori infants. Infant mortality rates for Māori and Pacific infants were consistently higher than for European/Other and Asian/Indian infants from 1996–2014 (**Figure 33**).

Between 2010 and 2014 there were inequalities in infant mortality rates by socio-economic deprivation, maternal age, ethnicity and gender as shown in **Table 5**. The mortality rate for infants born in areas with the highest scores on the NZDep2013 index of deprivation (deciles 9–10) was almost three times higher than the mortality rate for infants born in areas with the lowest NZDep2013 scores (deciles 1–2). The mortality rate for Māori infants was more than 1.5 times higher than mortality rates of European/Other infants, and for Pacific infants more than 1.6 times higher than for European/Other infants. The mortality rates for infants born to mothers younger than 20 years and aged 20–24 years were 2–3 times higher than the mortality rate for infants born to mothers aged 30–34 years.

Most infant deaths occurred in the first 28 days of life, and were caused by serious issues occurring around the time around birth such as congenital anomalies, extreme prematurity and other perinatal conditions. Sudden unexpected death in infancy (SUDI) was the most common cause of death for infants aged from 28 days old (**Table 6**).

Figure 33. Infant mortality rates in New Zealand, total (1990–2014) and by prioritised ethnicity (1996–2014)



Numerator: National Mortality Collection, Denominator: Birth Registration Dataset;
*2014 is a single year of data, Ethnicity is level 1 prioritised

Table 5. Infant deaths by demographic factors, New Zealand 2010–2014

Variable	2010–2014 (n)	Rate per 1,000 live births	Rate ratio	95% CI
Infant mortality				
NZDep2013 Index of deprivation quintile				
Quintile 1 (least deprived)	129	2.86	1.00	
Quintile 2	170	3.43	1.20	0.95–1.51
Quintile 3	254	4.51	1.57	1.27–1.95
Quintile 4	329	4.88	1.70	1.39–2.09
Quintile 5 (most deprived)	714	8.17	2.85	2.37–3.44
Maternal age group				
Under 20 years	197	10.58	2.94	2.46–3.51
20–24 years	389	6.93	1.93	1.66–2.23
25–29 years	362	4.61	1.28	1.10–1.49
30–34 years	314	3.60	1.00	
35 years or over	316	4.77	1.33	1.13–1.55
Prioritised ethnicity				
Māori	583	6.59	1.52	1.36–1.70
Pacific	247	7.27	1.68	1.45–1.94
Asian/Indian	154	3.70	0.85	0.72–1.02
European/Other	618	4.33	1.00	
Gender				
Female	696	4.66	1.00	
Male	908	5.76	1.23	1.12–1.36
Gestation at birth				
20–36 weeks	914	39.73	19.92	
37 weeks or over	566	1.99	1.00	0.00

Numerator: National Mortality Collection; Denominator: Birth Registration Dataset; Rate ratios are unadjusted

Table 6. Infant mortality by main underlying cause of death, New Zealand 2010–2014

Cause of death	2010–2014 (n)	Annual average (n)	Rate per 1,000 live births	%
New Zealand				
Infant mortality				
Congenital anomalies	370	74	1.21	23.1
Extreme prematurity	312	62	1.02	19.5
Intrauterine hypoxia or birth asphyxia	12	2	0.04	0.7
Other perinatal conditions	464	93	1.51	28.9
SUDI: SIDS	100	20	0.33	6.2
SUDI: suffocation or strangulation in bed	119	24	0.39	7.4
SUDI: all other types	18	4	0.06	1.1
Injury or poisoning	38	8	0.12	2.4
Other causes	171	34	0.56	10.7
Total	1,604	321	5.23	100.0

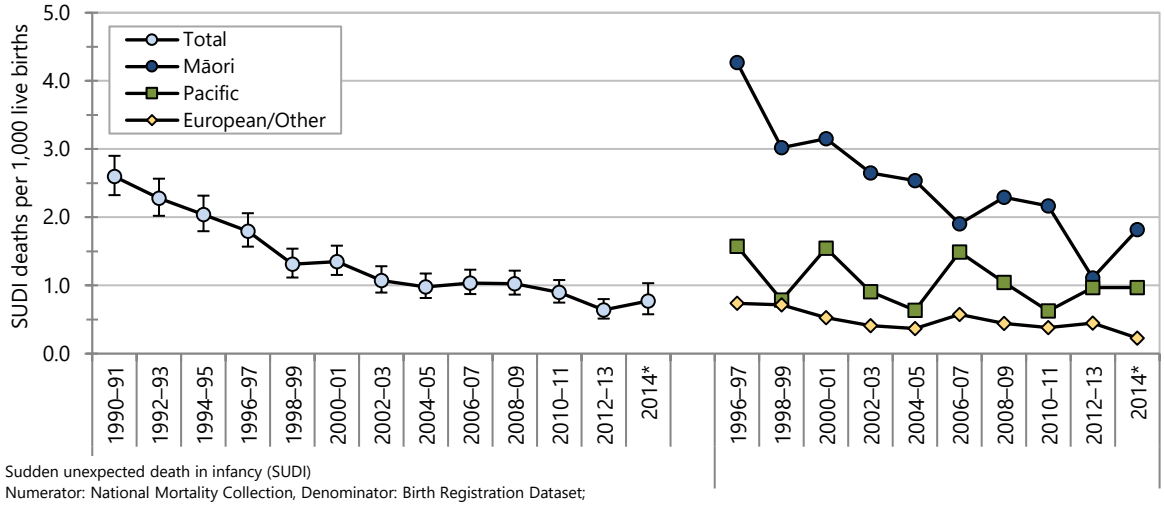
Numerator: National Mortality Collection; Denominator: Birth Registration Dataset; SUDI: Sudden unexpected death in infancy; SIDS: Sudden infant death syndrome

Sudden unexpected death in infancy

Sudden unexpected death in infancy (SUDI) is the leading cause of death for New Zealand infants aged from 28–364 days. These are deaths that occur suddenly and unexpectedly in the first year of life, usually in otherwise healthy infants, and often during sleep.[31,32] Many whānau and families whose baby died from SUDI were living in inadequate housing, had very low incomes and lacked financial resources. Income poverty restricted their housing options, and was also associated with material hardship through negative effects on households' ability to pay for heating, to access transport, and to purchase credit for their phones. Collectively these challenges were likely barriers to being able to provide a safe sleep environment for baby or to access appropriate supports.[33]

From 1996 to 2014 there was a statistically significant fall in the SUDI rate. Although the fall in SUDI rates was more marked for Māori infants compared with Pacific and European/Other infants, there is continuing inequity with rates for Pacific and Māori infants much higher than rates for European infants (**Figure 34**).

Figure 34. Sudden unexpected death in infancy (SUDI) rates in New Zealand, total (1990–2014) and by prioritised ethnicity (1996–2014)



Sudden unexpected death in infancy (SUDI)
Numerator: National Mortality Collection, Denominator: Birth Registration Dataset;
Ethnicity is Level 1 prioritised, Asian/Indian rate suppressed due to small numerator numbers

Between 2010 and 2014 there were inequalities in SUDI rates by socioeconomic deprivation, maternal age, ethnicity, gestational age at birth and gender as shown in **Table 7**. The SUDI rate for infants living in areas with the highest scores on the NZDep2013 index of deprivation (deciles 9–10) was more than seven times higher than infant mortality rates for infants in areas with the lowest NZDep2013 scores (deciles 1–2). The SUDI rate for infants born to mothers aged under 20 years was almost eight times higher than the rate for infants born to mothers aged 30 years or older, and for infants born to mothers aged 20–25 years the SUDI rate was five times the rate for infants born to mothers aged 30 years or older. Over the whole time period 2010–2014 the SUDI rate for Māori infants was more than four times higher than the SUDI rate for European/Other infants and the SUDI rate for Pacific infants was more than two times higher than the SUDI rate for European/Other infants. The SUDI rate for infants born before 37 weeks gestation was three times higher than the SUDI rate for infants born at or after 37 weeks gestation. The SUDI rate for male infants was one and a half times higher than the SUDI rate for female infants.

As previously shown in **Table 6**, the most common specific diagnoses within the SUDI group were sudden infant death syndrome (SIDS) (42% of SUDI deaths) and suffocation or strangulation in bed (50% of SUDI deaths). Deaths occurred throughout the first year of life, with 85% of SUDI occurring in the first 27 weeks.

Table 7. Sudden Unexpected Death in Infancy by sociodemographic factors, New Zealand 2010–2014

Variable	2010–2014 (n)	Rate per 1,000 live births	Rate ratio	95% CI
Sudden Unexpected Death in Infancy (SUDI)				
NZ Dep2013 index of deprivation decile (least to most deprived)				
Quintile 1	9	0.20	1.00	
Quintile 2	21	0.42	2.12	0.97–4.64
Quintile 3	24	0.43	2.13	0.99–4.59
Quintile 4	54	0.80	4.01	1.98–8.12
Quintile 5	129	1.48	7.39	3.76–14.5
Maternal age group				
Under 20 years	46	2.47	7.99	4.97–12.85
20–24 years	87	1.55	5.01	3.25–7.72
25–29 years	48	0.61	1.98	1.23–3.17
30–34 years	27	0.31	1.00	
35 years or over	23	0.35	1.12	0.64–1.96
Prioritised ethnicity				
Māori	149	1.68	4.45	3.26–6.07
Pacific	28	0.82	2.18	1.38–3.44
Asian/Indian	5	0.12	0.32	0.13–0.79
European/Other	54	0.38	1.00	
Gender				
Female	89	0.60	1.00	
Male	148	0.94	1.57	1.21–2.05
Gestation at birth				
20–36 weeks	50	2.17	3.61	2.63–4.94
37 weeks or over	171	0.60	1.00	

Numerator: National Mortality Collection, Denominator: Birth Registration Dataset; Rate ratios are unadjusted

CONDITIONS WITH A SOCIAL GRADIENT

The New Zealand Child and Youth Epidemiology Service has identified a number of medical conditions and modes of injury where rates of death or hospitalisation are more than one and a half times higher for children living in areas with the highest NZDep index of deprivation scores (deciles 9–10) compared with children living in areas with the lowest NZDep scores (deciles 1–2) and conditions where there are strong social gradients on the basis of ethnicity (see

Appendix 3). These medical conditions and modes of injury are said to have a social gradient.

This section reviews deaths and hospitalisations from medical conditions and injuries with a social gradient, including sudden unexpected death in infancy (SUDI), using information from the National Mortality Collection and the National Minimum Dataset.

Data sources and methods

Indicators

- Deaths from medical conditions and injuries with a social gradient in 0–14 year olds
- Hospitalisations for medical conditions and injuries with a social gradient in 0–14 year olds

Data sources

Numerators: Deaths: National Mortality Collection;
Hospitalisations: National Minimum Dataset.

Denominator: Statistics NZ estimated resident population.

Definitions

Deaths: Deaths (excluding neonates) with a medical condition or injury with a social gradient as the main underlying cause of death.

Hospitalisations: Acute and arranged hospitalisations (excluding neonates and waiting list cases) with a medical condition with a social gradient as the primary diagnosis and hospitalisations with a primary diagnosis of injury with a social gradient (excluding neonates and ED cases). Arranged hospitalisations are admissions within 7 days of referral.

Medical conditions with a social gradient: Acute bronchiolitis; acute lower respiratory infection unspecified; acute upper respiratory infections; asthma and wheeze; bronchiectasis; croup, laryngitis, tracheitis, epiglottitis; dermatitis and eczema; epilepsy or status epilepticus; febrile convulsions; gastroenteritis; inguinal hernia; meningitis; meningococcal disease; nutritional deficiencies or anaemias; osteomyelitis; otitis media; pneumonia; rheumatic fever or rheumatic heart disease; skin infections; tuberculosis; urinary tract infection; vaccine preventable diseases; viral infection of unspecified site (for codes see **Appendix 2**).

Injuries with a social gradient: External cause is land transport crashes (road traffic; non-traffic); falls; mechanical forces (inanimate; animate); thermal injury; poisoning; and drowning or submersion (for codes see **Appendix 2**).

Further information

SUDI rates are traditionally calculated per 1,000 live births, however in this section of the report the denominator used was children aged 0–14 year olds, so that the relative contribution SUDI makes to mortality in this age group is more readily appreciated. As a result, SUDI rates in this section are not readily comparable to SUDI rates reported elsewhere. SUDI data are presented separately because SUDI can be included in both medical condition and injury classifications.

Deaths from conditions with a social gradient

In the five years from 2010–2014 there were 525 deaths of 0–14 year olds as a result of conditions with a social gradient. Post-neonatal sudden unexpected death in infancy (SUDI) was the most frequent underlying cause of such deaths, accounting for 212 deaths (40%) at an average of 42 deaths per year. Pneumonia was the most common underlying cause of death from medical conditions with a social gradient, accounting for 51 (37%) of such deaths. Road traffic injury was the most common underlying cause of death from injuries with a social gradient accounting for 60 (34%) of such deaths. Drowning and off-road transport injuries were also frequent causes of death from injuries with a social gradient (**Table 8**).

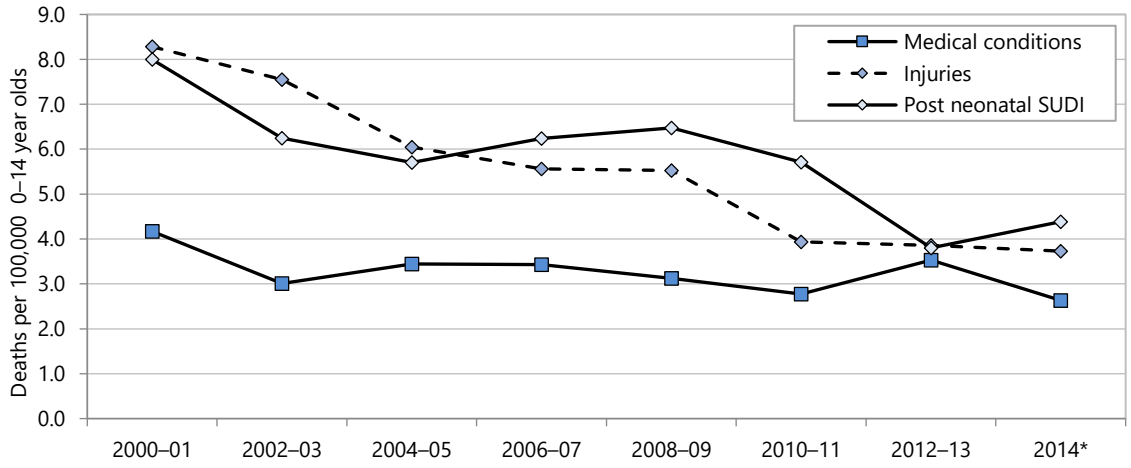
From 2000 to 2014 there was an overall marked fall in mortality rates for sudden unexpected death in infancy and deaths from injuries with a social gradient, with a less marked fall in the deaths from medical conditions with a social gradient (**Figure 35**).

Table 8. Deaths from conditions with a social gradient in 0–14 year olds (excluding neonates), by main underlying cause of death, New Zealand, 2010–2014

Cause of death	2010–2014 (n)	Annual average	Rate	%
New Zealand				
Total mortality from conditions with a social gradient	525	105	11.59	
Medical conditions				
Pneumonia	51	10	1.13	37.0
Asthma and wheeze	13	3	0.29	9.4
Other respiratory conditions	8	2	0.18	5.8
Epilepsy or status epilepticus	23	5	0.51	16.7
Meningococcal disease	14	3	0.31	10.1
Gastroenteritis	12	2	0.26	8.7
Meningitis	6	1	0.13	4.3
Other conditions	11	2	0.24	8.0
Total medical conditions	138	28	3.05	100.0
Injuries				
Road traffic crash	60	12	1.32	34.3
Drowning	41	8	0.91	23.4
Non-traffic land transport crash	45	9	0.99	25.7
Mechanical forces: inanimate and animate	16	3	0.35	9.1
Thermal injury	6	1	0.13	3.4
Poisoning	<5	s	s	s
Falls	<5	s	s	s
Total Injuries	175	35	3.86	100.0
Post neonatal SUDI				
Total Post neonatal SUDI	212	42	4.86	100.0

Numerator: National Mortality Collection (neonates removed); Denominator: Statistics NZ Estimated Resident Population; SUDI deaths are for infants aged 28–364 days only; Rate per 100,000 0–14 year olds

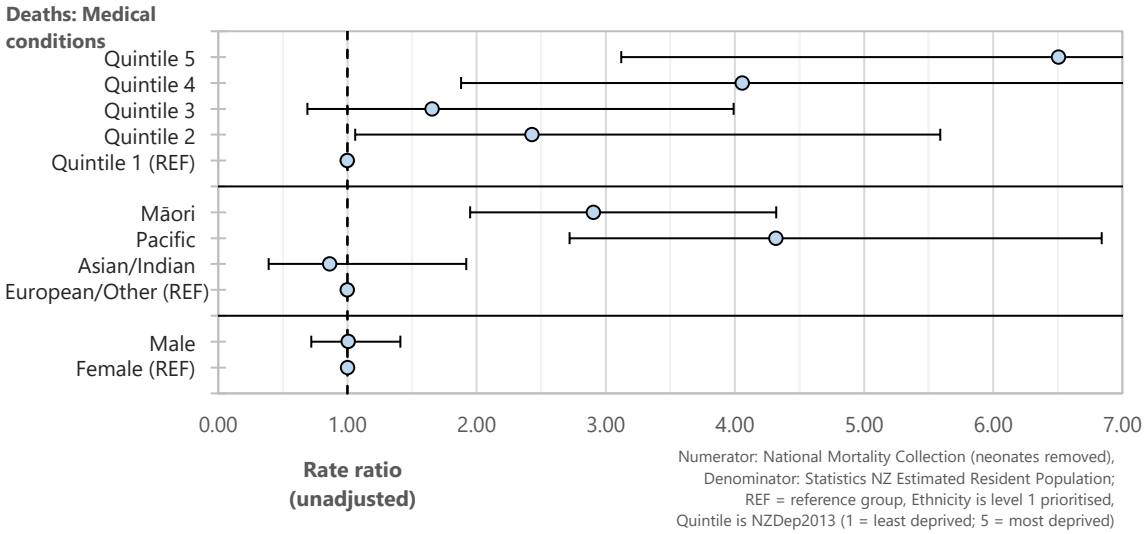
Figure 35. Deaths from conditions with a social gradient in 0–14 year olds (excluding neonates), New Zealand, 2000–2014



Numerator: National Mortality Collection (neonates removed), Denominator: Statistics NZ Estimated Resident Population; SUDI deaths are for infants aged 28–364 days only, 2014* is single year of data

There was significant disparity in death rates from conditions with a social gradient by ethnicity, particularly for medical conditions. Analysis by NZDep2013 confirmed the social gradient for the selected medical conditions and injuries (**Figure 36**). **Figure 36** and other similar figures compare the rates in different population groups with the reference (REF) population group. An unadjusted rate ratio of one indicates no difference between two groups. A rate ratio of two indicates that the health condition occurs twice as often in the specified group compared with the reference group. The error bars indicate the level of uncertainty in the ratio. If the error bar crosses 1 on the x-axis the difference is not statistically significant.

Figure 36. Deaths from conditions with a social gradient, comparison by demographic factors, New Zealand 2010-2014



Hospitalisations for conditions with a social gradient

In the five years from 2012–2016 there were 206,708 hospitalisations of 0–14 year olds for medical conditions with a social gradient and 44,129 such hospitalisations for injuries with a social gradient. The most common primary diagnoses for hospitalisations for medical conditions with a social gradient were respiratory and communicable diseases such as asthma, bronchiolitis and gastroenteritis. Almost half (49.5%) of hospitalisations for injury with a social gradient resulted from falls and a further quarter (25.7%) resulted from inanimate mechanical forces (e.g. struck by, caught between or contact with sharp items or machinery) **(Table 9)**.

The hospitalisation rate of 0–14 year olds for medical conditions with a social gradient rose overall from 2000 to 2016; the rise was most marked from 2007 to 2012. There was a gradual fall in the hospitalisation rate for injuries with a social gradient from 2000 to 2012 and then little change in hospitalisation rate from 2012 to 2016 (**Figure 37**).

From 2011 to 2016 hospitalisation rates for selected respiratory and communicable diseases with a social gradient were highest for the youngest children and declined steeply with increasing age (**Figure 38**).

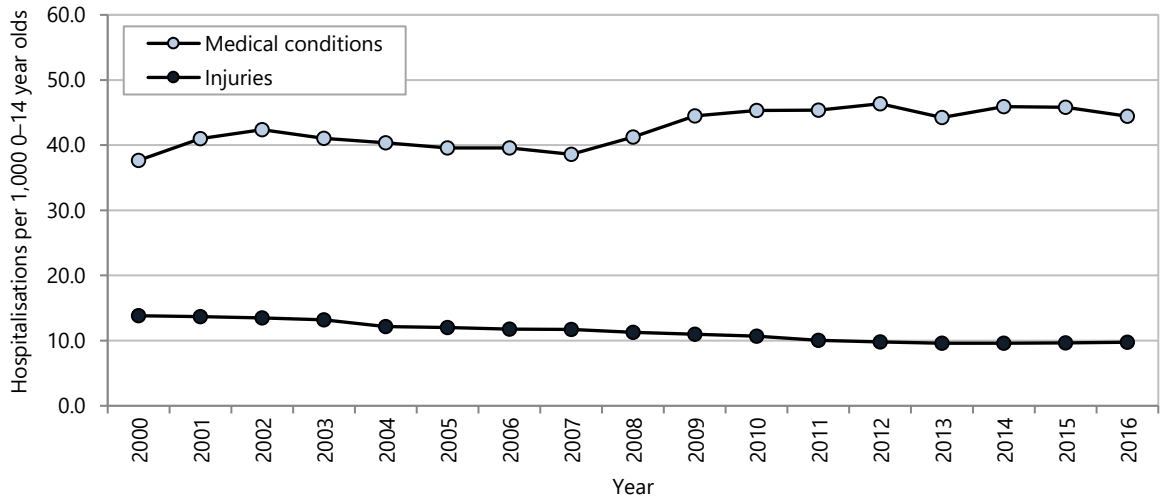
There was significant ethnic disparity in hospitalisation rates for medical conditions and injuries with a social gradient. Between 2012 and 2016 hospitalisation rates for both medical conditions and injuries with a social gradient were higher for Māori and Pacific 0–14 year olds compared with European/Other children. Hospitalisation rates for conditions with a social gradient were slightly higher for male 0–14 year olds compared with female 0–14 year olds. Analysis by NZDep2013 confirmed the social gradient for the selected medical conditions and injuries (**Figure 39**).

Table 9. Hospitalisations for conditions with a social gradient in 0–14 year olds (excluding neonates) by primary diagnosis, New Zealand 2012–2016

Hospitalisations for conditions with a social gradient in 0–14 year olds				
Primary diagnosis	2012–2016 (n)	Annual average	Rate per 1,000 0-14 year olds	%
Medical conditions				
Respiratory diseases				
Asthma and wheeze	32,032	6,406	7.03	15.5
Acute respiratory infections*	31,762	6,352	6.97	15.4
Acute bronchiolitis	29,656	5,931	6.51	14.3
Other respiratory	23,426	4,685	5.14	11.3
Communicable and infectious diseases				
Gastroenteritis	25,622	5,124	5.62	12.4
Viral infection of unspecified site	21,700	4,340	4.76	10.5
Other communicable and infectious diseases	25,994	5,199	5.70	12.6
Other conditions	16,516	3,303	3.62	8.0
Total	206,708	41,342	45.35	100.0
Injuries				
Falls	21,839	4,368	4.79	49.5
Mechanical forces: inanimate	11,332	2,266	2.49	25.7
Mechanical forces: animate	2,890	578	0.63	6.5
Thermal injury	1,983	397	0.44	4.5
Road traffic crash	1,950	390	0.43	4.4
Poisoning	1,720	344	0.38	3.9
Non-traffic land transport crash	2,249	450	0.49	5.1
Submersion	166	33	0.04	0.4
Total	44,129	8,826	9.68	100.0

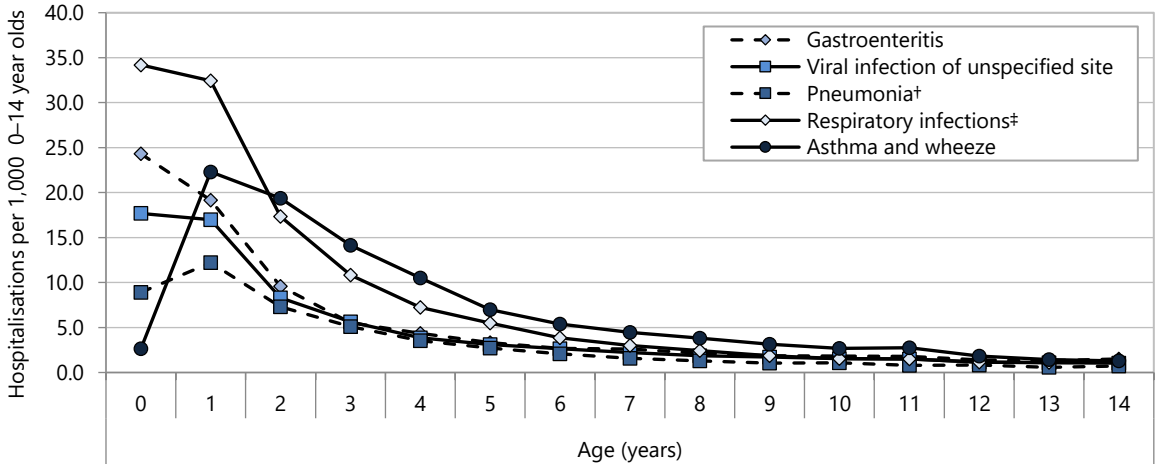
Numerator: National Minimum Dataset (neonates removed); Denominator: Statistics NZ estimated population. * Acute respiratory infections includes upper and lower respiratory infections and excludes croup; Medical conditions acute and arranged hospitalisations; Injury excludes emergency department cases

Figure 37. Hospitalisations for conditions with a social gradient in 0–14 year olds (excluding neonates), New Zealand 2000–2016



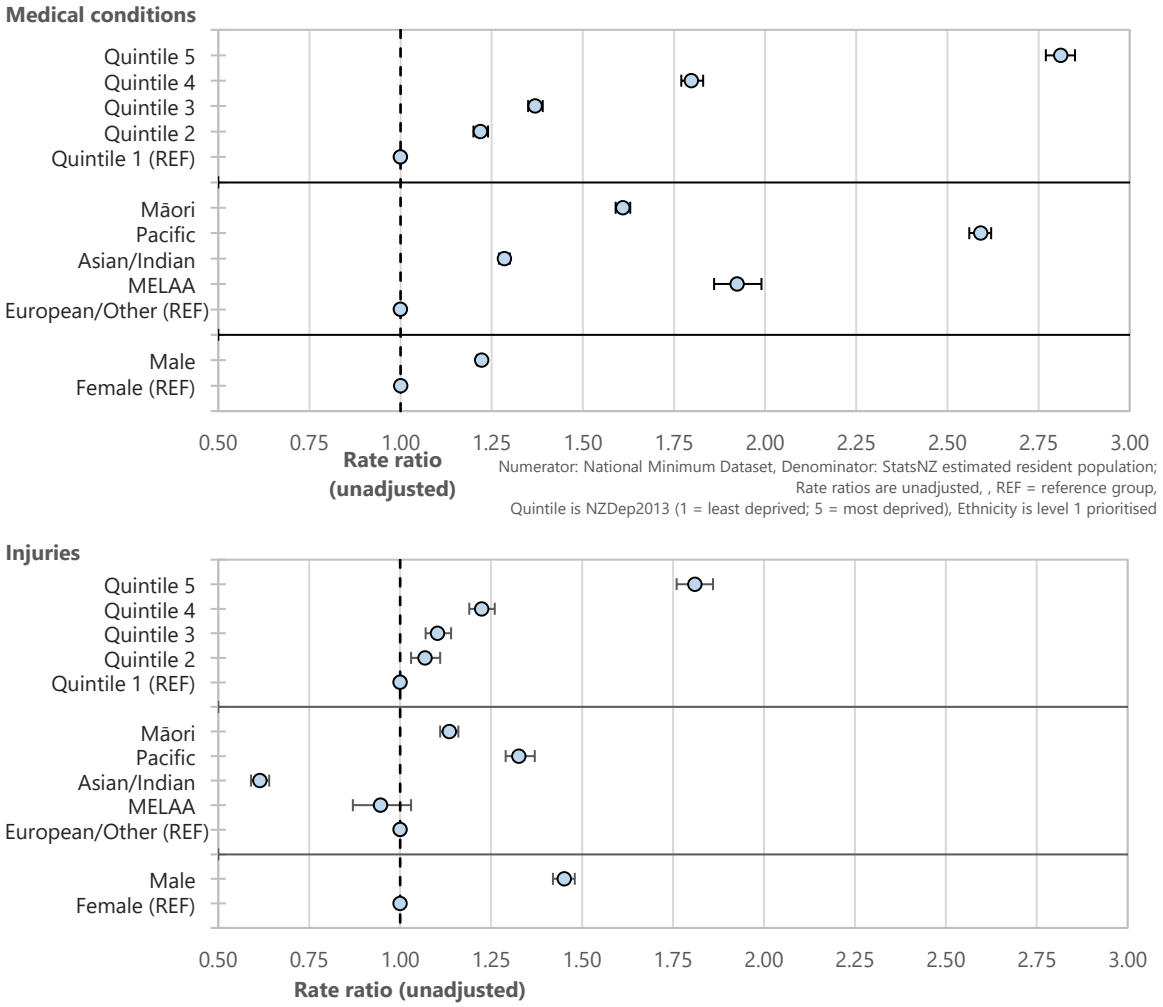
Numerator: National Minimum Dataset, Denominator: StatsNZ estimated resident population; Medical conditions: acute and arranged admissions, Injuries: excludes ED and waiting list cases

Figure 38. Hospitalisations for selected conditions with a social gradient in 0–14 year olds by age, New Zealand 2010–2015



Numerator: National Minimum Dataset (acute and arranged admissions; excludes neonates), Denominator: StatsNZ estimated resident population; † Bacterial, non-viral, and viral pneumonia, ‡ Acute upper, lower and inflammatory respiratory infections

Figure 39. Hospitalisation for medical conditions and injuries with a social gradient, comparison by demographic factors, New Zealand 2012–2016



Numerator: National Minimum Dataset, Denominator: StatsNZ estimated resident population; Rate ratios are unadjusted, , REF = reference group, Quintile is NZDep2013 (1 = least deprived; 5 = most deprived), Ethnicity is level 1 prioritised

Numerator: National Minimum Dataset (excludes neonates, ED and waiting list cases), Denominator: StatsNZ estimated resident population; REF = reference group, Ethnicity is level 1 prioritised, Quintile is NZDep2013 (1 = least deprived; 5 = most deprived)

ASSAULT, NEGLECT OR MALTREATMENT

Child maltreatment is a serious public health issue that is recognised internationally.[34,35] Concern about high rates of child death from maltreatment in New Zealand (five times the rate in Sweden) contributed to amendment of the Crimes Act in 2007 to remove a statutory defence for parental assault of children to correct behaviour.[35] Data from national mortality and morbidity collections are important for monitoring assault, neglect and maltreatment of children, including that perpetrated by parents or other caregivers.[34,36] Cases that are hospitalised are only the "tip of the iceberg" and hospitalisation data alone will underestimate the prevalence of child maltreatment in the community.[36] Other limitations of these data include undercounting of such injuries even in hospital and possible reporting bias with the diagnoses being more readily used for children perceived to be at risk.[37,38] Despite these limitations, the use of de-identified data allows surveillance of the important and sensitive issue of child maltreatment while protecting the privacy of individual children.[36]

The following section reviews deaths and hospitalisations of New Zealand 0–14 year olds that involved injuries due to assault, neglect or maltreatment, using data from the National Minimum Dataset and the National Mortality Collection.

Data sources and methods

Indicators

- Deaths from injuries arising from the assault, neglect, or maltreatment of 0–14 year olds
- Hospitalisations for injuries arising from the assault, neglect, or maltreatment of 0–14 year olds

Data sources

Numerator: Deaths: National Mortality Collection;
Hospitalisations: National Minimum Dataset.

Denominator: Statistics NZ Estimated Resident Population.

Definitions

Deaths: Deaths in 0–14 year olds with intentional injury as a cause of death.

Hospitalisations: Hospitalisations* of 0–14 year olds with a primary diagnosis of injury and an intentional injury (assault) external cause code in any of the first 10 external cause codes.†

Further information

* As outlined in **Appendix** 4, in order to ensure comparability over time, all hospitalisations with an emergency department specialty code on discharge were excluded, as were hospitalisations with a non-injury primary diagnosis.

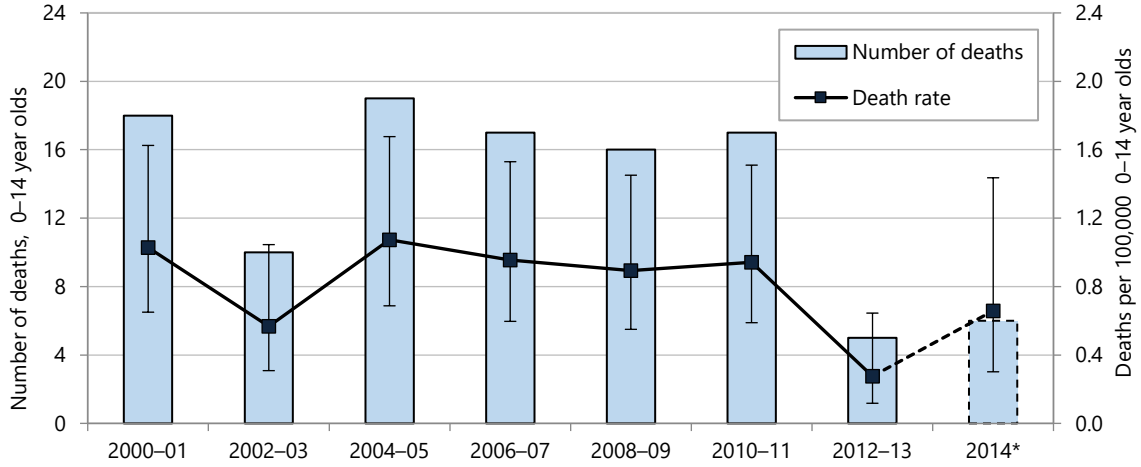
† Refer to **Appendix** 2 for the codes included in this section.

Deaths from assault, neglect or maltreatment

From 2000–2014 there were 108 children aged 0–14 years who died from injuries arising from assault, neglect, or maltreatment, a stable rate of around nine deaths per million children per year. Lower rates in 2002–03, 2012–13 and 2014 were not statistically different from the rates in other years (**Figure 40**). Data from future years are required to determine whether this is the start of a new trend or year-to-year statistical variation.

In the five-years from 2010–2014 there were 28 deaths of 0–14 year olds as a result of assault, neglect or maltreatment. Sixteen of these deaths were of female and 12 were of male children. Sixteen deaths occurred in the first year of life, seven deaths were of 1–4 year olds, and five were of 5–14 year olds.

Figure 40. Deaths due to injuries arising from assault, neglect, or maltreatment of 0–14 year olds, New Zealand 2000-2014



Numerator: National Mortality Collection, Denominator: Statistics NZ Estimated Resident Population;
* Values are per two year period, with exception of 2014 (presented dashed)

Hospitalisations due to assault, neglect or maltreatment

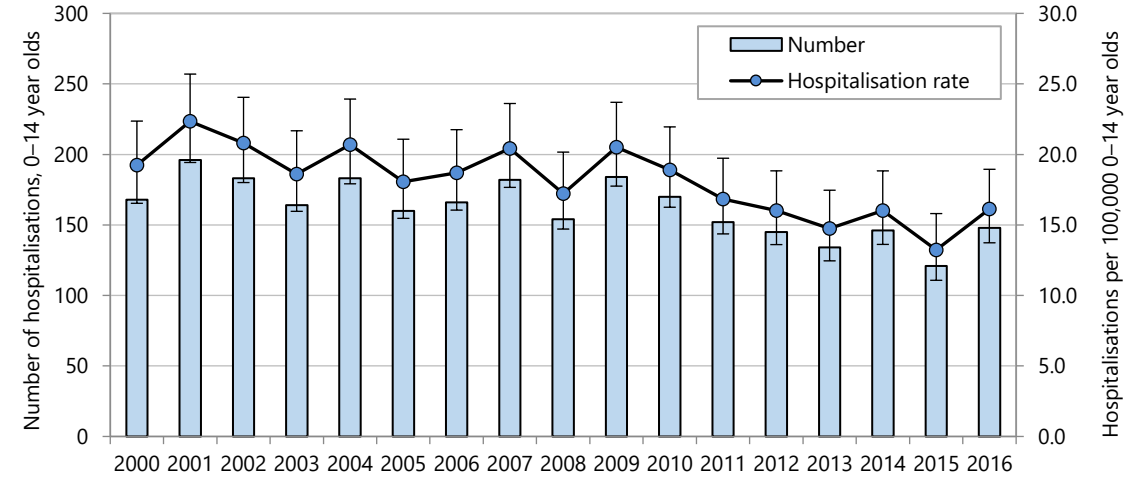
There was an overall fall in both the number and rate of hospitalisations for injuries arising from assault, neglect or maltreatment of New Zealand children aged 0–14 years from 2001 to 2016 (**Figure 41**).

In the five years from 2011–2015 there were 694 hospitalisations of 0–14 year olds for injuries arising from assault, neglect or maltreatment. The most common primary diagnoses for these hospitalisations included traumatic subdural haemorrhage in 0–4 year olds, and head injuries at all ages 0–14 years (**Table 10**).

Age-specific hospitalisation rates for injuries arising from assault, neglect or maltreatment were highest in the first year of life (**Figure 42**).

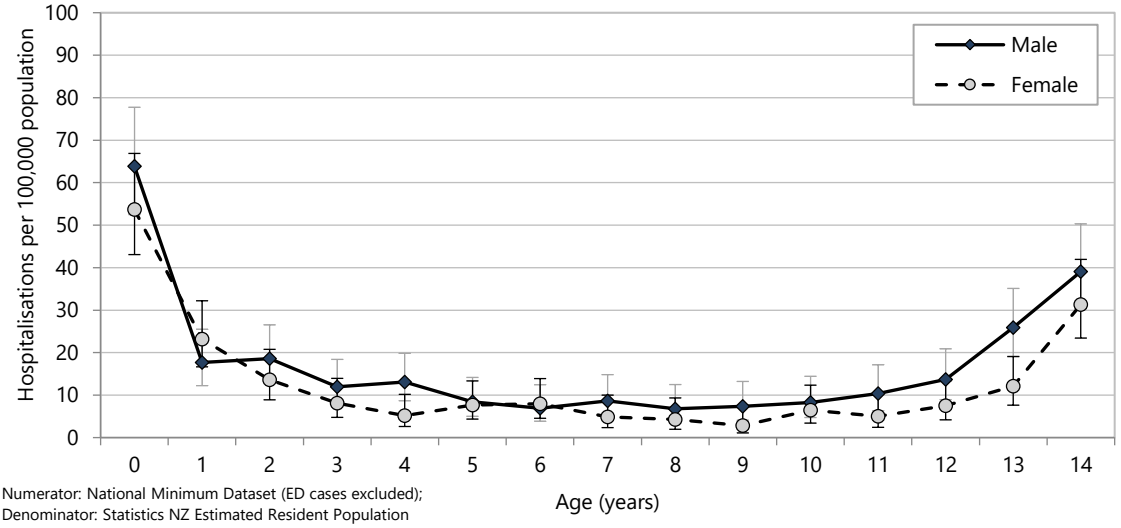
There was a clear social gradient with increasing hospitalisation rates for children living in areas with higher scores on the NZDep2013 index of deprivation. Hospitalisation rates were eight times higher for children who lived in areas with the highest NZDep2013 scores compared with children living in areas with the lowest scores. There was also disparity by ethnicity, with hospitalisation rates for Māori and for Pacific children over twice the hospitalisation rates of European/Other children (**Figure 43**).

Figure 41. Hospitalisations due to injuries arising from the assault, neglect, or maltreatment of 0–14 year olds, New Zealand 2000–2015



Numerator: National Minimum Dataset (ED cases excluded);
Denominator: Statistics NZ Estimated Resident Population

Figure 42. Hospitalisations due to injuries arising from assault, neglect, or maltreatment of 0–14 year olds by age and gender, New Zealand 2012–2016



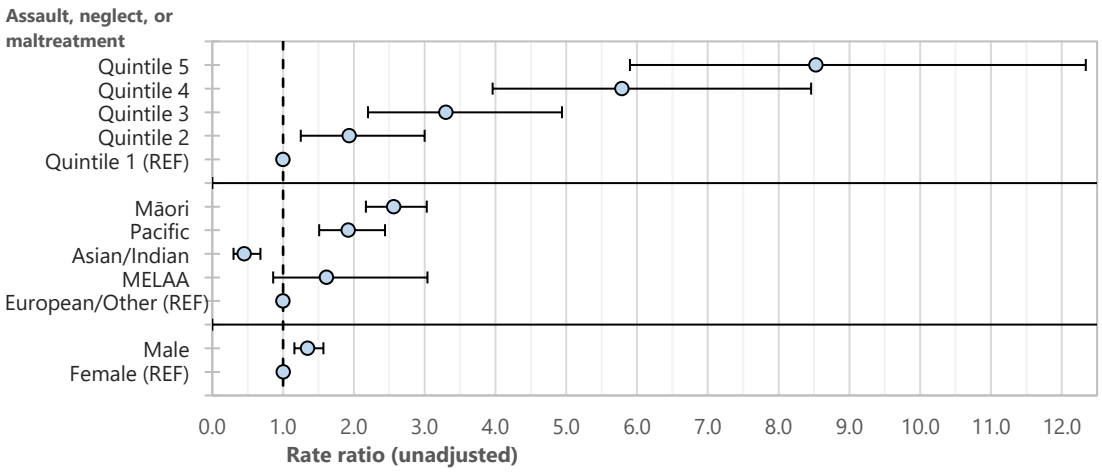
Numerator: National Minimum Dataset (ED cases excluded);
Denominator: Statistics NZ Estimated Resident Population

Table 10. Nature of injuries arising from injuries arising from the assault, neglect, or maltreatment of hospitalised 0–14 year olds, by age group, New Zealand 2011–2015

Primary diagnosis	2012–2016 (n)	Annual average	Rate per 100,000 population	%
Assault, neglect, or maltreatment hospitalisations of 0–14 year olds				
0–4 year olds				
Superficial head injury	72	14	4.56	20.4
Traumatic subdural haemorrhage	65	13	4.12	18.4
Fracture skull or facial bones	16	3	1.01	4.5
Other head injuries	30	6	1.90	8.5
Injuries to thorax*, abdomen, lower back, and pelvis	27	5	1.71	7.6
Injuries to upper limb	37	7	2.34	10.5
Fractured femur	<10	s	s	s
Other injuries to lower limb	<10	s	s	s
Maltreatment	66	13	4.18	18.7
Other injuries	24	5	1.52	6.8
Total	353	71	22.37	100.0
5–9 year olds				
Superficial head injury	12	2	0.80	12.4
Other head injuries	21	4	1.39	21.6
Injuries to thorax*, abdomen, lower back, and pelvis	23	5	1.53	23.7
Limb injuries	21	4	1.39	21.6
Maltreatment	12	2	0.80	12.4
Other injuries	<10	s	s	s
Total	96	19	6.37	100.0
10–14 year olds				
Fracture skull or facial bones	40	8	2.71	17.0
Concussion	31	6	2.10	13.2
Superficial head injury	25	5	1.70	10.6
Other head injuries	37	7	2.51	15.7
Injuries to thorax (including rib fractures)	<10	s	s	s
Injuries to abdomen, lower back, and pelvis	15	3	1.02	6.4
Injuries to upper limb	33	7	2.24	14.0
Injuries to lower limb (including fractured femur)	21	4	1.42	8.9
Maltreatment	<10	s	s	s
Other injuries	23	5	1.56	9.8
Total	235	47	15.94	100.0

Numerator: National Minimum Dataset (ED cases excluded), Denominator: Statistics NZ Estimated Resident Population;
* Injuries to thorax includes rib fractures

Figure 43. Hospitalisations for injuries arising from assault, neglect, or maltreatment of 0–14 year olds, comparison by demographic factors, New Zealand 2012–2016



Numerator: National Minimum Dataset (ED cases excluded), Denominator: Statistics NZ Estimated Resident Population;
REF = reference group, Ethnicity is level 1 prioritised, Quintile is NZDep2013 (1 = least deprived; 5 = most deprived)

HOUSING

Addressing quality and affordability of housing is arguably the most important action to mitigate the effects of child poverty in New Zealand.[4] Housing was a primary concern of children consulted by the Expert Advisory Group on Solutions to Child Poverty, with particular concerns about damp and cold houses affecting their health, high costs of heating, crowding, and the negative impact of insecure and unstable housing tenure.[4] Babies and pre-school children are particularly affected by poor housing as they are at home for most of the day.[4] The indicators in this chapter provide measures for monitoring progress toward ensuring access to adequate, safe and affordable housing for all people, a universal human right (a target within Sustainable Development Goal 11).[2]

Data sources and methods

Indicators

1. Housing tenure
2. Households spending more than 30% of their income on housing costs
3. Households which required one or more additional bedrooms using the Canadian National Occupancy Standard (CNOS)
4. Major problem with damp or mould
5. Major problem with heating or keeping house warm in winter
6. Put up with feeling cold as a result of being forced to keep costs down to pay for other basics

Data source

1. Statistics New Zealand[39]

2-6. New Zealand Household Economic Survey (NZHES) via Perry 2017[6]

Definitions

Owned: People who owned their home, partly owned their home, or held it in a family trust.

Private rental: People who did not own their home, did not have it in a family trust, and were making rent payments to a private person, trust, or business.

Social housing: People who did not own their home, did not have it in a family trust, and were making rent payments to Housing New Zealand Corporation, local authority or city council, or other state-owned corporation or state-owned enterprise, or government department or ministry.

Housing costs include all mortgage outgoings (principal and interest) together with rent and rates for all household members. Repairs, maintenance and dwelling insurance are not included. Any housing-related cash assistance from the government is included in household income.[7]

High housing costs: When a household spends more than 30% of its income on accommodation (rent, mortgage outgoings, rates) it is said to have a high "outgoings-to-income" ratio (OTI).[6]

Household crowding: Using the Canadian National Occupancy Standard (CNOS) a crowded house requires one or more additional bedroom when using the following CNOS to set the bedroom requirements: no more than two people per bedroom; parents or couples share a bedroom; children aged under 5 years, either of the same or of the opposite sex, may reasonably share a bedroom; children aged under 18 years of the same sex may reasonably share a bedroom; a child aged 5–17 years should not share a bedroom with a child aged under 5 years of the opposite sex; single adults 18 years and over and any unpaired children require a separate bedroom.[6]

Further information

Variations in housing costs do not necessarily correspond to similar variations in housing quality. This is because many older individuals live in good accommodation with relatively low housing costs, for example, those living in mortgage-free homes, whereas many younger people have a similar standard of accommodation but relatively high accommodation costs.[6]

NZHES data have been used to create the CNOS index. The NZHES data give a sense of the scale of the issue but are not sufficiently robust for a time series. The NZHES-based crowding rates are derived from a sample not from the total population and are somewhat lower than the Census rates.[6]

The "put up with feeling cold as a result of being forced to keep costs down to pay for other basics" data refer to NZHES respondents who answered "a lot" in the last 12 months. The response options were "not at all", "a little", or "a lot".

Material Wellbeing Index (MWI) quintiles are calculated by ranking all people by the MWI score of their households and then dividing them into five equal groups (quintiles). The lowest quintile (Q1) is made up of the 20% of individuals in households with the lowest MWI scores. The MWI quintiles are population-based measures. Children are over-represented in the lowest quintile with 27-28% (300,000) in the lowest MWI quintile (Q1).

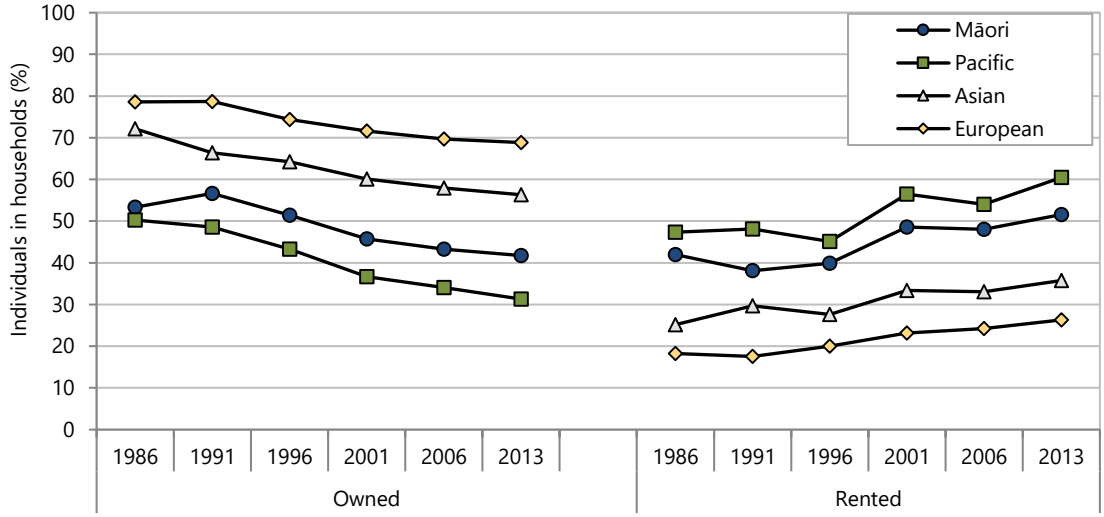
Housing tenure

Home ownership is a significant part of family wealth in New Zealand and enables one generation to pass resources on to the next generation.[39] In the early to mid-1990s, 72% of children lived in households that owned the home, whereas on average in 2014 to 2015 this proportion had fallen to 56%.[7]

From 1986 to 2013 the proportion of people living in owner occupied dwellings fell with a rise in the proportion of people in rental accommodation. The fall in the proportion of people living in an owner-occupied dwelling and the rise in the proportion of people living in rented dwellings occurred at a faster rate for Māori and Pacific people than for European and Asian ethnic groups (**Figure 44**).[39]

Among people living in rented accommodation, those who have a private sector landlord increased at each Census from 1986 to 2013, while at the same time there was a decrease in the percentage of people living in rented accommodation managed by Housing New Zealand Corporation or other social sector housing.[39]

Figure 44. Household tenure by ethnicity, individuals in households, New Zealand Census 1986–2013



Source: Statistics New Zealand.[39] Numerator Number of people in households with specified tenure. Denominator: Total number of people in households. Owned: People who owned their home, partly owned their home, or held it in a family trust. Rented: People who did not own their home, did not have it in a family trust, and were making rent payments. Ethnicity is total response.

The fall in home ownership from 1986–2013 disproportionately affected children, particularly Māori and Pacific children in one-parent households.[39] This is important for child health, because rental housing tends to be of poorer quality. Rates of mobility are higher for households who rent which can have negative consequences for children in relation to schooling and social interaction.[39] Most low income families cannot afford to buy their own home.[4]

Child poverty rates show a clear gradient across different tenure types. Fifty-three percent of children living in Housing New Zealand Corporation (HNZC homes) in 2014–2015 lived in households with after housing cost (AHC) incomes below 60% of a fixed-line median, compared with 32% of children living in private rental accommodation and 10% in privately owned homes with a mortgage. Half of all children living in households with these low incomes lived in private rental accommodation and a further 17% lived in HNZC dwellings.[7] In the early to mid 1990s, the majority of children identified as poor (50 to 55%) came from households that owned their own home. The difference today is in part a reflection of the fact that in the early to mid 1990s 72% of children lived in households that owned the home, whereas on average in 2015 and 2016 this proportion had fallen to 56%.[7]

Housing affordability

The cost of housing is relatively high in New Zealand.[4] Meeting high housing costs relative to income can leave insufficient money to cover other basic needs such as food, clothing, transport, medical care and education, especially for low-income households.[7] Children and young people spoke of the stress of having to move house, even in the middle of the night, when the household could not pay rent.[4] Households that spend more than 30% of income on owner-occupied or rental accommodation are said to have a high "outgoings-to-income" ratio or OTI.[7]

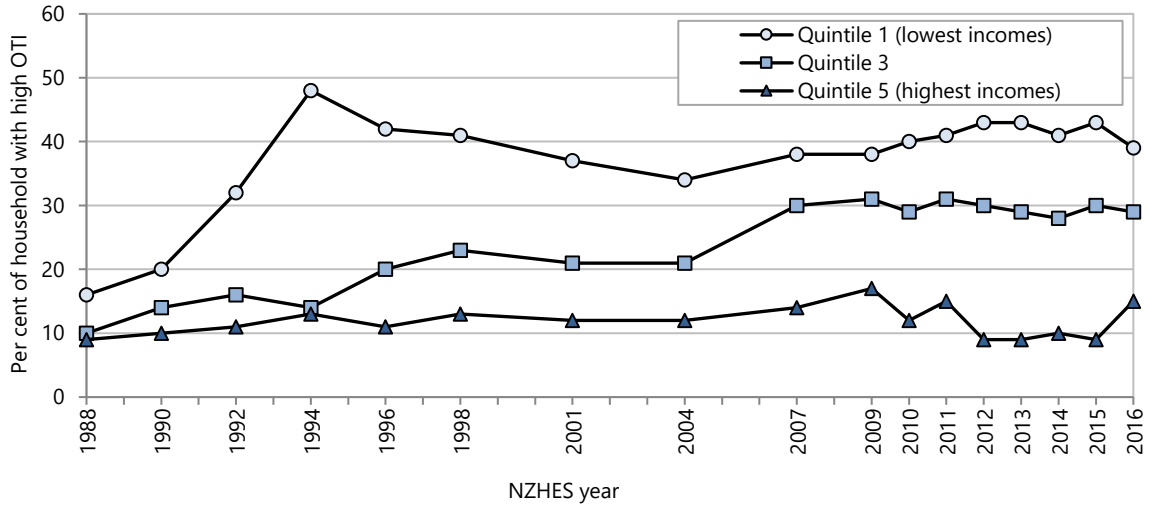
The following section uses data from the Statistics New Zealand Household Economic Survey to review the proportion of households spending more than 30% of their income on housing costs.

Low and middle-income New Zealand households are more likely than high income households to spend more than 30% of their income on housing costs (**Figure 45**). In 2016, 39% of those in the lowest income quintile (quintile 1) were spending more than 30% of their income on housing costs. In comparison, 29% of households in the middle income quintile and 15% of households in the highest income quintile (quintile 5) had such high outgoings to income ratios (OTI).

Individuals aged 0–17 years are more likely than 45–64 year olds and older to live in households with high OTIs. Between 1988 and 2016 there was an increase in the percentage of individuals living in households with high OTIs across all age groups (**Figure 46**).

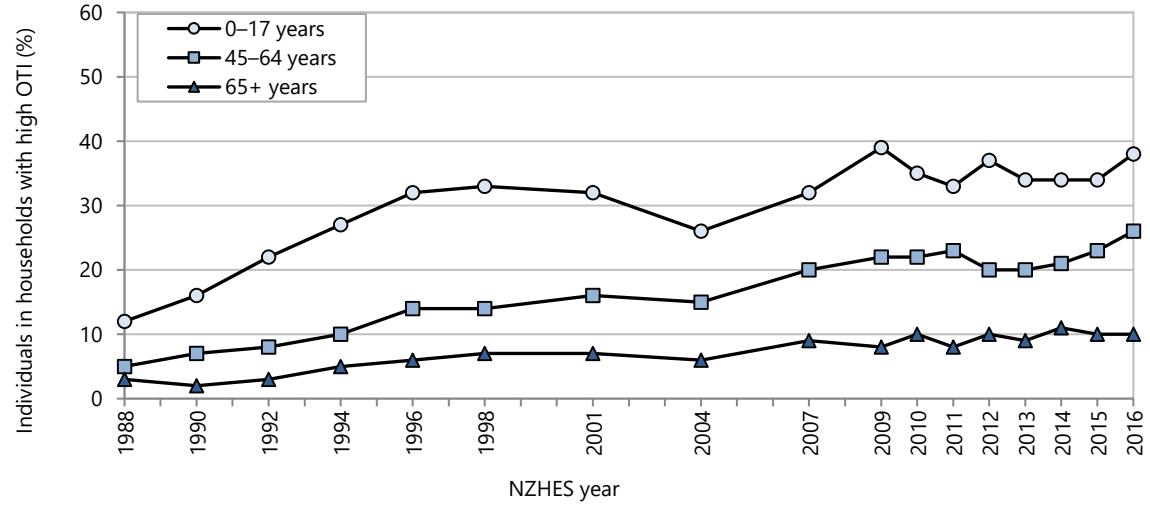
Almost all accommodation supplement recipients were paying more than 30% of their income on housing costs and over half of accommodation supplement recipients in rental accommodation were paying over 50% of their income on housing costs (**Table 11**).

Figure 45. Households spending more than 30% of their income on housing costs by selected income quintile, New Zealand 1988–2016



Source: Perry 2017[6] derived from Statistics New Zealand Household Economic Survey (NZHES). OTI: Outgoings-to-income ratio. High OTI ratio benchmark is 30% i.e. households spending more than 30% of unequivalised household disposable income

Figure 46. Individuals in households spending more than 30% of their income on housing costs by selected age groups, New Zealand 1988–2016



Source: Perry 2017, derived from Statistics New Zealand Household Economic Survey (NZHES).[6] OTI: outgoings-to-income ratio. High OTI ratio benchmark is 30% i.e. households spending more than 30% of unequivalised household disposable income.

Table 11. Housing costs as a proportion of income, accommodation supplement recipients, by household type, New Zealand 2016

Household type	Group as % of those receiving accommodation supplement*	Housing costs as a proportion of income		
		>30%	>40%	>50%
All	100	92	69	44
Renters	66	94	76	52
Single adult	55	94	73	50
Two parent with dependent children	9	89	56	29
One parent with one child	14	89	67	42
One parent with 2 or more children	14	88	64	34
NZ Superannuation/Veterans Pension	13	86	54	27

Source: Perry 2017[7] derived from Statistics New Zealand Household Economic Survey (NZHES). *Categories are not mutually exclusive and thus do not sum to 100%

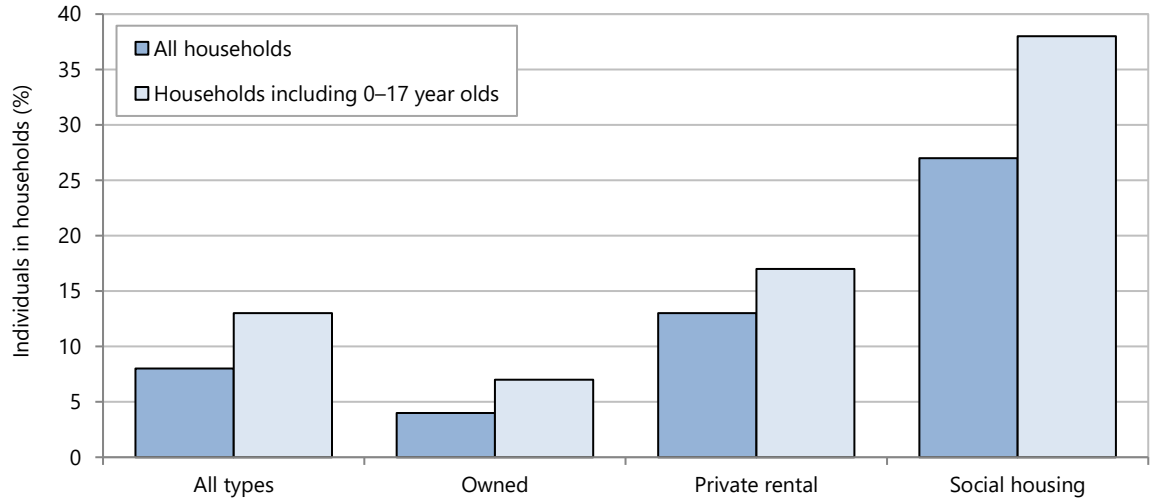
Household crowding

Household crowding is clearly linked with poorer health outcomes, particularly for children, and there is also some evidence for poorer mental health, educational and social outcomes.[27,28] There is a strong relationship between household income and household crowding, with crowded households having lower average equivalised incomes than households that are not crowded.[27] Living in crowded households also means severely reduced personal space and privacy and increases the chances of relational stress.

Crowding is an issue that particularly affects children; 75–80% of people in crowded or severely crowded households are in households with children.[6] Children report concerns about lack of privacy, arguments and tensions that affect family relationships, and difficulty in doing homework when they live in a crowded house.[4] At the 2013 Census 85,578 (10.7%) children lived in households requiring one additional bedroom and 44,613 (5.1%) in households requiring two or more additional bedrooms.[40] Pacific, Māori and Asian children were significantly more likely than European children to live in a crowded house; almost 60% of Pacific children living in areas with the highest NZDep2013 scores (decile 10) lived in crowded households.[40]

In all types of tenure, 0–17 year olds were more likely than persons in the general New Zealand population to live in crowded households. The highest rates of crowding were seen for 0–17 year olds living in Housing New Zealand Corporation (HCNZ) homes; rates of crowding for 0–17 year olds living in HNZC and private rental homes were higher than rates for their peers in owner-occupied households (**Figure 47**).

Figure 47. Household crowding by household tenure and composition, New Zealand 2013–2015



Source: Perry 2017, derived from Statistics New Zealand Household Economic Survey (NZHES).[6] Owned: People who owned their home, partly owned their home, or held it in a family trust. Private rental: People who did not own their home, did not have it in a family trust, and were making rent payments.

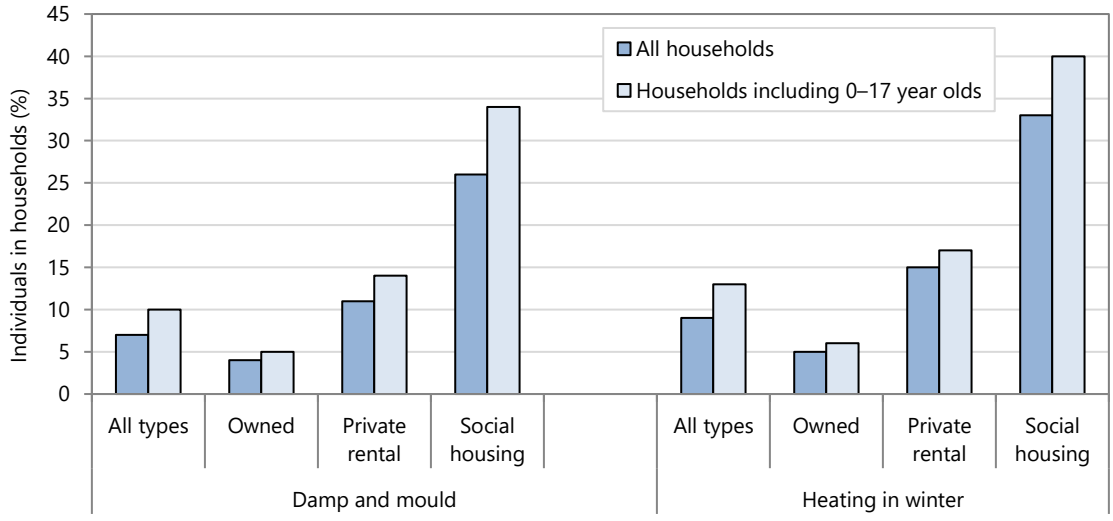
Housing quality

The physical quality of housing is associated with individual and family well-being and the positive health outcomes that accrue from investing in good quality housing.[41] The Expert Advisory Group on Solutions to Child Poverty recommended that the government ensure all rental housing in both the social and private sectors meets minimum health and safety standards based on an agreed warrant of fitness such as the Healthy Housing Index.[4] Data collected about housing quality can be used to develop effective housing policy and evaluate the effectiveness of any measures to improve New Zealand's housing stock.[41] Since 2013–2014 the Housing Economic Survey has asked respondents whether their accommodation had minor or major problems with dampness or mould or with heating it or keeping it warm in winter.[6]

On average, in the 2013–2015 NZHES years, almost half of the households experiencing major problems with dampness, mould or heating lived in private rental housing, and one-fifth lived in social sector housing.[6] The 0–17 year olds living in private rental accommodation were around three times more likely than their peers living in owner-occupied dwellings to live in homes that had major problems with dampness and mould or were hard to heat and 0–17 year olds living in social sector housing the proportion was were almost seven times more likely than such peers to live in homes with these major problems (**Figure 48**).

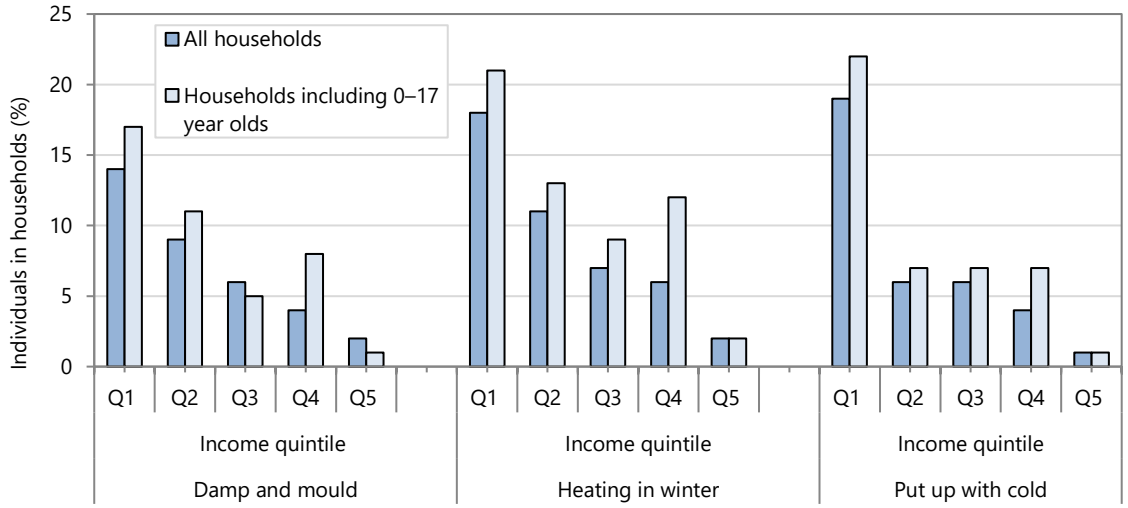
Problems with dampness, mould, heating, problems keeping homes warm in winter, and frequently putting up with being cold to reduce costs and pay for other basics were more prevalent in households with the lowest incomes after housing costs (AHC, **Figure 49**). In the lowest AHC income quintile there were around 50% more people in working families with children than in beneficiary families with children (a ratio of around 60:40), so the numbers reporting being forced to put up with the cold were fairly similar for each group.[6] These three housing quality issues were particularly concentrated in households experiencing multiple lacks across a range of essentials, as reflected in very low scores on the material wellbeing index (MWI, **Figure 50**). Almost all children (86%) who were forced to put up with feeling cold a lot to keep household costs down lived in households in quintile 1, the quintile with the lowest MWI scores.[6]

Figure 48. Housing quality problems, by household tenure and composition, individuals in households, New Zealand 2013–2015 (average)



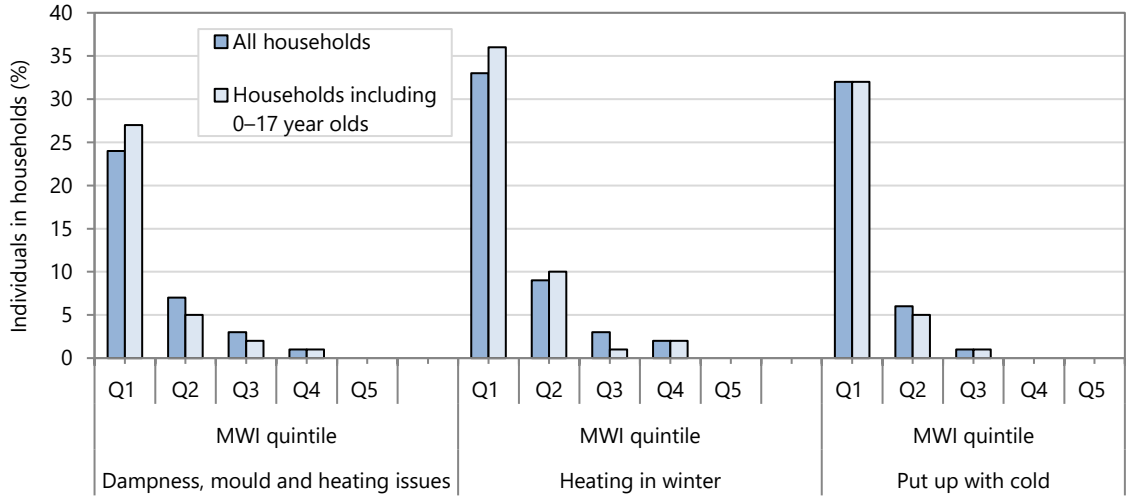
Source: Perry 2017, derived from Statistics New Zealand Household Economic Survey (NZHES).[6] Damp and mould: Major problem with damp and mould in previous 12 months. Heating in winter: Major problem with heating or keeping home warm in winter.

Figure 49. Housing quality problems, by household income quintile after housing costs and composition, individuals in households, New Zealand 2013–2015 (average)



Source: Perry 2017, derived from Statistics New Zealand Household Economic Survey (NZHES).[6] Damp and mould: Major problem with damp and mould in previous 12 months. Heating in winter: Major problem with heating or keeping home warm in winter. Put up with cold: Put up with feeling cold "a lot" as a result of being forced to keep costs down to pay for other basics.

Figure 50. Housing quality problems, by household material wellbeing index (MWI) quintile and composition, individuals in households, New Zealand 2013–2015 (average)



Source: Perry 2017, derived from Statistics New Zealand Household Economic Survey (NZHES).[6] Damp and mould: Major problem with damp and mould in previous 12 months. Heating in winter: Major problem with heating or keeping home warm in winter. Put up with cold: Put up with feeling cold "a lot" as a result of being forced to keep costs down to pay for other basics

EDUCATION

The socioeconomic context in which children and young people live has a significant impact on their educational performance.[19] Secondary education matters for young people's continuing education, their employment, their health and for having a better quality of life.[42] Measures of young people's academic success reported in New Zealand are usually presented in terms of the National Certificate of Educational Achievement (NCEA). The NCEA level 2 qualification is the desired minimum qualification for school leavers, giving them opportunities for the future.[42]

The following section presents Ministry of Education data to summarise key measures for educational attainment of school leavers from 2009-2016.

Data sources and methods

Indicators

- School leavers with no qualifications
- School leavers with NCEA level 1 or higher
- School leavers with NCEA level 2 or higher
- School leavers with a University Entrance Standard

Data Sources

Ministry of Education ENROL system http://www.educationcounts.govt.nz

Numerator: Number of students leaving school with no qualifications, NCEA level 1 or higher, NCEA level 2 or higher, or a University Entrance Standard.

Denominator: Number of school leavers in a given year.

Definitions

The National Certificate of Educational Achievement (NCEA) is part of the National Qualifications Framework (NZQF). There are three levels depending on the difficulty of the standards achieved. At each level, students must achieve a certain number of credits, with credits being able to be gained over more than one year. Listed qualification levels include the NZQF as well as other equivalent qualifications that are non-NZQF.

School socioeconomic decile: All schools are assigned a decile ranking based on the socioeconomic status of the areas they serve. These rankings are based on census data from families with school age children in the areas from which the school draws its students. Census variables used in the ranking procedure include equivalent household income, parent's occupation and educational qualifications, household crowding and income support payments. Schools are assigned a decile ranking, with decile 1 schools being the 10% of schools with the highest proportion of students from low socioeconomic communities and decile 10 schools being the 10% of schools with the lowest proportion of these students. Decile ratings are used by the Ministry of Education to allocate targeted funding, as well as for analytical purposes.

Further information

These data follow a new definition of school leavers from the Ministry of Education's ENROL system utilised from 2009 onwards so comparison with previous years is not possible.

Ethnicity is total response so individual students may appear in more than one ethnic group.

Educational attainment

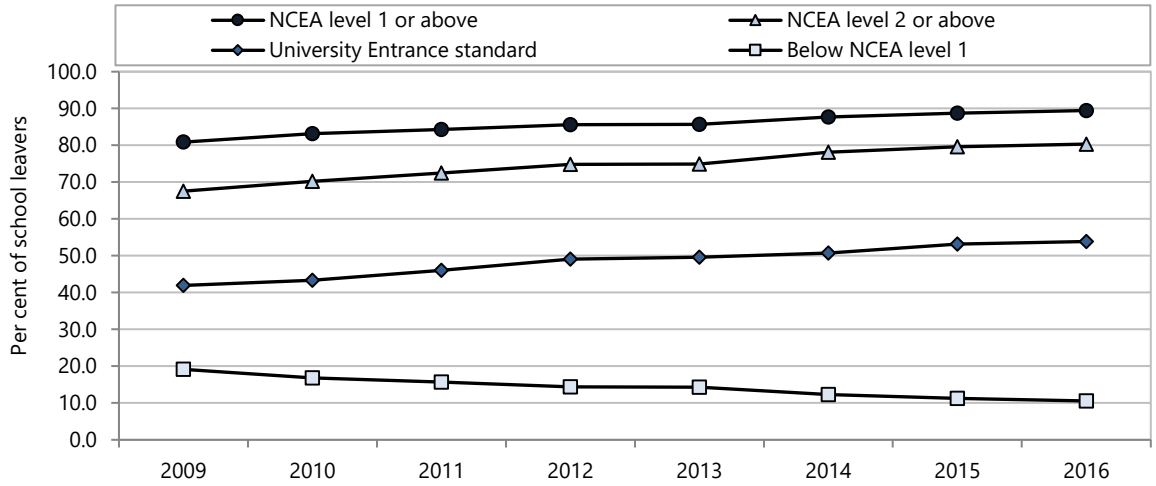
New Zealand has continued to see an increasing percentage of students leaving school with qualifications. The proportion of school-leavers with NCEA level 1 rose from 80.9% in 2009 to 89.4% in 2016; with NCEA level 2 or above, the proportion rose from 67.5% in 2009 to 80.3% in 2016 and with University Entrance standard, from 41.9% in 2009 to 53.9% in 2016. Over the same period, the percentage of students leaving with a qualification below NCEA level 1 dropped from 19.1% to 10.6% (**Figure 51**).

From 2009–2016 there were improvements in educational outcomes across all ethnic groups, with persisting inequity between ethnic groups. For all three measures of attainment, Māori and Pacific students were less likely than European or Asian students to leave the education system with a qualification and more likely to leave school with a qualification below NCEA level 1. The percentage of Māori students who attained NCEA level 2 or above rose from 45.7% in 2009 to 66.5% in 2016. Over this same time period, the percentage of Pacific students' achieving NCEA level 2 or above rose from 56.4% to 74.7% and for MELAA students, from 69.5% to 83.3% (**Figure 52**).

School socioeconomic deciles were used by the Ministry of Education in the time period of this report for funding purposes. Decile 1 schools are the 10% of schools with the highest proportion of students from low-socio-economic communities. Deciles are grouped to form quintiles, for example quintile 1 is composed of deciles 1 and 2. Ranking of deciles is in the opposite direction to that of the NZDep2013 index of deprivation

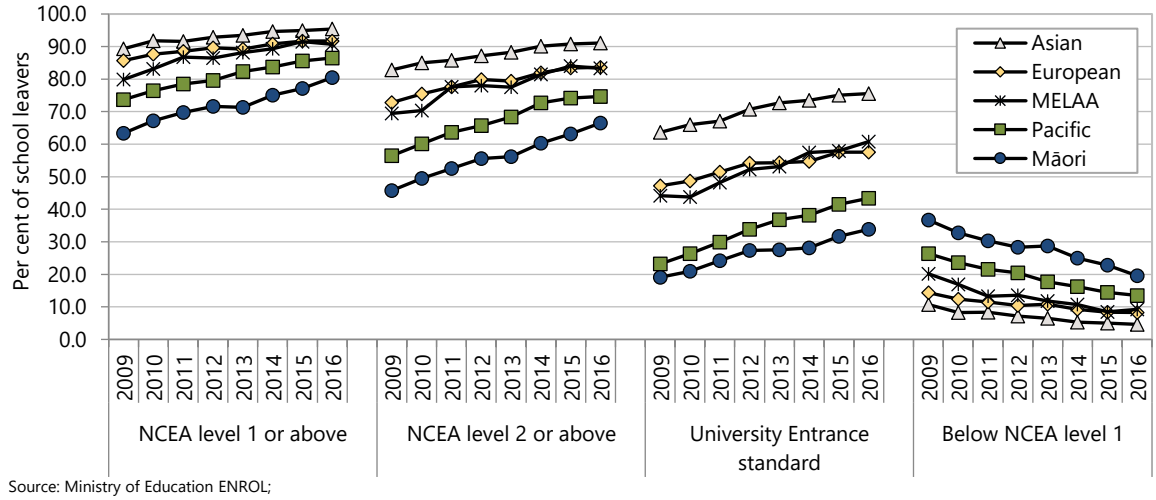
used with health data in this report. The percentage of students attaining NCEA level 1 or above, NCEA level 2 and above and those attaining University standard increased with increasing quintile. In 2016, 67.5% of students in quintile 1 schools achieved NCEA level 2 or above, compared with 92.9% of students in quintile 5 schools. Conversely the percentage of those leaving school with attainment below NCEA level 1 decreased with increasing quintile (**Figure 53**).

Figure 51. Highest educational attainment of school leavers, New Zealand 2009–2016



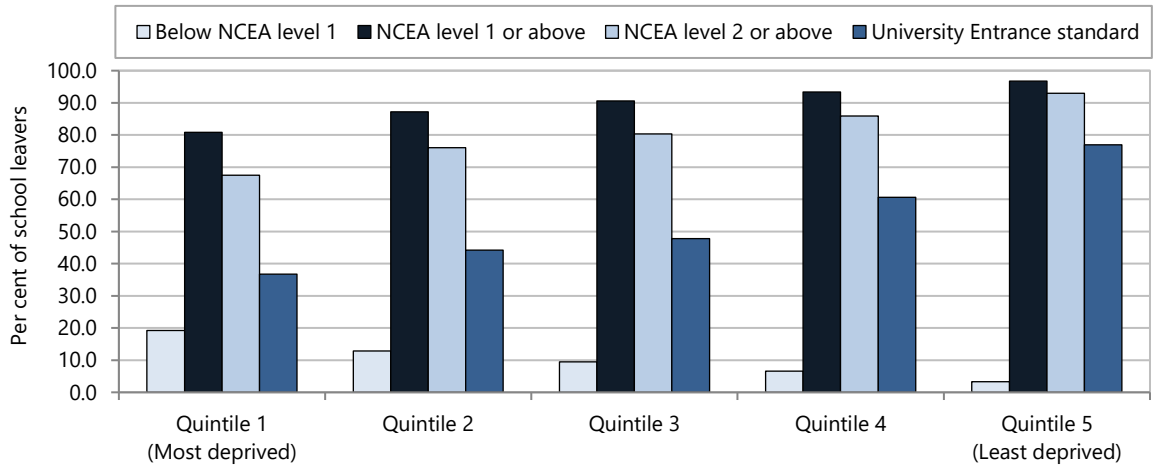
Source: Ministry of Education ENROL;
UE standard = school leavers achieving a University Entrance or a level 3 qualification or higher

Figure 52. Educational attainment of school leavers by ethnicity, New Zealand 2009–2016



Source: Ministry of Education ENROL;
Ethnicity is total response ethnicity, such that students been counted in each ethnic group they belong to,
UE standard = school leavers achieving a University Entrance or a level 3 qualification or higher

Figure 53. Educational attainment of school leavers by school socioeconomic quintile, New Zealand 2016



Source: Ministry of Education ENROL;
Deprivation based on school socioeconomic decile

APPENDICES

APPENDIX 1: MEASURES OF MATERIAL HARDSHIP

This appendix outlines the main New Zealand data sources for non-income measures (NIMs) that are used in this report to monitor material hardship or material wellbeing.

Table 12 is modified from Perry 2017[6] and provides a brief overview of the deprivation and material wellbeing indices used in his report and in other Ministry of Social Development (MSD) research. The NIMs used in New Zealand are designed to be in line with indices such as the EU-SILC (European Union statistics on income and living conditions) and EU-13 that have been used in Europe and can be used for international comparisons.

Table 12. National and international material deprivation and material wellbeing indices

Index	Description	Data sources
EU-9	A 9 item material deprivation index used officially by the EU	LSS 2008
EU-13	A 13 item material deprivation index used by European researchers for some time and formally adopted by the EU in May 2017 to replace EU-9.	LSS 2008 NZHES 2015–16 and later
DEP-17	A 17 item material deprivation index developed and used by MSD (sometimes referred to as "MSD's material deprivation index")	LSS 2008 NZHES 2012–13 and later
ELSI ELSI-SF	ELSI is MSD's prototype full-spectrum index using 40 NIMs to cover the range from low to high material living standards. The short-form (SF) version uses 25 items. The ELSI has been replaced by the MWI	LSS 2000, 2004 and 2008 NZHES 2007 to 2012 and GSS 2008, 2010 and 2012 have the 25 ELSI-SF items
MWI MWI-9	MSD's Material Wellbeing Index (MWI) is a 24 item index covering the full spectrum of material wellbeing from low to high. It was developed as a "mark 2 ELSI", incorporating what was learnt from using the prototype. The short-form version has 9 items	LSS 2008 NZHES 2013 and later GSS 2014 and 2016 (MWI-9 only)
NZiDep	NZiDep is an 8 item deprivation index developed by Wellington School of Medicine researchers.	SoFIE (and the 2006–07 and 2013–14 NZ Health Surveys)
NZDep	Unlike indices above, NZDep is not a household- or family-based index. It is based on information from households within a small area, using Census items as described in **Appendix 3**: The New Zealand index of deprivation	Census

Source: Perry 2017[6]

Non-income measures for material hardship

- Three types of NIMs are of particular relevance to the Child Poverty Monitor: general household items (for example, being able to keep the house warm); individual adult respondent items (for example, having a set of clothes for important or special occasions); and child-specific items (for example: owning two sets of warm winter clothes for each child, having a separate bed for each child).[6] **Table 13** lists the items included in the MWI and the DEP-17.

The following are the sources of current non-income measures data reported in New Zealand:[6]

- The Living Standards Surveys (LSS), undertaken nationally by the Ministry of Social Development (2004 and 2008) collected information from 5,000 households on their material circumstances including ownership and quality of household durables, and their ability to keep the house warm, pay the bills, have broken down appliances repaired and pursue hobbies and other interests.[6]
- Statistics NZ conducts the New Zealand Household Economic Survey (NZHES) that has included a range of non-income measures starting with the 2007 survey. From 2007 to 2012 there were 25 items and from 2013 to 2015 there were 29 items. Subsets of these were used to create the Material Wellbeing Index (MWI), the mark 2 version of ELSI, and the 17 item DEP-17. In 2016 six further items were added.
- Statistics New Zealand's longitudinal Survey of Family, Income and Employment (SoFIE) had an 8 item set of the general household and adult respondent types. The initial SoFIE sample in 2002–03 included around 11,500 households. The retention rate of 63% remaining in the final year of SoFIE (after seven years) is comparable to similar international longitudinal surveys. In this report, SoFIE participants who were eligible in the first year (2002−03) and who responded in all seven survey years have been included in the data on poverty persistence.

Table 13. Non-income items used in the New Zealand Household Economic Survey and scoring details for the material wellbeing index (MWI) and the material deprivation index (DEP-17)

Item description	MWI	DEP-17
Ownership or participation (have/do, don't have/do and enforced lack (EL)): For DEP-17, score an EL as 1, otherwise 0; For MWI, score an EL as a 0, otherwise 1		
1 Two pairs of shoes in a good condition and suitable for daily activities	✓	✓
2 Suitable clothes for important or special occasions	✓	✓
3 Contents insurance	✓	✓
4 A meal with meat, fish or chicken (or vegetarian equivalent) at least each 2nd day	✓	✓
5 A good bed	✓	-
6 Presents for family/friends on special occasions	✓	✓
7 Holiday away from home at least once every year	✓	-
8 Overseas holiday at least once every three years	✓	-
Economising (not at all, a little, a lot) – to keep down costs to help in paying for (other) basic items: For DEP-17, score "a lot" as 1, otherwise 0; For MWI, score "not at all" as 2, "a little" as 1, and "a lot" as 0		
9 Gone without or cut back on fresh fruit and vegetables	✓	✓
10 Buy cheaper cuts of meat or bought less meat than you would like	✓	✓
11 Continued wearing worn out clothes	✓	-
12 Put up with feeling cold	✓	✓
13 Do without or cut back on trips to the shops or other local places	✓	✓
14 Delay replacing or repairing broken or damaged appliances	✓	✓
15 Spent less on hobbies or other special interests than you would like	✓	-
16 Postponed visits to the doctor	✓	✓
17 Postponed visits to the dentist	✓	✓
Housing problems (no problem, minor problem, major problem): For MWI, score as 2, 1 and 0 respectively		
18 Dampness or mould	✓	-
19 Heating or keeping it warm in winter	✓	-
Freedoms/Restrictions		
20 When buying, or thinking about buying, clothes or shoes for yourself, how much do you usually feel limited by the money available? (4 point response from "not limited",..., "very limited"). For DEP-17, score "very limited" as 1, otherwise 0; For MWI, score as 3, 2, 1 and 0 respectively.	✓	✓
21 $300 spot purchase for an "extra" – how restricted? (5 point response from "not restricted",..., "couldn't purchase") For MWI, score as 4, 3, 2, 1 and 0 respectively.	✓	-
22 $500 unexpected unavoidable expense on an essential – can you pay in a month without borrowing? (yes/no) For DEP-17, score "no" as 1, and "yes" as 0; For MWI, score "yes" as 2 and "no" as 0	✓	✓
Financial strain in last 12 months (not at all, once, more than once) For DEP-17, score "more than once" as 1, otherwise 0 For MWI, score "not at all" as 2, "once" as 1, "more than once" as 0		
23 Behind on rates or utilities	✓	✓
24 Behind on car registration, WoF or insurance	✓	✓
25 Behind on rent or mortgage	-	-
26 Borrowed from family or friends to meet everyday living costs	-	✓
27 Received help in the form of food, clothes or money from a welfare or community organisation	-	-
Global self-ratings		
28 Adequacy of income to cover basics of accommodation, food, clothing, etc.	-	-
29 Satisfaction with life	-	-

Source: Perry 2017.[6] EL is an enforced lack – wanted but not possessed because of the cost

Table 14. Additional items included in New Zealand Household Economic Survey 2016

Item description
Ownership or participation (have/do, don't have/do and enforced lack (EL)
* Access to car or van for personal use
* Access to both a computer and internet connection at home
* Have a get together with friends or extended family for a drink or meal at least once a month
Economising (not at all, a little, a lot) – to keep down costs to help in paying for (other) basic items
* Delay replacing or repairing broken or worn out furniture
Financial strain (in last 12 months) (not at all, once, more than once)
* $1500 unexpected unavoidable expense on an essential – can you pay in a month without borrowing? (yes/no)
* About how much money, on average, do you have each week for spending on things for yourself without consulting anyone else? (under $10, $10-25, $26-50, over $50)

Source: Perry 2017[6]

- The Material Wellbeing Index (MWI) was developed by Ministry of Social Development and gathers data across the wellbeing spectrum from low to high, with information not only on "enforced lacks" but also "freedoms enjoyed".[6]
- DEP-17 is a 17 item deprivation index that focuses on the lower 20-30% of material wellbeing. It has been developed in conjunction with the MWI and provides a simpler score for material hardship compared to MWI's composite scoring. The range of items included provides differing degrees of hardship which allows for finer nuances within material hardship and how it is experienced by different people. The Perry 2017 report[6] uses DEP-17 thresholds in the range of 6+ to 11+ lacks out of 17 items to examine the characteristics of households with low living standards. This is working on a spectrum from lower to higher levels of hardship. A score of 7+ is considered to indicate households experiencing material hardship and 9+ indicates households experiencing severe material hardship. For further detail see Perry 2017.[6]

APPENDIX 2: ICD-10-AM CODES

Infant mortality including sudden unexpected death in infancy (SUDI) as underlying cause of death

Category	ICD-10-AM	ICD-9-CM
Extreme prematurity	P07.2	765
Intrauterine hypoxia or birth asphyxia	P20,P21	768
Other perinatal conditions	P00–P19; P22–P96	760–779
Congenital anomalies	Q00–Q99	740–759
SUDI: SIDS	R95	798
SUDI: unspecified	R96, R98, R99	798.1, 798.2, 798.9
SUDI: suffocation or strangulation in bed	W75	E913.0
SUDI: inhalation of gastric contents or food	W78, W79	E911
Injury or poisoning	V01–Y36	800–999

Medical conditions with a social gradient (primary diagnosis)

Category	ICD-10-AM
Acute lower respiratory infection unspecified	J22
Acute upper respiratory infections	J00–J03 or J06
Asthma and wheeze	J45–J46, R062
Bronchiectasis	J47
Croup, laryngitis, tracheitis, epiglottitis	J04
Dermatitis and eczema	L20–L30
Epilepsy or status epilepticus	G40 or G41
Febrile convulsions	R56.0
Gastroenteritis	A00–A09, R11, K529
Inguinal hernia	K40
Meningitis: bacterial	G00–G01
Meningitis: viral, other, NOS	A87, G02 or G03
Meningococcal disease	A39
Nutritional deficiencies or anaemias	E40–E64 or D50–D53
Osteomyelitis	M86
Otitis media	H65, H66 or H67
Pneumonia: bacterial, non-viral, unspecified	J13–J16 or J18
Pneumonia: viral	J12, J10.0 or J11.0
Rheumatic fever and rheumatic heart disease	I00–I09
Skin infections	L00–L08, H00.0, H01.0, J34.0 or L98.0
Tuberculosis	A15–A19
Urinary tract infection	N10, N12, N13.6, N30.0, N30.9 or N39.0
Vaccine preventable diseases	A33, A34, A35, A36, A37, A80, B05, B06, B16, B26, B18.0, B18.1, P35.0 or M01.4
Viral infection of unspecified site	B34

Hospitalisations with a social gradient

Category	ICD-10-AM
Age range	Up to 14 years, neonates under 28 days excluded
Medical hospitalisations	Acute and arranged (where arranged is within 7 days of referral), excluding ED admissions
Injury hospitalisations	exclude ED admissions and waiting list admissions
SES Eligible admit type (excludes waiting list)	AA (Arranged Admission), AC (Acute), RL (Psychiatric patient returned from leave), ZA (Arranged Admission, ACC covered), ZC (Acute, ACC covered)
ED admission (based on health specialty code)	M05–M08

Category	ICD-10-AM
Injury diagnoses	S00–T79; ICD-9-CM: 800–904, 910–995

Category	ICD-10-AM
Gastroenteritis	A00–A09, R11, K529
Tuberculosis	A15–A19
Vaccine preventable diseases	A33, A34, A35, A36, A37, A80, B05, B06, B16, B26, B18.0, B18.1, P35.0 or M01.4
Meningococcal disease	A39
Nutritional deficiencies or anaemias	E40–E64 or D50–D53
Acute upper respiratory infections	J00–J03 or J06
Croup/laryngitis/tracheitis/epiglottitis	J04
Pneumonia: viral	J12, J10.0 or J11.0
Pneumonia: bacterial, non-viral, unspecified	J13–J16 or J18
Acute bronchiolitis	J21
Acute lower respiratory infection unspecified	J22
Asthma and wheeze	J45–J46, R062
bronchiectasis	J47
Meningitis: bacterial	G00–G01
Meningitis: viral, other, NOS	A87, G02 or G03
Epilepsy or status epilepticus	G40 or G41
Otitis media	H65, H66 or H67
Rheumatic fever and rheumatic heart disease	I00–I09
Inguinal hernia	K40
Skin infections)	L00–L08, H00.0, H01.0, J34.0 or L98.0
Dermatitis and eczema	L20–L30
Osteomyelitis	M86
Urinary tract infection	N10, N12, N13.6, N30.0, N30.9 or N39.0
Febrile convulsions	R56.0
Viral infection of unspecified site	B34

Injury

ICD-10-AM
S00–T79

Injuries with a social gradient (external cause code)

Category	ICD-10-AM
Emergency Department specialty code	M05–M08
Falls	W00–W19
Mechanical forces: inanimate	W20–W49
Mechanical forces: animate	W50–W64
Thermal injury	W85–X19
Poisoning	X40–X49
Road traffic crash	
Pedestrian	V00–V06.(1), V09.(2,3)
Cyclist	V10–V18.(4,5,9), V19.(4,5,6,9)
Motorbike	V20–V28.(4,5,9), V29.(4,5,6,9)
3-wheeled	V30–V38.(5,6,7,9), V39.(4,5,6,9)
Vehicle occupant	V49.(4,5,6,9), V59.(4,5,6,9), V69.(4,5,6,9), V79.(4,5,6,9), V40–V78.(5,6,7,9)
Other land transport	V81.1, V82.(1,9), V83.(0,1,2,3), V84.(0,1,2,3), V85.(0,1,2,3), V86.(0,1,2,3), V87, V89.(2,3)
Non-traffic land transport crash	
Pedestrian	V00–V06.(0), V09.(0,1)
Cyclist	V10–V18.(0,1,2), V19. (0,1,2,3)
Motorbike	V20–V28.(0,1,2), V29. (0,1,2,3)
3-wheeled	V30–V38.(0,1,2,3), V39. (0,1,2,3)
Vehicle occupant	V49.(0,1,2,3), V59.(0,1,2,3), V69.(0,1,2,3), V79.(0,1,2,3), V40–V78.(0,1,2,3)
Other land transport	V81.0, V82.0, V83.(5,6,7,9),V84.(5,6,7,9),V85.(5,6,7,9),V86.(5,6,7,9), V88, V89.(0,1)

APPENDIX 3: THE NEW ZEALAND INDEX OF DEPRIVATION

The NZ index of deprivation (NZDep) was first created using information from the 1991 census, and has been updated following each census. It is a small area index of deprivation, and is used as a proxy for socioeconomic status. The main concept underpinning small area indices of deprivation is that the socioeconomic environment in which a person lives can confer risks or benefits which may be independent of their own social position within a community.[43] They are aggregate measures, providing information about the wider socioeconomic environment in which a person lives, rather than information about their individual socioeconomic status.

The latest index, NZDep2013, combines nine variables from the 2013 census to reflect eight dimensions of material and social deprivation (**Table 15**). Each variable represents a standardised proportion of people living in an area who lack a defined material or social resource. These are combined to give a score representing the average degree of deprivation experienced by people in that area. Individual area scores are ranked and placed on an ordinal scale from 1 to 10, with decile 1 reflecting the least deprived 10% of small areas and decile 10 reflecting the most deprived 10% of small areas.[44]

The advantage of the NZDep is its ability to assign measures of socioeconomic status to the older population, the unemployed and to children, to whom income and occupational measures often don't apply, as well as to provide proxy measures of socioeconomic status for large datasets when other demographic information is lacking. Small area indices have limitations, however, as not all individuals in a particular area are accurately represented by their area's aggregate score. While this may be less of a problem for very affluent or very deprived neighbourhoods, in average areas, aggregate measures may be much less predictive of individual socioeconomic status.[43] Despite these limitations, the NZDep has been shown to be predictive of mortality and morbidity from a number of diseases in New Zealand.

Table 15. Variables used in the NZ index of deprivation 2013 (NZDep2013)

Dimension	Variable in order of decreasing weight in the index
Communication	People aged <65 with no access to the Internet at home
Income	People aged 18–64 receiving a means tested benefit
Income	People living in equivalised* households with income below an income threshold
Employment	People aged 18–64 unemployed
Qualifications	People aged 18–64 without any qualifications
Owned home	People not living in own home
Support	People aged <65 living in a single parent family
Living space	People living in equivalised* households below a bedroom occupancy threshold
Transport	People with no access to a car

* The setting of the household equivalised income threshold was based on two principles: 1) the proportion of the population identified as being socioeconomically deprived by the threshold should be broadly consistent with the other variables in the index, and 2) the threshold should be broadly consistent with other measures of income poverty.

APPENDIX 4: NATIONAL DATASETS

The Child Poverty Monitor presents information derived from several national administrative datasets. These are described briefly below, and limitations and issues to be aware of when interpreting results drawn from these sources are outlined.

The National Mortality Collection

The National Mortality Collection is a dataset managed by the Ministry of Health which contains information on the underlying cause, or causes, of death along with basic demographic data for all deaths registered in New Zealand since 1988. Fetal and infant death data are a subset of the Mortality Collection, with cases in this subset having additional information on factors such as birth weight and gestational age.[45] Each of the approximately 28,000 deaths occurring in New Zealand each year is coded manually by Ministry of Health staff. For most deaths the Medical Certificate of Cause of Death provides the information required, although coders also have access to information from other sources such as Coronial Services, Police, NZ Transport Agency, the NZ Cancer Registry, the Institute of Environmental Science and Research, and Water Safety NZ.[46]

The National Minimum Dataset

The National Minimum Dataset (NMDS) is national hospital discharge dataset and is maintained by the Ministry of Health. It is used for policy formation, performance monitoring, and research purposes, providing key information about the delivery of hospital inpatient and day patient health services both nationally and on a provider basis. It is also used for funding purposes.[47]

Information in the NMDS includes principal and additional diagnoses, procedures, external causes of injury, length of stay and sub-specialty codes; and demographic information such as age, ethnicity and usual area of residence. Data have been submitted by public hospitals electronically since the original NMDS was implemented in 1993, with additional data dating back to 1988 also included. The private hospital discharge information for publicly funded events has been collected since 1997. The current NMDS was introduced in 1999.[47]

The Birth Registration Dataset

Since 1995 all NZ hospitals and delivering midwives have been required to notify the Department of Internal Affairs within five working days of the birth of a live or stillborn baby. This applies to stillborn babies born at or more than 20 weeks gestation, or those weighing 400g or more; prior to 1995, only stillborn babies reaching more than 28 weeks of gestation required birth notification. Information on the hospital's notification form includes maternal age, ethnicity, multiple birth status, and the baby's sex, birth weight and gestational age. In addition, parents must jointly complete a birth registration form as soon as reasonable practicable after the birth, and within two years of delivery, which duplicates the above information with the exception of birth weight and gestational age. Once both forms are received by Internal Affairs the information is merged into a single entry. This two-stage process it is thought to capture 99.9% of births occurring in New Zealand and cross-checking at the receipting stage allows for the verification of birth detail.[48]

Dataset limitations

There are limitations when using any of these datasets. The following are of particular relevance to this report.

Clinical coding accuracy and coding changes over time

The quality of data submitted to the administrative national datasets may vary. While the data for the National Mortality Collection and the Birth Registration Dataset are coded by single agencies, the clinical information held in the NMDS is entered by health providers before being collated by the Ministry of Health. In a 2001 review of the quality of coding in the data submitted to the NMDS, 2,708 events were audited over ten sites during a three month period. Overall the audit found that 22% of events required a change in coding, although this also included changes at a detailed level. Changes to the principal diagnosis involved 11% of events, to additional diagnoses 23%, and to procedure coding, 11%. There were 1,625 external causes of injury codes, of which 15% were re-coded differently.[49] These findings were similar to an audit undertaken a year previously. While the potential for such coding errors must be taken into consideration when interpreting the findings of this report, the average 16% error rate indicated by the 2001 review may be an overestimate as, in the majority of the analyses undertaken in this report, only the principal diagnosis is used to describe the reason for admission.

Changes in the coding systems used over time may result in irregularities in time series analyses.[46] New Zealand hospitals use the clinical coding classification developed by the World Health Organization and modified by the

National Centre for Classification in Health, Australia. The current classification is called The International Statistical Classification of Diseases and Related Health Problems, Tenth Revision, Australian Modification (ICD-10-AM), the Australian Classification of Health Interventions (ACHI) and Australian Coding Standards (ACS). The introduction of ICD-10-AM represented the most significant change in classification in over 50 years, expanding the number of codes from ~5,000 to ~8,000, to provide for recently recognised conditions and allow greater specificity about common diseases.

From 1988 until 1999, clinical information in the NMDS was coded using versions of the ICD-9 classification system. From July 1999 onwards, the ICD-10-AM classification system has been used. Back and forward mapping between the two systems is possible using predefined algorithms,[45] and for most conditions there is a good correspondence between ICD-9 and ICD-10-AM codes. Care should still be taken when interpreting time series analyses which include data from both time periods as some conditions may not be directly comparable between the two coding systems.

Variation in reporting hospitalisations to the NMDS

Historically, there have been differences in the way New Zealand's 20 district health boards (DHBs) have reported their emergency department (ED) hospitalisations to the NMDS, which can affect the interpretation of hospitalisation data. Inconsistent recording of ED cases has resulted from differing definitions of the time spent in the ED, and at what point this time constitutes an admission. This is important in paediatrics where hospitalisations for acute onset infectious and respiratory diseases in young children especially are mainly of short duration. In addition, there are regional differences in treatment processes for paediatric emergency cases.

This report includes all ED day cases in its analyses of hospitalisations for medical conditions. This approach differs from that commonly used by the Ministry of Health when analysing NMDS hospital discharge data, which the Ministry of Health uses to minimise the impact of the inconsistent reporting of ED cases. Short stay ED events are often excluded from the Ministry's analyses to improve comparability between regions. However, as noted above, the treatment of children in acute cases differs from that of adults, and the inclusion of ED day cases is justified when considering hospitalisations for medical conditions, despite inconsistencies in the dataset. The Ministry of Health's practice of filtering out ED day cases for hospitalisations for injuries is followed in this report as it is considered that the processes for injury assessments are relatively consistent around the country.

Further information on the details of the inconsistencies can be seen in earlier reports by the NZCYES http://www.otago.ac.nz/ncyes

Ethnicity in National Datasets

There were inconsistencies in the manner in which ethnicity information in New Zealand was collected prior to 1996. This report presents ethnic-specific analyses for 1996 onwards and, unless otherwise specified, prioritised ethnic group has been used to ensure that each health event is only counted once.

Despite significant improvements in the quality of ethnicity data in New Zealand's national health collections since 1996, care must still be taken when interpreting the ethnic-specific rates as the potential still remains for Māori and Pacific children and young people to be undercounted in our national data collections. The data presented in this report may undercount Māori and Pacific children to a variable extent depending on the dataset used; in the case of the hospitalisations for Māori, this undercount may be as high as 5–6%.

APPENDIX 5: INDICATORS USED IN THE CHILD POVERTY MONITOR

The indicators reported upon in the Child Poverty Monitor Technical Reports (2013-2017) combine measures of child poverty recommended by the 2012 Children's Commissioner's Expert Advisory Group on Solutions to Child Poverty,[4] with children's health and well-being measures being developed for the Children's Social Health Monitor that was produced by the NZ Child and Youth Epidemiology Service from 2009 to 2012.[5] The indicator set needs to be methodologically robust and able to be monitored consistently over time. The data selected are mainly from population surveys or routine administrative datasets that provide complete population coverage.

Methods for assessing hospitalisations and deaths for conditions with a social gradient were developed for the Children's Social Health Monitor as follows:

A **social gradient** occurs when hospitalisation or death rates are different for children living in areas with different scores on an NZDep index of deprivation. This occurs for example, where the rates of a condition are higher for children living in areas with high deprivation index scores compared with rates for children living in areas with low scores. From the 40 most frequent causes of hospital admission in children aged 0–14 years, conditions exhibiting a social gradient were selected. Hospitalisations of neonates (infants aged less than 28 days) were excluded on the basis that these admissions are likely to reflect issues arising prior to, or at the time of birth. For medical conditions, only acute and arranged hospital admissions were included as waiting list admissions are likely to reflect service capacity rather than the burden of health need. All injury cases with an emergency department specialty code on discharge were excluded as a result of inconsistent uploading of emergency department cases across district health boards. This differential filtering means that it is not possible to accurately compare hospitalisations with a social gradient between the medical condition and injury categories. Differences in how communities use emergency departments versus primary care for minor medical conditions may also have accounted for some of the social gradients seen. As the number of deaths from a particular condition was insufficient to calculate reliable rate ratios for many of the socioeconomic categories, deaths occurring as a result of conditions identified as having a social gradient in hospitalisation data were categorised as deaths with a social gradient with the addition of deaths from drowning and sudden unexpected death in infancy (SUDI).

APPENDIX 6: STATISTICAL METHODS

Inferential statistics are used when a researcher wishes to use a sample to draw conclusions about a larger population as a whole (for example, weighing a class of 10-year-old boys, in order to estimate the average weight of all 10-year-old boys in New Zealand). The findings obtained from the sample provide an estimate for the population, but will always differ from it to some degree, simply due to chance. Similarly, samples are used when a researcher questions whether the risk of developing a particular condition is different between two groups, and the fit of the estimate obtained from the samples to the actual population needs to be carefully considered. An example of this would be a study examining whether lung cancer is more common in smokers or non-smokers: researchers using sample groups would have to consider the possibility that some of the differences observed arose from chance variations in the populations sampled.

Over time, statisticians have developed a range of measures to quantify the uncertainty associated with random sampling error. These measures can assign a level of confidence to estimates and conclusions drawn from samples, allowing researchers to assess, for example, whether the average weight of boys in the sample reflects the true weight of all 10-year-old boys, or the rates of lung cancer in smokers are really different to those in non-smokers. Two of the most frequently used statistical significance tests are:

P values: The p value from a statistical test measures the probability of finding a difference at least as large as the one observed between groups, if there were no real differences between the groups studied. For example, if statistical testing of the difference in lung cancer rates between smokers and non-smokers resulted in a p value of 0.01, this tells us that the probability of such a difference occurring if the two groups were identical is 0.01 or 1%. Traditionally, results are considered to be statistically significant if the p value is <0.05; that is, when the probability of the observed differences occurring by chance is less than 5%.[50]

Confidence Intervals: When sampling from a population a confidence interval is a range of values that contains the measure of interest. While a confidence interval for the average height of 10-year-old boys could be 20cm to 200cm, for example, the smaller range of 130cm to 150cm is a more informative statistic. A 95% confidence interval suggests that if you were to repeat the sampling process 100 times, 95 times out of 100 the confidence interval would include the true value.[50]

When tests of statistical significance have been applied in this report, the statistical significance of the associations presented has been signalled in the text with the words significant, or not significant. Where the words significant or not significant do not appear in the text, then the associations described do not imply statistical significance or non-significance.

In general the data sources used in this report are either population surveys or routine administrative datasets.

Data from national surveys: In population surveys information from a sample has been used to make inferences about the population as a whole. In this context, statistical significance testing is appropriate and, where such information is available in published reports, it has been included in the text accompanying graphs and tables. In a small number of cases, information on statistical significance was not available, and any associations described do not imply statistical significance.

Data from routine administrative data: Administrative datasets, for example the National Mortality Collection, capture information on all of the events occurring in a particular category. To facilitate comparisons between different time periods, and for examining the data from New Zealand in a wider context, whenever measures of association (rate ratios) are presented in this report, 95% confidence intervals have been provided.[51] The following rates are provided:

- **Crude rates:** Measures the number of people with the condition of interest in relation to the number of people in the population. It is calculated by dividing the number of people with the condition of interest in a specific time period by the total number of people in the population in the same time period.
- **Age-specific rates:** Measures the occurrence of an event within a defined age group in relation to the number of people in that group. Age-specific rate is calculated by dividing the number of people with the condition of interest in a specific age group and time period by the total number of people in the population in the same age group and time period.

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