Household incomes in New Zealand: Trends in indicators of inequality and hardship 1982 to 2018

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Changes since last report

- The 2019 report updates the previous one with findings based on the 2017-18 Household Economic Survey (referred to as the 2018 HES).
- The Housing Costs section (end of Section C) has more detailed information on housing stress for the under-65 population, especially those spending more than half their income on housing costs.
- The Older New Zealanders section (Section I) includes new information on trends in tenure arrangements and low-income rates for the 45-64 year old group, factors likely to impact on the material wellbeing of older new Zealanders in coming years.
- There is additional analysis on 'The Working Poor' (Section J), expanding on previous reporting with more extensive conceptual and technical detail, international comparisons, trends in poverty for workless households, and information on the links between low wages and in-work poverty.
- There is new analysis of the impact of the level of liquid assets on material hardship rates for households with similar incomes.

Next report

- The next report is scheduled for mid 2020 based on the 2019 HES. (The timing is dependent on the availability of the HES data.)

Availability on MSD website

- This report and previous ones are available on the MSD website: www.msd.govt.nz/about-msd-and-our-work/publications-resources/monitoring/index.html

Updates since publication on 7 November 2019

Nil

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Glossary and Abbreviations

AHC	After (deducting) housing costs
AS	Accommodation Supplement
BDL	Benefit Datum Line
BHC	Before (deducting) housing costs
CV	Constant value (referring to low-income thresholds or 'poverty lines' kept constant in real terms) = 'anchored lines'
DPB	Domestic Purposes Benefit
EFU	Economic family unit
EU	European Union
Eurostat	The Statistical Office of the EU
FT	Full-time (30 hours or more per week)
GFC	Global Financial Crisis
HES	Household Economic Survey
HLFS	Household Labour Force Survey
HH	Household
HNZC	Housing New Zealand Corporation
IB	Invalid's Benefit
MEDC	More economically advanced country
NAOTWE	Net average ordinary time weekly earnings
NIM	Non-income measure (or sometimes, a non-monetary indicator (NMI))
NZPMP	New Zealand Poverty Measurement Project
NZS	New Zealand Superannuation
OECD	Organisation for Economic Co-operation and Development
PMP	Poverty Measurement Project
PT	Part-time (less than 30 hours per week)
REL	Relative-to-contemporary-median (referring to low-income thresholds or 'poverty lines' that are calculated as a proportion of the median for the survey year in question) = 'moving lines'
SB	Sickness Benefit
SoFIE	Survey of Family, Income and Employment
SP	Sole parent
2P	Two parent
Taxmod	The NZ Treasury's tax-benefit microsimulation model (up to HES 2004)
Taxwell	The NZ Treasury's tax-benefit microsimulation model (starting with HES 2007)
TPG	Total poverty gap
UB	Unemployment Benefit
UNICEF	United Nations Children's Fund (formerly, the United Nations International Children's Emergency Fund)
WFF	Working for Families
WL	Workless (adult or HH)

- When 'child' is used without qualification, it means a person aged 0-17 years.
- 'Dependent children' are all those under 18 yrs, 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 hrs or more a week.
- A household 'with children' always means a household with at least one dependent child – the household may or may not have adult children or other adults who are not the parents or caregivers.

About this report

This report provides information on the material wellbeing of New Zealanders as indicated by their household incomes from all sources over the period 1982 to 2018. It updates the last report published in 2018 which covered 1982 to 2017.

It is one of a suite of three reports that provide information on the material wellbeing of New Zealanders. The suite includes:

- the Household Incomes Report
- the companion report that uses non-income measures (NIMs) to measure and track material wellbeing
- an Overview report which provides a 50-page summary and synthesis of the findings in the two longer reports.

A shorter Background and Selected Key Findings document that covers both the Incomes and the NIMs reports is available on MSD's website.

The income measure used in the Incomes Report is household after-tax cash income for the twelve months prior to interview, adjusted for household size and composition. This is referred to as equivalised disposable household income and is taken as an indicator of a household's access to economic resources and of its (potential) living standards.

The major focus of the report is on trends in income-based indicators of inequality and financial hardship. These trends are set in the context of a description of the changing overall income distribution in the period. Extensive international comparisons are provided.

The report is about more than just the numbers. It also provides commentary, contextual information and technical notes to assist the reader with a better understanding of the indicators and the trend figures they produce.

All results are estimates, based in the main on data from Stats NZ's Household Economic Survey (HES) which is a nation-wide survey with an achieved sample in recent years of around 3500 private households. The latest income information is from the 2017-18 HES (2018 HES, for short) which had an achieved sample of 5482 private households.[1] The interviews for the survey are conducted face to face and for the 2018 HES were carried out from July 2017 to June 2018. The income questions ask about incomes for the twelve months prior to the interview.

The report is published as part of the Ministry of Social Development's work on monitoring social and economic wellbeing. It is designed as a consolidated and accessible resource for use by a wide range of individuals and groups (policy advisors, researchers, students, academics, community groups, commentators and citizens more generally), to inform policy development and public debate around poverty alleviation and redistribution policies.[2]

This is the thirteenth issue in the series of Income Reports which will be updated in similar format as new HES datasets become available. The next update with new findings is expected in mid 2019 based on the data from the 2019 HES.

The scope of the report is relatively narrow. Its focus is on the material wellbeing of New Zealanders as indicated by the equivalised disposable income of their households. Although it has a short section on the extent of re-distribution of households' market income through taxation and government spending, it does not seek to give an account of how household income comes together from individual market incomes, social assistance paid to benefit units, and New Zealand

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[1] The full HES is run each three years (2006-07, 2009-10, 2012-13 and so on). Starting with 2007-08, a shortened version of the full HES has been run in the two intervening years to collect data on incomes, housing cost expenditure and living standards indicators. It is referred to as the HES (Income). For more detail on the HES in general, and especially on the 2017-18 HES, see www.stats.govt.nz/hes

[2] The report shares many of the assumptions used by the New Zealand Poverty Measurement Project (Stephens et al, 1995; Waldegrave et al, 1996), Mowbray (2001) and Easton (1995a, 1995b, 1996) in their reporting on poverty trends in New Zealand.

Superannuation paid to older New Zealanders. Nor does the report seek to give a comprehensive explanation of the reported trends by drawing on the usual mix of labour market, demographic and macro-economic and geo-political factors, and on changes in tax and social assistance policy settings. Some limited context is given to point to macro-level changes that impact on household income, but the report is essentially descriptive.

There are several Appendices which provide more detail on some of the concepts, definitions and assumptions used in the report, and how these impact on the reported levels and trends in inequality and poverty.

Summary inequality figures are available from page 90 and trends in low incomes / income poverty for the whole population and dependent children can be found from page 129 on. There is an Annex to Section F (starting on page 144) that brings all the child poverty and hardship material together in one place.

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Copies of the report are available on the Ministry of Social Development's website at:
www.msd.govt.nz

Feedback on the report is welcomed, especially any suggestions for possible additional information or for the clarification or better presentation of what is already included.

For feedback and enquiries, contact Bryan Perry at: bryan.perry001@msd.govt.nz

Section A
Introduction

This Introduction outlines the main concepts and assumptions used in the report. More detail is provided on selected issues in the Appendices and in other Sections as indicated.

Following the definitions below of the income measures used in the report, the Introduction is divided into three parts:

- The first outlines and discusses the over-arching income-wealth-material-wellbeing framework used in this report and in the companion report using non-incomes measures (NIMs).
- The second sets out the key assumptions and approaches used in the income data analysis that forms the basis of the report. More detailed discussion of the income poverty measures is in Sections E.
- The third outlines the value and limitations of the HES for the purposes of the reports.

The income measures used in this report

Gross and disposable household incomes

Gross household income is the total of all income before tax for the previous 12 months from all sources for all household members aged 15 years or over. Gross household income is calculated directly from the income information given by respondents in the survey.[3]

Disposable household income is the total of all after-tax income for all household members. To calculate disposable income Statistics New Zealand uses the Treasury's tax-benefit microsimulation model (TAWA[4]) to estimate tax liabilities for individuals and benefit units. The resulting personal disposable incomes are summed to give disposable household income. Disposable household income is sometimes referred to as net income or after-tax cash income.

Equivalised disposable household income

The primary income measure used in the report is disposable household income for the twelve months prior to interview, adjusted for household size and composition. This is referred to as equivalised disposable household income and is the international standard income measure for reports of this type. The rationale for adjusting for household size and composition and the difference that different equivalence scales make to findings are discussed below, after the next section.

In line with international practice, income from capital (eg interest and dividends) is included, but capital gains themselves are not.[5] A capital gain or loss for a household is treated as a change in net worth or wealth, except where the proposed "capital gain" is in fact income as defined by tax law.

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[3] In general, income is regarded as all receipts which are received regularly or are of a recurring nature. The sources are wages and salaries, self-employed income (defined as the before-tax profit/loss of the business), social welfare benefits (including Family Support and its tax credit successors, and the Accommodation Supplement and its pre-cursors), New Zealand Superannuation and war pensions, income from investment, and other regular income (such as maintenance and directors' fees). For a business which recorded a loss in its latest balance sheet or profit and loss account, the respondent concerned is allocated a negative amount for self-employment income, the amount being the full loss or, in the case of a partnership, the respondent's share of the loss.

[4] For 1982 to 2004, the incomes data is calculated using Taxmod, the predecessor of Taxwell which continued until 2017. TAWA (Tax and Welfare Analyis) is the latest incarnation of the microsimulation model.

[5] UNECE (2011).

Income, wealth (net worth), consumption and material wellbeing

This report is about household incomes, their trends and levels over time, and how dispersed they are (levels of income inequality). While this information is of value in itself, one of the motivations for reporting on household income is to discover what it tells us about the material wellbeing of households – changes over time, and the relative positioning of different groups within the population.

In line with common practice among all OECD and EU nations, the report takes household income as an indicator or proxy measure of material wellbeing. Given the importance of income and cash in our sort of economy and society, the range of financial levers available to a government for influencing the distribution of income, and the ready availability of good income data from surveys and administrative records, there is a sound rationale for reports such as this.

Income however is not the only economic resource available to a household to generate its consumption possibilities. A household's wealth (or lack of it) is another crucial factor. A household's wealth is its total financial and non-financial assets less liabilities – this is sometimes called net worth. Income and net worth together largely determine the economic resources available to households to support their consumption of goods and services and therefore their material standard of living.

The diagram below (**Figure A.1**) shows the relationship between income, wealth and material wellbeing in a simple stylised form. It also indicates that "other factors" that vary from one household to the next can also impact on material wellbeing. These are especially relevant for low-income / low-wealth households, and can make the difference between "just getting by" and not being able to meet basic needs.[6]

Figure A.1
The income-wealth-consumption-material wellbeing framework used in the report

Income can be used for the current consumption of goods and services, or saved to increase wealth for later consumption. Some lower-income households have relatively high wealth levels and can support consumption levels well above those with similar incomes but lower net worth.

Households with resources that are not adequate for supporting consumption that meets basic needs (those experiencing poverty or hardship) are of special public policy interest. Low-income households with low net worth levels are especially vulnerable to the negative impacts of unexpected expenses or even small drops in income. Some are unable to purchase the essentials in the first place.

[6] See **Section E** for a more detailed stylised diagram and further discussion.

One of the clear implications of this framework for the central theme of this report (the material wellbeing of New Zealanders as indicated by their household incomes) is that:

- either, income and wealth (net worth) need to be considered together to produce a proper ranking of households from high to low material wellbeing when basing the ranking on economic resources
- or, material wellbeing needs to be measured more directly using non-income measures.

The rest of this part of Section A looks in more detail at these two implications.

The distributions of household income and wealth, separately and together

Income levels and wealth accumulation vary over the life-cycle. Wealth tends to grow steadily through to near "retirement" age, especially through retirement savings, home ownership and mortgage repayment, then is used to varying degrees in "retirement". Household incomes tend to rise much more rapidly and earlier than wealth, then fall away as paid employment reduces or ceases. **Figure A.2** below shows the average trend for Australia.[7]

Figure A.2
Gross weekly household income and wealth by age of reference person, Australia, 2011-12

Source: Survey of Income and Housing (ABS), reported in ABS (2013b)

The life-cycle trends shown in Figure A.2 are averages. There are many whose life follows other trajectories that are not so tidy. For example, some accumulate very little wealth and become particularly vulnerable later in their life if their household income drops because of a relationship break-up, illness or redundancy.

Table A.1 shows that wealth is distributed more unequally than income. The figures are similar for both Australia and New Zealand. This is a well-established finding that applies to all OECD and EU countries and to many others.

For both Australia and New Zealand the Gini for wealth is roughly double the income Gini. The ratio of top quintile share to bottom quintile share (S5:S1) is around 5 for income for both Australia and New Zealand, whereas the same share ratio for wealth is "off the scale" – around 70 for Australia.

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7 New Zealand now has up to date wealth and income data in HES 2017-18, but we have not as yet done the analysis in Figure A.2 using New Zealand data. The analysis that follows draws on the Survey of Income and Housing (SIH) run by the Australian Bureau of Statistics (ABS), and the Household, Income and Labour Dynamics in Australia (HILDA) Survey run by the Melbourne Institute and funded by the Australian Department of Social Services. For New Zealand comparisons, unpublished New Zealand Treasury analysis of the wealth and income information from the 2003-04 wave of Statistics New Zealand's Survey of Family, Income and Employment (SoFIE) and Statistics New Zealand's analysis of the 2017-18 HES are used. In Section L (on wealth), HILDA data is used to briefly report on wealth mobility.

Table A.1
Shares of income and wealth by respective quintiles (%)

		Q1 (low)	Q2	Q3	Q4	Q5 (high)	Share ratio, S5:S1
Household income (equiv dispos)	**Australia**	8	12	17	22	41	5
	NZ	8	13	17	23	40	5
Household wealth	**Australia**	1	5	11	21	62	very large ~ 70
	NZ (SoFIE)	0	5	12	24	59	very large
	NZ (HES 2015)	0	3	9	18	69	very large
	NZ (HES 2018)	0	3	9	19	70	very large

Sources: Australia: ABS (2015), using SIH data.
New Zealand: for income, MSD analysis of HES data;
for wealth, unpublished NZ Treasury analysis of SoFIE data (2003-04) and Stats NZ published analysis of HES 2014-15 and 2017-18.

The separate distributions of income and wealth are of interest in themselves, <u>but for the purposes of this report it is the joint distribution of household income and household wealth that matters,</u> especially to better distinguish between households of higher and lower material wellbeing.

Table A.2 shows the joint distribution of income and wealth by reporting the share of total wealth held by households in the five (gross) income quintiles. For both Australia and New Zealand the wealth share ratio S5:S1 for income quintiles is much lower (3-4) than the raw wealth share ratio (70+) and is in fact lower than the income share ratio (5).

Table A.2
Shares of wealth by household income quintiles (%)

HH gross income quintile ➔	Q1 (low)	Q2	Q3	Q4	Q5 (high)	Wealth share ratio, S5:S1
Australia	12	14	15	20	39	3
NZ (SoFIE)	12	15	14	19	39	3
NZ (HES 2015)	9	14	15	22	40	4
NZ (HES 2018)	11	14	14	22	39	4

Sources: Australia: ABS (2015), using SIH data (2013-14).
New Zealand: unpublished NZ Treasury analysis of SoFIE data (2003-04), and Stats NZ published analysis of HES 2014-15 and 2017-18.

The joint distribution of wealth and income as shown in Table A.2 is a more comprehensive indicator of the distribution of household economic resources than either income or wealth on their own. The difference between the raw wealth distribution and the joint income-wealth distribution reflects in part the fact that people accumulate wealth over the course of their lives. Many older people have relatively high wealth (often in the form of a mortgage-free home in the main) but low income. Many younger households have lower wealth but higher incomes than many older people. Some of all ages have low incomes and low wealth levels.[8]

<u>Using the joint income-wealth distribution for better distinguishing between households with lower and higher material well-being (living standards)</u>

Given the persuasive logic and potential public policy value of using income and wealth information to better identify the most disadvantaged households, why is it that this approach is not used as standard practice? There are two main challenges:

- first, for many countries, there are data limitations in that most regular income surveys do not also have wealth information
- second, it is not clear how best to combine the income and wealth information into one number for each household to allow household rankings to be made.

8 See Whiteford (2014) for further commentary on the joint distribution.

The Australian efforts in this regard are well-advanced. For New Zealand, in the 2015 HES and again in the 2018 HES, Statistics New Zealand collects income, wealth and more direct material wellbeing information in the one survey and plans to do so at regular intervals. This is a welcome advance that enables analysis that will give more comprehensive understanding of the links between income, wealth and material wellbeing.

However, even where good income and wealth data are available, there is no agreed way of combining the two to rank individual households on a single scale from high to low material wellbeing. This remains a significant challenge.[9]

Even if income and wealth information cannot (yet) be combined at a household level to rank households by their economic resources, the information can be clumped at, say, a quintile level on the two dimensions in a simple cross-tabulation that enables the range of joint income and wealth scenarios to be better understood, and for the most vulnerable low-income-low-wealth groups to be identified.

Table A.3 illustrates this based on Australian data for 2009-10. It shows that around one third (35%) of those in the lowest income quintile are also in the lowest wealth quintile, while around a quarter (26%) have wealth in the top two wealth quintiles. Clearly the material wellbeing and actual day-to-day living standards of the latter group will be higher than for those with both low income and low wealth.

Table A.3
The distribution of wealth across household income quintiles, Australia (2009-10)

(%)		Household income quintiles				
		Q1	Q2	Q3	Q4	Q5
Household wealth quintiles	Q1	35	25	16	11	5
	Q2	17	21	21	22	17
	Q3	21	21	23	19	13
	Q4	15	19	24	25	20
	Q5	11	14	16	23	44
	ALL	100	100	100	100	100

Source: Table 8.3 in OECD (2013), from Australia's Survey of Income and Housing

It is tempting to use a tidy-looking table like Table A.3 to reach conclusions about what proportions of low-income households (say, Q1) have low living standards and what proportion do not. To get to that next step requires further information about the actual wealth levels in the bottom two to three wealth quintiles. If these quintiles <u>all</u> have very low wealth, and Table A.1 indicates that they do, then the vulnerable low-income group expands from 35% to 74% of the bottom income quintile. As is the case for low-income thresholds themselves, judgement calls have to be made about what wealth levels are sufficient to consider low-income households to no longer be vulnerable or "resource-poor". In addition, the composition of the household wealth is relevant too, with some types being more liquid and accessible than others.

Future analysis of the 2015 and 2018 HES will allow us to also identify the proportion in each cell in a table like Table A.3 who are also in material hardship (using the non-income measures in the HES). This will give a more comprehensive and robust picture of where the vulnerable groups are in the income-wealth grid.

[9] The OECD recently published a report on a "Framework for Statistics on the Distribution of Household Income, Consumption and Wealth" (OECD, 2013). It was one of the products of a 2011-12 work programme of an OECD expert group, chaired by Bob McCall from the Australian Bureau of Statistics, whose task was to improve existing metrics for measuring people's economic well-being at the micro level, i.e. at the level of individuals and households.

Using the joint income-liquid assets distribution for better distinguishing between households with lower and higher material well-being (living standards)

Cash assets or those that can relatively easily be liquidated into cash are a subset of assets that can readily contribute to a household's material wellbeing, alongside income.

The 2014-15 and 2017-18 HES have liquid asset information available. This information is used in **Figure A.3** and shows the difference that the level of liquid assets can make to reported material hardship. Individuals under 65 within each household income quintile are split into three equal-sized groups according to the level of liquid assets in their respective households (lower, middle, higher).

For the lower four quintiles, the average incomes of the three groups within each quintile are almost identical, thus increasing the likelihood that the level of liquid assets is the main contributor to the differences in reported hardship rates. For the lower two quintiles especially, the level of liquid assets makes a noticeable difference.

Whether liquid assets can/ought to be incorporated into a new (better?) poverty measure is an open question.[10] In the meantime, Figure A.3 is a useful reminder of the limitations of household income on its own as a reliable indicator of material wellbeing (even AHC income). This does not mean that household income is not important for households. For low-income households that have very limited or no financial assets, their income is the main in-house resource available to generate their standard of living. Such households not only struggle in varying degrees to meet basic needs, but are also very vulnerable to the negative impacts of "shocks" such as even a small drop in income or an unexpected expense. The limitation identified here is simply about the method used to rank households and to identify those most likely to be experiencing material hardship.

Figure A.3
Material hardship rates by household income quintile,
with each quintile split into three equal-sized groups by household liquid assets, HES 2018

Note: Liquid assets include foreign and NZ currency (greater than $1000), bank deposits, bonds and other debt, managed funds and other investment funds, shares in listed corporations, and other non-pension financial assets.

	Q1			Q2			Q3		
median liquid assets ($)	0	400	8,000	100	1,200	12,000	500	3,600	19,300
can pay an unexpected + essential $500 bill within a month without borrowing	24%	43%	67%	51%	71%	79%	69%	84%	85%
material hardship rate (6+/17, DEP-17)	47%	18%	7%	19%	11%	4%	9%	1%	2%
avg AHC household income (equivalised)	11,000	11,000	10,000	21,000	21,000	22,000	30,000	31,000	31,000

[10] The UK's Social Metrics Commission has recently recommended a new measure of (income) poverty for the UK (Social Metrics Commission, 2018 and 2019). In addition to income it also argues for including liquid assets (as total/52 to bring it to a weekly amount) as a household resource. The report notes that there are still data challenges to be overcome before this approach can be confidently used.

Using non-income measures to measure material wellbeing

Non-income measures (NIMs) are now widely used in EU and in many OECD nations to more directly measure the material wellbeing of households, especially at the low living standards or "hardship" end of the spectrum. NIMs are sometimes called non-monetary indicators.

Using this approach, the impacts on material wellbeing of different levels of income and wealth and of the differing experiences of the "other factors" noted in Figure A.1 are all captured in the different scores reported using indices based on NIMs.

In addition to monitoring material wellbeing using household incomes, MSD also monitors material wellbeing and hardship through the use of non-income measures (NIMs) based around the basics people have and do not have, and the freedoms or restrictions they have in purchasing desirable non-essentials. Further detail is available in the companion NIMs report and in other publications available on MSD's website.[11]

The HES has collected information on NIMs since HES 2007.

The bottom income decile: income not a reliable indicator of material wellbeing

While household income is far from perfect as a measure of material wellbeing it is generally a useful enough indicator. There are however some households for whom it would clearly be very misleading to take their incomes as even a rough and ready indicator of their material living standards. This assessment is based on comparisons with income information from other surveys and known benefit levels, and from HES expenditure information: some households have implausibly low incomes, well below the minimum social support levels; some have reported expenditures well above their reported incomes.

Some of these households will be declaring income from self-employment which can legitimately be much lower than reported expenditure – the declared income may even be negative. Others will have accurately reported their incomes but will have had access to loans, gifts or 'savings' in one form or other which have been used for purchasing goods and services (see Figure A.3 above). Some may have not been in the country (or their current household) for the full 12 months. Others will have intentionally or unintentionally under-reported their incomes.

Households with implausibly low incomes per se are of course found only in the bottom decile (bottom 10% of the income distribution). The reported incomes of many at the bottom are less than the incomes provided by government cash benefits or New Zealand Superannuation.

Those reporting expenditure much higher than reported income are found in most parts of the income distribution but the bulk of them are found in the bottom decile. For example, of all those in households reporting expenditure which is more than three times their income (2-3% of all households), around 75% to 80% are in the bottom income decile in any survey year.

This means that the average income of the bottom decile cannot be taken as a reasonable estimate of this group's (relative) material wellbeing.

This is supported by the analysis in the graph on the next page which shows how the MWI (Material Wellbeing Index) score decreases as expected when coming down the (BHC) income spectrum, except for the bottom income ventile (5%) whose average MWI score is more like those at the top of the second income decile.[12] This shows that the incomes of those reporting implausibly low incomes are in general not a reliable indicator of the resources available to those households for generating consumption.

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11 See Jensen et al (2002), Krishnan et al (2002), Jensen et al (2006), and Perry (2009) available at: http://www.msd.govt.nz/work-areas/social-research/living-standards/index.html

12 See Carver and Grimes (2016) for a recent New Zealand investigation focussing on whether income or consumption (as measured by ELSI, the earlier version of the MWI) better predicts subjective wellbeing.

It also means that it is unwise to use very low BHC income thresholds to monitor "severe" poverty as too great a proportion of the households under such thresholds are those with implausibly low reported incomes. The Incomes Report therefore does not go below a 50% of median threshold for BHC incomes, or 40% of the median for AHC incomes.

When the low-income-high-expenditure households are removed from the data, the reported low-income (poverty) rates are around 1 percentage point lower (using a 50% of median measure), but the overall directions of the trends do not change.

This noise in the lower end of the income distribution has only a limited impact on most of the indicators used in this report. For example, it does not impact greatly on the medians as the bulk of households in question would remain below the median even if their expenditures were taken as better estimates of their actual income than what was reported as such. Nor does it impact significantly on trends over time for either poverty or inequality indicators.

In general the impact is significant where the indicator is highly dependent on the incomes of those in the bottom decile or a little above it. This means, for example, that point-in-time poverty levels are noticeably affected when BHC poverty lines are set at levels lower than the 50% of median line (eg 40% of median), or below 40% for the AHC approach. In addition, the level and trend of the P10 (10th percentile) line and measures of poverty depth (see Section E) are also significantly affected.

As appropriate, the report makes comment on the likely impact of the noise at the bottom end of the income distribution in the text associated with affected indicators. **Appendices 8 and 9** provide a fuller discussion of the issue.

The companion NIMs report also discusses the issue in Section F.

Summing up: the use of household income as an indicator of material wellbeing

In the context of the framework indicated in Figure A.1, household income is taken to be either an imperfect but readily available and very important indicator of the "consumption possibilities" for a household, or as an indicator that allows comparisons of the potential living standards of households, all else assumed equal.

While the incomes approach has recognised limitations, there are several other factors to consider too when assessing its value for monitoring material wellbeing and hardship:

- Income and cash-in-the-hand are very important in our sort of economy and society. This is especially so for households that have low incomes, very tight budgets and very limited or negative net wealth. Monitoring trends in low household incomes is very important for understanding how the more vulnerable groups are faring.
- Governments have a wide range of financial levers available to them for influencing the distribution of income. Although governments can also redirect resources to provide subsidies and services that reduce pressures on household budgets or more directly improve material wellbeing, the income levers use a much greater proportion of government expenditure than the subsidies or services (excluding public health and education).
- The ready availability of regular and good quality income data from surveys and administrative records.
- Using household income after deducting housing costs (AHC income) improves the congruence between the report's findings on the income relativities between population groups and the relativities found using more direct non-income measures.

The framework and government policy to address poverty and material hardship

The income-wealth-consumption-material-wellbeing framework together with its elaboration in **Appendix 15** in relation to child poverty and material hardship provide a high-level check-list for discussion, debate and policy development for addressing poverty and hardship.

For example, thinking about poverty alleviation from the perspective of a household, and how that intersects with government policy, the framework points to the following as pathways for addressing or alleviating poverty:

- increasing household income (whether it be from higher total earnings or increased government cash assistance or reduced tax)
- having the demands on the core household budget reduced (for example, through government services and government subsidies such as those for free doctor's visits for under 13s, reduced fees for Community Services Card holders, child care subsidies, the SuperGold Card for seniors, KickStart Breakfast in schools programme; and through the work of various (including foodbanks)
- assisting with addressing toxic debt through services such as those offered by the Community Finance Initiative and the Microfinance Network more generally
- having some financial savings to help deal with shocks to the budget (for example, loss or reduction in paid employment, unexpected health issues that incur costs or reduce earning capacity, unexpected large bill for the car)
- getting better at using a given income to meet basic needs (for example, through improved budgeting, healthy family functioning (tension and chaos reduce efficiency), improving life skills, better access to government and community services, and so on)
- having a streamlined user-friendly interface with government agencies and others for clients to access available assistance
- having improved neighbourhood amenities, including public transport services.

The framework makes it clear that improving the day-to-day living standards of households is about more than income, though income remains a very important factor.

When the focus is on raising incomes for households with children the framework points to three factors that impact on child poverty rates and on the proportion of poor children who come from various subgroups (that is, on the composition of the poor):

- the economy and the labour market (impacting for example on employment and unemployment rates, wage rates, benefit numbers (including numbers of sole-parent families), and interest rates)
- demographic shifts and changing cultural norms (eg the number of sole-parent families, whether sole-parent families live in households on their own or with other adults, the proportion of dual-earner two-parent households)
- policy changes that have a direct impact on income (eg policy changes around benefit rates, income-related rent subsidies, the Accommodation Supplement and Working for Families settings all have clear impacts on the child poverty rates for children from both working and workless households, and on the relativities between the two groups).

Three ways of measuring material wellbeing and ranking households

The reports use three different measures of material wellbeing to rank households from high to low. Both income measures adjust for household size and composition to enable more realistic comparisons between different household types.

- BHC income (income before deducting housing costs):

  Household income from all household members from all sources after paying income tax gives an indication of the different levels of financial resources available to different households, all else being equal.

  But all else is not equal, as the diagram on the previous page makes clear. There are many factors other than current income that make a difference to the actual day-to-day living standards of households. For example, the largest item on the household budget for many households is accommodation costs, and yet for others in mortgage-free homes these costs are much lower. Accommodation costs cannot usually be changed in the short-term. To better compare the material wellbeing of households when using incomes the Incomes Report also uses household income after deducting housing costs (AHC incomes), especially for "income poverty" measurement.

- AHC income (income after deducting housing costs):

  AHC income (ie BHC income after deducting housing costs) is a very useful measure for understanding the real-life differences in consumption possibilities for households when looking at income alone. AHC income is sometimes called "residual income".

  There are other factors (in addition to income and housing costs) that also contribute to a household's material wellbeing. The combined impact of all these factors on a household's material wellbeing can be captured by examining more directly the actual living conditions and consumption possibilities that households experience. The MWI does this.

- MWI (Material Wellbeing Index)

  The MWI is made up of 24 items that give direct information on the day-to-day actual living conditions that households experience. They are about the basics such as food, clothes, accommodation, electricity, transport, keeping warm, maintaining household appliances in working order, and so on, and also about the freedoms households report to purchase and consume non-essentials that are commonly aspired to. See Appendix 4 in the Overview document for a list of the MWI items.

  Differences in MWI scores reflect the differing impact on living standards of the income, assets and other factors in the framework on page 4. The MWI rankings reflect the different levels of consumption for different households in a way that gets around the need to carry out the very demanding analysis required to create a dollar value for each household's consumption.

  MSD also uses two deprivation / material hardship indices which focus only on the low end of the spectrum:

  - DEP-17: this gives the same results as the MWI when looking at the bottom quintile (20%), but the scoring is more intuitive (eg a score of 7+/17 simply means "missing 7 or more basics from the list of 17")
  - EU-13: this 13-item index is used in Europe and we use it monitor how New Zealand ranks internationally – it ranks households much the same as DEP-17 does.

The different measures can show different pictures of who is in the higher and lower material wellbeing levels

Different pictures can emerge depending on which measure of material wellbeing is used. This is most clearly illustrated when looking at how different age groups rate relative to each other on the three measures.[13]

- The charts below show how the bottom quintile (bottom 20%) becomes "younger" when the ranking measure changes from BHC to AHC to the MWI: the proportion of older New Zealanders in the bottom quintile decreases (25% to 9% to 5%) and the proportion of children increases (28% to 34% to 38%).
- The differences arise in part because mortgage-free home ownership is very high among older New Zealanders (ie housing costs are very low for most), so when moving from BHC to AHC incomes a large re-ranking happens with many older New Zealanders moving up and many families with children moving down relative to each other. The two circled figures at the left of the table below shows the result of the movement from Q1 (BHC) to Q2 (AHC) for many older New Zealanders.

The make-up of the bottom quintile (20%) for the three measures, by age groups (HES 2015)

- The differences in the make-up of the bottom quintile on the three measures are also a reflection of the life-cycle fact that in addition to a mortgage-free home many aged 65+ have all the household appliances and furniture they need and many have other financial reserves they can call on. This explains the large change for older New Zealanders when comparing their numbers in Q5 (see table below which covers all five quintiles): using the MWI, 44% of older New Zealanders are in this higher living standards group, whereas for AHC only 20% are.
- The table also shows that around one in three older New Zealanders (35%) have BHC incomes that place them in the bottom BHC income quintile, but only one in fourteen (7%) are in the lowest MWI quintile.

Where older New Zealanders are found across all quintiles (%), three measures (HES 2015)

	Q1	Q2	Q3	Q4	Q5	TOTAL
BHC	35	18	16	14	16	100
AHC	13	32	18	16	20	100
MWI	7	10	15	24	44	100

[13] See also Table E.6 in the companion report using Non-Income Measures.

Protocols and technical information for the incomes analysis

This second part of the Introduction covers the following. See Sections E for detailed discussion of the income poverty measures used in the report.

- equivalisation: comparing incomes across different household and family types
- the income sharing unit and the unit of analysis for the presentation of results
- housing costs
- data source: the Household Economic Survey (HES)
- population weighting
- convention for naming HES years and the HES years used in the report
- treatment of negative incomes
- adjusting for inflation
- ethnicity
- household and family types
- reliability of results
- summary of key measures used for reporting on income inequality and poverty.

Equivalisation: comparing incomes across different household and family types

Equivalisation reflects the two common sense notions that:

- a larger household needs more income than a smaller household for the two households to have similar standards of living (all else being equal), and
- there are economies of scale as household size increases.

Most sets of equivalence ratios also assume that children cost less than adults, though the definition of 'child' can vary.

Equivalising is a means of standardising household incomes in terms of household size and composition so that the relative material wellbeing of households of different sizes and compositions can be more sensibly compared. The adjustment also makes comparisons over time more realistic because it takes into account the changes over time in the composition and average size of households.

While considerable research has been undertaken to try to estimate appropriate values for equivalence scales, no universally accepted 'correct' set of equivalence ratios has emerged, even when household size and composition are the only factors being considered.[14]

Up to and including the 2017 report the Revised Jensen Scale (1988) was used. In the 2018 report, there was a change in the equivalence scales used. The primary equivalence scale used in the analysis of BHC incomes (ie incomes before-deducting-housing-costs) was changed to the 'modified OECD scale' which is used by Eurostat, Australia, the United Kingdom and others.[15] This

[14] Ideally, equivalence scales would also take into account other factors such as the age of children, the costs of being employed, the extra costs of disability, the differing costs faced by people in different geographical locations, the different ratios needed for households of the same type but of different incomes, and so on. Such considerations further complicate an already fraught estimation process and the common practice is to settle for simpler scales as a rough-and-ready but better-than-nothing approximation. It is important to keep in mind that equivalisation is not intended (or able) to 'fix' the fundamental limitations of using current household income as an indicator of available resources, in particular that it does not take into account wealth, liquid assets, or "other factors" as noted in Figure A.1.

[15] The scale is called the 'modified' OECD scale because there was an earlier scale which assigned 0.7 to each additional adult and 0.5 to each child which in 1982 the OECD suggested for possible use in countries which did not have their own equivalence scale. This came to be known as the '(old) OECD scale' even though the OECD rarely used it. For its incomes analysis, the OECD uses neither the 'old' nor

scale assigns the first adult a value of 1.0, the second and subsequent household members aged 14 or older 0.5, and 0.3 for those aged under 14 years. The Revised Jensen and modified OECD scales give very similar results, as is shown in th12examples in **Appendix 3**. The report shifted to the modified OECD scale to simplify reporting, in particular to avoid having to change scales for most international comparisons.

For international comparisons the OECD and the Luxembourg Income Study (LIS) use a scale where children and adults are treated as if they costed the same. Economies of scale are taken into account by using an elasticity of 0.5, which implies much higher economies of scale than both the modified OECD and Jensen scales. The scale is sometimes known as the 'square root scale' as it is calculated by taking the square root of the number of people in the household.

For AHC incomes, the 2018 report changed to the scale used in the UK's *Households Below Average Income* reports. Instead of attributing an extra 0.50 for second and subsequent household members aged 14+ as the modified OECD scale does for the BHC case, it uses 0.72. This reflects the more limited scope for economies of scale for adults in non-accommodation costs. The child factor increases only slightly from 0.30 to 0.34. (See (DWP, 2005 and 2013)).

In their April 2019 release of Child Poverty statistics Stats NZ used the modified OECD scale for both BHC and AHC incomes. To avoid confusion, this report also now uses this approach for the body of the report, while reporting using the UK approach in **Appendix 12.** [16]

This report uses the single person household as the reference household – ie a single person unit has an equivalence scale value of 1.0. A household of a couple and no children (2,0) is rated at 1.50, meaning that such a household is considered to have 1.5 equivalent adults. A two adult, two child household is rated as 2.1 (with children aged 10 and 12). This means that this household type (2,2) is rated as having 2.1 equivalent adults: it requires 2.1 times the income of a single person household to have the same purchasing power or to achieve a comparable material wellbeing, all else being equal.

Other commonly used reference households are the couple, the couple with one child and the couple with two children. The choice of reference household affects the numerical value of equivalised income but makes no difference to any of the distributional, inequality and low-income analysis that follows.

See **Appendix 3** for more detail on equivalence scales.

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the 'modified' OECD scales, choosing instead the 'square root scale' noted above.

[16] The new poverty measure developed by the Social Metrics Commission for the UK also uses the HBAI companion scale – their measure is an AHC one. In reaching this decision the SMC considered the modified OECD scale but decided against it. However, their reports indicate that they are not yet settled on the HBAI scale and will do more work on this before finalising (Social Metrics Commission, 2018 and 2019).

Tables A.4A provides look-up charts to convert equivalised dollars (dollars per equivalent adult) to ordinary dollars and vice versa for selected households, for BHC incomes.

The first row of figures identifies the family or household type: (1,2) is a one adult, two child household, and so on. A child is any person aged under 18 years. The second row gives the values of the equivalence ratios used. The body of the table indicates, for example, that a (2,2) household needs around $52,500 to have the same purchasing power as a (1,1) household with an income of around $32,500. Each has an equivalised income of $25,000 (or, to put it another way, each household has an income of $25,000 per equivalent adult).

Table A.4A
Conversion of equivalised dollars to ordinary dollars for households with low-to-middle unequivalised incomes (BHC)

Equiv income	Income for families and households of various types in 'ordinary dollars'									
	(1,0)	**(1,1)**	**(1,2)**	**(1,3)**	**(2,0)**	**(2,1)**	**(2,2)**	**(2,3)**	**(2,4)**	**(3,0)**
	1.00	1.30	1.60	1.90	1.50	1.80	2.10	2.40	2.70	2.00
$10,000	10,000	13,000	16,000	19,000	15,000	18,000	21,000	24,000	27,000	20,000
$11,000	11,000	14,300	17,600	20,900	16,500	19,800	23,100	26,400	29,700	22,000
$12,000	12,000	15,600	19,200	22,800	18,000	21,600	25,200	28,800	32,400	24,000
$13,000	13,000	16,900	20,800	24,700	19,500	23,400	27,300	31,200	35,100	26,000
$14,000	14,000	18,200	22,400	26,600	21,000	25,200	29,400	33,600	37,800	28,000
$15,000	15,000	19,500	24,000	28,500	22,500	27,000	31,500	36,000	40,500	30,000
$20,000	20,000	26,000	32,000	38,000	30,000	36,000	42,000	48,000	54,000	40,000
$25,000	25,000	**32,500**	40,000	47,500	37,500	45,000	**52,500**	60,000	67,500	50,000
$30,000	30,000	39,000	48,000	57,000	45,000	54,000	63,000	72,000	81,000	60,000
$35,000	35,000	45,500	56,000	66,500	52,500	63,000	73,500	84,000	94,500	70,000
$40,000	40,000	52,000	64,000	76,000	60,000	72,000	84,000	96,000	108,000	80,000
$45,000	45,000	58,500	72,000	85,500	67,500	81,000	94,500	108,000	121,500	90,000
$50,000	50,000	65,000	80,000	95,000	75,000	90,000	105,000	120,000	135,000	100,000

- This table applies the "modified OECD" equivalence scale which uses a weight of 1.0 for the first adult, 0.5 for other household members aged 14+, and 0.3 for those aged 0-13 years. The rest of the report uses the same scale for BHC incomes, except where it is stated otherwise.
- A (2,3) household is one comprising 2 adults and 3 children aged under 18, and so on. In the examples in the table above, the children are assumed to be aged 0-13.

Tables A.4B provides look-up charts to convert equivalised dollars (dollars per equivalent adult) to ordinary dollars and vice versa for selected households, for AHC incomes.

The first row of figures identifies the family or household type: (1,2) is a one adult, two child household, and so on. The second row gives the values of the equivalence ratios used. The body of the table indicates, for example, that a (2,2) household needs around $52,500 AHC to have the same purchasing power as a (1,1) household with an income of around $32,500 AHC. Each has an equivalised income of $25,000 AHC (or, to put it another way, each household has an AHC income of $25,000 per equivalent adult).

Table A.4B

Conversion of equivalised dollars to ordinary dollars for households with low-to-middle unequivalised incomes (AHC)

Equiv income	**Income for families and households of various types in 'ordinary dollars'**									
	(1,0)	**(1,1)**	**(1,2)**	**(1,3)**	**(2,0)**	**(2,1)**	**(2,2)**	**(2,3)**	**(2,4)**	**(3,0)**
	1.00	1.30	1.60	1.90	1.50	1.80	2.10	2.40	2.70	2.00
$10,000	10,000	13,000	16,000	19,000	15,000	18,000	21,000	24,000	27,000	20,000
$11,000	11,000	14,300	17,600	20,900	16,500	19,800	23,100	26,400	29,700	22,000
$12,000	12,000	15,600	19,200	22,800	18,000	21,600	25,200	28,800	32,400	24,000
$13,000	13,000	16,900	20,800	24,700	19,500	23,400	27,300	31,200	35,100	26,000
$14,000	14,000	18,200	22,400	26,600	21,000	25,200	29,400	33,600	37,800	28,000
$15,000	15,000	19,500	24,000	28,500	22,500	27,000	31,500	36,000	40,500	30,000
$20,000	20,000	26,000	32,000	38,000	30,000	36,000	42,000	48,000	54,000	40,000
$25,000	25,000	**32,500**	40,000	47,500	37,500	45,000	**52,500**	60,000	67,500	50,000
$30,000	30,000	39,000	48,000	57,000	45,000	54,000	63,000	72,000	81,000	60,000
$35,000	35,000	45,500	56,000	66,500	52,500	63,000	73,500	84,000	94,500	70,000
$40,000	40,000	52,000	64,000	76,000	60,000	72,000	84,000	96,000	108,000	80,000
$45,000	45,000	58,500	72,000	85,500	67,500	81,000	94,500	108,000	121,500	90,000
$50,000	50,000	65,000	80,000	95,000	75,000	90,000	105,000	120,000	135,000	100,000

- This table applies the "modified OECD" equivalence scale which uses a weight of 1.0 for the first adult, 0.5 for other household members aged 14+, and 0.3 for those aged 0-13 years. The rest of the report uses the same scale for BHC incomes, except where it is stated otherwise.
- A (2,3) household is one comprising 2 adults and 3 children aged under 18, and so on. In the examples in the table above, the children are assumed to be aged 0-13.

Income sharing unit and the unit of analysis for the presentation of results

The household is used as the income sharing unit (or unit of income aggregation). All individuals in the household are assumed to benefit reasonably equally from the combined income of the household and to share a similar standard of living. Clearly this is not always the case but it is "defensible as [an approximation] to a very complicated reality of intra- and inter-household patterns of sharing" (Bradbury, 2003:25).

The use of the household as the income sharing unit is in line with international standard practice.[17]

The unit of analysis for reporting purposes is the individual. The household's equivalised disposable income is attributed to each household member as an indicator of the individual's (potential) living standards and is used for ranking purposes.[18]

For subgroup analysis individuals are grouped by their own characteristics (eg age), or by the characteristics of their household or family type (eg two-parent, 'workless', and so on). In all cases the individual is ranked or classified according to the income of their household as this gives the best income-based indication of their economic wellbeing, in line with the central purpose of this report.

Definition of 'child'

The report uses two definitions of 'child', depending on the context:

- dependent child (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)
- person aged under 18 years.

When defining household types, the dependent child definition is used. For example, one category is 'sole parent household, with at least one dependent child'. Otherwise, the under 18 years definition is used. The under 18 years definition is used for all reporting of low-income and material hardship rates.

The use of '0 to17 years' rather than 'dependent children' makes no discernible difference to the reported low-income results. See **Appendix 14** for more detail.

The economic family unit (EFU)

An alternative income sharing unit that has sometimes been used is the benefit eligibility unit, often referred to in New Zealand as the economic family unit or EFU. The EFU approach allows for only three ways to group individuals when it comes to income sharing: couple only, two parent with dependent children, and sole parent with dependent children. All other individuals are treated as if they are 'on their own' even when they share (to varying degrees) in the general resources of a larger household. The Ministry of Social Development used the EFU approach in incomes analysis from 2002 to 2006 but reverted to the household approach in 2007 as fewer anomalies are created by this approach. It also brought New Zealand back into line with international practice.[19]

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17 'Canberra Group Handbook', (UNECE, 2011).

18 This is sometimes referred to as a person-weighted approach, in contrast to a household-weighted approach. The latter reports the proportion of households below various thresholds, income inequality across households, and so on. The person-weighted approach is the international standard for the sort of analysis reported in this paper. See **Appendix 4** for a comparison of poverty rates using the two approaches.

19 See Appendix 2 in Perry (2005) for an extended discussion on the choice of income sharing unit.

Rules for determining household membership

A household for the HES relates to a 'private household' which is defined as:

- either a single individual living in a dwelling who makes his or her own housekeeping arrangements
- or a group of people living in or sharing a dwelling for four or more days a week, who participate in some measure at least in consumption of food purchased for joint use by members (or who, if not dependent upon a household member, contribute some portion of income towards the provision of essentials of living for the household as a whole).

The following are included in the household for survey purposes:

- any person who, because of the nature of his or her occupation cannot spend as many as four nights a week in the household but who makes a financial contribution to the running of the household and is not currently a member of another New Zealand resident private household in a permanent dwelling
- any person at boarding school or other non-private institution who usually spends holidays or other continuous periods at home, and whose living costs are subsidised by at least 50 percent by the household
- any child whose custody is shared between two households but who spends more than half their time in the sampled household – where custody or care is shared equally between two households, the child should be included in the sampled household only if they are there the night the household questionnaire is completed.

Housing costs

The report provides information based on household income both before deducting housing costs (BHC) and after deducting housing costs (AHC).[20]

From 2007 on, housing costs include all mortgage outgoings (principal and interest) together with rent, rates and dwelling insurance.[21] Prior to 2007, dwelling insurance is not included. Repairs and maintenance are not included. Any housing-related cash assistance from the state (eg Accommodation Supplement) is included in household income. These housing costs make up on average around 45% of the budget for low-income working-age households (bottom three income deciles, unequivalised income). For many, of course, it is 50% or more.

For reporting on overall trends in household income and on income inequality, there is value in seeing the similarities and differences between the two measures (BHC and AHC) and in understanding the differing stories they tell. For reporting on trends in income poverty over time and for comparing hardship across subgroups of the population, the report recommends the use of AHC measures, although both BHC and AHC are reported.

The use of BHC measures is generally taken as the self-evident starting point. They are important for assessing the adequacy of market and social assistance incomes for delivering a minimum acceptable standard of living. Their use also ensures that the material wellbeing of those on low incomes who choose to live where accommodation is less expensive (eg some rural areas) or who live in 'cheap' substandard accommodation is not left overstated (relatively) as the use of an AHC approach on its own can do.

The rationale for the report's position that AHC analysis should also be reported, and that the AHC approach is preferable for subgroup comparisons in New Zealand is that:

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[20] BHC income is the same as disposable or after-tax cash income. AHC income is sometimes referred to as 'income adjusted for housing costs', 'disposable income net-of-housing-costs' or 'residual income'.

[21] There is an argument for excluding repayment of mortgage principal from housing costs on the grounds that it is simply a form of near-compulsory saving. This report includes repayment of principal in housing costs on the grounds that for most mortgages there is little scope for adjusting principal repayments to help cope with 'tight times'. It is in effect income not available to households in the short to medium term for other uses.

- First, variations in housing costs do not necessarily correspond to similar variations in housing quality. This is most significant when comparing the material wellbeing of age groups. Many older individuals are in households that have good accommodation and relatively low housing costs (eg those living in mortgage-free homes). Many in an earlier part of the life cycle have a similar standard of accommodation but relatively high accommodation costs. Ideally, the value of imputed rent for homeowners would be added to income to even up the comparisons (ie the BHC approach has limitations in this regard), but the practical difficulties are considerable. As an approximation for the purposes of comparing material wellbeing, the AHC approach deducts housing costs from after-tax cash income for all households.
- Once a household is committed to a particular residence, outgoings on housing costs cannot easily be adjusted or put off in "tight times" as they can for other expenses like entertainment and recreation, and even to some degree for basics like food and clothing. When the primary focus is on trends in income poverty and hardship, it is important to understand trends in "residual income", taking housing costs as a given fixed cost in effect. Housing costs represent a very significant proportion of the total spending for many low-income households.
- Third, a unique characteristic of the New Zealand BHC income distribution is the large 'pensioner spike' at around the value of New Zealand Superannuation. In recent years, the spike has been located close to a 50% of median poverty line (BHC). In the late 1990s it was around a 60% of median poverty line. The presence of the spike can lead to large variations in reported poverty rates for the 65+ group over time, leaving the misleading impression that there are significant changes in material wellbeing occurring for this group. In addition, the same issue can lead to similarly misleading comparisons with the relative wellbeing of other age groups. An AHC approach largely avoids these issues and is more suitable as the primary measure (for New Zealand at least). See also Section I.

Imputed rent

For households with similar income and similar other characteristics, the consumption possibilities are much greater for households with low housing costs than for those with high housing costs. As discussed above, standard income measures of material wellbeing do not capture this difference: households with the same BHC income are ranked in the same place despite housing cost differences.

The use of "imputed rent" is an important way of dealing with this in a formal way. Imputed rent for home-owners is the difference between the estimated market rent of the dwelling and the usual costs a landlord would incur such as mortgage interest, rates, insurance and minor repairs. For renters whose rent is subsidised, imputed rent is the difference between market rent and actual rent paid.

The inclusion of imputed rent in household income is something to be aspired to. It provides a more realistic and meaningful comparison of the material wellbeing of households of different tenure type. The Australian Bureau of Statistics has made significant progress in recent years in its efforts to include imputed rent in its analysis of household income and its distribution. **Figure A.3** below shows how the inclusion of imputed rent reduces the dispersion of the income distribution, with the Gini changing from 32.0 to 30.3 (see ABS, 2013a). The inclusion of social transfers in kind (STIK) further reduces measured income inequality as the income concept broadens further. Examples of STIKs are free or subsidised education, health and child care.

Figure A.3.
Distribution of equivalised disposable household income with and without IR and STIK, 2011-12

Several OECD and EU countries are developing methodologies to enable this advance to be applied and used, but there is no standard approach agreed to as yet. The imputation is a quite data intensive exercise. (See Figari and Paulus (2013) and Maestri (2012) for reports on empirical efforts to impute rents and to observe the changed ranking of households that follows.)

In the meantime, this report uses the AHC approach outlined above to take some account of the implications of different tenure arrangements for comparing the material wellbeing of households.

Further discussion on the relative merits of the BHC and AHC approaches is in **Appendix 5.**

Main data source: the Household Economic Survey (HES)

The report draws on data from Statistics New Zealand's Household Economic Survey (HES). The HES was an annual survey from 1982 to 1998, using March years, then three-yearly from 1998 to 2007, using June years from 2001 on. The 2007-2008 survey was the first of the new HES (Income) Surveys which makes income, housing cost and living standard indicator data available in each of the two years between the full HES surveys. The HES (Income) collects the same information on these domains as the full HES does. The full HES (including full expenditure information) is still on a three-yearly cycle. The 2015-2016 HES is the latest full HES.[22]

A sample of approximately 3500 private households has been achieved each survey in recent years (except for 2012-13), and for the 2014-15 HES a much larger sample of just over 5500 was achieved (see **Table A.5** below for details). Interviews are conducted face to face. For the full HES, contact with each participating household extends for a period of just over two weeks. During that time, each household member aged 15 years or over keeps an expenditure diary for 14 consecutive days, recalls major purchases made in the previous 12 months, and provides income and employment data. The income information is also for the 12 months prior to interview.

The target population for the HES is New Zealand resident private households living in permanent dwellings. This means, for example, that those in institutions and those in non-permanent dwellings are not included.

Imputation was introduced into HES for the 2009-10 survey. Imputation is a data set enhancing process that replaces missing values with actual values from similar respondents.[23] At that time, imputation was also applied to the data for the 2006-07, 2007-08 and 2008-09 surveys.

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22 See the Statistics New Zealand website for general information about the HES, and for Statistics New Zealand's first release reports. The Hot Off the Press release from November 2016 has analysis and general information on the 2015-16 HES, and the one from June 2016 has information on net worth from the previous survey. See www.stats.govt.nz/browse_for_stats/people_and_communities/Households/household-economic-survey-info-releases.aspx

23 For more detail on the imputation process and the impact on achieved response rates, see the Technical Appendix to the 2013-14 HES Hot Off the Press release (see link noted in the previous footnote).

Table A.5
Achieved sample sizes and response rates for recent HES (for data held by MSD)

HES year	Achieved sample size	Response rate
2000-01	2808	73%
2003-04	2854	73%
2006-07	2550	62%
2007-08	3295	77%
2008-09	3210	74%
2009-10	3126	69%
2010-11	3536	81%
2011-12	3565	83%
2012-13	3003	67%
2013-14	3391	81%
2014-15	5561	78%
2015-16	3499	78%
2016-17	3703	83%
2017-18	5482	72%

Note: The response rate for 2009-10 and later is the post-imputation response rate. For other years it is the pre-imputation response rate. See the text below.

The report also uses some net worth and income mobility information from Statistics New Zealand's longitudinal Survey of Families, Income and Employment (SoFIE).

Population weighting

The preparation of the HES weights provided by Stats NZ to enable population estimates to be produced from the HES sample follows a two-stage process:

- the sample design weight (the inverse of the selection probability) is calculated for each private household, along with an adjustment for non-response
- the weight of each household is adjusted using integrated weighting, calibrating to independent benchmarks of the number of people by age, sex, ethnicity and region and the number of households by household size (from estimates based on the 2013 Census for the 2015-16 HES and later).[24]

The HES weights also calibrate to two-adult and non-two-adult households, but not to sole parent households. The latter are included in the non-two-adult household group. The HES weights do not calibrate to the number of people receiving income-tested benefits or New Zealand Superannuation payments. The weighted HES data underestimates these numbers by around a third in each survey.

The Treasury has also developed a set of weights for use with its HES-based tax-benefit microsimulation models, Taxwell and now TAWA. The Treasury weights include the number of beneficiaries as one of the key benchmarks, in accordance with Treasury's primary use for the HES in the TAWA model. Treasury's TAWA weights therefore provide a better estimate, for example, of the number of children in beneficiary families, although to achieve this there has been a trade-off with achieving other benchmarks. This report almost always uses Statistics New Zealand's HES weights. Where the Treasury weights are used, this is made clear in the text.

Convention for labelling HES years

The report adopts a common short-hand convention for describing HES years. For example, "the 2007 HES" is short for "the 2006-07 HES". The 2007 survey is for the year ending 30 June 2007

[24] Stats NZ Website link for more on weights.

with its midpoint in December 2006. For the 1998 HES and earlier ones the survey period was for March years. The 1998 HES therefore has a midpoint of September 1997. There is therefore a good case to be made for the 2006-07 HES being labelled the "2006 HES". While logic and clarity support this, it would unfortunately fly in the face of common custom and possibly lead to confusion. This report has therefore (reluctantly) followed the custom to date.

In its international league tables and other publications the OECD uses the "2006-07" = 2006 approach. As the OECD's reports are now much more easily accessible, better promoted and more widely read, there is a better case now for adopting that pattern. Stats NZ adopt that approach for the General Social Survey (for example the 2016 GSS ran from 2016 to 2017).

The income values, inequality figures, poverty rates, and so on for specified HES years are best interpreted as being for the calendar year in which the survey started unless noted otherwise. Particular care is required in establishing which survey year will pick up the implications of policy changes or of significant labour market or GDP changes, or of other major events, when some or all of these changes occur during a survey year.

HES years used in the report

The tables and graphs report for each second HES year from 1982 to 1998 and every three years to 2007, then each survey for 2008 to 2018. Key changes in the income distribution occurred in the years from 1988 and again from 1994. The loss of information that arises from using every second year only does not impact on the overall trends reported as these key years are included in the reporting.

The points on the graphs are all joined by straight or smoothed lines. This is done for presentational purposes only to give the general trends, and should not be taken to mean that the data points in the intervening years would all lie on the interpolated lines.

Treatment of negative incomes

In each HES survey there are a few records showing negative incomes. For this report these negative incomes are re-assigned a value of zero before analysis is undertaken. This is done to reasonably approximate the treatment of negatives asked for by the OECD in the data sent to them by statistical agencies such as Statistics New Zealand and it therefore assists with international comparisons. This treatment of negatives has no effect on medians, no impact on reported trends over time for the low-income measures used in this report, nor on poverty rates at any point in time, nor on the composition of the poor. It has a very small impact on means and income shares for quintiles.

Adjusting for inflation

Household incomes and low-income thresholds are adjusted for inflation at various places in the report. Household incomes are converted to 2018 dollars for reporting on income trends in real terms. For the reporting on trends in income poverty based on an "anchored" or "fixed line" approach, thresholds are based on proportions of the 2007 median and are held constant in real terms over other years.[25]

The adjustments for inflation are carried out using CPI full-year averages for a March year up to and including the 1998 survey and a June year from 2001. For BHC incomes Statistics New Zealand's CPIQ.SE9A series is used, with the annual figure being the average of the four quarters for the period. AHC incomes and thresholds from 1989 to 2016 are adjusted using the index from the "All Groups less Housing" series (CPIQ.SE9NS1010) for the survey's midpoint quarter[26]. For 1982 to 1988 the AHC adjustments are based on the author's extrapolation of the series. The

[25] In reports prior to the 2010 report, the reference or base year for the fixed line poverty measures was 1998. The shift to 2007 had an impact on the poverty levels for a given point in time, but no significant impact on the trends, nor on subgroup relativities. From the 2020 report, 2018 will be used as a key reference year. See Section E for further discussion on the choice of base or reference year for the fixed line approach to poverty measurement.

[26] The series is no longer published by Statistics New Zealand, but they produce it as a customised output for MSD for the Incomes Report.

reported trends in AHC incomes and the size of low-income populations are not greatly sensitive to different assumptions within a plausible range for the index in the estimated years. See **Appendix 7** for the indices used.

Ethnicity

Ethnicity of individuals aged 15 and over is as reported by the individual. Children under 15 are attributed with the ethnicity of the survey respondent in years to HES 2004. Starting with HES 2007, ethnicity for children is provided in the survey data, with the information coming from either the children themselves or from their parents. No analysis is carried out based on household or family ethnicity as ethnicity is a characteristic of individuals.

If a respondent reports more than one ethnicity, the ethnicity attributed is determined according to a prioritised classification of Māori, Pacific Island, Other and then European/Pākehā. Using a "total counts ethnicity" approach makes no noticeable difference to the findings in this report. The table below illustrates this using the 50% AHC moving line measure for the whole population (HES 2018). Moving to the total ethnicity convention is on the agenda for a future issue of the Incomes Report.

rate (%)	**Prioritised**	**Total**
European/Pakeha	12	12
Maori	22	22
Pacific	22	23
Other	22	20
ALL	16	16

Only limited analysis by ethnicity is reported because of the relatively small sample sizes for Maori, Pacific and Other (especially for Pacific). See the discussion below under "Reliability of results".

Household and family types

The report uses the following household types for subgroup analysis.

Household type	Definition
One person HH, 65+	one person aged 65+
Couple HH, 65+	at least one partner is 65+
One person HH, under 65	one person aged under 65
Couple HH, under 65	both partners are under 65
SP with children	SP with children, at least one of whom is dependent
2P with children	2P with children, at least one of whom is dependent
Other family HHs with children	family HHs (other than SP or 2P HHs) where there is at least one dependent child
Other family HHs, adults only	family HHs (other than couples) where there are no dependent children
Non-family HHs	unrelated individuals

For family types, the report uses the 'economic family unit' (EFU). There are four types of EFU:

- couple only
- two parent with dependent children
- sole parent with dependent children
- everyone else (ie unattached individuals who are not dependent children).

In each case the EFU may be living in their own separate household or with others in a wider household.

Note that the household is always used as the income sharing unit. Individuals are attributed with their household's equivalised income, then assigned to a particular household or family type, carrying their household's equivalised income with them as an indicator of their material wellbeing.

The value and limitations of the HES for the purposes of the reports

All sample surveys have statistical uncertainties

- The HES is a random sample survey of around 3500 households (5500 in 2015 and 2018 surveys). When using information from random samples of a population to get estimates of what's going on in the population itself, we want the samples to be as representative as possible of the population in question. The better the representation the more confidence we have that the estimate based on the sample is close to the true population figure. All else equal, the estimates are more reliable the larger the sample size. The 2018-19 survey, which Stats NZ is using in its next scheduled child poverty report (February 2020), has a much larger achieved sample size of around 20,000 households.

- As the numbers in the Stats NZ releases and in the MSD reports are based on data from sample surveys, there are always statistical uncertainties:
  - Some of the uncertainties arise by chance from the fact that the information is from a sample rather than the whole population ('sampling error'). This means, for example, that most numbers are expected to bounce around either side of a trend line, especially for population sub-groups and more so for smaller than for larger ones. Sampling error exists even if a 100% response rate is achieved in a perfectly designed and implemented survey.
  - Other uncertainties and 'noise' arise from the fact that the response rate to the survey is always less than 100% (typically around 75-80% in recent years for the HES). If those who do not respond are on average quite different from those who do, and if this difference changes from year to year, then further fluctuations can occur that do not represent real-world fluctuations. For example, if it proves more difficult to get responses from households with low incomes or high material hardship than it does to get responses from other households, then the sample is likely to be biased and the bottom end will likely look better off than expected. Non-response bias is a challenge for all sample surveys. It can to some degree be addressed by applying carefully-designed weights to the sample, but some of the bias can remain even after the population weights are applied to the raw sample numbers.
  - Sample bias is an important example of what is referred to as 'non-sampling error'. Other examples include incorrect information provided by respondents, data input errors or data handling problems, questionnaire design issues, sample design issues. There is no simple control or measurement for such non-sampling errors, although the risk can be minimised through careful application of the appropriate survey techniques from the questionnaire and sample design stages through to analysis of results.

- The use of the terms 'sampling error' or 'sample error' can suggest that a mistake has been made; however, <u>sample errors are not mistakes</u>. They represent the inevitable difference (that arises by chance) between the estimate and the true value when using a sample rather than interviewing every household in the population. Even a perfectly designed survey with a 100% response rate has sample error. It is an unfortunate term, but it is well-established and widely used internationally.[27]

- Standard statistical theory provides a way of calculating and talking about sampling uncertainties in terms of "sample errors" and "confidence intervals". A poverty rate of 17% with a sample error of 1 percentage point means that there is a 95% chance that the true rate is between 16% and 18%. This range is called the "confidence interval". Other confidence levels can be used but Stats NZ, in line with international practice, uses the 95% confidence interval for reporting sample errors for child poverty estimates.

- This all means that surveys like the HES need to be used with care. The HES is very useful and reliable for many of the themes covered by the MSD reports, but for other others it has limitations that need to be recognised.

[27] The potential for confusion is exacerbated by the fact that 'non-sampling errors' can usually be described as mistakes.

Using the HES with care for the purposes of this report

- For the purposes of the MSD reports there are many types of findings of public interest or policy relevance for which the HES is well suited and delivers valuable information. For example:
    - the overall picture of household income distribution (and now wealth as well)
    - the overall picture of material wellbeing, including on specific items of material hardship
    - trends in rates of low income, material hardship, inequality, housing costs relative to income, and so on, when the perspective is over many years
    - relativities between different groups on the above themes – even for smaller groups by combining information from several surveys
    - international comparisons.

- However, when the focus is on very short-term changes, especially year-on-year, or when more precision is required in a given year, the HES (to date) is not able to deliver robust results given its relatively small sample size.

- When looking at a change from one survey to the next, the question often arises as to what is driving the change. Is it a 'real' change (driven by policy changes or changes in the economy or the rental housing market)? Or is it just the inevitable random fluctuation that happens with sample surveys ('sampling error')?

- Many of these questions become more pressing the smaller is the sub-group being looked at. For example, only around a third of the sampled households contain children, so the sample size for this group is down to approximately 1200 (or 1800 in 2015 and 2018).

- MSD's reports therefore emphasise the need to look at the general trend over many years, and warn against reaching conclusions based on very short-term changes alone, especially year-on-year changes.

<u>Strategies employed to address statistical uncertainties</u>

- The reports use a range of strategies to address the statistical uncertainties and the other challenges. For example:
    - rolling two or three year averages for some time series
    - reporting actual estimates, but overlaid with a trend-line to summarise
    - using the average over several years when reporting on the composition of low-income groups or those experiencing material hardship, thus allowing reasonable estimates for smaller population groups
    - reporting sensitivity analysis when applying different modifications to the original dataset to address anomalies (such as the issue of reported incomes being implausibly low)
    - by not reporting results when the uncertainties are too great.

An example of observed year-on-year changes being an unreliable guide to real-world changes

- While reported changes in median household income are usually reliable for giving the actual direction of the change and a good estimate of the size of the real-world change, those for high or low incomes are often not. This is illustrated in the graph below which shows year-on-year changes for incomes at the top of each decile for HES 2013 to 2014, and for HES 2014 to 2015. A tempting summary or headline finding for the 2015 update could have been *"higher incomes are falling and lower incomes are rising".* This would be misleading as it puts too much reliance on year-to-year changes for high and low incomes where the uncertainties are at their greatest. As the graph shows, the changes from 2013 to 2014 go the other way and would be equally misleading to rely on on their own.

- The findings about differences or changes are at their strongest when looking at clear trends or changes over several surveys or longer, when comparing rankings using different measures, and when identifying which groups are faring well and which not so well.

Reporting on trends in low-income and material hardship rates for children

In the 2018 Incomes Report and the associated reports using non-income measures, MSD did not publish low-income or material hardship figures for the 2015-16 and 2016-17 HES years.

This decision was made based on a judgement call at the time that there was good reason to believe that the low-income and material hardship figures for households with children for these two years were under-estimates. MSD's view was that publishing them, even with strong caveats, could easily lead to a premature conclusion that New Zealand had made solid progress in reducing child poverty, when in fact the reported decline mainly reflected either the inevitable uncertainties associated with sample estimates, or some sample bias, or both.

In addition, the Child Poverty Reduction Bill was making its way through the parliamentary process, with a likely consequence being that Stats NZ would be releasing their 2017-18 baseline figures for child poverty in early 2019. If MSD were to publish the 2015-16 and 2016-17 figures, and it turned out that Stats NZ's 2017-18 figures and the associated back series confirmed MSD's concerns, then there was the likelihood of distracting confusion over trends in the financial and material wellbeing of households with children.

The detailed case for the 'pause' in publishing low-income and material hardship numbers was set out in an MSD report to Minister Sepuloni, released on the MSD website in October 2018,[28] with some further material noted in the recent Working Papers released in association with the Stats NZ child poverty publications on 20 February and 2 April 2019.[29]

[28] https://www.msd.govt.nz/about-msd-and-our-work/publications-resources/monitoring/household-incomes/index.html

[29] https://www.msd.govt.nz/about-msd-and-our-work/publications-resources/working-papers/index.html#WorkingPapers20191

MSD's 2019 reports

MSD has looked carefully at the 2017-18 HES and is satisfied that it is fit for purpose for use across all the charts, tables and other analysis in its 2019 reports, noting the strategies for managing risk for any HES survey as outlined on p26 above. Most of the factors that led to the 'no publish' decision no longer apply, though a few remain. The basis for this assessment is elaborated below.

There are two (closely related) datasets available for estimating low-income and material hardship rates for New Zealand.

- The first is the long-running dataset used by MSD for its incomes and other reporting and by Stats NZ for reporting to the OECD's Income Distribution Database and elsewhere. It has income information from 1982 to 2018, and material hardship information from 2017 to 2018. This is referred to as the HES-TAWA dataset as it contains both HES survey data and essential secondary information produced by the Treasury's TAWA micro-simulation model (eg TAWA calculates disposable (after tax and transfer) income from the gross income and demographic data available in the survey data). Stats NZ provide standard weights for use with this dataset.
- The second is the special dataset constructed by Stats NZ for its official child poverty release on 2 April 2019 which set the baseline rates required for the implementation of aspects of the Child Poverty Reduction Act (2018). For BHC low income trends, data from the HES and the Household Labour Force Survey (HLFS) are pooled. The income information comes from administrative data, not the surveys themselves. This is referred to in this report as the HES-HLFS dataset. A new set of weights has been calculated for use with this data, based on different benchmarks than the one for the HES-TAWA data. The data in the HES-HLFS dataset is available only from 2007 on.
    - For AHC incomes, administrative data was used for the BHC income component, but as there is no housing cost information in the HLFS, the sample size was limited to that of the HES (5500 in 2017/18). The revised weights are used.
    - For material hardship estimates, the sample was limited to that of the HES (5500 in 2017/18), as the HLFS does not have material hardship information. The revised weights are used.

The charts below show the trends for low-income rates for children from 2007 to 2018 using the two data sources noted above. The trend lines use a rolling two-year average from 2008 on.

The main drivers of any differences between the trend lines from the two datasets are not at the level of concept and definition. Any differences that do exist arise in the main from differences in data sources and weights used to convert sample numbers to population estimates:

- The pooling of HES and HLFS samples for BHC incomes reduces sample errors and smoothes the trend line compared with using the HES alone.
- The use of administrative data rather than survey data for income information leads to slightly higher low-income estimates in the Stats NZ 2 April release compared with the MSD numbers, especially for the 40% AHC and 50% BHC measures. Further work is underway to better understand the reasons for the differences.

- The use of revised weights reduces variability as the new weights to some degree better address sample bias in relation to low-income households.

The Stats NZ figures are the official figures.

<u>Key evidence taken into account in the decision to resume publishing child poverty figures</u>

- The trend charts above provide good visual support for both the decision to not publish using 2015-16 and 2016-17 data, and the decision to publish in 2019 using the 2017-18 survey data.

- The AHC relativities for those in households with children and households without children have returned to their expected levels after two years seeming to move in opposite directions without any ready explanation.

- The trend in the estimated proportion of children living in households with no full-time worker were unusually low in 2015-16 and 2016-17, but in 2017-18 were more like what could be expected.

- The sample and population weighted numbers for sole parent households and beneficiary households with children were low in 2015-16, and returned to their expected levels in 2016-17 and 2017-18. There was also a smaller-than-usual proportion of sole-parent households from the bottom NZDep decile in the 2015-16 sample (9% of all households rather than the usual 13-15%).

The trends for several of the non-monetary indicators returned (near) to expected levels in 2017-18. For example, the proportion of HES households with children reporting foodbank usage returned to the steady level seen from 2013 to 2015, after the reported drop in 2016 and 2017. The samples for 2015 and 2018 had good numbers from the lowest NZDep decile area, and the 2018 weights grossed the numbers up to the previous levels after a dip in 2016 and 2017.

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There remains, however, some evidence of a step-change from 2013-2015 to 2016-2018 for some non-monetary indicators, suggesting some non-response or other bias that the weighting regime was not able to address. For example (as shown in the charts below):

- There was a fall in the proportion of households with children who reported needing to borrow from family and friends to meet basic needs, but for households without children the rate was much the same over the six surveys.
- Reported rates of delaying repairs/replacement of appliances ‘a lot’ for households with children were all lower for 2016 to 2018 than in the previous three years, in contrast to households without children for whom the trend is steady (though 2018 for households with children is more like what would be expected).
- There was a reported fall in the proportion of households with children who were behind on car registration ‘more than once’ in the 12 months prior to interview.
- The self-assessment by working-age beneficiary households that their total income was ‘not enough or only just enough’ was steady at close to 81% in the 2013-2015 period, but only 68% (and steady) in the next three surveys.

The chart below indicates that compared with 2013 to 2015 there was a sudden large increase in the population of 'better off' Māori households in 2016 to 2018: the rate responding 'more than enough' to the income adequacy question doubled from 6-8% in 2013 to 2015 to 16-17% in 2016 to 2018. At the same time, the responses of the rest of the population indicate just a small increase for the same time periods.

There is no ready explanation for the large change for Māori in terms of policy, economic, housing market or demographic changes. Median household income for Māori (and the rest) rose in real terms in the period, so some increase in this adequacy indicator could be expected, but the size of the change for Māori points to an explanation involving a change in the profile of the achieved sample for 2016 to 2018.

Note: The income adequacy question changed a little in the 2013 HES. The 4 categories changed from 'not enough / just enough / enough / more than enough' to 'not enough / ***only*** just enough / enough / more than enough', but this is unlikely to have changed responses to the 'more than enough' option.

The MSD reports will monitor these and similar trends over a longer period and continue to seek to understand the observed changes. The larger sample size for the 2018-19 HES will assist with this.

As for the two previous reports, MSD's 2019 reports do not use the 2015-16 and 2016-17 numbers for child poverty (low income) reporting in the main body of the report. The trend lines go direct from 2014-15 to 2017-18, leaving out the two intermediate years. This approach is justified by the relatively flat trends reported by Stats NZ in that period (2015 to 2018), using the alternative HES-HLFS dataset and associated weights.

For material hardship trends, the 2019 report does not use 2015-16 HES data as in MSD's view there is too much cumulative evidence of sample bias. For material hardship time series, the report uses the average of 2014-15 and 2016-17 as the 'best estimate' of 2015-16 figures. For other analysis (eg composition of those in households in material hardship), the 2014-15 and 2017-18 data is used, noting the larger sample size for these years (5500 instead of the usual 3500).

Summary of special features of selected HES samples that potentially impact in a misleading way on trend lines, and the actions taken to address these in the analysis and reporting

As discussed in the main text, there are always uncertainties involved when carrying out analysis based on samples.

The table below identifies particular features of the samples in recent surveys that, if not addressed, could lead to the published findings leaving misleading impressions or take-outs for the reader. It also outlines the measures taken to minimise the chances of this happening.

	Special features of samples or grossed up data that impact on trend lines in a way which may mislead if not addressed	**Actions taken to address the issues and eliminate or minimise chances of reporting misleading information**
2014 HES	• Incomes of some beneficiary families were implausibly low. The issue arose in association with the change in core benefit categories and names in July 2013. • This artificially reduced the dollar value of the bottom decile boundary (P10), and slightly inflated the 50% of BHC median low-income rate, as some beneficiary families have incomes a little above this line, when correctly reported.	• The 2015 Incomes Report noted the issue and did not report on selected indicators such as: - the 90:10 household income inequality ratio - the P10 value of the upper boundary of the lower decile - the 50% of median BHC low-income measure.
2015 HES	• The sample contained an unusually high number of households with very high incomes. • This artificially raised indicators such as the proportion of income received by the top decile and the income inequality rate as measured by the Gini (The 90:10 ratio remained steady as it was unaffected by the sampling issue).	• The 2016 Incomes Report noted the issue and reported on Gini trends with the top 1% deleted, while at the same time reporting the flat trends in top 1% share from more reliable sources. • The Report advised readers and users to hold off any judgements about change in the trend line until the results of another survey or two were available. • The number of very high income households in the 2016 sample reduced to something closer to trend as did the Gini measure of income inequality (for the 2017 Report).
2016 HES	• The sample contained an unusually low number of sole-parent households and beneficiary households with dependent children, and the standard Statistics New Zealand weights did not fully correct for this for the population estimates. • The two parent households in the sample were on average better off than in previous years. • These two factors worked in the same direction to lower the reported low-income rates and the material hardship rates for children in 2016, relative to the trend line.	• For child poverty rates, the 2017 Incomes Report partially corrected for the lower-than-expected number of sole parent and beneficiary-with-children households by a three-step process: - increased the numbers of children from sole-parent families and reduced the numbers in two-parent families to match external benchmarks and also the numbers from HES years 2013 to 2015 - retained the low-income rates produced by the raw data for 2016 HES - applied these rates to the adjusted numbers above to get the total number "in poverty" and the adjusted rate. • The adjusted rates were typically one to one-and-a-half percentage points higher. • The 2017 Report used rolling two-year averages for reporting trends in the charts, smoothing the trend to make it clearer. • For the Non-income Measures report the 2016 figures used the Treasury's Taxwell weights as these use a wider range of benchmarks that give population estimates for sole parents and beneficiary children that are closer to real-world numbers. • The 2017 NIMs report also used rolling two-year averages for reporting trends.

	Special features of samples or grossed up data that impact on trend lines in a way which may mislead if not addressed	Actions taken to address the issues and eliminate or minimise chances of reporting misleading information
2017 HES	• the sample contained a 'normal' number of sole-parent households and beneficiary households with dependent children, in contrast to 2016 • hardship rates and AHC low-income rates for children were surprisingly low in both 2016 and 2017, compared with the flat steady trend in 2013 to 2015 • hardship rates for households without children decreased, but only a little • AHC low-income rates for households without children increased, becoming higher than those for children • the falls in rates for children cannot be explained by changes in the economy or policy, and sampling errors are generally not large enough to account for the change (though the change for BHC incomes is within a 95% CI)	• low-income and material hardship rates for children were not reported for 2016 and 2017 in the 2018 reports as there was too much uncertainty as to what is happening

Summary of key measures used for reporting on income inequality and poverty

The table below gives a high-level outline of the measures used in the report for the inequality and poverty analysis. Issues around each decision point are discussed above, in the main sections that follow and in the Appendices.

Decision point	Option used in this report
income sharing unit	household (HH)
income concept	equivalised disposable HH income (ie after-tax cash income, adjusted for HH size and composition) - before deducting housing costs (BHC) - after deducting housing costs (AHC)
equivalence scale	for BHC incomes, modified OECD scale as the default, with the square root scale for OECD comparisons for AHC incomes, the modified OECD scale … with findings using the modified UK's HBAI scale in Appendices 3 and 12 for comparison
inequality measures	percentile ratios (90:10 and 80:20) decile and quintile share ratios Palma ratio Gini coefficient
types of low-income thresholds or 'poverty lines'	'moving line' thresholds – set relative to the median for the survey year (REL) 'fixed line' or 'anchored line' thresholds – anchored in a base year (2007) and kept at a constant value in real terms (CV)
setting of low-income thresholds or 'poverty lines'	REL thresholds set at 50% and 60% of the median HH income (BHC), and 40%, 50% and 60% of the median HH income (AHC) CV thresholds set at 50% and 60% of the 2007 median HH income, and adjusted forward and back by the CPI (for both BHC and AHC incomes)
primary measures for short to medium term low-income trends[30]	AHC 'fixed line' (50% and 60%) – the rationale for this is noted earlier in this Section and is further discussed in Section E.

[30] The MSD reports use 'primary' in a different way to how it is used in the Child Poverty Reduction Act. In the latter, 'primary' measures are those designated for mandatory targets, and the others are 'supplementary' but still of equal importance. In the MSD reports, 'primary' means 'more fundamental' in the sense that if these measures show a rise then there is an unambiguous and serious rise in disadvantage for those with low incomes.

Section B
Household incomes in 2017-18

This section provides general information on the distribution of household income using the 2016-17 HES (2017 HES). The following are reported:

- means and medians for gross, disposable and equivalised disposable income
- medians for different household types
- graphs of the income distribution for the whole population
- a table to assist households to identify where they fall in the distribution
- distribution of individuals across household income quintiles by various household and individual characteristics
- income shares for income deciles
- the extent of re-distribution of market income through taxes and cash benefits.

Means and medians

Table B.1 reports median and mean household incomes for the 2018 HES using gross, disposable (after-tax), and equivalised disposable concepts, and the changes in real terms from the 2009 to 2011 HES (capturing the main impact of the global financial crisis) and from the 2011 to 2018 HES. Longer term trends are reported in Section D.

In the 2018 HES, median annual household income, after taking account of all income tax paid and transfers received (eg welfare benefits, NZS, WFF tax credits), was $82,600, up around 21% in real terms since the 2011 HES, just after the post-GFC recovery had settled in. This is an average growth of 3% pa in real terms (ie after adjusting for inflation).

Mean or average annual household income was $97,400, up around 18% in real terms since 2011, 2.5% pa on average.

Table B.1
Gross, disposable and equivalised disposable household incomes: annual medians and means (HES 2018), with changes from recent years

	Median			Mean		
	2017-18 HES	Real changes		2017-18 HES	Real changes	
		2008-9 to 2010-11	2010-11 to 2017-18		2008-9 to 2010-11	2010-11 to 2017-18
Gross	$99,000	-4.1%	+21.1% = 3.0% pa	$121,100	-3.2%	+19.1% = 2.7% pa
Disposable (BHC)	$82,600	-1.3%	+21.1% = 3.0% pa	$97,400	+0.2%	+18.4% = 2.6% pa
Disposable (AHC)	$62,400	-2.0%	+25.0% = 3.6% pa	$78,100	-0.0%	+22.2% = 3.2% pa
Equiv disposable (BHC)	**$39,900**	**-2.2%**	**+18.7% = 2.7% pa**	**$48,100**	**-0.0%**	**+16.6% = 2.4% pa**
Equiv disposable (AHC)	**$30,500**	**-4.3%**	**+23.5% = 3.4% pa**	**$38,500**	**-0.3%**	**+20.7% = 3.0% pa**

Note: The equivalised income rows in the table (the bottom two) use the one person household as the reference. The unit is 'dollars per equivalent adult'.

The impact on household incomes of the global financial crisis and economic slowdown began to be seen in the 2009-10 HES. Using the 2008-09 HES as the reference year the "2008-09 to 2010-11" columns show the cumulative impact over two surveys.

In those years, the gross median income fell by some 4% and disposable (after tax) household income by 1-2% in real terms. The smaller after-tax decline reflects the higher average income tax rate for higher income households. The household disposable income distribution is less spread

than the gross income distribution and the changes from year to year are therefore smaller in percentage terms.

Changes in the mean are a little different than changes in the median as they are strongly influenced by what happens to higher incomes whereas changes in the median are influenced by what happens to incomes in the middle parts of the distribution.

Medians are calculated by assigning individuals the income of their household, ranking the individuals and finding the middle one. This person-weighted approach is different from the household-weighted approach which simply ranks households by their income and finds the middle household. The person-weighted approach is the international standard for the sort of analysis carried out for this report. See **Appendix 4** for further information.

Mean incomes are higher than median incomes because of the skew of the income distribution towards the lower end. The relatively few households with incomes at the very upper ranges of the income distribution have a disproportionately large upward impact on the mean compared with their impact on the median, and therefore pull the mean up above the median. The varying number of very high-income households in different years can also lead to the mean being less stable than the median.

Medians for households of different types

The overall median BHC household disposable income in the 2018 HES was $82,600 (ordinary dollars). In equivalised terms this is 38,200 dollars per equivalent adult.

Different household types have different median incomes, some above and some below the overall median. The median household incomes for households comprising a couple plus one to three dependent child are relatively close to the overall median and impact strongly on its trend.

Table B.2 shows the median disposable incomes (BHC) of different household types using incomes before equivalising (centre column) and after equivalising the household incomes (right hand column).

Table B.3 shows the same information for AHC incomes.

Tables B.2 and B.3 show that the median equivalised household incomes for older one-person and couple households, sole-parent households and larger two-parent households are all below the overall median. This means that these households are all more concentrated in the lower half of the equivalised income distribution.

On the other hand, “working age” couple-only households and family households with no dependent children have equivalised medians above the overall median and are therefore more concentrated in the upper half of the equivalised income distribution.

Table B.2
Median disposable income (BHC) for different household types (HES 2018)
in ordinary and equivalised dollars

HH type	Median disposable income for the HH type (ordinary $)	Median disposable income for the HH type ($ per equivalent adult)
One person, 65+	22,900	22,900
Couple, 65+	53,300	35,500
One person, under 65	39,200	39,200
Couple, under 65	88,100	58,700
SP, 1 child	46,000	28,200
SP, 2 children	40,900	21,800
SP, 3 or more children	44,000	20,100
2P, 1 child	89,300	43,400
2P, 2 children	93,200	41,700
2P, 3 or more children	77,500	28,700
Other family HHs with children	103,600	34,800
Family HHs, all < 65 – no children	115,500	50,900
Family HHs, at least one 65+ – no children	86,100	41,400
Whole population	**82,600**	**39,900**

Table B.3
Median disposable income (AHC) for different household types (HES 2018)
in ordinary and equivalised dollars

HH type	Median disposable income for the HH type (ordinary $)	Median disposable income for the HH type ($ per equivalent adult)
One person, 65+	18,900	18,900
Couple, 65+	46,100	30,700
One person, under 65	26,200	26,200
Couple, under 65	67,800	45,200
SP, 1 child	30,800	20,100
SP, 2 children	23,100	13,100
SP, 3 or more children	30,300	12,800
2P, 1 child	65,200	32,400
2P, 2 children	67,600	31,000
2P, 3 or more children	60,100	21,400
Other family HHs with children	81,100	26,800
Family HHs, all < 65 – no children	86,900	41,600
Family HHs, at least one 65+ – no children	69,900	32,800
Whole population	**62,400**	**30,500**

Notes:
1. The sampling error for the overall BHC median is around ±4% ($3000). For the sub-groups above it is much greater. The medians for sub-groups should be taken as broadly indicative: the ranking of sub-groups when the difference being considered is large is robust, but the individual figures are not precise.
2. See the box on the next page for further information about the relationship between the two columns of figures in these tables.

Reconciling Table A.4 with Tables B.2 and B.3

This report uses the one-person household as the reference for the equivalising process. The unit is dollars per equivalent adult. To convert ordinary disposable income to equivalised incomes for a particular household type, the ordinary incomes need to be divided by the appropriate equivalence ratio listed in Table A.1 in the Introduction (Section A). For example for a (2,1) household, divide by 1.80. This means that a (2,1) household with a disposable income of $65,500 has an equivalised disposable income of $36,100 (ie 36,100 dollars per equivalent adult). (65,500 / 1.80 = 36,100).

This relatively simple conversion can be applied to any individual household. It cannot however be generally applied to medians of the population as a whole or of any subgroup of the population. There are three reasons for this:

- For the population as a whole, the concept of equivalence ratio is meaningless as individuals come from a range of different household types, and different equivalence ratios apply to each of these.
- For some subgroups (eg “other family households with children”), no single equivalence ratio can be defined as there are unknown numbers of children and adults in each household in this group.
- If the Revised Jensen scale is used (and the report no longer does this), for any subgroup of households which have children, children of different ages are assigned a slightly different equivalence ratio. This means that the ranking of individuals using equivalised incomes can end up slightly different than the ranking of individuals using ordinary household incomes for the same household type (eg couple plus one dependent child). This leads to the equivalised median being not quite the same as the “ordinary” income divided by the appropriate equivalence ratio.

Income distribution for the whole population, HES 2015

Figures B.1 and B.2 (next page) show the general shape of the income distribution for the whole population, with the 65+ age-group distinguished from the rest.

The graphs also show two of the main low-income thresholds ("poverty lines") that are used later in the report: 50% and 60% of the (current survey) median for BHC incomes, and these less 25% for AHC incomes.

Apart from the skew to the left with a long right-hand tail of higher household incomes, the distinctive feature of the BHC distribution is the 'pensioner spike' just above the 50% threshold, and the strong bunching of those aged 65+ in households with incomes in the 50% to 70% of median range. The pensioner spike arises because:

- New Zealand has a universal pension for those aged 65 and over[31] that is neither income nor asset tested (New Zealand Superannuation (NZS))
- there is no mandatory second tier employment-related component
- in 2015, 40% of those aged 65+ report household incomes of less than $100pw (per capita) from sources other than NZS
- the value of NZS was around 52-54% of the BHC median from 2010 to 2015 and between 51% and 67% from 1988 to 2008.[32]

This strong bunching of incomes for older New Zealanders in the 50% to 70% of median range has implications for the reporting of poverty rates for this group. When using thresholds set as a proportion of the current median, a small shift in the median from one year to the next can lead to a very large change in reported income poverty for the 65+ even though there has been little or no change in their income or living standards. Similarly, using a 50% of median income threshold gives a very different picture than when a 60% threshold is used.

For the AHC distribution, there is still a reasonably strong bunching of incomes between the median and the 60% threshold used with AHC incomes, but the pensioner 'spike' is broadened out and in the main lies above the 50% and 60% thresholds. This happens because of the high proportion of older New Zealanders with mortgage-free homes and very low housing costs (72% on average over the 2014 to 2016 surveys). Small shifts in the median or the threshold do not therefore have the same disproportionate and misleading effects on (trends in) poverty rates as they do when using BHC incomes. In addition, differing housing costs among some lower-income 65+ households spread their AHC incomes over a wider range than their BHC incomes. These two factors combined form part of the rationale for this report's position that using AHC incomes is more useful for monitoring poverty trends for older New Zealanders and for making comparisons with the rest of the population. This is discussed further in **Section E, Section I** and in **Appendix 5**.

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31 In addition to the age qualification, there are also residency requirements.

32 There is often a bunching in the income distributions in other countries but they tend not to have the spike that New Zealand does because of the different retirement income regimes. For example, see Figure 3.3 in Brewer et al (2004) for the UK.

Figure B.1
BHC household income distribution for all individuals: HES 2015

Figure B.2
AHC household income distribution for all individuals: HES 2015

Notes: 1 For both graphs, individuals are grouped by their household incomes in multiples of $1500 pa ($30 pw). This is a rough and ready way of showing the shape of the income distribution and the number of people in different income bands.

2 Figure B.1 draws attention to the pensioner spike in the BHC distribution. In 2015 the pensioner spike was just above the 50% of median line.

3 The AHC low-income thresholds ('poverty lines') are set at the 50% and 60% BHC thresholds, less 25% to allow for housing costs. See Appendix 6.

Income distribution for sole parent and two parent families

Figure B.3 shows the distribution of family incomes for sole parent and two parent families. In 2013, around 90% of sole-parent families had incomes below the median household income for all households, with or without children.[33] For two-parent families the proportion was 50%. This is similar to previous years.

The relatively low incomes of sole parent families reflects in the main two factors: (a) there is only one potential earner in a sole parent family, and (b) the relatively low full-time employment rate for sole parents (around 35% in 2013). In 2013, 76% of sole mothers and 54% of sole fathers were receiving a main benefit. 18% of these sole parents had declared earnings in June 2015. Sole parent beneficiary families are clustered in the lower part of the income distribution.

Figure B.3
Distribution of sole parent and two parent family income, HES 2013

Notes: 1 Individuals are grouped by their family incomes in multiples of $3000 pa ($60 pw).
2 'Family' here means 'Economic Family Unit'.
3 Treasury's Taxwell weights are used as they give a better population estimate of the number of beneficiary families.

It is clear from Figure B.3 that whatever standard income poverty measure is used, the proportion of those in sole parent families with incomes below the selected threshold (ie the income poverty rate for sole parent families) will be high in itself, and also higher than for those in two parent families.

33 This is for family or household income adjusted for family size and composition (equivalised family income). Using unadjusted family income makes little difference to this finding.

Where does your household fit?

Many people do not have a realistic idea as to where they (and their household) fit in the income distribution.[34] **Tables B.4A and B.4B** give the annual (unequivalised) disposable income levels (BHC) of different household types in each (equivalised) income decile. From these tables, most people will be able to locate where they and their households fit on the income distribution.

To use these tables, select the column heading that best describes your household situation. Go down the column until you find your household's disposable income range (ie annual after-tax income, including all social assistance and tax credits from the state). The row gives the equivalised income decile for your household income. For example, a household comprising a sole parent with two children with a disposable income of $51,000 pa is in decile 4.[35]

Table B.4A
Where does your household fit in the overall household income distribution (BHC)?
HES 2018

Equivalised income decile	Ordinary dollars (ie not equivalised)				
	One person, no children (reference HH)	Sole parent, one child	Sole parent, two children	Sole parent, three children	Sole parent, four children
Bottom decile	< $19,800	< $25,800	< $31,700	< $37,700	< $43,700
Decile 2	19,800 - 24,000	25,800 - 31,200	31,700 - 38,400	37,700 - 45,600	43,700 - 52,700
Decile 3	24,000 - 29,000	31,200 - 37,700	38,400 - 46,300	45,600 - 55,000	52,700 - 63,700
Decile 4	29,000 - 34,100	37,700 - 44,300	46,300 - 54,500	55,000 - 64,700	63,700 - 75,000
Decile 5	34,100 - 39,900	44,300 - 51,900	54,500 - 63,900	64,700 - 75,800	75,000 - 87,800
Decile 6	39,900 - 46,200	51,900 - 60,100	63,900 - 73,900	75,800 - 87,800	87,800 - 101,700
Decile 7	46,200 - 53,100	60,100 - 69,100	73,900 - 85,000	87,800 - 101,000	101,700 - 116,900
Decile 8	53,100 - 63,400	69,100 - 82,500	85,000 - 101,500	101,000 - 120,500	116,900 - 139,600
Decile 9	63,400 - 83,700	82,500 - 108,800	101,500 - 133,900	120,500 - 159,000	139,600 - 184,100
Top decile	> $83,700	> $108,800	> $133,900	> $159,000	> $184,100

Note: use disposable household income when using this table – that is, household income from all sources after paying personal income tax and after receiving all tax credits (from Working for Families) and other state transfers (eg NZS, AS, main benefits)

[34] For example, a survey conducted in 1999 by the Social Policy Research Centre (University of New South Wales, Sydney) showed that the vast majority of Australians thought that their household incomes placed them in the middle of the distribution. Around half thought they were in either the 4th or 5th deciles and virtually none thought they were in the top quintile (Saunders, 1999). A similar perception is likely to hold in New Zealand too.

[35] The calculations in the two tables assume that any children are aged under 14 years.

Table B.4B
Where does your household fit in the overall household income distribution (BHC)?
HES 2018

Equivalised income decile	Ordinary dollars (ie not equivalised)					
	Couple or 2 adults sharing	Couple, one child	Couple, two children	Couple, three children	Couple, four children	Three adults, one child
Bottom decile	< $29,800	< $35,700	< $41,700	< $47,600	< $53,600	< $39,700
Decile 2	29,800 - 36,000	35,700 - 43,200	41,700 - 50,300	47,600 - 57,500	53,600 - 64,700	39,700 - 48,000
Decile 3	36,000 - 43,500	43,200 - 52,100	50,300 - 60,800	57,500 - 69,500	64,700 - 78,200	48,000 - 57,900
Decile 4	43,500 - 51,100	52,100 - 61,300	60,800 - 71,600	69,500 - 81,800	78,200 - 92,000	57,900 - 68,200
Decile 5	51,100 - 59,900	61,300 - 71,800	71,600 - 83,800	81,800 - 95,800	92,000 - 107,800	68,200 - 79,800
Decile 6	59,900 - 69,300	71,800 - 83,200	83,800 - 97,000	95,800 - 110,900	107,800 - 124,800	79,800 - 92,400
Decile 7	69,300 - 79,700	83,200 - 95,600	97,000 - 111,600	110,900 - 127,500	124,800 - 143,500	92,400 - 106,300
Decile 8	79,700 - 95,200	95,600 - 114,200	111,600 - 133,200	127,500 - 152,200	143,500 - 171,300	106,300 - 126,900
Decile 9	95,200 - 125,500	114,200 - 150,700	133,200 - 175,800	152,200 - 200,900	171,300 - 226,000	126,900 - 167,400
Top decile	> $125,500	> $150,700	> $175,800	> $200,900	> $226,000	> $167,400

Note: use disposable household income when using this table – that is, household income from all sources after paying personal income tax and after receiving all tax credits (from Working for Families) and other state transfers (eg NZS, AS, main benefits)

Distribution of individuals across income quintiles by various household and individual characteristics

When the population is ranked on their household incomes and divided into five equal groups, each group is called a quintile. A quintile contains 20% of the population.

Table B.5 shows the position of groups of individuals in the household income distribution (BHC) according to various household and individual characteristics. The proportions sum to 100% across the quintiles.

The numbers in each quintile can be obtained by using the information in the right-hand column which gives the number of individuals in the various subgroups. For example, in the lowest quintile (Q1), there are around 135,000 individuals in sole parent households where there are dependent children (51% of 269,000), and 250,000 in two parent households with dependent children (15% of 1,653,000).

Table B.6 shows the composition of each income quintile (BHC) according to various household and individual characteristics. The proportions sum to 100% down the columns for each set of characteristics.

Tables B.7 and B.8 repeat the analysis for AHC incomes.

Caution

When using the figures for smaller sub-groups, the proportions in each quintile should be taken as indicative rather than precise.

For example, in Table B.8 those living in one person 65+ households are reported as making up only 3% of the population. When reading Table B.7 for the distribution of those in this household type across the quintiles, it is reasonable to conclude that "around two thirds are found in the bottom two quintiles", but to claim that 16,300 (10% of 163,000) are in the top quintile is spurious precision.

Another example is the distribution across the quintiles by ethnicity. With the Pacific group making up only 6% of the population, the same sort of caution applies as for the one person 65+ households noted above. The 'Other' group is larger (14%) but is somewhat diverse, so results for each quintile can be volatile from year to year. An example of what it is reasonable to conclude from the analysis in the tables which follow is that household incomes for those of Maori and Pacific ethnicity are reasonably similarly distributed across the quintiles (50% to 55% are in the lower two quintiles), and are each quite differently distributed than are household incomes for European/Pakeha. Those of 'Other' ethnicity are overall similarly distributed to Maori and Pacifika, but this average may hide some variation within this group. The larger 2019-20 survey will help with this.

Table B.5
Distribution of individuals across income quintiles (BHC)
by various household and individual characteristics (%)
(sum to 100% across rows)

HES 2018	Equivalised disposable household income					All individuals (000s)
	Q1	Q2	Q3	Q4	Q5	
Age						
0-17	25	26	22	15	12	1131
18-24	20	21	20	24	16	456
25-44	14	19	22	25	20	1263
45-64	14	14	19	22	30	1201
65+	34	21	15	13	18	694
All	20	20	20	20	20	4745
Household type						
One person 65+	54	18	10	9	9	163
Couple 65+	29	19	14	13	25	450
One person under 65	31	12	20	22	16	169
Couple under 65	10	7	15	25	43	493
SP with dependent children	51	26	17	4	1	269
2P with dependent children	15	26	23	20	16	1653
Other family HHs with dependent children	22	26	29	17	6	441
Family HHs with no dependent children	11	15	18	27	29	794
Non-family HHs	17	18	19	26	21	314
All	20	20	20	20	20	4745
Ethnicity						
European/Pākehā	16	17	19	21	26	2832
NZ Māori	28	25	20	16	11	736
Pacific	32	24	19	17	9	298
Other	21	24	23	20	12	879
All	20	20	20	20	20	4745
Main source of income (under 65s)						
Market	11	20	23	23	23	3678
Government transfer	83	14	3	.	.	373
All	18	20	21	21	20	4051
Tenure (under 65s)						
Owned with mortgage	8	18	22	27	25	1788
Owned without mortgage	14	15	20	18	33	662
Rented - private	24	24	22	19	11	1274
Rented - HNZC and local authority	68	21	9	1	1	220
Children by household type						
Children in SP HHs	54	26	16	3	1	164
Children in 2P HHs	18	26	22	19	15	760
Children in other family HHs	26	28	29	12	5	158
Children in non-family households	15	35	20	14	16	12
All children	24	27	22	15	12	1094

Notes:

1 See note on page 67 for the need for caution in interpreting results for smaller sub-groups.

2 The sample numbers for children in non-family households are too small to give reliable estimates of their distribution across the quintiles.

Interpreting Tables B.5 and B.6: an example

Consider the 0-17 year old group (children).

- Table B.5 (distribution of each group across the quintiles) shows that **51%** children are in households in the bottom two income quintiles.
- Table B.6 (composition of each quintile) shows that children make up **29%** of all people in households with incomes in the bottom quintile.

Table B.6
Composition of income quintiles (BHC)
by various household and individual characteristics (%)
(sum to 100% down columns)

HES 2018	Equivalised disposable household income					Overall composition
	Q1	Q2	Q3	Q4	Q5	
Age						
0-17	29	31	26	18	14	24
18-24	9	10	10	11	8	10
25-44	19	25	29	33	27	27
45-64	18	18	24	28	38	25
65+	25	15	11	9	13	15
All	100	100	100	100	100	100
Household type						
One person 65+	9	3	2	2	2	3
Couple 65+	14	9	7	6	12	10
One person under 65	6	2	4	4	3	4
Couple under 65	5	4	8	13	22	10
SP with dependent children	15	8	5	1	0	6
2P with dependent children	27	44	40	35	28	35
Other family HHs with dependent children	10	12	14	8	3	9
Family HHs with no dependent children	9	12	15	22	24	17
Non-family HHs	6	6	6	9	7	7
All	100	100	100	100	100	100
Ethnicity						
European/Pākehā	49	51	58	64	78	60
NZ Māori	22	20	15	13	8	16
Pacific	10	7	6	5	3	6
Other	19	22	21	18	11	19
All	100	100	100	100	100	100
Main source of income (under 65s)						
Market	57	93	99	100	100	91
Government transfer	43	7	1	.	.	9
All	100	100	100	100	100	100
Tenure (under 65s)						
Owned with mortgage	19	40	47	56	55	44
Owned without mortgage	13	12	16	14	26	16
Rented - private	43	39	32	28	17	31
Rented - HNZC and local authority	21	6	2	0	0	5
Other	4	3	2	2	2	3
Children by household type						
Children in SP HHs	33	14	11	3	2	15
Children in 2P HHs	51	69	69	85	90	69
Children in other family HHs	15	15	19	11	7	15
Children in non-family HHs	1	2	1	1	2	1
All children	100	100	100	100	100	100

Notes:

1 See note on page 67 for the need for caution in interpreting results for smaller sub-groups.

Interpreting Tables B.5 and B.6: an example

Consider the 0-17 year old group (children).

- Table B.5 (distribution of children across the quintiles) shows that **51%** of this group are in households in the bottom two income quintiles.
- Table B.6 (composition of each quintile) shows that children make up **29%** of all people in households with incomes in the bottom quintile.

Table B.7
Distribution of individuals across income quintiles (AHC)
by various household and individual characteristics (%)

(sum to 100% across rows)

HES 2018	Equivalised disposable household income					All individuals (000s)
	Q1	Q2	Q3	Q4	Q5	
Age						
0-17	27	24	22	16	12	1131
18-24	23	19	20	20	18	456
25-44	18	18	23	23	19	1263
45-64	16	13	18	23	31	1201
65+	17	31	16	16	20	694
All	20	20	20	20	20	4745
Household type						
One person 65+	34	35	11	10	10	163
Couple 65+	11	30	16	15	29	450
One person under 65	37	11	22	17	14	169
Couple under 65	12	8	14	26	40	493
SP with dependent children	60	21	14	4	1	269
2P with dependent children	19	23	23	20	15	1653
Other family HHs with dependent children	20	25	30	21	5	441
Family HHs with no dependent children	11	14	18	27	30	794
Non-family HHs	22	14	20	23	21	314
All	20	20	20	20	20	4745
Ethnicity						
European/Pākehā	15	18	19	22	27	2832
NZ Māori	28	22	22	18	10	736
Pacific	29	26	20	17	7	298
Other	27	21	23	18	11	879
All	20	20	20	20	20	4745
Main source of income (under 65s)						
Market	14	19	23	23	22	3678
Government transfer	83	15	3	0	.	373
All	21	18	21	21	20	4051
Tenure (under 65s)						
Owned with mortgage	12	18	22	25	22	1788
Owned without mortgage	11	9	18	22	40	662
Rented - private	31	22	22	16	10	1274
Rented - HNZC and local authority	59	27	9	6	1	220
Children by household type						
Children in SP HHs	64	19	13	3	1	164
Children in 2P HHs	21	24	22	19	15	760
Children in other family HHs	23	29	30	15	5	158
Children in non-family households	15	17	30	26	12	12
All children	27	24	22	16	11	1094

Notes:

1 See note on page 67 for the need for caution in interpreting results for smaller sub-groups.

2 The sample numbers for children in non-family households are too small to give reliable estimates of their distribution across the quintiles.

Interpreting Tables B.7 and B.8: an example

Consider the 0-17 year old group (children).

- Table B.7 (distribution of children across the quintiles) shows that **51%** of this group are in households in the bottom two income quintiles.
- Table B.8 (composition of each quintile) shows that children make up **32%** of all people in households with incomes in the bottom quintile.

Table B.8
Composition of income quintiles (AHC)
by various household and individual characteristics (%)
(sum to 100% down columns)

HES 2018	Equivalised disposable household income					Overall composition
	Q1	Q2	Q3	Q4	Q5	
Age						
0-17	32	29	26	19	14	24
18-24	11	9	9	10	8	10
25-44	23	24	30	31	25	27
45-64	21	16	23	29	39	25
65+	12	22	12	12	15	15
All	100	100	100	100	100	100
Household type						
One person 65+	6	6	2	2	2	3
Couple 65+	5	14	7	7	14	10
One person under 65	7	2	4	3	3	4
Couple under 65	6	4	7	14	21	10
SP with dependent children	17	6	4	1	0	6
2P with dependent children	33	40	40	34	27	35
Family HHs with dependent children	9	12	14	10	2	9
Other family HHs with no dependent children	9	12	15	22	25	17
Non-family HHs	7	5	7	8	7	7
All	100	100	100	100	100	100
Ethnicity						
European/Pākehā	45	55	55	64	80	60
NZ Māori	22	17	17	14	8	16
Pacific	9	8	6	5	2	6
Other	25	20	21	17	10	19
All	100	100	100	100	100	100
Main source of income (under 65s)						
Market	63	93	99	100	100	91
Government transfer	37	7	1	0	.	9
All	100	100	100	100	100	100
Tenure (under 65s)						
Owned with mortgage	26	44	48	53	50	44
Owned without mortgage	9	8	14	18	32	16
Rented - private	47	38	33	25	15	31
Rented – HNZC and local authority	16	8	2	2	0	5
Other	2	2	3	3	3	3
Children by household type						
Children in SP HHs	35	12	9	3	2	15
Children in 2P HHs	53	70	70	82	91	69
Children in other family HHs	12	17	20	13	6	15
Children in non-family HHs	1	1	2	2	1	1
All children	100	100	100	100	100	100

Notes:

1 See note on page 67 for the need for caution in interpreting results for smaller sub-groups.

Interpreting Tables B.7 and B.8: an example

Consider the 0-17 year old group (children).

- Table B.7 (distribution of children across the quintiles) shows that **51%** of this group are in households in the bottom two income quintiles.
- Table B.8 (composition of each quintile) shows that children make up **32%** of all people in households with incomes in the bottom quintile.

Income shares across the distribution

Figures B.1 and B.2 above show that income is not distributed evenly across the population even after taxes and transfers have been taken into account. **Figure B.4** presents the same information in a different way by showing the share of the total income that is received by the different income deciles (BHC).[36] Because the income concept is *equivalised* household disposable income, the information in the graph needs to be interpreted as comparisons of the consumption capabilities for those in the various deciles, having adjusted for household size and composition.

Figure B.4
Shares of total income by deciles: HES 2018

The top 10% receive just over a quarter (27%) and the top 30% receive just over a half (54%) of the total population (equivalised) income. This is much the same as in recent years. For example, the average figures from HES 2007 to HES 2012 were 25% and 53% respectively. See **Table 9.3** in **Appendix 9** for the time series from 1982 to 2018.

Table B.9 shows that the distribution of household income in New Zealand is broadly similar to that in the UK, Australia and Canada, but more dispersed than for Finland and Norway.

Table B.9
Shares of total income by quintiles of equivalised disposable household income (%):
international comparisons for c 2016

	Q1 (low)	Q2	Q3	Q4	Q5 (high)
Norway	9	15	19	22	35
Finland	10	14	18	22	35
Sweden	9	14	18	23	36
France	9	14	17	22	39
NZ HES 2015	8	12	16	22	43
NZ HES 2018	7	12	17	22	42
UK	8	13	17	23	39
Australia 2015-16	8	13	17	23	40
Canada	7	12	17	23	41
Italy	6	13	18	24	40
Spain	6	12	17	24	41
Greece	6	13	17	24	41

Sources: Australia (Table 1.1 in ABS (2017) for 2014 & 2016; Canada (Table 36-10-0587-01 in Statistics Canada (2018) for 2016; European countries (Eurostat statistical database for Population and Social Conditions for 2016).

[36] See Appendices 8 and 9 for a detailed discussion of the limitations of the income data in decile 1 in relation to its use as an indicator of (potential) living standards.

The redistribution of income: market income, government cash benefits, income tax, consumption tax and publicly provided services

New Zealand, like all OECD countries, has a tax and transfer system that significantly redistributes market income (wages, salaries, investments, self-employment) and reduces the inequality and hardship that would otherwise exist. In interpreting the findings in this section it is important to note that market income is not the counterfactual or "natural state" that would exist if there was no government intervention. The existence of taxes, government expenditure and the apparatus of the welfare state influences citizens' behaviour in relation to labour market participation, living arrangements, and so on. The analysis can be taken as an indication of the extent of redistribution given that we live in a redistributive welfare state.

Figure B.5
Cash transfers and income tax paid: HES 2015

"Government transfers" include working-age welfare benefits, New Zealand Superannuation (NZS), the Accommodation Supplement, Working for Families tax credits, special needs grants, and so on. The top chart of **Figure B.5** shows the distribution of these transfers across household income deciles, with NZS separated out. For example, decile 2 households receive 22% of all transfers and two thirds of that is NZS.

The lower chart of Figure B.5 shows how the proportion of total income tax paid and transfers received varies across the different deciles. For example, households in the top decile pay one third (35%) of all income tax collected, and receive 5% of all transfers. The transfers received by the top decile are almost entirely from NZS. The rest would be from low-income 'independent' adults living in high-income households while (legitimately) receiving a core income-tested benefit such as sole-parent support.

Another useful way of looking at the extent of redistribution is to look at the difference between income taxes paid and transfers received for households in different income deciles For many households, the amount they receive in transfers is greater than what they pay in income tax. They have a negative net tax liability.

One group with negative net tax liability is low- to middle-income households with dependent children. For example, single-earner families with two children can earn up to around $60,000 pa before they pay any net tax. Around half of all households with children receive more in welfare benefits and tax credits than they pay in income tax. The vast majority of older New Zealanders (aged 65+) live in households where there is a negative income tax liability – the income tax they pay is less than the value of the NZS they receive. "Working-age" working households without dependent children have a positive income tax liability whatever their income.

Figure B.6
Income tax less govt cash transfers

When all households are counted (working age with children, working age without children, and 65+ households), and looking at households grouped in deciles rather than looking at individual households, the total income tax paid by each of the bottom four deciles is less than the total transfers received. See **Figure B.6.** It is only for each of the top five deciles that total income tax paid is greater than transfers received.[37]

[37] In Figures B.5 and B.6 the deciles are deciles of individuals ranked according to the equivalised disposable income of their respective households. The difference for each decile between total income tax paid and government cash transfers received is calculated (in ordinary dollars) for the households to which the individuals belong.

The inequality-reducing impact of taxes and transfers

Figure B.7 and **Table B.10** show the inequality-reducing impact of taxes and transfers by comparing the Gini scores for household market income and household disposable income – that is for household incomes before and after taxes and transfers.

Figure B.7
Gini scores (x100) for market and disposable household income, 1985 to 2016 (18-65 yrs)

Table B.10
Gini scores (x100) for market and disposable household income, 1985 to 2015 (18-65 yrs)

HES year	OECD year	Before taxes and transfers (market income)	After taxes and transfers (disposable income)	Reduction (%)
1986	1985	36.4	26.4	27
1991	1990	42.4	31.3	26
1996	1995	43.1	32.9	24
2001	2000	43.1	33.1	23
2007	2006	40.3	31.6	22
2012	2011	40.0	31.4	22
2017	2016	40.3	33.1	18
2018	2017	40.1	32.7	19

Reading note for Figure B.7 and Table B.10:

HES year 'n' is reported as 'n-1' in the OECD Income Distribution Database and related publications (eg 2013 is reported as '2012').

For working-age New Zealanders (aged 18 to 65 years), the reduction in the household market income Gini was ~20-22% from 2003 to 2013 (OECD yrs). This reduction is similar to Canada, but less than Australia and the UK (~25%), and much lower than many European countries such as Denmark, France and Austria (33-36% reductions). The median OECD reduction was 27% for 2013.

When the full population is used, New Zealand's reduction in inequality is 28% compared with the OECD median of 35%.

For more detailed OECD comparisons and commentary on the long-run New Zealand trend, see the International Section (Section J).

Box 3
How the income inequality picture changes depending on the income concept used

The level of inequality or dispersion in the distribution of incomes depends on which income concept is used.

This report uses equivalised disposable household income as the income concept for all its income distribution, inequality and poverty analysis. This is the total after-tax income of all individuals in the household, together with Working for Families Tax Credits and other non-taxable income such as the Accommodation Supplement (AS) and so on, adjusted for household size and composition. This is standard international practice for reports of this type, where the focus is on household income as an indicator of the material wellbeing of household members relative to others from other households.

The graph below shows the different levels of inequality that different income concepts produce, using the 80:20 percentile ratio as the measure.

Inequality is lower when the focus moves from individuals to households (HHs). The 80:20 ratio falls from 5.8 for individual taxable income to 3.6 for HH gross taxable income. HH gross taxable income excludes all non-taxable components such as WFF tax credits, AS, and so on. When these are included, inequality drops further (HH gross). Taking personal income tax deductions into account further reduces the 80:20 ratio, as does the adjustment for household size and composition. The 80:20 ratio is more than halved in going from individual taxable income to equivalised disposable HH income. The latter is the best of these income concepts to use when using income to assess the material wellbeing of the population, and of subgroups within it.

80:20 percentile ratio for different income concepts, 2012-13
(HLFS for individuals, HES for households)

When the same group of individuals is followed over time (longitudinal data), and the income concept is the average household disposable income of the individual over, say, ten years rather than one, then measured inequality falls even further as a result of income mobility. For Australia the fall was around 15% for both the 90:10 ratio and the Gini from 2001 to 2010 and for the UK it was around 15% for the Gini for five year periods starting at various years in the 1990s. The right-hand bar above assumes a 15% reduction for illustrative purposes. See **Section K** for more on this.

"Final" household income

Figure B.5 tells only a part of the government transfer story. A more comprehensive analysis needs to include tax paid through GST especially as lower-income households generally apply all or almost all their income to expenditure on GST-able goods and services, whereas higher-income households apply a lesser proportion of their income to GST-able expenditure, with a portion going to savings and interest payments which do not attract GST. GST is therefore generally a higher proportion of the income of lower-income households than for higher-income households.

Households also receive government-funded health and education services which means that they do not have to pay for them directly from their own income. These services can be seen as a form of income or in-kind government benefit to be counted along with any cash benefits received.

In this broader framework the concept of "final" household income is sometimes used as a means of taking into account cash and in-kind income from the market and the government and consumption taxes as well as income taxes. Crawford and Johnston (2004) have shown that, using a final household income approach, there is further redistribution from more well-off households to less well-off households because households in the higher income deciles pay more consumption tax and also receive less in the way of in-kind benefits from education and health spending combined. They conclude that "final incomes are more equally distributed than disposable incomes" (p29).

Figure B.8
Redistribution of market income: HES 1998

This finding is illustrated in **Figure B.7** which compares the redistribution using both the narrower and broader frameworks for 1998. [38]

The large additional transfer to low- to middle-income households through the Working for Families package in 2005 to 2007 and the tax switch changes in October 2010 are not captured in their analysis. The Treasury have since updated the analysis to 2010 (Aziz and colleagues, 2012), and that analysis confirms the earlier findings on inequality, among other things. This is consistent with other similar research from other OECD countries.[39]

Source: Crawford and Johnston (2004)

An example is a 2008 OECD study[40] on the equality-enhancing impact of taxes and cash transfers and of government services. The study found that:

38 Note that Figures B.5 and B.7 are both simply cross-sectional snapshots of income re-distribution across the deciles and do not show how incomes of individuals or households change over time. At one point in time a household may be a net 'receiver' and at another time, a net 'payer'.

39 For example, see ABS (2013), Appendix 4 for Australia.

- public expenditure on the provision of social services (mainly health and education) significantly reduces inequality within countries and reduces the range of inequality otherwise found across countries
- the size of the reduction in inequality from government in-kind services is on average less than that achieved by income taxes and transfers, but is still significant – it is around a quarter when using the inter-quintile share and a half when using the Gini coefficient[41]
- the inequality-reducing impact of the countries' tax and transfer systems is more variable across countries than the impact of public services
- the ranking of countries on inequality does not change very much when moving from a household disposable income measure to the broader measure that includes public services (correlation ~ 0.95).

40 See Chapter 9 in OECD (2008).

41 See Section D for more on the Gini and other measures of inequality.

The Australian Bureau of Statistics has made significant progress in recent years in its efforts to include imputed rent in its analysis of household income and its distribution. **Figure A.3** below (from Section A) shows how the inclusion of imputed rent reduces the dispersion of the income distribution, with the Gini changing from 32.0 to 30.3 (see ABS, 2103a). The inclusion of social transfers in kind (STIK) further reduces measured income inequality as the income concept broadens further. Examples of STIKs are free or subsidised education, health and child care.

Figure A.3.
Distribution of equivalised disposable household income with and without IR and STIK: Australia, 2011-12

Source: ABS (2013a)

Section C
Trends in key labour market, demographic, housing costs and social assistance variables

This report is essentially descriptive. It does not attempt, for example, to give a detailed explanation of changes in the income distribution by drawing on what we know about the impacts of key labour market, demographic, macro-economic and geo-political factors and of tax and social assistance policy settings.[42]

This section however goes a little beyond description by providing information on trends in some key variables which clearly impact on the income distribution. These trends provide the basis for a high-level account of changes in the middle and at the lower end of the distribution in line with the main themes and focus of this paper.

At a high level, the trend in real GDP per capita sets the context, although the relationship of the GDP trend to that of disposable household income is not simple or direct. There are many mediating and modifying factors that impact on how the cake is divided up across households, independent of the size of the cake itself.

From a distributional perspective a rough rule of thumb is that median household incomes for the population as a whole generally follow the trend for incomes of two-parent-with-dependent-children households. This group dominates the income distribution from P20 to P60. It made up around half of those in the second-from-bottom quintile and 40-50% of the third quintile from the mid 1990s to 2015. and an even greater proportion during the 1980s. Income changes for this group therefore impact quite significantly on overall household income trends. The median income of this household type is very close to the overall median income in most years from 1982 to 2018 (see Figure D.8 in the next section).

The two factors that impact the most on the incomes of two-parent-with-dependent-children households are average wage rates and the total hours worked by the two parents. The total number of hours worked is in turn related to the overall employment rate and to social norms, in relation to labour force participation for mothers and fathers / female and male caregivers of dependent children. This section therefore reports on the employment rate (by sex), net average ordinary time weekly earnings (NAOTWE), and the hours worked in two-parent-with-children-households. The trend in median household income is strongly influenced by trends in these factors.[43]

The lower part of the income distribution includes those from households whose main income is from paid employment ("the working poor") and those from households whose main income is from income-tested benefits or New Zealand Superannuation (NZS). Trends in the numbers below typical low-income thresholds (ie trends in income poverty rates) are therefore strongly influenced by three sets of factors: (a) average wage levels and employment rates; (b) (trends in) the levels of social assistance; and (c) trends in the numbers in receipt of social assistance. Social assistance is taken here to refer to the main income-tested benefits for those under 65, together with the Family Tax Credit (FTC) (formerly Family Support (FS)) and In-Work Tax Credit where there are dependent children, and NZS for those aged 65+.

This section therefore also reports on trends in the total number receiving a main benefit, and the unemployment rate.

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42 For more detailed analysis and explanation see, for example, Easton (1996), Dixon (1998), O'Dea (2000), Hyslop and Maré (2001), Singley and Callister (2003), Hyslop and Yahanpath (2005), OECD (2011c), Nolan et al (eds) (2013), Salverda et al (eds) (2013).

43 Changes in tax credits or other forms of state cash assistance for families with children (such as the Working for Families package introduced over the 2004 to 2007 period) can also have significant impacts on the incomes of two-parent families, but generally do not have a great impact on the median itself as they are usually targeted at families below or well below the median.

This report promotes the value of using household incomes after deducting housing costs (AHC) as the preferred approach for comparing the material wellbeing of different subgroups of the population. This section therefore also reports on trends in gross expenditure on accommodation as proportion of household income.

Trends in GDP, employment, unemployment and weekly earnings

Figure C.1 shows the pattern of the business cycle from 1982 to 2018 in terms of annual GDP growth and the HLFS unemployment rate. The 2018 HES interviews were carried out from July 2017 to June 2018. The incomes reported by households in the survey are for the twelve months prior to the interview. Those interviewed in July 2017 would therefore be reporting on incomes in the period from August 2016 to July 2017, and so on. The household incomes data in the 2018 HES could be expected to reflect the sustained solid economic growth and low unemployment rates.

Figure C.1
Real GDP annual changes and unemployment rates, 1990 to 2018

Year labels are for June quarters

Figure C.2
Employment rate (15-64yrs), 1987 to 2018

Figure C.3 shows the trend in before-tax (gross) and after-tax (net) wages in real terms. From 1994 to 2018 they grew 33% and 40% in real term. Median household incomes (BHC equivalised) grew 69% in real terms in the period.

Figure C.3
Gross and net average ordinary time weekly earnings ($ Dec 2018)

Incomes around the median: the longer-term trend

Figure C.2 shows the trend in the proportion of the population aged 15-64 who are in paid employment for at least one hour per week (the "employment rate"). After falling to a low in 1992 the employment rate rose through to 1996, faltered for two years then rose each year through to 2007, with a slower growth rate from 2004 to 2007. Overall employment rates fell from 2007 to 2010 (drought and GFC), returning to 2002 levels, and remained flat for three years to 2013 before rising through to 2018. The female employment rate was considerably higher in 2018 (72%) compared with the mid 1980s (60%) whereas male employment in 2018 (82%) was below what it was in the mid 1980s (84%). The overall rate in March 2016 was almost back to the 2008 pre-recession high of 75%, and by March 2018 was at 77%.

Figure C.4 shows the increased work intensity in two-parent-plus-dependent-children households, since the mid 1990s. The two-earner proportion in recent years (around 70%) is a little above the OECD average (65%) for the 21 countries for whom comparable data is available.[44]

Figure C.4
Proportion of two parent HHs by hours of paid employment (where at least one is FT)

These factors together point to median household incomes falling away in the early 1990s as employment declined, and rising from the mid 1990s through to 2004, with reasonably strong growth from 2001 to 2004 when all three factors lined up together to drive up income of two parent with dependent children households. From 2004 to 2007, the median incomes of two-parent

44 OECD (2011), Figure 1.10, p38.

households could be expected not to change as greatly as their employment hours remained steady overall (Figure C.4), and the WFF package had only an negligible impact on the median.

The steady rise in the median over the last eight surveys (from HES 2011 to HES 2018) is consistent with the rising real average wage, higher employment rates and relatively steady average employment hours for two parent families whose incomes have a strong influence on the trend in the median.

See Figure D.1 in the next section for the trends in median household incomes.

Incomes at the lower end of the income distribution

Incomes at the lower end of the distribution are significantly affected by trends in the levels of social assistance delivered through income-tested benefits and child-related support, and trends in the numbers for whom social assistance income is their primary source of income.

Figure C.5 shows the rise in the total number of EFUs ('Economic Family Units' ≡ benefit units) receiving a main benefit through to 1994, the further rise through to 1999, the steady decline to June 2008, the rise through to June 2010 reflecting the recession and the global financial crisis, and the subsequent fall to 281,000 in March 2019. Numbers in receipt of the (former) unemployment benefit follow a trend that is a rough mirror image of the employment rate (Figure C.2).

Figure C.5
Number of families / benefit units in receipt of income-tested benefits (all ages), 1986 to 2018: (30 June figures to 2012, 31 March for 2013 to 2018)

Note: The changes to benefit categories and names in 2013 means that the time series for the specific benefit types in the chart above cannot be continued – a new series will be developed for future reports. See http://www.msd.govt.nz/about-msd-and-our-work/publications-resources/statistics/benefit/index.html for detailed information on benefit numbers.

Whereas Figure C.5 above is based on the number of EFUs receiving an income-tested benefit, **Figure C.6 and Table C.1** reports trends for the number of individuals in beneficiary families (EFUs) and the number of individuals receiving New Zealand Superannuation or the Veterans Pension (NZS/VP).

Since 2011 there have been more NZS/VP recipients than "working-age" beneficiaries and their children. This was first the case briefly for 2007 and 2008 before the negative impact of the GFC on employment led to a rising number receiving a main benefit.

Figure C.6
Number of individuals in EFUs receiving a main benefit or NZ Superannuation or Veterans' Pension: (30 June figures to 2012, 31 March for 2013 to 2017)

Figure C.7 uses the same benefit and NZS/VP information as in Figure C.6, but compares the numbers with the relevant (growing) total population numbers.

The proportion of the population under 65 who are in a benefit unit receiving a main benefit (12%) is just a little less than what it was just before the GFC (13%), while the proportion of all children in a beneficiary family is 16%, down from 19% just before the GFC, and 30% in the late 1990s.

Figure C.7
Proportion of under 18s, under 65s and the whole population receiving a main benefit or NZS/VP

Table C.1
Individuals in EFUs in receipt of an income-tested benefit or NZS (30 Jun to 2012, 31 Mar thereafter)

	Total working age EFUs in receipt of an income-tested benefit (000s)	All people (adults and children) where prime recipient of an income-tested benefit is under 65 (000s)	Children (<18) dependent on a recipient of an income-tested benefit (all ages), (000s)	NZS/VP recipients (000s)	Proportion of children (<18) dependent on a recipient of an income-tested benefit (%)	Proportion of all people under 65 in an EFU in receipt of an income-tested benefit (%)	Proportion of whole popln in an EFU in receipt of an income-tested benefit or NZS/VP (%)
1998	368	701	281	477	30	21	31
1999	372	701	277	468	28	21	30
2000	364	684	271	461	27	20	30
2001	354	662	263	454	26	19	29
2002	343	638	256	458	25	18	28
2003	334	622	253	467	24	18	27
2004	309	584	245	473	24	16	26
2005	290	548	233	484	22	15	25
2006	280	523	221	498	21	14	24
2007	261	485	205	513	19	13	24
2008	258	482	200	525	19	13	24
2009	310	554	221	542	21	15	25
2010	333	591	233	561	22	16	26
2011	328	591	232	581	22	15	27
2012	320	575	227	608	22	15	27
2013	310	552	217	628	20	14	27
2014	295	518	200	655	19	13	27
2015	284	493	187	681	18	13	26
2016	280	480	179	706	17	12	26
2017	278	473	174	731	16	12	26
2018	273	461	169	755	15	11	26
2019	286	479	173	782	16	12	26

Sources: Columns 1-4, MSD Statistical Reports and Information Analysis Platform
Columns 5-7 use population estimates from Statistics New Zealand for the denominator

The average size of working-age beneficiary units has declined from 1.9 in 1998 to 1.7 in 2018.

Note:

For completeness, there needs to be a section here that compares trends for income support levels (main benefits plus AS plus WFF where relevant) with wages and household incomes. This information used to be in the report but has not been updated for several years. MSD's intention is to update the tables and charts and report in the 2020 issue.[45]

[45] A Background Paper for the 2019 Welfare Expert Advisory Group has useful information on the level of income support relative to median household income, for selected family types - see http://www.weag.govt.nz/assets/documents/WEAG-report/background-documents/5269349623/Example-families-010419.pdf

Low wages and household incomes

For those receiving the minimum wage at the time of the 2017-18 HES, the April 2017 rate ($15.75 per hour) was the level that had the most impact on their reported incomes. In April 2019, the rate was $17.70 per hour.

Figure C.8 shows the trend for the minimum wage in real (CPI adjusted) terms, relative to a base index of 100 in 2000. The 2019 rate 57% higher in real terms than in 2000, a growth rate of 3% pa in real terms. The gross average wage increased by less than half that amount (26%).

Figure C.8
Minimum wage trend in real (CPI adjusted) terms, 1998 to 2019

Low-wage workers[46] are found right across the household income distribution, as shown in **Figure C.9.** The bulk of low-wage workers are therefore not poor, as they live with others whose income they share. In 2018:

- 80 to 90% of low-waged workers lived in households with incomes above the common 50% and 60% of median low-income thresholds[47]
- 40% lived in households with incomes above the median.

Figure C.9
Location of low-income earners across household income deciles (BHC income, all households) (using 105% of the minimum wage as a low-wage threshold, $16.54 per hour), HES 2018

46 Low-waged here is defined as less than 105% of the minimum wage. The more common international definition is 'less than two-thirds of the median wage'. NZ's minimum wage is around 60% of the median wage, so the use of this definition is problematic for NZ analysis as there is only a very narrow sliver of the wage distribution under two-thirds of the median. Using 105% of the minimum wage ensures a workable number below the threshold and avoids the 'noise' in the data that using 100% would encounter.

47 This is similar to the figure for the EU, where only around 16% of workers earning below two-thirds of the median wage are in households below the 60% BHC threshold (ESPN, 2019: 32).

Housing costs

High outgoings for housing costs relative to income are often associated with financial stress for low- to middle-income households. Low-income households especially can be left with insufficient income to meet other basic needs such as food, clothing, basic household operations, transport, medical care and education for household members.

This section on housing costs focuses on those already in their own homes or renting. It does not look at affordability from the perspective of those in the market seeking to purchase a property.

Nevertheless, the trend in house prices provides an important context as house prices impact on the size of mortgage repayments and on rents charged. The chart below shows the two recent periods of rapid rise for New Zealand, 2000 to 2007 before the GFC, then again from 2012 on. In the period from 2000, New Zealand experienced the largest increase in real house prices in the OECD. Canada and Australia (and Sweden, not shown) had similar increases. New Zealand also has the highest rise when using 1980 as the start date, a five-fold increase, compared with only a 50% rise for the Euro area, and 60% for OECD countries.

Source: OECD House Prices and Related Indicators

Ongoing housing costs relative to income

Housing affordability can be measured in a number of ways. From the perspective of potential homeowners, the simplest measure is the ratio of average house price to annual household disposable income, which in effect gives the number of years needed to cover the purchase price of a house (on average). Other more sophisticated measures incorporate the cost of financing as well (eg Massey University's Home Affordability Index). The Housing Affordability Measure from the Ministry of Business, Innovation, and Employment uses a mix of administrative and survey data and covers both renters and aspiring first-home buyers. It is based on the notion of 'residual income' for households, very similar to this report's income after deducting housing costs (AHC) measures. It is currently a work-in-progress and is designated as experimental.

This section on housing affordability takes the perspective of households already in their own homes or renting, and uses a measure which is relevant to both homeowners and renters. The ratio used is that of gross housing costs to household disposable income, in much the same way that home-loan lenders do for assessing risk. Housing costs are taken as rates, dwelling insurance, mortgage and rent. The ratio is called OTI for short (outgoings-to-income ratio).

The figures and trends in the summaries that follow are national average figures. There are regional differences that a relatively small sample survey like the HES cannot pick up (see, for example, pp73ff in Johnson (2015) for regional differences).

OTI levels and trends for the over 65s are strongly influenced by the high mortgage-free tenure of this group. Their mortgage-free rate is currently around 72% overall, and 70% in the lower two BHC income quintiles. The very low housing costs for many in this (increasingly sizeable) group lowers the overall OTI figures, masking what is happening for the under 65s. This section starts with the overall picture for all households, but then gives more detail for the OTI levels and trends for the under 65s which, on average, are much higher than those for the population overall.
Figure C.10 and **Table C.2** show the trends by income quintiles for households with high OTIs, using 30% as the benchmark for high OTIs.

Figure C.10
Proportion of households with housing cost OTIs greater than 30%, by BHC income quintile

Notes: 1 From HES 2010 on, the graph shows the smoothed trends using a rolling two-year average.
2 Q5 not shown to avoid clutter.

On average over HES 2017 and 2018 30% of households had high OTIs – that is, housing costs of more than 30% of their disposable (after tax) income. There has been little change in this rate since HES 2009.

For the bottom two income quintiles (Q1 and Q2), the proportions were 43% and 39% respectively on average over HES 2017 and 2018. While these are higher than a decade earlier (38% and 33% respectively), the Q1 rate has plateaued and the Q2 rise has slowed and probably plateaued too.

The rise for the third quintile is noteworthy, tripling from 11% in the late 1980s to around 31% on average in 2017 and 2018.

Table C.2
Proportion of all households with housing cost OTIs greater than 30%, by income quintile

HES year	Q1	Q2	Q3	Q4	Q5	ALL
1988	16	12	11	9	10	12
1990	20	15	13	13	10	14
1992	31	17	16	14	11	18
1994	49	19	15	14	13	22
1996	42	28	20	18	11	24
1998	42	29	23	15	14	25
2001	41	29	22	17	11	24
2004	36	26	20	14	12	22
2007	38	29	30	19	14	27
2009	38	33	31	25	17	28
2010	40	36	32	22	15	29
2011	42	37	32	21	15	30
2012	43	38	33	20	14	29
2013	44	37	32	19	10	29
2014	43	38	30	20	11	28
2015	44	39	31	21	11	29
2016	44	40	31	23	15	30
2017	42	40	31	23	17	30
2018	43	39	32	22	15	30

OTIs greater than 40%, all households

From 2007 to 2018, around 15-16% of all households had an OTI greater than 40%, up from 5% in the late 1980s (see **Figure C.11** below).

For those in Q1 (lower quintile), the proportion with these higher OTIs peaked in the late 1990s at 33%, declined to 25% in 2004, then rose again to be close to the 1994 rate from 2011 on. The proportion in the second quintile spending more than 40% of their income on housing costs rose from 16% in the early 2000s to 22% in 2011. The level has been around 22% since. It would be premature to conclude from the slightly lower reported rate for 2018 that there has been a drop in housing stress for this group. Another survey or two are needed to be sure of any change in the flat trend since 2011

Figure C.11
Proportion of households with housing cost OTIs greater than 40%

Note: from HES 2008 on, the graph shows the smoothed trends using a rolling two-year average.

OTIs greater than 50%, all Q1 households

From HES 2011 to HES 2018, around one in four Q1 households reported spending more than half their income on accommodation (**Figure C.12**). The level has been 20-25% since the mid 1990s, much higher than the 10% level in 1990, and showing no sign of abating.

Figure C.12
Proportion of Q1 households with housing cost OTIs greater than 30%, 40% and 50%

OTIs by household type

Table C.3 below reports the proportion of selected household types with high OTIs (>40% and >50%) and low income (Q1). The figures are averages for 2007 and 2008, then for 2017 and 2018.

Housing stress has risen in the last decade for almost all under-65 household types, and is especially high for single-person households.

Table C.3

Proportion (%) of households in bottom quintile with housing cost OTIs over 40% and 50% OTI thresholds, by household type

	OTI > 40%		OTI > 50%	
	2007 + 2008	2017 + 2018	2007 + 2008	2017 + 2018
Single 65+	6	9	4	4
Couple only maxage 65+	4	9	3	5
Single <65	47	65	38	56
Couple only maxage<65	33	45	31	39
SP HH with any dependent children	42	53	26	37
2P HH with any dependent children	34	40	28	32
Other family HHs with any deps	28	18	11	11
All households with dep children	37	42	25	31
ALL under 65 households	41	50	31	41

Around one third of sole parent families live in larger households with other adults. The sole parent household figures in Table C.6 do not therefore fully represent the situation for all sole parent families, a good portion of whom are captured in the "Other family households with some dependent children" row.

* *

As noted above, the very low housing costs for many in the (increasingly sizeable) 65+ age group lowers the overall OTI figures, masking what is happening for the under 65s. This is illustrated in **Figure C.13** below. For example, the proportion of Q1 households spending more than 40% of their income on housing rises from around one in three (32%) to one in two (50%) when the focus moves from all households to under-65 households

Figure C.13

The difference it makes when only under-65 households are used in the analysis

The rest of the housing costs section focuses on OTI levels and trends for the under 65s which, on average, are much higher than those for the population overall.

Under-65 households

Figure C.13 and **Table C.4** show the trends by income quintiles for under-65 households with high OTIs, using 30% as the benchmark for high OTIs.

Figure C.13
Proportion of under-65 households with housing cost OTIs greater than 30%, by BHC income quintile

Notes: 1 From HES 2010 on, the graph shows the trends using a rolling two-year average.
2 Q5 not shown to avoid clutter.

On average over HES 2017 and 2018 38% of under-65 households had high OTIs – that is, housing costs of more than 30% of their disposable (after tax) income. There has been little change in this rate since HES 2009.

For the bottom two income quintiles (Q1 and Q2), the proportions were 62% and 50% respectively on average over HES 2017 and 2018. While these are higher than a decade earlier (53% and 46% respectively), the rates appear to have plateaued.

The rise for the third quintile is noteworthy, doubling from around 18% in the early 1990s to 38% in 2018.

Table C.4
Proportion of under-65 households with housing cost OTIs greater than 30%, by BHC income quintile

HES year	Q1	Q2	Q3	Q4	Q5	ALL
1988	25	15	13	10	11	14
1990	31	21	17	14	11	18
1992	38	30	20	15	12	22
1994	54	31	19	17	14	27
1996	55	41	25	20	12	29
1998	58	39	28	17	14	29
2001	53	42	26	20	12	29
2004	50	41	23	15	13	26
2008	53	46	36	30	18	35
2009	55	47	38	29	18	35
2010	57	44	37	26	17	35
2011	57	47	38	24	17	35
2012	61	49	38	22	16	35
2013	63	48	37	22	12	34
2014	63	48	36	23	12	34
2015	65	48	36	24	12	35
2016	63	49	38	26	16	37
2017	62	50	38	25	19	37
2018	62	50	38	25	17	36

OTIs greater than 40%, under-65 households

From 2007 to 2018, around 20% of all under-65 households had an OTI greater than 40%, up from 8% in the late 1980s (see **Figure C.14** below).

For those in Q1 (lower quintile), the proportion with these higher OTIs doubled from around 20% in the late 1980s to 42% late 1990s then, after a small fall to 37% in 2004, rose steadily to be at 50% in 2016 to 2018. The proportion in the second quintile spending more than 40% of their income on housing costs has been reasonably steady at 25-27% since the late 1990s.

Figure C.14
Proportion of under 65 households with housing cost OTIs greater than 40%

Note: from HES 2008 on, the graph shows the smoothed trends using a rolling two-year average.

OTIs greater than 50%, under 65 Q1 households

In HES 2018, 40% of Q1 under-65 households reported spending more than half their income on accommodation (**Figure C.15**). This is up from 30% from the mid 1990s through to 2009. While the trend for OTIs greater than 30% or 40% seem to have plateaued in the last few years, the proportion of under-65 Q1 households reporting spending more than half their income on housing costs has continued to rise.

Figure C.15
Proportion of Q1 households with housing cost OTIs greater than 30%, 40% and 50%

For Q2 under-65 households, 13-14% spend more than half their income on housing costs.

OTIs by tenure for under-65 households

Figure C.16 shows the trends for low-income (Q1) renters and home-owners who spend more than 40% of their income on housing costs:

- The line for 'private renters' has plateaued at around 75% – this means that three out of four low-income (Q1) renters are spending more than 40% of their income on rent.
- The line for 'all renters' has settled at around 55%. It is lower than the 'private renters' line as it includes those in social housing whose housing costs have been capped at 25% of income since 2001. From 1992, state house tenants had their rents gradually increased to market rent levels – hence the large rise in the 'all renters' line at that time.
- The rate for owners has steadily risen in the last decade from around 30% to 45%.

Figure C.16
Low-income (Q1) households with an OTI > 40%, by tenure

Around 40% of low-income households spend more than half their income on housing costs. This represents very high housing stress. On average over 2016 to 2018, 60% of these low-income households renting privately and 35% of owner households had these very high OTIs.

Renters these days make up around two thirds (63%) of the low-income (Q1) households experiencing high housing costs, compared with around 43% in the early 1990s. The proportion is similar for OTIs greater than 30%, 40% or 50%. These are all private renters, as social housing renters pay only 25% of their income on housing costs.

OTIs for households with children

For low-income (Q1) households with children, as for other low-income households, OTIs have been much higher in the last ten years than they were in the 1990s and early 2000s. The 30% and 40% OTI levels have plateaued in the last decade as shown in **Table C.5** on the next page:

- around 60% of low-income households with children have OTIs greater than 30%
- around 43% of low-income households with children have OTIs greater than 40%
- it is too soon to say whether the small reported drops to 2018 represent a slight easing of housing stress for these households, or are just an instance of the random fluctuations that occur for sample surveys.

There are some households with children whose housing stress is even more severe. From 2007 to 2018, around 25 to 30% of households with children in the lower quintile (Q1) spent more than half their income on housing. Looking at the bottom two income quintiles (to increase the size of the sub-sample to improve precision), the proportion spending more than half their income on housing rose from 19% in 2007/08, to 22% in 2012/13 and was back to 17% in 2017/18. Another

survey is needed before we can with certainty say that the trend is definitely down. What is clear is that around one in five households with children with incomes in the bottom two quintiles spend more than half their income on housing.

Table C.6A
Proportion of all households with children with housing cost OTIs > 30%, by income quintile

HES year	Q1	Q2	Q3	Q4	Q5	ALL
1988	22	14	10	7	7	13
1990	28	20	13	9	11	17
1992	36	30	16	13	15	24
1994	53	31	17	15	10	29
1996	56	38	24	15	8	32
1998	61	42	23	19	10	34
2001	56	44	23	14	19	33
2004	46	38	20	14	10	27
2007	50	43	28	33	24	36
2008	52	46	32	32	22	38
2009	56	49	37	31	17	40
2010	58	46	37	30	13	39
2011	56	45	37	26	15	38
2012	59	47	37	24	16	39
2013	60	46	35	23	13	38
2014	59	46	34	21	11	37
2015	59	45	37	21	12	37
2016	60	50	37	25	19	40
2017	59	50	35	26	20	39
2018	55	46	34	26	15	37

Table C.6B
Proportion of all households with children with housing cost OTIs > 40%, by income quintile

HES year	Q1	Q2	Q3	Q4	Q5	ALL
1988	14	6	4	1	3	6
1990	15	8	3	3	3	7
1992	22	14	7	10	5	13
1994	30	16	6	8	3	15
1996	39	23	12	2	6	19
1998	46	21	9	9	5	20
2001	42	25	12	6	5	20
2004	31	23	11	7	3	16
2007	37	25	13	17	9	20
2008	36	25	16	16	9	21
2009	39	25	18	14	9	22
2010	41	23	18	12	7	21
2011	40	24	18	11	6	21
2012	43	25	16	11	5	21
2013	43	25	14	8	4	21
2014	43	24	15	6	4	20
2015	42	22	17	8	3	20
2016	44	25	16	10	8	21
2017	44	23	16	10	8	20
2018	41	20	14	8	5	18

Note: from HES 2008 on, the table shows the smoothed trends using a rolling two-year average.

Housing costs now a much larger component in the household budget[48]

[48] Households with implausibly low reported BHC incomes are removed from the dataset for this analysis (in this case, all with incomes less than $5000 in real terms ($2007)). This gives more robust Q1 proportions. The removed households almost all have reported expenditure much higher than reported income, and/or low to medium (not high)

All the above analysis reflects the fact that housing costs these days make up a much greater proportion of the household budget than they used to.

Figure C.17 shows the trends in the average housing costs as a proportion of average income for each quintile of households (under 65s).

- up from 14% in the late 1980s to 22% in HES 2017 and 2018[49]
- up from 23% to 47% on average for the bottom quintile (Q1), and 20% to 33% for Q2.

Figure C.17
Average housing costs relative to income for income quintile

Note: Q4 is omitted to avoid clutter – it tracks close to the trend for all under 65s.

- Housing costs relative to income for those paying private rent are higher still. For under 65 private renters (on average for 2017 and 2018), the proportions are:
  - 25% for all (21% for all under 65s, irrespective of tenure)
  - 54% in Q1 (47% for all under 65s in Q1, irrespective of tenure).

The provisions in the 2018 Budget package and some earlier announcements (higher incomes for most low to middle income households, higher AS rates, and area changes) were implemented in the main in July 2018. The impact of the package will be partially captured in the HES 2018-19 figures in the 2020 Incomes Report, but the full impact will not be visible until the 2021 report.

material hardship rates.

49 Statistics New Zealand reports that housing costs took up 17% of household income on average in the 2016 and 2017 HES. The difference in the numbers occurs because (i) Statistics New Zealand uses gross (before tax) income whereas the Incomes Report uses income after tax and transfers, and (ii) the Statistics New Zealand figure is for all ages, rather than the under 65s as above. Both these factors lead to the Statistics New Zealand figure being lower than what is reported here.

OTIs for those receiving the Accommodation Supplement (AS) – information from administrative data

In June 2018, based on administrative data, half of all renters receiving the Accommodation Supplement (AS) spent more than half their income on housing costs, three in four spent more than 40%, and almost all renters spent more than 30% (see **Table C.6** below).

These figures (and those for other groups listed) are all similar to what they were in 2016. This means that the AS changes from 1 April 2018 roughly kept pace with rising accommodation costs for AS recipients in the 2016 to 2018 period.

The 2016 and 2018 figures were all up on what they were in June 2007, especially for those spending more than 40% or 50% of their income on housing costs. The AS and other support did not keep pace with rent rises in that period.

These findings based on administrative data are consistent with the findings above based on survey data from the HES. Note that the administrative data is from a single month (June), whereas the HES data is for the 12 months prior to the interview date.

Table C.6
Housing stress for AS recipients using three OTI thresholds (30%, 40% and 50%): for month of June

Group	This group as a proportion of all who receive AS			housing costs as a proportion of income								
				>30%			>40%			>50%		
	2007	2016	2018	2007	2016	2018	2007	2016	2018	2007	2016	2018
All	100	100	100	87	91	93	59	69	71	34	43	44
Renters	63	66	65	90	94	95	67	76	77	40	51	52
Single adults, no dep children	45	55	56	90	94	94	65	73	74	40	49	51
One parent with 1 dep child	19	14	13	86	89	91	60	65	67	33	42	40
One parent with 2+ children	17	14	13	84	88	88	55	62	63	23	32	34
2 parent with dep children	11	9	10	74	89	92	40	56	58	21	27	27
Beneficiaries	-	67	66	-	93	94	-	74	77	-	48	52
NZS/VP	9	13	14	81	86	88	48	52	56	23	26	26

Source: MSD Information Analysis Platform, iMSD

The proportion of Accommodation Supplement (AS) recipients receiving the maximum payment reached 47% in December 2017, up from 25% in February 2007. By December 2018 it had fallen back to 25%, reflecting the impact of the 2018 AS changes and the other Families Package (FP) changes from 1 July 2018.

OTI trends using the individual rather than the benefit unit or household as the unit of analysis

The HES-based analysis above uses the household as the analysis unit. For some purposes, such as examining the different levels of housing stress by age, analysis needs to be done using individuals rather than households. **Table C.7** (next page) provides a breakdown by age group. The proportions with high OTIs in the 2018 HES are much higher than in the late 1980s for all age groups (doubling or even tripling for some), although still remaining relatively low on average for older New Zealanders (65+ years).

Table C.7
Proportion of individuals in households with housing cost OTIs greater than 30%, by age group

	0-17	18-24	25-44	45-64	65+	ALL
1988	12	13	15	5	3	11
1990	16	16	18	7	2	14
1992	23	21	24	8	3	18
1994	27	22	28	10	5	21
1996	32	25	28	14	6	24
1998	33	27	31	14	7	25
2001	32	29	29	16	7	24
2004	27	28	25	15	6	21
2007	34	32	35	22	9	28
2008	36	31	38	23	10	30
2009	39	28	39	24	9	30
2010	39	29	36	23	10	30
2011	36	34	35	24	10	29
2012	37	35	36	23	11	30
2013	37	32	36	22	11	29
2014	36	33	35	23	10	28
2015	36	35	35	24	11	29
2016	38	33	37	27	12	31
2017	38	33	36	28	12	31
2018	35	34	35	27	12	30

Note: from HES 2008 on, the table shows the smoothed trends using a rolling two-year average.

Trends using households and individuals compared

Long-run trends are very similar whichever unit of analysis is used (compare, for example, the "ALL" columns in Tables C.2 and C.7). There can however be some divergence from survey to survey especially for sub-groups, mainly because the bottom quintile (20%) of households has only around 17% of the total population in it, reflecting in particular the high proportion of small households in decile 2 (the top half of the bottom quintile). As a consequence of this difference, the second quintile of households does not perfectly coincide with the second quintile of individuals.

Figure C.18 compares the trends for second quintile individuals and second quintile households using a two-year rolling average which smoothes out many of the year-on-year fluctuations and shows that, despite the wobbles and divergences that are evident at times from survey to survey, the overall trends are much the same.

Figure C.18
Proportion of Q2 individuals and households with housing cost OTIs greater than 30% wand 40%

Section D
Household incomes and income inequality, 1982 to 2018

This section reports on:

- changes in equivalised household incomes for the whole population
- changes for different parts of the distribution
- changes in medians for different household types
- trends in inequality using income shares, percentile ratios[50] and the Gini coefficient
- 'inclusive growth'?

[50] When the income distribution is divided into 100 equal groups each group is called a percentile (P). The top of the first decile is labelled P10 as it is also the top of the 10th percentile.

Income changes in real terms, 1982 to 2018

Whole population, overall trends

Figure D.1 shows the trends in real equivalised household disposable income (BHC and AHC) from 1982 to 2018.

After 15 years of steady growth in median household income from 1994 to 2009 (3% pa in real terms on average), the impact of the GFC-related economic downturn on household incomes showed in the HES 2010 and 2011 figures in which both the BHC and AHC medians declined or were flat year on year. The 2012 HES picked up the beginning of the recovery with both the BHC and AHC medians rising through to 2018 HES. The 2015 to 2016 blip could mean that 2015 was high or that 2016 was low, or both.

Prior to 1994, the BHC median fell 15% in the six years from 1988. It took until 2001 to restore it to its 1988 level.

The general trend for the AHC median is similar to that for the BHC median, although the nominal AHC median fell from 90% of the BHC median in 1982, to 87% in 1988, and 81% in 1998. Since 2007 the relativity has been steady at around 77-79%. This downward trend reflects how accommodation costs have risen as a proportion of household income for low- to middle-income households since the 1980s.

Figure D.1
Real equivalised household disposable incomes, 1982 to 2018 (2018 dollars)

Table D.1
Real equivalised household disposable incomes, 1982 to 2018 ($2018)

	1982	1986	1990	1994	1998	2001	2004	2007	2009	2011	2013	2015	2017	2018
BHC Mean	31,200	29,600	32,100	28,400	32,900	34,200	35,700	38,300	41,200	41,200	43,000	45,900	47,300	48,100
BHC Median	28,300	26,800	27,000	23,600	27,200	27,800	30,200	32,500	34,400	33,600	34,200	37,200	38,800	39,900
AHC Median	21,400	21,700	20,800	18,000	20,600	21,000	22,800	24,100	25,800	24,700	26,500	28,000	30,000	30,500

Note: See Tables D.2 and D.6 for figures for a fuller range of years.

The mean and median generally move in the same direction. The most notable exception is for the period 1988 to 1990 during which the mean rose but the median fell. In this period, average incomes for households in the top quintile of the income distribution rose in real terms but those in the other four quintiles fell. This lowered the median but raised the mean as the impact of the rises of those with higher incomes was the dominant effect.

See **Appendix 10** for median household incomes in 'ordinary' (unequivalised) dollars.

Differing trends for different parts of the distribution (BHC)

Trends in the overall median or mean household income provide useful high-level summaries, but they tell only a part of the story as different parts of the income distribution (can) show quite different relative movements over time.

One way to show these differing changes is to divide the population into ten equal groups (deciles) and show the trends in real incomes for the median, mean or top of each decile. This part of the analysis uses the latter as it fits well with the use of percentile ratios for summarising trends in inequality, which is done later in this section. Changes for incomes at P95 (the median of the top decile) are also included. Decile means are reported in **Appendix 9**.

Recent changes (GFC impact and recovery)

Figure D.2 show the changes for the decile boundaries around 2008 to 2018, broken down into the GFC impact, the recovery and the net changes from just before the impact to the latest HES (2018). The impact of the GFC is clearly evident in the HES 2009 to 2011 graph, with net declines for deciles 1-6, little change for deciles 7 and 8 and moderate gains for the higher income deciles. The other graph in the top row shows the impact of the recovery from 2011 to 2016 on household incomes across the distribution.

The bottom graph shows the net impact of recession, recovery and subsequent steady growth. It uses the average of the 2007 and 2008 HES data as the start point and the average of the 2017 and 2018 HES data as the end point. This reduces the measurement error and increases the robustness of the finding about the changes. The increases were reasonably even across the bulk of the spectrum at around 17-20% in real terms (17-20% above inflation), with a larger gain for high income households (~22%). (P95 is in the middle of the top (10th) decile.) The rises at P10 (top of bottom decile) mainly reflect the strong increases in real terms for NZS in recent years – there is a strong bunching of 65+ households, whose income is NZS and little more, at the top of the bottom decile and the bottom of the second decile. The minimum wage rose around 16% in real terms in the period. Beneficiary incomes were generally flat or declining in real terms.

Figure D.2
Real equivalised household incomes (BHC): changes for top of deciles, HES 2008 to HES 2018

The Working for Families impact (2004 HES to 2007 HES)

The changes from 2004 to 2007 reflected the major part of the impact of the Working for Families package (**Figure D.3**). The transfer of an extra approximately $1.6b pa to low- to middle-income households with children made a tangible difference to the income distribution.[51] The general pattern for the years up to 2004 had been for the income of higher-income households to rise more quickly than those of lower- to middle-income households. The 2004 to 2007 period was the only one in the 25 years to 2007 in which the incomes of low- to middle-income households grew more quickly than those of households above the median.

Figure D.3
Real equivalised household incomes (BHC): changes for top of deciles, 2004 to 2007

Longer term trends

Figure D.4 shows the differing changes for different parts of the income distribution (top of deciles 1 to 9, plus P95) from 1988 to 2004. The period is divided at 1994 when incomes were at their lowest in real terms.

The graphs show the very large falls in real household income from 1988 to 1994 for all but the very highest income group, followed from 1994 to 2004 by steady and fairly even income growth across the bulk of the income distribution, although the growth for lower income households (bottom 20 to 30%) was not as strong as for the rest.

Figure D.4
Real equivalised household incomes (BHC): changes for top of deciles, 1988-94, and 1994-04

The net effect of the changes from 1988 to 2004 is captured in **Figure D.5** which shows the large net increase in inequality that took place in that period. Most of the increase occurred from the late 1980s to the mid 1990s.

51 When using equivalised household income, virtually all the new money for WFF went to households at or below the median. When using unequivalised income, some of the WFF transfers go to higher-income families who have more dependent children.

Figure D.5
Real equivalised household incomes (BHC): changes for top of deciles,1988 to 2004

Figure D.6A shows the net changes for the full period from HES 1982 to 2018. All income groups gained in real terms, with the highest income group gaining much more than the rest, and the lowest income group gaining the least. The different growth rates show that income inequality is higher in HES 2018 than in 1982, though most of the change occurred from the late 1980s to the mid 1990s. **Figure D.6B** shows that from 1994 to 2018 the real growth across the income distribution was reasonably even. This is reflected in the relative flatness of the BHC income inequality trends from 1994 to 2018.

Figure D.6A
Real equivalised household incomes (BHC): changes for top of deciles, 1982 to 2018

Figure D.6B
Real equivalised household incomes (BHC): changes for top of deciles, 1994 to 2018

Static and dynamic analysis

In interpreting the time series analysis that is based on the HES data (as above), it is important to understand that the HES provides repeat cross-sectional data with different people interviewed each survey. The HES does not follow the same individuals across time. Some individuals do stay in roughly the same income band for many years, some move up and some move down. **The degree of income mobility in New Zealand is discussed in Section K** using longitudinal data from Stats NZ's Survey of Family, Income and Employment (SoFIE).

Figure D.7 and Table D.2 show the above analysis in a different way. The greater dispersion of household incomes in HES 2015 compared with the 1980s is clear. For the period as a whole, incomes for households in the higher deciles increased proportionately and in absolute terms much more than did the incomes of households in the lower-income deciles (see also Figure D.6A above).

Figure D.7
Real equivalised household incomes (BHC): decile boundaries, 1982 to 2018

Table D.2
Real equivalised household incomes (BHC): decile boundaries and mean ($2018)

	P10	P20	P30	P40	P50 (median)	P60	P70	P80	P90	mean
1982	15,700	18,600	21,500	24,900	28,300	32,200	36,700	42,800	51,200	31,200
1984	15,400	18,300	21,000	24,100	27,500	31,400	36,300	42,300	51,000	30,700
1986	15,400	18,100	21,100	23,600	26,800	30,000	34,300	40,100	48,800	29,600
1988	15,800	18,700	21,400	24,400	27,600	31,600	36,400	41,500	49,400	30,700
1990	15,400	18,100	20,800	23,500	27,000	31,300	36,100	43,300	53,300	32,100
1992	13,300	16,000	17,900	20,800	24,300	28,700	33,300	40,600	50,900	28,900
1994	12,600	15,500	17,400	20,000	23,600	27,600	32,700	39,700	49,900	28,400
1996	13,700	16,500	18,400	21,400	25,200	29,200	34,600	42,000	52,600	30,600
1998	15,100	17,300	19,500	23,000	27,200	31,900	37,000	44,600	56,200	32,900
2001	14,700	17,700	19,900	23,600	27,800	33,300	39,000	46,600	59,000	34,200
2004	14,900	18,000	21,000	25,100	30,200	35,700	42,100	49,300	62,200	35,700
2007	16,400	20,500	24,200	27,800	32,500	37,300	43,900	52,300	65,700	38,300
2008	17,200	21,000	25,000	29,100	33,400	38,600	44,800	53,700	68,500	40,500
2009	17,900	21,600	25,700	29,800	34,400	39,300	45,800	54,600	69,900	41,200
2010	17,400	21,100	25,500	29,700	34,200	39,800	45,900	53,800	69,500	40,600
2011	16,500	20,400	24,500	28,700	33,600	38,400	46,000	54,500	72,400	41,200
2012	18,200	21,300	25,800	29,700	33,600	39,800	47,200	56,400	71,500	41,200
2013	17,800	21,600	26,100	29,700	34,200	41,800	49,200	56,700	73,900	43,000
2014	18,000	21,700	26,100	31,000	35,800	42,800	49,900	60,100	77,500	44,200
2015	19,100	22,800	27,300	32,200	37,200	42,700	50,100	59,800	76,900	45,900
2016	19,200	23,300	27,600	32,100	36,800	42,200	49,700	60,400	79,600	45,300
2017	19,900	23,700	28,700	33,600	38,800	44,600	52,000	62,000	80,700	47,300
2018	19,800	24,000	29,000	34,100	39,900	46,200	53,100	63,400	83,700	48,100

Table D.3 translates the income information in Table D.2 into index form using various base years. The numbers in the body of the table indicate the percentage gains or losses over a given period (119 means a 19% rise; 84 means a 16% fall, and so on).

A disadvantage of using upper decile boundaries is that the top of decile 10 (P100) is very volatile and it is not sensible to report that trend. In line with the graphs above, Table D.3 incorporates information on changes for P95 to give some indication of trends for the top decile, while avoiding the misleading picture that reporting on P100 would give. The inequality part of **Section J** gives information on trends for very high incomes based on tax records.

Table D.3
Changes in real equivalised household incomes (BHC) relative to selected base years:
index = 100 in base year

HES period	base HES year	P10	P20	P30	P40	P50	P60	P70	P80	P90	P95
1982-2018: overall											
1982 - 2018	1982	126	129	135	137	141	143	145	148	164	154
Relative to low point in 1994											
1988 - 1994	1988	80	83	81	82	86	88	90	96	101	93
1994 - 2018	1994	157	154	167	171	169	167	163	160	168	170
Relative to 2001, the year the median returned to what it had been in the late 1980s											
1988 - 2001	1988	93	95	93	97	101	106	107	112	119	112
2001 - 2018	2001	135	136	146	145	143	139	136	136	142	141
The Working for Families impact (as seen in the greater gains for low to middle income HHs)											
2004 - 2007	2004	110	114	116	111	108	104	104	106	106	107
After the WFF implementation through to impact of the GFC on incomes and to the recovery from HES 2011 to HES 2018											
2007 - 2009	2007	109	105	106	107	106	105	104	104	106	108
2009 - 2011	2009	92	95	96	96	98	98	100	100	104	100
2011 - 2018	2011	121	117	118	119	119	120	116	116	116	117
2009 - 2018	2009	111	111	113	114	116	118	116	116	120	117

Notes 1 P10 = top of decile 1, and so on.

2 Recall that HES 2004 is really HES 2003-04, and that the incomes reported are on average from ~ calendar 2003, and so on.

New Zealand's post-GFC gains compared with other OECD countries

New Zealand's net gains from before the GFC and recession through to HES 2018 are better overall than for many OECD countries – the negative impact was more muted here and the recovery has been stronger than for many:

- the UK median fell through the GFC and has only just returned to its pre-GFC level (4% above pre-GFC level in latest 2017/18 survey)
- Italy, France and Germany were flat through the GFC but have seen small gains in recent years; Spain and Portugal were also fairly flat through the GFC but median incomes have fallen since
- the US median in 2014 was much the same as in 2008 before the GFC, but had lifted around 13% by 2017
- in Australia, household incomes across all parts of the distribution have been relatively flat since 2007-08, just as the GFC began to have an impact (see **Figure D.7** below for a New Zealand / Australia comparison of the trend at the median)
- New Zealand's post-GFC gain at the median of around 20% in real terms through to 2017-18 is more like that of the top performers such as Finland and Canada (~15-20%), though those countries did not have the fall in median during the GFC that New Zealand did (-3%).

Figure D.7
Growth in median disposable household income (equivalised): New Zealand and Australia compared, 2000 to c 2017-18

Source for Australia: Wilkins (2019), ABS (2019)

- The New Zealand median has grown in real terms at around 3% pa since just after the GFC (ie from c 2010-11). The Australian median has been relatively flat in that period.

Trends in the median for different household types

Figure D.8 shows the trends in real equivalised household disposable income (BHC) from HES 1982 to 2018 for selected household types.

Working-age couple only and two parent households show solid recovery after the downturn.

The median income trend for sole parent households was fairly flat from 2010 to 2014 with some pick-up in 2016 to 2018, and is much lower than for other household types. This low level of the sole parent median reflects both the more limited employment hours available to the household compared with others with more than one adult, and the lower earning potential on average of the sole parent adult (having a lower educational attainment on average than other working age adults in other multi-adult households). Around one third of sole parent families live in larger households with other adults. The sole parent household figures in Figure D.8 do not therefore fully represent the situation for all sole parent families.

Trends for those in single and couple 65+ households are omitted from Figure D.9 to avoid clutter, but are shown in **Table D.4** (next page):

- For those in one-person 65+ households, median incomes ($2018) remained relatively steady at around $17,500 pa from 1982 to 1998, with a small rise to $19,700 by 2007, and then to $23,000 on average for HES 2015 to HES 2018. A good part of this latter rise reflects the personal income tax changes in October 2008, April 2009 and October 2010 which have an impact on NZS via the net wage benchmark.
- Median incomes of those in 65+ couple households remained reasonably steady from 1992 to 2001 at around $21,000 pa ($2018). From 2004 to 2010, median incomes for these households grew 37% in real terms to $30,000 pa. This rise reflects the increase from 65% to 66% of the average wage for the floor[52] for the married couple rate for NZS (starting in 2006), the increased employment income for some 65+ couples, and the personal income tax changes in October 2008, April 2009 and October 2010. In the three years from 2014 and 2018 it had risen to $35,000 on average. $35,000 (equivalised) is close to $52,500 pa in unequivalised terms (ie "ordinary dollars").
- See **Section I** for more information on the incomes of older New Zealanders.

Figure D.8
Median equivalised household incomes (BHC) for selected household types, 1982 to 2018 ($2018)
(Rolling two-year average from 2008 on)

Note: The median incomes in Figure D.8 are equivalised household incomes. Table B.2 gives median household incomes in ordinary (unequivalised) dollars for 2017-18.

52 See **Section I** for details of the NZS 'floor'.

Table D.4
Median equivalised household incomes (BHC) for selected household types, 1982 to 2018 ($2018)

	Single < 65	Couple < 65	Other multi-adult fam HH* no dep ch	Two parent	Sole parent	Couple 65+	Single 65+	ALL
1982	35,300	45,700	44,200	26,500	18,200	22,100	18,000	28,300
1984	32,700	41,500	43,400	25,200	19,200	22,200	18,200	27,500
1986	30,400	39,200	41,800	24,400	18,800	22,000	17,200	26,800
1988	32,400	40,500	41,700	25,700	21,100	22,000	17,300	27,600
1990	30,600	41,100	37,200	25,800	19,900	22,700	16,500	27,000
1992	25,000	37,900	37,000	23,200	14,900	21,100	16,900	24,300
1994	25,800	36,900	33,000	22,200	15,000	20,300	16,900	23,600
1996	28,400	38,500	37,700	23,700	16,200	21,000	17,900	25,200
1998	32,800	43,200	38,500	26,200	17,700	20,700	18,200	27,200
2001	31,600	44,200	44,900	26,900	17,600	20,700	18,900	27,800
2004	31,600	47,100	40,300	31,100	17,900	21,700	18,900	30,200
2007	33,900	46,900	45,900	32,000	20,400	24,300	19,700	32,500
2008	36,600	49,700	44,200	32,500	21,900	24,400	19,700	33,400
2009	35,700	52,800	43,700	33,200	23,100	30,300	21,100	34,400
2010	37,700	52,200	43,500	32,600	21,300	29,600	21,200	34,200
2011	32,600	51,300	47,800	32,900	20,300	27,800	20,800	33,600
2012	36,200	53,200	51,800	32,300	20,900	27,200	22,600	33,600
2013	39,200	54,700	45,700	33,300	22,400	32,800	22,500	34,200
2014	35,100	56,500	47,900	34,600	20,500	35,100	21,300	35,800
2015	36,300	54,600	46,200	34,800	23,600	34,700	23,100	37,200
2016	39,600	57,500	42,800	36,600	23,100	32,000	23,000	36,800
2017	38,300	57,000	48,600	36,100	24,400	35,000	22,600	38,800
2018	39,200	58,700	50,900	39,300	23,500	35,500	22,900	39,900

Note:
The median incomes in Table D.4 are equivalised household incomes. Table B.2 gives median household incomes in ordinary (unequivalised) dollars.

Trends in the median by ethnicity

Ethnicity of individuals aged 15 and over is as reported by the individual, and children under 15 are attributed with the ethnicity of the survey respondent. If a respondent reports more than one ethnicity, the ethnicity attributed is determined according to a hierarchical classification of Māori, Pacific Island, Other and then European/Pākehā.[53] The household's equivalised disposable income is attributed to the individual for ranking purposes, just as it is for analysis by age.

Figure D.9 and Table D.5 show the trends in real equivalised household disposable income (BHC) from the 1988 HES to 2018 by ethnicity.[54]

For Pacifika, median household income fell quite strongly during and after the recession and is only just back to pre-GFC levels in real terms. On the other hand for Maori, the GFC impact on median income was more muted and growth since has been strong.

Figure D.9
Real equivalised median household incomes (BHC) by ethnicity, 1988 to 2018 ($2018)

Note: For Maori, Pacific and Other, the graph shows the rolling two-year average from 2008 on.

53 Using a "total counts" ethnicity approach makes no significant difference to the findings in this report (see Section G).

54 See the discussion in Section A on the issue of sampling error and the care needed in interpreting estimates for small subgroups like Pacific (6%) or slightly larger subgroups like Other (13%) that are very diverse groups. The issue is addressed in part here by using a rolling two survey average from HES 2008 on for these groups and Maori for Figure D.8.

Table D.5
Real equivalised median household income (BHC) by ethnicity, 1988 to 2018 ($2018)

	European / Pakeha	NZ Maori	Pacific	Other	ALL
1988	29,100	23,800	22,300	25,700	27,600
1990	29,100	22,300	19,900	24,300	27,000
1992	26,000	17,600	17,900	25,500	24,300
1994	25,900	18,000	15,800	19,600	23,600
1996	27,100	20,700	18,800	21,400	25,200
1998	29,100	22,300	20,900	18,000	27,200
2001	30,200	23,200	19,100	27,800	27,800
2004	33,700	25,200	20,600	23,600	30,200
2007	35,000	25,800	27,000	30,700	32,500
2008	36,600	28,400	26,000	30,600	33,400
2009	36,900	28,300	28,900	30,000	34,400
2010	38,100	28,700	27,600	30,000	34,200
2011	37,400	24,800	26,800	30,100	33,600
2012	37,500	29,600	25,700	30,500	33,600
2013	40,100	28,800	24,700	31,500	34,200
2014	40,300	28,200	26,200	33,200	35,800
2015	41,000	29,100	26,200	37,700	37,200
2016	41,300	31,200	27,600	35,000	36,800
2017	42,100	33,800	28,100	37,000	38,800
2018	44,600	32,200	30,400	36,500	39,900

The incomes reported in Te Ao Marama

Statistics New Zealand regularly publishes Te Ao Marama, a small collection of statistics relating to Maori. Te Ao Marama reports the incomes of individuals not of households. This is why the Te Ao Marama trends can be different from those reported in this Incomes Report (which uses household incomes).

Te Ao Marama (2016) reports that median (individual) income from all sources declined for Maori from 2008 to 2011, rose a little through to 2013, then more strongly to 2014 (~$510 pw). The median was much the same in 2015.

Differing trends for different parts of the distribution (AHC)

The trends for different parts of the distribution of income after deducting housing costs (AHC income) have some similarities and key differences from the BHC trends.

Figure D.10 and Table D.6 show the trends in real incomes (AHC) for the top of each decile.[55]

- From HES 2009 to 2011, the impact of the economic downturn, global financial crisis and rise in rents is clear in the fall in AHC incomes across the income range. The decline for the median was 3% in real terms. There were more substantial falls (-5%) for the P30 and P40 regions, that is, for households below the median but above the usual poverty lines.
- The impact of the recovery is evident in the rises across all income deciles from HES 2011 to 2017, though the P10 figure in 2017 was only a little above what it was prior to the GFC.

From a longer-term perspective:

- In HES 2017, household incomes at the top of the bottom decile were no better than they were in the 1980s. This is the only decile for which this is the case, though for P20 the gain is small.
- As is the case for BHC incomes, AHC incomes became much more dispersed between the late 1980s and the mid 1990s, though the increase in inequality was greater than for BHC incomes. Unlike the case for BHC incomes, there is evidence that inequality is higher in 2011 to 2017 than in the mid 1990s, though the increase is small compared with the changes from the late 1980s to mid 1990s (approximately 5.5 to 6.0 compared with the earlier 3.5 to 5.5, for the 90:10 ratio).

Figure D.10
Real equivalised household incomes (AHC): decile boundaries, 1982 to 2018 (2018 dollars)

55 When the income distribution is divided into 100 equal groups each group is called a percentile (P). The top of the first decile is labelled P10 as it is also the top of the 10th percentile.

Table D.6
Real equivalised household incomes (AHC): decile boundaries ($2018)

	P10	P20	P30	P40	P50 (median)	P60	P70	P80	P90	mean
1982	11,100	13,900	16,100	18,800	21,400	24,300	28,500	33,500	40,600	23,800
1984	10,800	13,700	15,700	17,900	20,700	23,900	27,900	32,700	40,000	23,300
1986	11,600	14,300	16,800	18,800	21,700	24,500	28,000	32,800	40,200	24,000
1988	11,200	13,900	16,100	18,500	21,200	24,600	28,300	32,600	39,800	23,800
1990	10,900	13,400	15,600	18,100	20,800	24,300	28,700	34,600	43,400	25,100
1992	8,100	10,900	13,600	16,000	18,400	21,900	26,000	31,200	40,800	22,300
1994	7,500	10,200	13,200	15,300	18,000	21,700	25,900	31,400	39,500	21,800
1996	7,700	11,300	14,000	16,000	18,900	22,800	26,800	33,100	43,300	23,700
1998	8,100	12,000	14,900	17,300	20,600	24,600	29,400	35,800	46,100	25,600
2001	8,700	11,800	14,700	17,600	21,000	25,300	30,600	36,700	48,700	26,600
2004	9,000	12,900	15,900	19,100	22,800	27,700	33,600	40,100	51,500	27,900
2007	10,000	14,300	17,300	20,400	24,100	28,500	33,500	42,400	55,800	29,700
2008	10,600	14,400	17,200	20,500	24,400	29,000	34,300	42,200	55,800	31,200
2009	10,700	14,900	18,100	21,800	25,800	30,800	35,800	43,000	57,500	32,000
2010	9,900	14,900	18,200	22,100	25,800	30,200	35,200	43,300	58,500	31,800
2011	9,700	13,900	17,100	20,400	24,700	29,500	35,400	43,600	58,000	31,900
2012	10,300	14,800	18,000	21,600	25,400	30,400	37,000	45,800	59,700	32,100
2013	10,200	15,100	18,400	22,100	26,500	32,700	39,100	46,500	61,100	33,900
2014	10,300	15,300	18,500	22,300	27,100	33,000	40,000	49,200	64,800	34,800
2015	10,700	15,800	19,400	23,300	28,000	33,300	39,400	48,600	65,100	36,500
2016	10,900	16,100	19,200	23,500	27,600	32,200	39,000	49,000	65,300	35,500
2017	11,900	17,100	20,300	24,800	29,900	35,600	41,200	50,200	67,700	38,000
2018	11,800	17,000	20,900	25,200	30,500	36,000	42,400	52,000	70,300	38,500

Figure D.10
Real equivalised household incomes (AHC): changes for top of deciles, HES 07 & 08 to HES 17 & 18 (avg)

Household Type (AHC medians)

Figure D.11
Median equivalised household incomes (AHC) for selected household types, 1982 to 2018 ($2018)

Table D.7
Median equivalised household incomes (AHC) for selected household types, 1982 to 2018 ($2018)

	Single < 65	Couple < 65	Other multi-adult fam HH <65, no dep ch	Other multi-adult fam HH 65+, no dep ch	Two parent	Sole parent	Single 65+	Couple 65+	ALL
1982	25,000	34,600	35,200	24,100	19,900	13,000	14,100	18,100	21,400
1984	22,600	30,800	34,600	29,400	18,600	13,700	14,500	17,800	20,700
1986	21,700	31,600	35,000	24,300	19,800	14,000	13,900	18,400	21,700
1988	22,300	30,400	33,600	34,200	19,400	15,300	13,900	18,500	21,200
1990	20,400	31,000	30,600	24,400	19,700	13,800	13,900	19,700	20,800
1992	17,700	28,600	28,600	21,400	16,900	9,600	14,200	18,000	18,400
1994	18,400	27,800	28,900	21,800	16,600	9,100	14,200	17,400	18,000
1996	21,600	28,500	29,300	22,600	17,200	9,500	14,800	18,300	18,900
1998	21,800	33,900	30,900	21,800	19,100	10,400	15,400	18,200	20,600
2001	20,000	33,600	34,900	29,600	19,800	9,700	15,600	18,000	21,000
2004	22,100	37,000	33,300	22,300	23,100	11,500	15,900	19,000	22,800
2007	21,000	36,600	37,400	25,500	23,100	13,000	15,800	20,600	24,100
2008	22,400	36,500	33,900	28,400	24,000	12,500	16,300	21,000	24,400
2009	23,400	39,600	36,400	28,400	24,300	14,500	17,400	26,200	25,800
2010	24,200	41,200	33,500	28,700	24,100	12,800	17,100	25,800	25,800
2011	20,800	38,000	37,200	33,100	23,700	12,100	17,300	23,900	24,700
2012	24,500	41,300	40,200	31,900	24,100	11,500	18,100	22,500	25,400
2013	26,500	43,400	38,100	33,500	25,200	12,800	18,500	27,700	26,500
2014	23,400	44,700	37,200	32,200	24,800	11,900	17,500	29,800	27,100
2015	23,700	42,400	37,200	34,000	25,700	14,900	18,800	29,200	28,000
2016	26,300	42,900	33,300	34,100	27,000	13,100	18,800	27,500	27,600
2017	25,500	43,300	38,800	29,800	27,500	16,700	18,200	30,000	30,000
2018	26,200	45,200	41,600	32,800	28,500	14,800	18,900	30,700	30,500

Inequality

There are many types of inequality that are relevant to public policy

Income inequality is about how dispersed incomes are, what the size of the gap is between those on 'higher' and those on 'lower' incomes.

There are however many types of inequality other than income inequality that are of relevance to public policy formulation and debate, and it is useful to be clear about which sort of inequality is being discussed at any time.

Some of the main inequalities often discussed are:

- market income inequality for individuals:
  - wage differentials across all wage earners
  - focusing on total market income for the very top 1% or so, compared with the rest
- inequality of disposable household income (income from all sources after taxes and transfers):
  - across all households
  - focusing on the very high income households, compared with the rest
- inequality in consumption[56]
- inequality in job quality
- inequality of wealth (total assets less liabilities).
- inequality of community resources and amenities available to local residents in different areas
- inequality of educational outcomes
- inequality of access to health care and inequality in health outcomes
- inequality of socio-economic status (combining education, occupation and income)
- inequality of opportunity.[57]

For inequality, the main focus of the Incomes Report is on inequality of household disposable income and on inequality as indicated by the shares of total market income received by top income earners. There is some information on wealth distribution and wealth inequality though the data is more limited.

It is important to maintain a clear distinction between wage inequality, household income inequality and wealth inequality. They are quite different concepts, each with their own particular characteristics.

Inequality and income poverty are sometimes used as if they are interchangeable ideas. While there are some links between them for some income poverty measures, they are quite different notions and need to be kept distinct as far as possible.

Inequality is essentially about the gap between the better off and those not so well off (on whatever measure) – it is about having "less than" or "more than". Income poverty is about household

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[56] Trends in consumption inequality would be a valuable addition to the suite of inequality measures used in public policy debate. Unfortunately, conceptualising and implementing a strategy to create robust consumption data for households is a very challenging exercise. Many therefore settle for expenditure inequality which is a different thing. The Gini trend for inequality of household expenditure is different than that for income (flatter and perhaps a little lower in 2015 than in the late 1980s (see Ball and Creedy , 2015).

[57] Inequalities within households (intra-household inequality) are also important dimensions of inequality. They are outside the scope of the Incomes Report.

resources being too low to meet basic needs – it is about "not having enough" when assessed against a benchmark of "minimum acceptable standards".

- A major difference between income inequality and income poverty is that a certain degree of inequality is considered by almost everyone to be inevitable and acceptable, and even desirable, whereas there is no similar widely held view about unacceptably low incomes and material deprivation. Income poverty and material deprivation are by definition unacceptable states of affairs. There can be and is legitimate debate over the meaning of poverty and hardship in more economically developed countries. There is debate, for example, as to where to set the low-income and deprivation thresholds, and over the relative merits of different approaches to the income concept used (eg BHC or AHC). There are however very few who advocate for "acceptable levels" of income poverty or hardship. On the other hand, when it comes to income (or wealth) inequality a part of the debate is about what is an acceptable or at a least tolerable level of income (or wealth) inequality. Unlike any debate around income poverty or hardship, there are very few calls for the elimination of income or wealth inequality.[58]

- There is no link between trends in income poverty using an anchored line approach and standard inequality measures.

- There is no evidence of any robust statistical link between the income share received by the top 1% and income poverty rates.

- The strongest conceptual and statistical link between income poverty and income inequality is between the P50:P20 or P50:P10 percentile ratio inequality measures and standard fully relative income poverty measures in which the threshold is set at a selected proportion of the current median (eg 50% or 60%). All these, both the percentile ratios referred to and the poverty measures, are about inequality in the lower half of the household income distribution and are therefore highly correlated, as expected.

- On the other hand, there is only a modest correlation between inequality as measured by the Gini and income poverty measured using the fully relative approach. The relationship is a little stronger when using percentile ratios as the inequality measure. The lack of very strong correlation arises because standard income inequality measures do not focus just on the lower half of the distribution but on both higher and lower incomes (percentile ratios and share ratios) or on all incomes (eg the Gini).

Maintaining as clear as possible a distinction between poverty (low income) and hardship on the one hand and income inequality on the other means that:

- we cannot easily avoid having to make the judgement call about minimum acceptable standards, even if we use two or three of differing levels of severity
- we are better placed to seek to understand the relationship (if any) between the two, rather than blurring them into being talked about as if they were much the same thing.

[58] In practice, it would be very difficult to have a zero measured income poverty rate for a country. This is so, even if a government set out to ensure that all household incomes were topped up to be at least, say, 50% of median household income and this was the single official poverty measure. People change households over the data collection period and therefore change the size and composition of households and therefore the equivalised disposable income of their households. It is also difficult to envisage a policy and associated agency apparatus that could ensure the sort of household income top-up required. There is always measurement error too.

Income inequality: summary indicators

Income inequality is about how dispersed the income distribution is.

Figures D.2 to D.7 (above) give a visual impression of how the income distribution in 2018 is more dispersed compared with 1982, with most of that increased dispersion occurring from the late 1980s to the mid 1990s.

There are several ways that are used to summarise the amount of income dispersion or inequality in a single statistic. No one statistic has emerged as the generally accepted way, mainly because each one captures a different aspect of the way the dispersion of incomes changes over time, and each one has its own limitations and value. It is now common to report on more than one indicator and to compare and discuss the trends produced by each.

This section uses three types of measure of household income inequality:

- percentile ratios
- the Gini coefficient
- quintile and decile share ratios.

It also reports on the share of taxable income received by very high income individuals based on tax records. This is further elaborated in the International Section (Section J).

For the much longer run (30 to 100 years), see Section J.

Percentile ratios

When individuals are ranked on the equivalised income of their respective households and divided into 100 equal-sized groups, each group is called a percentile. 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. 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.

The report uses four percentile ratios to provide a succinct picture of trends in income inequality.

- The P90:P10 ratio provides a good indication of the full spread of the distribution, going as far as possible to the extremes without running the risk of being overly influenced by unrepresentative very high incomes or by the difficulties with bottom decile incomes.
- The P80:P20 ratio gives a reasonable indication of the degree of dispersion for the range within which the majority (60%) of the population fall and has less volatility than the P90/P10 ratio.
- The P80:P50 and the P20:P50 ratios give an indication of how higher and lower incomes compare with the midpoint.

For the P90:P10, P80:P20 and P80:P50 indicators, the higher the ratio the greater is the level of inequality. For the P20/P50 indicator, the higher the ratio the lower is the level of inequality in this part of the distribution.

Figure D.12 shows the trends for the 80:20 ratio. Incomes after adjusting for housing costs (AHC) are more dispersed than BHC incomes.

The most rapid rises in inequality occurred from around 1988 to 1994. There was a further net rise for BHC incomes in the decade from 1994 to 2004 but the rate of increase was slower. From 2004 to 2010, the 80:20 ratio fell, indicating decreasing inequality on this measure in the period, mainly as a result of the Working for Families package (2004 to 2007) and improving employment prior to the GFC.

Since the GFC and associated recession:

- For BHC incomes: there is no evidence of any net rise in BHC inequality from the mid 2000s to 2018 on this measure. The 2018 rate is similar to what it was on average in the mid 2000s.
- For AHC incomes: the average level from 2013 to 2018 is close to what it was throughout the 1990s and early 2000s, up again after a dip in the mid 2000s.

Figure D.12
Income inequality in New Zealand: the P80:P20 ratio, 1982 to 2018, total population

The 90:10 ratio covers a greater portion of the population than does the 80:20 (80% compared with 60%). **Figure D.13** shows the trends for the 90:10 ratio. As for the 80:20 ratio, incomes after adjusting for housing costs (AHC) are more dispersed than BHC incomes.

- BHC household incomes at the 90th percentile are around 4 times the level of incomes of households at the 10th percentile (5.3 times higher without equivalisation). Apart from a blip in HES 2011, the 90:10 ratio was flat from 2001 to 2018. There is no evidence of any sustained medium-term or even post-GFC rise in inequality on this measure for BHC incomes.

Figure D.13
Income inequality in New Zealand: the P90:P10 ratio, 1982 to 2018, total population

- For AHC incomes, there was a much larger rise in the 90:10 inequality ratio from the late 1980s to the mid 1990s and, in contrast to the flat BHC trend since 2001, the AHC trend was consistently a little higher in HES 2011 to HES 2018 than it was in the mid to late 2000s (around 6.0 compared with 5.5. The main rise from 3.5 to 5.6 occurred earlier.

Tables D.8 reports the trends in all four percentile ratios from 1982 to 2018 for the whole population and for individuals in households with children.

Table D.8
Income inequality in New Zealand: percentile ratios, 1982 to 2018

	BHC									AHC			
	All				Individuals in HHs with children					All			
	P90:P10	P80:P20	P80:P50	P20:P50	P90:P10	P80:P20	P80:P50	P20:P50	P50:10	P90:P10	P80:P20	P80:P50	P20:P50
1982	3.26	2.30	1.51	0.66	3.04	2.07	1.42	0.68	1.84	3.66	2.40	1.57	0.65
1984	3.31	2.31	1.54	0.67						3.72	2.39	1.58	0.66
1986	3.17	2.22	1.50	0.68	2.77	1.95	1.38	0.71	1.71	3.47	2.29	1.51	0.66
1988	3.12	2.22	1.51	0.68						3.56	2.34	1.53	0.65
1990	3.45	2.39	1.61	0.67	3.08	2.09	1.47	0.70	1.66	3.98	2.58	1.66	0.65
1992	3.84	2.54	1.67	0.66						5.01	2.87	1.70	0.59
1994	3.96	2.55	1.68	0.66	3.42	2.37	1.59	0.67	1.75	5.29	3.08	1.74	0.57
1996	3.83	2.55	1.67	0.65						5.61	2.95	1.75	0.60
1998	3.72	2.57	1.64	0.64	3.27	2.19	1.51	0.69	1.72	5.66	2.99	1.74	0.58
2001	4.01	2.64	1.68	0.64	3.49	2.43	1.58	0.65	1.84	5.56	3.11	1.75	0.56
2004	4.17	2.74	1.63	0.60	3.87	2.55	1.63	0.64	1.93	5.72	3.10	1.76	0.57
2007	4.01	2.56	1.61	0.63	3.59	2.09	1.47	0.70	1.94	5.59	2.97	1.76	0.59
2008	3.99	2.56	1.61	0.63	3.41	2.17	1.49	0.68	1.86	5.24	2.92	1.73	0.59
2009	3.91	2.53	1.58	0.63	3.23	2.07	1.45	0.70	1.76	5.38	2.89	1.66	0.57
2010	4.00	2.55	1.57	0.62	3.50	2.29	1.52	0.66	1.87	5.92	2.92	1.68	0.57
2011	4.41	2.67	1.62	0.61	3.74	2.34	1.55	0.66	1.94	5.97	3.13	1.76	0.56
2012	3.93	2.64	1.68	0.63	3.55	2.23	1.55	0.69	1.86	5.78	3.08	1.80	0.58
2013	4.15	2.62	1.66	0.63	3.68	2.42	1.64	0.68	1.86	5.97	3.08	1.75	0.57
2014	-	2.77	1.68	0.61	-	2.41	1.59	0.66	-	-	3.22	1.82	0.56
2015	4.04	2.62	1.61	0.61	3.68	2.23	1.50	0.67	1.84	6.09	3.08	1.73	0.56
2016	4.16	2.59	1.64	0.63	3.62	2.19	1.51	0.69	1.88	5.97	3.04	1.77	0.58
2017	4.06	2.62	1.60	0.61	3.47	2.22	1.50	0.68	1.85	5.67	2.94	1.68	0.57
2018	4.22	2.65	1.59	0.60	3.80	2.28	1.51	0.66	1.95	5.92	3.05	1.70	0.56

Note for Table D.8:

- The 90:10 and 50:10 ratios are not reported for HES 2013-14 because of concerns about the reliability of the income data at the very low end of the distribution – see Section A for more on this.
- See Appendix 12 for Table D.8 repeated using

Gini coefficient – discussion of factors driving volatility

In contrast to the percentile ratios the Gini coefficient takes the (household) incomes of all individuals into account. It gives a summary of the income differences between each person in the population and every other person in the population.

The Gini scores (x100) range from 0 to 100 with scores closer to 100 indicating higher inequality and those nearer zero indicating lower inequality (ie greater equality).

The widespread use of the Gini can give the impression that it is "the" measure of inequality and that it is a solid objective measure. In fact, the Gini has an implicit value judgement behind its mathematical formulation. A difference of, say, $1000 between two high-income people contributes as much to the index as a difference of $1000 between two low-income people. This reflects an implicit value judgement. A case can be made that the difference at the lower end is of "greater significance" than the same difference nearer the high end. The Atkinson Index is one that makes the impact of these types of assumptions visible, but is beyond the scope of this report, in part because there is no easily available international time series data using the measure.[59]

The fact that the Gini takes the incomes of all households into account seems at first sight to be an advantage it has over the percentile ratio approach, which at best takes into account only 80% of the population (the 90:10 ratio). There is however a downside to taking all households into account when using data from sample surveys. There are well-known issues with the reliability of both very high and very low incomes from sample surveys.

- At the high end, there are two issues:
  - First, very high income households are under-represented in most sample surveys – this is a well-known issue and there is a technical adjustment than can be made for the Gini (see the inequality sub-section in the International Section (Section J)).
  - Second, from survey to survey the number of very high income households captured in the sample, and the size of their reported incomes, can vary considerably. This factor can have a very large and misleading impact on the reported trends in top decile shares of total household income and in inequality measures which take account of all incomes in the sample (eg the Gini coefficient). The resulting fluctuations simply reflect the challenges of consistently achieving a representative sample of very high income households, not real-world changes. The analysis below examines this issue in more detail.
- At the low end, the issue for the use of the Gini is mainly around how to treat negative incomes (delete or set to zero?). There are some HES years with next to no negative incomes reported (eg the last five surveys) and some with a relatively large number of reported negative incomes (eg HES 2009-10 and 2010-11). Deleting the negatives in these latter years certainly smooths out some of the bumps shown in such years, though the impact is much less than that for the method suggested below for addressing the very high income issues.
- There are also issues around the fact that some households declare implausibly low incomes given what else the data shows about them – for example, many very low income households report expenditure several times their income. This means that the incomes of some very low-income households cannot be taken as an indication of their material wellbeing (see **Appendix 8** for more on this).

<u>An unstable Gini?</u>

The following analysis was first prepared for the 2016 report. Its point of departure was the observation that while the 90:10 percentile ratio shows the same large rise in inequality from the late 1980s to the early 1990s as the Gini does, the 90:10 ratio was fairly flat from HES 2012 to HES 2015), but the Gini increased each survey in the same period and was clearly higher in 2014 and 2015 than in the mid 2000s (see **Figure D.14**).

[59] See Creedy and Edrah (2014) for a recent New Zealand analysis and discussion.

The analysis was updated using the 2017 HES data. There were fewer (closer to a normal number of) very high income households in the 2016 HES compared with the 2015 HES, and the Gini declined as expected. In 2017 the number of high-income households in the sample rose again, as did the Gini. The overall conclusions of the special analysis remain unchanged.

Figure D.14
Inequality in New Zealand: the Gini coefficient and the 90:10 percentile ratio, 1982 to 2018

Given that the Gini uses all incomes, including the very high ones that are not used in the 90:10 ratio, the question arises:

> *is the difference in the trends of the two measures (2012-17) due to large variations in sampled high incomes, and if so, are these random or do they reflect real-world changes?*

(a) Large variations in top incomes in the HES?

Figure D.15 plots the average household income received by the top 1% of households using the HES data, showing its considerable fluctuation from 2007 on. It was 30% higher in real terms in HES 2008 than in HES 2007, a very large jump. From HES 2010 to 2011 it jumped 30% again, then fell by an even larger amount in the next survey. From HES 2014 to HES 2015 it rose again by around 30%, but fell back a little in HES 2016 then rose again in 2017.

Figure D.15
Large fluctuations in the average total income received by the top 1% of households in successive HES surveys

Figure D.16 shows the number of households with (unequivalised) disposable incomes of more than $350k (in $2015), once weights are applied. The numbers were unusually high in 2011 and in 2015 (relative to adjacent years), and these are the two years for very high Ginis. 2016 and 2017 remain high.

Figure D.16
Fluctuations in the number of very high income households in successive HES surveys

Figure D.17 shows that the share of total income received by high income households in the HES is very stable, except for the top 2%. Fig D.15 shows the instability for the top 1%.

Figure D.17
Large fluctuations in the share of total income received by the top 2% of households in successive HES samples, compared with flat lines for other high income households

Figure D.18 shows the Gini trend when the top 1% and negatives are removed compared with when all are left in. The large rise from the late 1980s to the mid 1990s is still very clear, but there is a marked difference in the observed trend for the Gini measure of inequality from the mid 1990s to 2017:

- the blips in 1996 and 2011 are much smaller
- the net fall from the 2001 to the 2007 HES all but disappears
- the reported rise in the Gini from HES 2014 to 2015 becomes a fall
- the evidence of a net rise in Gini inequality in the decade from the mid 2000s to 2017 disappears – there is in fact no evidence from the Gini of any sustained rise or fall in the dispersion of incomes (inequality) for the lower 99% of the population over the two decades from 1994 to 2017.

Figure D.18
The impact on the trend in the Gini of removing very high income households and those declaring negative incomes

Do the fluctuations in the size and number of very high incomes in the HES represent real-world changes or are they random?

The evidence within the HES itself shows that income shares for other high income groups are stable over the last decade. It is only the very high household incomes that bounce around (see Figures D.15 to D.17 above).

Looking at individual taxable income from tax records (ie going outside the HES itself), there is no evidence of any sustained rise (or fall) in the share of total income received by the top 1% in New Zealand in the last 10-15 years. The trend has been steady within the 7-9% range since 2001 (see **Figure D.19** below).

The trend using the Income Survey is also flat.[60]

Figure D.19
Trends in the share of total pre-tax market income received by the top 1% of individuals from tax records (2001 to 2014), and of the gross income of the top 1% (2009 to 2015) from the Income Survey

Sources: World Inequality Database accessed on 18 July 2019, and customised data from Statistics New Zealand using their Income Survey.

This all raises the question as to whether the Gini is a useful measure for monitoring trends in income inequality, when based on a sample survey that has large fluctuations in sampled very high incomes.

Conclusion

The random fluctuation in very high income households captured in the surveys means that the Gini numbers are likely to fluctuate considerably too, continuing an unsatisfactory situation of not being able to report with confidence on the direction of the Gini trend beyond a point several years before the latest survey. The differing numbers and sizes of the reported negative incomes (and deleting them) also impacts the trend but in a lesser way.

The Incomes Report will therefore from now on monitor the Gini for the whole population as in the past, but it will also report the Gini for the 99% as well. It will continue to monitor the top 1% through independent but more reliable data (such as tax records) to see if there is any evidence of change in trend at the very top. This should increase the chances of being able to report with more confidence on the trends, and also to give more up to date trends using the Gini, though even this approach cannot guarantee the latter.

60 The Income Survey has a sample of around 15,000 households (28,000 adults), much larger than the HES (5600 households in 2014-15, but usually around 3500).

Trend in the Gini measure of income inequality for New Zealand

Following the reporting protocol described above, the following can be said.

Figure D.20 shows the trend in the Gini for the whole sample, and for the bottom 99%.

- The first main feature of **Figure D.20** is the steep rise in the Gini from the late 1980s to the early 1990s for both the 100% and the 99% lines. This is a similar trend to that shown by the 80:20 and 90:10 ratios (Figures D.12 and D.13 above) and the Q5:Q1 share ratio (Figure D.22 below). This is a clear and uncontested finding.
- The second main feature is the relative flatness of the Gini trend line from the mid 1990s through to 2016-17 for both the 100% and the 99% line, with a slight dip and rise for the 100% line but very flat for the 99%.

Figure D.21 shows the trend in the top 1% income share through to 2015 using independent data from outside the HES. The trend there is relatively flat, if anything declining slightly.

Using the combined analysis (the Gini for the 99% together with the trend in the income share for the top 1% from more reliable sources), there is no evidence of any sustained rise or fall in BHC household income inequality for the last 20 years.

Figure D.20
Inequality in New Zealand: the Gini coefficient for the whole population and the lower 99%, 1982 to 2017

The Gini can sometimes bounce around from one survey to the next. This is due in part to the inevitable sampling error that all sample surveys are subject to, and in particular to the random fluctuations in the number of very high income households captured in the sample. The underlying trend becomes clear only on looking back some years later.

The percentile ratio measures do not face the same challenges as they are not dependent on what happens at the very top (or bottom) of the income distribution.

Figure D.21
Share of total income received by the top 1% of individuals

Sources: World Inequality Database accessed on 18 July 2019, and customised data from Statistics New Zealand using their Income Survey.

The left-hand columns in **Table D.9** shows that (using the Gini) inequality is greater for AHC incomes than for BHC, as is the case when using percentile ratios and share ratios. This reflects the fact that housing costs generally make up a greater proportion of household income for lower-income households than for higher-income households, thus increasing the spread of AHC incomes.

The BHC column for the Gini uses the "square root" equivalence scale as is standard in OECD publications. The trends are much the same whether the modified OECD or the square root scale is used (See **Appendix 3**).

Table D.9 also reports on inequality levels and trends using share ratios and the Palma measure. The D1-4 share is included as this is a measure in the current UN Sustainable Development Goals (SDG 10).

Table D.9
Income inequality in New Zealand: share ratios (including Palma), share for deciles 1-4, and the Gini coefficient (x100)

Year	Gini coefficient (x100)		BHC							
			modified OECD equivalence scale				square root scale			
	BHC	AHC	Q5:Q1	D10:D1	D10:D1-4 (Palma)	D1-4 share	Q5:Q1	D10:D1	D10:D1-4 (Palma)	D1-4 share
1982	27.2	28.2	3.94	5.94	0.88	22.8%	4.11	6.12	0.91	22.3%
1984	27.5	28.7	3.95	5.92	0.90	22.7%	4.14	6.13	0.93	22.2%
1986	27.0	27.5	3.81	5.71	0.87	23.4%	4.04	6.04	0.92	22.8%
1988	27.1	28.6	3.83	5.86	0.88	23.1%	4.05	6.10	0.91	22.4%
1990	30.2	32.1	4.22	6.10	1.06	22.0%	4.43	6.39	1.10	21.3%
1992	31.9	35.2	4.84	7.90	1.14	20.6%	5.10	8.19	1.18	20.0%
1994	32.2	35.7	4.89	7.78	1.17	20.5%	5.10	8.04	1.21	19.9%
1996	33.1	37.4	5.00	8.33	1.25	20.3%	5.21	8.48	1.28	19.8%
1998	33.0	37.8	5.03	8.35	1.26	20.1%	5.25	8.55	1.28	19.7%
2001	33.8	38.2	5.13	8.14	1.29	19.8%	5.41	8.46	1.34	19.3%
2004	33.4	37.1	5.37	8.91	1.27	19.3%	5.54	8.98	1.30	19.0%
2007	32.1	36.7	5.07	7.97	1.18	20.4%	5.27	8.03	1.20	20.2%
2008	33.0	38.6	5.17	8.20	1.28	20.3%	5.32	8.35	1.29	19.9%
2009	32.7	37.8	5.06	7.93	1.25	20.5%	5.24	8.19	1.27	20.1%
2010	32.3	37.5	5.10	8.11	1.22	20.4%	5.29	8.25	1.24	20.1%
2011	35.0	40.4	5.72	9.63	1.41	19.2%	5.91	9.86	1.44	18.9%
2012	32.2	38.1	5.02	7.83	1.21	20.4%	5.16	7.99	1.22	20.2%
2013	33.6	39.1	5.31	8.39	1.32	19.8%	5.43	8.46	1.32	19.6%
2014	34.3	39.8	5.63	9.22	1.35	19.3%	5.80	9.47	1.37	19.0%
2015	35.0	41.1	5.69	9.51	1.44	19.4%	5.84	9.69	1.44	19.1%
2016	33.6	39.5	5.45	8.92	1.33	19.9%	5.52	8.91	1.33	19.7%
2017	34.3	40.0	5.57	9.33	1.39	19.6%	5.70	9.46	1.38	19.4%
2018	34.1	39.7	5.61	9.20	1.37	19.5%	5.75	9.36	1.37	19.2%

Notes: The BHC Gini uses the square root equivalence scale to enable OECD comparisons.
The AHC Gini uses **the modified OECD** equivalence scale for AHC Ginis.
The other BHC columns use the modified OECD scale and the square root scale as indicated.

For information on longer-run inequality, when looking only at very high incomes, see **Section J**.

Quintile and decile share ratios

A third way of looking at income inequality is to compare the shares of total household income received by higher and lower groupings. This approach is becoming more common: the top to bottom quintile share ratio is used by the EU as one of their top tier formal inequality measures, and the OECD regularly reports on the top to bottom decile share ratio; the Palma ratio (see below) is becoming more commonly used too.

There are two measurement challenges for this type of inequality measure:

- First, as discussed above in the Gini section, very high income households are generally under-represented in sample surveys. This means that measured upper income shares understate the true shares at the top. Similarly, low income shares understate the shares actually received as there are always households with implausibly low reported incomes in the bottom decile (see **Appendix 8 and 9** for more on this issue). The percentile ratio approach does not face these challenges.
- In addition, for determining the direction of trends, the luck of the draw as to which very high and very low income households actually end up in the sample and are interviewed, introduces a significant element of volatility and uncertainty to the mean incomes reported for D10 and Q5 especially, and also to some extent for D1. This impacts on the reported trend in the shares and share ratios, as discussed above in relation to the Gini. The percentile ratio approach is not impacted to anywhere near the same degree.

Figure D.22 shows the trend for the top to bottom quintile share ratio for the last three and a half decades, 1982 to 2016. Over recent years the 20% of households with higher incomes have on average received a little more than 5.5 times the income of the 20% with lowest incomes. The spike in HES 2011 and the large rise to HES 2015 are similarly reflected in the Gini (see above). The analysis in the Gini section pointed strongly to the HES 2015 figure being an outlier because of the unusually high number of high income households in the sample. When the top 1% are removed the share ratios smooth out too.

Table D.9 (above) shows the trends in three income share ratios from 1982 to 2018, including the Palma ratio. Further detail on the Palma ratio is provided below.

Figure D.22
BHC income inequality in New Zealand: quintile share ratio for Q5 to Q1, 1982 to 2018

<u>The Palma: the ratio of the top decile share to the share for the lower four decile shares</u>

The Palma measure or ratio is a relatively new addition to the suite of inequality measures used for international comparisons. It is named after Chilean economist Gabriel Palma whose 2011 paper brought the measure and its rationale to light.[61] The OECD now reports the Palma in its Income Distribution Database.

61 See Palma (2011).

At one level, the Palma is just another share ratio in the wider family of share ratios. It has several features however that make it worth a second look:

- Palma found that among middle income and richer countries those in deciles 5-9 receive around 50% of the total income share, and that this share size seems reasonably stable over time as well as over countries. These are the middle to upper-middle income households between the "rich" and the "poor". **Figure D.23** shows the share for New Zealand was fairly stable at around 55% from 1990 to 2018, with perhaps a slight downward drift.
- He also found that the remaining 50% or so (45% for New Zealand) of total income was split between the top 10% and bottom 40% in quite different ways across the countries he looked at. This inspired the first part of the title for his 2011 paper – "Homogeneous middles and heterogeneous tails".
- He found that the correlation between the Palma and the Gini is close to perfect across the 150 countries in the World Bank dataset he used.
- Given that the Palma is much easier to explain than the Gini, and that it ranks countries in the same order, he and others proposed that it might be a useful alternative to the Gini for international comparisons.[62] For example, what does it mean in practice to say that one country has a Gini of 42 and another 31? On the other hand, a Palma of 2.1 compared with a Palma of 1.7 has specific and easily grasped meaning in terms of the ratio of higher incomes to lower incomes, with the "middle" remaining constant. The jury is still out on whether it can / ought to / will replace the Gini, but it certainly has the communication edge over the Gini.
- As for the Gini, when the top 1% are deleted, the Palma trend has been flat for the last two decades. In the international section (Section J), New Zealand is ranked relative to other OECD countries on the Palma ratio.

Figure D.23
Proportion of total income received by deciles 5 to 9, 1982 to 2018

Summing up:

- There is no evidence of any sustained rise or fall in BHC household income inequality in the last 10-15 years (90:10 ratio) or the last 20 years (Gini for 99%, plus top 1% share for the rest) or the last 25 years (top 1% share from tax records).
- AHC incomes are much more dispersed than BHC incomes and there is evidence of higher AHC income inequality in the last few years as compared with the mid 2000s and earlier.

62 Cobham and Sumner (2014).

Inclusive Growth

- The idea of "Inclusive Growth" (IG) has gained traction in recent years, especially since the GFC. At the heart of the IG notion is the goal of simultaneously promoting economic growth and reducing (or at least not increasing) various inequalities. It is about policy approaches that simultaneously drive growth and inclusiveness.

- For example, the OECD launched its IG initiative in 2012 in association with the Ford Foundation, and defines IG as "economic growth that creates opportunity for all segments of the population and distributes the dividends of increased prosperity, both in monetary and non-monetary terms, fairly across society".

- By definition, the notion of inclusiveness requires a focus on individuals and households, not just on the system as a whole and "averages". IG is also multi-dimensional, covering not only income and wealth, but also jobs, education, health and access to healthcare. Some include many other dimensions too in a broader notion of "living standards".

- One of the motivations for the IG approach is the observation that for many countries in the years leading up to the GFC, the dividends of economic growth were not fairly shared across the whole income distribution. In particular in the US and the UK a small group of very high income earners vacuumed up the bulk of the new income coming from economic growth, leaving little or none for the rest to share.

- The graphs below show one aspect of New Zealand's IG experience from the mid 1990s to 2018 – the growth in real terms of household incomes (not equivalised) and Gross National Disposable Income per capita (GNDI pc).[63] They show that:
    - median disposable household income tracked very closely with GNDI pc, showing "inclusive growth" (left hand graph)
    - the P20 and P90 incomes tracked close to the median (P50), thus showing that the "inclusive growth" extended to higher and lower incomes (right hand graph)
    - average wages (after tax) fell behind GNDI pc growth, consistent with lowish productivity growth or higher returns to capital than to labour, or both
    - in the post GFC years, average wage growth (after tax) has been only a little less than the growth in median household incomes and GNDI per capita.

- One of the reasons for the higher growth rate for household incomes compared with wages (from the mid 1990s to 2008 (just before the GFC impact)) is the increase in total hours in paid employment per household for many multi-adult households. In general this reflects the increased female labour force participation in the period. For example:

63 GDP is a measure of the production of final goods and services in the domestic economy. The income available to the nation for consumption or investment is wider than GDP and includes net income flows with the rest of the world. GNDI measures this wider concept. It is a measure of the volume of goods and services New Zealand residents have command over. The per capita (ie per individual) measure is used as it is a rising per capita trend that indicates rising living standards. Straight GDP or GNDI can increase just because of population growth, and the increase may or may not indicate rising living standards.

- out of all two parent families that had at least one parent in FT employment, the proportion with 2 earners increased from 58% in 1994 to just over 70% on average in 2017 and 2018 HES
- one consequence of this is that the ratio of median two parent income to median sole parent income has increased from 1.68 in the mid 1990s to 1.78 in 2007 to 2010 and 1.95 on average in 2017 to 2018 HES

- There are two qualifications to the otherwise positive household incomes story for New Zealand for the last 25 years (positive from an Inclusive Growth perspective).
  - First, household incomes at P10 (ie at the top of the bottom decile) have not kept up with the growth in the rest of the income distribution. Conclusions from such analysis can be very dependent on the start year chosen. The finding that P10 has lagged behind the rest is robust to choice of start year for any time after the early 1990s.[64]

  - The net gain over the whole period at P10 is less than for the median or P20. The fact that there was any real income growth at all at P10 mainly reflects rises in real terms for NZS. Those whose incomes are almost entirely from NZS are at or near the top of the lower decile and the bottom of the second decile. In addition, the minimum wage grew by close to 50% in real terms from 2000 to 2018, and this would have assisted with a rise at P10, though many receiving the minimum wage live in households above P10. Income from welfare benefits remained steady in real terms in the period but for those with children the Working for Families assistance declined in value in real terms.
  - The second qualification is that when housing costs are taken into account, incomes for low-income households have fallen even further behind the rest. More detail is provided in the Housing Costs section below.

- For assessing the degree of Inclusive Growth in New Zealand's experience, the above is just a small contribution. For example, the largely positive analysis of IG for household incomes does not address the question as to whether the current range of incomes is 'optimal' or considered 'fair and reasonable' by the population, nor whether those households with low incomes have enough to live on at an acceptable minimum standard.

64 See earlier in Section D for more detail on the changes from the 1980s to the early 1990s, when Incomes fell for most.

UN's Sustainable Development Goals: Inequality Goal #10.1

- On September 2015 all 193 UN member states formally adopted the 2030 Agenda for Sustainable Development which includes a new set of global goals (the Sustainable Development Goals (SDGs)) which replace the Millenium Development Goals (MDGs). One of the differences between the SDGs and MDGs is that the SDGs are universal rather than just focussing on "developing countries".

- SDG #10 is about reducing inequality within and between countries, and covers a wide range of inequalities. It has an Inclusive Growth approach. One of the targets for Goal #10 is that member states "by 2030, progressively achieve and sustain income growth of the bottom 40% of the population at a rate higher than the national average" (Goal 10.1). This refers to BHC income.

- The graph shows the share of total household income for the bottom 40% for New Zealand, 1982 to 2018. The generally flat trend from the early 1990s through to 2018 shows that the income growth of the bottom 40% has been much the same as that for the national average in that period. If the growth for the bottom 40% had been greater than that for average incomes, the trend line would slope up, showing that the bottom 40% is taking a larger slice of the pie (ie is growing faster than the national average).

- A limitation of this UN target is that it simply commits individual countries to improve on their base position, but there are no guidelines or expectations about what an "acceptable" target range is for the ratio by 2030.

The squeezed middle (class)?

- The idea of "the squeezed middle" is related to the Inclusive Growth (IG) theme. One of the starting points for the IG discourse is the observation that in some countries the dividends of economic growth have not in recent years been fairly shared across the whole income distribution.
    - The experience of a "squeezed middle" comes in different degrees of severity. Perhaps the most severe has been for the US where median household incomes in real terms are lower now than in 2000, where wage growth has fallen behind productivity growth, and where employee wage and salary compensation made up only 43% of GDP in 2013 compared with 47% in 2000. This all indicates a shift in income from labour to capital, and shows up in for example the rapid rise in the share of all income received by the top 1 % (currently 23%, up from 15% in 2000, and 10% in the 1960s).
    - A less severe version occurs when middle incomes grow in real terms but not fast enough for middle class households to be as well-off as they had anticipated, and with parents coming to realise that unlike previous generations there is little chance of their children doing better than they did. This is more the UK experience.

- Does New Zealand have a squeezed middle? Clearly not in the US sense as middle incomes are still growing strongly in real terms, and the proportion of income received by the top 1% is steady and much lower at 7-8%. But is there evidence of a less severe version?

- How to define middle incomes for quantifying changing patterns is challenging, defining the middle class more so. As a part of its Inclusive Growth work programme the OECD has

investigated the number of people in households with incomes between 75% of the median and double the median (their call on a notion of "middle income"):

- On average over all OECD member countries, around 62% of people are in middle income households on that definition.
- Norway and the Netherlands top the list at around 72%, and Chile, Brazil and India have the smallest group (~40-45%).
- New Zealand (58%) is a little below the OECD average and is similar to the UK, Italy, Canada and Australia (60%).
- The USA is lower at 50% which is down from 60% in the early 1980s and 53% in the early 2000s.

- **Figure D.24** shows some evidence of a "hollowing out of the middle" in the mid-1990s to the mid-2000s, but with some recovery since 2007 (65% to 53% to 56%). This aspect is similar to the UK experience, but in New Zealand middle incomes have grown strongly since the GFC / recession whereas in the UK that have not. This latter aspect is part of what has driven the middle-income angst in the UK.

Figure D.24
Proportion of households with incomes between 75% and 200% of the median, 1982 to 2018

- Defining "middle income" is challenging enough. "Middle class" is an even more fluid concept, with no commonly agreed definition – income is a part of it, so are aspirations, education level and type of employment. The question of whether the "middle class" is squeezed or not is beyond the scope of this report. [65]

[65] Middle class aspirations generally include home ownership with the mortgage repaid before retirement, and having some assurance that the next generation will be better off than the current one. Both these aspirations are challenged these days. Many households are finding that two incomes are needed to have any hope of achieving the dream, and too often even that is not enough. See Patrick Smellie's April 2019 Listener article https://www.noted.co.nz/currently/social-issues/middle-class-new-zealand-how-tough-is-it/Listener; and a recent paper from the OECD https://www.oecd-ilibrary.org/social-issues-migration-health/under-pressure-the-squeezed-middle-class_689afed1-en .

Section E
Low incomes, poverty and material hardship: conceptualisation and measurement issues

For the analysis of trends in low incomes, this report uses thresholds set at 50% and 60% of median household income (BHC) and 40%, 50% and 60% of median household income (AHC). All incomes are adjusted for household size and composition.

Individuals and groups below such lines can be described in a neutral analytical way as "low-income populations", but it is now very common practice in New Zealand and internationally for the thresholds to be referred to as "poverty lines" and those below them as "poor" or "in poverty" or, at least, "at risk of poverty" (the EU language).

The growing acceptability of "poverty" language in more official contexts in the more economically developed countries (MEDCs) is reflected in recent OECD and UNICEF publications of international comparisons of poverty rates, and in decisions by the European Union (EU) to regularly publish income-based poverty indicators as part of a wider social reporting by Eurostat. The September 2015 agreement at the UN on Sustainable Development Goals includes the goal of reducing poverty in all its dimensions for all countries, not just 'third world' countries.

Over the years, the positions taken by governments of OECD countries have been mixed with respect to a poverty discourse and whether or not to adopt any official measure or measures of poverty. In the United States, the War on Poverty announced in 1964 and the associated establishment of an official poverty line shortly thereafter did much to ensure that poverty language has been and still is an accepted part of economic and social policy discourse in the United States. By contrast, in the United Kingdom, a Conservative government in the 1980s and the first half of the 1990s did not approve of poverty language and did not adopt an official measure. "Margaret Thatcher, supported by Helmut Kohl in Germany, … successfully banished the word "poverty" from the political lexicon for a generation. Tony Blair rehabilitated its use in a keynote speech in 1999 [where he] committed the government to eradicating child poverty [within a generation]" (Tomlinson and Walker, 2009:8). The UK adopted official measures of child poverty in 2010, along with targets for 2020, with cross-party support just as the Labour-led government was going out of power. The David Cameron government that followed did away with the targets and sought to do away with the measures too, but the House of Lords led a push-back on this proposal. The requirement now is simply that the government must report annually the specified measures.[66]

Ireland adopted official poverty measures and a National Anti-Poverty Strategy in 1997. Canada has an elaborate low income measurement regime using low income cut-offs (LICOs), low income measures (LIMs) and a Market Basket Measure (MBM), but until 2018 Statistics Canada consistently noted that these are not poverty lines. In 2018, the Justin Trudeau government adopted the MBM measure as their official poverty measure, with different thresholds for 50 geographical areas, reflecting in the main the differing housing costs across the country. Australia does not have an official poverty measure.

As recently as 1996, the government of the time in New Zealand was openly disapproving of any poverty discourse.[67] However, in 2002, in the context of the Agenda for Children, the Labour-led government made a commitment to eliminate child poverty, and in the Speech from the Throne in

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66 In the process of proposing to do away with both the targets and the measures, the David Cameron UK government proposed a new single measure of child poverty which incorporated a wide range of dimensions into the one measure. The proposal met with widespread and stringent criticism for its naivety and intellectual incoherence, not least because of the muddling together in the one measure of causes and consequences as well as the core concepts of poverty and hardship. More recently, the Social Metrics Commission has developed a new experimental income-based measure of poverty which, among other things, seeks to take account of wider resources such as liquid assets, and inescapable costs such as those from housing, child-care and disability. The Department for Work and Pensions have announced that they intend to further investigate the new measure with a view to publishing experimental statistics based on it, starting in late 2020.

67 *New Zealand Herald 13 April 1996*.

November 2005, the Governor-General described the Working for Families package as "the biggest offensive on child poverty New Zealand has seen for decades". In its response to the Children's Commissioner's Expert Advisory Group's 2012 Report on Solutions to Child Poverty, the National-led government declined to take up the recommendations for a suite of official measures and a set of official targets for reducing child poverty. On the other hand, the government response used "poverty" language throughout its report, setting out its general approach to addressing child poverty. The National-led government's preferred language came to be focussed on alleviating 'material hardship', and in Budget 2015, it announced its Child Material Hardship package.

Prime Minister Jacinda Ardern's government introduced her Child Poverty Reduction Bill in January 2018, and it was passed into law in late 2018 with cross-party support (only the ACT party voted against it). The Act identifies ten measures (a mix of low-income, material hardship and mixed measures, and, for four of these, governments must set targets and give account each Budget on progress to the targets.

Researchers, advocacy groups and others in all the MEDCs have used poverty language and a range of poverty measures for a long time. The growing acceptance of the discourse by governments and their agencies can be seen as helpful to the extent that it represents official recognition that some citizens are experiencing unacceptable material hardship. It can serve to remind us all that behind the statistics are real people who are to varying degrees experiencing the stressful and demoralising exclusion from ordinary life that financial strictures and material hardship bring.

It is however very easy for such language to be used in a way that ignores the fact that the conceptualisation and measurement are contested. For example it used to be said that "one in three children in New Zealand are below the poverty line".[68] This claim is really short-hand for "using an income measure after housing costs have been deducted, around one in three children are below a threshold set at 60% of the median". If another measure were used, the summary sound bite would be different. For example, on the most common measures used by the OECD, using income without deducting housing costs and a lower threshold of 50% of the median, around one in seven children were "below the line" at that time, less than half the one in three rate that was commonly referred to. These observations underline the importance of always being clear as to what measure is being used when reporting poverty rates.

All income poverty measures, even official ones, are constructs requiring judgement calls. These calls have to be made on a range of matters which can at first sight appear to be just technical decisions but which in fact reflect or imply underlying assumptions. There is no clear delineation between the poor and the non-poor that science can identify independent of judgment. This is not to say that any measure will do nor that all measures are equally suspect – some are clearly more defensible and reasonable than others. What is crucial in discussing poverty rates and trends is to identify what measure is being used, and to be aware of the different rationales for and pictures presented by the different measures. One of the goals of this report is to encourage and contribute to that sort of discussion and awareness in measuring, monitoring and better understanding "poverty and hardship" in New Zealand.

This section and the ones that follow:

- Outline key issues involved in conceptualising and measuring poverty using household incomes.
- Report on trends in proportions of people below various low-income thresholds, by:
  - age group
  - ethnicity (to a limited extent)
  - highest household educational qualification
  - household and family type
  - labour market status
  - tenure.

[68] For one of the earliest examples, see *New Zealand Herald 12 April 1996 Section 1(5)*.

- Summarise findings on income mobility and poverty persistence from recent research using longitudinal income data from the Survey of Families, Income and Employment.
- Report international comparisons of income poverty.

What is meant by "poverty" in the more economically developed countries?

Despite the current wide use of poverty language in MEDCs, there is considerable disagreement and at times confusion about what "poverty" actual means or could mean for citizens in the richer nations. The lack of consensus and clarity is to a large degree driven by two fundamental aspects of "poverty". In the first place, whatever else poverty is understood to be it is in its essence an unacceptable state-of-affairs. Properly understood, "use of the term "poverty" carries with it an implication and moral imperative that something should be done about it" (Piachaud, 1987:161). This makes it very different from other related issues such as inequality which is not in itself considered unacceptable, although there is legitimate debate about what an acceptable level of inequality might be, whatever the measure used.

> Disagreements over the definition of poverty run deep and are closely associated with disagreements over both the causes of and solutions to it. In practice all these issues of definition, measurement, cause and solution are bound up together, and an understanding of poverty requires an appreciation of the interrelationships between them all.
>
> Alcock (1993:57)

The second main reason for the lack of consensus and clarity is that there is a *prima facie* incongruity about using the same word (or concept) to describe both the circumstances of the less-well-off in richer nations, as seriously debilitating and demeaning as these circumstances may be, and also the life-and-death struggles of many in "third world" countries or the deprivations experienced by our forebears in past centuries.

The relative-absolute distinction

A common approach to address this latter point is to make a distinction between absolute and relative poverty.

Absolute poverty is generally based on the notion of subsistence, the minimum needed to sustain life. For example, the UN's World Summit on Social Development in 1995 in Copenhagen defined absolute poverty as "a condition characterised by severe deprivation of basic human needs, including food, safe drinking water, sanitation facilities, health, shelter, education and information. It depends not only on income but also on access to social services". Advocates of an "absolute" definition have often claimed a degree of objectivity about the resulting definition, with the focus being on attempts to clearly define subsistence and minimal needs.

A relative approach, on the other hand, clearly requires many a judgement call. Relative poverty is about the standard of living (actual or potential) of those identified as poor compared with that of those declared to be non-poor. It is about a state of relative disadvantage that is deemed to not meet minimum acceptable community standards. It is now sometimes asserted that in MEDCs there is little or no absolute poverty but that there are varying degrees of relative poverty depending on the stringency or generosity of the threshold used.

While the relative-absolute distinction seems at first sight to be a useful starting point for discussion, it is not only not a clear-cut distinction, it is also an over-simplification that can mislead.

First, the absolute notion turns out to have unavoidable relative aspects, or at least aspects that require a judgement call. For example, there can be legitimate debate as to what the subsistence notion actually covers. Is it just mere physical survival, or do the basics of life include access to basic education and information as in the UN definition above? Even a basic notion such as adequate shelter has to be understood relative to local climate and social convention. Adequate nutrition for adults varies depending on the energy requirements of their daily work, and even in "third world" countries, minimum standards have changed over time.

Furthermore, the absolute concept is also used to describe MEDC income poverty lines held fixed in real terms (starting in a reference or anchor year). This dilutes and muddies the concept. The UK's annual Households Below Average Income series uses "absolute" in this way. The US poverty line is another, even though the value of the poverty line in the reference year (1965) was derived in a different way than the UK's absolute line now anchored in 2010-11.

None of this means that the relative approach is therefore correct or even "better". It too has its challenges. For example, if the real dollar value of the poverty line increases as a society becomes more affluent, and if "today's comforts and conveniences are yesterday's luxuries and tomorrow's necessities" (Fuchs, 1967), then it is difficult to distinguish between the "poor" and those who are just less well-off in an unequal social order. In other words, relative poverty becomes hard to distinguish from inequality.

Adding to the challenges of making sense of and using the relative-absolute distinction is the fact that the notion of "relative" itself has several dimensions. The inherent comparisons required in a relative approach can be about relativities over time (minimum standards change) or relativities between countries (different countries have different minimum standards). As noted above, even an assessment of basic notions such as what adequate nutrition or adequate shelter mean cannot be separated from their social, historical and cultural contexts.

These and other critiques of the relative perspective and the undisputed relative aspects of so-called absolute approaches have led some to conclude that there is no coherent basis for making any sensible claims about poverty in MEDCs, as it is all allegedly just about judgements and assumptions and constructed social needs. Assuming that poverty is about a person or household not having adequate resources to meet their basic human needs, many would argue that nothing definitive can be said about poverty in MEDCs as "the quest for universal and objective needs is [considered to be] a search for a will-o'-the-wisp" (Doyal and Gough, 1991: 21). Thus, some conclude that poverty in MEDCs should simply be seen as a form of inequality.

The relative-absolute synthesis

There is however a way forward. Over the last twenty or thirty years there has been a growing acceptance among many that the way in which the relative-absolute distinction has traditionally been constructed and spoken about is itself a large part of the problem. Rather than seeing them as competing theories, it is proposed that there are grounds for re-stating the relationship between the absolute and relative aspects of poverty. In so doing, it becomes possible to integrate in the one framework the notion of poverty for MEDCs, "third world" and "developing" countries.

The new synthesis was given impetus through the very public debate in the mid 1980s between Townsend (an advocate of the relative perspective[69]) and Sen (there is an "irreducible absolutist core in the idea of poverty" (Sen, 1983: 159)). Progress continued through Doyal and Gough's work on a theory of human need (Doyal and Gough, 1991), and by further publications from both Townsend and Sen (separately) that articulated an integrated perspective. Townsend, for example expressed support for the definitions adopted by the 1995 UN World Summit on Social Development in Copenhagen which reflect the integrated approach (see Gordon and Townsend (eds) (2000: 17f)). Rather than outlining the synthesis here, it is incorporated into the following section (especially in a) to f)) which lays out the approach taken in this report.[70]

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69 Townsend's conceptualisation of poverty is illustrated in the following:
"Individuals, families and groups in the population can be said to be in poverty when they lack the resources to obtain the type of diet, participate in the activities and have the living conditions and amenities which are customary, or at least widely encouraged, or approved, in the societies to which they belong. Their resources are so seriously below those commanded by the average individual or family that they are, in effect, excluded from ordinary living patterns, customs and activities." (Townsend 1979:31)

70 For useful summaries of the transition from relative and absolute as alternatives to the new synthesis, see chapter one in Lister (2004), and chapter 4 in Gordon and Townsend (eds) (2000).

Poverty and hardship in MEDCs: the approach taken in this report

Building off this new synthesis, this report uses the following framework to underpin its rationale, analysis and findings. It is laid out in a structured way to facilitate discussion and debate about each step of the argument.

a) The over-arching concept is that poverty is about resources being inadequate to meet basic human needs. This is a very standard concept.

b) Humans are social as well as physical beings and the basic human needs that the resources must meet must reflect both aspects.

c) There is a set of basic human needs that are reasonably universal (the absolutist core). See the box on the next page for a list of basic material needs for New Zealand citizens in 2019.

d) The way these needs are met varies over time and between countries and cultures (one aspect of relativity).

e) To meet these basic needs to minimum acceptable standards in MEDCs often requires many times more dollars per week than for households in "third world" countries. This is because of the different way in which MEDCs are structured in terms of food supply, property rights, transport, labour market, the legal requirements that govern minimum standards for housing, and more generally a mixed economy for the provision of goods and services, different social norms and expectations for citizen participation, and so on. Households, and especially households with children, cannot simply opt out of the structures and expectations of their MEDC society and "go bush" or "live off the land". The basics set out in c) above, and the societal expectations and human need for some participation above mere physical survival, all place unavoidable minimum demands on the family budget.

f) Poverty and hardship in MEDCs are real issues in relation to basic human needs not being met. They <u>are</u> about relative disadvantage within a given society, but there is an "absolutist core" (Sen) of needs that must be met. This is what makes poverty about more than just inequality. Poverty is about "not enough", not just about "less than".

g) Household income is an important resource for meeting needs in the mixed economy of an MEDC, albeit there are other resources available to or required by households to meet basic needs (for example – household appliances and furniture, financial assets, government services).

h) There is value in looking at poverty from both an adequacy of resources perspective as well as more directly in terms of the degree to which basic needs are being met in practice. The use of non-income measures of material deprivation is an essential part of a comprehensive monitoring of poverty and hardship.[71]

i) Poverty and hardship exist on a continuum from less to more severe. The reports take the view that there is no methodology that can precisely determine a single valid low-income line for a country, especially one that commands widespread support. See later discussion in this section and in **Appendix 6** for the rationale for this view.

j) There is room for debate about where to "draw the line" for any measure of poverty or material hardship, but in practice there is a reasonably narrow range for credible and defensible thresholds. Drawing on the views of ordinary citizens (for example, through focus groups and surveys) as well as those of experts greatly assists with the setting and legitimisation of poverty thresholds and of lists of things that everyone should have and no one should have to go without.

k) Assumptions and judgement calls must be clearly declared and sensitivity testing reported to show what difference, if any, the different assumptions make.

l) The overall poverty and hardship narrative is not one-dimensional: the story that integrates the trends for several measures needs to be clearly told in a coherent way.

[71] See **the separate NIMs report** for more on the use of non-income measures using data from the HES and MSD's Living Standards Surveys.

List of basic material needs for New Zealand citizens in 2019

- clean drinking water
- sanitation and waste disposal
- adequate food / nutrition
- hot running water
- suitable clothes and shoes (not just for survival and employment, but for acceptable social engagement in different settings)
- adequate housing – shelter / warmth / secure 'base'
- dental and medical care as required
- mains electricity or equivalent
- household durable goods:
  - food storage and cooking, sleeping, cleaning and maintenance, having people around, ……
- transport (for employment, supplies, children – their schooling, sport, special interests and other events, 'helping' / volunteering, leisure)
- ICT including a 'computer' in the household and internet access
- social engagement that involves financial cost
- financial resources to cope with unexpected essential expenses

See Doyal and Gough (1991), chapter 10, for a list of needs that goes wider than the material needs listed here.

Poverty experienced

The understanding of poverty and the associated measurement approach used in this report and the companion Material Wellbeing report is narrowly focused. It is about "unacceptable financial or material hardship" and the insights about this that can be gleaned from a large-scale national survey.

This is a legitimate focus, but in pursuing it it is important to be aware that there is much more to "poverty" than what can be measured (albeit imperfectly) through analysis of data from income or deprivation surveys. These can tell us about the material core ("unacceptable material or financial hardship"), but a different type of research is needed to give insight into how this unacceptable hardship is experienced and understood.

> What is at issue here is the non-material as well as the material manifestations of poverty. Poverty has to be understood not just as a disadvantaged and insecure economic *condition* but also as a shameful and corrosive social *relation* … [The non-material aspects include] … lack of voice; disrespect, humiliation and assault on dignity and self-esteem; shame and stigma; powerlessness; denial of rights and diminished citizenship … They stem from people in poverty's everyday interactions with the wider society and from the way they are talked about and treated by politicians, officials, the media and other influential bodies. Lister (2004:7)

> What people on low incomes report is a situation of great complexity in which the pressures they face are cumulative. Basics become luxuries that have to be prioritised and saved for. Solutions to one problem create problems of their own, as when saving on heating exacerbates illness and borrowing from the rent money generates arrears and threats of eviction. Poverty feels like entrapment when options are always lacking, the future is looming and unpredictable, and guilt seems ever present, arising from an inability to meet one's children's needs, one's own expectations and society's demands. Tomlinson and Walker (2009:16)

It has become popular in discussions of human wellbeing to use Amartya Sen's dictum that the basic concern of human development or of 'the good life' is 'our capability to lead the kind of lives we have reason to value'. The same language is sometimes used in relation to discussions around strategies to address poverty, with the goal of poverty alleviation intervention being characterised as helping people 'lead the kind of lives they have reason to value'. In using only this aspect of

Sen's thinking, it misses two key elements that Sen himself identifies in his writing on the conceptualisation of poverty. The first is the matter of the "irreducible absolutist core" noted above – poverty alleviation is about having households attain a minimum acceptable standard, which may nevertheless be (well) below 'leading the kind of lives they have reason to value'. The second is how for Sen and for 'the poor', shame is at the core of poverty experienced. There is a case that the bumper-sticker type of use of the notion of 'leading the kind of lives we have reason to value' in the context of poverty discourse both misrepresents Sen on poverty and understates the stress of life at the hard end. [72]

Poverty – narrow or wide?

Poverty and hardship are multi-dimensional. Different contexts and different purposes require a focus on one or other dimension or indeed on multiple disadvantage across several dimensions. When talking about "poverty" it is important to be clear about which dimension is being discussed, or if the wider notion of multiple disadvantage is in scope that that too is made clear.

Poverty is primarily used to refer to the status of those in households that have income below a given low-income threshold, however determined. This is a narrow but legitimate perspective.

At other times "poverty" is used to describe those whose actual living conditions are very restricted and below minimum acceptable levels. This is a slightly wider perspective as these outcomes are determined by more than just income alone. The report uses "material hardship" or "deprivation" for this aspect.

"Poverty" is also used by some almost as a catch-all term to refer to any serious disadvantage or cluster of disadvantages experienced by individuals, households or geographical areas (for example, low education, poor quality housing and local amenities, poor health, high unemployment).

It is important to be clear just which of these concepts is being used in any given context. This report is about the first notion (low incomes), and the companion report using NIMs (non-income measures) uses the second notion. The broader notion is more usefully considered and used when monitoring or investigating wellbeing more generally.

Some common misunderstandings

There are some common misunderstandings about poverty and its measurement, especially income poverty. These derive in part from misunderstandings about the relative-absolute distinction discussed above and set aside as being more of a hindrance than a help to poverty discourse. The misunderstandings are briefly described below then discussed in the context of framework outlined above and of some empirical findings.

"<u>Income poverty is essentially about inequality</u>"

- This view derives from the old relative-absolute distinction rather than the synthesis described above. It misses the point about an absolute core of human need that must be met from resources. This latter means that poverty is essentially about "not enough" rather than "less than".

"<u>Because (income) poverty is relative, no country can ever eliminate poverty</u>"

- The assertion is based on the view that there will always be a group of households with incomes or living standards that are low relative to those in the middle. By definition, therefore, "the poor will always be with us".

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[72] In his efforts to reconcile the relative and absolute notions of poverty, Sen distinguished between 'capabilities' and 'functionings'. Capabilities are the potential that people have to lead fulfilled and engaging lives and are absolute and everywhere the same. Functionings, on the other hand, are the facilities and resources required to enable people to achieve their capabilities and are determined by cultural expectations and resource constraints. Sen's view is that 'the ability to go about without shame', like a capability, is at the 'irreducible absolutist core in the idea of poverty'.

- It misses the point that the incomes of the poor can be raised without raising the level of the median. This is what happened when the WFF package was rolled out from 2004 to 2007. The shape of the income distribution at the lower end is not fixed in stone – it can be changed.
- It is true that measured income poverty is not ever likely to reach zero, but this is because (among other things) there are always households that have very low incomes from time to time even if on average over several years their incomes are above the average poverty line, not because the notion of relative income poverty makes it a necessary conclusion.[73]

"Relative income poverty is an invalid and unhelpful measure – for example, if every household's income doubled then the same number are in poverty as before even though everyone is much better off"

- Assuming this hypothetical scenario could be carried out, then the day after the income rise everyone would have plenty.
- But the reality is that for wages and salaries and transfers to increase by this amount and stay that way then presumably firms would have to put up the price of their goods and services to be able to pay these new high wages and salaries.
- This would be highly inflationary and when a new equilibrium was reached citizens at the bottom of the distribution would once again be finding it difficult to make ends meet as prices would have gone through the roof.

See the Annex to Section F for more common misunderstandings, especially in relation to child poverty and hardship figures.

In the MSD reports, poverty is understood as *exclusion from the minimum acceptable way of life in one's own society because of inadequate resources*.

While there is an explicit relative element in the definition, and while judgment calls are needed to establish what "minimum acceptable" means, the minimum acceptable way of life relates to an "absolute core" of things that everyone should have and no one should have to go without, as noted in the box on page 112.

The definition includes both resources and outcome elements – this double perspective is reflected in the use of both income measures and non-income measures.

[73] Another version of this misunderstanding is the claim that when low-income households have more income transferred to them in an attempt to reduce income poverty, the process is at least partially self-defeating, as this action raises the mean and therefore also raises a poverty line set as a % of the mean (unless there's a perfectly matching income reduction for those above the mean). The misunderstanding here is that poverty lines are only very rarely set as a % of the mean these days: the median is used as the reference for the middle and raising the incomes of low-income households has no impact on the median.

Constructing measures of income poverty[74]

Reported levels of income poverty and the direction of trends over time depend not only on changes in the economic circumstances of families and households but also on the specific measure used to produce the poverty numbers.

Key decisions in constructing a measure

The general approach to using household incomes to give headcount measures of poverty and hardship is well-established. Each household member is assigned the equivalised disposable income of their household as an indicator of their (potential) living standards and individuals in the population are ranked accordingly. One or more poverty thresholds are decided on, the numbers below these cut-offs are counted and the numbers or proportions 'in poverty' are reported.

Within this general approach there are however a range of decisions on key issues that can make a significant difference to what is reported for levels or trends in poverty numbers, and in the composition of the group identified as poor. Different measures reflect the different decisions at key points on such matters as:

- whether to use incomes before or after deducting housing costs (BHC or AHC)
- which equivalence scale to use, reflecting different judgments about factors such as the strength of the economies of scale as household size increases, and the relative weight to be given to children compared with adults
- where to draw thresholds (poverty lines) that are consistent with a minimum acceptable standard of living, all else equal
- how to update the thresholds from one survey to the next.

Different decisions on the first three matters generally lead to different poverty levels being reported at a given time and some difference in the reported composition of those identified as poor. However the general trends over time tend to be not greatly affected by the choices made for these three factors. This paper reports sensitivity analysis for the different choices made on these issues.

One factor that does have a significant effect on reported trends in income poverty (and the level at a given time) is the decision about how to adjust the low-income threshold(s) over time. There are two common ways in which this adjustment is made and they differ in how they assess whether an improvement has occurred in a household's income circumstances:

- one approach considers that a low-income household has improved its situation when its income rises in real terms, irrespective of what is happening to the incomes of other households - the 'fixed line', 'anchored', or 'constant-value (CV)' approach;
- the other uses the median household as the reference and an improvement is considered to have occurred when a poor household moves closer to the median – the 'moving line' or 'relative (REL)' approach.

The table below provides a navigation guide for finding the discussion and sensitivity testing material on each of the above four decisions.

Decision point	Discussion	Sensitivity testing
Using BHC and AHC incomes	Appendix 5	Section F
Which equivalence scale	Appendix 3	Appendix 3
Selecting thresholds	Here (below) and Appendix 6	Section F
Updating thresholds over time	Here (below)	Here (below)

[74] See separate report for construction of material hardship indices (the 'NIMs report).

Using fixed line and moving line thresholds to adjust thresholds over time

The constant-value (CV), 'fixed line' or 'anchored line' approach to adjusting thresholds over time maintains the real value of a chosen poverty line by adjusting it each year with the CPI. On this approach a household's situation is considered to have improved if its income rises in real terms, irrespective of whether its rising income makes it any closer or further away from the middle or average household.

The relative-to-contemporary-median (REL) or 'moving line' approach sets the poverty line as a proportion of the median income from each survey so that the threshold changes in lockstep with the incomes of those in the middle of the income distribution. On this approach the situation of a low-income household is considered to have improved if its income gets closer to that of the median household, irrespective of whether it is better or worse off in real terms.

Both approaches reflect the 'relative disadvantage' concept of poverty and hardship. The REL approach is self-evidently a relative approach. The CV approach has to be benchmarked against community standards in some way to start with, then after some years of being kept at the same level in real terms it has to be re-based – again relative to some estimate of community standards.

Both approaches are used in income poverty analysis in OECD-type nations. They each have a valid story to tell about the situation of people in lower-income households.[75]

In the short to medium term at least, the fixed line (CV) measure can be seen as the more fundamental measure in the sense that it reveals whether the incomes of low-income households are rising or falling in real terms. Whatever is happening to the incomes of the 'non-poor', if more and more people end up falling below a CV threshold, as happened in New Zealand from the late 1980s through to the mid 1990s, then in the population at large there is likely to be wide concern about increasing poverty.

In times of good economic growth with rising real wages, rising (or high) employment and declining (or low) unemployment, poverty rates measured on a CV approach can generally be expected to decline, as they have in New Zealand since the mid 1990s. There is however a limit to how low even CV rates can fall when there is a large beneficiary population on incomes that do not (often) rise in real terms.[76]

The REL or moving line approach can produce counter-intuitive results over time. For example, in times of good economic growth with rising real wages, rising (or high) employment and reducing (or low) unemployment, median income (and therefore the poverty lines which are simply a proportion of the median) can rise more quickly than the incomes in the lower parts of the income distribution. In these circumstances a REL measure would report increasing poverty even if those in low-income households were experiencing real income growth.

This counter-intuitive result was observed in Ireland in the 1990s: the poor became 'richer' in real terms, but because the income growth of the middle income households was even greater, poverty rates grew considerably as measured using a REL threshold. This also happened for New Zealand from 1998 to 2004, albeit on a more modest scale.

The reverse is also possible. It was observed in the Czech Republic, Hungary and Poland in the early 1990s when each of these nations experienced large falls in national income. Real incomes fell, but poverty was reported as declining as measured by a REL approach as a result of the falling median and therefore the lowering poverty thresholds. In New Zealand, real incomes for many fell in the period from 1988 to 1994. Using a threshold held fixed in real terms, the CV approach clearly showed the worsening situation for many of the poor. Using a REL approach, poverty rates stayed reasonably constant in the period as both household incomes and the thresholds set as a proportion of the median were falling. (See Section F.)

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75 See also Notten and de Neubourg (2011).

76 From April 2020, main benefits in New Zealand will be indexed to wage growth (Budget 2019 announcement).

Illustrations from Spain and Ireland

- The value of a tiered multi-measure approach is illustrated here for Spain. The chart shows the differing low-income trends using fully relative and anchored line BHC measures. The anchored line measure clearly picks up the impact of rising real incomes before the GFC and of the downturn during and after the GFC. Reported anchored line 'poverty' rates first fell as incomes improved, then rose as many households saw their incomes fall (darker solid line). On the other hand, the fully relative measure remained steady, giving no indication of the increasing financial difficulties experienced by many households in Spain. The flat trend reflects the fact that, on the fully relative measure, a declining median means a declining poverty line. This decline masks the fact that the incomes of low-income households were falling in real terms. Material hardship rates (not shown) broadly followed the anchored line trajectory.

- The evidence from Ireland shows a similar pattern. As the impact of the GFC bit in, both the low-income anchored line and material hardship measures showed strong increases, then fell away in the recovery after the GFC.

- On the other hand, the fully relative low-income measure (broken line) showed only a minor fall and rise, and has remained flat in the last few years while the anchored line and material hardship trends fell away.

This report provides trend information using both the REL and CV approaches, but considers the CV approach as the more fundamental measure for the purposes of tracking material wellbeing using household incomes in the short to medium term at least.

Two questions are sometimes raised in relation to updating thresholds over time.

- As median household incomes rise (or fall) in real terms, CV or fixed thresholds fall (rise) as a proportion of the contemporary median. How often should the reference year be re-set so that the value of the CV thresholds do not move too far from the implied reference level relative to the population as a whole?
- In times of economic growth, can poverty rates ever fall when measured using a moving line approach?

The reference year for measures using an anchored line approach

As median household incomes rise (or fall) in real terms over time, the anchored (CV) poverty lines can become unrealistically low (or high) relative to the contemporary median. The question arises as to how often to re-set the CV poverty lines. The decision on this depends to a large degree on the rate of change in median incomes: higher rates of change mean that the re-setting needs to occur sooner so that the thresholds do not move too far from (or get too close to) average incomes.

Until the 2010 report, the Household Incomes series (and its pre-cursors) used 1998 as the base or reference year for setting CV thresholds, adjusting back and forward using the CPI. Because of the way median incomes fell then rose from 1982 to 2008, 1998 CV measures were convenient and appropriate to use for the whole period – the CV threshold set at 60% of the 1998 median

stayed within a band of 50% to 70% of the BHC median for 1982 to 2008, and within five to six percentage points of 60% for the bulk of the period.

The 2011 report shifted the reference year for 'anchored line' low-income (poverty) measures from 1998 to 2007. Moving the reference year only to 2004 ran the risk of requiring another move of reference year in a relatively few years. The decision to go to 2007 was made with a view to not having to change it again for some time.

Figure E.1 and **Table E.1** report the trend in the 2007 anchored line threshold relative to the contemporary median. Note that the 60% CV threshold anchored at 1998 has almost exactly the same numerical value as the 50% CV threshold anchored at 2007. This too is serendipity rather than anything deeper.

MSD's intention was to change to a 2017 reference year for the 2018 report, but decided to wait until the Child Poverty Reduction Bill was enacted to line up with that. The reports use 2018 as the new reference year, in line with the CPRA, but also report a longer time series using 2007 as the reference year.

Figure E.1
CV or anchored thresholds set at 50% and 60% of the 2007 median expressed as a proportion of the contemporary median (BHC), 1982 to 2018

Table E.1
CV threshold set at 50% of the 2007 median expressed as a proportion (%) of the contemporary median (BHC), 1982 to 2018

1982	84	86	88	90	92	94	96	98	01	04	07	08	09	10	11	12	13	14	15	16	17	2018
57	59	61	59	60	67	69	64	60	58	54	50	49	47	48	48	48	48	45	44	44	42	41

Can poverty rates ever fall using a REL or moving threshold approach?

It has often been pointed out that measuring poverty using a REL or moving threshold approach makes it very difficult for poverty rates to decline during periods of sustained economic growth. During such periods, median household incomes are likely to rise, and unless incomes in the bottom decile or two show an equal or greater rise, then poverty rates using a REL approach will be reported as increasing because the poverty line (set as a proportion of the median) will rise more quickly than the incomes of these low-income households.

This means that to achieve a reduction in reported poverty using a REL approach there has to be a rate of increase in incomes for low-income households that exceeds the rate of increase at the median. In other words, to achieve REL poverty reduction requires a changing of the shape of the lower end of the income distribution such that it gets moved to the right, closer to the median.

The Working for Families (WFF) package, progressively introduced from 2004 to 2007, put an additional $1.6b per annum mainly into low- to middle-income families once fully implemented.

Although a little of the new money went to families at or above the median, the bulk went to families below the median and especially to those well below it. The shape of the bottom end of the income distribution was changed by the WFF package, and child poverty rates were reduced from 2004 to 2007 as a result, even on moving line measures.

The current Families Package, implemented in 2018, also increases the incomes of those below the median without much impact on the median itself. This is why there is expected to be a reduction in measured low-income rates for children as a result of the policy change. If the reduced rates are to be maintained then further transfers will be required to counter the impact of the (likely) rising median as economic growth continues.[77] The full impact of the Families Package will not be visible until the 2019-20 HES, reported on in the 2021 Incomes Report. Next year's Incomes Report, with updates using the 2018-19 HES will capture only a part of the impact. This 2019 Incomes Report does not reflect any of the impact of the Families Package that was implemented from July 2019, after the 2018-19 survey was complete.

Reporting levels and trends for older New Zealanders (aged 65+)

Section B drew attention to the pensioner spike as a distinctive feature of New Zealand's BHC income distribution. The spike is a direct consequence of (a) New Zealand having a universal New Zealand Superannuation (NZS) that is neither income nor asset tested, and (b) there being a good proportion of superannuitants with little other income over and above NZS.

Using the 50% of median measure (square root scale), the poverty rate was close to zero for the whole period 1984 to 2001. This was because the value of NZS was (well) above 50% of the median. By 2007 the value of NZS for those living alone had fallen below the 50% threshold (see Table I.1), and the 50% of median "poverty" rate had risen to 18%, and 19% in 2009. It was 24% in the 2018 survey, reflecting the fact that both the married couple and the single living alone rates were below the 50% threshold when using the square root equivalence scale. Using a 43% of median threshold, the 2018 rate is close to zero (2%).

Using a 60% threshold (and the modified OECD scale) the poverty rates fell from 18% in 1990 to close to zero in the mid 1990s when the median fell in real terms and NZS was above the 60% threshold. By 2004, the rising median had led to 30% of older New Zealanders being classed as 'in poverty' on this measure and has remained high since (33% on average over the last two surveys, 2017 and 2018).

The AHC distribution still has some strong bunching but the pensioner spike is not as sharp. Furthermore, what remains of the spike is well above the 50% of median threshold for AHC incomes, and is mainly above the 60% of median threshold. Small shifts in the median or the threshold do not therefore have the same disproportionate and misleading effects on (trends in) poverty rates for the 65+ as they do when using BHC incomes.

This report therefore uses the AHC approach as the primary one for reporting on poverty rates for all subgroups so that the comparisons are on the same metric (see **Appendix 5** for more detail on this decision, or the **Introduction** for a summary of the key points). See **Section I** for more detail on older New Zealanders.

[77] See advice from officials on this issue in para 7 of the following document released on the DPMC website: at https://www.dpmc.govt.nz/sites/default/files/2018-03/doc-02-child-poverty-legislation-further-advice-on-proposed-options-for-child-poverty-bill.pdf

The low-income thresholds or poverty lines used in this report

Tables E.2 and **E.3** below give the value of the report's low-income thresholds ('poverty lines') in ordinary 2018 dollars pw for different household types. The values in 2019 dollars will be much the same as inflation has been low.

In previous reports up to and including the 2017 report, the AHC thresholds were calculated by deducting 25% from the corresponding BHC threshold as an allowance for housing costs. Each household's AHC income was then assessed against the chosen threshold.

Starting with the 2018 report, the AHC thresholds are calculated by taking the relevant proportion (%) of the actual AHC median. The issues involved in choosing one or the other approach, and the difference the decision makes for reporting AHC low-income trends, are discussed below.

Table E.2
50% and 60% low-income thresholds or 'poverty lines' for various household types (BHC)
($2018, per week)

		REL ('moving')		**CV** ('anchored' /'fixed')	
Household type	Equiv ratio	50% of 2018 median	60% of 2018 median	50% of 2007 median in $2018	60% of **2018** median in $2018
One-person HH	1.0	385	460	310	460
SP, 1 child <14	1.3	500	595	405	595
SP, 2 children <14	1.6	610	735	500	735
SP, 3 children <14	1.9	725	875	590	875
Couple only	1.5	575	690	465	690
2P, 1 child <14	1.8	690	825	560	825
2P, 2 children <14	2.1	805	965	655	965
2P, 3 children <14	2.4	920	1100	750	1100
2P, 4 children <14	2.7	1035	1240	840	1240
3 adults	2.0	765	920	625	920

Table E.3
50% and 60% low-income thresholds or 'poverty lines' for various household types (AHC)
($2018, per week) (Using the modified OECD equivalence scale)

		REL ('moving')			**CV** ('anchored' /'fixed')	
Household type	Equiv ratio	40% of 2018 median	50% of 2018 median	60% of 2018 median	50% of 2007 median in $2018	60% of **2018** median in $2018
One-person HH	1.0	235	295	350	230	350
SP, 1 child <14	1.3	305	380	455	300	455
SP, 2 children <14	1.6	375	470	560	370	560
SP, 3 children <14	1.9	445	555	665	440	665
Couple only	1.5	350	440	525	345	525
2P, 1 child <14	1.8	420	525	630	415	630
2P, 2 children <14	2.1	490	615	740	485	740
2P, 3 children <14	2.4	560	705	845	555	845
2P, 4 children <14	2.7	630	790	950	625	950
3 adults	2.0	470	585	705	460	705

Rationale for setting of low-income thresholds or 'poverty lines'

Different countries and different researchers set low-income thresholds or poverty lines in a number of different ways. The two broad types of approach are to take proportions of the median of the income distribution as the low-income thresholds (a distributional approach) or to use information from outside the distribution based on budget standards / reference budgets, expenditure data, 'asking the people', or a mixture of all three.

This report uses a distributional approach, based on 50% and 60% of median household equivalised income for BHC incomes, and 40%, 50% and 60% of median for AHC incomes. The general rationale for this approach is built on the following thinking:

- poverty is about 'resources being inadequate to meet basic human needs'
- decisions about adequacy of resources require judgement calls – there is no clear delineation between the poor and the non-poor that science can identify independent of judgement
- household income is a very important resource, especially for low-income households, but it is not the only resource – financial and physical assets, assistance from outside the household and skills of household members in getting the most out of a given income or wider set of resources all matter greatly too, as do special demands on the household budget such as extra health and disability costs, and the servicing of debt
- because of these two factors (judgement calls being required for determining 'adequacy', and household income being only a rough-and-ready proxy for resources), the report uses a range of low-income measures to enable a more realistic, robust and defensible assessment of trends than any single measure can achieve
- because household income can only ever be a rough-and-ready proxy for resources, this conclusion holds even when budget standards or public consensus approaches are used to assist with determining income adequacy.

None of this means that any measure will do, nor that all measures are equally suspect. Some are clearly more defensible and reasonable than others. The discussion below takes the above general rationale as the starting point and provides support for the range of thresholds used in the report.

BHC thresholds

The 60% of median threshold (BHC) has been formally adopted by EU member states as the EU's primary measure of income poverty (or, to be precise, the 'at-risk-of-poverty' measure, AROP). It is also used by the UK as one of its three indicators in its suite of official measures of child poverty. The OECD uses the 50% threshold for the bulk of its international comparisons but it also collects and uses analysis based on a 60% threshold. Thus, if the ability to make international comparisons is a key criterion in selecting low-income thresholds, then 50% and 60% of median measures are required.

Despite the reasonable consensus around the use of 50% and 60% BHC thresholds there is an inherent arbitrariness about the choice of any particular percentage of the median.[78] The following factors are relevant to discussions on the matter.

[78] For many years 50% of the mean was commonly used as a poverty line or low-income threshold. 60% of the median is usually close to 50% of the mean.

First, the focus group research with low-income householders carried out by the New Zealand Poverty Measurement Project (NZPMP) in the 1990s concluded that budgets for minimum adequate income that allows a household to live independently without recourse, for example, to a foodbank, equated to around 60% of the median household income in the early 1990s.[79] The research was not intended to imply that the 60% threshold was fixed for all regions and for all time. More detailed analysis of the reported budgets indicates a range from 55% to 80% of median for the threshold, with the variation driven in the main by differing housing costs in different regions (see **Appendix 6** for details).

Second, readers are encouraged to consider the low-income BHC thresholds noted in **Table E.2** above and to make their own call on the reasonableness of these as 'poverty lines'. It is not likely that many would find them overly generous, especially for trying to live off for a sustained period.

Third, in the last decade NZS has been a little above the 50% of median mark, averaging around 60% of the median in the 1990s. This suggests some sort of broad consensus that incomes in this ball-park are the minimum acceptable for older New Zealanders.

Fourth, the 50% BHC threshold is as low as is reasonable to go on the practical grounds that anything less than 50% takes the BHC threshold too far into the bottom decile where reported income is too often an unreliable indicator of access to resources. It is possible to devise a defensible rule for deleting or adjusting the most glaring cases for which there is evidence that the reported incomes are unreliable indicators of potential living standards, but this usually requires expenditure information which is not always available in surveys.[80]

Fifth, the 1972 Royal Commission on Social Security operationalised the principle of 'participation and belonging' by defining a minimum-income level which came to be known as the Benefit Datum Line (BDL) (Easton, 1995a). When the BDL is adjusted by the CPI it is equivalent to 50% of the median for the 2004 HES. Given the general growth in affluence over the three decades following 1972 it would be unlikely that a poverty line lower than the BDL in real terms would command great support.[81]

Finally, while the choice of threshold makes a significant difference for reported poverty levels at a given time, the choice very rarely makes a difference to the direction of trends and only a modest impact on the identification of those groups most at risk of hardship.[82]

AHC thresholds[83]

There are two broad approaches that can be taken to setting AHC thresholds:

- The first follows the pattern for setting BHC thresholds, using a simple distributional measure of a certain proportion of the median AHC household income. The Incomes Report uses this approach, though noting the cautions outlined below.
- The second starts with the BHC thresholds and deducts a proportion off these as a reasonable allowance for housing costs for low-income households, thus producing AHC low-income thresholds. The actual AHC incomes of households are then compared with these thresholds. The Incomes Reports used this approach up to and including the 2007 report ('BHC-less-25%'). This approach recognises the fact that the proportion spent on housing by middle income households is less than for low-income households and varies

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79 Stephens et al (1995); Waldegrave et al (1996); Waldegrave et al (2003).

80 See **Appendices 8 and 9** for further discussion of the matter of noise in the lowest decile.

81 If the BDL were updated by wage inflation it would be equivalent to a level much higher than 50% of the 2008 median.

82 The exception is older New Zealanders. Because a substantial proportion of those aged 65+ are in households receiving just NZS or NZS plus only a little more, the choice of BHC threshold relative to NZS makes a very large difference to reported poverty rates for this group. This is discussed in **Section I**.

83 Housing costs are defined and discussed in **Appendix 5**.

over time, and elects to keep the focus firmly on the low-income households. The issues are further discussed below.

What are the issues with using a simple distributional approach?

In the late 1980s AHC medians were around 13-14% lower than BHC medians. Over the last few years they have been around 20-22% lower as middle income households find that they are spending more on accommodation than their counterparts 30 years ago (see **Figure E.2**).

The 'deduct 25% (or 33%)' approach has the advantage of not being influenced by what happens to housing costs for middle-income households, which is the case when a straight distributional measure is used. If the proportion that middle-income households spend on rent, mortgage and rates rises over time (as it has) then this would lead to reported distributional AHC poverty lines falling over time and, all else equal, even though nothing was changing for the poor (on the 'all else equal' assumption. This is not a desirable property for a poverty measure.

Figure E.2
% that the AHC median is below the BHC median (relative to BHC median)

Another disadvantage of the distributional approach can be illustrated by looking at the 1995 to 2005 period in the chart above. The AHC median was 18% lower than the BHC median in that period, so the AHC threshold would also be around 18% lower than the corresponding BHC one. The implication of this is that a household with a BHC income just below 60% of the BHC median is declared AHC poor if its housing costs are anything more than 18% of its BHC income. This is unrealistic and inflates the AHC low-income rates in a way that most would not be intuitively aware of.

The BHC-less-25% approach is explicit and easily understood. New Zealand's income related rents policy uses a 25% setting. The entry thresholds for receipt of the Accommodation Supplement (AS) for renters are set at 25% of net household income. (Note that recipients generally pay more than 25% of their household income (including the AS) on housing as the AS does not fully cover the remaining amount). There is some rule-of-thumb international consensus that poorer households spending more than 25% to 30% of their BHC income on housing are AHC poor.[84]

[84] For example, Australia's Affordable Housing National Research Consortium sets a benchmark for 'housing stress' for the lower 40% of the household income distribution at 30%, and Canada's Mortgage and Housing Corporation uses 30% in its 'affordability' measure. Auckland's Regional Affordable Housing Strategy focuses on households with incomes in the bottom four deciles and uses a 30% rule. It notes that this definition is consistent with those used by a number of other countries. See CHRANZ (2004), *'Housing Costs and Affordability in New Zealand'*.

What difference does the method of determining the AHC threshold make?

The charts in **Figure E.3** show how the distributional approach gives lower AHC rates, but that the difference is narrowing as the gap between the AHC and BHC median gets closer to 25% (as shown in Figure 6.1).

Figure E.3
AHC low-income rates: AHC distributional threshold vs AHC threshold set at BHC less 25%

Using non-monetary indicators (NMIs) to assist in reaching a view on reasonable low-income AHC thresholds

Using non-monetary indicators can assist in reaching a view on what AHC thresholds to use for monitoring 'low income' or 'income poverty'. The three charts below use items that the majority would say represented an unacceptably low standard of living if one did not have them (first and second) or had to do this to survive (third). This analysis supports AHC thresholds in the 40-50% range.

Figure E.4

See also **Appendix 6** for an extended note on the AHC 60% of median threshold.

Figure E.5 uses all the DEP-17 items. The bottom 10% of the under-65 population report much more hardship than those in the next 10-20%. This (~10%) corresponds to a threshold of around AHC 40-45%.

Figure E.5
Proportion in material hardship (DEP-17 scores of 7+), for AHC household income ventiles (5% groupings), HES 2015, under 65s

Poverty depth and persistence

Reporting on trends in headcount poverty rates provides valuable information for assessing our progress as a nation and for informing policy development and debate. However, such information tells only a part of the incomes story. Two other insights are needed to round out the picture: trends in the depth of poverty and in the persistence of poverty for individuals over time.

Understanding poverty depth is about knowing what is happening to the incomes of those identified as poor from survey to survey. Are the poor today in the main sitting just below, say, a 50% threshold, or are they on average much poorer than their counterparts in earlier surveys, generally having incomes below, say, a 40% threshold? There are issues around the quality of the data among households with very low incomes, and these present challenges to providing robust information on poverty depth. Subject to these limitations, measures of poverty depth are discussed and trends reported at the end of the next section (Section F).

Secondly, while surveys like the HES are very valuable they give only repeated snapshot information of a different sample of households each survey. They cannot tell us, for example, how many of the poor in one survey are still among those counted as poor in the next. A more comprehensive picture needs information from surveys which follow the same people over many years and thus enable information on the persistence of poverty and income mobility to be reported. Statistics New Zealand's longitudinal Survey of Families, Income and Employment (SoFIE) ran from 2002 to 2009 and gives information for New Zealand. [85] A summary of this, with international comparisons, is reported in **Section L.**

[85] Carter and Imlach Gunasekara (2012)

Interpreting and reporting differences and trends in the low-income figures which follow in Sections F, G and H

Four sorts of analyses and comparisons are provided regarding headline trends in Section F and in the more detailed breakdowns in later sections:

- proportions and numbers of people 'in poverty' at a point in time
- changes from one survey to the next
- longer-term trends
- relativities between subgroups and composition of those identified as 'poor'.

The findings and summaries for proportions 'in poverty' depend crucially on the threshold and measure used. Where point-in-time poverty rates are being reported, it is strongly recommended that those using the figures from this report also explicitly state what measure is being used (always).

In most cases nothing should be read into small changes from one survey to the next, as sampling and non-sampling errors mean that such differences are unlikely to have any significance (see the Introduction, Section A).

In contrast, analysis of longer-term trends and relativities between subgroups generally produce robust and uncluttered summary findings. Although there is sometimes a difference in trend depending on the particular measure used, these differences are relatively easy to explain from first principles based on the different conceptualisations for the different measures.

Section F
Headline trends in low incomes / income poverty, 1982 - 2018

This section reports on the trends in headcount poverty rates – the numbers and proportions of individuals who are in households with incomes below selected thresholds ("poverty lines").

Information on poverty trends is presented for both the whole population and for dependent children. A full range of low-income measures is used, as shown in **Table F.1** below.

Table F.1
Poverty (ie low-income) measures reported on in Section F

For both BHC and AHC measures (ie for HH incomes before and after deducting housing costs)				
"moving line" (relative)			"anchored line" (constant value)	
REL (from 82 on)			**CV-07** (from 82 on)	**CV-18** (from **07** on)
40%	50%	60%	50%	**50%**
AHC only	✓	✓	✓	✓

Notes: 1 'CV-07' indicates that 2007 is the reference year used.
2 The 50% CV-18 measures give rates that are close to the former 60% CV-07 measures

There are two common approaches to updating the low-income thresholds ('poverty lines') from survey to survey:

- select a threshold in a reference year and update it each survey using the CPI (an anchored or fixed line approach in which the threshold is kept at a constant value (CV)
- use thresholds that are a fixed percentage of the median (a fully relative (REL) or moving line approach).

The anchored line (CV) and the moving line (REL) approaches reflect two quite different notions of poverty

The two approaches correspond to two different conceptualisations of what an 'improvement' means for low-income households:

- on the first approach (CV or anchored line), the situation of a low-income household is said to have improved if its income rises in real terms, irrespective of whether its rising income makes it any closer or further away from middle-income households
- on the second approach (moving line or fully relative approach (REL)), the situation of a low-income household is said to have improved if its income gets closer to that of the median household, irrespective of whether it is better or worse off in real terms.

The report uses both approaches, but takes the view that the anchored line approach is the more fundamental on the grounds that, at the very least, New Zealanders would want to know whether the incomes of low-income households are rising or falling in real terms, whatever is happening to the incomes of the "non-poor". For example, the BHC moving line approach did not and could not pick up the rising hardship of the early to mid-1990s. The fixed line measures could and did.

If anchored line rates are falling as a result of policy changes or economic growth (or both), then that can be assessed as an unambiguously improved outcome. The same cannot be said of the moving line measures, as the trends for these are also dependent on how the median moves. Relative measures can move counter-intuitively – for example, showing falling poverty in recessions when the median falls more quickly than low incomes.

However, no one measure or type of measure is adequate on its own in the medium to longer term. For example, it can be that poverty rates using anchored line measures fall while rates using a moving line measure are rising. This combination indicates rising inequality among low- to middle-income households, despite incomes improving in real terms for low-income households. This raises social cohesion and equity issues. Moving line (fully relative) measures are also fully reported.

The report also recommends the use of an AHC measure for comparing the material wellbeing of various subgroups, as it gives a much more meaningful comparison between groups with very different housing costs (for example, people aged 65+ compared with households with children), and also takes into account what for many households is the major budget item for essentials / unavoidable costs. A full account of the rationale for the AHC preference is provided in Section E and **Appendix 5.**

Impact of changing incomes and housing costs on the different poverty measures

Table F.2 indicates how changes in poverty rates reflect the net impact of changes in:

- BHC incomes at the median
- BHC incomes for low-income households
- housing costs for low-income households.

For example, the top row in Table F.2 indicates that when the median rises, then both BHC and AHC "moving line" poverty rates will rise, provided everything else remains the same. A rising median has no impact on poverty rates measured using a 'fixed line' approach.

Table F.2

Impact of selected factors on different poverty measures, 2001 to 2016

when these increase ….	**…. the impact on the measured poverty rate is …**			
	BHC		AHC	
↓	anchored line (CV-07)	moving line (REL)	anchored line (CV-07)	moving line (REL)
BHC median / incomes around the median ↑	no impact	↑	no impact	↑
BHC incomes in the bottom quintile (20%) ↑	↓	↓	↓	↓
Housing costs (for low-income HHs) ↑	no impact	no impact	↑	↑

Headline trends for whole population

- Since the mid-1990s the BHC and AHC anchored line rates have steadily fallen as household incomes have increased in real terms for many households in the low-income zone. They rose briefly during the GFC-associated recession in the late 2000s, but have fallen strongly since.

- The trend for AHC relative low-income rates has been flat for the last 25 years on each of the 40%, 50% and 60% measures. The BHC relative low-income trends have been flat for the last 10 to 15 years.

Before Housing Costs (BHC)

- The overall trends from 1982 to 2018 in **Figure F.1** clearly show the value and need to monitor poverty rates using both anchored line and moving line approaches. This is well illustrated by looking at two periods: the first half of the 1990s, and from 1994 to 2004.

- The first half of the 1990s:
  - in this period there was a very large increase in the number of people in low-income households and a fall in median household incomes (high unemployment, benefit cuts and introduction of market rents)
  - on a moving line measure, the combined effect of these two changes meant that (relative) poverty rates remained fairly steady and provide no evidence of the growing extent of hardship among low-income households
  - on the other hand the fixed line measure gives a very clear indication that there were growing numbers of households with very low incomes.

- From 1994 to 2004:
  - there was a continuing decline in the poverty rate on the anchored line measure, but the moving line (relative) poverty rate steadily rose to a peak of 21% in 2004
  - the fall in the anchored line poverty rate reflects the falling unemployment, rising employment, rising real wages and increase in the number of two earner families with children
  - the rising moving line poverty rate reflects the fact that median income rose more quickly in real terms than the incomes of low-income households – the gap between middle-income and low-income households increased from 1994 to 2004.

- From 2004 to 2007, the upward trend of the moving line poverty rates reversed for the 60% measure and halted for the 50% measure (the WFF impact). The anchored line poverty rate continued to fall.

- Comparisons of moving and fixed line trends over a longer time-scale (1982 to 2007):
  - the 50% fixed line CV-07 poverty rate in 2007 (10%) was a little below what it was in the 1980s (11-13%)
  - the large decline in 50% CV-07 poverty rates from 1994 (23%) to 2007 (10%) reflects the significant rise of incomes in real terms for low-income households (see Tables D.2 and D.3)
  - in contrast, moving line BHC poverty rates were still higher in 2007 than in the 1980s and the 1990s (even after WFF), reflecting the net widening of the gap between middle-income and low-income households that occurred between 1994 and 2007.

After Housing Costs (AHC)

- Using the 50% AHC CV-07 anchored line measure, the low-income rate for the population as a whole rose to 15% in HES 2011 following the GFC and economic downturn, then fell steadily to 10% in 2018. The AHC 60% CV-18 rate has also tracked steadily downwards to 16% in 2018.

- Low-income anchored line AHC rates show the same general rise in the GFC and steady fall in the recovery and later. In contrast to the BHC measure, the CV-18 fall is only a little steeper than the CV-07 fall as the inclusion of housing costs significantly changes the ranking of low-income households, especially as there are a good number of superannuitants whose housing costs are in the main relatively low.

- Looking at the longer-term picture from 1982, the 50% AHC CV-07 poverty rate more than doubled in a very short period from the late 1980s to early 1990s, reflecting rising unemployment, a falling average wage, demographic changes (more sole parent families), the 1991 benefit cuts and the introduction of market rents in (what we now refer to as) social housing. It then steadily fell through to 2007 with improving employment, a rising average wage, rising female employment, the introduction of income-related rents and Working for Families. This fall in the anchored line rate indicates that the AHC incomes of many low-income households were higher then (2007) than in the mid 1990s.

- Over the last three decades housing costs have continued to take a much larger proportion of household income, especially for low-income households (see Section C). The different trajectories for BHC and AHC incomes show up as different trends for BHC and AHC low-income rates using anchored line measures, as shown in the chart on the right. BHC household incomes for low-income households were higher in real terms from 2004 to 2018 than in the mid 1980s. This shows up in the dashed line in the graph in which BHC anchored line poverty rates from 2004 on are lower than in the 1980s. In recent years the rate has been ~7% compared with 11-12% in the 1980s. On the other hand, AHC low-income anchored line rates have only recently returned to the rates reported for the 1980s (~11-12%), and in 2018 were 10%. AHC incomes for low-income households were around the same in 2015 in real (inflation-adjusted) terms as in the 1980s, despite the real increase in BHC incomes. This is mainly because housing costs are now much higher relative to BHC incomes, especially for low-income households.

- The AHC anchored line trend reflects the combined impact of demographics, policy initiatives, the state of the New Zealand and international economies, and decisions that impact on housing supply and the cost of housing development.

- The three fully relative AHC trend lines show that whatever threshold is chosen, low-income rates at the different depths have tracked in reasonably similar ways over the three

decades to 2018. These trend lines inform us about the degree of income inequality in the bottom half of the income distribution. This is valuable information, but it tells us nothing about trends in the number of New Zealanders with day-to-day real-life challenges to making ends meet. For that we need the information from the anchored line income graphs and from the material hardship graphs in the companion NIMs report.

- Using the AHC moving line (relative) measure (50%),the population poverty rate was in 2018 the same as what it was in the recession and in the early to mid 2000s (15-16%).. Rates in 2013 to 2018 were roughly double what they were in the 1980s (8%).

- There is no evidence of any increasing depth of relative income poverty over the last two decades. Increasing depth means that for a given threshold, a greater proportion are further below the threshold than before. For example, increasing depth could show up as the 40% relative line moving closer to the 50% relative line, showing an increasing number in very low income households (under 40%) compared with the numbers between the 40% and 50% lines.

Proportion of all individuals below selected thresholds (BHC)

Figure F.1
Proportion of whole population below selected thresholds (BHC): fixed line (CV) and moving line (REL) approaches compared

Table F.3
Percentage of whole population below selected thresholds (BHC)

	Constant value or "anchored"		Relative to contemporary median		Population (million)
HES year	50% 2007 median	50% 2018 median	50% contemp median	60% contemp median	
1982	11	-	7	14	3.03
1984	12	-	7	13	3.06
1986	13	-	6	13	3.07
1988	11	-	6	12	3.11
1990	12	-	5	12	3.15
1992	21	-	7	14	3.23
1994	23	-	7	15	3.32
1996	18	-	8	13	3.43
1998	13	-	7	13	3.54
2001	14	30	8	16	3.80
2004	13	27	10	21	3.99
2007	10	19	10	18	4.13
2008	8	17	8	18	4.17
2009	7	16	8	17	4.20
2010	8	17	9	18	4.25
2011	10	19	10	19	4.29
2012	8	15	8	16	4.31
2013	7	16	9	17	4.34
2014	7	15	10	19	4.39
2015	6	13	9	19	4.46
2016	7	11	9	17	4.55
2017	6	10	9	19	4.65
2018	6	10	10	20	4.75

Proportion of all individuals below selected thresholds (AHC)

Figure F.2
Proportion of whole population below selected thresholds (AHC): fixed line (CV) and moving line (REL) approaches compared

Table F.4
Percentage of whole population below selected thresholds (AHC)

Threshold type	Constant value or "anchored"		Relative to contemporary median			Population (million)
HES year	50% 2007 median	50% 2018 median	40% contemp median	50% contemp median	60% contemp median	
1982	13	-	4	9	15	3.03
1984	14	-	6	9	15	3.06
1986	11	-	4	8	15	3.07
1988	13	-	5	9	15	3.11
1990	14	-	4	9	15	3.15
1992	24	-	8	14	21	3.23
1994	26	-	9	15	22	3.32
1996	22	-	10	14	21	3.43
1998	20	-	10	14	21	3.54
2001	21		9	16	23	3.80
2004	18		10	16	23	3.99
2007	15	23	10	15	21	4.13
2008	13	24	9	14	21	4.17
2009	13	21	9	15	22	4.20
2010	14	21	10	16	22	4.25
2011	15	23	11	16	22	4.29
2012	14	21	10	15	21	4.31
2013	13	21	11	16	22	4.34
2014	13	20	11	16	22	4.39
2015	12	18	11	16	22	4.46
2016	12	18	10	15	21	4.55
2017	10	16	10	15	23	4.65
2018	10	16	11	16	23	4.75

Children

There is considerable public, media and political interest in the wellbeing of children, including their material wellbeing – how they are faring in accessing their material needs and the necessities of life. The special interest derives from two considerations:

- Children are very dependent on others for their survival, for having their material needs met and for the opportunities to grow and develop in a positive healthy way. Parents, the wider family, the community and the state all have a part to play. No one wants to see children missing out on the basics and being unable to participate in the childhood activities our society expects and values for all children.
- Living in persistent low income and hardship as a child is not only a childhood experience that impacts negatively on children in the here-and-now, it also increases the chances of poor outcomes later in childhood and in adulthood. While much of the observed association between persistent low income and hardship ("poverty") and poor outcomes can be explained by other factors that drive both the "poverty" and the other poor outcomes, not all of it can. There is now good evidence that childhood experience of persistent low income and material hardship can in itself have a negative impact later on. The impact operates through pathways such as:
    - the more limited (financial) resources available for investment in children and their development
    - the parental stress arising from the daily pressure of not being able to pay the bills, of having to make difficult trade-off decisions where solutions to one problem create problems of their own in another area, and from a sense of shame and disappointment of not being able to provide for the children
    - the fact that the negative impacts show up across multiple domains and can therefore contribute to a larger cumulative impact.

This is all costly, not only for the individual but also to society as a whole through higher health costs, lower employment, lower wages, lower tax revenue and lower productivity.

"There are no poor children, just poor families"

Later in this section, the headline trends for child poverty are reported using a range of measures.

It is sometimes said that the idea of "child poverty" doesn't make sense as it's really about families / households with financial and material resources that are not adequate for meeting the basic needs of the family (ie it's not poor children, it's poor families / households).

In this report, when it is said that "the child poverty rate on a given measure is 18%", this is a short-hand for "18% of children live in families / households whose total income is below the threshold used in the given measure". It is too cumbersome to repeat this each time, so the shorthand version is used: "the child poverty rate is 18%".

Headline trends for children (0-17 years)

Prior to Stats NZ's 2 April 2019 Child Poverty release for trends up to and including 2017-18, the Incomes Report was the source of information on child poverty trends. The information was based on Stats NZ's Household Economic Survey (HES). The relatively small sample size means that there are sizeable uncertainties around estimates for each year. These make it difficult to know whether observed changes from year to year are real changes or just reflect the chance variation that inevitably arises from using samples.

In addition, there is evidence of some sample bias arising from the under-representation of lower income / higher material hardship households, in some years more than others. Stats NZ, like other statistical agencies, find it more difficult to collect responses from these households.[86]

The Child Poverty Reduction Act (2018) requires Stats NZ to publish child poverty figures for the measures specified in the Act, starting with the 2018/19 year (reporting early 2020).

The Act also required the Government to set and gazette reduction targets for the primary measures by 20 June 2019. To do this, and for having start rates for the other measures too, baseline rates were needed for 2017/18. Stats NZ's 2 April 2019 release provides these 2017/18 baseline rates.

In 2018, Stats NZ received additional funding to improve the data source for measuring child poverty. This funding allowed for:

- a substantial increase in the sample size of HES (from 3,500/5,500 to 20,000 households)
- improvements to the survey design and operation to ensure a good representation of lower socio-economic households in the survey
- a move to using administrative (admin) data for income rather than collecting income directly from respondents.

The first results based on the new larger HES are expected from Stats NZ in early 2020, based on HES 2018/19.

Estimating the 2017/18 baseline rates

The challenge for Stats NZ for the 2 April 2019 release was to use existing data sources to produce 2017/18 baseline rates that were robust enough to use in the context of the target-setting, monitoring and accountability requirements of the Act.

The Act specifies three types of measures for measuring child poverty:

- low incomes before deducting housing costs (BHC incomes)
- low incomes after deducting housing costs (AHC incomes)
- material hardship (MH).

Stats NZ's approach to improving the robustness of the 2017/18 baseline estimates involved three elements:

- increasing the sample size by pooling the Household Labour Force Survey (HLFS) information with the HES – to reduce sample error
- using a revised set of benchmarks for calculating weights for converting sample numbers into population estimates – to better help in addressing sample bias issues at the lower end

[86] These matters are discussed in more detail in the last few pages of Section A in the sub-section headed "The value and limitations of the HES for the purposes of the reports'.

- using admin data from IRD and MSD for income information rather than rely on survey information or Treasury modelling through TAWA, their tax and transfer microsimulation model – to improve the accuracy of household income estimates.

Not all elements were able to be applied to each type of measure:

- The full treatment was able to be applied only to BHC income measures:
  - the pooled HLFS-HES dataset created a sample of close to 20,000 and this reduced sample error from around 2.5% to 1.1% for 50% BHC rates, a significant improvement
  - admin data was used as the source of income information.
- For AHC incomes:
  - admin data was used for the BHC income component of the AHC income, but as there is no housing cost information in the HLFS, the sample size was limited to that of the HES (5,500 in 2017/18)
  - revised weights helped somewhat in addressing under-representation due to sample bias.
- For material hardship estimates:
  - the HLFS does not have material hardship information, so the sample was limited to that of the HES (5,500 in 2017/18)
  - only the revised weights element could be applied to the material hardship estimates.

Reporting on child poverty trends in the Household Incomes Report

There are now two data sources that can be used for reporting on child poverty trends:

- The HES-TAWA data, with income information based on survey responses from the HES and Treasury's estimates via their TAWA micro-simulation model, together with the standard Stats NZ weights. The time series goes from 1982. (This is what MSD uses).
- The HES-HLFS data, with income information based on administrative data, and a revised set of weights based on the larger pooled dataset. The time series goes only from 2007. (This is what Stats NZ used for their BHC low-income rates for the Child Poverty release on 2 April 2019, and what they also used to estimate the weights for use with the AHC income data which was available only for the HES information). [87]

In this and subsequent sections only the HES-TAWA data is used. **Appendix 15** reports both the HES-TAWA (MSD) and HES-HLFS (Stats NZ)child poverty figures.

No new child poverty statistics in the 2019 Incomes Report

There are no new child poverty statistics in this edition of the Incomes Report. They are the same as in the April release from Stats NZ, and in the associated background paper from MSD.

Stats NZ are scheduled to publish updated figures in February 2020, based on HES 2018-19 and on related income data from administrative sources.

[87] For more on the two datasets and related matters, see Section A (towards the end), and the Child Poverty sub-section in **Section F** below.

Summary for child poverty trends (as reported in the charts and tables that follow)

- Using the AHC anchored line measures there was a slight rise in rates during the recession following the GFC then a steady fall through to 2018 (**Figure F.4**).

- For example, using the AHC 50% CV-07 measure the low-income rate for children fell from its GFC/recession peak of 20% to 13% in 2018, lower than the pre-GFC rate of 18%.

- Looking at the longer-term picture from 1982, and using the AHC 50% CV-07 measure, the low-income rate for children doubled in a very short period from the late 1980s to early 1990s, reflecting rising unemployment, a falling average wage, demographic changes (more sole parent families), the 1991 benefit cuts and the introduction of market rents in (what we now refer to as) social housing. It then steadily fell through to 2008 with improving employment, a rising average wage, rising female employment, the introduction of income-related rents and Working for Families. This fall in poverty rate through to 2008 indicates that the AHC incomes of many low-income households with children were higher in 2008 than in the mid 1990s (in real, inflation-adjusted terms).

- The longer-term BHC and AHC low-income trajectories are quite different, and show up as different trends for BHC and AHC child poverty rates using anchored line measures. BHC household incomes for low-income households were higher in real terms from 2004 to 2018 than in the mid 1980s. This shows up in the dashed line in the chart on the right, in which BHC anchored line low-income rates from around 2004 on are lower than in the 1980s. In the years 2010 to 2018 the BHC rate was 9-11% compared with 16-20% in the 1980s. On the other hand, AHC low-income rates were much the same in the years to 2015 as in the mid 1980s (18-20%), and have fallen since. This reflects the fact that <u>AHC incomes for low-income households with children were much the same in 2015 in real (inflation-adjusted) terms as in the 1980s</u>, despite the real increase in BHC incomes. This is mainly because housing costs are now much higher relative to BHC incomes, especially for low-income households (see Section C above).

- The policy settings for the AS remained unchanged from 2005 to 2017. There have been changes since which will be reflected in the data in future surveys and trend information.

- The three <u>fully relative AHC trend lines</u> (dashed lines in Figure F.4) show that low-income AHC rates for children have been fairly flat over the last 20-25 years on these measures. This indicates no noticeable change in income inequality in the lower half of the AHC incomes distribution in that period. In contrast, the AHC low-income rates have been around double what they were in the 1980s, corresponding to the large change in measured income inequality from the late 1980s to the early 1990s.

- There is <u>no measurable change in depth</u> of AHC relative low-income rates for children over the last 15 to 20 years. One way that increasing depth would show up is that the 40% relative line would move closer to the 50% relative line, showing an increasing proportion in very low income households (under 40%) compared with the numbers between the 40% and 50% lines. This has not happened to any measurable degree.

Proportion of children (0-17 years) below selected thresholds (BHC)

Figure F.3
Proportion of children below selected thresholds (BHC): fixed line (CV) and moving line (REL) approaches compared

Table F.6
Percentage of 0-17s below selected thresholds (BHC)

	Constant value or "anchored"		Relative to contemporary median		Population (000s)
HES year	50% 2007 median	50% 2018 median	50% contemp median	60% contemp median	
1982	17		12	20	998
1984	19		12	20	968
1986	20		10	19	940
1988	16		8	17	936
1990	17		7	16	913
1992	34		11	24	907
1994	37		11	24	937
1996	28		12	21	964
1998	20		10	20	984
2001	21		12	23	1052
2004	18		14	26	1070
2007	12	20	12	19	1091
2008	12	20	13	21	1085
2009	9	19	10	20	1087
2010	10	22	12	23	1091
2011	13	22	13	23	1103
2012	11	19	12	20	1083
2013	9	18	12	20	1094
2014	10	20	14	24	1094
2015	8	17	13	23	1097
2016	-	-	-	-	1104
2017	-	-	-	-	1103
2018	8	15	15	24	1131

Proportion of children (0-17 years) below selected thresholds (AHC)

Figure F.4
Proportion of children below selected thresholds (AHC):

Table F.7
Percentage of 0-17s below selected thresholds (AHC)

Threshold type	Constant value or "anchored"		Relative to contemporary median			Population (000s)
HES year	50% 2007 median	50% 2018 median	40% contemp median	50% contemp median	60% contemp median	
1982	19		8	14	22	998
1984	22		9	14	24	968
1986	17		6	12	21	940
1988	18		7	12	22	936
1990	20		6	13	21	913
1992	38		12	22	33	907
1994	40		13	24	35	937
1996	34		15	23	32	964
1998	31		15	22	32	984
2001	32		13	24	35	1052
2004	25		13	22	32	1070
2007	19	27	11	19	25	1091
2008	18	32	11	19	28	1085
2009	18	29	12	21	29	1087
2010	20	31	14	23	32	1091
2011	20	31	13	21	31	1103
2012	20	30	14	23	30	1083
2013	18	28	13	21	30	1094
2014	19	28	15	23	32	1094
2015	16	25	14	22	31	1097
2016	-	-	-	-	-	1104
2017	-	-	-	-	-	1103
2018	13	21	14	21	31	1131

Proportion of children (0-17 years) below 50% of median relative thresholds (BHC): Impact of using different equivalence scales

The OECD publishes child poverty league tables using the 50% BHC measure, but the square root equivalence scale which counts all household members as costing the same. This decision changes the ranking of households and their members on the income spectrum, and alters the median.

Figure F.5 and **Table F.9** below show the differing levels and trends using the two scales noted. They use the HES-TAWA dataset.[88]

Figure F5
Proportion of children below 50% of median (BHC, REL) threshold: Rates using square root and modified OECD scales compared

Table F.9
Proportion (%) of 0-17s below the 50% REL threshold (BHC):
modified OECD v square root equivalisation

	50% relative to contemporary median		Number of children (0-17 yrs), (000s)
HES year	50% of median, modified OECD scale	50% of median, square root scale as used by OECD	
1982	12	12	998
1984	12	12	968
1986	10	10	940
1988	8	8	936
1990	7	6	913
1992	11	16	907
1994	11	14	937
1996	12	13	964
1998	10	11	984
2001	12	15	1052
2004	14	15	1070
2007	12	15	1091
2008	13	14	1085
2009	10	12	1087
2010	12	16	1091
2011	13	15	1103
2012	12	14	1083
2013	12	13	1094
2014	14	17	1094
2015	13	14	1097
2018	15	16	1131

88 See also **Appendix 3** for more on equivalence scales.

Depth of poverty

Trends in head-count poverty rates tell only a part of the story. It is important also to have an understanding of what is happening to the incomes of those identified as poor, that is, what is happening to trends in the depth of poverty.

This report uses two indicators of income poverty depth:

- The ratio of the number below the 50% line to those below the 60% line. The higher this ratio, the greater is the depth of poverty, as a higher number means more of those under the 60% line are under the 50% line rather than between the two lines.
- Median poverty gap ratios. These compare the gap between the poverty threshold and the median income of those below the threshold with the threshold itself.

There are issues around the quality of the data among households with very low incomes, and these present challenges to providing robust information on poverty depth. See **Appendix 8** for more on this.

Figure F.6 shows that from the mid-1990s to 2018, using either the 50/60 ratio or the 40/60 ratio approach, there is no evidence of any sustained rise or fall in poverty depth. The increase came from the late 1980s to the early 1990s.

Figure F.7 uses the median poverty gap ratio and shows that for children the trend has been almost flat (very small rise) in the period from 2007 to 2018. The depth on average in recent years is ~28%. This means that the median income of those households with children under the 50% AHC REL line is around 36% of the AHC median (28% of 50% is 14%, and 50-14 is 36).

Figure F.6
Poverty depth, using ratio of number below the 60% AHC REL line to those under the 50% line

Reading note: the higher the ratio the greater the depth of poverty (see text).

Figure F.7
Poverty depth, using the median poverty gap ratio, AHC 50% REL, 0-17 yrs

Annex to Section F

A How many poor children are there in New Zealand?

- The table below shows the low-income and material hardship rates for children for the nine static measures in the CPRA, comparing the 2017-18 rates produced by each dataset and the associated weights (see pp137f.) The Stats NZ rates are the official rates.

- The rates are very close from each dataset for both BHC and material hardship measures, but there is a small difference in the after housing costs (AHC) rates. The BHC, AHC and material hardship trends are the same on both datasets (see Section A). Stats NZ and MSD are seeking a better understanding of the cause of the small difference in AHC rates.

Low-income and material hardship for children (0-17 yrs), for the nine static measures in the CPRA:
2017-18 baseline rates (%) and numbers (000s)

	BHC 50	BHC 60	AHC 40	AHC 50	AHC 60	AHC 50 anchored	Material hardship	Severe material hardship	Combined: under AHC 60 and in MH
Stats NZ rates (dataset A)	16	25	16	23	31	23	13	6	9
MSD rates (dataset B)	15	24	14	21	31	21	13	6	9
Stats NZ numbers (dataset A)	180	280	170	250	340	250	150	70	90
MSD numbers (dataset B)	170	280	160	240	350	240	150	70	100

Which is the best measure?

The desire to be able to say that 'the poverty rate for New Zealand children is X%' or that 'there are YY,000 children in poverty' is understandable. However, there are several reasons why it is neither a realistic nor even a desirable goal.

- The desire for 'one number' assumes that the poverty rate is a relatively straightforward, uncontested and binary statistic ("you're under the line and in poverty or over it and not in poverty"), in the same category as declaring how many children of a certain age are taller than, say, 130 cm.
- Income poverty (low income) and material hardship each exist on <u>a continuum</u> from less to more severe. The notion of poverty is a contestable one and different views can reasonably be held on the matter of where to draw the line on the spectrum from more to less severe material disadvantage, whatever measure is used. It's not that any threshold will do, nor that all measures are equally suspect. There is good evidence that can be drawn on to inform the judgement call: some measures / thresholds are clearly more reasonable and defensible than others. The point is that there is no definitive uncontested way to allocate households to the categories of 'poor' and 'not poor'.
- Beyond these matters of judgement, it is important to use more than one measure and more than one threshold for each, as trends in poverty rates and in the composition of those identified as poor can be quite different at different depths and for different measures.
- The reports take the view that the most productive approach is to focus on telling a more comprehensive story about trends at different depths, and on seeking to understand why different measures produce different trends and what all this means for policies to address poverty.
- This multi-measure multi-level approach is in line with the approach taken in the Child Poverty Reduction Act (2018).
- For productive public discussion and debate, we have to use some numbers. One way to have some, while taking all the above into account, is to use conservative estimates that few would challenge:
  - The Incomes Report provides or refers to evidence that household incomes below 40% of the AHC median are very restrictive. For example, this is around $300 pw for a sole parent plus one child household, $500 pw for a two parent plus two children household, and $350 pw for a couple-only household (all after-housing costs).
  - The combined measure which identifies the poor as those with incomes under the AHC 60 line and who are also in hardship is also a measure at the conservative end of the spectrum.
  - <u>This points to a conservative estimate of 100,000 to 170,000 poor children – children whose day-to-day standard of living did not reach an acceptable minimum for New Zealand in 2018</u>.
- [For international comparisons, the choice of measure and threshold is straightforward – use the

B To assist with comparing apples with apples: measures used internationally for reporting on "poverty and material hardship", especially for children.

OECD

Low incomes

- 50% BHC relative (mainly)
- 60% BHC relative (used less than the 50%)
- sometimes they use an anchored line approach, but rarely
- the OECD never uses AHC, mainly because many OECD countries do not collect housing costs in the same survey as they collect the income data so cannot do what we do.

Material hardship

- no hardship measures are available from the OECD, partly because not enough member countries collect the relevant data.

New Zealand children

- using the 50% BHC relative measure, the low-income rate for NZ children is 14% (150,000 children), and the OECD median is 12% (HES 2015, latest available comparison).

EU (and Eurostat)

Low incomes

- 60% BHC relative
- the EU never uses AHC, mainly because many EU countries do not collect housing costs in the same survey as they collect the income data so cannot do what we do

Material hardship

- the relevant data is collected by all EU countries – the EU uses a13-item index which is similar to our DEP-17
- we can replicate EU-13 reasonably well using NZ data for 2008

New Zealand children

- using the 60% BHC relative measure, the low-income rate for NZ children is 24% (250,000 children), and the EU median is 21% (HES 2015, latest available comparison)
- using the EU 13-item index, the 2017 rate for NZ children was 15% (160,000) on their standard measure (5+/13), at the EU median.

UNICEF (International Research Centre in Florence)

Low incomes

- they use a range of approaches, depending on the purpose of the publication, but they have never used AHC, because there is no source for international comparisons using AHC incomes (see above on the OECD and the EU)
- in Report Card 11 (2013) – 50% of median BHC relative plus a material hardship index
- in Report Card 12 (2014) – 60% of median BHC anchored plus a material hardship index
- in Report Card 13 (2016) – 50% of median BHC relative.

Material hardship

- UNICEF (Research Centre) recognises the value of this approach and would like to use it more, but only the EU countries and NZ can provide the analysis for international comparisons.

UK – we can do AHC comparisons

- the New Zealand and UK figures using the AHC relative (or moving line) low income measures are almost identical for children:
  - AHC 60% relative for children (UK = 30%, NZ ≈ 30%(around 350,000))
  - AHC 50% relative for children (UK = 19%, NZ ≈ 22% (around 250,000)).

C What the reports do not say

As discussed in Section E, the starting point for both reports is that poverty is about household resources not being adequate to meet basic needs or, to put it another way, it is about being excluded from a minimum acceptable standard of living in one's own society because of inadequate resources. Clearly there is room for debate about just where on the spectrum of severity it is reasonable to draw the lines, though in practice the range of plausible thresholds is fairly narrow. The reports take the view that a multi-level multi-measure approach is the best way to monitor trends. This enables the New Zealand story to be told in a comprehensive and nuanced way that better informs public debate, political decision-making and policy development.

There are several fairly commonly-made claims about child poverty and hardship in New Zealand which directly or indirectly use some of the numbers from the reports, but which are claims that the reports do not in fact support. In some cases the reports explicitly show that the claims are misleading or incorrect.

"There are [XYZ,000 (choose own preferred number)] children in New Zealand below the poverty line / the bread line"

- Such claims definitively declare how many thousand children are in (income) poverty in New Zealand, as if it were a relatively straightforward, uncontested and binary statistic ("you're under the line and in poverty or over it and not in poverty"), in the same category as declaring how many children of a certain age are taller than, say, 130 cm.
- The reports show that there is no single low-income measure which satisfactorily divides children into the poor and the non-poor in the way that such claims seek to do. There is a range of plausible thresholds that can be used. There are also factors other than income which determine whether a household has the resources needed to achieve a minimum acceptable standard of living. The reports take the view that the most productive approach is to focus on telling a more comprehensive story about trends at different depths, and on seeking to understand why different measures produce different trends and what all this means for policies to address poverty and hardship.
- This is all in line with the approach taken in the Child Poverty Reduction Act (2018).

"There are [XYZ,000 (choose own preferred number)] children in New Zealand below the poverty line: they don't have a waterproof coat, shoes in good condition for daily activities, their own bed, a warm dry home, and they have to miss out on participation in sporting and other activities, and so on"

- This claim works off the assumption that all 'poor' (low-income) children lack all or most of the items used in the NIMs report to create the hardship indices or in the calibration exercise to select usable thresholds.
- The assumption is not correct. The reports show that not all low-income households are experiencing hardship: the overlap of the two groups is typically around 40-50% using standard thresholds. In addition, the proportion of low-income households lacking individual items, when taken one at a time, is even lower.
- An example (using HES 2015 and 2018 together):
  - the surveys show that around 9% of all children (95,000) live in homes that report a major problem with dampness and mould
  - for children in households with incomes below the 60% AHC threshold (~320,000), 'only' 50,000 live in such homes (15% of the 320,000)
  - though this is 50,000 more than what most would consider acceptable, it is a much smaller group than the 320,000.
- This analysis is not saying that there is not an issue to address. There is, but exaggerations and misleading claims are not helpful for productive public and political debate.

"NZ has one of the highest child poverty rates in the (more developed / richer) nations"

- This claim has usually started with the numbers produced using the 60% AHC relative low-income measure: around 28-31% (320,000) children live in low-income households with incomes below this threshold.
- This relatively large number is then compared with the numbers in international league tables produced by the OECD and others. These tables use only BHC measures. The comparison is an invalid apples-with-carrots comparison. For example, using the OECD's 50% of median BHC measure the rate for New Zealand is 14%, a little above the OECD median (12%), but half the 28-31% figure above which uses a different measure. The only other country to regularly report AHC rates is the UK and for them the low-income rate for children is close to New Zealand's using the same measure (30%).
- In their Concluding Observations after the 2016 review of New Zealand, the United Nations Committee on the Rights of the Child (UNCROC) noted that it is "deeply concerned about the enduring high prevalence of poverty among children". This conclusion was based on submissions by various New Zealand groups who used the apples-with-carrots approach, described above.
- This analysis is not saying that there is not an issue to address. There is, but misleading claims are not helpful for productive public and political debate.

"The 60% of median BHC or AHC relative lines are the standard or accepted poverty lines in New Zealand and have been validated by focus group research carried out in the 1990s and a little later"

- The claim about these measures being standard or accepted is contestable. New Zealand does not have any single standard poverty measure. The Child Poverty Reduction Act (2018) adopts a multi-measure multi-level approach to better capture the different trends observed by the different measures and at different levels.
- The BHC and AHC measures are quite different and produce quite different rates and trends. They cannot validly be used interchangeably, though some appear to do this, both in New Zealand and overseas.
- The focus group evidence referred to provides some support for a 60% BHC threshold but the focus groups actually produced a wide range of estimates, reflecting in the main the differing housing costs across the country. The focus group research does not support a 60% AHC threshold. See **Appendix 6** for details.

"There is no child poverty in New Zealand"

- Those who make the claim are usually referring to the extreme destitution of some children in 'third-world' countries. Reference is made to distended bellies, flies crawling around large sad eyes, no clean water, no good sanitation and so on.
- The 'poverty' word is awkward, not only because of the complexity of the notion and the fact that different people have different perspectives on its meaning and its causes, but also because whenever and however it is used it is describing an unacceptable state-of-affairs which demands a remedy. However, no semantic niceties can change the reality that there are children in New Zealand who are going without the very basics, without items and experiences that virtually everyone would say that all children should have and none should be deprived of in New Zealand in 2018. This is shown in the report using Non-incomes Measures. Some individual items tell the same story. For example:
    - 9% of all children (95,000) live in households where the respondent reports that they put up with feeling cold "a lot" to keep costs down (HES 2018)
    - 7% of all children (70,000) live in households which had to use foodbanks and the like "more than once in the last 12 months" (HES 2018)

  - 4-5% of 6-17 year olds (35-40,000) do not have fresh fruit or vegetables each day "because of the cost", and the bulk of these children are in households with multiple other deprivations (HES 2016)
  - 8% of households with 6-17 year olds do not have two pairs of shoes in good condition, suitable for daily activities, for each child (HES 2016)
  - [These figures will be updated in the next report using 2019 data. The 2016 figures should be taken as conservative estimates given the known issues with the 2016 HES data.]

- As with other exaggerated claims, the 'no poverty' claim is not helpful for productive public and political debate, in the face of evidence of unacceptable material disadvantage for some children.

"*(Income) poverty is relative, so no country can ever eliminate poverty"*

- The assertion is based on the view that there will always be a group of households with incomes that are low relative to those in the middle. By definition, therefore, "the poor will always be with us".
- It misses the point that the incomes of the poor can be raised without raising the level of the median. This is what happened when the WFF package was rolled out from 2004 to 2007, and is what the Families Package, implemented in 2018, will do. The shape of the income distribution at the lower end is not fixed in stone – it can be changed without changing the median or with only a small change in the median.
- Another version of this misunderstanding is the claim that when low-income households have more income transferred to them in an attempt to reduce income poverty, the process is at least partially self-defeating, as this action raises the mean and therefore also raises a poverty line set as a % of the mean (unless there's a perfectly matching income reduction for those above the mean). The misunderstanding here is that poverty lines are only very rarely set as a % of the mean these days: the median is used as the reference for the middle and raising the incomes of low-income households has no impact on the median.

Section G
Trends for the whole population, 1982 to 2018, by various individual and household characteristics

This section:

- compares trends in poverty rates for subgroups within the population
- reports on the changing composition of those identified as poor on the chosen measures.

The individual and household characteristics used for subgroup analyses are:

- age of the individual
- sex of the individual
- ethnicity of the individual (no trends) [89]
- tenure
- household type
- number of children in the household
- main source of income for households under 65.

For subgroup comparisons, the report recommends the use of AHC measures (see **Appendix 5**). **Table G.1** notes the AHC measures used in this section.

Table G.1
Poverty measures reported on in Section G for subgroups of the whole population

AHC measures			
"moving line" (relative)		"anchored line" (constant value)	
REL (from 82 on)		**CV-07** (from 82 on)	**CV-18** (from **07** on)
50%	60%	50%	**50%**
✓	✓	✓	✓

Notes: 1 'CV-07' indicates that 2007 is the reference year used.
2 The 50% CV-18 measures give rates that are close to the former 60% CV-07 measures

[89] Estimates of poverty rates by ethnicity are too volatile to provide reliable information on survey by survey trends. See the discussions in Section A (Introduction) and Section B. Trends in median household incomes by ethnicity are given in Section D, and indicative relativities between ethnic groups are given in this Section, and in Section H for children, using averages over three recent surveys.

Individuals in low-income households by age

- Setting aside the 18-24 year old group, **Figure G.1** and **Table G.2** show that there has been a hardship gradient across the age groups since the early 1990s, with older New Zealanders having lower income poverty rates than children, and other ages falling in between.
- The position of those aged 18-24 years deteriorated relative to other groups from the mid 1990s through to 2007 and has not recovered since.

Table G.1
Proportion of all individuals in low-income households by age
AHC 50, CV-07 (anchored, 2007 threshold)

	0-17 yrs	18-24 yrs	25-44 yrs	45-64 yrs	65+ yrs	18-64 yrs	TOTAL
1982	19	9	13	7	7	10	13
1984	22	8	15	7	6	11	14
1986	17	7	11	7	7	9	11
1988	18	8	14	7	8	11	13
1990	20	11	14	8	8	11	14
1992	38	21	26	13	9	21	24
1994	40	23	25	17	10	22	26
1996	34	20	23	13	9	19	22
1998	31	19	20	13	9	17	20
2001	32	23	19	14	9	18	21
2004	25	22	18	13	7	17	18
2007	19	20	13	12	9	14	15
2008	18	12	13	12	8	12	13
2009	18	15	13	11	5	12	13
2010	20	16	13	12	5	13	14
2011	20	23	14	13	6	15	15
2012	20	20	13	10	6	13	14
2013	18	16	14	12	3	13	13
2014	19	20	12	12	4	13	13
2015	16	17	11	12	5	12	12
2016	-	17	11	12	5	12	12
2017	-	15	10	10	5	11	10
2018	13	14	9	10	5	10	10

Figure G.1
Proportion of all individuals in low-income households by age, AHC 50% CV-07 threshold
(rolling two-year average from 2008 on)

Table G.2
Proportion of all individuals in low-income households by age
AHC 50, CV-18 (anchored, 2018 threshold)

	0-17 yrs	18-24 yrs	25-44 yrs	45-64 yrs	65+ yrs	18-64 yrs	TOTAL
2007	27	27	20	19	30	20	23
2008	32	22	21	19	24	20	24
2009	29	21	19	17	18	19	21
2010	31	21	20	16	14	19	21
2011	31	31	22	19	15	22	23
2012	30	29	20	14	13	19	21
2013	28	23	22	16	13	19	21
2014	28	24	18	16	13	18	20
2015	25	22	17	15	11	17	18
2016	-	23	15	16	12	17	18
2017	-	23	16	14	10	16	16
2018	21	20	14	14	11	15	16

Table G.3
Proportion of all individuals in low-income households by age
AHC 50, moving line, relative

	0-17 yrs	18-24 yrs	25-44 yrs	45-64 yrs	65+ yrs	18-64 yrs	TOTAL
1982	14	6	10	4	3	8	9
1984	14	5	10	5	2	7	9
1986	12	6	8	5	4	7	8
1988	12	6	10	6	4	8	9
1990	13	8	10	5	3	8	9
1992	22	12	15	8	2	12	14
1994	24	15	15	10	2	13	15
1996	23	13	14	9	4	13	14
1998	22	13	14	10	5	13	14
2001	24	18	15	11	4	14	16
2004	22	21	17	13	6	16	16
2007	19	20	13	12	9	14	15
2008	19	12	13	12	8	13	14
2009	21	16	15	12	7	14	15
2010	23	17	14	13	7	14	16
2011	21	24	14	14	6	16	16
2012	23	22	15	11	7	14	15
2013	21	18	16	13	6	15	16
2014	23	21	15	14	6	15	16
2015	22	21	15	14	7	15	16
2016	-	20	13	14	8	15	15
2017	-	22	15	13	9	15	15
2018	21	20	14	14	11	15	16

Individuals in low-income households by sex

- **Tables G.4 and G.5** show that from 1988 to 2018 on the 50% of median AHC moving line and anchored line (CV-07) measures, females were a little more likely than males to be below the threshold.
- **Table G.6** gives the numbers in each group for HES 2018.

Table G.4
Proportion of individuals aged 15+ in low-income households by sex, AHC income, 50% of median (REL threshold)

	88	90	92	94	96	98	01	04	07	08	09	10	11	12	13	14	15	16	17	18
Female	7	7	11	12	13	12	14	14	13	12	13	14	14	14	14	15	14	15	15	14
Male	7	7	11	11	11	11	11	15	13	11	12	12	13	13	13	13	13	13	14	14
TOTAL (15+)	7	7	11	12	12	11	12	14	13	12	13	13	14	13	13	14	14	14	14	14

Table G.5
Proportion of individuals aged 15+ in low-income households by sex, AHC income, 50% of median (CV 2007 threshold)

	88	90	92	94	96	98	01	04	07	08	09	10	11	12	13	14	15	16	17	18
Female	11	11	21	22	20	18	19	16	14	13	12	13	14	13	12	13	11	12	11	9
Male	10	11	19	20	17	15	15	16	13	10	11	11	13	11	11	11	11	10	9	9
TOTAL (15+)	10	11	20	21	18	16	17	16	13	12	11	12	14	12	12	12	11	11	10	9

Table G.6
Numbers of individuals aged 15+ in low-income households by sex, HES 2018 AHC income, 50% of median moving line (REL) threshold)

	HES 2018	
	Total	"Poor"
Female	1.95m	184,000
Male	1.86m	171,000
TOTAL (15+)	3.81m	355,000

Individuals in low-income households by ethnicity (under 65s)

As noted in the Introduction, only limited analysis by ethnicity is reported because of the relatively small sample sizes for Maori, Pacific, Asian and Other ethnic groups (especially Pacific and Other). To improve the robustness of the findings the analysis in this section combines the data from three surveys (HES 2013 to HES 2015) to give an indication of the relativities in low-income rates by ethnicity. 2018 figures are also provided, as this survey had a larger sample size (5500). The analysis looks at those aged under 65 years to avoid the impact of the (predominantly) European/Pakeha older age group.

Low-income rates for those in the Maori, Pacific and Asian groups are consistently higher than for those in the European/Pakeha ethnic group (roughly double), whatever measure is used.

For example, on average over the three surveys HES 2013 to HES 2015, using the AHC 50% moving line line measure, 12% of European/Pakeha, 27% of Maori, 27% Pacific and 23% Asian were in households with incomes below this line. The rate for all under 65s on this measure was 17%.

For 2018, the figures were much the same: 13%, 23%, 22%, 19%, and 16% for all under 65s (larger sampling errors than for 2013 to 2015).

The above analysis uses ethnicity defined on a prioritisation approach (see Introduction). Using a 'total count' approach makes little difference for this purpose: for 2013 to 2015 the corresponding figures are 13%, 27%, 27%, 23%, and 17% for all under 65s.

<u>Composition of the poor by ethnicity</u> (under 65s)

It is important to distinguish between the proportion of a group who are counted as poor, and the proportion of the poor who are from a particular group, that is, between rates and composition.

Using the same approach as for the rates above (AHC 50% relative), 48% of those identified as poor were in the European/Pakeha group, 23% in the Maori, 11% in the Pacific, and 14% in the Asian group.

Using a higher low-income line (60% of median), the composition proportions are 44%, 25%, 12% and 16% respectively. There is no evidence here of greater depth of poverty for any one group. (Though relative to the whole income distribution, Maori and Pacific are more concentrated below the median.)

Individuals in low-income households by highest household educational qualification

There is a well-established positive link between adult educational qualifications and employment opportunities and wages received.

Table G.7 (next page) shows the fairly steep gradient for low-income rates for individuals from households of lower and higher educational qualifications.

A higher educational qualification does not of itself guarantee an adequate income however, as the 11% low-income rate for university graduates indicates.

One third of those in the low-income group (36%) have post-school non-degree qualifications, even though the low-income rate for this group is much lower than that for the group with no formal qualifications, now a relatively small group.

Table G.7A
Low-income rates and low-income composition by highest household educational qualification: averages over HES 2013 to 2015 & 2018, using the AHC 50% of median relative measure,
for individuals under 65

	Low-income rate (%)	Low-income composition (%)	0-64 population composition (%)	Risk ratio[90]
No formal qualification	43	13	5	2.5
School qualification only	27	33	21	1.6
Post-school non-degree	16	31	34	0.9
Degree or post-graduate	10	23	40	0.6
ALL (0-64)	17	100	100	-

Table G.7B
Low-income rates and low-income composition by highest household educational qualification: averages over HES 2013 to 2015 & 2018, using the AHC 50% of median relative measure,
for those aged 0-17 yrs

	Low-income rate (%)	Low-income composition (%)	0-17 population composition (%)	Risk ratio[91]
No formal qualification	54	15	6	2.5
School qualification only	33	35	23	1.5
Post-school non-degree	20	31	34	0.9
Degree or post-graduate	12	20	37	0.5
ALL (0-17)	22	100	100	-

Reading note : The numbers for each of the 4 years used are reasonably close

Individuals in low-income households by tenure

- There is a clear hardship gradient across different tenures for those aged under 65 (**Table G.8A**): relatively low low-income rates for those in mortgage-free homes and a little higher for those who still have a mortgage, higher still for those in private rental and receiving the Accommodation Supplement, with those in HNZC tenancies having the highest poverty rates (as would be expected given the criteria for being allocated a 'social housing' tenancy).
- For those aged 65+, the hardship gradient is also clear (**Table G.8B**). The figures underline the value of having a mortgage-free home in 'retirement' years (72% of those aged 65+ live in mortgage-free homes (average for three surveys, 2016 to 2018)).
- Around half of all those aged under 65 who are in a low-income household (on the 50% AHC relative measure) live in private rental accommodation. The figure rises to two in three when HNZC and private rentals are counted together.
- For those aged 65+, 60% under the threshold are in rental accommodation, and around 25% live in their own home or that of a/their Family Trust that still has a mortgage.

Table G.8A
Proportion (%) of individuals aged under 65 in low-income households by tenure,
AHC REL threshold (50% of AHC median)

	92	94	96	98	01	04	07	08	09	10	11	12	13	14	15	16	17	18
Owned or FT, no mortgage	8	4	6	6	9	9	8	7	6	7	10	4	7	8	7	9	9	9
Owned or FT, with mortgage	13	16	13	11	14	11	12	10	12	12	10	12	10	11	12	10	10	10
Rented - private (no AS)	29	30	28	28	29	30	7	8	6	9	11	7	8	9	8	7	7	9
Rented - private (AS)							39	30	39	40	36	35	43	41	39	37	35	37
Rented – HNZC or local authority	30	44	41	44	34	40	28	34	35	36	46	52	33	46	48	57	46	51
TOTAL (under 65)	16	17	16	15	17	18	15	14	16	17	17	17	17	17	17	16	16	17

90 See p163 for definition of risk ratio.

91 See p163 for definition of risk ratio.

Table G.8B
Proportion (%) of individuals aged 65+ in low-income households by tenure,
AHC REL threshold (50% of AHC median)

	92	94	96	98	01	04	07	08	09	10	11	12	13	14	15	16	17	18
Owned or FT, no mortgage	0	0	1	1	2	2	4	2	1	2	2	1	1	2	2	3	4	6
Owned or FT, with mortgage	3	10	3	19	12	10	14	21	24	14	13	15	17	15	12	20	14	17
Rented	10	10	31	34	20	32	31	31	33	28	25	36	27	22	29	28	42	37
TOTAL (65+)	2	2	4	5	4	6	9	8	7	7	6	7	6	6	7	8	9	11

Table G.9 repeats the analysis above in Table G.8 using the 50% of median AHC-07 anchored line measure**.**

Table G.9A
Proportion (%) of individuals aged under 65 in low-income households by tenure,
AHC CV threshold (50% of 2007 AHC median)

	92	94	96	98	01	04	07	08	09	10	11	12	13	14	15	16	17	18
Owned or FT, no mortgage	11	9	10	7	11	9	8	6	4	6	9	4	7	7	6	8	7	6
Owned or FT, with mortgage	27	26	22	17	19	12	12	10	11	10	9	10	8	9	9	7	7	7
Rented - private (no AS)	36	44	38	38	36	33	7	8	6	8	11	7	6	8	7	6	4	6
Rented - private (AS)							39	30	34	36	35	33	41	35	32	31	24	26
Rented – HNZC or local authority	65	69	63	61	45	42	28	31	30	29	40	45	23	42	33	40	28	29
TOTAL (under 65)	26	28	24	22	22	19	15	14	14	15	16	15	15	15	13	13	11	11

Table G.9B
Proportion (%) of individuals aged 65+ in low-income households by tenure,
AHC CV threshold (50% of 2007 AHC median)

	92	94	96	98	01	04	07	08	09	10	11	12	13	14	15	16	17	18
Owned or FT, no mortgage	2	2	1	2	2	2	4	2	1	2	2	1	1	2	2	2	2	3
Owned or FT, with mortgage	12	16	17	32	38	11	14	21	21	13	13	12	10	11	10	15	9	9
Rented	56	66	71	58	37	43	31	31	23	17	25	28	13	14	13	21	22	14
TOTAL (65+)	9	10	9	9	9	7	9	8	5	5	6	6	3	5	5	6	5	5

Notes:
1. 'Owned or FT, no mortgage' means that the dwelling is owned by the householders or a Family Trust, and the householders make no mortgage payments.
2. For the 65+ 'owned or FT, with mortgage', the sample numbers are small – the general conclusion that the poverty rate for mortgage payers is significantly higher than for those who own without a mortgage is robust, but the sample numbers do not support precise figures.
3. For the 65+, all renters are grouped together as the sample numbers are too small to split private and HNZC renters.

Individuals in low-income households by household type

This summary section uses the 50% AHC REL low-income measure, with some reference to figures using the 60% AHC REL measure. There are also tables for the AHC CV-07 and CV-18 measures.

The rates reported on this summary page are generally from HES 2018.

- Sole-parent households with dependent children have the highest low-income rates of all household types of around 52%, compared with a population rate of 16%. Using the 60% AHC REL measure, the rates are around 63% compared with 23% respectively.

- Around one in three sole-parent families (EFUs) live in wider households with others.[92] Table G.10 shows the lower low-income rates for these embedded sole-parent EFUs (around 26% compared with around 57% for those sole-parent EFUs who live on their own).[93]

- Two-parent households with dependent children have much lower low-income rates (14%) than sole-parent households, but because there are many more people living in two-parent households, there are more low-income individuals from two-parent households than from sole-parent households (around two-thirds more in recent years).

- While those in households with dependent children make up the bulk of those classified as poor (around 60%), working-age adults in households without dependent children now make up a larger proportion of those in low-income households than in earlier years (34% on average in 2013 to 2015, compared with 20% in the mid 1990s and 15% in the mid 1980s). This rise is driven not only by the increasing share of households without dependent children but also by the fact that since the mid 1990s low-income rates for working-age households without children have not declined as much as those for households with children. In fact, for some, the rates have risen since then.

- The AHC low-income rate for older working-age adults living on their own (45-64 years) almost quadrupled from the mid 1980s to 2018 (10% to almost 40% - see **Table G.14**). The 2018 rate is second only to sole-parent households (52%).

- Overall AHC low-income rates for those aged 65+ have been considerably lower than those for the rest of the population over the full period from 1982 to 2018. However, those older New Zealanders living on their own have generally had a higher proportion below the threshold than have those in couple households, and in recent years have seen their AHC relative low-income rates rise (**Figure G.3**).

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92 Some of the embedded SP EFUs are in the HH grouping 'sole-parent HHs with (any) dependent children' (along with adult children), and some are in the grouping 'Other family HHs with children'. Note that individuals retain the equivalised income of their household of origin for this analysis on the grounds that those in the wider households share to a reasonable degree in the benefits of the wider households and the economies of scale.

93 Preliminary analysis using non-income measures from the 2008 Living Standards Survey indicates that the hardship rates for sole parent families in households on their own are very close to those for sole parent families living with others in a wider household. This is a quite different finding from the income-based one in this report . Further investigation is being undertaken to better understand the difference.

Table G.10A
Proportions of individuals in low-income households by household and family type
50% AHC REL

	07	08	09	10	11	12	13	14	15	16	17	18
In all households												
Single 65+	13	11	12	16	9	10	10	7	12	13	18	22
Couple 65+	6	6	2	3	4	5	5	6	4	5	6	7
Single under 65	30	24	30	28	32	26	28	35	36	31	35	35
Couple under 65	11	9	8	7	13	7	12	9	8	10	14	10
Sole parent with children	43	47	44	50	52	56	52	57	45	-	-	52
Two parent with children	12	11	13	15	13	13	13	14	15	-	-	14
Other family HHs with children	18	14	17	21	15	19	21	15	18	-	-	14
Other family HHs, adults only <65	8	9	12	9	8	8	11	9	10	13	11	9
Non-family HHs	15	10	13	11	17	17	10	18	22	17	20	19
In households with dependent children												
Total	17	16	18	20	19	20	19	20	19	-	-	18
- with 1 child	15	14	14	18	21	16	20	20	17	-	-	14
- with 2 children	14	14	17	16	13	18	16	15	15	-	-	18
- with 3 or more children	23	22	25	29	24	27	23	26	28	-	-	23
In families (EFUs) with dependent children												
SP families overall	38	37	39	46	45	50	47	52	42	-	-	42
- living on their own	45	49	48	55	58	60	57	64	53	-	-	57
- within wider HHs	28	18	21	31	22	31	25	29	22	-	-	20
2P families	12	12	14	15	12	13	13	14	15	-	-	14
Under 65, by main source of household income in the 12 months prior to interview												
Market	8	8	9	8	8	9	9	10	10	10	10	11
Income-tested benefit	69	66	77	74	72	78	78	78	80	80	79	73
All in households under 65	15	14	16	17	17	17	17	17	17	16	16	17
Under 65, by work status of adults in household at time of interview												
Self-employed	9	11	9	13	12	12	12	12	12	12	14	11
One or more FT	8	8	8	7	7	7	8	8	9	9	9	9
None FT	53	49	54	53	60	61	63	64	62	64	63	65
Workless	60	58	62	60	67	71	75	71	71	71	69	71
Total population	**15**	**14**	**15**	**16**	**16**	**15**	**16**	**16**	**16**	**15**	**15**	**16**

Table G.10B
Proportions of individuals in low-income households by household and family type
60% AHC REL

	07	08	09	10	11	12	13	14	15	16	17	18
In all households												
Single 65+	34	32	37	37	20	20	26	34	35	31	46	46
Couple 65+	12	13	10	7	7	9	9	10	10	11	13	16
Single under 65	37	32	35	32	38	30	34	40	40	36	38	38
Couple under 65	14	12	11	9	15	9	14	10	12	12	16	14
Sole parent with children	58	62	55	64	67	65	61	67	59	-	-	63
Two parent with children	16	19	20	23	21	20	20	21	22	-	-	22
Other family HHs with children	26	24	24	22	22	27	31	25	25	-	-	25
Other family HHs, adults only <65	13	10	14	12	13	11	18	11	13	16	14	13
Non-family HHs	19	16	17	16	20	20	15	21	26	28	23	24
In households with dependent children												
Total	23	25	26	28	28	27	27	28	27	-	-	27
- with 1 child	19	22	19	23	27	23	25	26	23	-	-	19
- with 2 children	22	21	24	24	21	25	23	21	22	-	-	25
- with 3 or more children	29	34	37	39	37	34	34	41	39	-	-	42
In families (EFUs) with dependent children												
SP families overall	50	53	49	57	58	59	56	61	55	-	-	54
- living on their own	60	65	59	68	72	68	67	71	68	-	-	68
- within wider HHs	37	32	31	37	34	42	33	40	31	-	-	34
2P families	17	19	21	22	20	19	20	22	22	-	-	23
Under 65, by main source of household income in the 12 months prior to interview												
Market	12	14	14	13	14	14	15	16	16	16	16	17
Income-tested benefit	83	84	89	85	85	88	89	85	90	86	91	87
All in households under 65	21	21	22	23	24	22	23	23	23	22	23	23
Under 65, by work status of adults in household at time of interview												
Self-employed	11	15	14	20	20	16	23	20	18	19	19	17
One or more FT	11	14	13	11	13	12	13	13	14	13	15	16
None FT	68	66	65	65	70	71	76	71	72	74	74	74
Workless	77	74	72	69	76	79	84	76	79	78	77	79
Total population	**21**	**21**	**22**	**22**	**22**	**21**	**22**	**22**	**22**	**21**	**23**	**23**

Table G.11
Composition of individuals below the threshold, by household and family type
(Columns add down to 100%)

A. 50% AHC REL

	07	08	09	10	11	12	13	14	15	16	17	18	Popln in '18'
By household type													
Single 65+	3	3	3	4	2	2	2	2	3	3	4	5	3
Couple 65+	3	3	1	1	2	3	3	3	2	3	4	4	10
Single under 65	9	8	9	8	10	8	8	10	10	8	9	8	4
Couple under 65	10	9	6	6	11	6	9	7	6	7	11	7	10
Sole-parent with children	19	25	24	22	26	25	24	25	18	19	17	19	6
Two-parent with children	32	31	32	37	30	32	31	32	33	30	30	31	35
Other fam HHs with ch	12	8	11	10	7	10	10	6	10	9	7	9	9
Other fam HHs, adults only	6	7	9	7	6	6	9	7	10	14	12	10	17
Non-family HHs	6	4	6	4	7	7	4	8	8	6	9	8	7
Under 65, by main source of household income													
Market <65	48	51	49	43	41	47	49	51	53	57	56	59	91
Govt < 65	52	49	51	57	59	53	51	49	47	43	44	41	9
Under 65, by work status of adults in household													
Self-employed	5	9	6	8	7	6	7	7	7	11	12	9	13
One or more FT	37	42	38	31	30	33	37	34	40	39	41	42	70
None FT	57	49	56	62	63	61	56	59	53	50	47	50	17
- *PT only*	16	11	16	16	15	15	13	16	14	13	12	14	5
- *Workless*	42	39	41	45	48	46	43	42	39	37	35	36	12
Total population	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**104**	**100**	**100**

B. 60% AHC REL

	07	08	09	10	11	12	13	14	15	16	17	18	Popln in '18'
By household type													
Single 65+	6	6	6	6	3	4	4	6	6	6	8	7	3
Couple 65+	4	5	4	2	3	3	4	4	4	4	6	6	10
Single under 65	8	7	8	7	8	7	7	8	8	7	7	6	4
Couple under 65	8	8	6	5	9	6	7	5	6	6	9	6	10
Sole-parent with children	18	22	20	21	23	22	20	20	17	16	15	15	6
Two-parent with children	31	34	34	40	35	35	33	35	35	35	37	34	35
Other fam HHs with ch	12	10	10	8	7	11	11	7	9	8	8	10	9
Other fam HHs, adults only	8	5	7	7	7	6	11	7	9	12	11	9	17
Non-family HHs	5	5	5	5	5	6	4	7	6	6	8	7	7
Under 65, by main source of household income													
Market <65	53	58	57	52	50	55	58	60	61	66	64	66	91
Govt < 65	47	42	43	48	50	45	42	40	39	34	36	34	9
Under 65, by work status of adults in household													
Self-employed	5	9	7	8	8	6	9	9	7	13	11	9	13
One or more FT	40	47	44	36	39	41	41	42	47	44	49	50	70
None FT	55	44	49	56	53	53	49	49	46	43	39	40	17
- *PT only*	15	11	15	17	13	15	14	15	13	14	12	12	5
- *Workless*	39	33	34	39	39	38	35	34	32	29	28	28	12
Total population	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**108**	**100**	**100**

Table G.12
Individuals in low-income households by household and family type
Proportions below the threshold (%)

A. 50% AHC CV (2007 reference year)

	Reference year = 2007																			
	84	**86**	**88**	**90**	**92**	**94**	**96**	**98**	**01**	**04**	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**18**
In all households																				
Single 65+	12	15	18	17	17	17	14	15	12	15	13	11	9	10	9	8	6	5	7	7
Couple 65+	3	2	3	3	4	5	6	5	8	3	6	6	2	3	4	4	3	4	3	4
Single under 65	15	16	14	17	32	33	29	23	29	27	30	24	28	27	31	25	28	33	32	31
Couple under 65	6	5	6	7	11	12	11	10	9	11	11	9	7	7	12	7	10	8	7	8
Sole parent with children	36	29	20	27	74	72	72	62	71	52	43	46	41	45	50	54	46	-	-	34
Two parent with children	18	14	18	16	29	31	24	22	22	18	12	11	11	12	12	12	10	-	-	9
Other family HHs with children	17	13	9	14	21	26	24	23	21	17	18	12	13	18	15	13	15	-	-	8
Other family HHs, adults only <65	2	2	3	6	8	8	5	6	6	13	0	8	10	9	7	7	10	8	8	6
Non-family HHs	3	4	7	8	15	23	17	23	24	24	15	10	13	10	17	17	10	16	19	12
Total population	**14**	**11**	**13**	**14**	**24**	**26**	**22**	**20**	**21**	**18**	**15**	**13**	**13**	**14**	**15**	**14**	**13**	**13**	**12**	**10**
In households with dependent children																				
Total	19	15	17	17	34	36	31	27	28	21	17	16	16	17	18	18	16	-	-	12
- with 1 child	12	10	11	10	28	27	25	20	19	17	15	14	12	16	20	15	16	-	-	9
- with 2 children	16	11	13	15	30	33	31	30	26	17	14	14	15	15	11	16	14	-	-	12
- with 3 or more children	27	23	25	27	44	46	36	31	39	31	23	21	22	22	24	23	18	-	-	14
In families (EFUs) with dependent children																				
SP families overall	-	-	17	24	63	62	62	55	63	41	38	36	36	40	43	46	42	-	-	27
- living on their own	-	-	23	30	81	75	75	68	77	54	45	49	45	48	57	59	52	-	-	40
- within wider HHs	-	-	5	11	29	29	32	29	28	22	28	15	18	27	20	21	20	-	-	9
2P families	-	-	18	17	29	32	25	22	22	18	12	12	11	12	11	11	10	-	-	9
Under 65, by main source of household income in the 12 months prior to interview																				
Market	11	8	10	12	15	17	15	13	14	13	8	8	7	7	8	7	7	8	7	6
Income-tested benefit	44	39	33	27	69	71	67	68	66	57	69	66	73	68	70	76	72	72	69	59
All in households under 65	15	12	13	14	26	28	24	22	22	19	15	14	14	15	16	15	15	15	13	11
Under 65, by work status of adults in household at time of interview																				
Self-employed	-	-	-	-	-	-	-	-	-	-	9	11	8	10	10	11	10	10	8	7
One or more FT	-	-	-	-	-	-	-	-	-	-	8	8	7	6	7	6	7	6	6	5
None FT	-	-	-	-	-	-	-	-	-	-	53	49	50	48	59	58	57	58	53	50
Workless	-	-	-	-	-	-	-	-	-	-	60	58	59	54	66	69	70	65	63	56

Notes: 1 '01' means the 2000-01 HES year, and so on.

2 Around one in three sole-parent families (EFUs) live in wider households with others. Note that individuals in the EFU analysis in Table G.8 retain the equivalised income of their household of origin for this analysis on the grounds that those in the wider households share to a reasonable degree in the benefits of the wider households and the economies of scale.

3 The HH type "SP with children" can include non-dependent children and other adults. On the other hand a family that is "SP on own" has only the one adult plus dependent child(ren).

Table G.12
Individuals in low-income households by household and family type
Proportions below the threshold (%)

B. **50% AHC CV (2018** reference year)

	Reference year = 2018											
	07	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
In all households												
Single 65+	46	44	34	33	26	21	21	24	20	21	22	22
Couple 65+	24	16	9	6	10	9	8	7	7	7	6	7
Single under 65	38	33	35	32	39	30	33	40	38	34	35	35
Couple under 65	15	13	10	8	15	9	14	10	9	11	14	10
Sole parent with children	60	66	55	64	69	65	58	64	52	-	-	52
Two parent with children	18	22	20	22	21	20	18	18	18	-	-	14
Other fam HHs with children	28	26	22	22	23	27	30	20	21	-	-	14
Other fam HHs, adults only <65	14	12	14	12	13	11	15	10	11	15	12	9
Non-family HHs	21	17	16	16	20	20	15	20	24	22	20	19
In households with dependent children												
Total	25	28	25	27	28	27	25	25	23	-	-	18
- with 1 child	21	24	18	22	28	23	24	24	20	-	-	14
- with 2 children	23	24	24	23	21	25	22	18	19	-	-	18
- with 3 or more children	31	39	36	38	38	35	31	35	31	-	-	23
In families (EFUs) with dependent children												
SP families overall	52	56	48	57	59	59	53	57	48	-	-	42
- living on their own	61	69	59	68	73	68	65	69	61	-	-	57
- within wider HHs	38	33	27	36	36	42	29	34	26	-	-	20
2P families	18	23	20	21	20	19	19	18	18	-	-	14
Under 65, by main source of household income in the 12 months prior to interview												
Market	14	16	14	13	15	14	14	13	12	12	11	11
Income-tested benefit	86	86	89	84	85	88	87	83	84	83	81	73
All in households under 65	22	24	22	22	25	22	22	21	20	18	17	17
Under 65, by work status of adults in household at time of interview												
Self-employed	14	17	13	20	20	16	18	17	14	14	15	11
One or more FT	13	16	13	11	14	12	12	11	11	11	9	9
None FT	71	69	64	64	71	71	73	68	66	67	65	65
Workless	79	76	72	68	77	79	83	74	74	75	70	71
Total population	**23**	**24**	**21**	**21**	**23**	**21**	**21**	**20**	**18**	**18**	**16**	**16**

Notes:
1. '07' means the 2006-07 HES year, and so on.
2. Around one in three sole-parent families (EFUs) live in wider households with others.
3. Note that individuals in the EFU analysis in Table G.9 retain the equivalised income of their household of origin for this analysis on the grounds that those in the wider households share to a reasonable degree in the benefits of the wider households and the economies of scale.
4. The HH type "SP with children" can include non-dependent children and other adults. On the other hand a family that is "SP on own" has only the one adult plus dependent child(ren).

Table G.13
Composition of those in households below the threshold, by household type

A. 50% AHC CV-07

(add down columns for 100%)

	Reference year = 2007										
	07	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**18**	**Popln in '18'**
By household type											
Single 65+	3	3	3	3	2	2	2	1	2	2	3
Couple 65+	3	4	1	1	2	2	2	3	2	4	10
Single under 65	9	8	10	9	10	9	9	11	12	11	4
Couple under 65	10	9	7	6	10	7	9	7	7	8	10
Sole-parent with children	19	25	25	23	26	28	26	26	19	19	6
Two-parent with children	32	32	30	34	29	31	29	30	30	32	35
Other fam HHs with ch	12	8	9	10	8	8	9	6	9	7	9
Other fam HHs, adults only	6	7	9	8	6	5	10	8	11	9	17
Non-family HHs	6	5	6	4	7	8	4	8	8	8	7
Under 65, by main source of household income											
Market <65	48	50	45	41	40	43	45	47	48	51	91
Govt < 65	52	50	55	59	60	57	55	53	52	49	9
Under 65, by work status of adults in household											
Self-employed	5	9	6	6	6	6	6	7	5	8	13
One or more FT	37	41	34	30	29	31	34	30	36	34	70
None FT	57	50	60	63	65	63	59	63	59	58	17
- *PT only*	16	11	16	17	15	14	12	17	14	16	5
- *Workless*	42	39	44	46	50	49	48	46	45	42	12
Total population	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**

B. 50% AHC CV-18

(add down columns for 100%)

	Reference year = 2018												
	07	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**Popln in '18'**
By household type													
Single 65+	7	7	6	6	4	4	4	5	4	5	4	5	3
Couple 65+	7	5	3	2	3	3	4	3	3	4	3	4	10
Single under 65	7	6	8	7	8	7	7	9	9	8	8	8	4
Couple under 65	8	7	6	5	8	6	8	6	6	7	10	7	10
Sole-parent with children	17	20	21	21	23	22	20	22	18	18	15	19	6
Two-parent with children	30	35	34	40	34	35	33	34	34	31	28	31	35
Other fam HHs with ch	11	9	10	8	7	11	11	7	9	8	6	9	9
Other fam HHs, adults only	8	6	7	7	7	6	9	7	9	14	11	10	17
Non-family HHs	5	5	5	5	5	6	4	7	7	6	8	8	7
Under 65, by main source of household income													
Market <65	56	61	56	51	51	56	56	56	57	61	58	59	91
Govt < 65	44	39	44	49	49	44	44	44	43	39	42	41	9
Under 65, by work status of adults in household													
Self-employed	6	8	7	8	8	6	8	8	7	11	12	9	8
One or more FT	42	50	44	35	40	41	41	39	44	42	42	42	34
None FT	52	42	50	56	52	53	51	52	50	46	46	50	58
- *PT only*	15	11	14	17	14	14	13	16	14	13	13	14	13
- *Workless*	38	31	35	39	39	38	37	37	36	34	34	36	44
Total population	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**100**	**94**	**100**	**100**

Poverty risk ratio for different households

To properly interpret the trends in composition of the poor by household type (as in Tables G.11 and G.13), both the trend in poverty rates and the changes over time of the composition of the population as a whole need to be known. One way of integrating and summarising these two trends is to use the 'poverty risk ratio' (PRR). The PRR for a given sub-group is the ratio of the poverty rate of that sub-group to that of the population as a whole. This gives an indication of the over- or under-representation of the subgroup at the lower end of the income distribution. A PRR greater than one indicates over-representation.

Figure G.2 shows the trends in the PRR for selected years from 1982-84 to 2017-18 for different household types. It uses the AHC 50% anchored line measure, with 2007 as the reference year. One person 65+ households have consistently had a higher PRR than couple 65+ households, though both are relatively low. The PRR for sole-parent households was higher in 2015-16 than thirty-five years before, but was lower for two-parent households. Perhaps the most significant change is the much higher PRR for one person working-age households in 2017-18 (2.8) compared with thirty-five years earlier (1.2).

Figure G.2
Poverty risk ratio by household type, AHC 50% CV-07 threshold, selected years

Trends for one-person households (45-64 years)

Low-income rates for 'middle-aged' single-person households (45-64 years) have steadily risen from the 1980s through to 2018, from 10% to close to 40%, while for many others the trend has been flat or only slightly rising (50% AHC relative measure, **Figure G.3**).

Figure G.3
Low-income trends for single-person households (45-64 yrs) compared with others, AHC 50% moving line (relative) measure

Table G.14 shows that this group is making up an increasing proportion of all one-person households, from around half in the mid-1990s to close to two in three in 2018 (63%). The increase is driven in the main by the increasing numbers of 45-64 year olds in the population (right-hand two columns).

Table G.14
Low-income trends (%) for single-person households (45-64 yrs)
AHC 50% moving line (relative) and CV-07 anchored line measures

	Low-income rates (%)				One-person households			Individuals	
	AHC 50 REL		AHC 50 CV-07		45-64	Under 65		45-64	
HES year	One-person HH s(45-64)	All 45-64	One-person HHs (45-64)	All 45-64	000s	000s	%	000s	%
82	9	4	15	7	57	102	56	558	10
84	9	5	16	7	55	108	52	560	10
86	10	5	18	7	62	118	53	567	11
88	10	6	12	7	61	121	51	583	11
90	10	5	17	8	68	135	50	596	11
92	16	8	34	13	69	135	51	615	11
94	20	10	35	17	72	151	48	649	11
96	19	9	29	13	73	142	52	686	11
98	18	10	22	13	79	147	54	726	11
01	26	11	31	14	106	185	57	839	13
04	28	13	29	13	99	194	51	920	11
07	29	12	29	12	110	190	58	1001	11
08	28	12	26	12	104	192	54	1028	10
09	31	12	29	11	116	197	59	1055	11
10	28	13	26	12	115	197	58	1079	11
11	37	14	36	13	120	203	59	1098	11
12	27	11	26	10	127	204	62	1110	11
13	30	13	29	12	117	192	61	1120	10
14	38	14	35	12	122	192	63	1133	11
15	37	14	34	12	123	194	63	1149	11
16	31	14	30	12	115	177	65	1166	10
17	40	13	35	10	111	181	61	1185	9
18	37	14	33	10	106	169	63	1201	9

Section H
Trends for children (0-17 yrs), 1982 to 2018, by various individual and household characteristics

This section:

- compares trends in poverty rates for subgroups of dependent children
- reports on the changing composition of those children identified as poor.

The individual and household characteristics used for subgroup analyses are:

- age of the children
- ethnicity of children (no time series)
- highest household educational qualification
- tenure
- household type
- family type
- hours of work of adults in households where there are dependent children.

For subgroup comparisons, the report recommends the use of AHC measures (see **Appendix 5**). **Table H.1** notes the AHC measures used in this section.

Table H.1
Poverty measures reported in Section G for subgroups of the whole population

AHC measures			
"moving line" (relative)		"anchored line" (constant value)	
REL (from 82 on)		**CV-07** (from 82 on)	**CV-18** (from **07** on)
50%	60%	50%	**50%**
✓	✓	✓	✓

Notes: 1 'CV-07' indicates that 2007 is the reference year used.
2 The 50% CV-18 measures give rates that are close to the former 60% CV-07 measures

Children in workless and working households

Policy development and public debate around improving the wellbeing of children often involve discussion about the links between child poverty rates and the labour market involvement of their parents. A special subsection at the end of this section therefore brings together in one place a range of information on the numbers of children in workless and working households, their respective poverty rates, and the composition of children identified as poor vis-à-vis the work status of adults in their households.

Poverty rates for children and the composition of poor children

It is important to distinguish between the proportion of a group who are counted as poor, and the `proportion of the poor who are from a particular group, that is, between rates and composition.

In **Table H.8** (later in this section) rate and composition statistics are summarised for children by household type, family type, number of children in the household, ethnicity, highest household educational qualification, tenure and main source of income for the household (benefit or market).

Children (0-17 yrs) in low-income households by age

- **Figure H.1** shows that from 1982 to 2018, poverty rates for younger children (0 to 11 years) were generally higher than the rates for older children (12 to 17 years).
- **Table H.2** breaks the younger group into two groups (0-6 yrs and 7-11 yrs). In most years there is little difference in poverty rates for these two younger subgroups.

Figure H.1
Proportion of children in low-income households by age, 50% CV-07 threshold (AHC)

Table H.2

A. Proportion of children in low-income households by age, 50% CV-2007 threshold (AHC)

	82	84	86	88	90	92	94	96	98	01	04	07	08	09	10	11	12	13	14	15	18
0-6	21	26	20	23	23	44	45	37	35	36	25	21	20	19	19	21	22	21	20	18	15
7-11	20	24	17	20	22	37	41	34	32	33	27	18	21	20	21	21	20	18	19	17	13
12-17	15	16	13	12	14	31	33	31	24	26	23	17	14	15	19	17	18	14	18	13	11
0-17	19	22	17	18	20	38	40	34	31	32	25	19	18	18	20	20	20	18	19	16	13

B. Proportion of children in low-income households by age, 50% CV-2018 threshold (AHC)

	07	08	09	10	11	12	13	14	15	18
0-6	30	35	31	33	33	32	31	29	27	23
7-11	26	34	30	32	32	31	29	27	27	22
12-17	24	25	25	29	28	27	24	27	23	18
0-17	27	32	29	31	31	30	28	28	25	21

C. Proportion of children in low-income households by age, 50% REL threshold (AHC)

	82	84	86	88	90	92	94	96	98	01	04	07	08	09	10	11	12	13	14	15	18
0-6	16	16	15	14	15	25	28	26	24	28	22	21	21	22	23	22	25	25	23	23	23
7-11	14	16	13	13	15	22	23	22	23	24	24	18	22	23	25	22	23	22	22	23	22
12-17	11	12	9	10	10	20	19	19	17	19	21	17	15	18	22	18	21	17	23	19	18
0-17	14	14	12	12	13	22	24	23	22	24	22	19	19	21	23	21	23	21	23	22	21

D. Proportion of children in low-income households by age, 60% REL threshold (AHC)

	82	84	86	88	90	92	94	96	98	01	04	07	08	09	10	11	12	13	14	15	18
0-6	26	29	25	28	25	38	40	36	36	40	31	28	32	32	33	32	31	33	34	33	34
7-11	23	25	23	23	23	32	35	31	33	36	35	25	31	32	33	32	31	31	29	32	32
12-17	17	17	17	15	16	28	28	29	26	28	32	23	22	26	30	28	27	25	31	26	28
0-17	22	24	21	22	21	33	35	32	32	35	32	25	28	29	32	31	30	30	32	31	31

Children in low-income households by ethnicity

As noted in the Introduction, only limited analysis by ethnicity is reported because of the relatively small sample sizes for Maori, Pacific and Other ethnic groups (especially Pacific). The sample sizes are even smaller when looking only at children. The analysis in this section combines the data from three surveys (HES 2013 and 2015) to give a more robust indication of the relativities in low-income rates for children by ethnicity.

The low-income rates for children in the Maori 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 HES 2013 to HES 2015, using the AHC 50% of median relative measure, around 15% of European/Pakeha children lived in low-income households, 32% of Maori children, 34% of Pacific children, and 25% of Asian children. The average rate for all children was 22% on this measure.[94]

The higher poverty rate for Maori children reflects in part the relatively high proportion of Maori children living in sole-parent beneficiary families and households (around 47% of all sole parent beneficiary recipients are Maori).

On average over HES 2013 to HES 2015, half (48%) of children in low-income households were Maori or Pacific using this measure. Overall, around 33% of children are Maori or Pacific.

Children in low-income households by highest household educational qualification

There is a well-established positive link between parental educational qualifications and a wide range of outcomes for their children. The positive impact is understood to occur through several pathways in addition to genetic endowment. Higher education means: higher family incomes on average, and this improves the chances of higher investment in the children in relation to the things that money can buy; higher chance of more constructive parenting style and a wider range of vocabulary and so on; lower chance of on-going stress in the family from financial pressures. None of these linkages are deterministic, but they do apply "on average".

Table H.3 shows the steep gradient for low-income rates for children from families with different educational qualifications, supporting aspects of the pathways perspective described above.

Table H.3
Poverty rates and poverty composition by highest household educational qualification: averages over HES 2013 to 2015 & 2018, using the AHC 50% of median relative measure, those aged 0-17 yrs

	Poverty rate (%)	Poverty composition (%)	0-17 population composition (%)	Risk ratio[95]
No formal qualification	54	15	6	2.5
School qualification only	33	35	23	1.5
Post-school non-degree	20	31	34	0.9
Degree or post-graduate	12	20	37	0.5
ALL (0-17)	22	100	100	-

94 The low-income relativities between children from the Maori and European/Pakeha ethnic groups are generally relatively stable from survey to survey. Rates for Pacific children are more volatile as the Pacific population is around half that for Maori and the sample numbers are smaller too.

95 See p163 for definition of risk ratio.

Children in low-income households by tenure

Using the AHC 50% of median moving line measure, the child poverty rates show a clear gradient across different tenure types. For HES 2013 to HES 2015:

- the rates were 47% in HNZC homes, 33% in private rental, and 11% in privately owned homes
- 53% of poor children lived with their families in private rental accommodation, and another 17% in HNZC homes.

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 2013 to 2015 this proportion had fallen to 56%.

The composition patterns and rate relativities between tenure types have remained much the same in recent years.

Children in low-income households by household type, family type and work status of adults in the household

Using AHC incomes (60% CV-07) (**Table H.6**):

- Children living in sole-parent (SP) households experience significantly higher poverty rates than those in two-parent (2P) households and other family households (58%, 14% and 19% respectively in 2013 to 2015 on average).

- Around one in three SP families (EFUs) live in households with other adults. Children living in these SP EFUs have lower poverty rates than those in SP EFUs living on their own because of the wider household financial resources available to them, both directly and indirectly.[96]

- Although poverty rates for children in SP families are much higher than for children in 2P families, around half of poor children come from 2P families and half from SP families.

- Children in households with three or more children generally have poverty rates considerably higher than those with only one or two children (30% and 20% respectively on average from 2007 to 2014. In 2014, children in these larger households made up just under half of all poor children (45%).[97]

- In 2001 and 2004, around one in two poor children came from households where at least one adult was in full-time paid employment or was self-employed. On average from 2009 to 2015 this proportion had dropped to around two in five.

- From 1992 to 2004, children in workless households generally had poverty rates around four times higher than for those in households where at least one adult was in full-time work. From 2007 to 2015, the difference was even greater – around six to seven times higher for children in workless households. This change in relativities to a large degree reflects the greater WFF assistance for working families than for beneficiary families.

- The fall in child poverty rates from 2004 to 2007 for children in one-FT-one-workless 2P households was very large (28% to 9% using the 50% CV-07 measure), reflecting the WFF impact, especially through the In-work Tax Credit.

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96 Preliminary analysis using non-income measures from the 2008 Living Standards Survey indicates that the hardship rates for sole parent families in households on their own are very close to those for sole parent families living with others in a wider household. This is a quite different finding from the income-based one in this report . Further investigation is being undertaken to better understand the difference.

97 In 2014, 38% of children were in households with 3 or more children, 39% with 2 or more and 23% in one child households.

Table H.4 Children in low-income households by household and family type: 50% AHC REL

A. Proportions of children below the threshold, by household and family type

	07	08	09	10	11	12	13	14	15	18
By household type										
Children in SP HHs	45	49	47	53	56	59	55	61	49	55
Children in 2P HHs	13	12	14	17	12	14	13	14	16	15
Children in other fam HHs	21	17	19	23	17	22	24	18	23	16
By family type (n1)										
Children in SP families	39	39	40	48	47	52	49	54	44	44
- in SP families on own	46	50	48	57	61	62	59	65	55	58
- within wider HHs	30	17	22	31	24	35	26	32	24	22
Children in 2P families	13	13	15	16	12	14	13	14	16	15
By # of children in HH										
1 or 2 children	15	16	17	18	17	19	19	19	17	18
3 or more children	25	24	27	32	27	29	25	29	30	26
By main source of household income in the 12 months prior to interview										
Market	9	9	10	11	8	11	11	12	12	13
Income-tested benefit	73	68	83	81	73	84	82	81	86	77
By work status of adults at time of interview (all HHs with children)										
Self-employed	10	10	12	15	10	15	12	14	15	11
One or more FT	9	10	10	11	8	9	10	10	11	11
None FT	57	59	64	62	66	73	70	71	70	74
Workless	66	67	72	69	72	82	85	75	81	82
By work status of adults at time of interview (two parent HHs)										
Both full-time	6	8	7	5	7	7	2	2	5	5
One FT, one PT	10	8	4	15	5	10	7	11	9	8
One FT, one workless	8	13	17	15	9	11	16	17	20	21
All children, all HHs	19	19	21	23	21	23	21	23	22	21

B. Composition of children below the threshold, by household and family type

	07	08	09	10	11	12	13	14	15	18
Children by household type										
Children in SP HHs	36	44	43	37	50	44	44	45	35	39
Children in 2P HHs	48	45	45	51	41	43	42	45	48	49
Children in other fam HHs	16	11	12	11	9	12	13	8	14	11
Children by family type (n1)										
Children in SP families	48	47	48	46	58	53	50	52	43	45
- in SP families on own	33	40	39	36	47	41	42	42	35	36
- within wider HHs	15	8	9	10	11	12	8	10	8	9
Children in 2P families	52	53	52	54	42	47	50	48	57	55
By main source of household income in the 12 months prior to interview										
Market	42	42	40	37	30	41	44	43	46	52
Income-tested benefit	58	58	60	63	70	59	56	57	54	48
By work status of adults (all HHs with children)										
Self-employed	5	7	7	7	5	6	6	7	7	7
One or more FT	33	34	32	30	24	28	33	31	37	38
None FT	62	59	61	63	70	67	61	62	57	55
- PT only	*16*	*11*	*14*	*16*	*13*	*16*	*10*	*15*	*12*	*14*
- Workless	*46*	*48*	*46*	*48*	*57*	*50*	*50*	*46*	*44*	*41*
All children	100	100	100	100	100	100	100	100	100	100

Note: Family here is ‘economic family unit’ (see Section A for definition).

Table H.5 Children in low-income households by household and family type: 60% AHC REL

A. Proportions of children below the threshold, by household and family type

	07	08	09	10	11	12	13	14	15	18
By household type										
Children in SP HHs	60	66	59	67	71	68	64	70	64	67
Children in 2P HHs	17	19	22	25	22	20	20	23	24	25
Children in other fam HHs	29	30	27	25	23	31	33	30	29	29
By family type (n1)										
Children in SP families	52	55	52	59	60	61	58	63	57	57
- in SP families on own	61	67	61	70	74	70	68	72	69	70
- within wider HHs	38	33	33	37	36	45	34	43	33	36
Children in 2P families	18	21	22	24	21	20	21	23	24	24
By # of children in HH										
1 or 2 children	22	24	24	26	25	26	26	25	24	24
3 or more children	31	37	39	42	40	36	37	43	42	44
By main source of household income in the 12 months prior to interview										
Market	15	17	18	19	17	18	19	21	21	22
Income-tested benefit	86	87	93	91	85	92	91	88	94	91
By work status of adults at time of interview (all HHs with children)										
Self-employed	13	15	21	22	23	21	22	24	23	18
One or more FT	13	18	17	18	17	15	16	19	20	22
None FT	75	75	77	75	76	82	86	80	81	83
Workless	84	81	82	77	82	87	94	82	89	89
By work status of adults at time of interview (two parent HHs)										
Both full-time	10	12	11	8	12	10	2	6	9	10
One FT, one PT	11	15	9	21	9	13	14	15	14	18
One FT, one workless	15	26	30	30	27	22	29	33	37	40
All children, all HHs	25	29	30	32	31	30	29	32	31	31

B. Composition of children below the threshold, by household and family type

	07	08	09	10	11	12	13	14	15	18
Children by household type										
Children in SP HHs	35	39	38	35	43	39	37	37	33	32
Children in 2P HHs	47	47	50	56	48	47	48	51	52	54
Children in other fam HHs	17	13	12	9	8	13	13	9	13	13
Children by family type (n1)										
Children in SP families	46	45	44	41	50	48	43	44	40	39
- in SP families on own	33	35	35	32	39	36	35	34	32	29
- within wider HHs	14	10	9	9	11	12	8	9	8	10
Children in 2P families	54	55	56	59	50	52	57	56	60	61
By main source of household income in the 12 months prior to interview										
Market	49	51	52	48	44	50	55	55	58	62
Income-tested benefit	51	49	48	52	56	50	45	45	42	38
By work status of adults (all HHs with children)										
Self-employed	5	7	9	8	8	6	8	9	7	7
One or more FT	35	42	40	37	36	36	39	41	46	51
None FT	60	51	51	56	56	57	53	50	47	42
- PT only	*17*	*12*	*14*	*17*	*11*	*16*	*13*	*13*	*12*	*12*
- Workless	43	39	37	39	44	41	40	37	35	30
All children	100	100	100	100	100	100	100	100	100	100

Note: Family here is 'economic family unit' (see Section A for definition).

Table H.6
Children in low-income households by household and family type:
A. 50% AHC CV-18

B. Proportions of children below the threshold, by household and family type

	Reference year = 2007									
	07	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**18**
By household type										
Children in SP HHs	62	70	58	66	72	68	61	67	56	55
Children in 2P HHs	19	23	22	24	22	21	19	19	18	15
Children in other fam HHs	31	32	24	24	24	31	32	24	25	16
By family type (n1)										
Children in SP families	53	58	50	58	61	61	55	60	51	44
- in SP families on own	63	72	61	69	75	70	66	70	62	58
- within wider HHs	39	34	29	36	38	45	29	36	28	22
Children in 2P families	19	24	22	23	21	20	20	19	19	15
By # of children in HH										
1 or 2 children	24	26	24	25	26	26	24	22	21	18
3 or more children	33	42	38	41	41	37	34	37	34	26
By main source of household income in the 12 months prior to interview										
Market	17	21	17	18	18	18	17	17	15	13
Income-tested benefit	87	90	93	91	86	92	90	87	90	77
By work status of adults at time of interview (all HHs with children)										
Self-employed	15	16	19	22	23	21	19	19	17	11
One or more FT	15	22	17	17	17	16	15	15	15	11
None FT	75	80	76	75	77	82	84	77	75	74
Workless	84	84	82	77	82	87	93	79	84	82
By work status of adults at time of interview (two parent HHs)										
Both full-time	11	13	11	6	12	10	2	4	6	5
One FT, one PT	12	17	9	21	9	13	12	13	11	8
One FT, one workless	18	34	30	30	29	23	26	27	27	21
All children, all HHs	27	32	29	31	31	30	28	28	26	21

B. Composition of children below the threshold, by household and family type

	07	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**18**
Children by household type										
Children in SP HHs	34	37	39	35	42	39	38	41	35	39
Children in 2P HHs	48	50	50	56	49	48	47	49	49	49
Children in other fam HHs	16	13	11	9	8	13	14	8	13	11
Children by family type (n1)										
Children in SP families	45	42	44	42	50	48	43	46	42	45
- in SP families on own	31	34	35	33	38	36	36	38	35	36
- within wider HHs	13	9	8	9	11	12	7	9	8	9
Children in 2P families	55	58	56	58	50	52	57	54	58	55
By main source of household income in the 12 months prior to interview										
Market	52	55	51	47	45	50	53	50	51	52
Income-tested benefit	48	45	49	53	55	50	47	50	49	48
By work status of adults at time of interview (all HHs with children)										
Self-employed	6	7	8	8	8	6	7	8	7	7
One or more FT	38	45	40	36	37	37	37	38	41	38
None FT	56	48	52	57	55	57	55	54	52	55
- *PT only*	*16*	*12*	*14*	*17*	*12*	*16*	*13*	*14*	*12*	*14*
- *Workless*	40	36	38	40	43	41	42	40	40	41
All children	100	100	100	100	100	100	100	100	100	100

Notes: 1 Family here is 'economic family unit' (see Section A for definition), and see n2 under Table G.8.

"4 out of 10 poor children are from working families" – discussion of this stylised fact

There are three main ways that the HES data can be used to produce an estimate of the composition of poor children by the work status of the adults in their households – that is, of all the children identified as poor by a particular measure, what proportion are from working families? The three approaches (for working-age households) are:

- to use the source of household income in the 12 months prior to interview, with a "working household" defined as one for which more than 50% of the household income comes from market income
- by excluding all households in which any adult in the household says that they received any main benefit at all in the last 12 months, with the rest being "working households"
- by including all households which at the time of interview had at least one adult in full-time employment or is self-employed – this is a relatively high bar to achieve for a household to be considered to be a "working household".

On average in HES 2015 and HES 2018 (using the AHC 50% moving line measure)[98]:

- the source of income approach identified 50% of poor children as being from working families
- the second approach (no main benefit income at all in the previous 12 months) identifies 52%
- and the third one (at least one adult in FT employment or self-employed) gives 45% (38% if the self-employed are excluded, and more like 60% if part-timers are also included).

The numbers are very similar when using the BHC 60% moving line measure.

One of the challenges for this analysis is that the standard Stats NZ weights applied to the survey data lead to an underestimate of the number of beneficiary children in the population by a considerable amount. This leads to an underestimate of the proportion of poor children who are in beneficiary families and an over-estimate of the proportion of poor children coming from working families.

There are two ways of obtaining alternative estimates. One is to use Treasury's TAWA (previously Taxwell) weights which are designed to (among other things) give good population estimates of benefit numbers. The other is to take the beneficiary poverty rates (not greatly impacted by weighting) and apply them to beneficiary numbers drawn from administrative data. When these two approaches are used the proportion of children found to be in working households drops by about three to four percentage points.

Whether the best estimate is 45% to 52% or more like 41% to 49% is not too important. The most important thing is that we know that a sizeable portion of poor children come from working families.

The non-incomes approach gives similar results in HES 2015 and 2018 combined – around 50% of children in hardship (DEP-17 of 6+/17) were from families who had at least one adult in full-time employment.

The stylised fact that around 4 in 10 of poor children are from working families has strong evidence to support it. This is a conservative estimate in the sense that there is no doubt that this is a robust lower bound.

In times of ongoing economic downturn the proportion of poor children who come from working households can decrease if benefit numbers increase at a greater rate than 'second workers' in households lose hours or their jobs.

[98] Data from HES 2013 and 2015 are used rather than HES 2014 and 2015 as there were some issues with the incomes of some beneficiaries in HES 2014 which are likely to skew the findings. See Introduction (Section A) for more detail on the HES 2014 data.

Children in 'workless' and 'working' households

Policy development and public debate around improving the wellbeing of children often involve discussion about the links between child poverty and material hardship rates and the labour market involvement of their parents. This subsection contributes to that discussion by reporting on:

- the number and proportion of children in workless and working households
- low-income rates for children, by the work status of the adults in their household
- the composition of poor children, by the work status of the adults in their household.

In a future issue, it is hoped to also have information about 'churning' in and out of work for low-income households.

Numbers and proportions of children in working and workless households

Table H.7 shows the trend in the proportion of children in 'workless' households and in beneficiary families over time.

The final row in the table (children in beneficiary families) is a "census" as at 31 March each year (30 June for years up to and including June 2012), from MSD's administrative data. This is robust data. In contrast, the first four rows are estimates only, based on the HES sample. We know that the figures based on Statistics New Zealand's weights consistently under-estimate the number of beneficiaries compared with the administrative data. Generally, the estimates using the Treasury's Taxwell weights are closer to the administrative data, but the sampling error from the HES can still lead to either or both weighting regimes under- or over-estimating the population numbers.

What can be said with certainty is that at the peak of the GFC downturn in 2010 / 2011 around one in four New Zealand children lived in households where there was no adult in full-time employment. This has dropped to around one in six. These rates and the rate for children in workless households are high by OECD and EU standards (see Section J).

Table H.7
Proportion of children in 'workless' households (% of all children)

HES year	**07**	**08**	**09**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
In workless HHs - SNZ wgts	13	13	13	16	17	14	13	14	12	10	10	10
- TSY wgts	16	17	17	20	20	19	16	17	14	11	11	11
In HHs with no FT worker - SNZ wgts	20	19	20	24	22	21	18	20	18	13	14	16
- TSY wgts	25	23	24	29	27	27	23	24	20	16	15	17
In beneficiary families	**19**	**19**	**21**	**22**	**22**	**22**	**20**	**19**	**18**	**17**	16	15

The proportion of children in beneficiary families is unlikely to ever match either of the other two lines for several reasons:

- a beneficiary family may live in a household where an adult is in FT work (eg a sole parent family living with the mother's parents or other relatives)
- some beneficiary families receive income from part-time employment
- the beneficiary information is a snapshot at 31 March (from 2013 on), whereas the HES-based figures are an average over the full year.

Increasing proportion of dual-earner two-parent households

Figure H.2 and the associated **Tables H.8A and H.8B** show the trend to increasing work intensity among two-parent households with dependent children. The option of one partner in full-time paid employment and one not in paid employment ('workless') was the dominant pattern in the early 1980s. In 2016, the most common arrangement was for both parents to be employed full-time (45%).

- Around two of every three two-parent families were dual-earner families from 2007 to 2016, up from one in two in the early 1980s. The new pattern seems to have stabilised.
- The most common arrangement in HES 2016 was for both parents to be working full-time (45%), with another 22% with one full-time and the other part-time. In contrast, in 1982 the dominant pattern (52%) was one in full-time work and the other 'workless' (WL), with only 20% having both in full-time work.

Figure H.2
Increasing proportion of two-earner two-parent households (with dependent children)

Table H.8A
Proportion of two parent households where there is at least one FT adult worker

	82	84	86	88	90	92	94	96	98	01	04	07	09	11	13	15	17	18
One FT, one WL	46	43	40	38	42	45	45	43	40	37	28	34	33	34	32	32	30	28
One FT, one PT	24	25	26	27	29	28	25	27	30	29	32	30	24	26	27	26	26	26
Both FT	30	32	34	35	29	28	31	31	30	34	39	36	43	40	41	43	44	46

Table H.8B
Proportion of children in two parent households where there is at least one FT adult worker

	82	84	86	88	90	92	94	96	98	01	04	07	09	11	13	15	17	18
One FT, one WL	47	44	41	40	44	49	49	44	43	39	32	37	36	37	35	33	32	31
One FT, one PT	24	26	26	28	30	28	25	27	30	30	34	30	25	26	29	27	26	27
Both FT	29	31	33	33	26	24	27	28	27	30	34	33	39	37	36	40	43	41

Poverty rates and composition for children in working and workless households

In broad terms, three factors impact on child poverty rates and on the proportion of poor children who come from various subgroups (that is, on the composition of the poor):

- the economy and the labour market (impacting on employment and unemployment rates, wage rates and on benefit numbers (including numbers of sole-parent families))
- demographic shifts and changing cultural norms (eg the number of sole-parent families, whether sole-parent families live in households on their own or with other adults, the proportion of dual-earner two-parent households)
- policy changes (eg policy changes around benefit rates, income-related rents, the AS and WFF all have clear impacts on the child poverty rates for children from working and workless households, and on the relativities between the two groups).

The information in **Figures H.4, H.5 and H.6** below illustrate these factors at work and support the following findings:

- child poverty rates in workless households are consistently several times higher than those for children in working households (three to four times higher in 1992 to 2004, six to seven times higher from 2007 to 2016 after WFF)
- child poverty rates in workless households were very high from 1992 to 2001 (after the benefit cuts), typically just under 80% using the AHC 60% fixed line measure (CV-98)
- the introduction of income-related rents contributed to the reduction in the child poverty rate from 2001 (78%) to 2004 (60%) for children in workless households
- the WFF package had little impact on the poverty rates for children in workless households
- for children in 'working' households (self-employed or at least one FT worker) the child poverty rate from 1992 to 2004 was reasonably steady at around 18-20%
- the WFF impact was significant for this group, with the rate in 2007 (11%) half what it was in 2004 (22%)
- nevertheless, on average from 2007 to 2016, around two in five (40%) poor children still came from working families – down from just over one in two (52%) in 2004 before WFF.

Figure H.3 shows the poverty (low income) rates for children in workless and working households. A working household is one where at least one adult is in FT employment, or where the main source of income for the previous 12 months is from self-employment (cf Table H.3 above).

Figure H.3
Poverty rates for children in 'workless' and 'working' households (AHC 60%, fixed line)

Note: The discontinuity at 2007 arises because of the change of reference year from 1998 to 2007. The 2004 to 2007 changes are shown using both reference years.

Figure H.4 shows the proportion of poor (ie low-income) children who live in workless households. As there are fewer children in workless households than in working households the proportion of all poor children who come from workless households is much lower than their poverty rate in any given year. In addition, this proportion is also affected by policy changes and changes in the economy and labour market, as indicated in the text boxes in Figure H.5.

In 1992, after the benefit cuts in 1991 and with unemployment high, the proportion of poor children who came from workless households peaked at 56%. The improving labour market and growing economy then helped to reduce that proportion to 37% by 2004. The WFF package gave greater financial assistance to working families than to (those who remained as) beneficiary families. This was reflected in the decrease in child poverty rates for those in working families. The consequence was a rise to 52% in 2007 in the proportion of poor children who come from workless families. Using the updated reference year (2007), that proportion was 49% in 2013 and 46% in 2015.

Figure H.4
Proportion of poor children who live in 'workless' households (AHC 60%, fixed line)

Figure H.5 looks at the composition of children identified as poor from the other perspective – what proportion of poor children come from working households? The trend is overall a mirror image of the one on Figure H.5. The secondary (broken) line omits self-employed households.

The WFF package reduced the proportion of poor children coming from working families from just over one in two (52%) in 2004 to around two in five (40%) on average from 2007 to 2015.

Figure H.5
Proportion of poor children who live in 'working' households (AHC 60%, fixed line)

HES 2016 findings are not reported because of concerns about the sample for beneficiaries with children. See section A for details.

Children from income-poor households: composition by their ethnicity and by selected household characteristics

Table H.9 brings together in one place the poverty rate and composition information from earlier pages in Section H. The shaded column shows the proportion of poor children in the various sub-groups. Some sub-groups have high poverty rates but if there is a relatively small proportion of children in that sub-group overall, then the proportion of poor children coming from that sub-group is much lower than their poverty rate would suggest (and vice versa). For example:

- the poverty rate for children in sole-parent families living on their own is high at 55%, but only 37% of all poor children come from such families
- on the other hand, the poverty rate for children in two-parent families is much lower at 15%, yet 54% of poor children come from these families
- this difference arises from the fact that there are many more children in two-parent families than in sole-parent families living on their own (78% and 15% respectively).

Table H.9
Poverty rates and composition for children by their ethnicity and by characteristics of their households, based on the AHC 50% relative measure,
average over two surveys, HES 2015 and HES 2018

Dependent children: 1,079,000	**Children in income-poor households**		**All children**
	What % of this category are poor?	**What % of poor children are in this category?**	**What % of all children are in this category?**
	Poverty rate (%)	Composition of the poor (%)	Approximate composition for all children (%)
Household type			
Sole parent HH	52	37	15
Two parent HH	15	49	69
Multi-adult family HH	20	13	14
Family type			
Sole parent families	44	44	21
- in SP family on own	57	*36*	*14*
- within a wider HH	23	*8*	*8*
Two parent families	15	56	79
# of children in the household			
1 or 2	18	52	63
3+	28	48	37
Ethnicity			
Māori	30	35	26
Pacific	34	15	9
Other	25	15	13
Euro/Pakeha	15	35	52
Highest household educational qualification			
No formal qualification	53	16	7
School qualification only	35	34	21
Post-school non-degree	20	29	31
Degree or post-graduate	11	20	41
Main source of income for HH			
Benefit	81	51	14
Market	12	49	86
Tenure			
HNZC	56	20	8
Rented - private (AS)	50	44	19
Rented - private (no AS)	7	5	14
Own home	11	29	56
Children overall	22	100	100

Section I
Income trends for older New Zealanders

Older New Zealanders (aged 65+) currently make up 15% of the population (700,000). By 2028 this proportion is expected to be close to 20% (1,050,000).

This section:

- describes the distribution of incomes for older New Zealanders relative to the rest of the population, noting the 'pensioner spike' in the BHC income distribution
- notes the significant sensitivity of reported poverty rates to the choice of BHC poverty line for older New Zealanders (because of the 'pensioner spike'), and outlines what can be done about this to ensure that trends in reported poverty rates more realistically reflect changes in the relative material wellbeing of older New Zealanders
- compares the value of NZS to average wages and median household incomes
- reports on trends in the relative contributions of state income support (government transfers), employment income, and other private income to the incomes of older New Zealanders.[99]

The BHC incomes of older New Zealanders

Figure I.1 shows the distribution of equivalised household disposable income for individuals. Individuals are grouped by their household incomes in multiples of $1500 pa ($30 pw). The graph clearly shows the 'pensioner spike' at close to the 50% of median poverty line, and also the high proportion with incomes between 50% and 60% of the median (~28%).

The spike is a direct consequence of (a) New Zealand having a universal New Zealand Superannuation (NZS) that is neither income nor asset tested, and (b) there being a large proportion of older New Zealanders with very little other income over and above NZS.

Figure I.1
BHC household income distribution for older New Zealanders relative the rest of population, HES 2015

99 The material wellbeing of older New Zealanders is determined by more than just their incomes. Physical and financial assets are important too, as are special demands on the budget such as high health-related or debt-servicing costs. These issues are discussed in the Introduction (Section A). See especially **Figure A.1** and the associated analysis and discussion on the different picture presented depending on the measure of wellbeing used: BHC incomes, AHC incomes or the MWI. Nevertheless, income does matter, and in line with the focus of this Incomes Report, this section reports only on the incomes of older New Zealanders. The international section (Section J) has further relevant material. See too the companion report using Non-Income Measures (the NIMs report).

NZS relative to average earnings and median household income

For a very large proportion of older New Zealanders, NZS provides the bulk of their income. In assessing the relative material wellbeing of older New Zealanders it is therefore useful to know how NZS tracks:

- in real terms
- relative to average wages
- relative to median household incomes.

In these comparisons, NZS is the equivalised NZS which puts couple and single living alone rates at the close to the same equivalised dollar value when using the modified OECD scale.[100] Average earnings are net average ordinary time weekly earnings (NAOTWE), and median incomes are median equivalised household disposable incomes. Average earnings are just one factor impacting on household incomes. Another major factor is the total number of hours of paid employment being worked by households. These hours have been increasing, so household incomes have risen more rapidly than average wages (since c1994). The October 2008 and 2010 tax cuts also increased net average wages and after-tax household incomes, though the GFC put a (temporary) halt to the steady rise in the median.

Figure I.2 shows that the value of NZS (and its predecessors) remained reasonably steady in real terms from the mid 1980s through to 2007, whereas there were considerable movements in average earnings and median household incomes in the period. From 2007 to 2018 NZS rose by 19% in real terms, as a result of the rising NAOTWE (a combination of gross wage rises and tax cuts).

Figure I.2
Trends in average earnings, median household incomes and NZS (in $2018)

100 For older New Zealanders living alone, NZS is paid at 65% of the married couple rate. The equivalence ratio for a one-person household relative to a couple household is 0.67 (for the equivalences usually used in this report). This means that equivalised household income is very close to the same for older (65+) one person and couple households where there is little or no other income over and above NZS.

Figure I.3 reformats the information in Figure I.2 to show the trends in NZS relative to average earnings and median household income.

In 2018, the NZS married couple rate was close to the 66% floor relative to average earnings, as shown in the upper trend line in Figure I.3.[101]

NZS declined in value relative to median household incomes from the mid 1990s to 2009. This is because median household income rose steadily in real terms, while the real value of NZS did not change greatly in real terms in the period. The "mOECD-all" row in **Table I.1** gives the figures behind the lower trend line in Figure I.3. When the modified OECD equivalence scale is used the married couple (MC) and single living alone (SLA) NZS rates have almost the same dollar value. When the "square root" equivalence scale is used (as the OECD does) the two rates are different when equivalised – hence the need for two OECD rows in the table. See **Appendix 3** for more on equivalence scales.

Figure I.3
NZS relative to average earnings and median household incomes

Table I.1
NZS relative to the median equivalised BHC household income median (%), using both the modified OECD scale and the square root scale as used by the OECD

	84	86	88	90	92	94	96	98	01	04	07	08	09	10	11	12	13	14	15	16	17	18
mOECD - all	64	58	58	61	67	68	63	60	60	56	52	51	50	53	54	56	56	54	53	55	52	51
sq rt - MC	-	-	56	60	65	66	62	59	57	55	50	50	49	51	52	53	54	52	52	53	51	49
sq rt -SLA	-	-	52	55	61	61	57	54	53	50	46	46	45	47	48	49	49	48	47	48	47	45

Note 1: NZS is updated on 1 April each year, and sometimes on 1 October also if there have been tax changes. The HES interviews are carried out from 1 July to 30 June. For Figure I.3 and Table I.1, the NZS in year 'n' is compared with the HES median for year 'n to n+1'. For example, the 1 April 2009 NZS is compared with the median for the 2009-10 HES. This is a reasonable approximation, but note that the actual NZS amount received over the 12 months prior to interview depends on the actual interview date for each household. The trend of NZS relative to the household median income in Figure I.3 and Table I.1 is robust for a 'stylised fact', but not for the precise micro detail for all older households.

[101] The net weekly rates of NZS/VP must by law be adjusted on 1 April each year, in line with any annual percentage increase in the Consumers Price Index (CPI) for the year ending the previous 31 December. After this adjustment, the after-tax weekly amount of NZS/VP payable to a married couple (where both qualify) must be at least 65 per cent of the average wage after tax (NAOTWE), but cannot be greater than 72.5 per cent of the average wage after tax. It is current Government policy to ensure that the after-tax married couple rate is maintained at a minimum of 66 per cent of the average wage after tax. If the after-tax married couple rate after the CPI adjustment is less than 66 per cent of the average wage after tax, a further adjustment is made to bring the rate up to this level. Following the price and wage adjustment, the single sharing and living alone rates are set at:

- a lower rate of 60 per cent of the married couple rate for single people sharing accommodation
- a higher rate of 65 per cent of the married couple rate for single people who are living alone.

Sensitivity of reported BHC poverty rates to the choice of poverty line

Table I.2 shows the proportion of older New Zealanders (65+) in households with incomes under two commonly used "poverty lines". The top line uses the "square root" equivalence scale and a 50% of median threshold to ensure consistency with OECD publications. The second line also uses a 50% of median threshold but adjusts household incomes with the modified OECD scale as in the rest of the report.

Using the 50% of median measure (sq rt scale), the poverty rate was close to zero for the whole period 1984 to 2001. This was because the value of NZS was (well) above 50% of the median. By 2007 the value of NZS for those living alone had fallen below the 50% threshold (see Table I.1 above), and the 50% of median "poverty" rate had risen to 18%, and 19% in 2009. It was 24% in the 2018 survey, reflecting the fact that both the married couple and the single living alone rates were was below the 50% threshold when using the square root equivalence scale. Using a 43% of median threshold, the 2018 rate is close to zero (2%).

Using a 60% threshold (and the modified OECD scale) the poverty rates fell from 18% in 1990 to close to zero in the mid 1990s when the median fell in real terms and NZS was above the 60% threshold. By 2004, the rising median had led to 30% of older New Zealanders being classed as 'in poverty' on this measure and has remained high since (33% on average over the last two surveys, 2017 and 2018).

Table I.2
Proportion of older New Zealanders (65+) in households with BHC incomes below low-income thresholds ('poverty lines'), set at 50% and 60% of the median in the survey year (%)

	84	86	88	90	92	94	96	98	01	04	07	08	09	10	11	12	13	14	15	16	17	18
50% sq rt equiv	2	2	8	2	1	1	1	3	2	9	18	14	19	13	10	9	10	15	11	11	15	24
50% mOECD equiv	1	1	1	1	1	1	1	2	2	3	6	3	3	4	3	2	3	3	3	3	4	5
60% mOECD equiv	9	14	17	18	2	1	3	5	7	30	36	36	33	28	28	25	25	31	29	29	33	34

The large variations in reported poverty rates for the 65+ group (using BHC incomes) can leave the misleading impression that there are significant changes in material wellbeing occurring for this group, when in fact there is very little change occurring.

The pensioner spike in the income distribution noted in Figure I.1 has implications for reporting on income poverty for the 65+ and for comparisons of subgroups within the population as a whole. **Figure I.4** illustrates the issue using HES 2018 data, showing the sudden rise in reported poverty rates for the 65+ just above 50% of the median which is the level of NZS for the survey period. Poverty rates for the 65+ are close to zero when a 50% threshold is used, but 34% using a 60% threshold (using the modified OECD equivalence scale). Other age groups have a much steadier increase in reported poverty rates as the threshold rises.

Figure I.4
Sensitivity of income poverty rates for the 65+ to the threshold used:
BHC incomes, 2018

Proportion below threshold (%)
70
60
50
40
30
20
10
0
42 44 46 48 50 52 54 56 58 60 62 64 66 68 70 72 74 76 78 80
Threshold as a proportion of the median (%)
65+
0-17
total
18-64

Using incomes after deducting housing costs (AHC incomes) to give more stable and reliable results

There are good grounds for using AHC incomes to compare subgroups, irrespective of the pensioner spike. These are discussed in Appendix 5 and in the Introduction. The pensioner spike for BHC incomes provides another rationale.

The AHC distribution still has some bunching but the pensioner spike is not as sharp. Small shifts in the median or the threshold do not therefore have the same disproportionate and misleading effects on (trends in) poverty rates for the 65+ as they do when using BHC incomes. This is shown for 2018 in **Figure I.5** below.

Figure I.5
Sensitivity of income poverty rates for the 65+ to the threshold used: AHC incomes, 2018

Figure I.6 below repeats Figure I.1 but for AHC incomes. Individuals are grouped by their household AHC incomes in multiples of $1500 pa ($30 pw). The graph shows how the BHC 'pensioner spike' at close to the 50% of median poverty line has (for 2015) moved up to above the 60% AHC threshold and has been flattened / dispersed a little.

Figure I.6
AHC household income distribution for older New Zealanders relative the rest of population, HES 2015

Table I.3A shows that the proportion of older New Zealanders below the 50% anchored line AHC threshold (CV-2007) has remained consistently lower than the population as a whole and reasonably low in its own right from 1982 to 2018. Those living on their own generally have slightly higher proportions below the threshold than do those in couple households. **Table I.3B** shows the rates using the higher 60% of median AHC anchored line measure from 2007 to 2018.

Table I.3C shows the AHC 50% low-income rates using a fully relative measure. While the 65+ rate for couples is low and reasonably steady in recent years, the rate for 65+ living on their own has risen strongly, from 9-12% from 1998 to 2015 to 22% in 2018. This rise is driven in the main by the fact that the value of NZS is now very close to the 50% of median BHC threshold (see **Figure I.3** above), and that 40% of 65+ living on their own are almost entirely dependent on NZS alone (see **Figure I.9** below). It doesn't take very much in the way of housing costs to take these households 'below the line'.

There is very little difference in poverty rates (ie low-income AHC rates) for females and males.

Table I.3A
Proportions of older New Zealanders (aged 65+) in low-income households, by HH type:
AHC CV-07 50% of median measure

	82	84	86	88	90	92	96	98	01	04	07	08	09	10	11	12	13	14	15	17	18
All 65+	7	6	7	8	8	9	9	9	9	7	9	8	5	5	6	6	3	4	5	5	5
Single 65+	16	12	15	18	17	17	14	15	12	15	13	11	9	10	9	8	6	5	7	10	7
Couple 65+	2	2	2	3	3	4	6	5	7	2	6	5	2	2	3	4	2	4	2	4	4
Fam HHs no deps 65+	-	2	1	0	1	2	3	4	2	6	7	10	6	2	6	7	4	4	7	3	8
Total popln	13	14	11	13	14	24	22	20	21	18	15	13	13	14	15	14	13	13	12	-	10

Table I.3B
Proportions of older New Zealanders (aged 65+) in low-income households, by HH type:
AHC CV-07 60% of median measure

	07	08	09	10	11	12	13	14	15	16	17	18
All 65+	20	17	11	11	11	11	9	10	8	9	8	9
Single 65+	34	29	20	27	16	16	15	16	14	15	15	15
Couple 65+	11	11	5	4	6	8	6	7	4	6	5	6
Fam HHs no deps 65+	12	10	15	3	11	7	5	11	9	4	7	10
Total popln	21	20	19	19	21	19	17	18	17	-	-	14

Table I.3C
Proportions of older New Zealanders (aged 65+) in low-income households, by HH type:
AHC RE 50% of median measure

	82	84	86	88	90	92	96	98	01	04	07	08	09	10	11	12	13	14	15	17	18
All 65+	3	2	4	4	3	2	4	5	4	6	9	8	7	7	6	7	6	6	7	9	11
Single 65+	5	2	9	8	5	3	6	10	7	11	13	11	12	16	9	10	10	7	12	18	22
Couple 65+	0	1	2	2	2	1	2	2	3	2	6	5	2	2	3	5	5	5	4	6	6
Fam HHs no deps 65+	-	2	1	0	-	-	-	4	1	6	7	10	11	2	6	7	5	9	9	7	10
Total popln	9	9	8	9	9	14	14	14	16	16	15	14	15	16	16	15	16	16	16	-	16

See also Table G.3 for further information on income poverty trends for older New Zealanders using other AHC measures.

Sources of income for older New Zealanders

This section reports on the sources of income for older New Zealanders using a three-way division:

- government transfers - New Zealand Superannuation (NZS), Veterans Pension (VP) and other state support such as the Disability Allowance (DA) and the Accommodation Supplement (AS)
- income from employment and self-employment
- other private income from private superannuation and other investments.

NZS and VP make up around 98% of government transfers for older New Zealanders as a group. Around 5% receive the AS, and 18% the DA.[102]

For this subsection, older New Zealanders are taken to be those in the survey[103] aged 66 and over. Those aged 65 are not considered as almost all of them will have received NZS for only a part of the 12 months prior to interview.

All the surveyed 66+ can be classed as belonging to one of two economic family unit (EFU) types: couple EFU with at least one partner aged 66 or more, or one-person EFU with the person aged 66 or more.[104] The analysis is at times kept separate for couple and one-person EFUs as there are quite significant differences between the two groups regarding sources and levels of income.

In looking at the sources of income for older New Zealanders, the 66+ EFUs are ranked on their equivalised gross income and put into deciles for comparison. (These are not the deciles based on a ranking of the whole population.) Older New Zealanders are clustered more strongly in the lower four deciles of the population income distribution (35% were in the lower two deciles in 2012).

There are usually around 700 66+ EFUs in the sample, 1000 for years 2015 and 2018 when the overall sample larger (5500 rather than 3000 to 3500). As the findings focus on stable patterns and clear trends rather than on smaller year on year changes, a sample of this size is adequate.

Summary of findings regarding the sources of income for older New Zealanders

- The great majority of older New Zealanders (aged 66+) are very dependent on NZS and other government transfers for their income
  - 40% have less than $100 pw from other sources (40% of singles have no other income)
  - the next 20% have on average around 70% of their income from NZS and other government transfers
  - those in couple EFUs generally have higher per capita non-government income than do those in single person EFUs.
- Around 40% of older New Zealanders receive more than half their income from sources other than NZS or VP

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102 Around 5% receive neither NZS/VP nor any other main social security benefit nor any other form of government financial support such as ACC or Student Allowance.

103 The HES gathers information on those in private dwellings. This means that older New Zealanders in residential care are not included in the survey findings.

104 In all other places this report uses the household as the income sharing unit, as the focus is usually on (household) income as an indicator of material wellbeing. This subsection has a different focus – the sources of income for older New Zealanders – and it uses the EFU as the income sharing unit rather than the household, as the EFU is better suited for the task. Some older New Zealanders live in wider households and share in and/or contribute to the overall standard of living of the household, sometimes having their living standards raised by the participation and sometimes having them lowered (eg where the rest of the household contributes little other income). Using the EFU enables the analysis to look just at the 66+ units to report their income sources, distinct from the incomes of the rest of the household.

- this group has grown in size in recent years (15% in 1998, 30% in 2009), mainly due to increasing non-government income for those in ‘younger’ couple EFUs (aged 66-75), and especially higher income from employment.

Table I.4 provides more detail to support and enlarge on these summary findings. The right hand column gives the links to the relevant tables and charts that follow – these support and illustrate the summary above and the findings reported in the table. Around 98% of all government transfers to older New Zealanders come from NZS/VP. For some in lower income deciles, the extra state assistance (eg DA and AS) is significant and is around 2% average.

Table I.4

Summary of key findings about sources of income for older New Zealanders

2018 HES	Changes from 1989 to 2018	Ref
For the great majority, there is very high dependence on NZS …		Fig I.6
• NZS provided virtually all the income (98%) for the lower 40% (Q1 and Q2)	• there has been very little change in these proportions since 1989	Fig I.7
• NZS provided 70% of income for the next 20% (the middle quintile)	• there has been decline in this proportion since 2004, from 90% to 70%	Fig I.8
• for the next 20% (Q4), NZS provided just over 40% of the income	• this is down from the 65% to 70% that prevailed from 1989 to 1998	Fig I.6
• half reported less than $200 pw (per capita) from sources other than government transfers	• there was little change in this from 1989 to 2004 (in real terms), but recently this proportion has declined a little	Derived from Fig I.12 and I.7
• the lower 40% reported less than $100 pw (per capita) from sources other than government transfers	• there was little change in this from 1989 to 2004 (in real terms), but recently this proportion has declined a little	
… and single person EFUs are more dependent on NZS than are couple EFUs		
• 57% of all the income for single person EFUs came from government transfers, 38% for couples • 40% of singles report no other income, 60% report less than $100 pw – 10% & 35% for couples • of the 35% of older NZers reporting more than $500 pw (per capita) non-govt income, 2 in 3 were from couple EFUs and 1 in 3 from single-person EFUs	• the proportion of all income coming from government transfers has declined since 1989, but the proportion for singles is always higher than for couples (eg 70% and 60% respectively in 1998, and 60% and 40% respectively in 2015)	Fig I.9 Derived from Fig I.12
For a smaller group (around 30%), income from other sources is significant and for this group the % of total household income coming from these other sources is increasing		
• other income made up more than half of total income for about 40% of all older NZers (30% of singles, 45% of couples)	• the size of this group has more than doubled since 1998 (15%), and is up on 2009 (30%)	Fig I.9 Table I.5
• for deciles 8 and 9 together, only 32% of their income was from NZS	• this is down from 56% in 1998, 55% in 1989 and 46% in 2007	Fig I.6
• for 'younger' couples (aged 66-75) in deciles 5-6 of this group's income distribution, 60% of their income came from non-government sources	• this is up from 20% in 1998 and earlier, and more recently is driven by rising employment income for those in younger couples	Fig I.10
• for those in the top decile (mainly couples) only 13% of their income was from NZS	• this is down from 29% in 1989 and 23% in 1998	Fig I.6
Overall …		

• govt transfers made up 45% of reported income for older NZers as a group, but as the above findings indicate, this aggregate figure masks large differences across the deciles and between single person and couple EFUs	• this (45%) is down from 67% in 1989, 64% in 1998, and 57% in 2007	Fig I.6

Figure I.6
Proportion of gross income of older New Zealanders (66+) coming from government transfers (almost entirely NZS and VP)

Figure I.7
Income sources for deciles 1-4, all 66+ EFUs

Figure I.8
Income sources for deciles 5-6, all 66+ EFUs

Figure I.9
Proportion of gross income coming from government transfers (almost entirely NZS and VP): one person and couple EFUs compared, HES 2018

Table I.5
Proportion (%) of gross income coming from government transfers (almost entirely NZS and VP): All 65+, one person and couple EFUs, 1989 to 2018

Income decile of group	1	2	3	4	5	6	7	8	9	10	ALL
All 65+											
1989	99	98	98	96	88	82	70	61	49	29	67
1998	99	99	99	97	92	86	79	63	50	23	64
2009	99	99	99	95	87	73	57	42	33	20	53
2015	99	100	97	92	81	64	49	38	28	14	46
2018	99	99	99	94	80	62	48	37	27	13	45
Single 65+											
1989	100	100	98	95	91	84	71	66	55	35	73
1998	99	98	100	99	95	90	84	70	55	27	71
2009	100	98	100	98	94	87	72	56	39	23	60
2015	100	99	100	97	95	86	69	51	37	19	59
2018	98	99	99	99	95	86	67	49	35	19	57
Couple 65+											
1989	98	100	97	93	85	81	70	64	49	27	65
1998	99	100	98	93	89	79	69	57	43	19	59
2009	99	99	96	84	69	53	43	35	28	18	47
2015	100	98	90	75	59	48	38	29	23	12	40
2018	100	99	92	73	58	46	38	30	22	11	38

Note: each group (all, single and couple) is ranked separately on their incomes, then divided into deciles – the deciles are therefore the selected group's deciles, not the deciles for the whole population

Income from employment is now a much larger component of total income for "younger" older New Zealanders (aged 66-75 yrs), especially couples

In 1989, 16% of income for couples came from employment or self-employment (on average over all couples aged 66-75). By 2001 this was at 23%, but in 2018 it was 42%.

This change is not happening across the whole distribution but is certainly evident from decile 5 and up. For example in deciles 5 and 6 (the middle of the gross income spectrum for couples) **Figure I.10** shows a strong and sustained increase in the proportion of income coming from non-government sources starting somewhere between 2001 and 2004, rising from 20% in 2001 to just under 60% in 2018. The growth in the contribution of employment income to this change is shown in the right-hand cluster of columns. Employment income for this group now makes up almost the same proportion of total income as does private investment income (~25-30%).

Figure I.10
Changing proportions from three sources for couples (aged 66-75) in deciles 5-6 for couples

Looking further up the income distribution (ie above the middle quintile used in Figure I.10), couples in deciles 7 to 9 also report large increases in employment income in both dollar and proportion terms. For example, in 2018 this group reports that 53% of their income comes from employment / self-employment compared with 25% in 2001 and 14% in 1989.

For the comparable group of singles there has been some increase in employment income but it is for a smaller proportion of individuals than for couples and the increase is not so marked.

Income inequality is increasing among the 65+ age group as indicated by the Gini trend line in **Figure I.11** below. This appears to be mainly as a result of the increasing employment income for younger couples (aged 66-75).[105]

Figure I.11
Gini for 65+, household disposable income (BHC)

105 See also, OECD (2017c).

Table I.6 shows the amounts received by one person and couple EFUs (66+) from sources other than government transfers (ie from employment, self-employment, private superannuation and other investments). Each EFU type is ranked separately on their respective non-government incomes. Decile means and decile upper boundaries are given.

Table I.6
Amount received per week by 66+ EFUs from non-government sources by decile, HES 2018
(each EFU type is ranked separately on their respective non-government incomes)

		1	2	3	4	5	6	7	8	9	10	TOT
one person EFUs	mean	0	0	0	0	20	70	225	475	825	1,870	350
	upper bndry	0	0	0	5	40	120	335	620	1,075	-	-
couple EFUs	mean	0	5	60	230	470	795	1,070	1,635	2,360	5,565	1,225
	upper bndry	0	15	125	325	605	930	1,310	1,940	2,915	-	-

Note: When making estimates of the number or proportion of individuals (rather than EFUs) receiving less than or more than a given amount from non-government sources, note that there are around 2.5 times as many individuals in couple EFUs than in single EFUs (ie the relative weighting is around 5:2).

Figure I.12 plots the upper boundaries from Table I.5 for deciles 1-8 and interpolates to provide a simple means of estimating proportions of older New Zealanders with non-government incomes above or below selected amounts. For couple EFUs, the Table I.6 amounts are halved to convert them to per capita amounts. The top two deciles are omitted to enable a sensible vertical scale to be used.

Figure I.12
Income from non-government sources for one person and couple EFUs (66+): weekly amounts per person, decile upper boundaries, deciles 1-8, HES 2018

For example, for those in couple EFUs, 42% have less than $200 pw, and for one person EFUs, around 65% have less than $200 pw. There are around 150% more people in couple EFUs than in one person EFUs (5:2 ratio). The weighted average of 42% and 68% is 50%. So, in 2018, around half of older New Zealanders had income of less than $200 pw over and above government transfers. Around 40% had less than $100 per week over and above government transfers.

The figures are much the same in nominal terms as in the 2015 HES.

Self-assessed income adequacy of older New Zealanders (65+) compared with the rest

Figure I.14 shows the proportion of households with older New Zealanders (65+) reporting 'not enough' and 'more than enough' household income for paying for food, accommodation, clothing, electricity, and other basics. The trends for those aged under 65 years are included for comparison (dashed lines).[106]

The 'not enough' trend for the 65+ is flatter than for the rest of the population, showing a slight downward trend overall. The rest of the population reported slightly rising financial stress during the GFC recession (2008 to 2012), followed by a strong downward trend through to 2017, with some initial evidence of a flattening through to 2018. This general trend is in line with rising real income growth in the period (see Section D), including for most lower income groups.

The 'more than enough' lines both dipped in the recession, then rose strongly through to 2018 (doubling), in line with rising real income growth in the period across all income groups.

The picture painted by this information is consistent with the rest of the evidence that points to the current cohort of older New Zealanders (65+) having a good standard of living, with only a small group reporting financial and material hardship. There is no evidence here of any increasing financial hardship. This is consistent with the flat trends for anchored line AHC low-income measures shown in **Tables I.3A** and **3B** (above).[107]

Figure I.14
Self-assessed income adequacy for meeting basic costs for food, accommodation, electricity, etc

[106] When people are asked if their household's income is adequate to cover the basics of food, clothing, accommodation and other necessities, there is good evidence that their responses take account not only of their income but also of all the other factors that make demands on or contribute to the household budget. See **Section A** for more on this.

[107] It is possible that within the 'not enough' group there is a small sub-group who are in very serious financial and material hardship. A survey like the HES cannot reliably identify this sub-group. Other sources of information are needed for this purpose, such as foodbank figures, and so on.

Tenure for older New Zealanders

Over the last two decades or so (1994 to 2018), the HES shows that home ownership for older New Zealanders has been steady at ~86%. Renters have been steady at ~12-13%, with 1-2% in a residual category that includes those living with others in a home that another resident owns and those boarding.

Since the mid 1990s there has however been a downward trend in the proportion of homeowners (aged 65+) whose dwellings are mortgage-free, down from 83% in the mid-1990s to 78% in the mid-2000s and to 72% on average from 2015 to 2018 (see **Figure I.13** below). Over the last four surveys, 13% were in a dwelling for which there were still mortgage payments being made, the same proportion as those renting.

Figure I.13
Tenure for individuals aged 65+, based on HES data, 1992 to 2018, two year rolling average

The rising trend in the proportion of older New Zealanders (still) paying a mortgage is a potential concern because it increases the chances of there being more with inadequate after-housing-costs incomes. Whether this trend translates into a real-world increase in the proportion of older New Zealanders experiencing financial or material hardship depends on the characteristics of the households in question. For example, if the bulk of the increase in those with mortgages is households with higher incomes, or are households using their primary dwelling as security to raise funds for purchasing another property (eg for renting out), then there are few grounds for concern. If on the other hand the bulk of the increase is from less well-off households coming into "retirement" still paying a mortgage on the primary dwelling, then there are grounds for concern.

The version of the HES data currently held by MSD does not allow us to fully investigate the questions related to other properties, but the full HES dataset does allow this. Preliminary analysis of the full HES data by Stats NZ on MSD's behalf indicates that it is very unlikely that the increase is driven by any increase in the numbers using the primary dwelling as security for purchasing another. We expect to be able to report more fully on this in the next issue. In the meantime what we do know in relation to the issues raised is that:

- the increase is mainly for 65+ couples, not singles
- around 60% of the increase for couples from 2007-2009 to 2016-2017 is from households with at least one in full-time employment or self-employment, 40% from households with little or no income from paid employment – there is no data in the HES to tell us whether the employed group are employed because they want to be or because of economic necessity
- there is no evidence to date of any increase in the anchored line low-income trends for older New Zealanders using AHC measures (though relative AHC rates are rising for single-person households)
- there is no evidence to date of any rising hardship trend for older New Zealanders.

The report will continue to monitor trends and will seek further information from other sources to better understand the trend and its potential consequences, if any, for the material wellbeing of older New Zealanders.

Tenure for 45-64 year olds

The tenure trends for those in the years before 'retirement' are shown in **Figure I.14** below.

- renting has doubled from around 10% in the 1990s to just over 20% in 2017 and 2018, with a corresponding fall in home ownership to 77%
- there has been a strong decline over the last twenty-five years in those who are mortgage-free, almost halving from 60% in the early 1990s to 33% in 2018.

Figure I.14
Tenure for individuals aged 45-64+, based on HES data, 1992 to 2018, two year rolling average

Low-income trends for 45-64 year olds living on their own

Figure I.15 shows the low-income trends for the population and selected groups, using the 50% AHC CV-07 fixed line measure.

- For the population as a whole there has been a steady decline in this low-income rate since the mid-1990s.
- For 45-64 yr olds and those aged 65+, there has also been a steady fall. This means that real household incomes (AHC) for these groups have been improving at the low end.
- For 45-64 year olds living on their own, the low-income rate has returned to what it was in the mid-1990s (~33-35%), after a modest fall through to 2010 (27%). This means that there is an increasing proportion of these households whose real AHC incomes are declining.

Figure I.15
Tenure for individuals aged 45-64+, based on HES data, 1992 to 2018, two year rolling average

Section J
The 'Working Poor'

Contents

- What is driving the current interest in the working poor?
- What do we mean by in-work poverty? Outline of definitions used in this paper.
- What is the relationship between the low-waged and the working poor (including a section on the living wage)?
- How many working poor are there in New Zealand?
  - low-income and material hardship rates and composition for 2017-18, for different depths and work intensities
  - breakdown by household type and number of earners
  - trends over time
  - trends for those in workless households.
- Children (0-17 yrs) in working poor and workless households.
- International comparisons.
- Income mobility and poverty persistence for the working poor.
- Comparing working and workless poor households.

<u>References</u> (as Section J is also likely to be published as a stand-alone document, the relevant references are included here)

<u>Annexes</u>

1 Comparison of HES-generated low-wage distribution with MBIE numbers in their Minimum Wage Review 2018.

2 Wage data for household income deciles for Figures J.1 and J.2.

Approximate numbers of households and individuals (HES 2018)

Households (000s)		**Individuals (000s)**	
ALL	1730	ALL	4750
With any 65+	495	65+	690
SE, with any LT 65	180	Under 65 in SE HHs	520
Other, with only under 65s	1075	Other under 65s	3530
working	*950*	*wages / salaries (18-64)*	*2000*
workless	*120*	*no wages / salaries (18-64)*	*400*
		0-17 yrs	*1100*

Full-time and part-time definitions used in this section:

FT full-time (> 30 hrs pw paid employment)
PT part-time (between 5 and 30 hrs pw paid employment)

What is driving current interest in 'the working poor'?

…. while working is generally considered as the best way to avoid poverty, this is not sufficient for almost one out of ten European workers …. addressing in-work poverty remains a key challenge - in spite of the wide array of existing policies and policy reforms underway. Beyond the damaging consequences for European societies, in-work poverty signals a fundamental social unfairness: working is not a guarantee for avoiding poverty.

Report on in-work poverty from the European Social Policy Network (Peña-Casa et al, 2019).

The 1936 amendment to New Zealand's Industrial Conciliation and Arbitration legislation (s3(5)) required the Arbitration Court to set award rates for adult male workers which, in the opinion of the Court, would be 'sufficient to enable a man in receipt thereof to maintain a wife and three children in a fair and reasonable standard of comfort'. The spirit, if not the letter, of this approach lasted for some decades through the so-called 'golden era' of the 'post-war consensus' and into the early 1970s. It reflected the general view that working families who spend wisely should at least be able to get by, if not get ahead.

Those days are long gone, with significant changes in the labour market, employment relations, social norms around household resourcing / the male-breadwinner household, and higher expectations about what 'a reasonable standard of comfort' entails. For a good number of working families these days, the earnings from full-time work on their own (ie without government transfers) are lower than what is needed to meet basic needs, let alone live in 'a reasonable standard of comfort'. It is now a common feature of western democracies that low-income working families with children (and, in some cases, low-waged individuals without children) are eligible for a top-up through in-work income support designed to 'make work pay' for recipients. This support for low-income working households is politically sustainable mainly because the underlying broad-based societal support for the view that 'working poor' is or ought to be an oxymoron, as no one who puts in a good day's work should experience poverty.[108]

In the context of this widespread view, media reports from food banks and other charities that an increasing number of their clients are working families and working individuals raise concerns for many citizens. There are some specific factors that make the issue of the working poor a public policy issue, in addition to it being of more general public interest. [109]

- OECD and EU governments of all types are committed in one way or another to the core belief and policy position that paid employment is (usually) the best way out of poverty. Much effort and considerable resources are put into 'activation' policies and programmes to help move people off benefit and into paid work, hopefully sustainable and reasonably paid work. While there is good evidence to support the value of such an approach, especially when associated with income top-ups for low-income working households, there is also good evidence which suggests that it is not as simple and clear-cut as is often portrayed:
    - For a good number of families with dependent children and for some individuals without dependent children, full-time paid work <u>on its own</u> does not pay enough for meeting basic needs, let alone 'getting ahead'. This shortfall in what full-time paid work by itself produces is a major part of the rationale for the provision of in-work income support.
    - Even with the top-ups to wages for low-paid workers that most OECD / EU countries provide, there are still a good number of working families and individuals whose incomes are too low to pay for the basics and achieve a minimum acceptable standard of living. The working poor typically make up 30 to 40% of all those designated as 'poor' in OECD / EU countries even when looking only at

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108 See, for example, the 2013 UK survey commissioned by the Social Mobility and Child Poverty Commission that found that 75% of respondents believed that the government should top up the income of households which have someone in work, but are living in poverty (Gregg et al., 2013). It also found that 84% of respondents felt that employers should pay wages that better reflect the cost of living.

109 Recent reports and research on in-work poverty in Europe and the UK include Peña-Casas (2019), <u>Bourquin</u> et al (2019), Filandri et al (2018), Hick and Lanau (2017, 2018), Eurofound (2017), Horemans et al (2016), Marx and Nolan (2012, 2016) Ponthieux (2010).

households with medium to high work intensity (ie excluding those with low work intensity).[110]

The claim that 'paid work is the best way out of poverty' and the commitment to 'make work pay' through in-work supports do not sit comfortably together. The top-ups are needed because the income from paid work (on its own) is for many households not enough to sustain them. The underlying philosophy is perhaps more like this: as a society, we think that paid work should be enough but in fact these days it's not for many … so the rest of us will contribute to top-ups, in part because we wish to support and encourage the cultural norm of the 'working household' (or individual), noting both the economic and other benefits of living in a 'working household' (or of individuals being in paid employment).

A dynamic perspective might paint a different picture. If, for example, many of the working poor in one year move to higher income in the next (above the line, and sustained), then the concerns would be lessened. This is discussed later, though the research on mobility in relation to the working poor is not extensive.

- In addition, there are ongoing changes in the labour market which are sources of concern: for example, the increasing numbers in low-wage jobs, especially in the service sector; and the rising demand for flexible labour relations along with the flipside of this, the rising number in non-standard work or insecure employment.[111] These concerns are amplified by the prospect of this process being further accelerated by rapid technological change that may lead to a net replacement of lower-skilled labour rather than creating as many new jobs as it destroys.[112]

  The relationship between low wages and in-work poverty is not straightforward. For example, the bulk of low-waged individuals live in households with other workers and such households are usually not poor. This is discussed further below.

- A third factor contributing to a heightened interest in in-work poverty is the sustained long-run fall in the number of people who are receiving main income support benefits or who rely on the income received by benefit recipients. In New Zealand, the numbers are down from 700,000 in 1998 and 590,000 in 2011 (in the recession linked to the Global Financial Crisis), to 480,000 in 2019. This change in itself ensures a rise in the proportion of poor households that are working households as the beneficiary proportion drops (if nothing else changes). The chart on the right (using the AHC 50% measure) shows the changing composition of those designated 'poor', with a steady rise in the relative size of the 'working poor' group in the recovery and growth post-GFC as the number on benefit decreased.

110 See Ponthieux (2010) (Tables 14 and 15) for EU compositional figures, based on analysis using all household members not just those in paid employment (the latter is the standard EU practice). This approach enables valid comparisons with the findings from UK research and those in this paper. When low work intensity households are included, around half of all poor are working poor on average across the EU. It is more like 60% for the UK. OECD (2009) reports that on average the working-age working poor account for more than 60% of all working-age poor. The OECD analysis uses a BHC 50 measure and an all-encompassing definition of work ('any recent paid employment'). The Household Incomes Report highlights the situation of households with medium to high work intensity who also report low-income rates and high material hardship. Low work intensity households make up only a relatively small proportion of working poor households, though (unsurprisingly) they have high poverty rates. The policy issue is more pressing for households designated 'poor' who have at least one full-time worker.

111 These workers are sometimes referred to as 'the working poor'. This is a quite different use of the term than in this report and in the literature more generally. This report limits the scope to those in working households which are poor on a particular measure. Individuals may be on low wages, work non-standard hours, be in insecure employment, and so on …. and not be poor, depending on who they are living with.

112 For recent New Zealand work on the Future of Work, see New Zealand Productivity Commission (2019).

What do we mean by 'in-work poverty'?

To be able to talk sensibly about 'in-work poverty' or the 'working poor', we need to be clear as to what we mean by both 'poverty' and 'working'.

In-work poverty is a hybrid concept: poverty is a household-based notion, whereas employment is about what individuals do. To bring the two together, the notion of a 'working household' has to be used – a working household is one that has at least one adult household member in work (paid employment).

Each concept can be defined and operationalized in a variety of ways. For example:

- *poverty*: can use low-income before or after deducting housing costs (BHC or AHC), or a material hardship measure, with more or less stringent thresholds for each[113]
- *working*: can range from one or more household members full-time (FT) through to one or more with any work whether FT or PT, and the time range for the work can be simply 'the week before interview' or 'over the bulk of the past year', or similar.

In addition, a decision is needed on who to count in the poor working households when calculating the IWP rates – all individuals, those of working-age, or just the workers themselves? (or, alternatively, just count the working households themselves?)

Assuming half-a-dozen poverty measures, three definitions of 'working' and three ways of counting the working poor, we are already up to 54 definitions.[114]

There is no one definition of IWP that commands universal or even near universal support as <u>the</u> definition. For example:

- In the UK, both the 60% AHC and BHC low-income measures are used, with being in work referring to work status in the week of the interview. The focus is on all people in the working households, not just the paid workers, with breakdowns by age often given. This approach answers the question – 'how many of the poor live in households where there is a paid worker?'.[115]
- The OECD has used a 50% BHC poverty measure, with being in work referring to work status in the week of interview. The focus is on all people aged under 65 yrs in the working households.[116]
- The EU has decided on an approach that uses 60% BHC as the poverty measure, with being in work referring to being in (any) work for 7 or more of the previous 12 months. The focus is on working-age workers only (not the rest of the household members), and this approach answers the question – 'how many paid workers are poor?'.[117]
- Recent research on poverty and part-time work in Europe uses the 60% BHC measure, with being in part-time work referring to the week of the interview. The focus is only on part-time workers in their households.[118]

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113 There is still much debate about the meaning of poverty in richer nations, including whether household income is a reliable enough indicator of household material wellbeing, and what threshold is appropriate for 'drawing the line'. These issues are addressed elsewhere in the Incomes Report. This Section uses relative low-income measures as the default.

114 Thiede et al (2015) found 126 definitions in use.

115 See, for example, Hick and Lanau (2017, 2018), Tinson et al (2016), DWP (2018), Bourquin et al (2019).

116 OECD (2009).

117 This is the official definition for EU reporting. The ESPN quote at the head of the previous section comes from that tradition (hence the reference to 'one in ten workers'). The EU definition complicates interpretation as, among other things, the poverty status of individual workers depends on the labour market status of other adults in the household, and the number of dependents living off the household's income. See Eurofound (2017), Marx and Nolan (2012) and Ponthieux (2010) for some critique of the EU measure itself. The literature recognises the limitations of using just one definition.

118 Horemans et al (2016).

- The US Bureau of Labor Statistics takes a different view again.[119]

The plethora of definitions that can be and are used for IWP can at first sight appear counter-productive or even chaotic. In practice, however, the lack of a single agreed definition is not a major hindrance to examining, understanding and monitoring IWP:

- There is some common practice that allows international comparisons on the same measure, especially for the EU approach and to some degree for the OECD and UK approach
- A range of measures is needed to properly understand the complexities of IWP, including the differences at various depths of poverty, and for differing work intensities within households
- Even if only one (primary) measure is used, and the definitions of poverty and work are clear, practical meaning is given to findings such as 'the IWP rate for working-age adults is 12.1%' only when the number is set in the context of:
    - the overall poverty rate for the group in question
    - rates at other depths of poverty
    - trends over time
    - findings across countries (where possible).
    - rates across household types, ethnic groups, and so on.

The approach used in this paper

This report uses a multi-measure, multi-level approach, with the reported IWP rates set in the context of the other aspects noted immediately above. A comprehensive story is presented based on the fuller range of analysis and information. This is in line with the approach adopted in the rest of the Household Incomes Report for monitoring poverty, inequality and material hardship.[120]

The report in the main follows the UK and OECD approach of reporting on all those in poor working households, not just on the paid workers as the EU does. It also reports EU comparisons for New Zealand using a reasonable approximation to the EU approach. It provides the IWP numbers for varying degrees of household work intensity, but the main focus is on households with at least one full-time worker. Work status is what it is for the week before interview.

When looking at households by their labour market status and work intensity, self-employed households are treated separately given the well-known dissonance between the reported income and the actual day-to-day living standards for many such households (their living standards are on average higher than expected for the level of income declared).[121]

Previous Household Incomes Reports have reported AHC-based IWP rates for all those aged under 65 years and for children, and there has been some limited information using a material hardship measure. This paper expands this with the addition of BHC-based analysis, fuller material hardship information, more breakdowns by household type, work intensity and number of earners, and international comparisons. It also has a section on poverty trends for workless households.

<u>The different timeframes for the 'poverty' and 'working' components of the IWP measure</u>

One of the challenges in using the HES data for IWP analysis is that work status information is available for the week before interview, whereas income poverty measures use the household income from the 12 months prior to interview. This means that the reported IWP rates for households of a given work status are about the poverty status over the whole year of households with that particular work status in the week before interview. Given that household work status can change over the 12 months, the question arises as to what degree the different timeframes for

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119 The US Bureau of Labor Statistics defines the working poor as those who spent at least 27 weeks in the labour force (that is, working or looking for work) but whose household incomes still fell below the poverty level. The working-poor rate is the ratio of the working poor to all individuals in the labour force for at least 27 weeks.

120 'Poverty rate' is used a convenient short-hand for the BHC and AHC low-income rates using various thresholds, and for the material hardship rates using non-monetary indicators.

121 Compare Tables 5 and 7, noting that IWP rates for SE households are higher than for full-timers when using AHC incomes, but lower when using a material hardship measure. See also Chart 4.7 in European Commission (2018).

each component of the hybrid concept (household income and household work status) impact on the reliability of the reported IWP rates when they are interpreted as if both the income and work status relate to the same time period.

The HES data includes information on the sources of household income for the 12 months prior to interview, including the categories of market income (mainly wages and salaries for working age households), benefit income, and other financial assistance (mainly AS and WFF). One way of investigating the question noted above is to look at the sources of income over the 12 months prior to interview for those households reporting a particular work status in the week prior to interview, using the market income and benefit income categories.

In HES 2018, market income was the main source of income for 99% of under 65 individuals whose household work status was 'one or more in FT work' in the week prior to interview, and for 93% from poor households (AHC 50) with that work status. For under 65 individuals in households identified as poor 'workless' households in the week prior to interview (AHC 50), 18% had the market as the main source of income for the previous 12 months. The matching of work status between the two timeframes is not perfect for the poor households – some identified as having moderate to high work intensity have low work intensity when looked at over 12 months, and conversely, some households identified as workless or part-time in the week before interview have a moderate to high work intensity over the 12 months. These discrepancies work in opposite directions in their impact on reported IWP rates.

The HES data also allows a comparison between the IWP rates for households with at least one adult in full-time work in the week prior to interview (the approach in this paper), and the low-income rates for households with no benefit income in the 12 months prior to interview, and those whose main source of income is the market in the 12 months prior to interview. **Table J.1** below shows that the in-work poverty rates are very close for all three approaches, as are the workless poverty rates for the two for which there is relevant information.

The evidence in all the above gives sufficient confidence to proceed with the approach used in the report.[122]

Table J.1
In-work poverty rates (%) using three definitions of working household, under 65s, HES 2018

	BHC 60	AHC 50
In-work poverty (under 65s)		
Using work status in week before interview (at least one FT)	10	9
Using work status in week before interview (SE)	10	11
Market is main source over prior 12 months (>80%)	10	10
Market is main source over prior 12 months (>50%)	12	12
No benefit income over prior 12 months	12	12
Workless poverty (under 65s)		
Using work status in week before interview	77	71
Benefit is main source over prior 12 months	86	73
ALL under 65, in workless and working households	18	17

Seeking a single number to represent a complex phenomenon is usually a misguided objective

The desire to be able to say that 'the in-work poverty rate for New Zealand is X%' is understandable, but the assertion has practical meaning only in the context of the comparisons with other countries using the same measure, comparisons over time, or comparisons with the overall poverty rate for the country as a whole.

The multi-measure multi-level approach adopted in the measurement regime in New Zealand's Child Poverty Reduction Act (2018) reflects the view that no single measure can properly paint the

[122] As the 'main source' and 'no benefit' approaches avoid the timeframe issues, why not use them instead? Neither of these approaches allows any reporting broken down by number of earners or the work status of earners.

picture or adequately inform policy decisions for complex themes such as ‘poverty’. The approach adopted in this paper for in-work poverty is in line with this approach.

The low-waged and the working poor

Low-waged workers are not the same as the working poor. Low wages are about the wage rates of individuals. The situation of the working poor is about the total household income of households where there is at least one paid worker. The income is after taxes and transfers, and is adjusted for household size and composition (equivalised).

Low-wage workers are found right across the household income distribution,[123] as shown in **Figure J.1.** The bulk of low-wage workers are therefore not poor, as they live with others whose income they share.[124] In 2018:

- 80 to 90% of low-waged workers lived in households with incomes above the common 50% and 60% of median low-income thresholds[125]
- 40% lived in households with incomes above the median.

Looking at it the other way, around one in four working poor households have at least one worker on less than 105% of the minimum wage, and 60% have at least one worker on less than the 'Living Wage'.

Increases in wage rates for those in the low-pay zone will therefore impact on IWP rates, as well as benefiting individuals and households further along the household income spectrum.

Figure J.1
Location of low-waged workers across household income deciles (BHC income, all households)
(using 105% of the 2017 minimum wage as a low-wage threshold, $16.54 per hour)

There are several factors involved in the relationship between low wages and in-work poverty:

- the wage rates for the paid workers in the household
- the total hours of paid employment in the household
- the value of in-work and other supports (including tax credits, child-care and accommodation subsidies)
- the number of people being supported by the income of the paid worker(s).

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123 Low-waged here is defined as less than 105% of the minimum wage. The more common international definition is 'less than two-thirds of the median wage'. NZ's minimum wage is around 60% of the median wage, so the use of this definition is problematic for NZ analysis as there is only a very narrow sliver of the wage distribution under two-thirds of the median. Using 105% of the minimum wage ensures a workable number below the threshold and avoids the 'noise' in the data that using 100% would encounter. The 2017 minimum wage is used as the HES 2018 survey covers the June 2017-18 year.

124 Whether this living arrangement is out of economic necessity or choice is beyond the scope of this report.

125 This is similar to the figure for the EU, where around 16% of workers earning below two-thirds of the median wage are in households below the 60% BHC threshold – ie 84% are in households above the line (Peña-Casa et al, 2019: 32).

For the low-waged especially, whether one is in poverty or not depends greatly on who it is one lives with (though that observation applies more generally too – for example to the unwaged).[126]

The 'living wage'

The 'living wage' is often a part of discussions on either low pay, the working poor, or both. The Living Wage Aotearoa New Zealand campaign was launched in May 2012. It is modelled on similar campaigns in the UK, the US and Canada. Living Wage advocates are committed to the principle that 'people in full-time work should not live in poverty'. They define the living wage is 'the hourly wage a worker needs to pay for the necessities of life and participate as an active citizen in the community'.

Because wages are earned by individuals and living standards for individuals are determined in the main by household income (and wealth), any exercise to come up with a living wage estimate has to make four key decisions, each of which can have an impact on the estimated figure:

- on which household type is the analysis to be based? or, should it use a range of household types and take a weighted average?
- for how many hours per week are the adults assumed to be in paid employment?
- what is the expected or target level of day-to-day living standards?
- what part of the country is the estimated figure for, given that costs (especially housing costs) vary across the country?

In addition, such an exercise has to take account of the current income tax regime, and of the assistance that households can receive from the government through such schemes as Working for Families (WFF), the Accommodation Supplement (AS), Childcare Support, and so on.

For New Zealand, calculations are based on a two-adult two-child household, with one adult in paid employment for 40 hours per week and the other for 20 hours per week. One child is a teen, the other under 10. Housing costs are taken as an average across the whole country, based on MBIE's rent bond database and using the figure at the top of the bottom quartile. Other costs are estimated using a range of direct sources (eg Otago University Food Cost Survey), and then for other categories the actual average expenditure for two adult two child households with incomes under the median (from Stats NZ's HES). See Waldegrave et al (2018).

The living wage is set annually and is currently (2019) at $21.15 per hour, compared with the minimum wage of $17.70 per hour. The Government has committed to raising the minimum wage to $20 per hour by 2021. In recent years, the living wage has been around 25-30% above the minimum wage, 80-85% of the median wage, and around two thirds of the average wage.

Figure J.2 repeats Figure J.1, but this time using the living wage as the low wage threshold, thus showing where earners on less than the living wage are found across the household income spectrum. Around half of the working poor are in households in which at least one worker is on the living wage or less.

Figure J.2
Location of low-income earners across household income deciles (BHC income, all households)
(using the 2017 living wage as a low-wage threshold, LW = $20.55 per hour)

[126] See Annex B in Peña-Casas et al (2019) for a fuller list of factors impacting on the risk of being in in-work poverty.

100%
80%
60%
40%
20%
0%
1
2
3
4
5
6
7
8
9
10
BHC HH deciles
HES 2018
Working HHs - all over LW
Working HHs - both under and over LW
Working HHs - all under LW
Self-employed HHs (1 or more with SE income 80%+, none waged)
Workless HHs (including 'retired' households with investment earnings)

The factors taken into account when setting a living wage are different than those relevant to setting a minimum wage. There are differences across countries in the processes used to determine the minimum wage level, but the range of factors taken into account are similar, and include the expected impact on employment, inflation, and other low wages (see chapter one in OECD (2015)). While one objective of minimum wage regimes is to provide some security for employees against exploitation, the processes do not usually explicitly require consideration of whether a particular minimum wage level is sufficient for a worker to live on. In contrast, the process for establishing the living wage has its focus solely on the income adequacy aspect, and does not take account of the possible impacts on employment and inflation, and of the issues raised by wage compression at the lower end. For the 2018 Minimum Wage Review, the New Zealand government broke with previous practice and instructed officials to take explicit account of a wider range of factors, including the living costs and financial needs of workers and their families, and the impact of any changes on poverty (see MBIE, 2018: 8).

Conceptual and practical challenges for the living wage concept

In any assessment of the place and value of the living wage concept, there are several factors to take into account. Four commonly-raised matters are: the potential for a net negative impact on employment; the resulting compression at the low end of the wage distribution and the associated relativity questions; the fact that, for any workers with children a wage rise to the living wage, the gains are shared between the worker and the government which receives more income tax and pays out less in tax credits; and the question as to whether a more targeted and generous government income support for low-income working families may be a better approach. These matters are well-canvassed in the literature and are not discussed here (see OECD (2015)).

Instead, this section raises another aspect for consideration, namely, that the living wage is set too low for most families with children, if it is to be true to its own intent and definition – 'the hourly wage a worker needs to pay for the necessities of life and participate as an active citizen in the community'. There is good evidence to support the view that the New Zealand living wage (on its own) does not satisfy its own definition, even for the base family-type used in the calculations. The living wage provides adequately for a family of 2 adults and 2 children only because when doing the calculations:

- A 60 hr working week is assumed (1.5 FTEs), not a 40 hour week. The living wage does not therefore adequately provide for the reference household when it has only one full-time worker. In addition, many poor families with children have only one adult in the household. The living wage is not adequate for these families.
- Government subsidies and tax credits are taken into account. While this is reasonable to do for calculating the wage needed to meet basic costs given this context, the living wage rate that is produced is not by itself able to meet the basic costs required, contrary to how the proposal is marketed and understood by many when adopting it for their employees.
- The housing costs assumption for 2018 ($350 pw) is unrealistically low for many areas. For Auckland, for example, a more realistic rental would be $500 pw. This implies a net living wage rate that is around $2.50 per hour higher, dependent on the Accommodation Supplement rate for the selected area. The gross rate would be higher again. A living wage of $24 per hour rather than $21.15 per hour may put the rate out of reach for many Auckland employers.

There is a case for viewing the Living Wage movement as essentially an effort by some citizens to raise the minimum wage, with the extra (first-round) costs paid for by the employer, and with the gains shared between the worker and the government (more tax, lower tax credits etc). This is not just an issue of semantics. There are, for example, many instances in media reports of employers and commentators talking as if the living wage is in itself a real living wage when for most it is not. There is a significant gap between the marketing claims and the technical-conceptual reality.

This analysis is not an argument for or against the Living Wage movement and its objectives. It is simply a call for a more coherent and realistic understanding and dialogue, lest we come to believe that the living wage is in fact 'the hourly wage a worker needs to pay for the necessities of life and participate as an active citizen in the community'. It is much more complex than that.

How many 'working poor' are there in New Zealand?

As discussed above, there is no one stand-alone answer to this question. The reported rate depends on the measure used, the relative stringency of the chosen poverty threshold, whether the focus is on workers who are poor or on all in poor households where there is at least one worker, and what work intensity is used (full-time only? any paid work?). This section provides comprehensive coverage of a range of policy-relevant analysis, with international comparisons using some standard measures.

To help prepare the way for the detailed analysis that follows, the tables below provide some initial comparisons and relativities. Key numbers are:

- The IWP rate for all under 65s in households where there is at least one full-time worker is 9%, around half their overall low-income rate of 17-18% (using either the 60% BHC or 50% AHC measure).
- New Zealand's IWP rate for working-age adults in households where there is some paid work is 10%, the same as the UK (60% BHC measure).
- Looking only at working-age individuals who are in work (the EU approach), New Zealand's IWP rate is 8% a little below the EU's average rate of 10% (using 60% BHC).
- Those in households with a full-time worker make up around 40% of those identified as poor (see 'composition' panel of top table), even though this group has a relatively low IWP rate. This is the case because there are many more such households than workless households or those with part-time work only.

Low-income rates and composition (%), BHC 60% and AHC 50% for different household work intensities, 0-64 yrs, HES 2018

	BHC 60%	AHC 50%	
Low-income rates (%)			
ALL, 0-64 yrs	18	17	
Self-employed	10	11	
In a HH with at least one FT worker	10	9	
In a HH with PT work only	57	54	
In a workless HH	77	71	
Composition of those in low-income HHs (%)			**All under 65s**
ALL, 0-64 yrs (excl SE)	100	100	100
Self-employed	7	9	13
In a HH with at least one FT worker	42	42	76
In a HH with PT work only	14	14	4
In a workless HH	37	36	8

Low-income rates by work status of the household, BHC 60%

UK v NZ, 18-64 yrs

Working status of household	UK	NZ
Working (any work)	10	10
Workless	39	73
ALL	15	15

In-work poverty rates, BHC 60% selected EU nations, 18-64 yr olds in paid work

Country	IWP rate	Overall rate
EU-27 overall	**10**	**15**
Norway	6	13
France	8	13
New Zealand	**8**	**15**
UK	9	16
Germany	9	16
Spain	13	22

AHC incomes, relative or 'moving line' measures

The top panel in **Table J.2** shows the IWP rates for 2017-18 for those aged under 65 years for different household work intensities, using four AHC low-income thresholds (40-70% of the median). The relativities between those in households with different work intensities are as expected, as are the reducing IWP rates as the threshold gets more stringent.

The lower panel in Table J.2 shows the profile or composition of those in low-income households for the various work intensities and thresholds. The proportion from households with at least one full-time worker is smaller the lower is the low-income threshold, while the reverse is the case for workless households. This shows that while the number of low-income working households is significant, the prevalence of workless households increases at the very low end.

Table J.2
Low-income rates and composition (%), AHC incomes, HES 2018, 0-64 yrs

Low-income threshold as % of median HH income	40%	50%	60%	70%
Low-income rates (%)				
ALL, 0-64 yrs	12	17	23	30
Self-employed	7	11	17	23
In a HH with at least one FT worker	5	9	16	23
In a HH with no FT worker (may have PT)	53	65	74	79
In a HH with PT work only	42	54	64	72
In a HH with some work (excl SE)	8	12	18	26
In a workless HH	58	71	79	83
Composition of those in low-income HHs (%)				
ALL, 0-64 yrs	100	100	100	100
Self-employed	8	9	9	10
In a HH with at least one FT worker	35	42	50	57
In a HH with PT work only	16	14	12	10
In a HH with some work (excl SE)	51	56	62	67
In a workless HH	42	36	28	23

Some research and international comparisons focus on 'working-age adults' (those aged 18-64 yrs or 16-64 yrs), rather than on all those under 65 years. **Table J.3** provides the same analysis as in Table 1 but for working-age adults aged 18-64 yrs. The numbers for 16-64 yrs are very similar.

Table J.3
Low-income rates and composition (%), AHC incomes, HES 2018, 18-64 yrs

Low-income threshold as % of median HH income	40%	50%	60%	70%
Low-income rates (%)				
ALL, 18-64 yrs	11	15	20	26
Self-employed	7	11	16	22
In a HH with at least one FT worker	5	9	13	19
In a HH with no FT worker (may have PT)	50	60	69	76
In a HH with PT work only	41	51	61	69
In a HH with some work (excl SE)	7	11	16	22
In a workless HH	54	65	74	79
Composition of those in low-income HHs (%)				
ALL, 18-64 yrs	100	100	100	100
Self-employed	8	10	10	11
In a HH with at least one FT worker	38	43	50	56
In a HH with PT work only	15	14	12	11
In a HH with some work (excl SE)	53	57	62	67
In a workless HH	38	33	28	23

Summary

For those aged under 65, in households with at least one full-time worker, 9% are in in-work relative poverty using the 50% AHC measure. This is around half the overall rate for this group (18%). Similar results are produced using a 60% BHC measure (10% and 18% respectively).

Figures J.3 and J.4 show the AHC 50% IWP trends for under 65s for the period 2001 to 2018.

- The overall low-income rate and the IWP rates (Figure 3) have remained much the same over the period, with the IWP rate for households with at least one full-time paid worker trending at around 50-60% of the overall low-income rate.
- The composition trend (Figure 4) shows:
  - the impact of the introduction of the WFF package which reduced the proportion of the poor who were in working households (for working households with at least one full-time worker, 2007 to 2009 trend is lower than 2001 to 2004)
  - the impact of the GFC-associated downturn from HES 2009 to 2012 during which the proportion of the poor coming from workless households increased
  - the subsequent steady fall in the proportion of the poor coming from workless households (as benefit numbers fell post-GFC), and the related rise in the proportion coming from working households (as total numbers in poverty on a relative measure remained much the same).

Figure J.3
IWP rates, by work status of household, under 65s

Figure J.4
Composition of those in low-income households, by work status of household, 2001 to 2018

In-work poverty by household type

Figure J.5 shows the IWP rates by household type for when there is at least one earner working full-time. The gradient across the rates for differing work intensity in two adult households is clear for households with and without children. Sole parent households are particularly vulnerable. None of this is surprising, but it is useful to have the differences quantified.

Figure J. 5
AHC 60% low-income rates for under 65s, by household type (FT work)

Note: AHC 60 is used here to ensure the sample used is large enough to legitimately break the analysis down into household types.

Table J.4 shows how the working poor are distributed across the different household types for both low-income and material hardship approaches. As for Figure 6, the analysis is limited to households with at least one earner working full-time. The self-employed are excluded.

- Two-parent households are the predominant group reporting in-work poverty or material hardship, especially when individuals are counted rather than households per se.
- Households with children make up just over 60% of the working poor (75%+ when counting individuals).

Table J.4
Composition of IWP by household type (for 1 or more FT), under 65s

HES 2018	**Working poor (low income) AHC 60%**		**Working poor (hardship) DEP-17, 6+/17**		**All under 65s**	
	Individuals	Households	Individuals	Households	Individuals	Households
One person	3	11	3	9	4	13
Sole parent	8	7	15	16	7	21
Couple only	8	13	4	7	13	7
Two parent	53	42	41	31	39	27
Other Fam HHs with dependent children	12	8	15	11	11	6
Other HHs no dependent children	17	19	22	26	26	26
ALL (excluding SE)	100	100	100	100	100	100

One of the differences between the picture of financial and material disadvantage painted by a low-incomes approach compared with a material hardship approach is repeated here in Table 3. For couple and two-parent households, their share of the total number who are less well-off is lower using material hardship rankings than for low-income rankings. On the other hand, the low-income ranking of sole parents, and other households with or without dependent children makes them look better than they are in daily real-life practice – the material hardship shares are higher than the low-income shares.

A possible explanation is that two parent and couple households have a better stock of resources that supplements income as a resource for supporting consumption, whether that is some accessible savings or better quality / better maintained basic household items.

Increasing IWP rates for sole-earner households

Figure J.6 shows that sole-earner households have been steadily losing ground relative to two-earner households over the last 25 to 30 years. The mitigating impact of the Working for Families package[127] in the mid 2000s is evident, but the bifurcation has resumed since then.[128]

Figure J.6
IWP trends for sole-earner and two+-earner households

Around two thirds of working-poor households are sole-earner households. Among the sole-earner households around one third are one-adult households and two thirds are households with two or more adults.

In this context, the longer-run trend in paid work arrangements for parents in two parent households is relevant. **Figure J.7** shows that the one-FT-one-PT arrangement has been reasonably steady at 25-30%, whereas there has been a large rise in the both-FT arrangement (from 20% to 47%), and a corresponding fall in the one-FT-one-workless arrangement (from 52% to around 30%).

Figure J.7
Proportion of two parent households by hours of paid employment (where at least one is FT)

This evidence shows that single-earner households are now a much less viable option for providing economic security than they were 35 years ago.[129]

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127 The impact was on the low-income rates for households with children, not households without children, but the impact registered on the overall rate too.

128 AHC 60% is used here to ensure the sample used is large enough to legitimately break the analysis down into single-earner and other household types. The AHC 50 chart has the same message, albeit the difference in rates is not quite as stark as that when using the AHC 60 measure.

129 "The majority of the working poor [in the EU] are single earner households, whereas many part-time workers are in dual earner households. The poverty risk of part-time workers thus depends on the household context and varies widely across individuals for that reason but also across countries reflecting the differing roles that part-time work plays in the household income 'package' "(Horemans et al, 2016).

AHC incomes, fixed line measure (2007 reference year)

Figure J.8 shows the fixed and moving line IWP trends for those under 65s in households with at least one full-time worker.

It illustrates the value and importance of using both fixed and moving line measures to tell a more complete story about trends for low-income households. The fixed line threshold is set at 50% of the 2007 AHC median and adjusted by the CPI for other years (All Groups less Housing series).

The fully relative moving line AHC measure fell during the recession and associated downturn (2009-12), implying that the situation for households with at least one in full-time work improved in that period, then steadily worsened in the recovery and through to 2017-18. For a moving line measure, the reference level is the median in each year. During the recession, the median fell and therefore the 50% of median threshold fell, leading to fewer households under the line. In the recovery the median grew more quickly than incomes at the lower levels, thus putting more households under the line, even though the incomes of many of these households were growing too.

On the other hand, the fixed line rate flattened during the recession (no improvement in incomes in real terms), then fell in the recovery and after as the incomes of some low-income households rose in real terms.

Figure J.8
AHC 50 low-income rates for those in households with at least one FT worker, under 65s: fixed and moving line trends compared

The trends in the last five or six years clearly show how IWP rates rose on the moving line measure and fell on the anchored or fixed line measure. Did the IWP rates rise or fall? At first sight, the evidence can seem contradictory.

The fixed and moving line measures represent quite different notions of what an improvement means for those in low-income households. The moving line approach (fully relative) considers that a low-income household has improved its situation if its income moves closer to the median, whether or not its income has improved in real terms. The fixed line approach considers that a low-income household has improved its situation only if its income rises in real terms. There is no contradiction, just different notions of what an improvement means. Each has its place and validity in assessing societal progress.

BHC incomes, moving line measures

Using BHC incomes makes very little difference to the general findings generated using AHC income, noting that BHC 60 results and AHC 50 results are very close (see **Tables J.5 and J.6** below).

For low-income households, housing costs usually represent a larger proportion of the weekly income than for households with middle to high incomes. This means that the low-income part of the AHC income distribution is thicker than for the BHC distribution (more are below a given distance from the respective medians for AHC incomes than for BHC incomes). It turns out that the numbers under the 50% AHC threshold are about the same as the numbers under the 60% BHC threshold.[130] The overlap between these two groups is around 75% for those aged under 65.

Table J.5
Low-income rates and composition (%), BHC incomes, 0-64 yrs, HES 2018

	IWP Individuals				
	BHC			AHC	
Low-income threshold as % of median HH income	**50%**	**60%**	**70%**	**50%**	
Low-income rates (%)					
ALL, 0-64 yrs	11	18	25	17	
Self-employed	6	10	16	11	
In a HH with at least one FT worker	5	10	18	9	
In a HH with no FT worker (may have PT)	55	70	80	65	
In a HH with PT work only	41	57	70	54	
In a HH with some work (excl SE)	7	13	21	12	
In a workless HH	62	77	85	71	
Composition of those in low-income HHs (%)					**All<65**
ALL, 0-64 yrs (excl SE)	100	100	100	100	100
Self-employed	7	7	8	9	13
In a HH with at least one FT worker	31	42	52	42	75
In a HH with PT work only	16	14	12	14	4
In a HH with some work (excl SE)	47	56	64	56	79
In a workless HH	46	37	28	36	8

Table J.6
Low-income rates and composition, BHC incomes, 18-64 yrs, HES 2018

	IWP Individuals				
	BHC			AHC	
Low-income threshold as % of median HH income	**50%**	**60%**	**70%**	**50%**	
Low-income rates (%)					
ALL, 18-64 yrs	10	15	22	15	
Self-employed	6	10	16	11	
In a HH with at least one FT worker	4	8	14	9	
In a HH with no FT worker (may have PT)	51	66	75	60	
In a HH with PT work only	39	53	66	51	
In a HH with some work (excl SE)	6	10	17	11	
In a workless HH	57	73	81	65	
Composition of those in low-income HHs (%)					**All 18-64**
ALL, 18-64 yrs	100	100	100	100	100
Self-employed	9	9	9	10	13
In a HH with at least one FT worker	31	40	50	43	76
In a HH with PT work only	16	14	12	14	4
In a HH with some work (excl SE)	47	55	62	57	80
In a workless HH	45	37	28	33	8

Reading note for Tables 5 and 6:
'Some work' means 'any work, FT or PT, by any adult in the household'

130 Using the 60% BHC measure, there are around 75,000 working poor households where there is at least one full-time earner (around 120,000 counting those with 'any work' or self-employed).

Material hardship, 0-64 yrs

An alternative approach to investigating the working poor phenomenon is to use a material hardship perspective. Scores on MSD's DEP-17 material hardship index reflect not only the impact of current household income, but also of past income, accumulated financial and non-financial resources, help from outside the household, special demands on the household budget above the normal, the ability of the household to manage their finances, and so on.

Table J.7 reports the differing degrees of material hardship reported by households with varying degrees of work intensity. The 6+/17 threshold is the one that the Government Statistician elected to use for the material hardship measure in the Child Poverty Reduction Act (2018). The relativities are very similar to those found using the AHC 50 measure. For example:

- Around half of those identified as living in material hardship were from households with at least one full-time paid worker (compared with around 40% for the AHC 50 measure).
- Workless households are concentrated further down the material hardship spectrum than the working households in hardship. As shown in **Figure J.9**, using the 9+/17 threshold, the share of workless households is greater than when using a threshold of 6+/17 (48% and 33%).

Table J.7
Material hardship rates and composition (DEP-17 index), HES 2018, 0-64 yrs

Material hardship threshold as # of items lacked out of 17	5+	6+	7+	8+	9+	AHC 50
Material hardship rates (%)						
ALL, 0-64 yrs	12	9	7	5	4	17
Self-employed	4	2	2	1	1	11
In a HH with at least one FT worker	9	6	4	3	2	9
In a HH with no FT worker (may have PT)	38	32	28	24	18	65
In a HH with PT work only	30	24	17	14	9	54
In a HH with some work (excl SE)	10	7	5	3	2	12
In a workless HH	43	36	33	28	22	71
Composition of those in HHs in material hardship (%)						
ALL, 0-64 yrs	100	100	100	100	100	100
Self-employed	4	3	3	2	2	9
In a HH with at least one FT worker	55	53	47	42	40	42
In a HH with PT work only	10	11	10	11	10	14
In a HH with some work (excl SE)	66	64	57	53	50	56
In a workless HH	30	33	40	45	48	36

Figure J.9
Composition of working poor under 65s by work status of HHs, for two levels of material hardship, HES 2018

While the overall picture is broadly similar whether the AHC 50% low income or the 6+/17 material hardship measure is used, the two measures capture somewhat different groups of people. For example, for the working poor, the overlap between the low-income and the material hardship groups is only one in four. This is another example of the 'mismatch' issue noted earlier. A part of the discrepancy no doubt arises from measurement error, but some of it reflects the different non-income resources available and different demands on the household budget for different households. Further analysis with the larger 2018-19 sample may throw more light on this.

Workless households

Figure 10 shows the IWP rates over a longer timeframe, with comparisons with poverty rates for those in workless households (top line in chart) and those with relatively little total paid work in the household (second from top). The measure used is the fully relative AHC 50% measure.

Figure J.10
Low-income rates for under 65s, by work status of household

The standout feature of Figure J.10 is the difference between the long-run low-income trends for working households and for workless households. For working households the trend in relative poverty (AHC 50) has been reasonably unchanged for the last three decades (8-10%). The rate for workless households has increased from 10-20% to 70% in the same period. Even if the early 1990s are used as the start point (after the benefit cuts), the workless poverty rate has climbed from 40% to 70% while the in-work poverty rate has remained steady at 8-10%.

This means that workless households have been left behind the rest of the population in terms of their ability to 'participate and belong', and have been left behind in quite a marked way.

While the poverty rate for those in workless households has steadily risen, the actual numbers living in workless households has varied depending on the position in the economic cycle**.** This can be seen in **Table J.8** which shows the changing numbers and proportions of individuals in workless households from 1988 to 2018: first there is a steady decline through to 2008 as employment continues to rise and unemployment falls; then the impact of the slow-down following the 2007 drought and the Global Financial Crisis (GFC) led to rising unemployment through to HES 2010; and thirdly, the recovery and ongoing growth phase from 2012 on in which time the number and proportion of those in workless households declined again.[131]

The third row of the table shows the number in poverty in workless households, the product of the rising (relative) workless poverty rate (see Figure 10 plus the fourth row below) and the varying numbers in workless households.

Table J.8
Number and proportion (%) of individuals under 65 yrs in workless households, and in poor workless households (AHC 50%, relative line)

HES year		88	90	92	94	96	98	01	04	07	08	09	10	11	12	13	14	15	16	17	18
In workless households	000s	320	450	550	550	445	420	400	405	385	350	390	470	460	405	370	395	365	325	325	340
	%	11	16	19	19	15	13	12	12	11	10	11	13	12	11	10	10	10	8	8	8
In poor workless households	000s	50	80	225	245	205	205	215	220	235	205	245	285	310	285	275	280	260	230	225	240
	%	16	18	41	44	46	49	53	54	60	58	63	60	67	71	75	71	71	71	69	71

131 The proportions are very similar if households rather than individuals are counted.

Because the AHC 50 measure is a relative measure, the rising trend for the workless low-income rate does not in itself indicate whether or not the workless households can actually achieve a minimum acceptable standard of living. Other information is needed for that. One source is the Example Families and Budgets work carried out by the 2019 Welfare Expert Advisory Group.[132] One of the findings was that a basic costs AHC budget for 2019 corresponds to an AHC income level of around 45% of the median.

The top panel in **Table J.9** shows that the gap between the workless low-income rate and that for working households has significantly widened on both the 40% and 50% (relative) AHC measures. This means that not only that workless households have been left behind in a relative sense (for both measures), but that the AHC incomes of many workless households are currently below what is needed for a minimum acceptable standard of living.[133]

The lower panel in Table J.9 uses a low-income threshold (poverty line) that is held fixed in real inflation-adjusted terms (AHC 50 CV-07). It shows that the AHC incomes of many low-income working households improved in real terms from 1994 to 2018 (the fixed line poverty rate dropped from 16% to 5%), whereas the incomes of low-income workless households remained much the same in real inflation-adjusted terms (their fixed line poverty rate fell only from 65% to 56%).

Table J.9

Low-income rates (%) for under 65s, by work status of household

		1994	2018
AHC 50, relative	working HH (at least one FT)	9	9
	workless HH	44	71
AHC 40, relative	working HH (at least one FT)	6	5
	workless HH	20	58
AHC 50, fixed line (2007 reference yr)	working HH (at least one FT)	16	5
	workless HH	65	56

Workless households and main benefit receipt

The vast majority of poor 'working age' workless households have benefit income as their main income source. In this report the work status of households relates to the week before the interview. In recent surveys, around 85% of workless households (in week before the interview) had benefit income as their main source of income in the previous 12 months.

The trends for the proportion in workless households and those in benefit units have the same general shape (**Figure J.11**), but the number in workless households has a lower track. This difference arises for two main reasons: some individuals and families in receipt of a main benefit live in households with others, some of whom may be employed; some in receipt of a benefit have part-time work which means they are not in a workless household (though the household may still be 'poor' depending on the incomes of other household members).

Figure J.11
% in workless households and % in receipt of main benefit

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133 See also the later section on the comparison between the in-work poor and the workless poor, especially Table J.18.

Children in working poor households

Households with children make up around one third of the households surveyed. To better manage the limitations posed by the sample size when looking at this group, averaged results over two surveys are given in the two tables below.[134] Key findings from **Tables J.10 to 12** include:

- the AHC 50% IWP rate for children is 11% (at least one FT worker), compared with 21% overall for children[135]
- the workless household low-income rate is very high at 80% on the same measure
- the material hardship approach reports a 9% IWP rate compared with a 13% overall hardship rate for children, and a 43% rate for workless households
- the previously reported high level finding that around 4 in 10 poor children come from working households (with at least one adult in FT work) is confirmed.[136]

Table J.10
AHC low-income rates and composition, average of HES 2015 and 2018, 0-17 yrs

Low-income threshold as % of median HH income	40%	50%	60%	70%
Low-income rates (%)				
ALL, 0-17 yrs	14	21	31	40
Self-employed	7	13	21	30
In a HH with at least one FT worker	6	11	21	31
In a HH with PT work only	36	53	69	79
In a HH with some work (excl SE)	8	14	24	34
In a workless HH	63	80	88	90
Composition of those in low-income HHs (%)				
ALL, 0-17 yrs (excl SE)	100	100	100	100
Self-employed	6	7	7	8
In a HH with at least one FT worker	30	38	49	56
In a HH with PT work only	14	13	12	11
In a HH with some work (excl SE)	44	51	61	66
In a workless HH	51	42	32	25

Table J.11
BHC low-income rates and composition, average of HES 2015 and 2018, 0-17 yrs

Low-income threshold as % of median HH income	50%	60%	70%
Low-income rates (%)			
ALL, 0-17 yrs	14	24	35
Self-employed	5	12	20
In a HH with at least one FT worker	6	14	25
In a HH with PT work only	34	62	75
In a HH with some work (excl SE)	8	17	29
In a workless HH	63	82	91
Composition of those in low-income HHs (%)			
ALL, 0-17 yrs (excl SE)	100	100	100
Self-employed	4	6	6
In a HH with at least one FT worker	32	42	52
In a HH with PT work only	13	14	12
In a HH with some work (excl SE)	45	56	64
In a workless HH	51	39	29

134 The average of the 2015 and 2018 surveys is used – they have similar overall low-income rates and the surveys had larger samples.

135 In their April 2019 child poverty release, Stats NZ reports 23% for these two years rather than 21% (see StatsNZ (2019)). The difference arises because of the different sources of income information: MSD used income data drawn from both survey responses and supplementary estimated information from Treasury's Taxwell microsimulation model, whereas Stats NZ used administrative data from IR and MSD. The two figures are close enough to not have any significant impact on the findings in this report.

136 For the AHC 50% low income measure, the figure is 38% (plus 7% for SE); for the BHC 60% measure, 42% (plus 6% for SE), and for material hardship, 50% (plus 3% for SE).

Table J.12
Material hardship rates and composition (DEP-17 index), average of HES 2015 and HES 2018, 0-17 yrs

Material hardship threshold as # of items lacked out of 17	5+	6+	7+	8+	9+	AHC 50
Material hardship rates (%)						
ALL, 0-17 yrs	17	13	10	8	6	21
Self-employed	4	3	2	1	1	13
In a HH with at least one FT worker	**13**	**9**	**7**	**5**	4	11
In a HH with PT work only	36	30	21	19	9	53
In a HH with some work (excl SE)	14	10	7	6	4	14
In a workless HH	52	43	40	34	28	80
ALL, 0-17 yrs (excl SE)	100	100	100	100	100	100
Composition of those in HHs in material hardship (%)						
Self-employed	3	3	2	2	2	7
In a HH with at least one FT worker	57	53	48	45	46	38
In a HH with PT work only	9	11	10	11	7	13
In a HH with some work (excl SE)	66	63	58	56	53	51
In a workless HH	31	33	39	42	45	42

Children (0-17 yrs) in workless households and beneficiary families

- In 2018, around 120,000 children (11%) lived in workless households, and 180,000 in households with no full-time worker (16%).[137]
- In 2018, administrative data shows that around 170,000 children (15%) were in families in receipt of a main working-age benefit. The proportion in workless households is smaller than for those in beneficiary families as some beneficiary families have part-time employment, and some live in households with others who are employed.
- The workless household rate for children in New Zealand (11%) is similar to the UK, Ireland, Belgium and France, but above the EU median (9%) and well above Finland, Sweden, Netherlands and Portugal (5-6%).
- **Figure J.12** shows the trends for the proportion of children in workless and no-FT-worker households over the last 35 years. The proportions in 2018 have for the first time returned to what they were in the late 1980s.

Table J.13
Children (0-17 yrs) in workless households, beneficiary families and in households with no full-time worker, 2018

	%	number
Children in workless households	11	120,000
Children in beneficiary families	15	170,000
Children in households with no FT worker	16	180,000

Figure J.12
Children (0-17 yrs) in workless households and households with no full-time worker

137 These figures are based on HES data and the associated Stats NZ weights. They should be taken as lower bound estimates as the weighting regime is known to underestimate beneficiary numbers, and therefore workless numbers. See Table H.7 and associated text for more detail on the basis for the HES-based findings in this sub-section.

40
30
20
10
0
1980
1985
1990
1995
2000
2005
2010
2015
2020
2025
in beneficiary families
in HHs with no FT worker
in workless HHs
GFC and drought induced recession
Rising employment and reducing unemployment rates

<u>The households that poor children come from, by number of actual earners and number of adults (ie potential earners)</u>

- The left-hand side of **Table J.14** shows the composition of poor children by the number of earners in their households. Just over half (53%) come from households where there is at least one earner. The earners may be part-time or full-time.
- The self-employed are noted but not further considered.
- The right-hand side of the table breaks the left-hand proportions down by the number of adults in the respective households. This shows that:
  - the bulk of poor children in workless (no earner) households are from sole parent households (64%)
  - the bulk of poor children in working households (whether one earner or more than one) are from two parent and other multi-adult family households.

Table J.14
Children (0-17 yrs) in low-income households (AHC 50%),
by number of actual earners, and number of adults in the household, HES 2018

# of earners	%	# of adults / potential earners	%
No earner	41	Sole parent	64
		Two parent / other multi-adult family HH	36
One earner	35	Sole parent HH	31
		Two parent / other multi-adult family HH	67
Two or more earners	18	Sole parent	6
		Two parent / other multi-adult family HH	90
Self-employed	7	-	
		-	
	100		

Notes: 1 SP households can have more than one earner (eg if there is an employed boarder).
2 The composition figures in the right-hand column do not always add to 100%, as some children live in 65+ households which are not noted in the analysis.

- The analysis using HES 2015 gives very similar results. Nevertheless, the breakdowns given here are pushing the limit for the current relatively small HES sample (5500 households). The 2018-19 HES is much larger (20,000 households) and next year's analysis of that will give more precision to the numbers. The overall high-level findings are not likely to be overturned.

International comparisons

Table J.15 gives comparisons with the UK using both AHC and BHC incomes. Only the 60% versions are available. The IWP rates for 18-64 year olds are close to identical for each country, as are the overall low-income rates. The big difference is the much higher NZ rate for those in workless households.

Table J.15
UK and NZ rates compared (%), 2017-18, 18-64 yrs
BHC and AHC 60%

Poverty measure	Working status of HH	UK	NZ
Rate (%)			
BHC 60	At least one FT (excl SE)	-	8
	Working	10	10
	Workless	39	73
	ALL	15	15
AHC 60	At least one FT (excl SE)	-	13
	Working	15	16
	Workless	49	74
	ALL	20	20
Composition (%)			
AHC 60	At least one FT (excl SE)	-	50
	Any working (incl SE)	60	62
	Workless	40	28
	ALL	100	100

Source for UK: DWP (2019), Tables 5.5ts and 5.11ts.

Comparisons with Australia are not as straightforward. The Australian Bureau of Statistics does not report anything comparable to the figures produced by the EU or the UK for IWP. Using a BHC 50% measure the OECD reported that in the mid 2000s the Australian IWP rate (any work) was 3%, compared with New Zealand at 8% and the OECD median of 7% (OECD (2009), Figure 3.5). The analysis is somewhat dated and has not been repeated.

The most comprehensive source of information on low income rates for Australia is produced by the partnership between the Australian Council of Social Service and the University of New South Wales (see Davidson et al, 2018). Their methodology is not identical to what is used in the UK and in this report (they exclude all self-employed), but is close on all other counts so is good enough to make reliable first order comparisons. Apart from the UK, the ACOSS-UNSW report is the only other major publication using AHC measures.

- **Table J.16** shows that New Zealand IWP rates are a little higher than Australian rates on several measures.
- In Australia, around 40-45% of the income poor (aged under 65 years) are from working households (ibid, Figures 14 and 16, author's calculations), compared with 50-60% for New Zealand (see Table 1 above).

Table J.16
Australian and New Zealand IWP rates compared (%)

		NZ (2018)	Australia (2016)
AHC 50	under 65s, at least one FT	9	6
	under 65s, market is main source	11	7
	ALL (total popln)	16	13
AHC 60	under 65s, at least one FT	15	10
	under 65s, market is main source	17	11
	ALL (total popln)	23	21

Source for Australia: Davidson et al (2018), Figures 13 and 18.

The EU approach focuses only on the workers in in-work poor households, not all household members.[138] This generally drops the reported IWP rates by a percentage point or two. To be deemed in work in the EU approach an individual needs only to have been in any work for at least 7 of the previous 12 months. Hick and Lanau (2017:9) found that, for the UK, a very high proportion of those in work in the week of interview meet that criterion. Assuming a similar pattern in New Zealand, the use of HES data about work status in the week of interview gives a reliable basis for EU comparisons for New Zealand. This assumption is supported by the analysis reported in the methodology section.

Table J.17 places New Zealand in an international context with European countries. New Zealand (8%) is around the middle of the table, a little below the EU average IWP rate (10%).

Table J.17
IWP and overall low-income rates compared (%), selected European countries and NZ, avg of 2016 and 2017 years,
Working individuals, aged 18-64 yrs (BHC 60%)

Country	IWP rate	Overall rate	IWP/Overall
EU-27 overall	**10**	**17**	**0.57**
Finland	3	12	0.25
Denmark	5	14	0.38
Netherlands	6	14	0.43
Norway	6	13	0.45
France	8	13	0.58
New Zealand	**8**	**15**	**0.51**
Ireland	5	15	0.34
Sweden	7	15	0.47
UK	9	16	0.56
Germany	9	16	0.57
Lithuania	9	19	0.45
Italy	12	20	0.58
Spain	13	22	0.59
Romania	17	22	0.77

NZ figures are the average from HES 2017 and HES 2018 (equivalent to EU years 2016 and 2017).
Source for EU+: Eurostat database, accessed on 8 May 2019 at:
https://ec.europa.eu/eurostat/tgm/table.do?tab=table&init=1&language=en&pcode=tesov110&plugin=1

Figure J.12 shows the trends in IWP rates over the decade from 2007 to 2017 for selected countries and the EU overall. New Zealand's position of just below the EU trend is steady over the period.

Figure J.12
EU+ and NZ IWP rates compared (%), 2007 to 2017, two-year rolling avg,
Working individuals, aged 18-64 yrs (BHC 60%)

Note: Figure 12 follows the EU labelling protocol – the 2017year is equivalent to the 2017-18 HES year.

138 The EU definition is not fully supported among researchers in Europe. One of the downsides is that it complicates interpretation as, among other things, the poverty status of individual workers depends on the labour market status of other adults in the household, and the number of dependents living off the household's income. See Eurofound (2017), Marx and Nolan (2012) and Ponthieux (2010) for examples of critiques of the approach. Hick and Lanau (2017, 2018), Tinson et al (2016), DWP (2018), Bourquin et al (2019) and Ponthieux (2010) count all (working age) members in working poor households, not just the workers.

Persistence and dynamics

The HES-based figures in this paper give a static analysis: they provide a snapshot of the population at a given time. A fuller understanding of the IWP issue requires evidence on mobility, following the same people over time. Two sorts of transitions are of interest:

- movement from benefit receipt into paid employment, and how this impacts on the poverty status of the movers
- for those in working households, movements out of and into IWP - if IWP is mainly a short-term experience, then it is much less of a concern.

There is a good body of literature and empirical findings on dynamics and mobility for wages, reasonable information on movements off and back on to benefit for most EU / OECD countries, but there is much less for in-work poverty itself for either type of transition noted above (a 'sparse literature' (Hick and Lanau, 2018)). This section summarises a handful of UK and European studies that throw some light on the mobility questions for IWP. They all use the 60% BHC low-income measure, and are all limited to two or three year periods. As more research findings come available, the Incomes Report will update and expand this section.

A 2015 paper from the Office for National Statistics uses data from the EU-SILC longitudinal survey for 2007 to 2012. The data is pooled to allow more robust findings on transitions from one year to the next for the available pairs of consecutive years. The paper uses the EU definition of IWP (working working-age people who live in households deemed poor). The main findings were that:

- For the UK, for the period 2007 to 2012, of workless people aged 18 to 59 who were living in a household in poverty, 70% of those who moved into employment left poverty. The other 30% remained in relative income poverty despite entering employment.
- Comparable analysis carried out by the European Commission for 2007 to 2009 showed that, for the EU overall, only around half (49%) of people left poverty when entering employment (Grzegorzewska and Thévenot (2014): Chart 34) This analysis has been updated since for 2011 to 2013, and the EU average is around 55% for that period, ranging from 30% to 70% (Peña-Casas (2016): Chart 2.18).
- For those in in-work poverty, the rates for transition out of poverty were fairly even across the three categories of increased hours, increased hourly wage, and another household member entering employment. The research behind this finding was carried out in a period in which there was little or no policy change, so it doesn't capture any of that potential impact.

Hick and Lanau (2018) used pooled data from four waves of the *Understanding Society* longitudinal survey, using all pairs of consecutive years from 2010 to 2014. The research uses the BHC 60 measure and looks at all 18-64 year old household members for whom there is full data (77% of all this age-group). A more encompassing definition of 'working' is used, referring to households in which at least one member was in paid employment for at least one hour in the week of the interview. They find that:

- Mobility in and out of IWP is greater than for poverty generally.
- Around half of those in IWP one year had exited in the following year, though what proportion of these moved just over the line rather than well over it is not reported.
- Single-earner households were much more likely to remain in IWP over two consecutive years.
- Those in IWP were three times more likely to transition to worklessness than those in non-poor working households.
- Of those who start in a workless household then find work, 25% end up in IWP in the next two years (using a BHC 60 measure).

One of the challenges in understanding and communicating findings about movements into and out of poverty (low income) is how best to avoid the overstatement of mobility that can arise through small income changes or threshold changes that have households popping into and out of measured poverty when there is very little change in their real circumstances.

Guttiérez et al (2011) provide useful analysis that throws light on this issue in their research on IWP mobility in France, Poland, the UK and Spain using longitudinal EU-SILC data from 2005 to 2007. They investigate and report on the income levels relative to the median for origin and destination incomes for both exits from and entries into IWP (60% of median BHC measure, one year to the next). They find that:

- Around a third to a half of those who were in IWP in 2005 remained in it in 2006.
- 13% to 30% of those who were in IWP in 2005 remained in it for three consecutive years, with the UK showing the highest mobility.
- 10% of those who exited IWP in 2006 returned the year after.
- Most IWP exits do not require substantive income increases. 45 to 60% of exits come from income levels in the 50-60% of median range:
    - of these close-to-the-line exits, around 30% end up in the 61-70% zone
    - however, many end up with incomes well above the 61-70% zone – for example, for the UK and Spain, around half the exits have incomes above 90% of the median, while for France and Poland the income increases are less than this.
- Most IWP entries (50-60% of them) end up in the 50-60% of median zone, not far below the line. However, only 20-40% of entries come from the 61-70% zone, so most entries to IWP represent reasonably large household income falls.
- The above shows that IWP mobility is not trivial in terms of income variations.
- As for Hick and Lanau (2018) noted above, this research finds that IWP mobility is higher than it is for the rest of the low-income population.

Comparing the in-work poor and the workless poor

In 2018, around 17% of New Zealanders aged under 65 years lived in households with incomes less than 50% of the AHC median household income. Though they are all designated as 'poor' using the traditional low-income approach, only around a quarter of them lived in households that experience material hardship as defined by the 6+/17 DEP-17 measure.[139] Households in the low-income group are not homogeneous, in terms of their lived experience of material hardship or wellbeing.

Table J.18 shows some of the differences between the working poor and the workless poor. Results for 2015 and 2018 are averaged to reduce noise, though in fact the results from each year are very similar. The 2015 liquid asset information is not robust enough to use for this purpose, so that row is limited to 2018 information.

From the evidence in this table (top panel), the working poor are on average better off on a wide range of indicators, even though their reported equivalised incomes are on average similar to those of the workless poor ($8000 to $9000 pa). The bottom three rows point to a possible explanation: while income is a critical resource for households, there are other resources that some low-income households have which can make all the difference to their ability to 'get by' or 'make ends meet'. Compared with workless households, poor working households:

- report higher levels of liquid financial assets
- are more likely to be able to pay an unexpected $500 bill for an essential within a month and without borrowing
- self-assess income inadequacy at a much lower rate.

These all point in the same direction: low-income working households seem to have some reserve financial resources that workless low-income households do not have. It is possible also that their stock of household items is typically more complete and better maintained. The HES itself is not able to indicate why all this is the case, but it is reasonable to suggest that it could be because this group has a more favourable income history, allowing the build-up of household goods and savings (albeit small). Current (annual) income has its limitations as an indicator of material wellbeing, whereas income over a few years is a much more reliable guide. Longitudinal data is needed to investigate this question more thoroughly.

Table J.18
Comparisons between the working poor and the workless poor, selected items, under 65s
Average for HES 2015 and 2018

	In poor households (AHC 50)			
	Workless	**PT only**	**At least one FT**	**All poor HHs**
Dissatisfied / very dissatisfied with life	18	12	6	11
Satisfied / very satisfied with life	57	66	81	70
% in hardship (DEP-17, 6+)	45	33	17	29
EL of good bed	13	8	5	9
EL of car or van for personal use	18	3	6	10
Gone without / cut back on fresh fruit and veges 'a lot'	22	11	9	14
Received help from food banks, etc more than once	27	12	9	16
Put up with feeling cold 'a lot'	25	22	18	20
EL of computer and internet access at home	24	8	6	12
Delayed repairing / replacing broken or damaged appliances 'a lot'	33	27	15	23
Average income (equivalised BHC)	15,000	16,550	21,150	18,300
Average income (equivalised AHC)	7,900	7,750	9,100	8,450
Self-assessed income adequacy ('not enough')	50	28	29	35
Can pay an unexpected unavoidable expense of $500 on an essential within a month without borrowing	29	43	58	46
Median liquid assets (HES 2018 only)	$110	$1,000	$2,820	$1,030

Notes: EL = enforced lack (want it, but cannot afford it)

[139] This is the official measure determined by the Government Statistician for use in the monitoring regime required by New Zealand's Child Poverty Reduction Act.

Looking ahead

- The 2019 HES has around 20,000 households, a much larger sample than for 2015 and 2018 (5500), and even larger still compared with most other HES years (around 3000 to 3500 households). This will allow a more detailed breakdown by ethnicity, age, tenure, region, educational level and so on.

- At first sight there is a small degree of inconsistency between the Example Families analysis (WEAG, 2019) and the survey-based analysis in this IWP report: in the HES-based analysis there appear to be too many in in-work poverty in some household types vis-à-vis the Example Families work. There are several plausible reasons for the difference that further analysis could elaborate on:
    - One of the causes of the differences is likely to be that housing costs in reality (ie in the survey) are a little higher than assumed for the Example Families work (assumed to be lower quartile rent in the local area).
    - Another possibility is that debt repayment could be impacting on the material hardship rates based on HES data. This cost was not included in the analysis in the body of the Example Families report, but where it is looked at in Appendix 2 it points to higher in-work poverty rates for such households.
    - It could also be that the income data from the HES may be inaccurate especially at the bottom end, so it would be useful to investigate using household income based on IR and MSD data, as Stats NZ did for the April 2 child poverty release. Is the measurement error in HES survey income data contributing to an over-statement of IWP for some HH types?

- As noted above, the international literature on persistence and mobility for in-work poverty is relatively sparse. It would be valuable to know to what extent 'persistent work' decreases poverty, and in the cases where it doesn't to know why that was the case.

References (to be finally checked)

Bourquin, P., Cribb, J., Waters, T. and Xu, X. (2019). 'Why has in-work poverty risen in Britain?' IFS Working Paper WP19/12.

Davidson, P., Saunders, P., Bradbury, B. and Wong, M. (2018), Poverty in Australia, 2018. ACOSS/UNSW Poverty and Inequality Partnership Report No. 2, Sydney: ACOSS.

Department for Work and Pensions (2019), *Households Below Average Income 1994/95 - 2017/18* Leeds: Corporate Document Services.

Esping-Andersen, G., Gallie, D., Hemerijck, A. and Myles, J. (2002), Why We Need a New Welfare State. Oxford: Oxford University Press.

European Commission (2016). Employment and Social Developments in Europe. Luxembourg: Publications Office of the European.

European Commission (2018). Employment and Social Developments in Europe. Luxembourg: Publications Office of the European.

Gregg, P., Milburn, A., Attwood, T., Cleal, P., Shephard, G., Hamilton, D., Carrie, A. M., Guy, C., Williams, C. and Johnston, D. (2013). *Public attitudes towards social mobility and in-work poverty.* London: Social Mobility & Child Poverty (SMCP) Commission.

Grzegorzewska, M. and Thévenot, C. (2014), 'Working-age poverty: what policies help people finding a job and getting out of poverty', in European Commission, *Employment and Social Developments in Europe 2013*, Luxembourg, Office for Official Publications of the European Communities'.

Gutiérrez, R., Ibáñez, M. and Tejero, A. (2011), 'Mobility and persistence of in-work poverty', in Fraser, N., Gutiérrez, R., and Peña-Casas, R. (eds), *Working Poverty in Europe: A comparative approach*, Basingstoke, Palgrave Macmillan.

Hick, R. and Lanau, A. (2017), 'In-work poverty in the UK: Problem, policy analysis and platform for action', Cardiff, Cardiff University.

Hick, R., and Lanau, A. (2018), 'Moving In and Out of In-work Poverty in the UK: An Analysis of Transitions, Trajectories and Trigger Events.' *Journal of Social Policy* 47 (4).

Horemans, J., Marx, I. and Nolan, B. (2016), 'Hanging in, but only just: part-time employment and in-work poverty throughout the crisis. *IZA Journal of Labor Studies (2016) 5: 5.*

Marx, I. and Nolan, B. (2012). In-Work Poverty. AIAS, GINI Discussion Paper 51

MBIE (2018), Minimum Wage Review 2018. Available from https://www.mbie.govt.nz/business-and-employment/employment-and-skills/employment-legislation-reviews/minimum-wage-reviews/

New Zealand Productivity Commission (2019). *Technological change and the future of work: Issues Paper*. Available from www.productivity.govt.nz

OECD (2009), OECD Employment Outlook. Paris: OECD.

OECD (2015), OECD Employment Outlook. Paris: OECD.

Office for National Statistics (2015), 'Poverty and employment transitions in the UK and EU: 2007 – 2012', Newport, ONS.

Peña-Casas R., Ghailani, D., Spasova, S. and Vanhercke, B. (2019). 'In-work poverty in Europe. A study of national policies, European Social Policy Network (ESPN)'. Brussels: European Commission.

Ponthieux, S. (2010). *In-work Poverty in the EU*, Luxembourg: European Commission

Social Metrics Commission (2018), 'A new measure of poverty for the UK: The final report of the Social Metrics Commission.'

Social Metrics Commission (2019). *Measuring Poverty 2019.* London.

Stats NZ (2019), 'Child poverty statistics: Year ended June 2018.' Available from https://www.stats.govt.nz/information-releases/child-poverty-statistics-year-ended-june-2018

Thiede, B. et al (2015), 'America's Working Poor: Conceptualization, Measurement, and New Estimates.' *Work and Occupations* Vol. 42(3) 267–312

Tinson, A., Ayrton, C., Barker, K., Born, T.B., Aldridge, H. and Kenway, P. (2016), *Monitoring Poverty and Social Exclusion 2016*, York, JRF & NPI.

Waldegrave, C., King, P. and Urbanová, M. (2018), Report of the Measurement Review for a New Zealand living wage, prepared for Living Wage Movement Aotearoa NZ. Family Centre Social Policy Research Unit.

Welfare Expert Advisory Group (2019). *Example families and budgets: Investigating the adequacy of incomes*. Paper prepared for the WEAG, Wellington. Available from http://www.weag.govt.nz/weag-report/background-papers/

Annex One

The HES wage information used in Figures J.1 and J.2 showing the distribution of individuals by their wage rates across household income deciles

To calculate the wage rate for individuals for the wage distribution reported in Figures 1 and 2, this paper uses:

- the HES-Tawa variable for gross income for the respondent's job that paid the most in the period 1 April 2017 to 31 March 2018 (overlapping with the relevant 1 June 2017 to 30 June 2018 HES year)
- and the HES-Tawa variable for the hours worked per week in that job.

In their raw state the numbers produced by this approach do not square with those that the Ministry of Business, Innovation and Employment (MBIE) produces through its model used for the Minimum Wage Review (MBIE, 2018). First, there are 'too many' wage earners in the HES analysis. This is expected as the HES information is collected over twelve months (and therefore counts more people in work than a point in time estimate), whereas the MBIE analysis is HLFS-based and the HLFS is collected over a quarter. Second, The HES-Tawa variables create around 80,000 individuals with wage rates less than 90% of the minimum wage. When these are deleted, the HES numbers and the MBIE numbers match very well, as shown in **Table 1.1** and **Figure 1.1** below. When this adjustment is applied, the HES 2015 numbers also square with MBIE's 2014 Minimum Wage Review numbers. This adjustment is used for generating Figures J.1 and J.2, but nowhere else. The associated analysis is robust enough for its main purpose, which is to give a first order picture of where wage-earners sit on the household income spectrum.

Table 1.1
Bottom coding the HES-based annual wage information to ensure concordance with MBIE numbers in their 2018 Minimum Wage Review: numbers under selected benchmarks

	$16.00	$16.50	$16.95	$19.00	$19.85	$20.20	Total wage earners
MBIE	92,300	164,100	210,800	421,000	502,600	568,200	1,965,312
HES – no adjustments	173,303	226,908	281,676	499,886	578,657	603,414	2,075,944
HES – with adjustments / deletions	91,493	145,098	199,866	418,076	496,847	521,604	1,994,134
HES with adjustments as a % of MBIE	99	88	95	99	99	92	101

Figure 1.1
Adjusting the HES-based annual wage information to ensure concordance with MBIE numbers in their 2018 Minimum Wage Review: numbers under selected benchmarks

Note that for defining full-time and part-time workers, the paper uses respondent information for the week of the interview, not the information above on the job that paid the most over the year

(though in the main they refer to the same job). This latter is used only for Figures 1 and 2.

Annex Two

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Decile and wage information for Figures 1 and 2.

Table 2.1
Location of low-income earners across household income deciles (BHC income, all households):
columns add to 100% down

HES 2018	Decile										Total
	1	2	3	4	5	6	7	8	9	10	
Workless HHs	63.1	80.1	38.3	18.3	13.6	10.0	9.3	6.3	8.0	15.0	26.2
Self employed HHs (1+ at >80%, none waged)	6.2	1.9	5.1	6.7	4.2	4.5	6.4	5.1	6.6	10.4	5.7
Working HHs - all under $16.55 (105% of MW)	4.5	2.9	5.0	3.9	2.5	1.9	0.3	0.8	0.2	1.2	2.3
Working HHs - both under and over $16.55 (105% of MW)	1.1	1.4	6.7	8.0	9.2	7.6	4.7	6.8	4.1	3.7	5.3
Working HHs - all over $16.55 (105% of MW)	25.2	13.7	44.8	63.1	70.5	75.9	79.3	81.0	81.1	69.7	60.4
Total	100	100	100	100	100	100	100	100	100	100	100

Table 2.2
Location of low-income earners across household income deciles (BHC income, all households):
columns add to 100% down

HES 2018	Decile										Total
	1	2	3	4	5	6	7	8	9	10	
Workless HHs	24.1	30.6	14.6	7.0	5.2	3.8	3.5	2.4	3.0	5.8	100
Self-employed HHs (1+ at >80%, none waged)	10.8	3.4	9.0	11.7	7.4	7.9	11.2	8.9	11.6	18.2	100
Working HHs - all under $16.55 (105% of MW)	19.5	12.6	21.6	16.6	10.5	8.3	1.3	3.4	1.0	5.3	100
Working HHs - both under and over $16.55 (105% of MW)	2.0	2.5	12.5	15.1	17.2	14.3	8.8	12.9	7.6	7.0	100
Working HHs - all over $16.55 (105% of MW)	4.2	2.3	7.4	10.5	11.6	12.6	13.1	13.4	13.4	11.6	100
Total	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	10.0	100

Section K
International comparisons
for low incomes and income inequality

The information for the international comparisons of income poverty (low incomes) and inequality in this section comes from three sources. They all use incomes before deducting housing costs (BHC incomes).

The OECD income inequality and low-income comparisons using household incomes come from information sent to the OECD by national experts based on national survey data and using common assumptions and definitions. Stats NZ provide the New Zealand information. The latest comparisons across the OECD are available for calendar year 2014 (2014-15 surveys).

The most significant difference between the OECD assumptions and definitions and those used in the rest of this report for New Zealand BHC analysis is that the OECD work uses an equivalence scale that treats all household members as costing the same (including not differentiating children and adults). The scale simply takes the square root of the total number of household members. This difference generally has only a small to modest impact on the level of various indicators at a given time, and a quite limited impact on trend analysis over time. The use of different equivalence scales can produce different directions for changes from one survey to the next when the changes are small. Long-term trends are generally not affected. [140]

The comparisons with the EU and other European countries draw mainly on survey-based information compiled by Eurostat for the EU and other European countries the EU Survey of Living Conditions (EU-SILC)).[141]

The information on very high incomes based on tax records rather than sample surveys comes from the World Inequality Database held by the Paris School of Economics.

The information for international comparisons of wealth inequality comes from the Luxembourg Wealth Study, the Credit Suisse Global Wealth Databook, and New Zealand Treasury analysis of the 2003-04 wave of the Statistics New Zealand's Survey of Family Income and Employment (SoFIE) dataset.

International comparisons of low incomes / income poverty

The OECD poverty / low-income indicator uses a moving line approach with a 50% of median BHC threshold. The EU poverty indicator uses a moving line 60% of median BHC threshold.

In essence, these fully relative measures provide a useful way of comparing how dispersed or compressed the income distribution is below the median on a country-by-country basis. When they are used as "poverty" measures for international league tables they are giving a comparison of the proportion of people from households that have incomes more than a defined distance from middle incomes for each country. This is consistent with a relative disadvantage notion of poverty and can be useful when looking at trends and relativities within a country, subject to the limitations discussed in Section E. They are, however, not so useful for international league tables purporting to measure "poverty".

The difficulty arises because people often (understandably) take the league tables to be about poverty understood as experiencing poor material living conditions assessed against some common international standard. This is still a relative perspective, but the reference is no longer

140 See **Appendix 3** for comparisons of trends using different equivalence scales.

141 The OECD and Eurostat figures used in this section are accessible on their respective websites.

the middle incomes of a particular country, but some notion of minimum acceptable living conditions that is the same for all the (richer) countries being compared.

For example, in 2012, using the 60% of median EU measure, the Czech Republic had a poverty rate (10%) that was lower than the rates for Denmark, Sweden and France (13-14%), yet the Euro value of the poverty lines in each of the latter three countries are all above the median household income level for the Czech Republic. What this means is that the Czech Republic has less inequality in the lower half of the income distribution than the others **–** a smaller proportion more than 40% below the Czech median than other countries. The figures are often mistakenly interpreted or even portrayed as if the league table ranking means that the Czech Republic is doing better than the others for less well-off citizens against some unstated international reference level.

The EU faces this challenge even more pointedly than the OECD – for income poverty measurement, is the reference society the EU or the individual member country?[142] In contrast to the situation described above when the reference is the income levels in a single country, counting the whole EU as one notional country and taking a whole-of-EU median produces a poverty rate of 40% for the Czech Republic, 9% for France and Sweden, and 6% for Denmark (Nolan and Whelan, 2011: 61).

The issues are well illustrated in the two scatter-plots below. The charts draw on data from the OECD's 2011 *Society at a Glance* publication. **Figure K.1** shows that there is very little relationship between income poverty rates for OECD countries and the proportion who report in Gallup polls that they are finding it difficult or very difficult on their current income. On the other hand **Figure K.2** shows that there is a reasonably strong relationship between median household incomes (made comparable through the use of USD Purchasing Power Parities) and the proportion reporting income difficulties.

Figure K.1
Very weak relationship between income poverty and reported income difficulties

Figure K.2
Strong negative relationship between median household incomes and reported income difficulties

142 See, for example, Fahey (2007), chapter 1 in Ward and colleagues (2009), and chapter 4 in Nolan and Whelan (2011).

Note: Two outliers (Hungary and Greece) have been removed. When they are included the R^2 value drops to 0.61 – still a reasonably strong relationship.

It appears as if respondents to the Gallup polls have in mind some notion of an internationally comparable minimum standard of living when they give their answers. In contrast, income poverty rates use the median income levels within countries as the benchmarks. The problem arises when people (understandably) interpret the international income poverty league tables as if they were using a common cross-country standard and give an indication of 'income difficulties'.

International comparisons using non-income measures

Partly in response to these concerns, the EU developed and in 2009 adopted a 9-item deprivation index based on non-income measures (NIMs) as one of its primary social inclusion indicators. The OECD is also taking steps to develop international comparisons of material hardship based on NIMs, but progress is limited to date.[143] Although the use of NIMs also has its challenges and limitations, it provides another useful perspective to set alongside the comparisons based on income.

MSD's 2008 Living Standards Survey had items in it that allowed reasonably robust comparisons of material deprivation with EU countries using an improved (and, at the time, unofficial) 13-item index (EU-13). A summary of findings from this research is included in the companion report using NIMs.[144]

In May 2017, the EU formally adopted the EU-13 index as its official measure of material and social deprivation.[145]

Figure K.3 uses that information, together with the published low-income rates to further examine the theme of the last two pages – namely, that ranking countries by relative-to-the-median low-income rates and calling it a poverty league table is misleading as such a ranking does not correspond to a ranking by actual living conditions … which is how many / most people hear it. Figure J.3 shows, for example, that Finland and Slovakia have very similar poverty rates (12%), but very different material hardship rates. The same applies for Luxembourg and Hungary, and the group at around 22-23% 'poverty' rates. These and similar findings raise serious questions about the credibility of the common practice of using a relative income approach for international comparisons of "poverty".

Figure K.3
Relatively weak relationship between low-income rates and material hardship rates for the EU, 2015

143 See Boarini and Mira d'Ercole (2006), and OECD (2008).

144 See also Perry (2009), Section D, pp29ff.

145 See Guio et al (2017)

Sources: Low income rates are from **http://ec.europa.eu/eurostat/data/database** , and the hardship rates from the Luxembourg Institute for Socio-Economic Research **https://www.liser.lu/?type=news&id=1426**

Cautions when making comparisons between poverty figures across countries: summary

International league tables such as those produced by the OECD, Eurostat and UNICEF have a popular appeal, but need to be treated with considerable caution for several reasons:

- those identified as "poor" in two countries which have the same or similar reported income poverty rates may have quite different actual day-to-day living standards (as shown and discussed above)
- poverty rates for countries can bunch together, and small differences in rates can mean very large differences in rankings – comparison with the median or average rate for selected countries is therefore often more useful than the ranking itself for assessing or summarising relative performance
- some countries' reported rates can change significantly from year to year on a moving line (REL) approach, thus making the choice of comparison years crucial when reporting rankings.[146]

[146] Because international league tables almost always use 'moving line' (REL) thresholds, the income poverty rate for a country whose median income is falling in real terms can show a decrease in poverty, whereas a country whose median incomes are rising through strong economic growth can show a rise in poverty, even if in both cases the incomes of those with low incomes remain much the same in real terms.

Population poverty using a 50% BHC threshold

- On the OECD 50% of median moving line (REL) measure, the average New Zealand rate through the mid 1990s (1994 to 1996) was 9%, which was at the OECD median.
- By the time of the 2015 HES (approximately calendar 2014) the rate was 11%. **Table K.1** shows that this places New Zealand near the OECD median, similar to the UK (11%) and with a rate a little lower than Canada and Australia (13%), and well below the United States (18%). Iceland, Denmark and the Czech Republic[147] have the lowest proportion with incomes below the 50% line (6-7%).

Table K.1
Population poverty rates (%) in the OECD-35, c 2014:
50% of median threshold (BHC)

Israel	19	OECD median	10
United States	18	Hungary	10
Turkey	17	Switzerland	10
Mexico	17	Germany	10
Latvia	16	Slovenia	9
Chile	16	Ireland	9
Japan	16	Belgium	9
Estonia	16	Sweden	9
Spain	15	Austria	9
Greece	15	Slovakia	9
Korea	14	France	8
Italy	14	Luxembourg	8
Portugal	14	Norway	8
Australia	13	Netherlands	8
Canada	13	Finland	7
New Zealand	**11**	Iceland	7
United Kingdom	11	Czechia	6
Poland	10	Denmark	6

Source: OECD Income Distribution Database, accessed on 15 April 2018 at www.oecd.org/social/income-distribution-database.htm

147 But see the Introduction to this section on the misleading nature of this finding for the Czech Republic.

Population poverty using a 60% BHC threshold

- **Table J.2** shows New Zealand's relative position among selected European countries, Canada, the United States, Mexico and Australia using a 60% BHC threshold. The New Zealand figure (19%) is based on the 2015 HES (approximately calendar 2014), and the analysis uses the same equivalence scale as the Eurostat analysis. The New Zealand rate is a little above the EU median (17%).
- For comparison purposes the figures for Canada, the US, Mexico and Australia (from the OECD Income Distribution database) should be reduced by one or two percentage points as the equivalence scale used in the OECD analysis gives population poverty rates approximately that much higher than the one used in the Eurostat analysis.
- In 2004, the New Zealand rate was 21% and the EU median was 16%.

Table K.2
Population poverty rates (%) in selected European countries, Canada, the US, Mexico and Australia c 2014:
60% of median threshold (BHC)

United States *	24	Ireland	16
Mexico *	24	Malta	16
Spain	22	Sweden	16
Greece	22	Belgium	16
Estonia	22	Hungary	15
Latvia	21	Slovenia	15
Australia *	21	Cyprus	14
Portugal	20	Austria	14
Italy	19	Switzerland	14
Canada *	19	France	13
Lithuania	19	Finland	13
New Zealand	**19**	Slovakia	13
EU median	17	Denmark	12
Poland	17	Netherlands	12
United Kingdom	17	Norway	11
Germany	17	Czechia	10
Luxembourg	16	Iceland	8

Sources: Most of the data in the table is drawn directly from the Eurostat statistical database accessed on 23 April 2018.
https://ec.europa.eu/eurostat/web/income-and-living-conditions/data/database

The rates for Canada, the US, Mexico and Australia are drawn from the OECD Income Distribution Database. The OECD uses a different equivalence scale than Eurostat, but the difference that makes for these poverty rates is small and is not enough to impact significantly on rankings (see text above).

Child poverty comparisons using a 50% BHC threshold

- On the OECD 50% of median moving line (REL) measure, the average New Zealand child poverty rate through the mid 1990s (1994 to 1996) was 13%, rising to 15% in 2004.
- By the time of the 2015 HES (approximately calendar 2014) the rate was 14%. **Table K.3** shows that this placed New Zealand a little above the median for child poverty for the 35 OECD countries (12%), close to Australia and Canada (13-15%).

Table K.3
Child poverty rates (%) in the OECD-35, c 2014:
50% of median threshold (BHC)

Turkey	25	Hungary	12
Israel	24	France	12
Spain	23	Luxembourg	11
Chile	21	United Kingdom	11
United States	20	Belgium	11
Mexico	20	Austria	11
Italy	19	Netherlands	10
Greece	19	Czechia	10
Portugal	18	Switzerland	10
Japan	16	Germany	10
Latvia	16	Sweden	9
Canada	15	Ireland	9
Estonia	15	Slovenia	9
Slovakia	15	Iceland	7
New Zealand	**14**	Norway	7
Australia	13	Korea	7
Poland	13	Finland	4
OECD median	12	Denmark	3

Source: OECD Income Distribution Database, accessed on 15 April 2018 at www.oecd.org/social/income-distribution-database.htm

Child poverty comparisons using a 60% BHC threshold

- **Table K.4** shows New Zealand's relative position among selected European countries, Canada, the United States, Mexico and Australia using a 60% of median moving line measure (BHC). The New Zealand figure (23%) is based on the 2015 HES (approximately calendar 2014), and the analysis uses the same equivalence scale as the Eurostat analysis. It is a little above the EU median (21%).
- For comparison purposes the figures for Canada, the US, Mexico and Australia (from the LIS database) should be reduced by one or two percentage points as the equivalence scale used in the LIS analysis gives population poverty rates approximately that much higher than the one used in the Eurostat analysis.
- New Zealand's rate in the 2004 HES (calendar 2003) was 26%, above the EU 2004 median of 20%. By the time of the 2007 HES, the rate had dropped to 20%, at the EU median. This change reflected the impact of the Working for Families package in raising the incomes of many (working) families with children from the 50% to 60% of median income range to above the 60% of median threshold.

Table K.4
Child poverty rates (%) in selected European countries, Canada, the US, Mexico and Australia c 2014:
60% of median threshold (BHC)

Mexico 2012*	32	Estonia	20
Spain	31	Slovakia	19
United States 2016*	30	Belgium	19
Canada 2013*	27	Ireland	18
Portugal	26	Austria	18
Greece	26	Sweden	18
Luxembourg	25	France	18
Italy	25	Germany	15
Hungary	25	Switzerland	15
Latvia	24	Slovenia	15
Malta	24	Czechia	15
Lithuania	24	Netherlands	14
New Zealand	**23**	Cyprus	13
Australia 2010*	22	Finland	11
Poland	22	Norway	10
EU	**21**	Iceland	10
United Kingdom	20	Denmark	9

Sources: Most of the data in the table is drawn directly from the Eurostat statistical database for 'Living Conditions and Social Protection', accessed on 23 April 2018.
https://ec.europa.eu/eurostat/web/income-and-living-conditions/data/database

The rates for Canada, the US, Mexico and Australia are drawn from the LIS Key Figures database at www.lisdatacenter.org accessed on 26 April 2018.

Children in workless households

There is more than one way in which the general concept of "children in workless households" is operationalised and reported by various national and international agencies.

The most straightforward way is to count the number of children in workless households and express this number as a proportion of all children (~12% in HES 2018). This report uses this approach.

A second way is to count up the number of households with children where there is no adult in work, and express this as a proportion of the number of all households with children. This "workless households with children" approach gives a very similar trend to that produced by this report's "children in workless households" approach, albeit the actual proportions can sometimes be very slightly different than in the first approach.

Table K.5 compares New Zealand with EU countries on the proportion of children in workless households. In 2012, New Zealand was at the high end of the table with a rate of 16%, similar to Hungary and the United Kingdom (16-17%). The figure for New Zealand is calculated using the sample weights developed by the Treasury for use with the HES, as these are constructed using benefit numbers as one of the benchmarks.

Table K.5
International comparisons of the proportion of children living in workless households (%): c 2012 and 2017

	2012	2017		2012	2017
Ireland	20	12	Latvia	11	8
United Kingdom	17	12	France	10	8
Bulgaria	17	12	Croatia	11	8
Belgium	13	12	Malta	8	8
New Zealand	**16**	**11**	Hungary	16	8
Slovakia	10	10	Poland	9	8
Lithuania	13	10	Luxembourg	4	8
Cyprus	7	10	Austria	6	7
Spain	14	10	Sweden	7	6
Italy	9	10	Portugal	9	6
Greece	13	9	Czechia	8	6
Germany	9	9	Netherlands	6	6
Denmark	8	9	Estonia	9	6
Romania	12	9	Finland	4	5
EU-27 median	**10**	**9**	Slovenia	4	3

Source: Eurostat data accessed on 24 July 2019
http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lfsi_jhh_a&lang=en

Older New Zealanders

Extra care needed here

Using household income as an indicator of material wellbeing has some significant and well-known limitations, especially for international comparisons. The reader is referred to the opening pages of this section, the framework described in Section A and to Section I for detailed discussion and analysis of these limitations. The risks for creating misleading impressions as to how countries are faring relative to each are especially high for comparisons for older people (aged 65+).

Using the 50% of median threshold (OECD measure), New Zealand had one of the higher poverty rates in the OECD in HES 2008-09 for those aged 66+ (19%). In previous OECD league tables (eg for c2000) New Zealand had the lowest poverty rate in the OECD for the 66+ group (~3%).

The sudden increase occurred because the value of New Zealand Superannuation (NZS) was above 50% of the median household income in earlier years (eg in 2000), but fell just below it during 2009. There is more detail on this in **Section I.**

By the 2013 HES (approximately calendar 2012) the New Zealand rate had fallen to 10%. **Fig K.6** gives the latest available comparisons (calendar 2014 from the 2014-15 HES).

Table K.6
66+ poverty rates in the OECD (%) c 2014:
50% of median threshold (BHC)

Korea	49	Italy	9
Latvia	27	Canada	9
Australia	26	Austria	9
Mexico	26	Hungary	9
Estonia	25	Greece	8
Israel	23	Belgium	8
United States	21	Poland	8
Switzerland	19	Ireland	7
Japan	19	Finland	7
Turkey	19	Spain	5
Chile	16	Iceland	5
United Kingdom	13	Norway	4
Slovenia	13	Luxembourg	4
New Zealand	**11**	Slovakia	4
Sweden	10	Czechia	4
Portugal	10	France	3
Germany	10	Denmark	3
OECD median	9	Netherlands	3

Source: OECD Income Distribution Database, accessed on 15 April 2018 at www.oecd.org/social/income-distribution-database.htm

This sudden rise and fall of the income poverty rate for older New Zealanders can easily leave the misleading impression that there has been a very large and sudden change for the worse in the actual living conditions of many older New Zealanders, followed by an equally sudden

improvement. Neither conclusion is warranted. The rapid changes simply reflect the existence of the "pensioner spike" in the New Zealand income distribution.[148]

In its 2007 country report for New Zealand, the OECD noted that New Zealand has "successfully erased poverty among the elderly", basing its assessment on the information in the 2000 version of Table J.6.[149] To be consistent, it would have had to report for 2009 something along the lines of "poverty among the elderly in New Zealand is very high compared with other OECD countries and is clearly a matter that the country needs to address." If it had done so, it would have been consistent, but it would be misleading on both counts.

The opening pages of this section raised serious questions about the value and wisdom of international league tables which use income-based measures of poverty and which leave the reader with the impression that the rankings somehow reflect the degree of material hardship being experienced by different groups across the countries ranked in the table. The rapid and large changes for "poverty rates" for older New Zealanders as noted above provide another reason to treat such tables with great care, or even to not use them at all for international comparisons of "poverty".

Table K.7 compares low-income rates for older people using a 60% threshold for selected European countries and New Zealand. Using this higher threshold, poverty figures are more stable from year to year as the threshold is above most clumps or pensioner spikes in the income distributions.

Table K.7
66+ poverty rates in the OECD (%) c 2014:
60% of median threshold (BHC)

Korea	58	**OECD median**	**21**
Australia	45	Finland	20
Estonia	42	Portugal	19
Latvia	40	Denmark	18
New Zealand	**36**	Germany	18
Mexico	33	Iceland	17
Switzerland	32	Hungary	17
Israel	31	Italy	17
United States	29	Austria	16
Turkey	28	Czechia	16
Sweden	27	Poland	15
Japan	26	Spain	15
Chile	23	Norway	14
United Kingdom	22	Greece	13
Belgium	22	Netherlands	13
Ireland	22	Slovakia	10
Slovenia	21	Luxembourg	9
Canada	21	France	9

Source: OECD Income Distribution Database, accessed on 7 May 2018 at www.oecd.org/social/income-distribution-database.htm

When using household income as an indicator of relative material wellbeing, and especially for comparisons with other age-groups, this report takes the view that an AHC approach is more

148 The rate for Ireland also changed by a large amount, although in their case the rate fell from 2004 (31%) to 2009 (13%). Figures for Australia rose from 27% to 39%. Changes for almost all other OECD countries were in the zero to three percentage point range.

149 OECD (2007:11).

useful. The rationale for this position is set out and discussed in the Introduction (Section A), in Section I and in Appendix 5. Comparable AHC figures for the EU or OECD are not available.

None of this is meant to imply that the comparison of household incomes within a country is of little or no use. The point is about the limitations of using household incomes for international comparisons of poverty and material hardship among those in the richer nations (eg OECD or EU), especially when it comes to the relative position of older New Zealanders.

Using non-income measures for international comparisons of hardship for older New Zealanders (65+)

The use of non-income measures (NIMs) provides a useful alternative way of assessing relative material wellbeing. In 2009 the EU developed and adopted an official measure of material deprivation using NIMs (using 9 items). The 2008 New Zealand Living Standards Survey has the EU questions in it and this allows New Zealand to be located reasonably accurately relative to European countries using the EU-9 index.[150]

Figure K.4 shows that older New Zealanders have a much lower deprivation rate (3%) than their counterparts in most European countries on this measure. As for the population as a whole there is a reasonably clear division between the 'old' EU countries and those more recently gaining membership.

Figure K.4
Deprivation rates (% with 3+ enforced lacks) using the 9 item EU index, those aged 65+
EU-25 - MT + NO + IS +NZ (EU 2007, NZ 2008)

[150] See Perry (2015) for more on EU-9. As noted above, the EU has recently (2017) adopted an enhanced material and social deprivation measure (EU-13) as its official one. Rankings for those aged 65+ are much the same on EU-13 as on EU-9. See the companion NIMs report for more information on EU-13.

International comparisons of income inequality

The latest full set of information available from the OECD is for 2014 (our 2014-15 HES). International comparisons are given for the Gini coefficient, three share ratios for different decile groupings, and for the P90:P10 percentile ratio. The OECD sources do not have comparisons for the P80:P20 ratio.

In contrast to the share ratios and the percentile ratios the Gini coefficient takes the incomes of all individuals into account. It gives a summary of the income differences between each person in the population and every other person in the population. A difference of, say, $1000 between two high-income people contributes as much to the index as a difference of $1000 between two low-income people. The Gini scores (x100) range from 0 to 100 with scores closer to 100 indicating higher inequality and those nearer zero indicating lower inequality (ie greater equality).

Inequality comparisons using the Gini coefficient (c 2012)

Figure K.5 shows inequality rankings for 34 OECD countries for around 2014 using the Gini coefficient. There has been very little change since the last update for 2012. New Zealand's score of 34 gave a 2014 ranking of 22nd out of 34.[151] Rankings are not generally a useful way of comparing countries on league tables as there is often a clustering that can mean that a very minor difference in score can be the difference between a ranking of, say, 10th and 17th. Distance from the median and relativity to countries with whom comparisons are traditionally made are more useful approaches. On the latest OECD figures (c 2014), New Zealand's Gini score of 33 was close to those of Australia, Portugal, Greece and Japan, a little lower than the UK (35.6), and a little higher than Canada (31.3). The OECD-34 median was 31. Countries such as Slovenia, Denmark, Norway and Finland have lower than average inequality (Ginis of 25-26). The US score was 39.

Figure K.5
Income inequality across the OECD: Gini coefficients (x100) c 2014, whole population

Source: OECD Income Distribution Database, accessed on 20 September 2019.

151 The Gini score used here is 34, the trend-line figure shown in Figure K.6 below and elsewhere.

Changing inequality in the OECD and New Zealand: 1982 to 2016

Figure K.6 shows the way inequality as measured by the Gini coefficient has changed in New Zealand over the last thirty years.

From the late 1980s to the mid 1990s income inequality in New Zealand increased significantly and rapidly, taking New Zealand from well under the OECD average to well above. From the mid 1990s to around 2010 the trend-line for New Zealand was relatively flat while the OECD average rose, thus bringing the two lines closer together.

In recent years the Gini income inequality figures have been volatile. The issue is discussed in detail in Section D (pp87ff) where the report notes the significant impact on the Gini trend of the random fluctuations in the number of very high income households captured in the HES sample from survey to survey, as well as the impact of the GFC on investment returns, employment and wages over the years from 2008-09. There is no conclusive evidence yet of any sustained rise or fall in income inequality using the Gini measure since the mid 1990s. The trend-line is almost flat, though perhaps with a slight fall in the early to mid 2000s and a slight rise since, back to where it was in the mid 1990s. As shown in **Figure D.20**, when the top 1% are removed, the trend is clearly flat. The reader is referred to Section D for the details of the report's analysis of the impact of the fluctuation in high-income households that happen to get captured in the sample.

Figure K.6
Inequality in New Zealand and the OECD trend: the Gini coefficient

Note: The OECD label of 2014 refers to the 2014/15 survey year, and so on.

Inequality comparisons using three share ratios

Another approach used by the OECD is to compare the share of total income received by higher income households compared with the share received by lower income households. Three share ratio measures are reported here:

- the D10 to D1 ratio, comparing the top decile share with the bottom decile share
- the Q5 to Q1 ratio, comparing the top quintile share with the bottom quintile share
- the D10 to D1-4 ratio, comparing the top decile share with the share from the bottom four deciles (the Palma measure).

The Palma: the ratio of the top decile share to the share for the lower four decile shares

The Palma measure or ratio is a relatively new addition to the suite of inequality measures used for international comparisons. It is named after Chilean economist Gabriel Palma whose 2011 paper brought the measure and its rationale to light.[152] The OECD now reports the Palma in its Income Distribution database.

[152] See Palma (2011).

At one level, the Palma is just another share ratio in the wider family of share ratios. It has several features however that make it worth a second look:

- Palma found that among middle income and richer countries those in deciles 5-9 receive around 50% of the total income share, and that this share size seems reasonably stable over time as well as over countries. These are the middle to upper-middle income households between the "rich" and the "poor". **Figure K.7** shows the share for New Zealand was fairly stable at around 55% from the mid 1990s to 2014, though looking at the longer-run trend from 1982 to 2018, there is some evidence of a downward drift.
- He also found that the remaining 50% or so (45% for New Zealand) of total income was split between the top 10% and bottom 40% in quite different ways across the countries he looked at. This inspired the first part of the title for his 2011 paper - "Homogeneous middles and heterogeneous tails".
- He found that the correlation between the Palma and the Gini is close to perfect across the 150 countries in the World Bank dataset he used.
- Given that the Palma is much easier to explain than the Gini, and that it ranks countries in the same order, then he and others are proposing that it might be a useful alternative to the Gini for international comparisons.[153] For example, what does it mean in practice to say that one country has a Gini of 42 and another 31? On the other hand, a Palma of 2.1 compared with a Palma of 1.7 has specific and easily grasped meaning in terms of the ratio of higher incomes to lower incomes, with the "middle" remaining constant. The jury is still out on whether it can / ought to / will replace the Gini, but it certainly has the communication edge over the Gini.
- On average over 2014 to 2018 HES, the Palma ratio for New Zealand was 1.4. This is similar to Australia (1.3), lower than the UK (1.5) and the US (1.8) , but much higher than Denmark, Norway and Finland (all close to 0.9), and above the OECD-35 median (1.1).

Figure K.7
Proportion of total income received by deciles 5 to 9, 1982 to 2018

[153] Cobham and Sumner (2014).

Table K.7
Income inequality using income share ratios, OECD 2016 (HES 2014-2018 average for NZ)

	Decile share ratio	Quintile share ratio	Palma
	D10:D1	Q5:Q1	D1:D1-4
Denmark	2.9	3.7	0.93
Iceland	3.0	3.6	0.89
Czechia	3.0	3.6	0.87
Finland	3.0	3.7	0.91
Slovakia	3.1	3.7	0.79
Norway	3.1	3.9	0.91
Slovenia	3.1	3.6	0.81
Sweden	3.3	4.2	1.02
Netherlands	3.4	4.3	1.03
Belgium	3.3	3.9	0.92
Austria	3.5	4.5	1.00
France	3.4	4.3	1.07
Hungary	3.6	4.5	1.02
Ireland	3.6	4.5	1.10
Switzerland	3.6	4.5	1.09
Germany	3.8	4.6	1.07
OECD Median	**4.1**	**5.1**	**1.13**
Poland	3.7	4.4	1.01
Luxembourg	4.0	4.9	1.11
United Kingdom	4.2	6.0	1.45
Canada	4.1	5.1	1.13
New Zealand	**4.3**	**5.7**	**1.38**
Australia	4.3	5.5	1.26
Portugal	4.5	5.6	1.30
Italy	4.5	5.9	1.25
Estonia	4.7	5.3	1.14
Greece	4.7	6.0	1.29
Latvia	5.3	6.4	1.38
Japan	5.2	6.2	1.32
Spain	5.3	6.5	1.32
Israel	5.4	6.5	1.38
Korea	5.7	7.0	1.45
Turkey	5.7	7.8	1.91
United States	6.3	8.5	1.77
Mexico	6.7	10.3	2.51
Chile	7.0	10.0	2.47

Long-run trends for (very) high incomes

While the bulk of the international comparisons of inequality trends and rankings use the incomes of all households (eg the Gini), or most households (the P90:P10), or at least those of the top and bottom 10% (S10:S1), recent public debate and protest has often been about the way in which those with very high incomes have been receiving a disproportionate share of the growth in overall income compared with the rest (hence the catch-cry some years ago of "we are the 99"). Those with very high incomes (for example, the top 1%) make up a small share of the population but their incomes make up a relatively large share of total income (and total income tax paid).

Until recently there was no reliable and internationally comparable data on very high incomes as sample surveys such as the HES do not have large enough samples to pick up enough such households to enable robust figures to be reported. Long-run time series on very high incomes based in the main on income tax data have recently become available on the World Top Incomes database, largely due to the work of Tony Atkinson (UK), Thomas Pikketty (France) and Emmanuel Saez (US). See for example, Atkinson and colleagues (2011) and Alverado and colleagues (2012).

Figure K.8 shows the share of total income received by those with the top 1% of income from the 1920s to around 2013 for the US, the UK, Canada, Australia and New Zealand.

For the US, the UK and Canada there is a clear U-shaped curve with the share of total income received by the top 1% rising fairly steeply for the US and the UK from the mid 1980s, more than doubling from 8% to 20% in 2015 for the US and from 6% to 12% for the UK. For New Zealand and Australia the proportion of total incomes received by the top 1% is less than for the US and the UK, but the rise from the mid 1980s to the mid 2000s is still steep. Ireland also has a U-shaped curve.

Not all OECD countries show the U-shaped curve. For example, France, the Netherlands, Germany and Japan show more of an L-shaped curve: they do not show the rapid rise from the mid-1980s that the English-speaking countries do, remaining steady in the 5-10% range (which is where New Zealand and Australia have ended up in 2010 to 2016).

Figure K.8
Very high income: share of income received by top 1%, 1920 to c 2016

Source: World Inequality Database (Paris) accessed on 12 Sep 2019

The long-run perspective in Figure K.8 can tell more than one story. Taking the end of the "great compression" (1950 to 1980) as the starting point, the conclusion is that for the five English-speaking countries in the graph, inequality (understood as the share of income received by the top 1%) increased strongly to 2016+. With the 1920s as the starting point, the "great compression" can be seen as the "aberration" and now the distribution has returned to where it was ninety years ago.

Figure K.9 shows selected OECD countries ranked by their top 1% income share. The top 1% in New Zealand received around 8% of all taxable income on average in 2013 and 2014 (before tax). New Zealand's top 1% share is in the low to mid range for OECD countries with whom we traditionally compare ourselves: it is a little higher than in the Netherlands and Finland (6%), similar to Norway, Sweden and Australia, but lower than Ireland (11%) and Canada (13%), and much lower than the US (20%).

For almost all OECD countries, the latest figures are all higher than in the 1980s (eg 10% higher for France, 40% for NZ and Japan, 60% for Ireland and Canada, 90% for the UK and Australia, and 120% higher for the US).

Figure K.9
Share of gross income received by top 1% (avg between 2011 and 2014, latest available)

Figures K.10 and K.11 show the trends for the five English-speaking countries shown in Figure K.7 but this time for the top 5% (with the top 1% removed) and the top 10% (with the top 1% removed). The long-run and more recent trends are much flatter for these income groups.

Figure K.10
Very high income: share of income received by the top 5% (less the top 1%), 1920 to 2011

Figure K.11
Very high income: share of income received by the top 10% (less the top 1%), 1920 to 2011

Long-run perspective for the share of income received by the top decile

As noted above, the HES analysis in this report and much of the OECD international comparative analysis are based on sample surveys that begin in the mid 1980s, at the end of the "great compression". This means that analysis based on these surveys show a generally rising inequality for many countries.

This point is well illustrated in **Figure K.12** using the more common "top decile share" measure. The graph shows the rising trend for the HES data from the 1980s, but from the longer perspective from 1955, the income data shows firstly the "great compression" to the 1980s, then a rise to the mid 2000s before falling investment income reduced the share. There is still a broadly U-shaped trend as in Figure K.8 for the top 1% of individuals, albeit the "U" is more flattened.

Figure K.12
Share of income received by top 10%, 1955 to 2016

Source: World Inequality Database (Paris) accessed on 12 Sep 2019, and MSD analysis of HES data.

Note: The data points for 1998 and 1999 for the upper line are omitted to avoid distraction from the main trends – these points were unusually high, reflecting the shifting of income into earlier years ahead of an anticipated tax rise for the top income bracket in 2000.

Correcting the Gini for very high incomes missed in surveys

The Gini inequality figures used by the OECD and others for international comparisons are based on sample surveys. These are known to under-estimate the number of people and households with very high incomes (eg the top 1%). This means that the resulting Gini figures are lower than they would be if the samples were properly representative.

Atkinson (2007) and more lately Alverado (2010) have come up with a formula to correct the sample-based Gini by adding information from the tax records about high individual incomes. If $G_{(sample)}$ is the usual Gini score, then $G_{(corrected)} = S + (1-S) * G_{(sample)}$ where S is the share of total income received by the top 1% or other small group. A key assumption in the derivation of the formula is that the top incomes group is very very small, albeit their income share is non-trivial.[154]

The implication for New Zealand is that any countries with more than 8% share for the top 1% will have a corrected Gini that increases more than New Zealand's does (see Figure J.8 above). The correction puts New Zealand nearer the OECD median compared with the uncorrected Gini as New Zealand's top 1% share is relatively low.

The inequality-reducing impact of taxes and transfers

Figure K.13 shows the inequality-reducing impact of taxes and transfers by comparing the Gini scores for household market income and household disposable income – that is for household incomes before and after taxes and transfers (for those of 'working-age', aged 18 to 65 years).

Figure K.13
Gini scores (x100) for market and disposable household income, 1985 to 2018 (18-65 yrs)

For working-age New Zealanders (aged 18 to 65 years), the reduction in the household market income Gini was 22% in 2013 (the latest generally available comparison year). As shown in **Figure K.13**, this reduction is similar to Canada, but less than Australia and the UK (~25%), and much less than many European countries such as Denmark, France and Austria (33-36% reductions). The median OECD reduction for 2012 was 27%.[155]

There is an argument that the inequality-reducing impact of the tax-transfer system will of necessity be lower in countries in which the unemployment rate / benefit receipt is lower, all else equal (see text on next page). Many of the OECD countries in **Figure K.14** which have higher inequality-reducing impacts have unemployment rates close to New Zealand's (eg Germany, Norway, UK, Australia, all in the 4-6% range, NZ (5%)). This suggests that other factors are at play.

154 See Förster and colleagues (2014: 30) for an application of the correction to trends in the US.

155 See the OECD's 2015 country report for New Zealand (OECD (2015), Fig 19, p33), and the OECD Income Distribution Database, accessed on 13 Sep 2019 at: www.oecd.org/social/income-distribution-database.htm

Figure K.14
Reduction in market income inequality (Gini) from taxes and transfers for working-age population (18-65 yrs), OECD comparisons

Source: Alvaredo and colleagues (2012), and MSD analysis of HES data.

For the whole population, New Zealand's reduction in inequality in 2013 was 28% compared with the OECD median of 37%. In the 2017 country report for New Zealand the OECD observes that the New Zealand figure *"reflects the less-than-average redistribution through taxes and transfers"* (OECD, 2017b: Fig 1.c).

Longer-run trend

Figure K.15 and **Table K.10** show the trend in the inequality-reducing impact of taxes and transfers in New Zealand for the "working-age" population for the three decades from 1985 to 2016. There has been a steady reduction in impact except for the deviation from the trend during the years immediately after the Global Financial Crisis.

Figure K.15
Reduction in market income inequality (Gini) from taxes and transfers for NZ working-age population

In its 2015 country report for New Zealand, the OECD notes the trend and observes that it reflects "*reforms that reduced the progressivity of the tax system and lowered benefit replacement rates*" (OECD, 2015: 32). This explanation could reasonably be applied to the 1985 to 1995 period, but it is an incomplete explanation for the overall downward trend since the mid-1990s. The trend since the mid-1990s also reflects the decreasing numbers receiving a main working-age benefit in that period (see Figure C.5 above). If there are fewer with zero or very low market income (ie when numbers on a benefit decline), then the inequality-reducing impact of the tax and transfer system on market income inequality will by definition be lower, all else equal. This first principles view is supported by the deviation from the trend in the immediate post-GFC period. This rise reflects the fact that in this period there were more with zero or low market income, so the tax and transfer

system had a larger starting base to work on and the trend line properly shows the greater impact of the tax and transfer system. In other words, the trend of the inequality-reduction impact (Figure J.15) is driven by three factors: (a) changes in market income inequality; (b) policy settings for taxes and transfers; and (c) the numbers in receipt of transfers.

In a paper for the June 2017 meeting of the Council of Ministers, the OECD presented updated comparative figures for the reduction in market inequality (OECD, 2017a). New Zealand's ranking is much the same in this updated analysis as it is in Figure J.14 above. The paper notes (p30) that "*on average across OECD countries, redistribution is currently 2 percentage points lower than in 2005. Redistribution fell particularly in Sweden, Israel and New Zealand, while it increased in countries hit harder by the crisis such as Portugal, Greece, Ireland and Iceland*." The statement is correct in its claim about a strong net fall for New Zealand, but the fact of the rise through the post-GFC downturn, noted above, is an important part of the overall narrative and understanding of what this measure is actually telling us.

Table K.10

Gini scores (x100) for market and disposable household income, and % reduction in income inequality (Gini), 1985 to 2016 (18-65 yrs)

HES year	OECD year	Before taxes and transfers (market income)	After taxes and transfers (disposable income)	Reduction (%)
1986	1985	36.4	26.4	27
1991	1990	42.4	31.3	26
1996	1995	43.1	32.9	24
2001	2000	43.1	33.1	23
2007	2006	40.3	31.6	22
2012	2011	40.0	31.4	22
2017	2016	40.3	33.1	18

Reading note for Figure B.7 and Table B.10:

HES year 'n' is reported as 'n-1' in the OECD Income Distribution Database and related publications (eg 2013 is reported as '2012').

This analysis has looked only at household incomes, personal income tax and government cash transfers. The full redistributive impact of the (welfare) state needs to also take account of the value to households from public health and education services and child-care subsidies, and the impact of indirect taxes (especially GST) and so on.[156] Different countries have different balances across these components, so using a more comprehensive approach may lead to a different ranking.

156 See p54 above on 'Final Income'.

Summing up

- The inequality-reducing power of the tax and transfer system on market income inequality has steadily declined for New Zealand from 27% to 18% over the last three decades,1985 to 2016 (using the Gini).

- The size of the impact reflects not only the original level of household market income inequality but also changes in policy settings and in the number in receipt of a main working-age benefit (the latter has declined since the mid-1990s except for a brief rise post GFC).

- The inequality-reducing power of the New Zealand's tax-benefit system is currently relatively low compared with that for other OECD countries, including those who (like NZ) have lower unemployment rates (eg Germany, Norway, the UK and Australia). It is below the OECD average.

Section L
Income mobility and low-income persistence

The income information in the earlier sections of the report is based on data from repeat cross-sectional surveys from the Household Economic Survey (HES) series. For each survey a different sample of households is selected and different individuals are interviewed each time.

For this section, the income information is based on seven waves of longitudinal data from Statistics New Zealand's Survey of Family, Income and Employment (SoFIE) which began in October 2002. Here the same individuals are followed from one wave of the survey to the next. Longitudinal data give a quite different perspective on trends over time and make possible a richer analysis that can address a new set of questions around income mobility and the persistence of low-income. For example:

- If 20% of New Zealand children are identified as poor in a given year, what proportion of these stay poor over several years or even longer, and for how many is the low income experience 'just' a temporary one?
- How much does the household income of individuals change over time? Do most people remain in much the same relative position over 5-10 years, or do most move quite a lot?
- How does income mobility in New Zealand compare with mobility in other countries?
- Higher income inequality is sometimes seen as more tolerable if there is reasonably high income mobility. How much does income mobility reduce single-year income inequality when inequality is measured for incomes averaged over increasing numbers of years?

Source of the SoFIE analysis used in this section

The SoFIE figures used in this section are based in the main on the analysis recently published in Carter and Imlach Gunasekara (2012). [This source document is referred to as UO from here on.] This is the first time that findings of this sort have been available for New Zealand. A few tables and findings in this section are based on unpublished SoFIE analysis kindly provided by the UO authors. The international comparisons and some secondary analysis are from other sources as noted.

This section includes:

- A brief description of the SoFIE data and some of its limitations to be aware of when interpreting the findings.
- An outline of the different ways in which income mobility is conceptualised and measured.
- Findings on income mobility with international comparisons.
- An outline of the different ways in which low-income persistence / poverty dynamics is conceptualised and measured.
- Some findings on low-income persistence and the relationship between cross-sectional (current) poverty rates and poverty rates from a longitudinal perspective.

The SoFIE data

The initial SoFIE sample in wave one (2002-03) comprised around 11,500 households and almost 30,000 respondents (22,000 aged 15+). By wave seven (2008-09), just under 14,000 adults (over 15 years) were left, 66% of those in wave one. The overall attrition rate (63% remaining after

seven waves) is comparable to other similar international longitudinal surveys such as Australia's HILDA (69%) and the UK's BHPS (67%).

The analyses in UO use a 'balanced panel' made up of SoFIE participants who were eligible at wave 1 and who responded in all seven waves, giving a usable sample of just under 19,000.

Three features of the SoFIE data have implications for the interpretation of the findings reported in UO and in this section:

- Unweighted sample numbers are used for all the analysis. The attrition noted above was greater among Maori, those with low income and sole parents.[157] This can lead to attrition bias. To partially address the potential bias issues arising from attrition, longitudinal surveys generally use longitudinal weights to adjust the sample back to the original sample composition. Unfortunately, no suitable longitudinal weights were available for the analysis reported in UO. This means, for example, that median and mean incomes will be over-estimated and the estimated proportion with low incomes will be under-estimated more and more in later waves
- The income measure used is gross equivalised household income – that is, household income from all sources before the deduction of income tax but including all reported transfers and Working for Families tax credits, adjusted for household size and composition. For the analysis of the distribution of income and especially for low-income (poverty) analysis, disposable equivalised household income is the standard income measure used – that is, household income from all sources less income tax, adjusted for household size and composition. Households are ranked a little differently when using gross and disposable incomes as the total household tax deduction depends on the way the household income is distributed across adult household members. Income tax is higher, for example, for a multi-adult single earner household than for a multi-adult multi-earner household with the same gross income. It also means that the usual 50% and 60% of median low-income or poverty thresholds give different proportions as 'poor' than when using disposable (after tax) household income. The 50% measure gives a population low-income rate of around 15% on average over the seven waves, and the 60% measure gives an average of 24%, compared with 12% and 18% using disposable household income.
- In common with all income surveys there is measurement error. This is especially the case for the bottom income decile (see Appendix 8 for information on this for the HES).

These features have three main implications for interpreting and using the findings reported in this section:

- The figures here and in the source do not support highly detailed conclusions, for example for population groups or for small changes from wave to wave. The findings reported in this section are kept at a high enough level to ensure that the figures are robust enough to support them.
- It is preferable to look at the poverty persistence findings using the 50% of median figures for gross household income as these are closer to the more usual poverty figures reported than are the ones using the 60% of median gross household income (which in effect look at the lower quartile).
- Transitions from decile one will have more noise associated with them than transitions from other parts of the distribution. This section does not use any of these decile one transitions per se in reaching any conclusions on income mobility or movement out of income poverty. The bottom quintile is the smallest low-income group used for that purpose.

[157] See UO Table A:1 for detail.

What is meant by income mobility and how is it measured?

The income mobility that is the focus of this section is about the changes in the equivalised (gross) household income of individuals over several years.

In broad terms, these changes can come about through changes in either the level of income of the individual or of some other adult household member, or through changes in the composition of the household itself (eg older children moving out, new children being added, changes in partnering arrangements, and so on). The impacts of the latter changes are captured through the equivalisation of the household incomes. (See Section A for information about equivalisation.)

The number of years (waves) over which changes in income are observed varies from study to study. Intra-generational studies range from shorter-term (say, 2 to 10 years) to longer-term ones which cover a greater part of a person's life-course (say, 15 to 30 years). Others look at inter-generational changes and associations where the focus is on the relationship between the income of parents and that of their children. The SoFIE study falls into the shorter-term intra-generational group with eight waves from 2002-03 to 2009-10. UO uses data from the first seven waves, 2002-03 to 2008-09.

There are several ways to conceptualise and measure income mobility.[158] The three most straightforward to describe and implement are:

- income mobility as change in relative position
- income mobility as absolute change in income – that is, change in income in real terms
- income mobility as measured by the reduction in income inequality as longer income windows are used.

The two sub-sections that follow focus on the first two approaches, relative positional change and absolute change. Inequality analysis using SoFIE data is underway but has not yet been published. Some international analysis from the UK and Australia is available.[159]

Income mobility as change in relative position

To describe changes in relative position individual survey participants are first ranked by their household income, then they are grouped into quantiles (eg quintiles, deciles or even smaller categories). Transitions between quantiles from one wave to the next or to later waves can then be derived.

When looking at the whole population, not everyone can be upwardly mobile on the relative position definition. In the aggregate, income mobility on this approach is close to a zero-sum analysis: for every person who moves up at least one moves down, and so on.[160] For a population group, however, the analysis is not necessarily zero sum provided the quantiles used are those of the population as a whole, as they are in this section. A further factor to take into account is that the relative sizes of population groups may change over the course of a longitudinal study.

Some of those who are reported as changing quantiles will have moved from just under (over) a quantile boundary to just over (under) it – these are the boundary hoppers. The actual change in income from one wave to the next for these people may be quite small. In fact, some who remain within the quantile will have had a greater change in income than the boundary hoppers, but this larger change is not reflected in the quantile change statistic on the relative position approach.

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158 See Jenkins (2011) for a recent and comprehensive discussion of these and other approaches using British data (BHPS).

159 See, for example, Table 4.4 in Wilkins (2014) for analysis based on HILDA data.

160 It is rare that the number of rises is exactly the same as the number of falls. Consider for example the situation where a person moves from decile one in wave one to decile ten some waves later. If that person were the only one with a change in income, then one goes up and nine go down in relative position. With a large sample and the usual employment, wage and demographic changes that occur over several years, the movements are such that the number of rises is usually fairly close to the number of falls.

Within the change-in-relative-position approach, one way to provide estimates of positional (im)mobility, taking into account the boundary hopper possibilities and measurement error, is to report on positional change as transition from, say, a given quintile in one wave to a position in a later wave which is either in the same quintile or in the decile either side, where this is possible. Another way of addressing the issue is to examine changes in real incomes per se rather than positional changes relative to the rest.

Income mobility as change in real income

Change in real income over several waves is a very useful indicator of income mobility, reflecting some aspects of change that the relative approach misses. For example, in contrast to the positional change approach, an increase in income for everyone counts as upward mobility even if all relative positions are unchanged. In the relative approach, this scenario would be reported as zero mobility. It is not a zero sum analysis and it is not susceptible to the boundary hopper issue that can arise in the relative position approach.

Benchmarks for high, medium and low relative mobility?

There is no single statistic that can satisfactorily summarise the degree of relative income mobility nor any simple set of statistics that can cover the range of questions that different users may wish to put to the data.

Nor is there any commonly accepted benchmark of what is 'high' mobility and what is 'low' mobility.

Countries that have long-running longitudinal studies are able to compare mobility in recent years with mobility a decade or more ago in their own population. New Zealand is not in that position. The best that we can do for New Zealand on this matter is to:

a) compare ourselves with other countries, using quintile or decile transitions over time periods of similar length

b) compare the relative movement of various sub-populations within New Zealand to identify those more mobile and those less so

c) decompose mobility into 'immobility', and 'short-range' and 'longer-range' upward and downward mobility.

Selected findings on income mobility

Wave-on-wave mobility (changes in relative position), with international comparisons

The focus of the analysis in this section is on the changes over the full seven-wave window that the UO SoFIE data covers, with some shorter windows used at times to facilitate international comparisons. These multi-year net changes reflect the cumulative effect of repeated short-run changes from one wave to the next.

Table L.1 shows the average movement from one wave to the next for the six wave pairs w1/w2, w2/w3, and so on.[161]

Individuals are ranked by their household's income in one wave then grouped into quintiles. For the next wave the same individuals are again ranked and allocated to quintiles according to their household's new income at that time. For each quintile in the first wave the percentage of individuals ending up in each of the quintiles in the next wave is calculated. For example, two thirds (65%) of those in the lower quintile remain there on average from one wave to the next, 23% move up to the second quintile, and so on. The cells on the diagonal (shaded) show the proportion remaining in the same quintile across the period.

Table L.1
Income quintile transition probabilities (%) for one wave to the next:
averages over all 6 wave pairs, 2002 to 2008, all respondents

		Quintile in wave (i+1)				
		1	**2**	**3**	**4**	**5**
Quintile in wave(i)	**1**	**65**	23	7	3	2
	2	20	**52**	20	5	2
	3	7	17	**50**	21	5
	4	4	6	18	**54**	19
	5	3	3	6	17	**72**

Source: Table 4 in UO

On average, 41% of the whole SoFIE sample moved to a new quintile between wave pairs – that is, 59% remained in the same quintile in the next wave.

A comparison is available for selected European countries. Nolan and Erikson (2007) use longitudinal data from the European Community Household Panel (ECHP) for most of the EU-15 countries[162] and report that on average 55% remained in the same quintile from wave 1 to wave 2. At this very high level, at least, New Zealand's mobility / immobility is similar to that in other more economically developed countries (MEDCs).

This general finding is supported at several places in the rest of this section.

161 Table L.1 shows the average for the six two-wave pairs. The proportions are in fact very similar for each of the two-wave pairs.

162 The EU-15 countries are those who were EU members prior to the enlargement in 2004. Nolan and Erickson (2007) report on 12.

Quintile transitions over the seven SoFIE waves, with international comparisons

The focus now moves to looking in more detail at the changes that occur over multi-wave windows, especially the full seven-wave window that the current release of SoFIE data allows.

Figure L.1 shows that as the income window increases mobility increases (and immobility decreases), as one would expect. By w7, 60% have moved from their original quintile, 40% remain in the same one. The upper quintile has the least mobility with just over half (54%) of those in Q5 in w1 being there again in w7.

Figure L.1
Proportion who move from their original quintile over the seven SoFIE waves: all in sample

Source: Author's calculations based on unpublished decile transition tables provided by UO authors.

Figure K.1 makes it look as if there is a very large amount of movement between w1 and w2, much more than for later transitions. The reason for the difference is that whatever wave is taken as w1, the w1 to w2 transition is different from any other transition in that in all the others it is possible to return to the quintile or decile of origin (w1), whereas this is not logically possible for the w1/w2 transition. For a w1/w2 transition, an individual either stays or moves – they cannot 'return' to w1.

Table L.2 shows the w1 to w7 transitions by initial location in the income distribution (and repeats some of the information shown in Figure L.1). For example, the first row in Table K.2 shows that 45% of those in the lowest income quintile in w1 were still there in w7, 29% had moved up to the second quintile and so on. The cells on the diagonal (shaded) show the proportion remaining in the same quintile across the period.

Table L.2
Income quintile transition probabilities (%) from w1 to w7, SoFIE: 2002 to 2008, full sample

		Quintile in w7 (2008)				
		1	2	3	4	5
Quintile in w1 (2002)	1	**45**	29	14	9	4
	2	25	**35**	23	12	5
	3	13	18	**31**	26	11
	4	9	11	21	**34**	25
	5	7	7	12	20	**54**

Source: Table 5 in UO

Table K.3 shows the same types of transitions for Australia based on their HILDA survey. There are strong similarities between Tables K.2 and K.3. The only difference of note is that New Zealand seems to have more mobility out of the lower quintile than Australia does, 55% compared with 42%. It is not clear on the evidence available whether this difference is 'real' or simply a

product of different methodologies (eg gross rather than disposable income, and unweighted rather than weighted data). What is clear is the remarkable similarity at all other points.

Table L.3
Income quintile transition probabilities (%) for Australia, using HILDA, 2001 to 2008, whole population

		Quintile in w8 (2008)				
		1	2	3	4	5
Quintile in w1 (2001)	1	**58**	23	10	5	4
	2	27	**33**	21	15	6
	3	14	21	**30**	23	13
	4	9	12	21	**34**	24
	5	4	8	15	22	**51**

Source: Table 6.6 in Wilkins et al (2011)

Table L.4 shows that income mobility in New Zealand is similar to that in Canada over a five-wave window, with the same exception as for the comparison with Australia.

Table L.4
Comparison of relative (positional) income mobility in Canada and New Zealand: transition probabilities (%) to higher and lower quintiles, w1 to w5, full sample

		New Zealand (2002-06)		**Canada** (2005-09)	
		to a higher quintile in w5	to a lower quintile in w5	to a higher quintile in w5	to a lower quintile in w5
Quintile in w1	1	51	0	43	0
	2	37	24	41	20
	3	35	30	34	29
	4	24	36	24	38
	5	0	40	0	40
	Avg	29	26	28	25

Source: Table A.3 in the UO Appendix, and Table 3 in Statistics Canada (2011).

Table L.5 provides further international comparison (with EU countries this time) showing again that income mobility over 5 waves in New Zealand is very similar to that in other MEDCs.

Table L.5
Income quintile transition probabilities (%) for w1 to w5, EU-15 and New Zealand: whole population

		Most of EU-15	**NZ**
Quintile in w1	**1**	50	49
	2	'generally about one third'	39
	3		36
	4		40
	5	60+	61
	Avg	40-45	45

Sources: Nolan and Erikson (2007) for EU figures
Author's calculations based on unpublished decile transition tables provided by UO for the NZ figures

Note: EU-15 are the pre-2004 members of the European Union

Decile transitions over the seven SoFIE waves, with international comparisons

Table L.6 repeats Table K.2, this time using deciles. Table L.6 is more fine-grained and used on its own or together with Table K.2 it can provide a more textured picture of income mobility and immobility. While it is more susceptible to issues arising from regression to the mean and to overstated mobility arising from boundary hoppers, with a little care it is a valuable analytical tool. One of the most notable features of Table K.6 is the very high immobility in decile 10, the highest decile: almost half of those who were there in w1 are there again in w7. This contrasts strongly with the middle deciles which experience much more mobility. Even though the lower three deciles and decile 8 have somewhat less mobility than the middle deciles, they are still relatively mobile compared with those starting in decile 10.

Table L.6
Income decile transition probabilities (%) from w1 to w7:
2002 to 2008, all respondents

		Decile in w7 (2008)									
		1	2	3	4	5	6	7	8	9	10
Decile in w1 (2002)	1	**24**	21	14	13	7	6	6	4	3	3
	2	18	**27**	19	12	9	6	4	3	1	1
	3	10	20	**24**	15	11	10	5	3	3	1
	4	9	11	14	**17**	14	12	9	7	5	2
	5	8	6	8	13	**19**	17	11	10	6	3
	6	7	5	6	9	14	**15**	18	13	8	6
	7	6	4	6	6	9	15	**17**	17	13	8
	8	5	4	4	6	9	9	15	**19**	19	10
	9	5	2	4	5	5	9	10	15	**26**	20
	10	5	3	2	3	5	4	6	10	17	**46**

Source: Unpublished table provided by UO.

International comparisons are available using decile transitions. They provide further support for the finding that at the population level, the overall degree of income mobility for New Zealand appears to be very similar to that for other MEDCs.

Chen (2009) gives comparisons for Canada, the USA, Germany and Great Britain using two measures based on a five-wave window, one of immobility and one of upward mobility. In **Figure L.2** and **Figure L.3** these statistics are replicated for New Zealand (albeit on gross rather than disposable income), and on these comparisons New Zealand's mobility picture is again very similar to these other MEDCs.

Figure L.2
Immobility: in same decile in w5 as in w1

Figure L.3
Upward mobility, at least one decile up, w1 - w5

Source: Figs 2 & 3 in Chen (2009), and Table A.3.

For Great Britain Jenkins (2011, Table 5.1) reports that for 1991-1998 (using BHPS data) 54% remained in the same decile as they started in or were in an immediately adjacent decile. Jenkins refers to this as an 'immobility index'. The New Zealand figure for seven waves was 53%.

Table L.7 repeats Table L.6, this time limiting the respondents to those aged under 58 years. By removing those who were aged 58+ in wave one, the impact on the reported transitions of those whose incomes drop significantly when they 'retire', and of those aged 65+ on relatively fixed incomes, is eliminated. The deciles used in Table L.7 are population deciles, not the deciles for the group aged under 58 years. The main impact of removing those aged 58+ is on deciles 2 and 3 (higher percentage of those under 58 years move out). A slightly higher proportion remain at the top (deciles 9 and 10).

Table L.7
Income decile transition probabilities (%) from w1 to w7:
2002 to 2008, respondents aged 0-57 years in w1

		Decile in w7 (2008)									
		1	2	3	4	5	6	7	8	9	10
Decile in w1 (2002)	1	**26**	18	13	13	7	6	6	4	3	4
	2	22	**18**	16	14	11	6	6	4	1	1
	3	12	13	**16**	18	14	13	6	4	4	2
	4	10	9	11	**17**	15	14	11	7	6	2
	5	9	5	8	12	**19**	17	11	11	6	3
	6	8	3	6	9	13	**14**	18	14	9	6
	7	7	3	4	6	9	14	**17**	18	14	9
	8	6	3	3	6	9	9	15	**19**	20	11
	9	5	2	3	5	5	8	10	15	**27**	22
	10	5	2	2	3	4	4	6	10	16	**47**

Source: Unpublished table provided by UO.

Based on the decile transition table for those aged 0-57 years in wave one:

- of those starting in deciles 1-3, just over half were still there in wave 7, a quarter had moved up to deciles 4 and 5, and a quarter into the top half (deciles 6-10)
- of those starting in the middle of the income distribution (deciles 4-6), 43% were still there in wave 7, 35% had moved up to deciles 7-10, and 23% had moved down.
- of those starting in the top decile, 63% were still there or were in decile 9 in wave 7.

Income mobility as change in real income ('absolute' mobility)

Income mobility can also be looked at in terms of changes in real (CPI-adjusted) income. On this basis it was found that (during a period when cross-sectional incomes were growing on average for all deciles):

- 20% of those starting in the lowest quintile experienced a net decrease in real income over the 7 waves, 30% doubled their income, and the remaining 50% all experienced real increases of substance, albeit less than double
- overall, 38% experienced real declines, and for a third of these the decline was significant (40%+)
- for the middle quintile, two in three (64%) experienced a real increase in income, and the increase for two thirds of these was greater than 20%
- 60% of those in the top quintile (Q5) in w1/w2 and almost half (47%) of those in Q4 experienced real decreases, with most of these experiencing decreases of more than 20%.

What is meant by low-income persistence (poverty persistence) and how is it measured?

In order to capture the different aspects of individuals' low-income experiences from a longitudinal perspective and to do so in a manageable way, a range of taxonomies and categorisations are used in different studies and reports. In this report three approaches are used:

- number of waves in low income in a given window
- proportion of individuals in low income in w1 who are in low income in subsequent waves
- comparison of average income with the average poverty line over the full 7 waves to produce 'chronic' low-income figures.

The first two approaches are self-explanatory and straightforward to understand. One of their limitations however is that they cannot distinguish between those on the one hand who move out of low income and go well above the line and those on the other hand who go from just below the line to just above it and vice versa (the boundary hoppers).

One way to get a better understanding of these movements and to deal with the issue of boundary hoppers is to look at people's average income over the seven waves and to compare that with the average low income (poverty) line over the seven waves. People whose average income is below the average low income (poverty) line over the seven waves are said to be in chronic low income (poverty).

Figure L.4 uses a stylised approach to illustrate the chronic poverty concept. Both households represented in the diagrams are in (current) poverty for 2 waves out of the 7. Household A in the left-hand graph is in chronic poverty, but household B on the right is not. The window used does not have to be 7 waves. It could for example be 4 waves, and if the survey has a long enough life, a trend in the relationship between current and chronic poverty can be established.

Figure L.4
Stylised diagram showing the value of the chronic low-income concept for summarising multi-wave poverty

By examining the relationship between those in chronic poverty and those in current poverty in each wave, a useful set of findings emerges that has value in itself, but which also allows us to look at cross-sectional income poverty findings with longitudinal eyes.

Selected findings on low-income persistence (poverty persistence)

Some of the findings in the income mobility section above are relevant in this one too (for example, the ones under Table L.7 above on the destination after 7 waves of those starting in deciles 1-3).

Number of waves in low income (poverty)

Figure L.5 shows the cumulative number of waves that people were in low income (poverty) over the seven waves, using both the 50% and 60% of gross median thresholds.

Figure L.5
Cumulative number of waves in low income, whole population

Source: Derived from Tables 8 and 9 in UO.

(As discussed above, it is preferable to use the figures generated using the 50% of gross median threshold when looking at income poverty persistence.) Although only a very small proportion were in poverty for all 7 waves (2%), Figure K.5 shows that 40% of the population experienced income poverty at least once in seven the seven waves. This means that more than double the number who are reported as in poverty in any one wave (15%) actually experience poverty at least once in the seven waves.

Findings of this sort are very common across countries like Australia, Canada, the UK, Germany and others in the OECD. It arises from the fact that in any wave, out of those who are identified as poor or in low income there are two groups: those who are more permanently in low income, and those who are only temporarily or sometimes in low income. This latter group becomes quite sizeable over seven waves and produces the finding above. The section below on chronic low income picks up on this theme.

Proportion in low income in w1 who are found in low income in subsequent waves

Table K.8 uses the bottom quintile to define low income, and shows the proportion still in low income in subsequent waves. Just under half (45%) are still in or are back in low income after 7 waves and just over half (55%) have moved up.

Table K.8
Persistence of low income for those in low income in a starting wave:
(low income = in bottom income quintile), all respondents

		In low income in this subsequent wave					
		w2	w3	w4	w5	w6	w7
In low income in this starting wave	w1	62	57	51	49	46	45
	w2	-	65	-	-	-	-
	w3	-	-	66	-	-	-
	w4	-	-	-	66	-	-
	w5	-	-	-	-	66	-
	w6	-	-	-	-	-	66

Source: Author's calculations based on unpublished tables provided by UO.

Chronic low income

Counting the number of waves for which people are below a given poverty line is a straightforward approach but it clearly has limitations, and can be misleading in the impression it leaves. For example, the fact that so few remain in poverty for all or all but one of the seven waves can point to the conclusion that mobility is sufficient to address most concerns that are raised by cross-sectional low-income issues. As this "chronic poverty" section will show, this is not the case. The main limitation of the number-of-waves approach is that it does not pick up those whose incomes fluctuate from below to just above the line, and vice versa.

One way to address the issue of how best to report on poverty persistence, given that for many households their incomes fluctuate from just above to just below the poverty line and vice versa, is to look at people's average income over the seven SoFIE waves and to compare that with the average poverty line over the seven waves. People whose average income is below the average poverty line over the seven waves are said to be in chronic poverty.

By examining the relationship between those in chronic poverty and those in current poverty in each wave, a useful set of findings emerges that allows us to look at cross-sectional income poverty findings with longitudinal eyes.

To be in chronic low income, an individual's average household income over the seven waves must be less than the average low-income rate over that time (see Figure L.4 above). **Table L.9** compares the current and chronic poverty rates for the whole population, children and Maori. The chronic poverty rate is typically around 80% of the current poverty rate, a little higher for Maori.

Table L.9
Current and chronic low-income rates

	current (%)	chronic (%)
50% of gross median		
whole population	15	11
children(0-11 yrs in w1)	19	16
60% of gross median		
whole population	26	21
children (0-17 yrs in w1)	29	24
Maori	36	32

However, those in chronic poverty do not form a subset of those in current poverty in a given wave. **Figure L.6** below summarises the relationship between current and chronic low income. Some who are in current poverty in a particular wave are not in chronic poverty. Similarly, some who are in chronic poverty are not in current poverty each wave.

Figure L.6
Current and chronic poverty:
the chronic oval (on the right) is around 70-80% the size of the current oval (on the left), but not all in the chronic oval are in the current oval

Table L.10 summarises the rate and composition figures for current and chronic poverty. A straightforward way to read the table (for the 50% gross rows) is:

- for the population as a whole: out of every 100 in current poverty at any time 50 are also in chronic poverty, and in addition another 20 not in current poverty are in chronic poverty
- for children, out of every 100 in current poverty at any time 60 are also in chronic poverty, and in addition another 20 not in current poverty are in chronic poverty.

Table L.10
Composition for current only, chronic only and both, and rates for current (total) and chronic only

	composition (% of current)			rate (as % of group)	
	current only	overlap	chronic only	current (total)	chronic only
Whole population					
60% gross	35	65	+15	26	4
50% gross	50	50	+20	15	4
Children					
60% gross (0-17, w1)	35	65	+18	29	5
50% gross (0-11, w1)	40	60	+20	18	4
Maori					
60% gross	25	75	+16	36	6

The SoFIE has run its course and New Zealand does not have a longitudinal survey that collects income data that will allow further analysis as above. The SoFIE findings do however allow us to look at and interpret cross-sectional rates with longitudinal eyes:

- in any wave, around half are in both chronic poverty and current poverty, the other half being only in current poverty (ie more temporary or transient poverty)
- the people in this more transient group change a lot over seven waves which is why it turns out that the number in low income at least once in seven waves is around double the number in low income at any one time (see above)
- in addition to those identified as being in current poverty in a wave there is another group who are in chronic poverty but not in current poverty
- chronic poverty rates are around 70% of the cross-sectional rates for the population as a whole and more like 80% for children
- very similar findings have been produced for the UK and Australia.

This picture is in some ways similar to the one we have for the beneficiary population. At any given time, a majority of those on benefit will have been on benefit for many years. A smaller number are new entrants or fairly temporary recipients. Over several years the number who have been on benefit at any time is much greater than the number on benefit at a particular point in time because of the cumulative effect of these temporary recipients.

The number-of-waves-in-poverty approach can easily lead to an overly optimistic view of the ability of income mobility to resolve low-income issues for the bulk of low-income households.

Section M
Wealth

Wealth is a key component of a household's economic resources as discussed in the Introduction (Section A).[163] For example, households with low incomes but relatively high wealth levels are able to achieve higher actual living standards than low-income households with low wealth levels. In practice, especially for working-age households, income and wealth are reasonably (but far from perfectly) correlated. Most who are counted as income poor also have negligible financial assets and very low net worth.

In OECD countries, the measurement of wealth is not as developed as wage and income measurement, but the OECD now has some official figures for some countries available using a reasonably harmonised approach

Building on the experience of the Luxembourg Income Study (LIS), a group of researchers and institutions is developing the Luxembourg Wealth Study (LWS), an international project to assemble unit record data on household wealth into a coherent database.

The other source of international comparisons comes from the Credit Suisse project as reported in their Global Wealth Databook (Davies et al, 2015).

The HILDA datasets from Australia also have very useful wealth information (Wilkins, 2014, 2016).

Wealth inequality

Wealth is distributed much more unequally than income (especially disposable income after tax and transfers). As shown in **Figure M.1**, in New Zealand in 2003-2004 the top wealth decile accounted for around 50% of the total wealth, whereas the top income decile accounted for 25% of the total income (see Figure B.4). The Gini for income in 2003-04 was 32, and the wealth Gini was 69. This degree of wealth inequality is not greatly different to what prevails in many other OECD countries (see below for details). The net worth module in the 2015-16 HES has produced very similar findings.[164]

Figure M.1
Wealth and income distribution in New Zealand, 2003-2004: cumulative frequency (%)

Source: Wealth data is from unpublished New Zealand Treasury analysis of wave 2 (2003-2004) of Statistics New Zealand's Survey of Family, Income and Employment. Income data is from the 2003-2004 HES.

Note: The income sharing unit for the incomes analysis is the household. The distribution is of individuals according to their household's income For the wealth analysis the sharing unit is the EFU ('family'). The wealth graph would be slightly differently shaped using the household as the sharing unit, but the finding that wealth inequality is much higher than income inequality is robust.

163 A household's wealth or 'net worth' is its total assets (financial and non-financial) less its total liabilities (mortgage and other home-secured debt, vehicle loans, credit card and instalment debt, educational loans, loans from financial institutions, informal debt, and so on).

164 See http://www.stats.govt.nz/searchresults.aspx?q=net%20worth%20wealth for the latest from StatsNZ.

International comparisons of wealth inequality

Table M.2 shows some of the findings from the OECD wealth database – the share of total wealth held by the top wealth decile for fourteen OECD countries with New Zealand ranked based on SoFIE (2003-04) and HES (2014-15) data which give similar results.

Wealth inequality in New Zealand is not greatly different to what prevails in many other OECD countries, close to Canada and France but a little more unequal than Australia and the UK on this measure.

Table M.2

Wealth inequality: shares of total wealth held by the top wealth decile (%)

USA	76
Austria	62
Netherlands	60
Germany	59
Portugal	53
New Zealand	52
Canada	50
France	50
Norway	50
UK	47
Finland	45
Australia	45
Italy	44
Spain	43
Greece	39

Sources: OECD Wealth database, accessed on 30 August, 2016. For New Zealand, the source is Statistics New Zealand (2007), analysis based on the Survey of Family, Income and Employment (2003-04), and Statistics New Zealand's analysis of the 2014-15 HES.

Wealth mobility: changes over several years using HILDA data

Australia's longitudinal Household, Income and Labour Dynamics in Australia survey (HILDA) can report on changes in the wealth of the household that individuals were in in 2010 compared with their situation in 2002.[165]

Wilkins (2014) reports that:

- 59% of those in the top wealth decile in 2002 were still in the top wealth decile 8 years later, and 77% were still in one of the top two deciles. There is therefore good evidence of wealth persistence, at least over the relatively short term.
- Those who entered the top decile over the eight years before 2010 are slightly more likely to come from lower down the wealth distribution than where those who exit the top decile fall to. For example, 9% in the top decile in 2010 came from deciles 1-5 in 2002, whereas only 5% of those in the top decile in 2002 were in deciles 1-5 in 2010.

[165] Wealth data is collected each four years in the HILDA: 2002, 2006, 2010 and 2014. The analysis reported on this page from Wilkins (2014) is not updated for 2014 in Wilkins (2016).

References

Alcock, P. (1993). *Understanding Poverty*, London: Macmillan

Alvaredo, F. (2010). 'A note on the relationship between top income shares and the Gini coefficient', Economics Letters, Manuscript Draft.

Alvaredo, F., Atkinson, A., Piketty, T & Saez, E. (2012). 'The World Top Incomes Database', http://g-mond.parisschoolofeconomics.eu/topincomes, 12/08/2012

Atkinson, A.(1970*).* "On the Measurement of Inequality". *Journal of Economic Theory* 2: 244–63.

Atkinson, A. (1989). *Poverty and Social Security, Hemel Hempstead: Harvester Wheatsheaf.*

Atkinson, A. (2007). 'Measuring Top Incomes: Methodological Issues, in Atkinson and Picketty (2007) *Top Incomes over the Twentieth Century*, Oxford: Oxford University Press.

Atkinson, A., Piketty, T & Saez, E. (2011). 'Top incomes in the long run of history', *Journal of Economic Literature,* 49(1), 3-71.

Australian Bureau of Statistics (2013a). *Household Income and Income Distribution*, Canberra: ABS

Australian Bureau of Statistics (2013b). *Household Wealth and Wealth Distribution*, Canberra: ABS

Australian Bureau of Statistics (2015). *Household Income and Wealth, Australia, 2013-14*, Canberra: ABS.

Australian Bureau of Statistics (2019). *Household Income and Wealth, Australia, 2017-18*, Canberra: ABS.

Aziz, O., Gibbons, M., Ball, C., & Gorman, E. (2012). 'The effect on household income of government taxation and expenditure in 1988, 1998, 2007 and 2010', *Policy Quarterly*, 8(1), 29-38.

Ball & Creedy (2015). 'Inequality in New Zealand 1983/84 to 2013/14.' New Zealand Treasury Working Paper 15/06, Wellington.

Ballantyne, S., Chapple, S., Mare, D., & Timmins, J. (2004), 'Triggering movements into and out of child poverty: a comparative study of New Zealand, Britain and West Germany', *Social Policy Journal of New Zealand*, (23), 83-96.

Berthoud, R., Blekesaune, M., & Hancock, R. (2006). 'Are 'poor' pensioners 'deprived'?' Research Report # 364, Department for Work and Pensions.

Boarini, R., & Mira d'Ercole, M. (2006). 'Measures of Material Deprivation in OECD Countries.' Social, Employment and Migration Working Paper # 37, OECD, Paris .

Bradbury, B. (2003), 'Child Poverty: a Review.' Report 3/03, Social Policy Research Centre, University of New South Wales.

Bradshaw, J., Middleton, S., Davis, A., Oldfield, N., Smith, N., Cusworth, L.,& Williams, J. (2008), *A Minimum Income Standard for Britain: What people think*, Joseph Rowntree Foundation, York.

Brewer, M., Goodman, A., Muriel, A., & Sibieta, L. (2007), 'Poverty and Inequality in the UK: 2007.' Institute for Fiscal Studies Briefing Note No. 73, London.

Brewer, M., Goodman, A., Myck, M., Shaw, J., & Shepherd, A. (2004). 'Poverty and Inequality in Britain: 2004.' Commentary 96, Institute for Fiscal Studies, London.

Brewer, M., O'Dea, C., Paull, G. & Sibieta, L. (2009). 'The Living Standards of Families with Children Reporting Low Incomes', DWP Research Report no. 577, London: Department for Work and Pensions.

Brewer, M., Etheridge, B., O'Dea, C. (2017). 'Why are households that report the lowest incomes so well off?', *The Economic Journal* (F24-F49).

Carey, D. (2015). 'Making New Zealand's economic growth more inclusive', OECD Economics Department Working Papers, No 1256, OECD, Paris.

Carter, K. & Imlach Gunasekara, F. (2012). 'Dynamics of Income and Deprivation in New Zealand, 2002-2009. A descriptive analysis of the Survey of Family, Income and Employment (SoFIE).' Public Health Monograph Series No. 24. Wellington: Department of Public health, University of Otago, Wellington.

Carver, T. & Grimes, A. (2016), 'Income and consumption: Which better predicts subjective wellbeing?' Motu Working Paper 16-12, Motu Economic and Public Policy Research, Wellington.

Chen, W. (2009), 'Cross-national differences in income mobility: evidence from Canada, the United States, Great Britain and Germany', *Review of Income and Wealth* 53 (1), 75-100.

Citro, C. F., & Michael, R. T. (eds) (1995). *Measuring Poverty: A New Approach.* Washington, DC: National Academy Press.

Cobham, A. & Sumner, A. (2013), 'Is it all about the tails? The Palma measure of inequality.' Working Paper 343, Center for Global Development.

Crawford, R., & Johnston, G. (2004), 'Household incomes in New Zealand: the impact of the market, taxes and government spending, 1987/88 to 1997/98.' New Zealand Treasury Working Paper, 04/20.

Creedy, J. & Tuckwell, I. (2003), 'Reweighting the New Zealand Household Economic Survey for Tax Microsimulation Modelling.' New Zealand Treasury Working Paper 03 -33.

Creedy, J & Eedrah, J (2014) 'The role of value judgments in measuring inequality'. New Zealand Treasury Working Paper 14-13.

Davies, J., Lluberas, R. & Shorrocks, A. (2015), *Credit Suisse Global Wealth Databook 2015,* Zurich: Credit Suisse Group AG.

Department for Work and Pensions (2004), *Measuring Child Poverty*, DWP.

Department for Work and Pensions (2013), *Households Below Average Income 1994/95 - 2011/12* Leeds: Corporate Document Services.

Department for Work and Pensions (2013), *Households Below Average Income 1994/95 - 2011/12* Leeds: Corporate Document Services.

Dixon, S. (1998), 'Growth in the dispersion of earnings: 1984-1997', *Labour Market Bulletin*, 71-107.

Doyal, L. & Gough, I. (1991), *A Theory of Human Need*. Basingstoke: Macmillan.

Easton, B. (1995a), 'Poverty in New Zealand, 1981 to 1993', *New Zealand Sociology*, *10* (2), 182-214.

Easton, B. (1995b), 'Properly assessing income adequacy in New Zealand', *New Zealand Economic Papers*, *29* (1), 89-102.

Easton, B. (1996), 'Income distribution', in B. Silverstone, A. Bollard, & R. Lattimore (eds), *A Study of Economic Reform: The Case of New Zealand*. Amsterdam: Elsevier.

Easton, B., & Ballantyne, S. (2002), 'The economic and health status of households.' Wellington School of Medicine**.**

Eurostat (2005), 'Material Deprivation in the EU.' Statistics in Focus - Population and Social Conditions, 21/2005, Eurostat, Luxembourg.

Eurostat (2008), *Living Conditions in Europe*. Luxembourg: European Commission.

Eurostat (2009), *Key Figures on Europe*. Luxembourg: European Commission.

Expert [Canberra] Group on Household Income Statistics (2001). 'Final Report and Recommendations.' Canberra Group, Ottawa.

Fahey, T., Nolan, B., and Maître, B. (2004), *Housing, Poverty and Wealth in Ireland*. Dublin : Combat Poverty Agency.

Fahey, T. (2007), 'The case for an EU-wide measure of poverty', *European Sociological Review*, 23(1), 35-47

Figari, F. & Paulus, A. (2013), 'The distributional effects of taxes and transfers under alternative income concepts : the importance of the three 'I's'. EUROMOD Working Paper No. EM15/13.

Figari, F., Paulus, A., Sutherland, H., Tsakloglou, P., Verbist, G., Zantomio, F. (2012), 'Taxing home ownership: Distributional effects of including net imputed rent in taxable income.' IZA Discussion Paper No. 6493, Bonn.

Figari, F., Iacovou, M., Skew, A., & Sutherland, H. (2010), 'Approximations to the truth: comparing survey and microsimulation approaches to measuring income for social indicators.' Institute for Social and Economic Research Working Paper 2010-13.

Förster, M., Llena-Nozal, A., & Nafilyan, V. (2014). 'Trends in top incomes and their taxation in OECD countries', OECD Social, Employment and Migration Working Papers, No 159, OECD, Paris.

Fuchs, V. (1967), 'Redefining poverty and redistributing income', *The Public Interest* (8), 88-95.

Gordon, D. & Townsend, P. (eds) (2000). *Breadline Europe.* Bristol: Policy Press.

Guio, A.-C., Gordon, D., Najera, H. and Pomati, M. (2017), "Revising the EU material deprivation variables (analysis of the final 2014 EU-SILC data)", Final report of the Eurostat Grant "Action Plan for EU-SILC improvements".

Hills, D et al (2010) An Anatomy of Economic Inequality in the UK.

Hyslop, D., & Maré, D. (2001). 'Understanding changes in the distribution of household incomes in New Zealand between 1983-86 and 1995-98.' New Zealand Treasury Working Paper 01/21.

Hyslop, D., & Yahanpath, S. (2005). 'Income growth and earnings variations in New Zealand, 1998-2004.' New Zealand Treasury Working paper 05/11.

Iceland, J. (2000), 'The family/couple/household unit of measurement in poverty estimation',

Journal of Economic and Social Measurement, *26*, 1-13.

Iceland, J. & Bauman, J. (2007). 'Income poverty and material hardship: How strong is the association?, *The Journal of Socio-Economics 36* (3): 376-96.

Jantti, M., Sierminska E. and Smeeding T. (2008), "The Joint Distribution of Household Income and Wealth: Evidence from the Luxembourg Wealth Study", OECD Social, Employment and Migration Working Paper, No. 65, OECD, Paris.

Jenkins, S. (2011). *Changing Fortunes: Income Mobility and Poverty Dynamics in Britain*. Oxford: Oxford University Press.

Jensen, J., Krishnan, V., Hodgson, R., Sathiyandra, S. G., & Templeton, R. (2006), *New Zealand Living Standards 2004*, Wellington: Ministry of Social Development.

Jensen, J., Spittal, M., Crichton, S., Sathiyantra, S., & Krishnan, V. (2002), *Direct Measurement of Living Standards: the New Zealand ELSI Scale*, Wellington: Ministry of Social Development.

Johnson, A. (2018). *State of the Nation Report*. Auckland: Salvation Army Social Policy and Parliamentary Unit.

Krishnan, V., Jensen, J., & Ballantyne, S. (2002), *New Zealand Living Standards 2000*, Wellington: Ministry of Social Development.

Lister, R. (2004), *Poverty*, Cambridge: Polity Press.

Madden, K. (2014), "The heart of poverty: Matching passion with precision for struggling New Zealanders", Poverty Issues Paper, Maxim Institute, Auckland.

Maestri, V. (2012). 'Imputed rent and income re-ranking: Evidence from EU-SILC data'. Amsterdam, AIAS, GINI Discussion Paper 29.

Ministry of Social Development (2010), *Sole Parenting: An Update on Key Trends and What Helps Reduce Disdavantage*, Wellington: Centre for Social Research and Evaluation, MSD

Mowbray, M. (2001), *Distributions and Disparity: New Zealand Household Incomes*, Wellington: Ministry of Social Policy.

New Zealand Treasury (2010), *Distributional Measures in Relation to Tax Changes*: *Aide-Mémoire for Minister of Finance*, Wellington: New Zealand Treasury

Nolan, B., & Whelan, C. T. (1996), *Resources, Deprivation and Poverty*, Oxford: Clarendon Press.

Nolan, B., & Whelan, C. T. (2007), 'On the Multidimensionality of Poverty and Social Exclusion', in Jenkins, S and Micklewright, J. (eds), *Inequality and Poverty Re-examined*, Oxford: Oxford University Press.

Nolan, B., & Whelan, C. T. (2011), *Poverty and Deprivation in Europe*, Oxford: Oxford University Press

Nolan, B., W. Salverda, D. Checchi, I. Marx, A. McKnight, I.G. Tóth and H. van de Werfhorst, eds. (2013). Changing Inequalities and Societal Impacts in Rich Countries: Thirty Countries' Experiences, Oxford: Oxford University Press.

Nolan, B., M. Roser, & S. Thewissen (2016), "GDP per capita versus median household income: What gives rise to divergence over time?", Oxford INET Working Paper Series, No. 2016-03

Notten, G. & de Neubourg, C. (2011), ‘Monitoring absolute and relative poverty: “Not enough” is not the same as “much less” ‘, Review of Income and Wealth 57 (2), 247-269.

O'Dea, D. (2000). 'The changes in New Zealand's income distribution.' New Zealand Treasury Working Paper, 00/13.

OECD (2007), *OECD Economic Surveys*, Paris: OECD.

OECD (2008), *Growing Unequal: Income Distribution and Poverty in OECD countries*, Paris: OECD.

OECD (2009a), *OECD Employment Outlook 2009*, Paris: OECD.

OECD (2009b), *Pensions at a Glance 2009*, Paris: OECD.

OECD (2011a), *Doing Better for Families*, Paris: OECD.

OECD (2011b), *Society at a Glance*, Paris: OECD.

OECD (2011c), *Divided We Stand: Why Inequality Keeps Rising*, Paris: OECD.

OECD (2013), *OECD Framework for Statistics on the Distribution of Household Income, Consumption and Wealth*, Paris: OECD.

OECD (2015a), *OECD Employment Outlook 2009*, Paris: OECD.

OECD (2015b), *OECD Economic Surveys: New Zealand.* Paris: OECD.

OECD (2017a), ‘Update Report 2017- Inclusive Growth’. Paper for the Meeting of the Council at Ministerial Level, June 2017. Paris: OECD.

OECD (2017b), *OECD Economic Surveys: New Zealand.* Paris: OECD.

OECD (2017c), *Preventing Ageing Unequally*. Paris: OECD.

OECD (2019), *Under Pressure, The Squeezed Middle Class*, Paris, OECD.

Palma, G. (2011), ‘Homogeneous middles vs. heterogeneous tails, and the end of the ‘Inverted-U’: the share of the rich is what it’s all about’, Cambridge Working Papers in Economics 1111, Cambridge, University of Cambridge, Department of Economics.

Peña-Casas R., Ghailani, D., Spasova, S. and Vanhercke, B. (2019). ‘In-work poverty in Europe. A study of national policies, European Social Policy Network (ESPN)’. Brussels: European Commission.

Perry, B. (2002), 'The mismatch between income measures and direct outcome measures of poverty', *Social Policy Journal of New Zealand*, (19), 101-127.

Perry, B. (2005), 'The choice of income sharing unit for poverty measurement: household or economic family unit?' Unpublished discussion paper, Ministry of Social Development, Wellington.

Perry, B. (2009), ‘Non-income measures of material wellbeing and hardship: first results from the 2008 New Zealand Living Standards Survey, with international comparisons.’ Working Paper 01/09, Ministry of Social Development, Wellington.

Perry, B. (2017), *The material wellbeing of New Zealand households: trends and relativities using non-income measures, with international comparisons*. Ministry of Social Development, Wellington.

Piachaud, D. (1987), ‘Problems in the definition and measurement of poverty’, *Journal of Social Policy, 16* (2), 147-164.

Productivity Commission (2018), *Rising inequality? A stocktake of the evidence*, Commission Research Paper, Canberra.

New Zealand Productivity Commission (2012). *Housing affordability*. Wellington.

Salverda, W., B. Nolan, D. Checchi, I. Marx, A. McKnight, I.G. Tóth and H. van de Werfhorst, eds. (2013). Changing Inequalities in Rich Countries: Analytical and Comparative Perspectives, Oxford: Oxford University Press.

Saunders, P. (1997), 'Living standards, choice and poverty', *Australian Journal of Labour Economics*, *1*(1), 49-70.

Saunders, P. (1999), 'The Perception of Equality.' Social Policy Research Centre Newsletter (75), University of New South Wales .

Sen, A. (1983),’Poor, relatively speaking’, *Oxford Economic Papers*, *35*, 153-169.

Sierminska, E., Brandolini A. & Smeeding T. (2006), “Comparing Wealth Distribution across Rich Countries: First Results from the Luxembourg Wealth Study”, Luxembourg Wealth Study Working Paper No. 1.

Social Metrics Commission (2018). *A New Measure of Poverty for the UK.* London.

Social Metrics Commission (2019). *Measuring Poverty 2019.* London.

Statistics Canada (2011), *Income of Canadians, 2009*, Ottawa: Statistics Canada.

Statistics New Zealand (2007), *Wealth Disparities in New Zealand*, Wellington: Statistics New Zealand.

Stephens, R. J. (1988), 'Issues in the measurement of poverty and standards of living.' Discussion Paper #48, Department of Economics, Victoria University of Wellington .

Stephens, R., Waldegrave, C., & Frater, P. (1995), 'Measuring poverty in New Zealand', *Social Policy Journal of New Zealand*, (5), 88-112.

Tax Working Group (2010), ‘A Tax System for New Zealand’s Future: Report of the Victoria University of Wellington Tax Working Group’, Victoria University of Wellington, Wellington.

Tomlinson, M. & Walker, R. (2009), *‘Coping with Complexity: Child and Adult Poverty.’* Child Poverty Action Group, London.

Townsend, P. (1979), *Poverty in the United Kingdom*, Harmondsworth: Penguin Books.

UNECE (2011), *The Canberra Group Handbook on Household Income Statistics, Second Edition*, *ECE/CES/11*, United Nations, Geneva.

UNICEF (2000), 'A League Table of Child Poverty in Rich Nations.' Innocenti Report Card No. 1, UNICEF Innocenti Research Centre, Florence.

UNICEF (2007), *Child Poverty in Perspective: An Overview of Child Well-being in Rich Countries*, Florence: UNICEF Innocenti Research Centre.

Waldegrave, C., Stephens, R., & King, P. (2003), 'Assessing the progress on poverty reduction', *Social Policy Journal of New Zealand*, (23), 197-222.

Waldegrave, C., Stuart, S., & Stephens, R. (1996), 'Participation in poverty research: drawing on the knowledge of low-income householders to establish an appropriate measure for monitoring social policy impacts', *Social Policy Journal of New Zealand*, (7), 191-206.

Whelan, C., Nolan, B., & Maître, B. (2014), 'Multidimensional poverty measurement in Europe: An application of the adjusted headcount approach', *Journal of European Social Policy* 24(2), 183-197.

Whiteford, P. (2009), 'Family Joblessness in Australia', A paper commissioned by the Social Inclusion Unit, Department of Prime Minister and Cabinet, Canberra.

Whiteford, P. (2014), "Income and wealth inequality: How is Australia faring?" The Conversation, 5 March 2014, http://theconversation.com/income-and-wealth-inequality-how-is-australia-faring-23483

Wilkins, R. (ed). (2014), *'Families, Incomes and Jobs, Volume 9: A Statistical Report on Waves 1 to 11 of the HILDA Survey'.* Melbourne Institute of Applied Economic and Social Research, Melbourne.

Wilkins, R. (ed). (2016), *'The Household, Income and Labour Dynamics in Australia Survey: Selected Findings from Waves 1 to 14'.* Melbourne Institute of Applied Economic and Social Research, Melbourne.

Appendices

Appendix 1 Key specifications for the incomes analysis in this report.

Appendix 2 Choice of income sharing unit.

Appendix 3 Equivalence scales: sensitivity of results to choice of scale.

Appendix 4 Analysis unit: sensitivity of results to choice of household or individual for calculating medians and reporting poverty rates and inequality.

Appendix 5 Incomes before and after deducting housing costs (BHC and AHC).

Appendix 6 The 60% of median AHC low-income measure: extended note.

Appendix 7 Indices used to adjust for inflation.

Appendix 8 The bottom income decile: income often not a reliable indicator of economic wellbeing

Appendix 9 Decile and quintile means and shares (BHC).

Appendix 10 Household incomes in ‘ordinary’ (unequivalised) dollars.

Appendix 11 Low-income trends (BHC and AHC) using 50% CV-2007 and 60% CV-1998 thresholds (showing that they are almost identical).

Appendix 12 Selected AHC low-income tables using the UK’s HBAI equivalence scale rather than the modified OECD scale as in the body of the report.

Appendix 13 The difference the choice of weighting or ‘grossing up’ regime makes for reported low-income rates.

Appendix 14 Impact of definition of child on low-income rates (0-17 yrs and ‘dependent child’).

Appendix 15 Child Poverty Statistics: Stats NZ official numbers and those in the body of this report.

Appendix 16 Causes and drivers of child poverty and material hardship: a high-level schema.

Appendix 1

Key specifications for the incomes analysis in this report

Decision point	Option used in this report	Comment
income sharing unit	Household (HH)	See Appendix 2
income concept	Equivalised disposable HH income (ie after-tax cash income, adjusted for HH size and composition) - before deducting housing costs (BHC) - after deducting housing costs (AHC)	See Appendix 5
housing costs	Rent, mortgage (principal and interest) and rates and insurance on principal residence	Dwelling insurance is available only from 2007 on.
equivalence scale	Up to and including the 2017 report, the Revised Jensen Scale (1988) has been used. In this 2018 report, there is a change in the equivalence scales used. For BHC incomes, the 'modified OECD' scale is used unless otherwise stated. This is in line with widespread international practice. For comparisons that draw on the OECD's Income Distribution Database, the 'square root' scale is used. For AHC incomes, the body of the report also uses the 'modified OECD scale'.	See Appendix 3 for further details and for sensitivity analysis using different scales. Appendix 12 reports on the difference it makes to AHC low-income rates when using the UK's 'companion scale' for AHC incomes.
unit for presentation of results	Individual (almost always) Household for some of the housing OTIs EFU for income sources for older New Zealanders	Individuals are grouped by individual characteristics or by those of their HH or family (EFU)
types of low-income thresholds or 'poverty lines'	'Moving line' thresholds – set relative to the median for the survey year (REL). 'Anchored / fixed line' thresholds – set in a base year (2007 or 2018) and kept at a constant value (CV) in real terms by CPI adjustment.	The 'fixed line' approach is sometimes referred to in the literature as an 'absolute' approach. This can be confusing as 'absolute poverty' is often referring to a subsistence level.
setting of low-income thresholds or 'poverty lines'	REL thresholds set at 50% and 60% of median HH income (BHC), and 40%, 50% and 60% (AHC) CV thresholds set at 50% of the 2007and 2018 median HH income and adjusted forward and back by the CPI In previous issues, the AHC thresholds were set at the BHC levels less 25% . The change to the approach is being made to come into line with Stats NZ's methodology for reporting on child poverty.	See Section E for a discussion of the rationales for the particular thresholds selected.
inflation adjustments	The reports use the average CPI for the survey year.	See Appendix 7
determining the median	Rank all individuals on the equivalised income of their respective HHs and identify the middle person (a 'person-weighted' approach).	Some rank HHs and take the middle HH – see Appendix 4
data set adjustments	Negative incomes are set to zero For poverty depth measures, and for reporting housing costs as a proportion of incomes by quintile, adjustments are made for households with implausibly low incomes	See Appendix 8

Appendix 2

Income Sharing Unit

Estimates of rates of income poverty typically use the income of the household or some version of the (co-resident) family as the indicator of the individual's resources and economic well-being. This assumes that all members of the income sharing unit (ISU)[166]share equitably in the resources and experience a similar standard of living. Although this assumption clearly does not hold in all cases, it is defensible as an approximation to the complex reality of intra- and inter-ISU patterns of sharing (cf Bradbury, 2003:25). Some grouping of individuals is necessary for determining poverty status, if only because the alternative of using only individual income as an indicator of available resources or economic well-being is clearly highly unsatisfactory. For example, on an individual approach all dependent children would be classed as 'in poverty'.

This report uses the household as the ISU, in line with international practice.

The reader is referred to Appendix 2 in the 2007 report for an extended discussion of the implications of the choice of ISU.

https://www.msd.govt.nz/about-msd-and-our-work/publications-resources/monitoring/household-incomes/household-incomes-1982-2004.html

[166] The ISU is sometimes referred to as the unit of income aggregation.

Appendix 3

Equivalence scales: sensitivity of results to choice of scale

Equivalisation reflects the two common sense notions that:

- a larger household needs more income than a smaller household for the two households to have similar standards of living (all else being equal)
- there are economies of scale as household size increases.

Most sets of equivalence ratios also assume that children cost less than adults. This assumption is contestable, as to a large extent it requires setting aside any consideration of opportunity costs for the adult providing child-care for the children.

Equivalising is a means of standardising household incomes in terms of household size and composition so that the relative material well-being of households of different sizes and compositions can be analysed. The adjustment also makes comparisons over time more realistic because it takes into account the changes over time in the composition and average size of households.

While considerable research has been undertaken to try to estimate appropriate values for equivalence scales, no universally accepted 'correct' set of equivalence ratios has emerged, even when household size and composition are the only factors being considered.

Ideally, equivalence scales would also take into account other factors such as the age of children, employment-related costs, the extra costs of disability, the differing costs faced by people in different geographical locations, the different ratios needed for households of the same type but with different incomes, and so on. Such considerations further complicate an already fraught estimation process and the common practice is to settle for simpler scales as a rough-and-ready but better-than-nothing approximation.

Adjusting BHC incomes for household size and composition

The primary equivalence scale used in the analysis of BHC incomes (ie incomes before-deducting-housing-costs) in this report is now the 'modified OECD scale' which is used by EUROSTAT, Australia, the United Kingdom and others.[167] This scale assigns the first adult a value of 1.0, 0.50 to the second and subsequent household members aged 14 or older, and 0.30 to those aged under 14 years. Up to and including the 2017 reports, the 1988 Revised Jensen Scale scale (Jensen scale) was used. In practice, both scales give very similar results, as is shown in the examples that follow. The report is shifting to the modified OECD scale to simplify reporting, in particular to avoid having to change scales for many international comparisons.

For international comparisons the OECD and the Luxembourg Income Study (LIS) use a scale where children and adults are treated as if they costed the same. Economies of scale are taken into account by using an elasticity of 0.5, which implies much higher economies of scale than both the modified OECD and Jensen scales. The scale is sometimes known as the 'square root scale' as it is calculated by taking the square root of the number of people in the household.

None of the above scales are directly empirically based. For New Zealand, the best available empirically based scale is that developed by Michelini, although even its strongest advocate recognises that 'there is a strong case for more effort to improve its estimation' (Easton and Ballantyne, 2002).

[167] The scale is called the 'modified' OECD scale because there was an earlier scale which assigned 0.7 to each additional adult and 0.5 to each child which in 1982 the OECD suggested for possible use in countries which did not have their own equivalence scale. This came to be known as the '(old) OECD scale' even though the OECD rarely used it. For its incomes analysis, the OECD uses neither the 'old' nor the 'modified' OECD scales, choosing instead the 'square root scale' noted above.

These scales are compared in **Table 3.1** below for different household types.[168]

Table 3.1
Comparison of four equivalence scales

HH type	Jensen	'Modified OECD'	Michelini	'Square Root' scale
(1,0)	0.65	0.67	0.57	0.71
(1,1)	0.91	0.87	0.83	1.00
(1,2)	1.14	1.07	1.06	1.23
(2,0)	1.00	1.00	1.00	1.00
(2,1)	1.21	1.20	1.22	1.23
(2,2)	1.41	1.40	1.45	1.42
(2,3)	1.58	1.60	1.65	1.59
(3,0)	1.29	1.33	1.38	1.23

Notes: 1 A (2,3) HH has 2 adults and 3 dependent children, and so on.
2 Some of the scales in the table make fine adjustments for the age of the child. This aspect is omitted to keep the comparisons straightforward. The assumed ages are between 8 and 10 years.
3 The source for the Michelini ratios is Easton and Ballantyne (2002).

The four scales are very similar for their relative assessment of couple, two parent and three adult households. Where the most significant differences occur is in the implied relative costs for single person and single parent households. For example, the Michelini scale implies (relatively) lower costs for these latter households, which means that compared with the results using the Jensen scale the Michelini scale would lead to fewer people below the threshold from sole parent households and single person households, while having similar rates for couples and two parent households.[169] This first principles 'thought experiment' analysis is confirmed empirically by Easton and Ballantyne (2002) – see **Table 3.2** below.

Table 3.2
Comparison of poverty rates by HH type
using the RJS 1988 and Michelini equivalence scales
and the BDL threshold (BHC)

	Jensen	Michelini
(1,0)	12	7
(1,1)	34	17
(1,2)	61	48
(2,0)	8	8
(2,1)	16	16
(2,2)	16	17
(2,3)	22	25
(3,0)	8	10
Children	20	21

Source: Table 6.6 in Easton and Ballantyne (2002),

For the purposes of reporting on inequality and hardship using BHC household incomes, overall trends are largely unaffected by the choice of equivalence scale from among the four scales above and those similar to them. Reported poverty levels at a point in time and the composition of those identified as poor can be affected by the choice of scale, but the high level findings as to the relative position of various sub-groups are robust to the choice of scale.

168 Throughout the rest of the report the one person household is used as the reference for equivalising. This is done in part to have a reasonably sensible unit of 'dollars per equivalent adult'. In Tables 3.1 and 3.2 the couple household is used as the reference to make the comparison of different scales over different HH types easier to grasp in these tables. The reference household used makes no difference to any analysis.

169 The Michelini scale implies very limited economies of scale in going from a single person to a two person household.

Figure 3.1 shows the trend in median household income from 1982 to 2017 (in $2017) using the modified OECD, Jensen and the square root scales. The values using the modified OECD and Jensen scales are so close that the lines are almost coincident over most of the period. The square root scale gives a higher median in each survey because its assumption of greater economies of scale lead to a lesser change from the unequivalised household income for each household than is the case for the other two.

Figure 3.1
Sensitivity of medians to choice of equivalence scale (BHC incomes)

Figure 3.2 shows the similarity of the trends for the Gini coefficient using the Jensen and square root scales.

Figure 3.2
Sensitivity of Gini coefficient to choice of equivalence scale (BHC incomes)

Figures 3.3 and 3.4 show trends in low-income rates (BHC) for the whole population and for those aged 0-17 yrs respectively, using a 60% of contemporary median threshold (REL approach) and three different equivalence scales. Long-run trends are unaffected by the choice of scale, although relative changes between adjacent reporting years do vary a little.

Figure 3.3
Sensitivity of low-income rate to choice of equivalence scale: whole population using a threshold of 60% of the contemporary median (BHC)

Figure 3.4
Sensitivity of low-income rate to choice of equivalence scale: children (0-17yrs) using a threshold of 60% of the contemporary median (BHC)

Figure 3.5 shows trends in low-income rates for children (0-17 years) using three different scales and the 50% of median REL BHC measure. As expected, the modified OECD and Jensen scales produce very similar results. The big difference in this case is the much higher rates produced by the square root scale for most surveys. In relation to households with children the square root scale makes an implicit assessment of higher costs for sole parent families than do the other two. This will generally lead to higher reported child poverty rates using the square root scale, and in particular years, the REL threshold using the square root scale will move enough to just go above a large cluster of families whose sole income source was the Domestic Purposes Benefit together with other government transfers. This can lead to a divergence in the relative trends.

Figure 3.5
Sensitivity of poverty rate to choice of equivalence scale: children (0-17) using a threshold of 50% of the contemporary median (BHC)

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Supplementary poverty tables using three equivalence scales and three thresholds

In the main text, the figures for low-income rates are rounded to the nearest whole number to avoid unwarranted impressions of precision. They are given here to one decimal place to assist with charts or rankings. The Jensen and modified OECD equivalence scales generally give similar figures, but note the large difference the use of the square root scale can make for reporting low-income rates for older New Zealanders (65+).

Table 3.3
Income poverty rates using three relative thresholds (% of median) and three equivalence scales,
by age groups, BHC

		50%			60%			70%		
Age gp	**Year**	**sq rt**	**Jensen**	**m OECD**	**sq rt**	**Jensen**	**m OECD**	**sq rt**	**Jensen**	**m OECD**
0-17	1995	10.8	9.4	9.9	22.1	19.5	20.5	36.3	32.9	34.3
	1998	11.3	9.4	9.8	22.9	20.4	19.9	37.9	36.5	37.5
	2001	14.6	11.6	11.8	27.1	23.9	23.2	38.7	35.6	36.7
	2004	15.1	14.5	14.2	27.5	25.6	26.4	37.6	36.6	37.5
	2007	14.5	12.5	12.3	20.6	19	19.2	28.9	27.6	29.4
	2010	15.8	13.7	11.9	24.5	23.2	23.5	33.2	33.2	32.5
	2013	12.6	10.4	12.2	22.9	20.2	19.6	31.7	28.3	28
	2015	14.3	13	13	22.9	20.8	23.2	34.7	32.5	34
	2018	16.2	15.3	14.7	24.9	23.6	24.4	36.4	35.3	35.1
18-64	1995	6.7	6.6	6.8	11.8	10.9	11	19.9	18.8	18.9
	1998	7.4	6.6	6.6	13.3	12.7	11.7	20.9	21.1	20.9
	2001	9.1	7.8	7.9	15.9	14.3	13.8	22.9	21.9	21.5
	2004	10.6	10	9.9	17.2	16.3	16.4	23.3	23.2	22.9
	2007	10.6	9.9	9.4	14.8	14.1	14.2	19.5	19.4	20
	2010	10.3	9.6	8.8	15.1	15.1	14.3	19.9	20.5	19.5
	2013	9.4	8.5	8.8	15.3	14.7	14.9	21.3	19.9	19.9
	2015	9.7	9.7	9.3	14.8	14.3	14.6	21.4	20.9	21.4
	2018	10.3	10.2	9.7	14.6	14.9	14.9	21.9	21.7	21.6
65+	1995	0.4	0.3	0.4	2.6	1.8	1.6	36	33.3	25.6
	1998	2.8	2.4	1.8	29.2	24.8	5.2	48.1	45.9	43
	2001	1.6	1.6	1.6	29.5	20.1	7.3	51.6	47.7	42.4
	2004	8.8	2.8	2.6	43.9	37.1	30.1	58.3	56.2	53
	2007	18	8	6.2	42	38.8	35.8	54.6	53.1	51.9
	2010	13.3	5.1	4	36.9	34.4	28.1	50	48.3	44.3
	2013	8.5	3.3	3.4	31.2	27.9	24.7	42.3	39.7	38
	2015	10.7	3.4	2.7	35.9	31.9	28.8	44	42.4	41
	2018	24.2	19	4.6	38.1	36.9	33.7	47	46.2	43.8
ALL	1995	7.2	6.7	6.9	13.7	12.3	12.6	26.2	24.3	23.9
	1998	8	6.9	7	17.7	16.2	13.2	28.6	28.1	27.9
	2001	9.8	8.2	8.3	20.5	17.6	15.7	30.5	28.6	28
	2004	11.6	10.4	10.2	22.9	21.2	20.6	31.1	30.5	30.2
	2007	12.5	10.4	9.8	19.5	18.3	18.1	26.1	25.5	26.2
	2010	12.1	10.1	9	20.2	19.5	18.4	27	27.2	25.9
	2013	10.1	8.2	8.9	19.3	17.8	17.4	26.7	24.6	24.3
	2015	11	9.6	9.3	19.8	18.4	18.7	27.8	26.7	27.2
	2018	13.7	12.7	10.1	20.5	20.2	19.9	29	28.5	28

sq rt Square root scale (elasticity of 0.5), used by OECD
Jensen Revised Jensen Scale (1998), used in New Zealand up to 2017.
m OECD Modified OECD scale, used in EU and many countries (but not usually in OECD analysis)

Choice of scale for AHC incomes analysis

Up to and including the 2007 report, the Incomes Report has used the same set of equivalence ratios for AHC analysis as for BHC, while noting in this Appendix that there was a case for using a different set as once accommodation costs are paid, there is more limited opportunity for economies of scale for the household budget. In other words, the AHC ratios should reflect the more limited scope for economies of scale when looking only at residual income after housing costs have been deducted (AHC).

The 2018 Incomes Report used the AHC scale used in the UK's *Households Below Average Income* reports. Instead of attributing an extra 0.50 for second and subsequent household members aged 14+ as the modified OECD scale does for the BHC case (Table 3.1 above), it uses 0.72. This reflects the more limited scope for economies of scale for adults in non-accommodation costs. The child factor increases only slightly from 0.30 to 0.34. (See (DWP, 2005 and 2013)).[170]

Table 3.3A below compares the Jensen, modified OECD and HBAI scales that the UK now uses, using the single person household as the reference. The children are assumed to be around 9-12 yrs old. The lower economies of scale for a second household member are evident in the HBAI ratios.

Table 3.3A
Equivalence scales used in the UK for AHC analysis ((1,0) as reference household),
compared with the modified OECD scale used for BHC analysis and with the Revised Jensen Scale

HH type	**RJS 1988**	**'Modified OECD' scale for BHC analysis**	**HBAI 'Companion' scale for AHC analysis**
(1,0)	1.00	1.00	1.00
(1,1)	1.40	1.30	1.34
(1,2)	1.75	1.60	1.68
(2,0)	1.54	1.50	1.72
(2,1)	1.86	1.80	2.06
(2,2)	2.17	2.10	2.40
(2,3)	2.43	2.40	2.74
(3,0)	1.98	2.00	2.44

For the purposes of comparing scales it is sometimes easier to re-base them to a couple household having a value of 1.00. This makes the first adult 0.58 (=1.00/1.72), second and subsequent household members aged 14+ 0.42 and children 0.20. See **Table 3.3B** below..

Table 3.3B
Equivalence scale used in the UK for AHC analysis ((2,0) as reference household))
compared with the one used for BHC analysis and with the Revised Jensen Scale

HH type	**RJS 1988**	**'Modified OECD' scale for BHC analysis**	**HBAI 'Companion' scale for AHC analysis**
(1,0)	0.65	0.67	0.58
(1,1)	0.91	0.87	0.78
(1,2)	1.14	1.07	0.98
(2,0)	1.00	1.00	1.00
(2,1)	1.21	1.20	1.20
(2,2)	1.41	1.40	1.40
(2,3)	1.58	1.60	1.60
(3,0)	1.29	1.33	1.42

170 The new poverty measure developed by the Social Metrics Commission for the UK (an AHC income measure) also uses the HBAI companion scale. In reaching this decision the SMC considered the modified OECD scale but decided against it. However, their report indicates that they are not yet settled on the HBAI scale and will do more work on this before finalising (Social Metrics Commission, 2018).

In adopting the UK's 'companion scale' for AHC analysis for the 2018 report, three sets of relativities are changed compared with staying with 'modified OECD' scale for AHC analysis too:

- those between singles and couples – the unequivalised income needed by a single-person household to reach the same potential living standards as a couple is lower when using the HBAI scale – this recognises that apart from housing costs there is limited opportunity for economies of scale when a second person joins the household;
- those between sole parent and two parent households - the unequivalised income needed by a sole parent HH to reach the same potential living standards as a two parent HH is lower when using the HBAI scale (same reason as above);
- those between a two adult household and a household with 3+ adults – the unequivalised income needed by the latter to reach the same potential living standards is higher when using the HBAI scale than with the modified OECD scale.

The consequence of this is that estimated poverty rates for single-person households and sole parent households could be expected to be a little lower relative to those for couples and two parent households respectively, when using the companion scale, all else equal. For households with 3+ adults the rates can generally be expected to be a little higher relative to those for two adult households. The household type section in **Table 3.4A** confirms this. The tables also show that poverty structure remains much the same in that the those sub-groups with higher rates remain relatively high and those with lower rates remain relatively low. **Table 3.4B** and **Figure 3.6** shows that trends are not impacted.

Table 3.4A
Proportions below a 50% REL threshold, HES 2015 (AHC incomes):
comparisons using three different equivalence scales

	RJS 1988	'Modified OECD'	HBAI 'companion' scale for AHC analysis
Total population	16	16	15
By Age group			
0-17	21	22	21
18-24	20	21	21
25-44	15	15	14
35-64	14	14	14
65+	8	7	6
By household type			
Single 65+	14	12	8
Couple 65+	5	4	4
Single < 65	37	37	32
Couple < 65	9	8	8
SP with children	48	45	41
2P with children	14	15	15
Other family HHs with children	16	19	19
Other family HHs, adults only	9	10	10
Non-family HHs	22	22	23
By tenure (0-64 yrs)			
Owned, no mortgage	7	7	7
Owned, with mortgage	12	12	12
Rented, private no AS	8	8	8
Rented, private with AS	40	39	38
Rented, social	42	48	46

Table 3.4B
Proportions (%) below a 50% REL threshold, HES 2001 to HES 2017 (AHC incomes): time series comparison using Jensen and HBAI scales

		2001	2004	2007	2010	2013	2015	2018
ALL	RJS 1988	15.7	16.7	14.8	15.1	15.3	15.8	16.0
	'Modified OECD'	15.6	16.4	14.5	15.6	15.5	15.8	15.7
	HBAI	15.2	16.3	14.2	14.9	15.1	15.3	15.4
0-17yrs	RJS 1988	23.5	22.9	18.4	21.6	20.9	21.3	20.5
	'Modified OECD'	24.0	22.2	18.8	23.3	21.3	21.8	20.9
	HBAI	23.8	22.7	18.2	22.1	20.6	21.4	21.1

Figure 3.6
Sensitivity of poverty rate to choice of equivalence scale: children (0-17) using a threshold of 50% of the contemporary median (AHC)

In summary, the shift to using the HBAI equivalence scale for AHC incomes analysis is supported by the economy of scale arguments canvassed above. In practice, low-income trends are not really impacted and levels are impacted in only minor ways except for single-adult households whose low-income rates are a little lower using the HBAI scale.[171]

For their Child Poverty Reports, Stats NZ use the modified OECD scale for both BHC and AHC analysis (with the square root scale for OECD comparisons).

This 2019 Incomes Report therefore uses the same approach to avoid confusion, and because there is no definitive evidence to show that the HBAI companion scales are definitely 'superior'.

See **Appendix 12** for a comparison of AHC low-income rates using modified OECD and HBAI scales (fuller than for Table 3.4B above), and for a selection of AHC tables from the main text (eg decile boundaries, percentile ratios), repeated using the HBAI scales.

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[171] As shown in Appendix 13 the choice of weighting regime for grossing up sample numbers to population numbers has a much greater impact on reported low-income levels than does choice of AHC equivalence scale (ie whether modified OECD or HBAI).

Appendix 4

Analysis unit: sensitivity of results to choice of household or individual for calculating medians and reporting poverty rates and inequality

This report attributes the equivalised household income to each household member as an indicator of each individual's 'access to resources' or material wellbeing. Individuals are then ranked on this income for division into deciles, establishing medians and counting numbers below poverty lines, and so on. This is standard practice internationally.

Before this approach became the standard, some of the literature ranked households rather than individuals. The median income was the middle household's income and the number in 'poverty' were the number of households below a given line.

Figure 4.1 shows that the different ways of ranking make only a very minor difference for medians.

Figure 4.2 shows that there are some noticeable differences for year-on-year comparisons for population poverty rates depending on whether one counts households or individuals, but the overall longer-term trend is not affected by the decision.

Figure 4.1
Median equivalised household incomes ($2014): comparison using the middle individual and the middle household

Figure 4.2
Proportions below the 60% REL threshold (BHC): comparisons using individuals and households

Appendix 5

Incomes before and after deducting housing costs (BHC and AHC)

The report provides information based on household income both before deducting housing costs (BHC) and after deducting housing costs (AHC).[172]

Housing costs

Housing costs include all mortgage outgoings (principal and interest), rent, rates and dwelling insurance.[173]

- There is an argument for excluding repayment of mortgage principal from housing costs on the grounds that it is simply a form of near-compulsory saving. This report includes repayment of principal in housing costs on the grounds that for most mortgages there is little scope for adjusting principal repayments to help cope with 'tight times' on an ongoing basis, and that it is in effect income not available to households in the short to medium term for other uses.
- In practice, AHC overall low-income rates for the population and for children (0-17 years) are much the same whether or not principal repayments are included in housing costs. The AHC median with principal repayments excluded is typically around 5% higher, and thus any relative low-income threshold is higher too … but countering this is the fact that lower-income households with mortgages have lower reported housing costs when the principal is excluded. While the exclusion of principal repayments from housing costs leaves the overall low-income AHC rates almost unchanged, the composition of those identified as poor changes to a lower proportion of mortgage-paying households and a higher proportion of renters.
- Any housing-related cash assistance from the state (eg Accommodation Supplement) is included in household income.

The report uses both BHC and AHC incomes, but recommends the AHC approach as preferable for comparing the situations of different subgroups

For reporting on overall trends in household income and on income inequality, there is value in seeing the similarities and differences between the two measures and in understanding the differing stories they tell.

For reporting on low-income trends and for subgroup comparisons, the report uses both BHC and AHC measures, but recommends the use of AHC measures as the preferred measure.

The use of BHC measures is generally taken as the self-evident starting point. They are important for assessing the adequacy of market and social assistance incomes for delivering a minimum acceptable standard of living.

The rationale for the report's position that AHC analysis should be reported, and that the AHC approach is preferable for sub-group comparisons in New Zealand is that:

- First, variations in housing costs do not correspond to similar variations in housing quality. Such variations can occur for housing in different regions, but is most significant when comparing the material well-being of age-groups. Many older individuals are in households that have good accommodation and relatively low housing costs (eg those living in mortgage-free homes). Many in an earlier part of the lifecycle have a similar standard of accommodation but relatively high accommodation costs. This variation in costs for the same or similar consumption is higher than for other budget items. This suggests that

[172] BHC income is the same as disposable or after-tax cash income. AHC income is sometimes referred to as income adjusted for housing costs, disposable income net-of-housing-costs, or 'residual income'.

[173] Dwelling insurance is available only from HES 2007 on.

housing costs should be deducted from income to get a more reliable assessment of relative material well-being across different sub-groups.

- Second, many would argue that the theoretically most acceptable way of dealing with issues around incorporating housing benefits (direct and indirect) and housing costs is to add the imputed value of indirect housing benefits to the income measure and then on the basis of this fuller measure to calculate low-income rates and so on. However, apart from any conceptual or theoretical challenges faced by this approach, there is a practical difficulty in that the value of imputed rent of owner-occupied housing and of government housing subsidies is not often (reliably) available. For the purposes of comparing the economic well-being of different groups using an incomes measure, deducting housing costs from cash income (the AHC approach) can be seen as an approximation to the theoretically more comprehensive approach of estimating and adding imputed rent for homeowners.[174] This rationale is in effect a variant of the first point made above.
- Third, once a household is committed to a particular residence, outgoings on housing costs cannot easily be adjusted or put off in 'tight times' on an ongoing basis as they can for other expenses like entertainment and recreation, and even to some degree for basics like food and clothing. The primary focus of this report is on trends in inequality and hardship and it is important to understand trends in 'residual income', taking housing costs as a given fixed cost in effect.
- Fourth, housing costs represent a very significant proportion of the total spending of many low-income households. They make up on average just under half (47%) of the budget for working-age low-income (bottom quintile) households, just over half for low-income private renters (55%). For a good number of low-income households, housing costs make up more than a half of the budget. This is the key context for the first three points above.
- Finally, a unique characteristic of the New Zealand BHC income distribution is the very large 'pensioner spike' at around the value of New Zealand Superannuation. This currently occurs just above the 50% of median poverty line (BHC) and can lead to large variations in reported poverty rates for the 65+ group over time, leaving the misleading impression that there are significant changes in material wellbeing occurring for this group. In addition, the same issue can lead to similarly misleading comparisons with the relative wellbeing of other age-groups. An AHC approach addresses these issues and is more suitable as the primary measure (for New Zealand at least). This is further discussed in Section I.

The above arguments are generally seen as sufficient to justify at least the reporting on AHC measures alongside BHC ones. This report goes one step further and recommends the AHC approach for comparing poverty trends over time and especially for examining sub-group relativities, primarily because of the implications of the pensioner spike. Four counter-arguments are sometimes raised when considering the issue.

- First, some would argue that housing costs are like any other cost a household faces. Different households make different choices as to what to prioritise in the budget. It is argued that it is no more justified to deduct housing costs than, say, food costs, which can also vary between households of similar size and composition. One of the challenges to this view is already captured in the third point above – once a household is committed to a particular residence housing costs cannot easily be adjusted or put off in 'tight times' as they can for other items.

- Second, it can be argued that an AHC approach understates the relative standard of living of those whose material well-being is higher as a result of paying higher housing costs for better accommodation. The flip-side of this is that a BHC approach overstates the standard of living of those whose housing costs are high relative to the quality of their accommodation.

- Third, when considering changes over time, the AHC approach understates improvements in living standards when higher real housing costs do reflect improving standard of living. The flip-side of this is that a BHC approach may overstate the improvements in living

[174] See Ritakallio (2003) , Fahey, Nolan and Mâitre (2004), and Figari and colleagues (2012).

standards when the Accommodation Supplement rises to offset higher rents. BHC income rises, but there is no commensurate rise in living standards.

- Fourth, for international comparisons a BHC approach is needed because that is the metric used internationally. This is true, and the report provides these international comparisons. The point is not really a strong rationale against the local use of AHC incomes as primary.

None of the proposed counter-arguments are conclusive. In addition, the AHC approach is well supported by the rationale outlined earlier above, and the issue of the 'pensioner spike' remains a very awkward one for a BHC analysis of income poverty trends for this age-group and for assessing sub-group relativities.

Appendix 6

The 60% of median after-deducting-housing-costs (AHC) low-income measure of child poverty

This extended note provides analysis and other background material to assist with an assessment of the common claim that the 60% of median AHC low-income measure is a well-supported poverty line, and should be New Zealand's primary or headline poverty measure.

Introduction

MSD's advice to successive governments has been that a multi-measure multi-level approach is needed for useful monitoring of (child) poverty and material disadvantage. Several considerations sit behind this advice:

- Poverty and material disadvantage are multi-dimensional, and trends can be quite different depending on the measure employed, and even at different depths using the same basic measure. The composition of those designated as 'poor' can also vary considerably with the measure and the level of the threshold used.
- There is no methodology that can precisely determine a single valid low-income line for a country, especially one that commands widespread support. There are two sorts of reasons for this:
    - There are some unavoidable practical challenges. There are specific technical challenges that need to be addressed for the different methodologies available, but once a line is arrived at there are practical considerations to take into account. For example, the variability of housing costs across a country means that different areas require quite different budgets to reach the same consumption levels, all else equal.[175] Similarly, different households have a wide range of differences in terms of basic physical assets and special demands on the budget (eg for debt servicing and health costs). This latter variability is across many households, not just a small group. All this means that different income levels are needed to produce the same overall standard of living even for otherwise similar households. Any selected low-income threshold is therefore best seen as a rough-and-ready guide rather than a precise dividing line.[176]
    - In addition to these practicalities, account needs to be taken of the fact that the notion of poverty is a contestable one and different views can reasonably be held on the matter of where to draw the line on the spectrum from more to less severe material disadvantage, whatever measure is used. This is not to say that any measure will do, nor that all measures are equally suspect or challengeable – some are clearly more defensible and reasonable than others.
- One of the useful consequences of adopting a multi-measure multi-level approach is that it not only allows for understanding trends and relativities at different depths (as in the first dot-point above), but also goes a long way to address the latter two points above by reporting on a range of measures that together encompass the variants that most support.

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175 The same is the case for transport, clothing, food and other costs – there is considerable variation across regions – but the variability in housing costs is the largest.

176 Canada has sought to address these and other issues through the use of their Market Basket Measure (MBM), which is now their official poverty measure. The MBM is costed for around 50 different regions / communities across Canada for a reference household of two adults and two children. It is then applied to other household types using the 'square root' equivalence scale (reference household = 2.0). The costlier regions have an MBM of around 24% more than the cheaper regions. The largest component of the variability comes from housing costs – the costlier regions / communities have housing costs around 60% higher than the cheaper regions / communities.

Over the last decade or so, some have taken a different approach, asserting that New Zealand's de facto 'official' or 'accepted' poverty line is the 60% of median AHC household income measure (AHC income means income after deducting housing costs). In line with this, several submissions for the Child Poverty Reduction Bill urged that this measure be adopted as one of the primary measures (for which targets must be set), rather than (in their view) 'just' being a supplementary measure as in the proposed Bill.

This note provides analysis and other background material to assist with an assessment of the above proposition. It:

- outlines and discusses the two rationales commonly given in support of the 60% AHC view above:
  - "it is in line with international practice"
  - "the focus group work with less well-off households conducted by the New Zealand Poverty Measurement Project in the 1990s provides solid support for the measure"
- reports the dollar value of 40%, 50% and 60% AHC low-income thresholds or 'poverty lines' for selected household types, and invites the reader to make an assessment of what is a reasonable 'poverty line' based on their own knowledge and experience
- notes the findings from the *Example Families and Budgets* paper prepared for the 2019 Welfare Expert Advisory Group
- summarises evidence using hardship indicators from the Household Economic Survey (HES) which shows the differing degrees of hardship experienced in different AHC income bands (<40%, 40-50%, 50-60%, 60-70% of median, and so on).

Is the 60% AHC measure a standard international measure?

International comparisons are carried out using before-deducting-housing-costs measures (BHC), not AHC, so no AHC measure can be a standard international measure. This international practice occurs in part because many countries do not collect housing costs either in surveys or in the administrative data used for the income information. There are no international league tables using AHC incomes.[177]

The two main sources of international comparisons of child poverty using household incomes[178] are the OECD (using 50% of median BHC) and the EU (using 60% of median BHC).

On each of these measures, New Zealand ranks just above the middle of the respective child poverty league tables:

- for the OECD (50% of median BHC): NZ rates have typically been 13-14% in recent years to 2015, compared with 12-13% for the OECD median
- for the EU (60% of median BHC): NZ rates have been 20-23% in recent years to 2015, compared with 21% for the EU median.

BHC and AHC low-income measures are not inter-changeable. They are different measures and produce quite different numbers. For example, the AHC rates are always higher than BHC rates, when using the same proportion of median as the cut-off (eg 50% or 60% of the respective

[177] There is a strong case for the claim that the practice of making international comparisons of 'poverty' based on household incomes is a flawed practice, as this approach is really about income inequality in the bottom half of the income distribution, not about whether such households can meet basic material needs. That is a very important matter for interpreting the common international 'poverty' league tables, but is separate from the theme of this note (see Section J in MSD's Household Incomes Report for more detail).

[178] When we say that "the child poverty rate is X %" on a given measure, this is short-hand for "X % of children live in households whose income is below the threshold" on the given measure.

medians). This is mainly because lower-income households spend a higher proportion of their income on housing costs than do households around the median, on average.[179]

The UK is one of the few countries that publishes AHC low-income rates. The AHC 60% moving line rates for children in the UK have been similar to those in New Zealand in recent years (27% to 30%), using the same methodology.

UNICEF (International) uses BHC measures in its Report Cards, not AHC

One of the rationales for some choosing the 60% AHC moving line measure as a headline measure is that some think that this is the measure that UNICEF International uses.

UNICEF International have never used an AHC low-income measure. They use a range of low-income BHC approaches in their Report Cards on child wellbeing in richer countries depending on the purpose of the publication:

- in Report Card 11 (2013) – 50% of median BHC moving plus a material hardship index
- in Report Card 12 (2014) – 60% of median BHC fixed line plus a material hardship index
- in Report Card 13 (2016) – 50% of median BHC moving
- in Report Card 14 (2017) – 60% of median BHC moving.

Part of the reason for the confusion about what UNICEF's approach is could be that UNICEF (New Zealand) currently uses the AHC 60% of median measure on its website and in promotional material,[180] and people using UNICEF (New Zealand) material would naturally assume that the international and local arms would be using the same measure.

UNCROC's 2016 claim about high child poverty rates in New Zealand was based on an apples-with-oranges comparison

There have been occasions when New Zealand's child poverty performance using AHC measures has been compared with BHC rates for other countries. As the 60% of median AHC rates are much higher than the corresponding 60% BHC rates, this apples-with-oranges comparison can lead people to the erroneous conclusion that New Zealand has very high child poverty rates compared with other countries.

These sorts of misleading comparisons are part of what led the UN Committee on the Rights of the Child (UNCROC) to report that it is "deeply concerned about the enduring high prevalence of poverty among children" in their Concluding Observations after the 2016 New Zealand review. New Zealand groups had submitted reports to the UN using the 60% AHC measure to promote the view of very high child poverty rates in New Zealand (27-28%, around 290,000 children), and the UN Committee felt it had to take account of these submissions.[181]

This note does not suggest that New Zealand's child poverty rates are not of concern. In regards to international comparisons it is simply attempting to promote proper apples-with-apples comparisons.

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179 See **Annex One** to this Appendix for further discussion on the matter of AHC and BHC thresholds relative to the respective medians.

180 https://www.unicef.org.nz/in-new-zealand/child-poverty (as at 23 October 2019).

181 Correspondence between author and UNCROC in 2016 after the release of their Concluding Observations.

Does the focus group research carried out by the New Zealand Poverty Measurement Project in the 1990s support the use of a 60% AHC threshold for a poverty line?

The research carried out by the New Zealand Poverty Measurement Project (NZPMP) in the 1990s used focus groups of low-income householders to provide some grounded indication of what a poverty line would look like for New Zealand, a "realistic poverty line for use in social and economic policy".[182] Each group was asked to reach reasonable agreement on a minimum adequate budget for a household comprising two adults and three children (aged 7-11). This weekly budget was then expressed as a proportion (%) of the median household income from Stats NZ's Household Economic Survey (HES) and these results were used to reach the "60%" conclusion for a New Zealand BHC poverty line at the time (which many have gone on to mistakenly use to support an AHC 60% conclusion).

The household budget template set out 15 categories of spending and each group had to decide on a dollar amount for each line in the budget. The purchasing power of the budget was to be "strictly minimal", but such that the household could live independently, without resorting to a food bank, for example. The households were assumed to have basic furnishings and household appliances, no significant costs for sickness or disability, stable financial circumstances and very good financial management abilities.

The focus groups were carried out in Lower Hutt and Wainuiomata in 1993, in some Lower North Island towns in 1995, and then in Auckland and Wellington in 1996. Further focus groups were run in the 2000s but the results are not yet published.

This section of the note:

- summarises the tables from Waldegrave et al (1996) to show the total budget decided on by each focus group and what this represents as a proportion of BHC median household income at the time (where this information is given)
- extends the NZPMP BHC analysis of the first wave of results (1993 and 1995) to include the 1996 Auckland and Wellington groups (this information is not provided in the NZPMP reports)
- discusses the claim that the research established 60% of the BHC median as the poverty threshold at the time
- uses the budget information to calculate AHC budget amounts and applies these to AHC HES medians to derive budget-based AHC poverty thresholds
- discusses the mistaken claim that the research established 60% of the AHC median as the poverty threshold at the time.

<u>BHC analysis</u>

The weekly BHC budgets and NZPMP analysis in the tables below are drawn from Waldegrave et al (1996). They are for a household comprising two adults and three children aged 7-11 yrs.[183]

The MSD calculations reported in the extra rows in the first two tables prepare the ground for the third table in which there are no NZPMP calculations for the BHC percentage of median. The

[182] Waldegrave, Stephens and King (2003:198), 'Assessing the progress on poverty reduction'. For more detail about the research, and for the source of the tables used in this section, see Waldegrave, Stuart and Stephens (1996), 'Participation in poverty research: Drawing on the knowledge of low-income householders to establish an appropriate measure for monitoring social policy impacts'.

[183] The originals also included a budget for a sole parent household with two children. This is omitted here for clarity, but is included in the fuller analysis in the 2018 Household Incomes Report (forthcoming).

closeness of the MSD and NZPMP percentages in the first two tables gives assurance that the methodologies and assumptions are in line, and therefore the MSD calculations in the third table are valid.[184] The main reason for any differences is that MSD in 2018 can use the relevant HES information corresponding to the focus group work, whereas the NZPMP research had to use HES median information from prior to the focus groups, then adjust for inflation.[185] There is always a lag before the HES data is available.

(In the tables that follow, 'equiv' is short for 'equivalised' – that is, adjusted for household size and composition.)

Lower Hutt and Wainuiomata, 1993 (BHC)

$pw	Māori	Samoan	Pākehā	Wage Earning	Average
TOTAL BHC	475	483	458	442	470
equiv BHC	195	199	188	182	193
% BHC median (NZPMP calculations)	**67%**	**68%**	**65%**	**63%**	**66%**
% BHC median (MSD's calculations)	**66%**	**67%**	**64%**	**62%**	**66%**

Lower North Island, smaller centres, 1995 (BHC) [186]

$pw	Masterton	Carterton	Otaki	Average
TOTAL BHC	430	421	392	414
equiv BHC	177	173	161	170
% BHC median (NZPMP calculations)	**58%**	**57%**	**53%**	**56%**
% BHC median (MSD's calculations)	**56%**	**55%**	**51%**	**54%**

The NZPMP conclusion from the 1993 and 1995 focus groups was that 60% of BHC median income was indicated as a reasonable poverty line at that time, with smaller centres a little below and larger centres a little above 60%.

When the focus groups were run in Wellington and Auckland in 1996, the analysis points to a much higher BHC threshold (65% to 80% of median), as shown in the table below.[187] These higher BHC thresholds were driven mainly by the higher estimated housing costs in Wellington and Auckland compared with Lower Hutt and Wainuiomata.

Wellington and Auckland, 1996 (BHC)

$pw	Wellington			Auckland			
	Māori	Samoan	Average	Māori	Samoan	Pākehā	Average
TOTAL BHC	537	530	534	650	645	620	638
equiv BHC	221	218	220	267	265	255	263
% BHC median (NZPMP calculations)	(not reported by NZPMP)						
% BHC median (MSD's calculations)	**66%**	**65%**	**66%**	**80%**	**80%**	**77%**	**79%**

184 The Revised Jensen Scale (1988) is used throughout this NZPMP section as this was the equivalence scale used by the NZPMP research. The equivalised income in the tables uses a one person household as the reference. This decision makes no difference to the % rows in the analysis.

185 The HES-based medians used in the calculations in the tables are the average of 1993 and 1994 for the 1993 groups, and so on. Note that 'the 1994 HES' is shorthand for 'the 1993/94 HES'.

186 The NZPMP research notes that the figures from Ashurst and Marton are odd outliers. They are therefore omitted here.

187 The budget figures are from Waldegrave et al (1996). The NZPMP has not published the associated threshold analysis.

Thus, for BHC thresholds, the early research (1993, 1995) pointed to a threshold of around 60% (55-65%) for the two adult, three child family, but the later 1996 research points to a BHC threshold in the 65% to 80% range rather than around 60%.

AHC analysis

The NZPMP reports do not provide an AHC analysis that parallels their BHC analysis. The tables below go that extra step, comparing the focus group AHC budgets with the median AHC income produced from the same Household Economic Surveys as were used to calculate the BHC threshold percentages above.

Lower Hutt and Wainuiomata, 1993 (AHC)

$pw	**Māori**	**Samoan**	**Pākehā**	**Wage Earning**	**Average**
TOTAL BHC	475	483	458	442	470
Housing	150	180	150	150	156
TOTAL AHC	325	303	308	292	314
equiv AHC	134	125	127	120	129
equiv AHC median	238	238	238	238	238
% AHC median	**56%**	**52%**	**53%**	**50%**	**54%**

Lower North Island, smaller centres, 1995 (AHC)

$pw	**Masterton**	**Carterton**	**Otaki**	**Average**
TOTAL BHC	430	421	392	414
Housing	140	120	150	137
TOTAL AHC	290	301	242	277
equiv AHC	124	129	103	118
equiv AHC median	252	252	252	252
% AHC median	**49%**	**51%**	**41%**	**47%**

Wellington and Auckland, 1996 (AHC)

$pw	**Wellington**			**Auckland**			
	Maori	Samoan	Average	Maori	Samoan	Pakeha	Average
TOTAL BHC	537	530	534	650	645	620	638
Housing	210	165	188	300	275	280	285
TOTAL AHC	327	365	346	350	370	340	353
equiv AHC	135	150	142	144	152	140	145
equiv AHC median	264	264	264	264	264	264	264
% AHC median	**51%**	**57%**	**54%**	**55%**	**58%**	**53%**	**55%**

This further analysis shows that the 1993 and 1995 focus group research does not support a 60% AHC threshold, but points more in the direction of a 45 to 50% threshold. When the Auckland and Wellington groups are included, the indication is more around 55% for AHC thresholds.

The NZPMP notes that variability in housing costs is the main difference across regions, with the AHC budget amounts being much closer. This is borne out in the extended analysis above which shows a much narrower range for the estimated AHC thresholds than for BHC.[188]

[188] See n135 above for reference to Canada's Market Basket Measure, and the regional variation that is incorporated in that measure.

The 1993 focus groups were also asked to develop a budget for a sole parent plus three children household. The BHC and AHC analysis for this household is in **Annex Two** of this Appendix.

Summary (NZPMP focus group research and MSD secondary analysis)

- The first wave of NZPMP focus groups in 1993 and 1995 gave reasonable support to a 60% BHC threshold for the two adult, three child family, but not a 60% AHC threshold – the focus group budgets pointed more to a 45 to 50% AHC threshold.
- The 1996 groups in Wellington and Auckland pointed to a much higher BHC threshold (65 to 80%) and an AHC threshold of around 55% (but still not 60%).
- The fact that such a wide range of BHC thresholds is produced, even for just one household type, is consistent with the point noted in the Introduction that there is no methodology that can produce a single widely accepted valid 'poverty line'. It is also consistent with the Canadian approach (see n2) which sets different low-income thresholds in different regions, mainly as a reflection of differing housing costs.
- It is also unclear what levels would be produced by focus groups some two decades later, especially with housing costs taking up an even larger portion of household budgets these days.

What are the weekly dollar amounts of the AHC low-income thresholds (40, 50 and 60% of the median), based on survey data from the HES?

The table below shows the 40, 50 and 60% AHC thresholds ($pw) for three family types for 2018. The figures are based on the latest survey (HES 2017), with 1% added for AHC inflation since then. If household incomes after deducting housing costs are lower than these thresholds the households are judged to be 'in poverty'.[189]

AHC low-income thresholds as % of median (AHC 'poverty lines')
(ie this is what is available using this measure, after paying the rent or mortgage), $ per week, $2018

	40%	50%	60%
Sole parent, one child	305	380	460
Couple	350	440	525
Two parent, two children (7-11)	495	615	740

While it is likely that most New Zealanders would want all families to be at or above the 40% threshold, it is hard to see that there would be widespread support for using the 60% thresholds to represent financial hardship or be recognised as 'the poverty line'. For example, $740 pw for a family of two adults and two children after the rent or mortgage is paid is likely to be seen as more in the "getting by" zone than in a poverty and hardship zone, whereas $495 pw for the same family would be seen as very tight and difficult.

In support of the latter claim about $495 pw being seen as "very tight and difficult" for the two parent, two child household, the illustrative AHC budget below is provided for the reader's consideration:

Illustrative Budget

Category	$pw	Comment
Food	230	Otago Food Cost Survey basic option, assuming 100% home preparation, no takeaways / no eating out
Other groceries / cleaning materials / personal hygiene needs / small household items	30	
Electricity / heating	60	avg pw over a year
Vehicle / transport	80	fuel and other vehicle running costs (assuming no loan repayments), plus public transport costs – the transport needed for the children, employment, basic shopping, etc
Phone line / mobiles	20	minimal
Clothing / shoes	30	very tight
Pets	-	nil
Holidays away from home each year	-	nil
Entertainment, alcohol, cigarettes	-	nil
Hobbies, other interests	-	nil
TOTAL so far	**450**	
Balance remaining	45	This has to cover medical, dental, household items incl repairs and maintenance, gardening and household tools, insurance, school costs, costs of childrens' participation in sport and other interests, gifts, haircuts, and so on.

[189] The methodology used for deriving the $pw numbers in the table that follows is what is highly likely to be the one used by Stats NZ in their formal reporting on child poverty. In particular the equivalence scale used is the 'modified OECD scale'. See Appendix 3 of this 2018 Incomes Report for a discussion of the impact the choice of equivalence scale makes on measurement.

What do non-income material hardship indicators tell us about the differing degrees of hardship experienced by households in different low-income bands (AHC)?

The analysis below is based on 2015 and 2017 HES data. The surveys are conducted by Stats NZ but the analysis is MSD's. The income bands are all AHC income bands expressed as a proportion of the AHC median. The purpose of the analysis and the charts below is to show where hardship begins to get more prominent.

Surviving without outside help?

The 'strictly minimal' standard of living that the focus groups were asked to use included the guide of being able to live independently, without for example having to rely on a food bank.

The two charts below show that:

- There are much higher rates of dependence on outside assistance (whether food banks or friends/family) for those with incomes in the below 40% AHC and in the 40-50% AHC bands, compared with those with incomes in bands above this.
- Even in the 50% to 70% bands there are still 15% of households with children needing to borrow for basics. This is in line with a view which sees any 'poverty line' as simply a rough-and-ready guide rather than a precise cut-off.

Two very basic items: fruit/veges and shoes for the respondent

In households with children, the deprivation of fresh/fruit and vegetables ('a lot'[190]) is clearly much higher for the under 40% AHC households, and the inability to have two pair of reasonable shoes is much higher for the respondents in under 50% AHC households than for households with incomes above this.

Paying the bills on time and keeping on top of necessary repairs / replacement of appliances

190 The survey gives options of 'not at all', 'a little', or 'a lot'

The utilities chart below shows that the financial hardship experienced by those with incomes below 40% AHC are double what is experienced by those in the 50% to 70% range, and those in the 40 to 50% band have a relatively high rate too. There is no increase for the 50% to 60% band relative to the 60 to 70% band.

The rate for delay in necessary repairs / replacement of appliances for the under 40% AHC band is more than double what it is for all in the 50% to 90% range for which the rates for bands are very similar. The rate for the 40 to 50% band is in between. There is no increase for the 50 to 60% band relative to the adjacent higher bands.

Several other items show a similar picture. For a few, the enforced lack rate starts to increase at an income level much higher than a 50% or 60% threshold (eg not able to have a week's holiday away from home each year). None show a marked increase for the 50 to 60% band relative to 60 to 70%, except where there is a general increase starting higher up.

<u>Taking 17 items together in DEP-17 and looking at those reporting 7 or more hardships</u>

The two charts below show the proportion of each income band who are in hardship, using the DEP-17 measure with the threshold at 7+/17 "lacks" (the measure and threshold that MSD uses as its main one in the Material Wellbeing report).[191]

For all under 65s and just those in households with children the shape of the distribution is the same:

- There are much higher rates of material hardship in the under 40% AHC band than in the bands in the 50-90% range, with the rates in the 40-50% band in between these.
- Even in the under 40% band, the proportion in hardship is only modest (35% for all under 65 and 45% for households with children). This is again in line with a view which sees any 'poverty line' as simply a rough-and-ready guide rather than a precise cut-off.

Summing up

[191] DEP-17 is a 17 item deprivation or material hardship index. It is defined, discussed and used in MSD's Material Wellbeing reports.

- The AHC 60% measure is not a standard international measure. International low income comparisons are carried out using BHC incomes, not AHC incomes, so no AHC low income measure can be a standard international measure.

- The NZPMP research in the 1990s does not unambiguously and clearly support a 60% BHC threshold – it points to a range of 55 to 80%, depending on location (and housing costs especially). Nor does it point to a 60% AHC threshold as some suggest – it points to something in the 50 to 55% AHC range, based on its methodology.

- A 60% AHC 'poverty line' for a household of two adults and two dependent children is around $740 pw after the rent / mortgage is paid. This is not likely to be seen as 'poverty' by many New Zealanders.

- 60% AHC and 60% BHC low income measures are not just different versions of the same basic measure. They are quite different measures and cannot validly be used interchangeably.

- The use of non-income measures of hardship also do not support a 60% AHC threshold, but point to a lower threshold as the level at which hardships are much more often reported.

- The non-incomes analysis, using hardship measures, also supports the view that any low-income threshold chosen is, at best, a rough-and-ready guide rather than a precise cut-off.

- The analysis in this note is consistent with the underlying rationale for the multi-measure multi-level approach, as given in the Introduction and embodied in the Child Poverty Reduction Act (2018).

Glossary for Summary

NZPMP	New Zealand Poverty Measurement Project
BHC income	Household income before deducting housing costs
AHC income	Household income after deducting housing costs

Annex One

Calculating AHC poverty line estimates, knowing a BHC budget including housing costs, and knowing AHC median as % of BHC median

This appendix first derives a general formula that allows the above calculation to be made, then shows in a simple example how it works.

In the following:

- 'HC' means 'housing costs'
- 'pov line %' means the poverty line established through the focus groups as a % of either the BHC or AHC medians as appropriate
- 'budget' means the budget established by focus groups or other means
- 'median' means the survey median in the relevant HES year

$$\text{AHC pov line \%} = 100 * \frac{\text{AHC budget \$}}{\text{AHC median \$}}$$

$$= 100 * \frac{\text{(BHC budget - HC in budget)}}{\text{(BHC median - HC at median)}}$$

$$= 100 * \frac{\text{BHC budget * (1 - HC in budget / BHC budget)}}{\text{BHC median * (1 – HC at median / BHC median)}}$$

$$= \text{BHC pov line \%} * \frac{\text{(100 - HC in BHC budget as \% of BHC budget)}}{\text{(100 – HC at median as \% of BHC median)}}$$

$$= \text{BHC pov line \%} * \frac{\text{(100 - HC in BHC budget as \% of BHC budget)}}{\text{AHC median as \% of BHC median}} \quad \ldots\ldots\ldots\ldots\ldots (1)$$

Example to show that the direct budget-based analysis and the formula above give the same results

From first principles:

BHC budget = 600
HC budget = 200 = 33.3% of budget
AHC budget = 400

BHC median = 1000
HC at median = 220 = 22% of BHC median
AHC median = 780

BHC budget-based pov line = 600/1000 = 60%
AHC budget-based pov line = 400/780 = 51%

Using the formula above:

AHC budget-based poverty line calculated using formula (1) above
= 60% * 66.6 / 78
= 51%

The AHC poverty line % (from budgets) will always be less than the BHC poverty line %, as the proportion of a low-income budget spent on housing is always less than the proportion spent by middle-income households (currently around 22%, but much less in the 1980s).

Annex Two

Sole parent focus group

The 1993 Lower Hutt focus groups also estimated a budget for a sole parent household with two children. The BHC and AHC analysis from earlier is repeated below for this household.

This time, MSD's BHC analysis gives a quite different result (81% rather than 69%). This reflects the fact that the NZPMP used the same equivalence scale for this family as for the two adult and three child family, whereas the MSD analysis applied the Jensen scale to both (2.43 for the two parent household and 1.75 for the sole parent household).

This analysis further supports this paper's proposition noted in the Introduction that any poverty line that is developed by whatever methodology can at best only be considered to be a rough and ready guide, and also its conclusion that even for BHC incomes the 60% claim is not really supported in the clear and unambiguous way that many claim.

Lower Hutt and Wainuiomata, 1993 (BHC)

$pw	Māori	Samoan	Pākehā	Wage Earning	Average	Sole parent and 2 children
TOTAL BHC	475	483	458	442	470	491
equiv BHC	195	199	188	182	193	238
% BHC median (MSD's calculations)	**66%**	**67%**	**64%**	**62%**	**66%**	**81%**
% BHC median (NZPMP calculations)	**67%**	**68%**	**65%**	**63%**	**66%**	**69%**

Lower Hutt and Wainuiomata, 1993 (AHC)

$pw	Māori	Samoan	Pākehā	Wage Earning	Average	Sole parent and 2 children
TOTAL BHC	475	483	458	442	470	491
Housing	150	180	150	150	156	150
TOTAL AHC	325	303	308	292	314	341
equiv AHC	134	125	127	120	129	166
equiv AHC median	238	238	238	238	238	238
% AHC median (author's calculations)	**56%**	**52%**	**53%**	**50%**	**54%**	**70%**

Appendix 7

Indices used to adjust for inflation

Household incomes and low-income thresholds are adjusted for inflation at various places in the report. Incomes are converted to 2017 dollars for reporting on income trends in real terms. For the reporting on trends in income poverty based on a 'fixed line' approach, thresholds are based on proportions of the 2007 median and are held constant in real terms over other years.

The adjustments for inflation are carried out using CPI full year averages for a March year up to and including the 1998 survey and a June year from 2001. For BHC incomes Statistics New Zealand's CPIQ.SE9A series are used – taking the average of the four quarters for the appropriate periods. AHC incomes and thresholds from 1989 are adjusted using the index from the All Groups less Housing series (CPIQ.SE9NS1010) using the same averaging approach as for BHC. For 1982 to 1988 the AHC adjustments are based on the author's extrapolation of the series. The reported trends in AHC incomes and the size of low-income populations are not sensitive to different assumptions within a plausible range for the index in the estimated years.

Table 7.1 contains the indices used in the report to adjust for inflation.

Table 7.1
Indices used to adjust incomes for inflation

HES year	BHC	AHC
1982	375	418
1984	455	503
1986	569	613
1988	740	782
1989	778	823
1990	828	857
1991	873	902
1992	888	918
1993	897	929
1994	910	935
1995	932	947
1996	962	972
1997	983	989
1998	994	993
2001	1044	1051
2004	1113	1107
2007	1213	1186
2008	1251	1219
2009	1292	1261
2010	1316	1283
2011	1366	1335
2012	1396	1362
2013	1407	1366
2014	1429	1379
2015	1438	1379
2016	1443	1371
2017	1463	1381
2018	1485	1395

Appendix 8

The bottom income decile: income often not a reliable indicator of material wellbeing

While household income is far from perfect as a measure of material wellbeing it is generally a useful enough indicator. There are however some households for whom it would clearly be highly misleading to take their incomes as even a rough and ready indicator of their material living standards. This assessment is based on comparisons with information beyond the incomes reported in the survey:

- some households have implausibly low incomes, well below the minimum social support levels
- some have reported expenditures well above their reported incomes
- some meet both criteria.

Some of these households (whether with implausibly low incomes *per se*, or with expenditure well above reported income) will be declaring income from self-employment. This can legitimately be much lower than reported expenditure – the declared income may even be negative. Others will have accurately reported their incomes but will have had access to loans, gifts or savings in one form or other which have been used for purchasing goods and services. Others will have intentionally or unintentionally under-reported their incomes.

This Appendix provides an assessment of the significance of the impact of the issue on the key indicators used in the report, and concludes that with the exception of indicators of poverty depth the noise does not unduly compromise the results. To provide both a means of making the assessment and a means of mitigating the impact on poverty depth measures, the Appendix also outlines and applies a noise-reducing protocol to modify the dataset.

Most of the unreliability is in the bottom decile

Households with implausibly low incomes are of course found only in the bottom decile (bottom tenth of the income distribution). The reported incomes of many at the bottom are less than the incomes provided by government cash benefits or New Zealand Superannuation. This points to mis-reporting or data entry errors.

Those reporting expenditure much higher than reported income are found in most parts of the income distribution but the bulk of them are found in the bottom decile.

- For example, of all those in households reporting expenditure which is more than three times their income, around 75% to 80% are in the bottom income decile in any survey year.
- In any survey year, around one quarter to one third of those in the bottom decile are in households with this high expenditure-to-income ratio. No other decile is like this in regards to expenditure so greatly exceeding income for so many.
- Average household expenditure for the bottom decile is typically around 2.5 times the average reported income and is more like the reported expenditure of the third and fourth income deciles.
- A sizeable proportion of those in the bottom decile (eg 50% in the 2004 HES) report expenditure higher than the incomes of households at the top of the second income decile.

There is therefore clear evidence that for many of the households in the bottom decile household income is a very unreliable indicator of access to resources and of material wellbeing. In other words, there is considerable ‘noise’ at the bottom end of the distribution. Whatever the explanation is, it would be misleading to assume that the bottom 10% on the income distribution also have the lowest living standards.

This observation is further supported by the analysis in the graph which shows how the material wellbeing index (MWI) score decreases as expected when coming down the (BHC) income spectrum, except for the bottom income vingtile (5%) whose average MWI score is more like those at the top of the second income decile. This shows that the incomes of those reporting implausibly low incomes are in general not a reliable indicator of the resources available to those households for generating consumption.

Impact of bottom decile noise on key indicators

All of this can have a significant impact on some of the key indicators used in this report. The most significant impact is on measures of poverty depth (see Section E) and bottom decile mean, with a more moderate impact on reported income levels at the top of the bottom decile (P10 incomes). The impact on reported poverty rates at a point in time and on the relative composition of those identified as poor depends on the poverty line used, with the greater impact occurring for lower thresholds.

On the other hand, the noise in the bottom decile does not have a significant impact on the medians as the bulk of households in question remain below the median even if their expenditures were taken as better estimates of their actual income than what was reported as such. There is in general no significant impact on reported trends in inequality and poverty.

Table 8.1 below illustrates the differential impact of the 'noise' on various sub-groups and across different thresholds (averaged over 2007 to 2016 HES). It shows the proportion of various sub-groups whose household incomes put them below the income threshold in question, but whose expenditure is more than double the selected threshold.

Table 8.1
Proportions (%) of sub-groups in income poverty whose expenditure is more than double the selected low-income threshold, average for HES 2007-2016 (BHC)

	Poverty lines as a % of the median (BHC)			
Sub-group	**40%**	**50%**	**60%**	**70%**
Self-employed	16	14	7	6
0-17	13	5	4	2
18-24	28	12	6	4
25-44	24	10	6	4
45-64	29	16	11	7
65+	15	7	4	3
Two parent with any dep ch	16	7	7	5
Sole parent with any dep ch	13	4	3	2
HHs <65 with 2+ adults, no dep children	31	10	4	4
Couple only <65	57	36	22	12
Population overall	**22**	**10**	**6**	**4**

The self-employed make up only around 5% to 6% of the poor, whichever threshold is used, and their poverty rates are lower than the rest of the population. The self-employed are not therefore the main source of the noise at the bottom end of the distribution. The main source is working-age households with two or more adults and no dependent children, whatever their income source.

Bottom decile noise is a recognised problem

The unreliability of bottom-decile incomes as an indicator of living standards is not an issue that is unique to New Zealand.

Because of the problems with the bottom decile, the Australian Bureau of Statistics (ABS) for many years used deciles 2 and 3 (rather than deciles 1 and 2) as their bottom 'quintile' to encapsulate low-income households (ABS, 2011). This is an extreme approach which makes the production of income poverty figures impossible, and unnecessarily excludes some of the (truly) most vulnerable households in the lowest decile. In their more recent releases of income distribution figures the ABS has revised their approach. They use an adjusted low-income quintile which excludes households with incomes in the lowest two income percentiles (ABS, 2015).

In the United Kingdom, the Department for Work and Pensions warns in its *Households Below Average Incomes* publications that incomes in the bottom decile cannot be taken as a reliable guide to living standards.[192] They follow through on this in their poverty tables by printing in italics the estimates based on a 50% of median threshold to remind the reader of the greater uncertainties using that threshold compared with using the 60% and 70% thresholds.

One of several pieces of research that supports the UK position is reported in Brewer at al (2009). **Figure 8.1** shows that material deprivation increases as expected as household income falls, as expected. However, for households with very low incomes (under around GBP150 per week), material deprivation falls (living standards rise). This is partly explained by the observation that these very low-income households have on average much higher financial assets than the 'low-income' counterparts.[193]

Figure 8.1
Some very low-income households with children have good financial assets – these enable these households to avoid the low living standards that their income alone suggests they would experience

Source: Brewer et al (2009), Tables 5.1 and 5.2

The Luxembourg Incomes Study (LIS) bottom codes to lift all household incomes to at least 1% of the mean equivalised household income.

The New Zealand Poverty Measurement Project (NZPMP) recognised the problem and sought to address it by deleting from the dataset those self-employed who declared losses and those whose expenditure was more than three times their income. The effect of this adjustment to the dataset is to slightly reduce reported poverty rates.[194]

The approach used in this report to reduce the noise in the bottom decile

192 "Comparisons of household income and expenditure suggest that those households reporting the lowest incomes may not have the lowest living standards. The bottom 10 per cent of the income distribution should not, therefore, be interpreted as having the bottom 10 per cent of living standards." (DWP, 2013:21).

193 See also Brewer et al (2017) for more detailed UK analysis.

194 See Stephens, Waldegrave and Frater (1995: 99) and Stephens and Waldegrave (2001: 81). Note that the removal of the identified records raises the median and therefore the threshold. This has an upward impact on the number below the threshold. The deletion of records naturally has a downward impact. The net reduction occurs because the latter factor is the stronger.

In selected circumstances this report uses one of two strategies to address the issue where it has significant impact. Method A is to use HES expenditure data to impute a more plausible income to households whose reported incomes are very low compared with their expenditure. All those households with reported expenditures of more than three times reported income are given a notional income equal to the average of their reported income and expenditure.[195] Method B is to delete all records with implausibly low incomes (eg less than $5000 pa BHC in $2007 value).

Table 8.2 repeats Table 8.1 to show how the imputation approach (Method A) reduces 'noise' as indicated by the proportions of the poor from various subgroups who have expenditure more than double the selected income poverty line. Table 8.1 uses the standard HES dataset. Table 8.2 uses the modified dataset.

Table 8.2
Proportions (%) of sub-groups in income poverty whose expenditure is more than double the selected low-income threshold, HES 2007-2016 (BHC) – modified dataset (see text)

	Poverty lines as a % of the median (BHC)			
Sub-group	**40%**	**50%**	**60%**	**70%**
Self-employed	*	*	1	3
0-17	*	1	2	1
18-24	*	5	2	2
25-44	10	4	2	1
45-64	9	4	3	3
65+	*	*	2	2
Two parent with any dep ch	6	2	4	2
Sole parent with any dep ch	*	*	2	1
HHs <65 with 2+ adults, no dep children	17	5	0	2
Couple only <65	12	12	6	4
Population overall	8	3	2	2

Notes: An asterisk (*) in a cell indicates that the sample numbers are too small to provide reliable estimates for that cell

What indicators are changed most by reducing the noise at the bottom end?

Poverty depth is very sensitive to the noise at the bottom end of the distribution. The information given in Section F uses Method B to address it.

The reported means and income shares of the bottom income decile are impacted by the noise too. Appendix 9 uses Method A to address the issue for these statistics.

Table 8.3 compares the low-income rates for the various subgroups using the standard and modified datasets. There is no measurable impact.

195 This imputation method may not capture all those whose incomes do not give a reasonable indication of material wellbeing. One such group is those who under-report both income and expenditure.

Table 8.3
Comparison of BHC poverty rates (%) using the standard and modified datasets,
average of HES 2007-2016

	Poverty lines as a % of the median (BHC)							
	40%		50%		60%		70%	
Sub-group	Std	Modified	Std	Modified	Std	Modified	Std	Modified
Self-employed	2	2	5	5	10	11	17	17
0-17	6	5	12	12	20	21	30	30
18-24	6	5	12	11	18	18	25	25
26-40	4	3	8	7	13	13	19	19
41-64	5	4	9	8	15	14	19	19
65+	2	2	4	4	30	30	44	45
Two parent with any dep ch	4	4	8	8	13	13	20	21
Sole parent with any dep ch	8	7	22	23	43	44	60	60
HHs <65 with ≥ 2adults, no dep children	4	5	8	8	12	11	15	15
Couple only <65	3	2	6	4	9	7	12	10
Population overall	5	4	9	9	18	18	26	26

Further work

Further work is planned on the issue of noise at the bottom end of the distribution focussing on the implications for reporting on low-income and inequality measures. This will use the more comprehensive information available in the 2014-15 and 2017-18 HES, and the larger sample in the 2018-19 HES. The results from this exercise will be noted in a future update of this report, and adjustments made as and if required.

In the meantime:

(a) the standard unmodified dataset will be used except for estimates of ‘poverty depth’ which use the modified dataset described above (Method B).

(b) a special Appendix is provided for better estimates of the means and shares for the bottom decile in the years when expenditure data is available (see Appendix 9).

Appendix 9 [closely linked to Appendix 8]

Decile and quintile means and shares (BHC)

Different parts of the income distribution can show quite different relative movements over time. One way to show the differing changes is to divide the population into ten equal sized groups (deciles) and show the trends in real incomes for the median, the mean or top of each decile.[196]

The main report uses the upper boundaries of deciles one to nine for this purpose. These correspond to the percentiles P10, P20, P30 and so on. Trends for P100 are not given for the top decile as these are simply the highest household income in the surveys. To give an idea of trends for the top decile, some information is given about changes in the top decile median (ie P95).

The upper boundary approach is used in the main report for two reasons:

- it fits well with the use of standard percentile ratios for summarising trends in inequality (eg the 90:10 and 80:20 ratios)
- it avoids the considerable difficulties that arise when decile medians or especially means are used for indicating trends for households reporting very low incomes (ie those in the bottom income decile[197]).

Reporting on trends in decile means (or medians) is nevertheless a common practice. This Appendix provides that information in the context of a discussion and a strong health warning regarding the uncritical use of bottom decile means (or medians) to indicate trends in the material wellbeing of low-income households.

In the discussion that follows it is important to remember that this report is not simply about reporting on household incomes for their own sake. Its purpose is to provide information on New Zealanders' access to economic resources and (potential) living standards as indicated by their household incomes. While household income is far from perfect as a measure of material wellbeing it is generally a useful enough indicator. There are however some households for whom it would be very misleading to take their incomes as even a rough and ready indicator of access to economic resources. This is a particularly acute issue for the bottom income decile as can be illustrated by identifying households with expenditure much greater than their reported income. Those reporting expenditure much higher than reported income are found in most parts of the income distribution but the bulk of them are found in the bottom decile. See Appendix 8 for detail. .

One of the groups of decile one households whose incomes are not even a rough and ready indication of access to economic resources is the group reporting zero or negative income for the year. In the sample for each survey (for samples of around 3000 households) there are typically 15 to 20 households who report zero or negative income out of around 300 households in the bottom decile (before grossing up to population estimates). For the larger samples of around 5500 households (2015 and 2018), the same proportionate pattern is evident. is not an insignificant group. Not only are these reported zero or negative incomes completely misleading indicators of access to economic resources (even though they may be quite legitimate and accurate responses to the income questions in the survey) they also lower the mean for the bottom decile, and pull it below the decile median.[198]

The pulling down of the mean can be seen in **Figure 9.1.** The graph also shows how the difference between mean and median varies from survey to survey. In the 1986 HES and especially in the 1988 HES there were relatively large numbers of households reporting negative incomes – this

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196 The boundary analysis is sometimes described as 'the upper boundaries of deciles one to nine' and sometimes as 'the lower boundaries of deciles two to ten'. These are the same thing.

197 See Table B.4 for an indication of incomes for different household types in decile one.

198 For 2001, 2004, 2007, 2010, 2013 and 2016, the mean incomes of households with reported negative or zero incomes were: -$38,000, -$24,000, -$9,000, -$16,000, -$4,000, -$10,000. Their reported spending was: $34,000, $35,000, $29,000, $34,000, $20,000 and $34,000 respectively.

brought the mean down quite low relative to the median for those years. In the 1990 HES the numbers with reported negative incomes was much smaller which brought the mean closer to the median. This is reflected in the Figure 9.1.

Figure 9.1
Bottom decile means and medians, 1982 to 2007 (2007 dollars)

This difference between median and mean that is observed in the bottom decile does not occur in deciles 2 to 9. In decile 10 the reverse occurs – the mean is higher then the median because of a few very high incomes at the top of the distribution. These things are all illustrated in the HES 2007 analysis shown in **Figure 9.2**.

Figure 9.2
Decile means and medians: equivalised household incomes, BHC (2007 HES)

To alleviate the bottom decile issues, various approaches have been and are used:

- some use "bottom coding" such as raising all household incomes to at least 1% of the overall mean (eg the Luxembourg Income Study), or re-setting all negatives to zero (as in the data sent to the OECD by statistical agencies, in response to the OECD incomes questionnaire)
- others modify the dataset by deleting various records – examples are:
  - deleting records with negative incomes, or incomes less than or equal to zero
  - deleting records with high expenditures relative to reported income or with negative self-employment income (the NZPMP uses expenditure of 3x income as an indicator of high expenditure)
- in selected circumstances, this report modifies the dataset by imputing an income that is an average of reported expenditure and reported income for households with high spending relative to their income (see Appendix 8 for more information on this report's use of this approach).

Figure 9.3 shows how each of four approaches impacts on the mean for decile 1, relative to the situation of 'no deletions' (bottom line in graph below). The NZPMP and the modified dataset approach used in this report have a fairly similar impact.

Figure 9.3
Impact on decile one means of selected dataset modifications $2007)

Figure 9.4 shows how in contrast to what happens for decile 1, each of the four approaches has a very limited impact on the mean for decile 2. The same holds for deciles 3 to 10.

Figure 9.4
Impact on decile two means of selected dataset modifications

One of the main uses for information on decile means is to report on trends in their real values over time. **Table 9.1** reports the changes in decile means for selected time periods using the reported income data and the four modifications to the income data used above.

Table 9.1
Percentage change in decile means by different dataset modifications

	Low	2	3	4	5	6	7	8	9	High
2004 to 2007										
No deletions	***35***	7	15	13	8	4	2	2	5	7
Set negatives to zero	***14***	7	15	13	8	4	2	2	5	7
Delete LTE zero	***9***	6	15	13	8	3	2	2	5	7
NZPMP deletions	***1***	6	14	11	7	2	1	2	5	7
Modified dataset (this report)	***-1***	5	13	11	7	2	1	2	5	7
2001 to 2007										
No deletions	***19***	9	19	21	16	11	11	10	10	7
Set negatives to zero	***5***	9	19	21	16	11	11	10	10	7
Delete LTE zero	***3***	9	19	20	15	11	11	10	10	7
NZPMP deletions	***3***	10	19	19	14	11	10	10	10	7
Modified dataset (this report)	***0***	9	19	19	14	10	10	10	11	9
1998 to 2007										
No deletions	***18***	9	21	24	18	16	16	14	16	14
Set negatives to zero	***18***	9	21	24	18	16	16	14	16	14
Delete LTE zero	***11***	9	21	23	18	16	16	14	16	14
NZPMP deletions	***2***	10	20	21	16	15	15	13	16	13
Modified dataset (this report)	***-1***	9	20	21	16	15	14	13	15	13
1982 to 2007										
No deletions	***9***	3	10	12	12	12	14	16	22	49
Set negatives to zero	***5***	3	10	12	12	12	14	16	22	49
Delete LTE zero	***5***	3	10	12	12	12	14	16	22	49
NZPMP deletions	***0***	3	10	12	12	12	14	16	23	49
Modified dataset (this report)	***0***	3	11	13	12	12	14	16	23	47
1988 to 2001										
No deletions	***56***	-6	-7	-5	-1	3	5	9	15	41
Set negatives to zero	***1***	-6	-7	-5	-1	3	5	9	15	41
Delete LTE zero	***-8***	-7	-7	-5	-1	2	5	9	15	41
NZPMP deletions	***-10***	-7	-7	-4	0	3	5	9	15	41
Modified dataset (this report)	***-6***	-6	-6	-4	0	3	6	9	15	39
1988 to 1994										
No deletions	***27***	-18	-18	-18	-17	-14	-11	-8	-4	10
Set negatives to zero	***-18***	-18	-18	-18	-17	-14	-11	-8	-4	10
Delete LTE zero	***-24***	-18	-18	-19	-17	-14	-11	-8	-4	9
NZPMP deletions	***-20***	-17	-19	-18	-16	-13	-11	-7	-3	10
Modified dataset (this report)	***-18***	-17	-19	-18	-17	-13	-11	-7	-3	8

very unstable

stable, not sensitive to different modifications to the dataset

Note: In 1988 there were more than the usual number of households reporting negative incomes and some reported some quite large negative incomes. This accounts for the incongruous 56% and 27% income growths for the bottom decile shown in the bottom two panels of Table 9.1. See also Fig 9.3.

The upshot of all this is that:

- it is misleading to use bottom decile means based on unadjusted income data as an indication of changes in access to economic resources for these households
- this is one of the reasons behind the use in the report of the top of decile one as an indicator of trends for those with very low incomes (P10)
- when comparing changes in mean incomes for deciles 2 to 10, the impact of any of the approaches used to alleviate decile one issues is barely noticeable
- changes in means for deciles 2 to 10 and changes at the top of deciles 1 to 9 (main report) show similar patterns
- this report recommends the use of the 'modified dataset' approach for tracking changes in the mean for the bottom decile (when the information is being used as an indicator of the access to economic resources for the bottom decile) .

Table 9.2 gives the decile means when negative incomes are re-set to zero (as is the default protocol in the main report), and for the bottom two deciles for the 'modified dataset' (Method A, see Appendix 8).

Table 9.2
Decile means of equivalised household incomes (BHC), ($2018)

HES year	Modified dataset		Negatives set to zero									
	1	2	1	2	3	4	5	6	7	8	9	10
1982	12,300	17,500	*10,600*	17,300	20,100	23,200	26,400	30,200	34,600	39,600	46,900	62,900
1986	12,400	17,100	*10,600*	16,800	19,700	22,200	25,200	28,300	32,000	36,700	43,900	60,300
1988	12,500	17,700	*10,600*	17,400	20,000	22,900	25,900	29,600	33,800	38,800	45,200	62,200
1990	13,800	17,200	*12,200*	16,900	19,400	22,200	25,200	29,100	33,600	39,700	48,200	74,500
1992	10,700	15,200	*8,600*	14,800	16,900	19,200	22,600	26,400	30,900	36,700	45,200	68,000
1994	10,800	14,500	*8,700*	14,200	16,500	18,600	21,700	25,700	30,200	36,000	44,000	67,900
1996	11,400	15,900	*9,300*	15,500	17,500	19,800	23,100	27,200	31,700	38,200	46,600	77,300
1998	12,500	16,800	*10,000*	16,400	18,400	21,100	25,100	29,300	34,400	41,100	49,700	83,100
2001	12,300	16,900	*10,700*	16,500	18,800	21,700	25,800	30,500	36,000	42,500	52,200	87,200
2004	12,300	17,300	*9,800*	16,700	19,400	23,000	27,500	33,000	39,000	45,500	54,900	87,500
2007	12,800	18,600	*11,600*	18,300	22,300	26,100	30,100	34,900	40,600	47,900	58,600	92,600
2008	12,900	19,000	*12,900*	19,000	22,900	27,100	31,100	35,800	41,600	49,300	59,800	105,200
2009	-	-	*13,300*	19,600	23,800	27,700	32,200	36,600	42,400	49,800	61,100	105,600
2010	14,000	19,500	*12,500*	19,300	23,300	27,800	31,900	36,900	42,700	49,400	60,600	101,400
2011	-	-	*11,600*	18,800	22,300	26,600	31,000	35,700	42,100	50,200	61,700	111,900
2012	-	-	*13,000*	19,800	23,600	27,800	31,500	36,400	43,300	51,900	63,000	101,700
2013	14,400	20,100	*13,400*	19,800	24,000	27,900	31,900	37,800	45,600	52,900	64,200	112,100
2014	-	-	-	20,000	24,000	28,600	33,400	39,200	46,000	55,100	67,700	115,200
2015	-	-	*13,500*	20,900	25,000	29,700	34,600	39,800	46,200	54,500	67,300	127,800
2016	15,100	21,400	*13,500*	21,200	25,500	29,900	34,300	39,500	45,600	55,000	68,900	119,900
2017	-	-	*13,800*	21,700	26,000	31,300	36,200	41,500	48,300	56,400	69,100	128,600
2018	-	-	*13,900*	21,700	26,500	31,500	37,000	42,900	49,500	57,800	71,800	127,900

this report advises against the use of this column for reporting on trends for low-income HHs

Notes: (1) The decile one means calculated with negatives set to zero (shaded column) are very unreliable indicators of the access to economic resources for the bottom decile – those from the 'modified dataset' (LH column) are better indicators.

(2) In the 'modified dataset' households with reported expenditure of more than three times their reported income are assigned an imputed income equal to the average of their reported income and expenditure (see Appendix 8 for more detail).

(3) The full 'modified dataset' approach is not able to be implemented for the HES (Income) years as these surveys do not collect full expenditure information.

Income shares

Table 9.3 reports decile shares for 1982 to 2017. The same issues apply to decile one shares as they do to decile one means. In particular they impact on the D10 to D1 share ratio, a ratio used by the OECD and Eurostat and others as an inequality indicator (sometimes referred to as the "S90:S10" share ratio). The modified OECD scale is used throughout.

Table 9.4 gives quintile shares for 2001 on, recalculated from the dataset rather than from simply adding the decile shares, to avoid the rounding errors that can occur with the latter.

Table 9.3
Decile shares (%) of equivalised household incomes (BHC)

	Modified dataset		Negatives set to zero									
	1	2	1	2	3	4	5	6	7	8	9	10
1982	3.9	5.5	3.4	5.6	6.4	7.4	8.5	9.7	11.1	12.7	15.0	20.2
1984	3.9	5.5	3.5	5.5	6.4	7.3	8.4	9.6	11.0	12.8	15.1	20.5
1986	4.1	5.7	3.6	5.7	6.7	7.5	8.5	9.6	10.8	12.4	14.9	20.4
1988	4.0	5.7	3.5	5.7	6.5	7.5	8.5	9.7	11.0	12.6	14.7	20.3
1990	4.2	5.2	3.8	5.3	6.0	6.9	7.8	9.1	10.5	12.4	15.0	23.3
1992	3.6	5.1	3.0	5.1	5.8	6.6	7.8	9.1	10.7	12.7	15.6	23.5
1994	3.7	5.0	3.1	5.0	5.8	6.6	7.6	9.1	10.7	12.7	15.5	24.0
1996	3.6	5.1	3.0	5.1	5.7	6.5	7.5	8.9	10.3	12.5	15.2	25.3
1998	3.7	5.0	3.0	5.0	5.6	6.4	7.6	8.9	10.5	12.5	15.1	25.3
2001	3.5	4.8	3.1	4.8	5.5	6.4	7.5	8.9	10.5	12.5	15.2	25.5
2004	3.3	4.7	2.8	4.7	5.5	6.4	7.7	9.3	10.9	12.8	15.4	24.6
2007	3.3	4.8	3.0	4.8	5.8	6.8	7.9	9.1	10.6	12.5	15.3	24.2
2008	3.2	4.7	3.2	4.7	5.7	6.7	7.7	8.9	10.3	12.2	14.8	26.0
2009	-	-	3.2	4.8	5.8	6.7	7.8	8.9	10.3	12.1	14.8	25.6
2010	3.4	4.8	3.1	4.7	5.7	6.9	7.9	9.1	10.5	12.2	14.9	25.0
2011	-	-	2.8	4.5	5.4	6.5	7.5	8.7	10.2	12.2	15.0	27.2
2012	-	-	3.2	4.8	5.7	6.7	7.6	8.8	10.5	12.6	15.3	24.7
2013	3.3	4.6	3.1	4.6	5.6	6.5	7.4	8.8	10.6	12.3	14.9	26.1
2014	-	-	-	4.5	5.4	6.5	7.6	8.9	10.4	12.5	15.3	26.1
2015	-	-	2.9	4.5	5.4	6.5	7.5	8.7	10.1	11.9	14.7	27.9
2016	3.3	4.7	3.0	4.7	5.6	6.6	7.6	8.7	10.0	12.2	15.2	26.5
2017	-	-	2.9	4.6	5.5	6.6	7.6	8.8	10.2	11.9	14.6	27.2
2018	-	-	2.9	4.5	5.5	6.5	7.7	8.9	10.3	12.0	14.9	26.6

Table 9.4
Quintile shares (%) of equivalised household incomes (BHC)

	Modified dataset	Negatives set to zero				
	Q1	Q1	Q2	Q3	Q4	Q5
2001	8.4	7.9	11.9	16.5	23.0	40.8
2004	8.1	7.4	11.9	17.0	23.7	40.0
2007	8.1	7.8	12.6	17.0	23.1	39.5
2008	7.9	3.2	4.7	5.7	6.7	7.7
2009	-	8.0	12.5	16.7	22.4	40.5
2010	8.2	7.8	12.6	17.0	22.7	39.9
2011	-	7.4	11.9	16.2	22.4	42.1
2012	-	8.0	12.5	16.5	23.1	40.0
2013	8.0	7.7	12.1	16.2	22.9	41.0
2014	-	*(7.4)*	11.9	16.4	22.9	41.4
2015	-	7.5	11.9	16.2	21.9	42.5
2016	7.9	7.6	12.2	16.3	22.2	41.7
2017	-	7.5	12.1	16.4	22.1	41.8
2018	-	7.4	12.1	16.6	22.3	41.6

Appendix 10

Household incomes in 'ordinary' dollars (ie not equivalised)

This report almost always uses household income adjusted for size and composition (equivalised income). This enables more sensible comparisons between different types of household, especially when using household income as an indicator of material wellbeing.

Table 10.1 reports median household income in 'ordinary' unequivalised dollars. The medians are adjusted for inflation using the CPI ($2018). See **Appendix 7** for the deflators used.

Table 10.1
Median disposable household income ($2018), not adjusted for household size and composition

HES year	median HH income ($)	mean HH income ($)
2001	57,700	68,400
2004	60,400	71,800
2007	66,200	76,000
2008	68,200	79,700
2009	69,100	82,100
2010	68,900	80,300
2011	68,300	82,300
2012	70,900	82,000
2013	71,000	85,100
2014	73,800	87,600
2015	75,900	91,700
2016	76,800	90,700
2017	81,000	96,000
2018	82,600	97,400

Table 10.2 reports household disposable income in 'ordinary' unequivalised dollars at the top of each decile (P10 to P90) and at P95. P50, top of decile 5, is the median.

Table 10.2
Disposable and gross household income at top of deciles and at P95,
income not adjusted for household size and composition (HES 2018)

	Disposable	Gross
1	32,000	36,000
2	46,500	53,200
3	58,700	68,300
4	69,800	82,500
5	82,600	99,000
6	96,400	117,900
7	110,700	134,900
8	132,500	165,600
9	168,800	215,800
9.5	218,700	286,600

Appendix 11

Low-income (poverty) figures compared for two anchored line thresholds - 50% of the 2018 median, and 60% of the 2007 median, showing that they give very close results (2007 on).

(Modified OECD scale used in Appendix 11.)

Table 11.1

Percentage of whole population below selected 'anchored' thresholds (BHC)

HES year	50% 2018 median	60% 2007 median
2007	19	18
2008	17	16
2009	16	15
2010	17	16
2011	19	17
2012	15	14
2013	16	14
2014	15	13
2015	13	11
2016	11	10
2017	10	10
2018	10	10

Table 11.2

Percentage of whole population below selected 'anchored' thresholds (AHC)

HES year	50% 2018 median	60% 2007 median
2007	23	21
2008	24	20
2009	21	19
2010	21	19
2011	23	21
2012	21	19
2013	21	17
2014	20	18
2015	18	17
2016	18	16
2017	16	14
2018	16	14

Table 11.3

Percentage of children (0-17 yrs) below selected ‘anchored’ thresholds (BHC)

HES year	50% 2018 median	60% 2007 median
2007	19	19
2008	17	19
2009	16	16
2010	17	21
2011	19	20
2012	15	18
2013	16	17
2014	15	18
2015	-	-
2016	-	-
2017	10	11
2018	10	14

Table 11.4

Percentage of children (0-17 yrs) below selected ‘anchored’ thresholds (AHC)

HES year	50% 2018 median	60% 2007 median
2007	27	25
2008	32	27
2009	29	26
2010	31	27
2011	31	28
2012	30	28
2013	28	24
2014	28	25
2015	-	-
2016	-	-
2017	19	17
2018	21	19

Appendix 12

AHC Repeats using the HBAI 'companion' equivalence scale

The tables in this Appendix are replications of the named tables from the body of the report, but with the AHC information calculated using the HBAI 'companion' equivalence scale instead of the 'modified OECD scale' as used in the body of the report. See **Appendix 3** for details of the scales.

Table E.3 - HBAI
50% and 60% low-income thresholds or 'poverty lines' for various household types (AHC)
($2018, per week) (Using the UK's HBAI equivalence scale)

		REL ('moving')			**CV** ('anchored' /'fixed')	
Household type	Equiv ratio	40% of 2018 median	50% of 2018 median	60% of 2018 median	50% of 2007 median in $2018	60% of **2018** median in $2018
One-person HH	1	200	245	295	195	295
SP, 1 child <14	1.34	265	330	400	260	400
SP, 2 children <14	1.68	330	415	500	330	500
SP, 3 children <14	2.02	400	500	600	395	600
Couple only	1.72	340	425	510	335	510
2P, 1 child <14	2.06	410	510	610	400	610
2P, 2 children <14	2.4	475	595	710	470	710
2P, 3 children <14	2.74	540	680	815	535	815
2P, 4 children <14	3.08	610	760	915	600	915
3 adults	2.44	485	605	725	475	725

Table B.3 –HBAI
Median disposable income (AHC HBAI) different household types (HES 2018)
in ordinary and equivalised dollars

HH type	**Median disposable income for the HH type (ordinary $)**	**Median disposable income for the HH type ($ per equivalent adult)**
One person, 65+	18,890	18,890
Couple, 65+	46,116	26,812
One person, under 65	26,164	26,164
Couple, under 65	67,826	39,434
SP, 1 child	30,769	17,514
SP, 2 children	23,090	12,422
SP, 3 or more children	30,320	11,408
2P, 1 child	65,179	27,380
2P, 2 children	67,625	26,816
2P, 3 or more children	60,147	18,510
Other family HHs with children	81,070	21,998
Family HHs, all < 65 – no children	86,928	33,901
Family HHs, at least one 65+ – no children	69,940	27,288
Whole population	**62,414**	**25,794**

Table D.6- HBAI
Real equivalised household incomes (AHC HBAI): decile boundaries
($2018)

	P10	P20	P30	P40	P50 (median)	P60	P70	P80	P90	mean
1982	9,500	12,200	13,900	15,900	18,200	20,800	24,100	28,100	34,200	20,300
1984	9,400	11,800	13,600	15,400	17,700	20,300	23,600	27,700	33,500	19,900
1986	10,000	12,600	14,500	16,200	18,500	20,600	23,800	27,800	34,200	20,500
1988	9,800	12,400	14,000	16,000	18,100	20,800	24,000	27,500	33,700	20,300
1990	9,500	11,900	13,700	15,600	17,900	21,000	24,500	28,900	37,000	21,500
1992	7,000	9,400	11,900	13,800	15,900	18,700	22,300	27,000	35,100	19,100
1994	6,500	9,000	11,500	13,400	15,400	18,500	22,100	26,400	33,600	18,700
1996	6,700	9,800	12,100	13,900	16,300	19,400	23,000	28,600	36,300	20,400
1998	7,200	10,600	12,900	14,900	17,800	20,800	24,800	30,400	39,500	22,000
2001	7,700	10,300	13,000	15,300	18,200	21,700	26,300	31,600	41,400	22,800
2004	7,700	11,100	14,100	16,400	19,900	23,800	28,500	34,400	44,800	23,900
2007	8,600	12,500	14,900	17,500	20,400	24,300	29,000	36,100	46,900	25,400
2008	9,300	12,600	14,800	17,700	20,700	24,600	29,200	36,000	48,100	26,800
2009	9,300	13,000	15,700	18,700	22,000	26,400	30,100	37,100	49,400	27,500
2010	9,000	13,000	15,900	18,900	22,200	25,500	30,300	36,900	50,000	27,300
2011	8,500	12,100	14,900	17,500	21,000	25,400	30,100	36,300	50,400	27,400
2012	8,900	12,600	15,700	18,200	21,500	25,900	31,800	39,300	51,000	27,600
2013	9,100	12,900	15,800	18,900	22,600	27,400	33,300	39,700	52,400	29,100
2014	9,100	13,400	16,100	19,000	22,900	28,000	34,200	41,700	55,600	29,800
2015	9,300	13,900	16,800	19,900	23,900	28,300	33,400	41,400	55,800	31,200
2016	9,500	13,900	16,700	20,000	23,500	27,300	33,500	41,300	56,900	30,400
2017	10,200	14,700	17,600	21,200	25,400	29,900	34,800	42,900	58,000	32,400
2018	10,300	14,700	18,000	21,600	25,800	30,400	35,800	43,800	60,100	32,800

Table D.7- HBAI

Median equivalised household incomes (AHC HBAI) for selected household types, 1982 to 2017 ($2018)

	Single < 65	Couple < 65	Other multi-adult fam HH <65, no dep ch	Other multi-adult fam HH 65+, no dep ch	Two parent	Sole parent	Single 65+	Couple 65+	ALL
1982	25,000	30,200	29,000	20,600	16,800	11,700	14,100	15,700	18,200
1984	22,600	26,800	28,200	24,000	15,800	12,500	14,500	15,600	17,700
1986	21,700	27,600	28,200	20,000	16,700	12,900	13,900	16,100	18,500
1988	22,300	26,500	27,500	28,000	16,400	14,100	13,900	16,100	18,100
1990	20,400	27,000	25,000	20,900	16,600	12,800	13,900	17,200	17,900
1992	17,700	24,900	23,200	17,800	14,500	9,000	14,200	15,700	15,900
1994	18,400	24,300	23,000	17,900	14,000	8,600	14,200	15,200	15,500
1996	21,600	24,900	24,500	19,100	14,700	8,500	14,800	16,000	16,300
1998	21,800	29,600	25,100	17,900	16,400	9,400	15,400	15,900	17,800
2001	20,000	29,300	28,500	24,300	16,800	9,000	15,600	15,700	18,200
2004	22,100	32,300	27,300	18,300	19,700	10,500	15,900	16,500	19,900
2007	21,000	31,900	30,100	21,100	19,700	12,100	15,800	18,000	20,400
2008	22,400	31,800	27,800	23,600	20,300	11,400	16,300	18,400	20,700
2009	23,400	34,500	29,400	24,100	20,400	12,600	17,400	22,800	22,100
2010	24,200	35,900	26,900	24,200	20,800	11,800	17,100	22,500	22,200
2011	20,800	33,100	30,100	26,900	20,200	10,900	17,300	20,900	21,000
2012	24,500	36,000	32,600	25,600	20,400	10,700	18,100	19,600	21,500
2013	26,500	37,800	30,700	27,500	21,500	11,600	18,500	24,200	22,600
2014	23,400	39,000	29,700	26,500	20,900	11,100	17,500	26,000	22,900
2015	23,700	37,000	30,500	27,800	21,900	13,400	18,800	25,500	23,900
2016	26,300	37,400	27,100	28,000	22,900	11,800	18,800	24,000	23,500
2017	25,500	37,800	31,000	24,400	23,300	13,900	18,200	26,100	25,400
2018	26,200	39,400	33,900	27,300	24,300	13,500	18,900	26,800	25,800

Table D.8 - HBAI

Income inequality in New Zealand: percentile ratios, 1982 to 2018

	BHC									AHC (HBAI)			
	All				Individuals in HHs with children					All			
	P90:P10	P80:P20	P80:P50	P20:P50	P90:P10	P80:P20	P80:P50	P20:P50	P50:10	P90:P10	P80:P20	P80:P50	P20:P50
1982	3.26	2.30	1.51	0.66	3.04	2.07	1.42	0.68	1.84	3.61	2.30	1.54	0.67
1984	3.31	2.31	1.54	0.67						3.57	2.33	1.57	0.67
1986	3.17	2.22	1.50	0.68	2.77	1.95	1.38	0.71	1.71	3.40	2.21	1.50	0.68
1988	3.12	2.22	1.51	0.68						3.45	2.22	1.52	0.68
1990	3.45	2.39	1.61	0.67	3.08	2.09	1.47	0.70	1.66	3.89	2.43	1.61	0.66
1992	3.84	2.54	1.67	0.66						4.98	2.87	1.70	0.59
1994	3.96	2.55	1.68	0.66	3.42	2.37	1.59	0.67	1.75	5.15	2.95	1.71	0.58
1996	3.83	2.55	1.67	0.65						5.41	2.92	1.75	0.60
1998	3.72	2.57	1.64	0.64	3.27	2.19	1.51	0.69	1.72	5.49	2.86	1.71	0.60
2001	4.01	2.64	1.68	0.64	3.49	2.43	1.58	0.65	1.84	5.41	3.06	1.72	0.56
2004	4.17	2.74	1.63	0.60	3.87	2.55	1.63	0.64	1.93	5.81	3.11	1.73	0.56
2007	4.01	2.56	1.61	0.63	3.59	2.09	1.47	0.70	1.94	5.47	2.88	1.77	0.61
2008	3.99	2.56	1.61	0.63	3.41	2.17	1.49	0.68	1.86	5.20	2.86	1.74	0.61
2009	3.91	2.53	1.58	0.63	3.23	2.07	1.45	0.70	1.76	5.34	2.86	1.68	0.59
2010	4.00	2.55	1.57	0.62	3.50	2.29	1.52	0.66	1.87	5.54	2.83	1.66	0.58
2011	4.41	2.67	1.62	0.61	3.74	2.34	1.55	0.66	1.94	5.91	3.00	1.73	0.58
2012	3.93	2.64	1.68	0.63	3.55	2.23	1.55	0.69	1.86	5.71	3.11	1.82	0.58
2013	4.15	2.62	1.66	0.63	3.68	2.42	1.64	0.68	1.86	5.76	3.07	1.75	0.57
2014	-	2.77	1.68	0.61	-	2.41	1.59	0.66	-	-	3.11	1.83	0.59
2015	4.04	2.62	1.61	0.61	3.68	2.23	1.50	0.67	1.84	5.98	2.97	1.73	0.58
2016	4.16	2.59	1.64	0.63	3.62	2.19	1.51	0.69	1.88	5.96	2.98	1.76	0.59
2017	4.06	2.62	1.60	0.61	3.47	2.22	1.50	0.68	1.85	5.70	2.92	1.69	0.58
2018	4.22	2.65	1.59	0.60	3.80	2.28	1.51	0.66	1.95	5.82	2.98	1.70	0.57

Note for Table D.8:

The 90:10 and 50:10 ratios are not reported for HES 2013-14 because of concerns about the reliability of the income data at the very low end of the distribution – see Section A for more on this.

Appendix 13

The difference the choice of weighting or 'grossing up' regime makes for reported low-income rates

Both Stats NZ and the Treasury have a weighting regime to gross up the sample numbers to population estimates. The benchmarks used by each are different, which can lead to quite different estimates of some population numbers. Two of the main differences are in the benchmarks used for determining the weights:

- The HES weights do not calibrate to sole parent households - the latter are included in the non-two-adult household group which are used along with two-adult households for benchmarking to household type.
- The HES weights also do not calibrate to the number of people receiving income-tested benefits or New Zealand Superannuation payments. The weighted HES data underestimates the benefit numbers by around a third in each survey.
- The Treasury weights include the number of beneficiaries as one of the key benchmarks, in accordance with Treasury's primary use for the HES in the TAWA model. Treasury's TAWA weights therefore provide a better estimate, for example, of the number of children in beneficiary families, although to achieve this there has been a trade-off with achieving other benchmarks.

Table 13.1 below show the difference the weighting regime makes to trends and levels of reported low-income rates from 2007 to 2015 (50% AHC REL) – a minor impact for whole population, but more significant for children (0-17 yrs) in the years prior to 2015.

Table 13.1
Low-income rates for children (0-17 yrs) and the whole population (50% AHC REL), Stats NZ and Treasury weights

HES year	0-17 yrs		ALL	
	Stats NZ wgts	Tsy wgts	Stats NZ wgts	Tsy wgts
2007	19	21	15	16
2008	19	20	14	14
2009	21	23	15	16
2010	23	25	16	16
2011	21	22	16	16
2012	23	26	15	16
2013	21	24	16	17
2014	23	25	16	17
2015	22	23	16	17
2016	19	19	15	15
2017	18	18	15	16
2018	21	21	16	16

The different weighting regimes make little difference to the reported low-income rates by work/benefit status (57% and 58% for Stats NZ and Treasury respectively for those receiving a working-age benefit). However, they make a significant difference to the reported composition of the 'poor' by work/benefit status as shown in **Table 13.2.** The Treasury weights produce a larger proportion from the beneficiaries group.

Table 13.2
Composition of the under 65 low-income population (50% AHC REL), by benefit/work status, Stats NZ and Treasury weights - HES 2015 & 2018

	Stats NZ wgts		Tsy wgts	
	Working	Benefit	Working	Benefit
2015	53	47	45	55
2018	59	41	54	46

Appendix 14

The difference the definition of child makes for reported low-income figures

The report uses two definitions of 'child', depending on the context:

- person aged under 18 years (the default definition)
- dependent child (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) .

When defining household types, the dependent child definition is used. For example, one category is 'sole parent household, with at least one dependent child'. Otherwise, the under 18 years definition is used.

Table 14.1 shows the difference in size of the two groups. There are around 25,000 to 30,000 16-17 year olds in each survey who not dependent children (ie are either in receipt of a benefit in their own right, or are employed for 30 or more hours a week).

Table 14.1
Numbers of dependent children and of persons aged under 18 years, HES 2007 and later

HES year	Dependent children	Those aged under 18 years	Difference	% difference
2007	1,065,874	1,090,780	24,906	2%
2008	1,053,596	1,084,591	30,995	3%
2009	1,069,754	1,086,939	17,185	2%
2010	1,065,195	1,091,071	25,876	2%
2011	1,066,539	1,102,510	35,971	3%
2012	1,046,726	1,082,906	36,180	3%
2013	1,064,272	1,094,016	29,744	3%
2014	1,057,634	1,093,577	35,943	3%
2015	1,063,447	1,096,821	33,374	3%
2016	1,076,408	1,104,001	27,593	3%
2017	1,073,372	1,102,897	29,525	3%

Figure 14.1 shows the time series for children living in low-income households (AHC 50% median REL). The lines for the two definitions are indistinguishable, typically differing by only 0.1 of a percentage point.

Figure 14.1
50% of median BHC low-income rates: dependent children and those aged 0-17 years

Appendix 15

Child Poverty Statistics: Stats NZ official numbers and those used in the body of this report

There are two (closely related) datasets available for estimating low-income and material hardship rates for New Zealand.

- The first is the long-running dataset used by MSD for its incomes and other reporting and by Stats NZ for reporting to the OECD's Income Distribution Database and elsewhere. It has income information from 1982 to 2018, and material hardship information from 2017 to 2018. This is referred to as the HES-TAWA dataset as it contains both HES survey data and essential secondary information produced by the Treasury's TAWA micro-simulation model (eg TAWA calculates disposable (after tax and transfer) income from the gross income and demographic data available in the survey data). Stats NZ provide standard weights for use with this dataset.
- The second is the special dataset constructed by Stats NZ for its official child poverty release on 2 April 2019 which set the baseline rates required for the implementation of aspects of the Child Poverty Reduction Act (2018). For BHC low income trends, data from the HES and the Household Labour Force Survey (HLFS) are pooled. The income information comes from administrative data, not the surveys themselves. This is referred to in this report as the HES-HLFS dataset. A new set of weights has been calculated for use with this data, based on different benchmarks than the one for the HES-TAWA data. The data in the HES-HLFS dataset is available only from 2007 on.
    - For AHC incomes, administrative data was used for the BHC income component, but as there is no housing cost information in the HLFS, the sample size was limited to that of the HES (5500 in 2017/18). The revised weights are used.
    - For material hardship estimates, the sample was limited to that of the HES (5500 in 2017/18), as the HLFS does not have material hardship information. The revised weights are used.

This Appendix reports the child poverty rates using both datasets. There is very little difference between them. For further detail see the discussion at the end of Section A in the body of the report.

The Stats NZ figures are the official ones. They are drawn from their website publication of Child Poverty Statistics available at:

https://www.stats.govt.nz/information-releases/child-poverty-statistics-year-ended-june-2018

Stats NZ published child poverty (low income) figures

Low income (poverty) rates for New Zealand children (0-17 yrs)

(ie the proportion (%) of children in households with incomes below the selected thresholds)

	BHC		AHC			
	BHC 'moving line'		AHC 'moving line'			AHC 'anchored line'
HES year	50%	60%	40%	50%	60%	50% (18 ref)
2007	14	24	15	22	29	-
2008	15	23	15	24	33	-
2009	14	22	15	24	31	31
2010	14	22	15	22	30	27
2011	15	23	16	22	30	31
2012	15	23	16	22	29	29
2013	16	24	16	22	29	27
2014	15	23	16	23	29	27
2015	16	25	16	24	31	27
2016	15	23	16	22	30	24
2017	14	22	16	21	28	22
2018	17	25	16	23	31	23

Numbers of children in low-income households in New Zealand (0-17 yrs), 000's

(ie the number of children in households with incomes below the selected thresholds)

	BHC		AHC			
	BHC 'moving line'		AHC 'moving line'			AHC 'anchored line'
HES year	50%	60%	40%	50%	60%	50% (18 ref)
2007	151	257	164	240	314	-
2008	156	252	156	258	355	-
2009	151	240	165	256	339	329
2010	152	242	160	237	322	291
2011	162	253	175	238	328	335
2012	161	253	177	241	314	316
2013	169	255	169	238	318	292
2014	157	254	172	249	318	296
2015	177	268	168	259	331	296
2016	168	254	178	244	326	265
2017	156	243	178	236	314	247
2018	183	281	174	254	341	254

AHC = after deducting housing costs BHC = before deducting housing costs

MSD child poverty figures in this report

Low income (poverty) rates for New Zealand children (0-17 yrs)

(ie the proportion (%) of children in households with incomes below the selected thresholds)

	BHC 'moving line'			AHC 'moving line' (mOECD)			AHC 'anchored line (2007)' (mOECD)	
HES year	**50% (sq rt)**	**50%**	**60%**	**40%**	**50%**	**60%**	**50% (07 ref)**	**50% (18 ref)**
2001	15	12	23	13	24	35	-	-
2004	15	14	26	13	22	32	-	-
2007	15	12	19	11	19	25	19	27
2008	14	13	21	11	19	28	18	32
2009	12	10	20	12	21	29	18	29
2010	16	12	23	14	23	32	20	31
2011	15	13	23	13	21	31	20	31
2012	14	12	20	14	23	30	20	30
2013	13	12	20	13	21	30	18	28
2014	17	14	24	15	23	32	19	28
2015	14	13	23	14	22	31	16	25
2016	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-
2018	16	15	24	14	21	31	13	21

Numbers of children in low-income households in New Zealand (0-17 yrs), 000's

(ie the number of children in households with incomes below the selected thresholds)

	BHC			AHC (mOECD)				
	BHC 'moving line'			AHC 'moving line' (mOECD)			AHC 'anchored line (2007)' (mOECD)	
HES year	**50% (sq rt)**	**50%**	**60%**	**40%**	**50%**	**60%**	**50% (07 ref)**	**50% (18 ref)**
2001	154	124	244	140	253	365	-	-
2004	162	152	282	137	238	345	-	-
2007	158	134	210	123	205	275	205	294
2008	157	142	223	117	203	305	198	342
2009	133	114	220	135	225	320	196	311
2010	173	129	256	152	254	346	213	339
2011	167	145	255	139	228	336	217	344
2012	151	131	221	150	248	323	221	326
2013	138	133	215	147	233	325	194	305
2014	187	157	263	162	250	345	209	306
2015	157	142	254	151	239	335	173	279
2016	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-
2018	183	166	276	161	236	352	150	236

AHC = after deducting housing costs BHC = before deducting housing costs

Notes for tables:

1 Figures are not reported for HES 2016 and 2017 – see Section A for discussion.

2 The equivalence scale used for AHC and BHC measures is the 'modified OECD scale'

Appendix 16

Material hardship for children: causes/drivers and consequences