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IN-WORK POVERTY IN NEW ZEALAND:
A FOCUS ON PACIFIC PEOPLES

2019

AUTHORS

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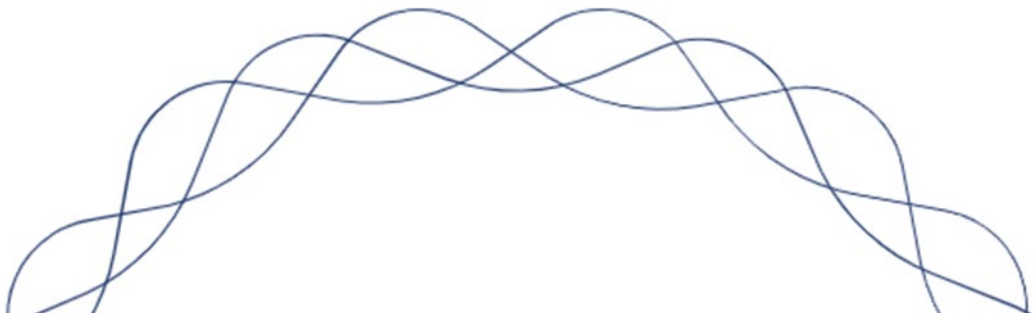
Access to the anonymised data used in this study was provided by Stats NZ in accordance with security and confidentiality provisions of the Statistics Act 1975. Only people authorised by the Statistics Act 1975 are allowed to see data about a particular person, household, business, or organisation, and the results in this paper have been confidentialised to protect these groups from identification. Careful consideration has been given to the privacy, security, and confidentiality issues associated with using administrative and survey data in the IDI.

Further detail can be found in the Privacy impact assessment for the Integrated Data Infrastructure available from www.stats.govt.nz.



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1. IN-WORK POVERTY IN NEW ZEALAND

1.1 Introduction

In 2018, the New Zealand Work Research Institute (NZWRI) was commissioned by the Human Rights Commission to examine the prevalence of, and characteristics associated with, in-work poverty in NZ (Plum *et al.*, 2019). This study was the first explorative step towards understanding and quantifying in-work poverty in NZ.

After consideration of the international literature (which encompassed a wide range of definitions and accompanying estimation issues) and the administrative data available in NZ, the following definitions were used to measure the two components of in-work poverty:

- In-work: a household is defined as 'working' if at least one working-age adult (aged 18 to 65) in that household is in employment (received positive wages and salaries) for seven or more months of the year between April 2012 and March 2013.
- Poor: a household is considered 'poor' when their monthly net equivalised income (before housing costs) falls below the income poverty line, which is at 60 percent of the median net equivalised income of the whole population as at March 2013.

Using the above definitions: in-work poverty is defined as the proportion of working households that fall below the poverty threshold. The headline estimate from Plum *et al.* (2019) showed the prevalence of in-work poverty was 7.0 percent as at March 2013.

The aim of this supplementary research report is to further identify ethnic-related differences in the prevalence of in-work poverty across multiple dimensions; including gender, region, education, household structure, occupation, industry and home ownership. In particular, we focus on the in-work poverty rate for Pacific peoples compared to NZ European, Māori, and Asian households in NZ.

1.2 Our approach

To conduct the following supplementary analysis, we adopt the same methods in Plum *et al.* (2019). Further information and a detailed description of the data used, our empirical approach, and the potential limitations and caveats can be found in the main report. For ease of reading, we provide some of the key points in brief below.

Our analysis draws on a range of administrative data hosted in Stats NZ's Integrated Data Infrastructure (IDI). The different datasets can be linked on an individual level via a unique individual identifier.

The starting point, and spine for the empirical analysis, is the 2013 Census, which provides rich population-wide information on individual and household characteristics. We begin with just over 4.3 million individuals. After dropping individuals without an associated household ID, as well as those without income records for the sample period (April 2012 to March 2013), we are left with close to 1.4 million households (which equates to approximately 3.7 million individuals). We use this population to derive the poverty threshold. To do so, for each individual in the household, we link them with their associated income records in Inland Revenue and in Working for Families. Income sources that are counted here include Working for Families (WfF) tax credits; Accommodation

Supplement (AS); wages and salaries; benefits; pensions; paid parental leave; withholding payments; ACC claims and student loans.[1] We aggregate income to the household unit level and then based on household structure, equivalise[2] the net monthly income for the household for the month of March 2013. The poverty threshold is based on this equivalised income distribution and is set at 60 percent of the median value.

We then drop households that contain a self-employed member; have no individuals 18 or above; have no individuals below 65 (i.e. pensioner households); and have one member outside of NZ for more than 90 days in the sample period of April 2012 to March 2013. The resulting population is referred to throughout this analysis as the population of interest.

Next, we categorise each household as 'in-work' or 'non-work'. As noted in the introduction, a household is 'in-work' if at least one working-age adult was in employment for seven or more months of the preceding year (April 2012 to March 2013), whereby employment is defined as receiving positive wages and salaries in a particular month. There is no assumption that the months in employment are consecutive or that they are employed in the final month of our sample period (i.e., March 2013).

The headline results from the main report regarding in-work poverty prevalence in NZ were:

- Population of interest = 874,797 households.
- Four out of five households (82.9 percent) were classified as working households.
- For working households, 7.0 percent fell below the poverty threshold.

The main report also provided three specific sensitivity checks. First, the estimates for in-work poverty prevalence were compared to estimates calculated with the use of survey data and household units from the Household Labour Force Survey (HLFS) for 2013. Similar results were found in this robustness check. Second, an alternative poverty threshold of 50 percent of the median net equivalised income was trialled – this decreased the prevalence of in-work poverty to 4.7 percent. Third, and finally, we utilised an alternative population for deriving the poverty threshold. Rather than using the full population's income distribution (which may have spillover effects due to the inclusion of pensioner households, for example), we used the population of interest to derive the poverty threshold. This sensitivity check yielded an in-work poverty rate of 12.4 percent. The latter two of these sensitivity checks illustrated that definitions and thresholds can make a sizable difference when estimating in-work poverty prevalence.

Defining the ethnicity of the household: As the empirical analysis that follows is reliant on households as the unit of analysis, we define a number of individual characteristics (including ethnicity) at the household level. To do so, we begin by using individual's ethnicity responses from the 2013 Census to derive a prioritised ethnicity for each adult member in the household. The order of prioritisation is Māori, Pacific peoples, Asian, MELAA, Other ethnicity, and NZ European. Households with multiple prioritised ethnicities (e.g., those with two adults of different prioritised ethnicities) are included in

[1] We do not have information on income from self-employment or investments on the monthly level. This information is available on the annual level and one alternative approach would be to look at annual income. However, we chose to measure poverty at the monthly level (here: March 2013) because we have the most precise link between income on the household level, household structure, location of residence, occupation / industry, etc. Furthermore, switching to an annual income approach would require additional assumptions, e.g., the household structure did not change during the year. For a detailed discussion including caveats see also Plum *et al*. (2019).

[2] We use the OECD scale to produce equivalised income (see OECD n.d.). This gives a weight to each household member – 1.0 is assigned to the first adult; each subsequent individual aged 14 or over is 0.5; and each child under age 14 is 0.3.

multiple categories. Therefore, the resulting sample of household units is larger than the number of unique households.

We present all descriptive findings for the following ethnic groups: NZ European, Māori, Pacific peoples, and Asian.[3] The sample of these four ethnicities consists of 970,416 non-work and in-work households. The in-work poverty rate based on working household units defined by ethnicity is 6.9 percent. Note that despite this being based on a larger sample, where households with multiple prioritised ethnicities are counted more than once, the in-work poverty rate is very similar to that found in the main report (when household units are not defined by ethnicity) – which stood at 7.0 percent.

2. RESULTS

2.1 In-work poverty prevalence

The population of interest consists of 970,416 households, which includes the double-counting of households with multiple prioritised ethnicities. We find that 83.9 percent (813,837 households)[4] are classified as in-work. The prioritised ethnic decomposition reveals that 67.7 percent (550,623 households) have at least one adult member that classifies themselves as NZ European, 16.4 percent (133,152 households) as Māori, 5.9 percent (48,036 households) as Pacific peoples, and 10.1 percent (82,026 households) as Asian.

Table 1 shows the poverty prevalence for non-work and in-work households. Unsurprisingly, the poverty rate is substantially higher for non-work households, and this holds for all ethnicities. However, clear ethnic differences are also apparent. Compared to NZ European, every other ethnicity has an elevated share of poor households (both non-work and in-work). For example, while the rate of NZ European in-work poor households is 5.9 percent (which is about one percentage point below the share for the aggregate population of interest), the respective rate of Pacific peoples in-work poor households is 9.5 percent. This is 3.6 percentage points (which equates to 61.2 percent) higher than their NZ European counterparts.

Table 1. Poverty rate of non-work and in-work households

	Non-work poor		In-work poor	
NZ European	61.5%		5.9%	
Māori	70.1%	+8.7 pp	8.6%	+2.7 pp
Pacific peoples	70.8%	+9.4 pp	9.5%	+3.6 pp
Asian	71.6%	+10.2 pp	9.4%	+3.5 pp

Source: IDI 2019. *Notes:* N=970,416 non-work and in-work households. Working and poverty definitions described in Section 1. pp = percentage point (difference compared to NZ European).

We can also view in-work poverty prevalence through an individual lens. As stated above, the number of in-work households is 813,837. This translates into 2,398,266 individuals (including double-counting due to households with multiple ethnicities). For the adults in this population, comparing in-

[3] Other ethnicity groupings are too small to include in the empirical analysis and are not the main focus of this supplementary report.
[4] The number of unique in-work households is 725,313.

work poverty prevalence along the gender dimension (as shown in Table 2) illustrates that females are more likely to be in an in-work household, relative to their male counterparts. Notably the gender gap is not homogenous across all ethnicities. For example, among Māori households, the in-work poverty rate for women is 1.5 percentage points higher than men; but this gap is just 0.5 percentage points for Asian households.

The ethnic differences found in Table 1 are further pronounced in Table 2 when focussing on children and their likelihood of living in an in-work poor household. This is especially striking for Pacific peoples households. Specifically, the rate of children living in a Pacific peoples in-work poor household is 17.7 percent, which is 10.2 percentage points higher than children living in NZ European in-work poor households.

Table 2. In-work poverty rate by gender and children

	Men		Women		Children	
NZ European	5.7%		6.8%		7.5%	
Māori	8.7%	+3.0 pp	10.2%	+3.4 pp	15.0%	+7.5 pp
Pacific peoples	10.1%	+4.4 pp	11.0%	+4.1 pp	17.7%	+10.2 pp
Asian	10.7%	+5.0 pp	11.2%	+4.4 pp	13.0%	+5.5 pp

Source: IDI 2019. *Notes:* N=2,398,266 individuals. Working and poverty definitions described in Section 1. pp = percentage point (difference compared to NZ European).

To determine the role of household size for ethnic differences in in-work poverty rates, we next derive the average number of individuals living in working households (Table 3, left panel).[5] We find that NZ European households hold the smallest average with 2.7 individuals per household and Pacific peoples households the highest with 4.25 individuals per household. While the spread is not that apparent between poor and non-poor households for NZ European and Asian, differences in the average household size are starker for Māori and Pacific peoples households. For example, on average, Pacific peoples in-work poor households have one member more compared to in-work non-poor households.

[5] Other explanations considered in the subsequent analysis are: ethnic differences in region; educational attainment; household structure; occupation; industry worked in; types of income sources; and home ownership and housing costs.

Table 3. Household size and share of households that is prime-aged adults (in-work households)

	Household size			Share of household = prime-aged† adults		
	Non-poor	Poor	Total	Non-poor	Poor	Total
NZ European	2.70 (1.31)	2.84 (1.51)	2.70 (1.33)	0.53 (0.35)	0.36 (0.34)	0.52 (0.35)
Māori	3.25 (1.63)	3.85 (2.02)	3.30 (1.68)	0.50 (0.32)	0.35 (0.29)	0.49 (0.32)
Pacific peoples	4.15 (2.08)	5.14 (2.43)	4.25 (2.14)	0.48 (0.27)	0.34 (0.23)	0.46 (0.27)
Asian	3.21 (1.42)	3.54 (1.60)	3.24 (1.44)	0.59 (0.29)	0.45 (0.30)	0.58 (0.30)

Source: IDI 2019. *Notes:* N=813,837 in-work households. Working and poverty definitions described in Section 1. Standard deviations in parenthesis. † Refers to age 25-55 (inclusive).

One further explanation for experiencing in-work poverty might be a lack of prime-aged workers in the household. We define an adult as being prime-aged when their age is between 25 and 55 (inclusive). As the right panel of Table 3 indicates, in-work non-poor households have, on average, a higher share of prime-aged workers in the household than in-work poor households. For example, for Pacific peoples households, close to half the household size of in-work non-poor households are prime-aged; whereas this falls to close to a third for in-work poor households.

2.2 Sensitivity analysis

Identification of households' ethnicity

As a first test of sensitivity of findings, we look at how in-work poverty prevalence is affected when changing the identification of households' ethnicity. We trial two alternative ways of defining ethnicity at the household level. First, we look at the in-work poverty distribution based on non-prioritised ethnicity which is that at least one adult member in the household states the respective ethnicity (see column three and four of Table 4). Compared to our headline figures (see column one and two of Table 4), we do not find substantial changes. Next, we trim the categories to single prioritised ethnicities which is that all adult household member state the same prioritised ethnicity (see two last columns of Table 4). Here we can find elevated in-work poverty prevalence for households without a NZ European ethnicity. For example, if all adults in the household have a prioritised ethnicity of Pacific peoples (regardless of the number of adults in the household), then 11.6 percent of these households are defined as being poor; which is 5.7 percentage points higher compared to NZ European households.

Table 4. Poverty rate of in-work households (by alternative ethnicity specifications)

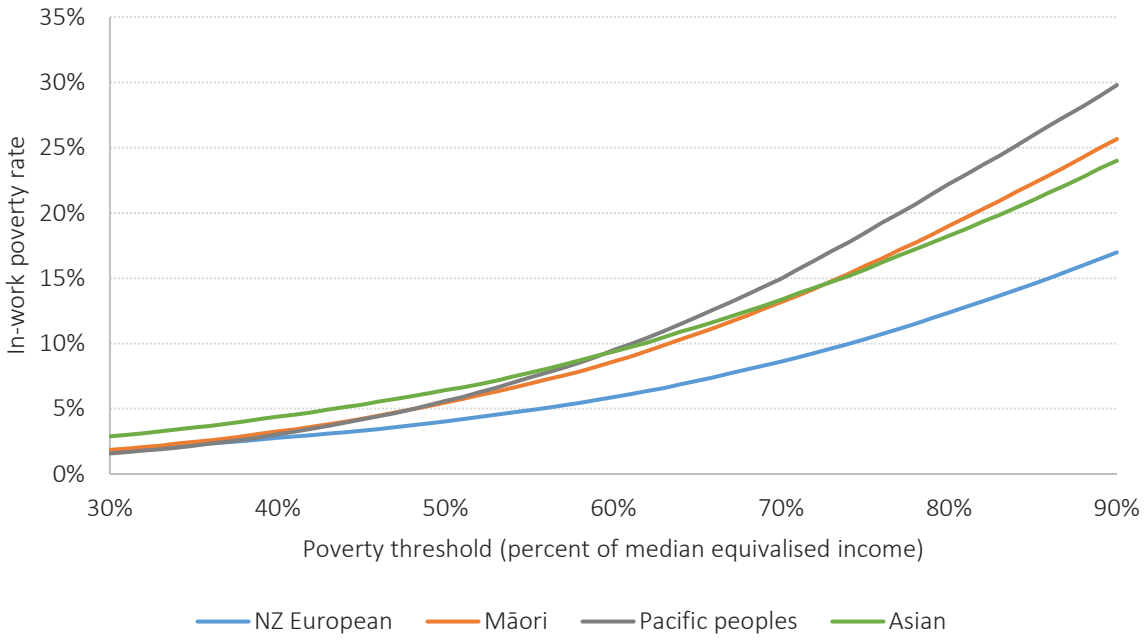
	Prioritised ethnicity (see Table 1)		Non-prioritised ethnicity†		Single prioritised ethnicity‡	
NZ European	5.9%		6.1%		5.9%	
Māori	8.6%	+2.7 pp	8.6%	+2.5 pp	11.5%	+5.6 pp
Pacific peoples	9.5%	+3.6 pp	9.5%	+3.4 pp	11.6%	+5.7 pp
Asian	9.4%	+3.5 pp	9.3%	+3.2 pp	10.2%	+4.3 pp

Source: IDI 2019. *Notes:* N= 813,837 in-work households when using prioritised ethnicity; N= 862,710 in-work households when using non-prioritised ethnicity; N=594,306 in-work households when using single prioritised ethnicity. Working and poverty definitions described in Section 1. pp = percentage point (difference compared to NZ European). † At least one adult member in the household states the respective ethnicity. ‡ All adult household members state the same prioritised ethnicity.

Poverty threshold

As a second robustness analysis, we re-calculate the in-work poverty prevalence for our population of interest using different poverty thresholds. Specifically, we illustrate a range between 30 and 90 percent of the median net equivalised income. In Figure 1 we can see that the in-work poverty rate of Pacific peoples households is more sensitive to changes in the poverty threshold relative to their NZ European counterparts. For example, setting the threshold at 60 percent results in a difference of 3.6 percentage points between the two groups, which widens to 9.9 percentage points when lifting the threshold to 80 percent. The same can be observed for comparing Māori and NZ European households: referring to the same above-mentioned cut-off points, the in-work poverty rate doubles from 2.7 percentage points to 6.6 percentage points.

Figure 1. Interrelation of poverty threshold and in-work poverty rate



Source: IDI 2019. *Notes:* N=813,837 in-work households. Working and poverty definitions described in Section 1.

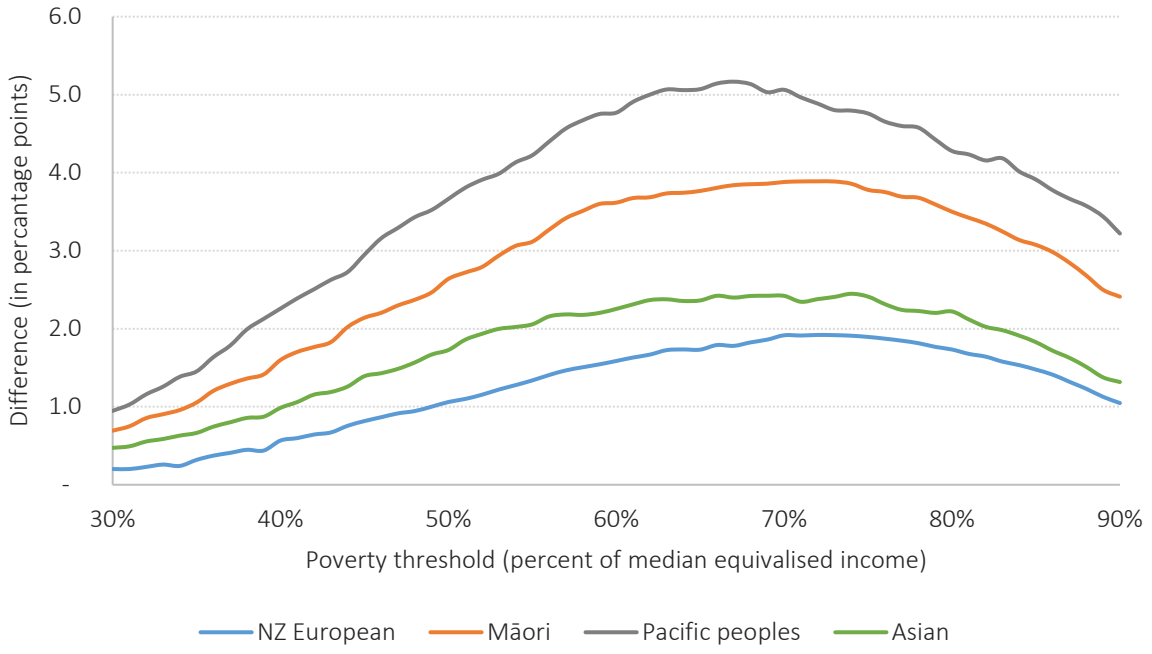
Role of WfF and AS

In our analysis, we account for several different income sources like wages and salaries, benefits, NZ superannuation, paid parental leave, *etc*. Two key elements of the NZ welfare system that are also included are WfF tax credits and AS. To understand the role of these two policies with respect to in-work poverty prevalence, we re-calculate the net equivalised household income excluding income sourced from WfF and AS.

The new in-work poverty prevalence is also provided across the range of 30 to 90 percent of the median. Figure 2 shows the percentage point difference in the in-work poverty rate compared to the initial figures above. In the case of our headline poverty threshold of 60 percent, the in-work poverty prevalence of Pacific peoples households is 4.8 percentage points higher when excluding WfF and AS; translating to an increase from 9.5 to 14.3 percent. Māori households also experience a substantial lift in their in-work poverty prevalence of 3.6 percentage points (from 8.6 to 12.2 percent). The smallest difference is observed among NZ European households, where we find an elevated in-work poverty prevalence of 7.5 percent (previously 5.9 percent). These figures illustrate the significant role played by both WfF and AS in inhibiting in-work poverty.

Another noteworthy finding of Figure 2 is that, independent of the household's ethnicity, the re-distributional effect of both policies takes an inverted U-shape when increasing the poverty threshold. This association is strongest for Pacific peoples households. In other words, the highest cushioning effect can be found when setting the threshold at 67 percent (5.2 percentage points) and drops away either side of that threshold.

Figure 2. Redistributional effect of WfF and AS



Source: IDI 2019. *Notes:* N=813,837 in-work households. Working and poverty definitions described in Section 1.

Alternative population for deriving poverty threshold

Using the full population's income distribution (which therefore includes groups such as pensioner households) for deriving the poverty threshold may have spillover effects on the estimated prevalence of in-work poverty. We therefore, replicate the in-work poverty prevalence estimates when deriving the poverty threshold based on the income distribution of our population of interest (i.e. working-age households excluding pensioner and self-employed households).[6]

The resulting in-work poverty rate is 10.3 percent (and 12.2 percent when excluding WfF and AS) for NZ European households. In comparison, the respective figures for Pacific peoples households are much higher – 18.5 percent (and 23.2 percent when excluding WfF and AS). This sensitivity check illustrates that definitions and thresholds can have a sizable impact on the estimated prevalence of in-work poverty.

2.3 Region

Next, we turn to regional differences. Spatial heterogeneity was investigated in Section 4.1 of the main report and indicated that some regions face noticeably higher in-work poverty rates. Table 5 reports the regional in-work poverty rates at a disaggregated level for different household ethnicities. While we do find that ethnic disparities at the regional level are present, these differences are not constant across all regions. For example, when comparing NZ European and Pacific peoples households, we find an elevated rate of 2.6 percentage points for Northland, compared to 7.4 percentage points for Gisborne.

It should also be noted that the spatial distribution of households differs with respect to ethnicity (see Appendix Table A 1). This can be best highlighted when looking at Auckland. About every fourth NZ European (25.7 percent) or Māori (22.5 percent) household can be found in NZ's largest city, while the respective numbers are six out of ten for Pacific peoples (61.7 percent) and Asian (60.6 percent) households. Further clusters of Pacific peoples households can be found in Wellington (14.3 percent), Canterbury (5.6 percent), and Waikato (5.1 percent).

[6] Analysis by Bourquin *et al.* (2019) with the UK income distribution also includes estimation of in-work poverty rates when excluding pensioners from calculating the poverty threshold.

Table 5. Region and in-work poverty rate

Region	NZ European	Māori	Pacific peoples	Asian
Northland	8.6%	12.5% (+4.0 pp)	11.2% (+2.7 pp)	9.6% (+1.0 pp)
Auckland	4.5%	6.6% (+2.1 pp)	9.7% (+5.3 pp)	9.1% (+4.6 pp)
Waikato	6.8%	9.6% (+2.8 pp)	9.4% (+2.5 pp)	10.1% (+3.3 pp)
Bay of Plenty	6.8%	11.1% (+4.3 pp)	12.8% (+6.1 pp)	13.1% (+6.4 pp)
Gisborne	6.9%	11.3% (+4.3 pp)	14.3% (+7.4 pp)	9.5% (+2.6 pp)
Hawke's Bay	5.6%	8.3% (+2.7 pp)	8.2% (+2.6 pp)	8.6% (+3.0 pp)
Taranaki	5.8%	7.5% (+1.7 pp)	8.2% (+2.4 pp)	7.2% (+1.3 pp)
Manawatu-Wanganui	7.5%	10.0% (+2.5 pp)	10.4% (+2.9 pp)	13.5% (+6.0 pp)
Wellington	5.6%	8.0% (+2.4 pp)	9.0% (+3.4 pp)	8.0% (+2.4 pp)
West Coast, Southland, Tasman, Nelson, Marlborough	6.3%	6.6% (+0.3 pp)	5.8% (-0.6 pp)	5.8% (-0.5 pp)
Canterbury	5.3%	6.2% (+0.9 pp)	6.5% (+1.2 pp)	9.5% (+4.2 pp)
Otago	8.4%	10.9% (+2.5 pp)	11.9% (+3.5 pp)	17.1% (+8.6 pp)

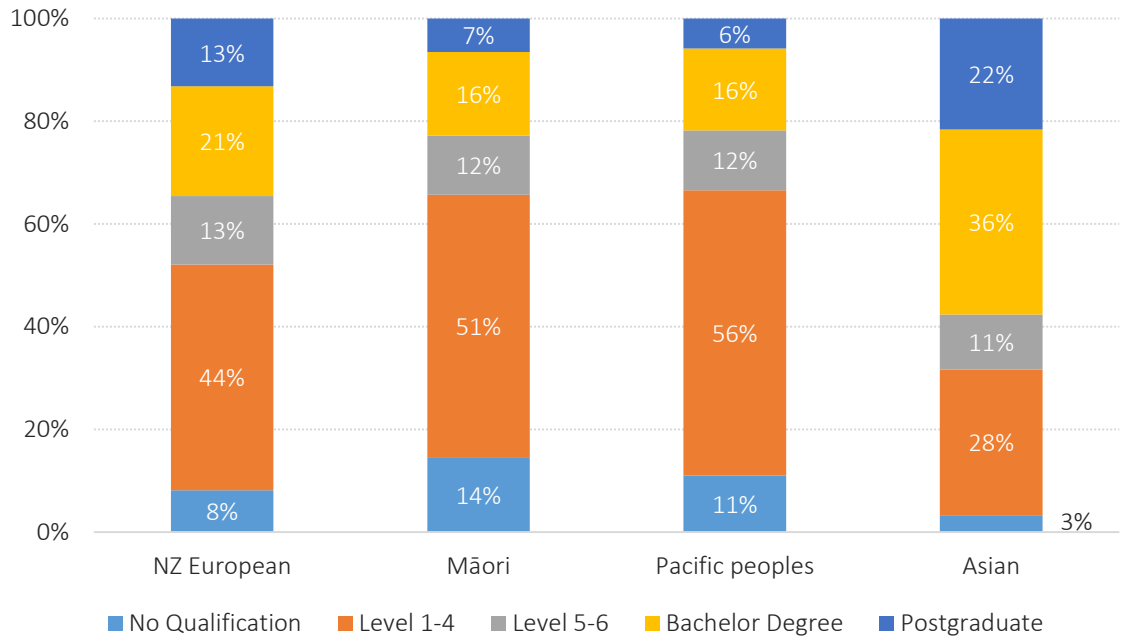
Source: IDI 2019. *Notes:* N=813,741 in-work households. Working and poverty definitions described in Section 1.
pp = percentage point (difference compared to NZ European).

2.4 Educational attainment

One key predictor for an individual's success in the labour market is often their educational qualification. Plum *et al.* (2019) found a negative association between highest educational attainment of the household and the likelihood of experiencing in-work poverty. To further break down this relationship by ethnicity of the household, we begin with categorising all qualifications into five groups: no qualification; levels 1 through 4; levels 5 and 6; a bachelor's degree; and postgraduate qualification. We use educational attainment information in the 2013 Census to derive the highest educational qualification in the household, based on the five pre-defined categories.

As Figure 3 shows, the distribution of a household's highest qualification varies by ethnicity. We find that about two-thirds of Pacific peoples households have either no qualification (11 percent) or have a qualification between levels 1 and 4 (56 percent). In contrast, only 31 percent of Asian households have either no qualification or levels 1 to 4, whereas more than half of Asian households (58 percent) hold a bachelor or postgraduate qualification.

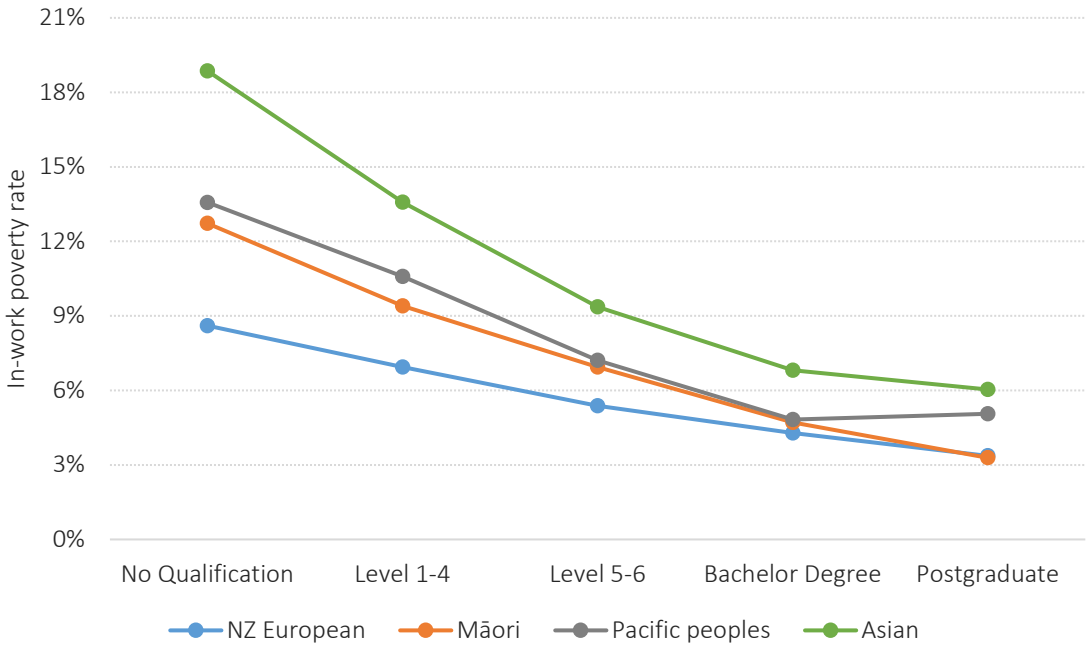
Figure 3. Distribution of educational attainment



Source: IDI 2019. *Notes:* N=803,253 in-work households.

In Figure 4, we show the association between the household's qualification level and in-work poverty prevalence. We find the flattest downward slope for NZ European households: while 9 percent of the households with no qualification are in-work poor, this is only the case for 3 percent of the postgraduate households. Interestingly, the slope is the steepest for Asian households: the in-work poverty rate for households without any qualification is 19 percent, which drops to 6 percent for postgraduate households.

Figure 4. Educational attainment and in-work poverty rate



Source: IDI 2019. *Notes:* N=803,253 in-work work households. Working and poverty definitions described in Section 1.

2.5 Household structure

The main report (Plum *et al.*, 2019) showed distinct differences in in-work poverty prevalence across different household structures. Table 6 replicates those descriptives further broken down by ethnicity of the household, as well as illustrating the respective share of each population subgroup that fall into a particular household type.

There are several noteworthy observations. First, regardless of the households' ethnicity, we observe that one parent with child(ren) and other multi-person households face an especially elevated in-work poverty rate. In contrast, couple without child(ren) households have a below-average in-work poverty rate. Second, having more than one working[7] adult in the household notably reduces the household's in-work poverty rate. For example, in the case of Pacific peoples households, the in-work poverty rate of couple with child(ren) households is 20.4 percent if only one adult is working; this number drops to 3.0 percent if more than one adult is classified as working. Third, there are no apparent differences between the ethnicities (and within a particular household type) with respect to the number of employed adults in the household. For instance, across all ethnicities, one-third of the couple without children households have a single working adult and two-thirds have more than one working adult.

However, when looking at the aggregate distribution of household types, there are clear ethnic differences, which further help in explaining the greater likelihood of in-work poverty prevalence across ethnic minorities. For example, as noted before, couple without child(ren) households face a substantially lower in-work poverty rate, and about one-third (29.3 percent) of NZ European households are categorised by that household structure – but this is only the case for 13.5 percent of Pacific peoples households. On the other hand, about two-thirds (68.8 percent) of Pacific peoples households are a couple with child(ren) or two or more family households; while for NZ European, these two households types only contribute 40 percent.

[7] The definition of 'working' is provided in Section 1.

Table 6. Household structure and in-work poverty rate

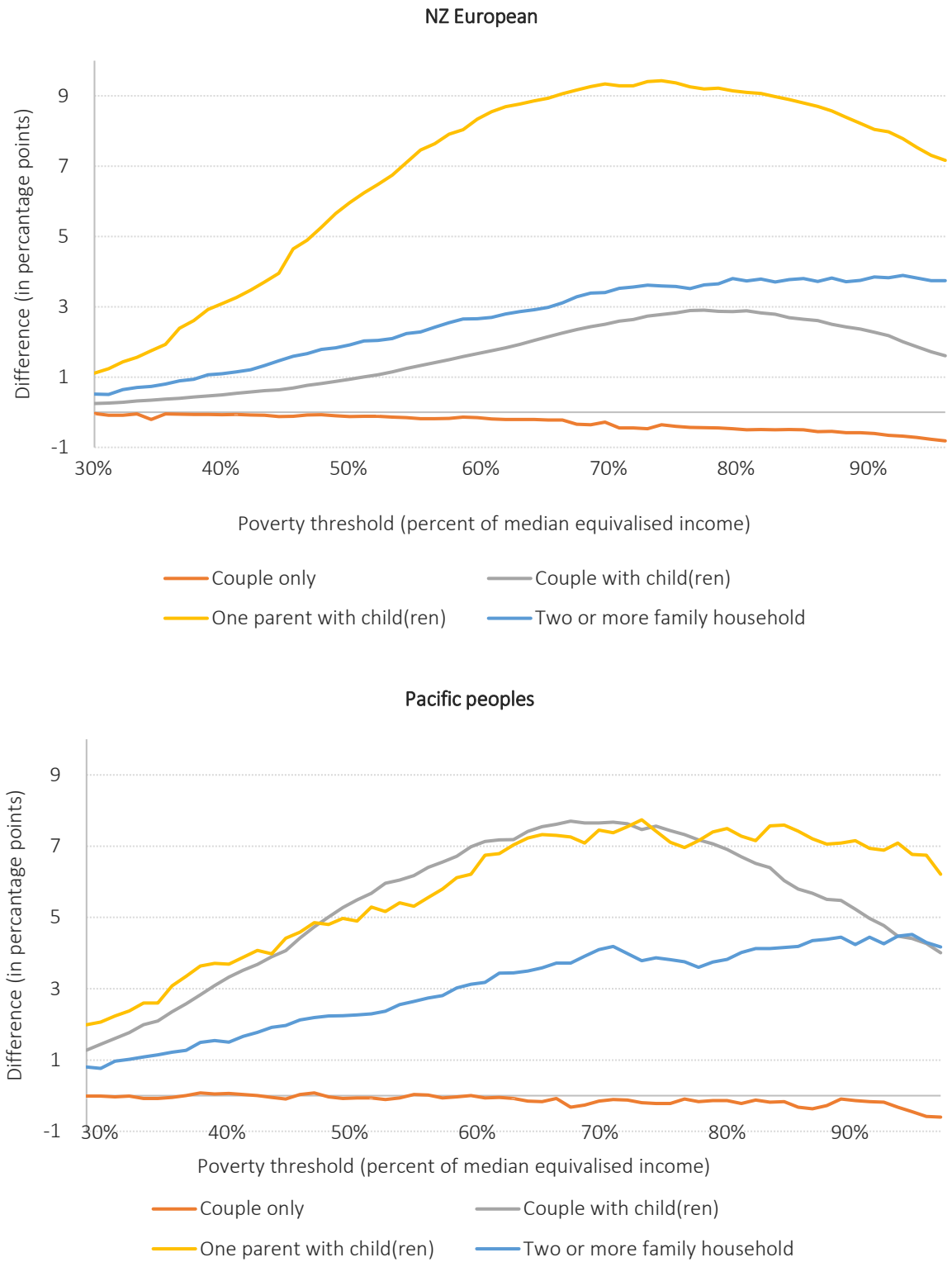
	NZ European		Māori		Pacific peoples		Asian	
	In-work poverty	Share	In-work poverty	Share	In-work poverty	Share	In-work poverty	Share
Couple without children	4.5%	29.3%	4.9%	21.0%	4.1%	13.5%	6.4%	23.2%
One working	11.1%	33.3%	11.9%	32.4%	10.0%	32.0%	14.9%	33.8%
>1 working	1.1%	66.7%	1.5%	67.6%	1.3%	68.0%	2.1%	66.2%
Couple with child(ren)	4.7%	35.7%	7.3%	37.4%	9.9%	47.3%	9.0%	46.4%
One working	10.6%	36.3%	15.5%	38.8%	20.4%	40.1%	17.6%	40.7%
>1 working	1.4%	63.7%	2.2%	61.2%	3.0%	59.9%	3.1%	59.3%
One parent with child(ren)	10.5%	8.7%	15.6%	11.0%	15.1%	8.6%	15.4%	5.8%
Two or more family household	6.5%	4.3%	10.6%	13.7%	9.9%	21.5%	11.3%	9.5%
One working	14.4%	35.7%	20.7%	42.1%	23.5%	32.9%	25.9%	31.0%
>1 working	2.1%	64.3%	3.2%	57.9%	3.3%	67.1%	4.8%	69.0%
One-person household	6.2%	15.8%	7.6%	9.0%	6.4%	4.3%	8.0%	6.9%
Other multi-person household	11.5%	6.2%	12.5%	7.9%	11.0%	4.9%	14.8%	8.1%
One working	19.1%	38.2%	18.6%	44.5%	17.9%	44.5%	29.4%	34.7%
>1 working	6.8%	61.8%	7.8%	55.5%	5.5%	55.5%	7.0%	65.3%
Total	**5.9%**		**8.6%**		**9.5%**		**9.4%**	

Source: IDI 2019. *Notes:* N=813,837 in-work households. Working and poverty definitions described in Section 1. Other multi-person household is a group of related (e.g., siblings) or unrelated (e.g., flatmates) people living together who do not form a family.

Plum *et al.* (2019) showed that the role of WfF and AS with respect to in-work poverty prevalence varied by household type. In particular, it was found that while overall, there was an average drop in in-work poverty prevalence of 2.2 percentage points across all households, this gap widened to over 9 percentage points when focussing on single-parent with child(ren) households. In Figure 5, we repeat this exercise for just Pacific peoples and NZ European households and for the four main household types.

As expected, WfF and AS have no role with respect to the in-work poverty prevalence for couple only households. In contrast, and for both NZ European and Pacific peoples households, WfF and AS play a sizable role for inhibiting in-work poverty for single-parent households (a drop of 8.8 and 7 percentage points at the 60 percent poverty threshold, respectively). Another key take-out from Figure 5 is that relative to NZ European, there is a larger impact of WfF and AS for Pacific peoples households that are couples with child(ren). This is reflected in a drop of 1.9 and 7.2 percentage points at the 60 percent poverty threshold for NZ European and Pacific peoples households respectively.

Figure 5. Redistributional effect of WfF and AS for NZ European and Pacific peoples households (by household structure)



Source: IDI 2019. *Notes:* N=472,869 NZ European and Pacific peoples in-work households (including only the following four household types: couple only, couple with child(ren), one parent with child(ren), and two or more family households). Working and poverty definitions described in Section 1.

2.6 Occupation

In this section, we analyse the relationship between occupation and in-work poverty. For each household, we identify the occupation of the adult member with the highest income from wages and salaries in March 2013. The overall sample size of working households drops to 752,820 as for the purpose of this exercise, we are only considering households who received positive income from wages and salaries in March 2013[8] and excluding households with missing occupation information. Note that for this reduced sample, the overall in-work poverty rate is lower than that found in Table 1, as shown by the aggregate in-work poverty rates in the last row of Table 7.

Table 7 shows that independent of the household's ethnic background, managers and professionals have a below-average in-work poverty rate; while community and personal service workers, sales workers, and labourers have an elevated rate of experiencing in-work poverty. These occupational differences also help in further understanding one of the underlying reasons behind ethnic disparities in in-work poverty rates. For example, 43.6 percent of the NZ European households' main earners are either managers or professionals – the equivalent number is 26.6 percent for Pacific peoples households.

[8] Identifying a household as 'in-work' does not necessarily mean that the household received income from wages and salaries in March 2013. This is because the definition of 'work' only requires that the individual works a total of seven month out of the year which are not required to be consecutive, nor required to be the month in question (March).

Table 7. Occupation and in-work poverty rate

	NZ European	Māori		Pacific peoples		Asian	
Managers							
	1.8% (20.6%)	2.8% (14.7%)	+1.0 pp	2.9% (11.0%)	+1.1 pp	4.1% (15.6%)	+2.3 pp
Professionals							
	2.3% (23.0%)	3.3% (16.7%)	+1.0 pp	3.3% (15.6%)	+1.0 pp	3.3% (26.6%)	+1.0 pp
Technicians and trades workers							
	2.8% (13.5%)	4.3% (12.6%)	+1.6 pp	5.4% (12.1%)	+2.6 pp	7.1% (15.0%)	+4.3 pp
Community and personal service workers							
	10.6% (8.2%)	11.3% (10.5%)	+0.7 pp	11.4% (11.2%)	+0.7 pp	14.0% (7.9%)	+3.3 pp
Clerical and administrative workers							
	5.2% (10.5%)	5.5% (9.2%)	+0.4 pp	5.9% (10.9%)	+0.7 pp	5.9% (10.3%)	+0.7 pp
Sales workers							
	8.8% (7.8%)	11.4% (6.8%)	+2.7 pp	10.9% (7.6%)	+2.2 pp	13.8% (10.1%)	+5.1 pp
Machinery operators and drivers							
	2.7% (6.8%)	3.6% (11.2%)	+0.9 pp	5.6% (13.6%)	+2.9 pp	5.7% (5.1%)	+3.0 pp
Labourers							
	7.5% (9.8%)	8.3% (18.3%)	+0.8 pp	9.4% (18.1%)	+1.9 pp	12.6% (9.5%)	+5.1 pp
Total							
	4.3%	**5.9%**	**+1.6 pp**	**6.7%**	**+2.4 pp**	**7.2%**	**+2.9 pp**

Source: IDI 2019. *Notes:* N=752,820 in-work households. Working and poverty definitions described in Section 1. See Stats NZ (2018a) for more information about the Australian and NZ Standard Classification Occupations system. pp = percentage point (difference compared to NZ European). Numbers in parenthesis refers to the share of the respective occupation.

2.7 Industry

In a similar fashion to the method undertaken with occupation, industry identification is based on the adult in the working household with the highest income from wages and salaries in March 2013 (see Table 8).

As in Plum *et al.* (2019), the highest rates of in-work poverty prevalence are found in accommodation and food services, and as Table 8 shows, this is irrespective of ethnicity of household.

For Pacific peoples households, industries that are also associated with high levels of in-work poverty are Agriculture, fishing and forestry; Administrative and support services; and Arts and recreation services.

Table 8. Industry and in-work poverty rate

	NZ European	Māori		Pacific peoples		Asian	
Agriculture, Forestry and Fishing							
	5.9% (4.9%)	7.7% (6.6%)	+1.8 pp	10.1% (2.5%)	+4.2 pp	8.0% (3.0%)	+2.1 pp
Manufacturing							
	1.8% (12.3%)	2.7% (15.4%)	+0.9 pp	4.5% (19.8%)	+2.7 pp	4.5% (12.3%)	+2.7 pp
Electricity, Gas, Water and Waste Services							
	1.5% (1.1%)	2.7% (1.2%)	+1.2 pp	5.6% (0.8%)	+4.1 pp	0.9% (0.9%)	-0.6 pp
Construction							
	2.3% (7.8%)	3.3% (8.6%)	+1.0 pp	4.6% (6.3%)	+2.3 pp	3.7% (3.9%)	+1.4 pp
Wholesale Trade							
	2.0% (6.3%)	3.5% (4.5%)	+1.5 pp	5.0% (6.1%)	+3.0 pp	4.8% (5.9%)	+2.8 pp
Retail Trade							
	7.8% (8.3%)	10.2% (7.6%)	+2.4 pp	10.7% (7.0%)	+2.9 pp	11.7% (10.8%)	+3.9 pp
Accommodation and Food Services							
	12.6% (3.4%)	14.5% (4.6%)	+1.9 pp	14.5% (4.1%)	+1.9 pp	16.4% (8.7%)	+3.8 pp
Transport, Postal and Warehousing							
	2.5% (5.0%)	3.8% (6.2%)	+1.3 pp	5.0% (7.4%)	+2.5 pp	4.4% (3.8%)	+1.9 pp
Information Media and Telecommunications							
	3.1% (1.9%)	4.8% (1.3%)	+1.7 pp	5.2% (1.7%)	+2.1 pp	4.4% (2.5%)	+1.3 pp
Financial and Insurance Services							
	1.5% (4.4%)	2.2% (2.9%)	+0.7 pp	2.6% (4.1%)	+1.1 pp	2.3% (5.9%)	+0.8 pp
Rental, Hiring and Real Estate Services							
	5.2% (1.7%)	7.3% (1.6%)	+2.1 pp	6.7% (1.5%)	+1.5 pp	7.1% (1.5%)	+1.9 pp
Professional, Scientific and Technical Services							
	2.3% (8.7%)	3.2% (4.7%)	+0.9 pp	4.5% (4.8%)	+2.2 pp	3.4% (10.8%)	+1.1 pp

Table 8. Industry and in-work poverty rate (continued)

	NZ European	Māori		Pacific peoples		Asian	
Administrative and Support Services							
	6.5% (2.5%)	10.6% (3.3%)	+4.1 pp	12.0% (4.2%)	+5.5 pp	8.9% (3.1%)	+2.4 pp
Public Administration and Safety							
	1.4% (7.0%)	2.0% (7.1%)	+0.6 pp	2.9% (7.0%)	+1.5 pp	1.9% (4.6%)	+0.5 pp
Education and Training							
	5.4% (9.5%)	7.6% (9.6%)	+2.2 pp	7.0% (7.6%)	+1.6 pp	7.5% (6.8%)	+2.1 pp
Health Care and Social Assistance							
	6.1% (10.1%)	7.6% (10.1%)	+1.5 pp	8.6% (10.4%)	+2.5 pp	5.2% (11.4%)	-0.9 pp
Arts and Recreation Services							
	7.7% (1.6%)	8.3% (1.5%)	+0.5 pp	10.2% (1.4%)	+2.5 pp	8.0% (1.1%)	+0.3 pp
Other Services							
	5.5% (3.6%)	6.4% (3.3%)	+0.9 pp	8.2% (3.2%)	+2.7 pp	11.0% (3.1%)	+5.5 pp
Total	**4.2%**	**5.8%**	**+1.6 pp**	**6.6%**	**+2.4 pp**	**6.7%**	**+2.5 pp**

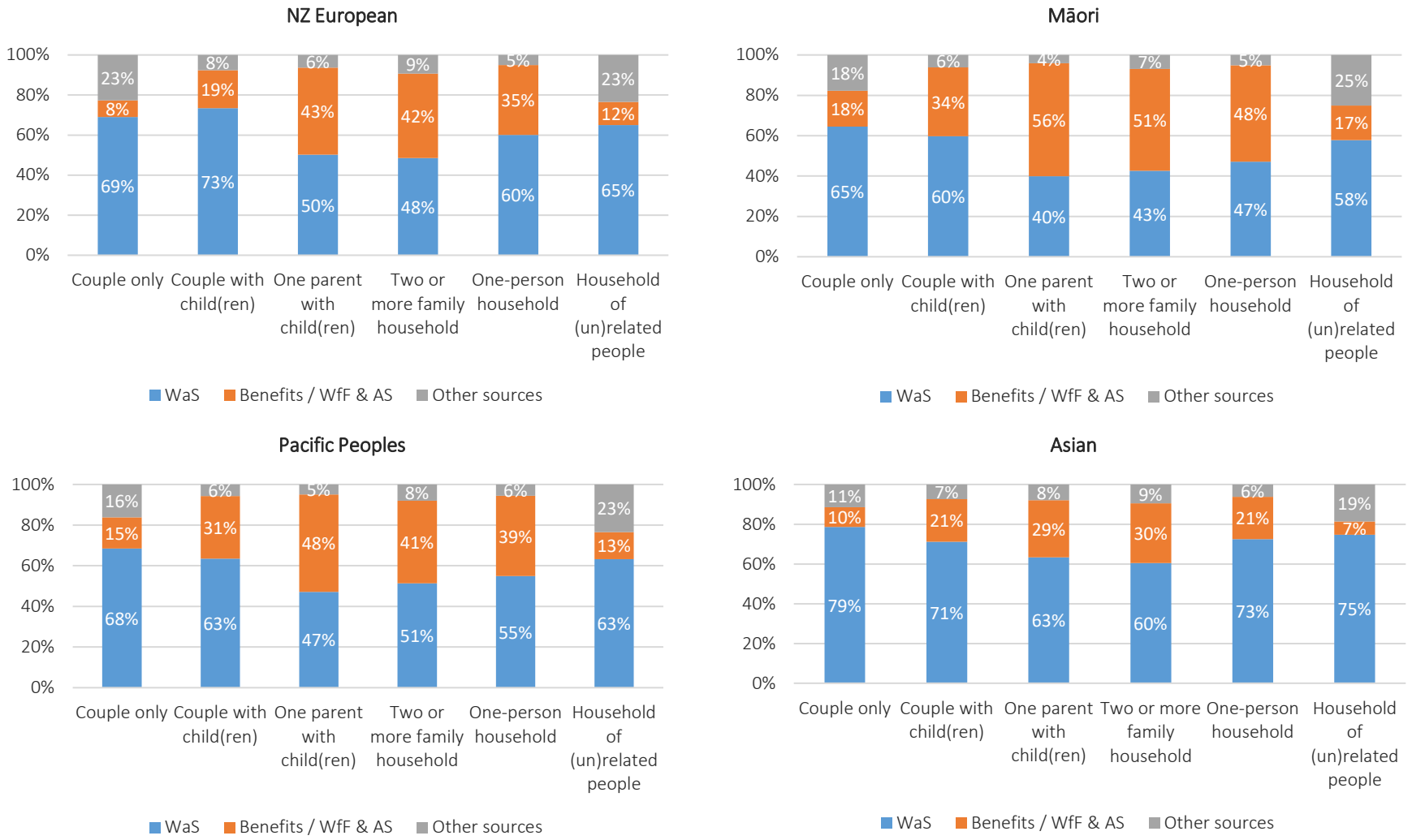
Source: IDI 2019. *Notes:* N=794,406 in-work households. Working and poverty definitions described in Section 1. See Stats NZ (2018b) for more information about the Australian and New Zealand Standard Industrial Classification. Does not include the mining sector due to small sample size. pp = percentage point (difference compared to NZ European). Numbers in parenthesis refers to the share of the respective industry.

2.8 Income sources

Here we reveal ethnic differences across income sources. We form three income groups: (1) wages and salaries (WaS); (2) benefits, WfF and AS; and (3) other sources, which include income from pensions, paid parental leave, withholding payments, ACC claims, and student loans. Appendix Table A 2 illustrates the distribution of income sources for in-work non-poor households for different household types. As expected, we find that wages and salaries are the major income source for in-work non-poor households. Regardless of ethnicity of household, it accounts for over 90 percent for couple households for instance; and the lowest it falls to is 75.3 and 78.0 percent for two or more family Māori and Pacific peoples households, respectively.

When focussing on in-work poor households (Figure 6), we find that income from benefits, WfF and AS plays a much greater role, especially for single-parent households and two or more family households. Ethnic differences are most apparent for couple with child(ren) households. Within this category, NZ European in-work poor households receive, on average, 19 percent of their income from benefits, WfF or AS; and in comparison, this share increases to 31 percent for Pacific peoples households.

Figure 6. Income sources of in-work poor households



Source: IDI 2019. *Notes:* N=56,169 in-work poor households. Working and poverty definitions described in Section 1. Income sources = WaS (wages and salaries); benefits, WfF and AS; and Other sources (includes income from pensions, paid parental leave, withholding payments, ACC claims, and student loans).

Next, we differentiate the role of benefits receipt (accounting for all benefits paid by the Ministry of Social Development)[9] across ethnicities. To do so, we construct a binary indicator to identify whether there is at least one adult household member who receives benefits (Table 9). Unsurprisingly, we find that independent of ethnicity, the share of households who receive benefits is substantially higher among non-work households than in-work households. Moreover, benefit recipiency is much higher among Māori and Pacific peoples households compared to NZ European households. For example, if focussing on in-work poor households, 24.0 percent of NZ European households receive benefits, and this number increases to 40.3 percent for Pacific peoples households.

Table 9. Benefit receipt by working and poverty status

	Non-work households		In-work households			
			Total		In-work poor	
NZ European	59.7%		8.9%		24.0%	
Māori	82.2%	+22.5 pp	22.3%	+13.4 pp	44.3%	+20.3 pp
Pacific peoples	77.6%	+17.9 pp	25.0%	+16.1 pp	40.3%	+16.3 pp
Asian	45.1%	-14.6 pp	10.6%	+1.7 pp	18.3%	-5.7 pp

Source: IDI 2019. *Notes:* N=970,416 in-work and non-work households. Working and poverty definitions described in Section 1. pp = percentage point (difference compared to NZ European).

To further delve into benefit duration at the household level, we next look at the number of months between April 2012 and March 2013 in which at least one adult received benefits. As shown in Table 10, if we first focus on in-work non-poor households, 87.2 percent of NZ European households do not receive any benefits in that twelve-month time window, while this is the case for only 67.4 percent of Pacific peoples households. In contrast, the share of households that receive benefits for all twelve months is three times higher among in-work non-poor Pacific peoples households than their NZ European counterparts (16.9 versus 5.4 percent).

The second panel in Table 10 illustrates benefit duration for in-work poor households. Compared to the in-work non-poor households, the number of these households that receive benefits for any month is higher, irrespective of ethnicity. Further, just over a quarter (27.6 percent) of Pacific peoples households receive a benefit each month in the sample timeframe, compared to 14.2 percent of NZ European households.

[9] The data does not allow any further breakdown about the type of benefit.

Table 10. Benefit duration and in-work poverty

Number of months	NZ European	Māori		Pacific peoples		Asian	
In-work non-poor							
0	87.2%	70.3%	-16.8 pp	67.4%	-19.8 pp	85.7%	-1.5 pp
1-6	5.2%	9.8%	+4.6 pp	10.2%	+5.0 pp	5.5%	+0.3 pp
7-11	2.2%	5.4%	+3.2 pp	5.5%	+3.3 pp	2.2%	±0.0 pp
12	5.4%	14.4%	+9.0 pp	16.9%	+11.5 pp	6.6%	+1.2 pp
In-work poor							
0	67.2%	42.8%	-24.4 pp	46.8%	-20.4 pp	74.2%	+7.0 pp
1-6	13.6%	17.7%	+4.1 pp	16.4%	+2.8 pp	11.3%	-2.4 pp
7-11	5.0%	9.9%	+4.9 pp	9.2%	+4.2 pp	3.7%	-1.3 pp
12	14.2%	29.6%	+15.3 pp	27.6%	+13.4 pp	10.8%	-3.4 pp

Source: IDI 2019. *Notes:* N=813,837 in-work households. Working and poverty definitions described in Section 1.
pp = percentage point (difference compared to NZ European).

2.9 Home ownership and housing costs

In Plum *et al.* (2019), we found clear evidence that in-work poor households are less likely to own their dwelling than in-work non-poor households.[10] We therefore next analyse home ownership by ethnicity for working households by poverty status (Table 11). The first noteworthy finding is that independent of poverty status, NZ European have the highest share of households that (partly) own their dwelling. Even among the NZ European in-work poor households, every second dwelling is (partly) owned by its usual residents – and this number is elevated to almost two-thirds for couples with or without child(ren) households. Second, the lowest share of home ownership can be found among Pacific peoples households, where among the in-work non-poor 36.8 percent of the dwellings are (partly) owned by its usual residents – and this number decreases to 17.3 percent for in-work poor households. Finally, differentiating the numbers according to household structure, we find the largest (percentage point) gap between NZ European and Pacific peoples for couple with child(ren) households. Specifically, about two out of three in-work poor NZ European couple with child(ren) households (partly) own their dwelling, but the respective number for Pacific peoples households is 16.6 percent; which is 46.7 percentage points lower.

Next, we investigate ethnic-related differences in the average monthly share[11] of rent costs for working households (Table 12). This is done for a reduced sample of working households that indicated they rented and provided rent figures in the 2013 Census. We see that, on average, the share of rent costs puts a substantially higher financial pressure on in-work poor households than in-work non-poor households. While the average share hovers around one quarter for in-work non-poor households, this number doubles for in-work poor households. When comparing NZ European and Pacific peoples in-work poor households, the former group experience an elevated share of rent costs, as a proportion of total equivalised household income. For instance, for couple with child(ren) households, the respective shares devoted to rental costs are 49.0 and 36.7 percent, respectively.

[10] Where home ownership is derived from Census 2013 information regarding whether any household member owned or partly owned the dwelling.
[11] Share is calculated with respect to households net income (before equivalisation).

Table 11. Dwelling Owned or Partly Owned by the Usual Resident(s), in-work households

	NZ European	Māori		Pacific peoples		Asian	
In-work non-poor							
Couple only	67.9%	53.2%	-14.7 pp	41.5%	-26.3 pp	47.6%	-20.3 pp
Couple with child(ren)	73.4%	53.9%	-19.5 pp	38.3%	-35.0 pp	58.4%	-14.9 pp
One parent with child(ren)	55.0%	33.7%	-21.3 pp	27.4%	-27.6 pp	51.3%	-3.8 pp
Two or more family household	53.8%	40.2%	-13.6 pp	39.7%	-14.1 pp	61.6%	+ 7.8 pp
One-person household	55.6%	33.2%	-22.3 pp	24.6%	-30.9 pp	37.7%	-17.8 pp
Household of (un)related people	33.3%	24.5%	-8.8 pp	20.8%	-12.5 pp	24.8%	-8.5 pp
Total	**64.1%**	**45.8%**	**-18.3 pp**	**36.8%**	**-27.3 pp**	**51.7%**	**-12.4 pp**
In-work poor							
Couple only	64.7%	43.3%	-21.4 pp	26.6%	-38.1 pp	37.0%	-27.7 pp
Couple with child(ren)	63.3%	36.5%	-26.8 pp	16.6%	-46.7 pp	49.1%	-14.2 pp
One parent with child(ren)	47.0%	23.1%	-23.9 pp	13.0%	-34.0 pp	45.1%	-1.9 pp
Two or more family household	40.7%	24.8%	-15.8 pp	19.9%	-20.7 pp	54.1%	+13.4 pp
One-person household	52.2%	29.5%	-22.7 pp	22.9%	-29.3 pp	32.5%	-19.6 pp
Household of (un)related people	11.6%	9.2%	-2.4 pp	11.5%	-0.1 pp	12.9%	+1.3 pp
Total	**51.3%**	**28.9%**	**-22.4 pp**	**17.3%**	**-34.0 pp**	**41.6%**	**-9.8 pp**

Source: IDI 2019. *Notes:* N=736,260 in-work households. Working and poverty definitions described in Section 1. pp = percentage point (difference compared to NZ European).

Table 12. Monthly share of rent costs for in-work households

	NZ European		Māori		Pacific peoples		Asian	
	Non-poor	Poor	Non-poor	Poor	Non-poor	Poor	Non-poor	Poor
Couple only								
	23.8% (0.12)	59.8% (0.22)	23.0% (0.12)	54.8% (0.21)	24.9% (0.12)	50.0% (0.23)	25.7% (0.13)	63.4% (0.20)
Couple with child(ren)								
	24.8% (0.11)	49.0% (0.22)	22.8% (0.10)	41.4% (0.21)	23.4% (0.10)	36.7% (0.20)	26.9% (0.12)	53.9% (0.22)
One parent with child								
	34.3% (0.15)	54.2% (0.22)	30.1% (0.14)	46.5% (0.21)	27.8% (0.15)	41.4% (0.23)	36.7% (0.16)	57.5% (0.24)
Two or more family household								
	24.2% (0.12)	46.3% (0.23)	21.3% (0.11)	38.2% (0.21)	18.9% (0.11)	33.5% (0.22)	24.2% (0.12)	52.7% (0.23)
One-person household								
	30.2% (0.14)	57.6% (0.23)	29.6% (0.14)	51.4% (0.23)	32.6% (0.14)	47.6% (0.22)	31.7% (0.15)	59.1% (0.24)
Household of (un)related people								
	27.8% (0.15)	66.2% (0.22)	26.6% (0.14)	63.9% (0.23)	27.0% (0.15)	62.6% (0.25)	27.4% (0.16)	66.6% (0.22)

Source: IDI 2019. *Notes:* N=274,173 in-work households. Working and poverty definitions described in Section 1. Standard deviations in parenthesis.

The next step of our empirical analysis is to focus on in-work poverty prevalence after accounting for housing costs (see Table 13). For this purpose, we trim the sample to only the households who stated in the Census 2013 that the dwelling is not owned or partly owned by the usual resident(s).[12] Furthermore, we exclude households that do not provide information on their rent expenditures. We calculate the in-work poverty rate for this subsample, and it is denoted as 'before housing costs' (BHC). Next, we re-calculate the in-work poverty rate for this subsample after accounting for rent expenditures, which we denote 'after housing costs' (AHC).

As evident in Table 13, we find that the BHC in-work poverty prevalence of this subsample is higher than of the initial sample in Table 1. Furthermore, the in-work poverty prevalence after accounting for rental costs is higher across all ethnicities. For example, the BHC in-work poverty prevalence for NZ European renting households is 6.9 percent, and this rises to 11.8 percent AHC. For Pacific peoples households, the change is much smaller (an increase of 1.8 percentage points). These findings must, of course, be interpreted with the context already noted earlier, that we find renting is a phenomenon much more common among Pacific peoples households and less often observed among NZ European households.

Table 13. In-work poverty rate, before and after housing costs

	NZ European		Māori		Pacific Peoples		Asian	
	BHC	AHC	BHC	AHC	BHC	AHC	BHC	AHC
Couple only								
	4.0%	7.4%	4.8%	8.3%	4.4%	7.7%	6.5%	11.9%
Couple with child(ren)								
	5.3%	8.3%	8.5%	10.0%	10.6%	11.4%	9.1%	14.2%
One parent with child(ren)								
	10.4%	22.2%	15.7%	23.7%	14.5%	19.8%	14.7%	27.8%
Two or more family household								
	6.9%	10.3%	11.2%	12.0%	10.8%	10.2%	11.3%	16.2%
One-person household								
	5.5%	10.8%	6.0%	11.4%	5.6%	10.4%	7.1%	12.7%
Household of (un)related people								
	14.6%	21.3%	14.5%	20.9%	11.8%	18.2%	16.5%	24.2%
Total	**6.9%**	**11.8%**	**9.6%**	**13.2%**	**10.1%**	**11.9%**	**9.7%**	**15.7%**

Source: IDI 2019. *Notes:* N=274,173 in-work households. Working and poverty definitions described in Section 1. *BHC* refers to 'before housing costs' and *AHC* to 'after housing costs'.

[12] We do not have information on housing costs for households where the dwelling is owned or partly owned by the usual resident(s).

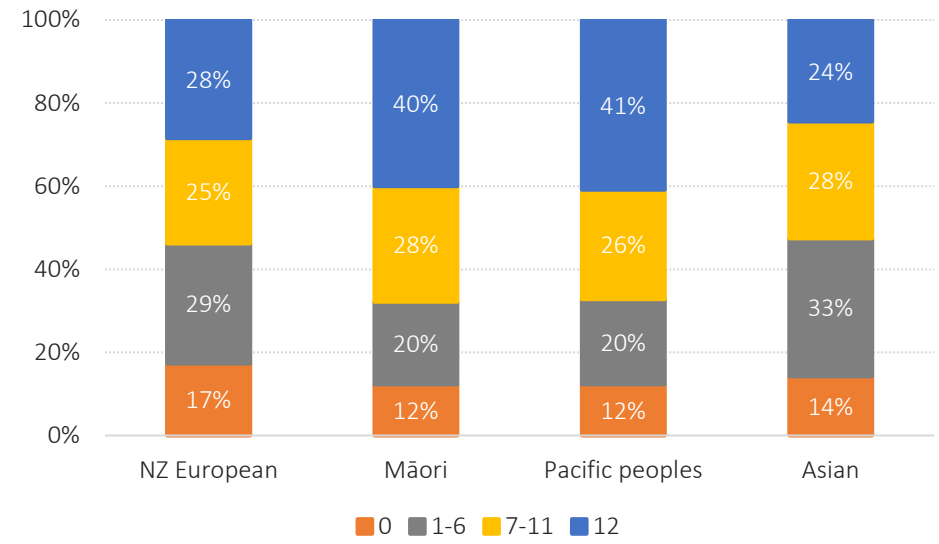
2.10 Poverty duration

The empirical analysis thus far has derived the poverty prevalence for working households in the month of March 2013. However, this point-in-time snapshot does not reveal the extent of persistence of poverty experience for households across the year. Therefore, for the period April 2012 to March 2013, we assume that the household structure was unchanged and calculate the poverty distribution for each month. The aggregated poverty distribution for non-work and in-work households are illustrated in Figure 7 and Figure 8.

Focussing on non-work households, Figure 7 indicates that Pacific peoples households face longer poverty spells than NZ European households. For example, while 28 percent of NZ European households are identified as poor throughout the year (for all twelve months), the respective number for Pacific peoples households is 13 percentage points higher (41 percent). Further, while 46 percent of the NZ European households fall below the poverty threshold for six or fewer months, this is only the case for 32 percent of the Pacific peoples households.

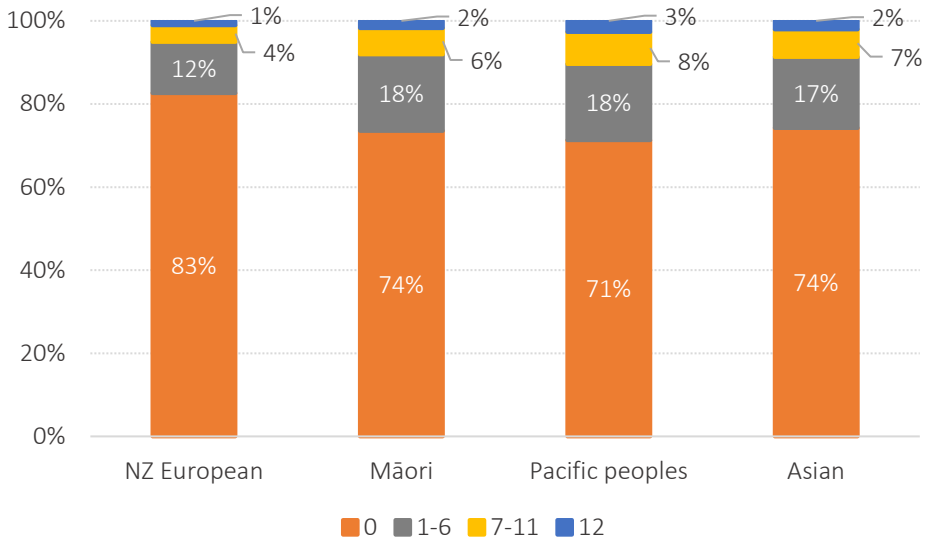
Next, for in-work households, as shown in Figure 8, ethnic differences are again apparent. Approximately 17 percent of NZ European households experience being poor for at least one month over the one-year time frame, and this is the case for 29 percent of Pacific peoples households. Moreover, the share of households experiencing persistent poverty is twice as high among Pacific peoples households compared to NZ European households (11 percent versus 5 percent fall below the poverty threshold for more than half the year).

Figure 7. Number of poor months (non-work households)



Source: IDI 2019. *Notes:* N=156,579 non-work households. Working and poverty definitions described in Section 1.

Figure 8. Number of poor months (in-work households)



Source: IDI 2019. *Notes:* N=813,837 in-work households. Working and poverty definitions described in Section 1.

3. CONCLUSION

In this report, we extended analysis of in-work poverty prevalence based on Plum *et al.* (2019) with a particular focus on descriptive differences by ethnicity. The utilisation of linked administrative data in the IDI permitted this extension, as there were viable sample sizes of interest for ethnic minorities. Therefore, more granular descriptive analysis could be undertaken. Households were utilised as the unit of analysis and were placed into an ethnicity category based on the prioritised ethnicity of each adult in these units. This meant that some households could fall into multiple defined ethnicity categories. The resulting sample of household units is 970,416, which is just over a 10 percent increase in households relative to Plum *et al.* (2019).

All descriptives are presented for the ethnic groups of NZ European, Māori, Pacific peoples, and Asian. The specific focus of this report was on Pacific peoples and often in reference to NZ European. In-work poverty prevalence for March 2013 is 9.5 percent for Pacific peoples households. This is 61 percent higher than their NZ European counterparts. To understand the context behind these figures, it is important to note that household size is much larger for Pacific peoples households – close to double that of NZ European for in-work poor households (5.14 versus 2.84).

In the sensitivity analysis, it was evident that in-work poverty prevalence falls if we adjust the poverty threshold downwards, and rises if we derive the poverty threshold from the population of interest (i.e. excluding self-employed and pensioner households). For the latter of these robustness checks, this results in a rise in the in-work poverty rate to 18.5 percent for Pacific peoples households.

It is also clear that both WfF and AS have a sizable impact on in-work poverty prevalence. Using the main definition and set of thresholds, in-work poverty is 9.5 percent for Pacific peoples households; and this increases to 14.3 percent when WfF and AS are excluded from the list of income sources aggregated to produce household income.

For the remainder of the empirical analysis, households defined by ethnicity are further disaggregated along a number of dimensions – region; education; household structure; occupation; industry; income sources and benefit receipt; home ownership; and poverty duration. Many of the characteristics found reflected the potential underlying reasons behind a higher in-work poverty rate for Pacific peoples households. Namely, that these households have a greater association (relative to other ethnicities, and in particular NZ European households) with lower educational attainment and lower occupational levels. Furthermore, they have a smaller share of household types (relative to NZ Europeans) that were less likely to be facing in-work poverty, such as couple without child(ren) households. The respective shares of NZ European and Pacific peoples households that fall into this household type are 29.3 and 13.5 percent respectively.

It is also worth noting that while the majority of the empirical analysis used a poverty threshold for the month of March 2013, we also investigated the duration and persistence of poverty for the preceding year for in-work households. Of note is that while the in-work poverty rate was 9.5 percent for Pacific peoples households in March 2013; 29 percent of these households experienced falling below the poverty threshold in at least one month in the preceding year; and 11 percent of these households were under the relevant poverty threshold for more than half of the year.

Finally, in terms of future directions for this empirical inquiry – future research could model accumulated in-work poverty risk from multiple risk factors, as well as assess factors that dampen risk in a strengths-based framework. Another future research avenue is to scrutinize further how poverty

measurement at the household level can have different implications across ethnicities. The use of the OECD equivalisation scale at the household level means that two families living separately in two households face a higher likelihood of being identified as in-work poor compared to two families that form a two or more family household. For instance, the total net income of a household that consists of a couple with one child below 14 is divided by 1.8 (first adult: 1; second adult: 0.5; child below 14: 0.3), and the total net income of a household that is formed by a couple without children is divided by 1.5 (first adult: 1; second adult: 0.5). If both families unite to form a single household, the total net household income of both couples is divided by 2.8 (first adult: 1; second adult: 0.5; third adult: 0.5; fourth adult: 0.5; child below 14: 0.3). As a consequence, as about every fifth Pacific peoples household is a two or more family household, the overall in-work poverty prevalence would potentially be higher if the families in these households instead formed independent households.

4. REFERENCES

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5. APPENDIX

Table A 1. Spatial distribution of in-work households

	NZ European			Māori			Pacific peoples			Asian		
	Non-poor	Poor	Share	Non-poor	Poor	Share	Non-poor	Poor	Share	Non-poor	Poor	Share
Northland	14,124	1,323	2.8%	7,029	1,008	6.0%	546	69	1.3%	678	72	0.9%
Auckland	135,222	6,354	25.7%	28,023	1,989	22.5%	26,757	2,889	61.7%	45,162	4,524	60.6%
Waikato	48,768	3,576	9.5%	16,032	1,707	13.3%	2,205	228	5.1%	4,383	492	5.9%
Bay of Plenty	29,712	2,154	5.8%	12,615	1,569	10.7%	1,059	156	2.5%	2,028	306	2.8%
Gisborne	3,834	285	0.7%	3,408	432	2.9%	198	33	0.5%	171	18	0.2%
Hawke's Bay	19,338	1,146	3.7%	6,807	618	5.6%	906	81	2.1%	858	81	1.1%
Taranaki	16,119	999	3.1%	4,044	330	3.3%	267	24	0.6%	699	54	0.9%
Manawatu-Wanganui	29,769	2,409	5.8%	8,889	984	7.4%	1,140	132	2.6%	1,734	270	2.4%
Wellington	65,616	3,915	12.6%	13,530	1,179	11.1%	6,255	618	14.3%	9,069	789	12.0%
West Coast, Southland, Tasman, Nelson, Marlborough	40,938	2,763	7.9%	6,864	486	5.5%	882	54	1.9%	1,692	105	2.2%
Canterbury	84,174	4,704	16.1%	10,731	708	8.6%	2,508	174	5.6%	6,243	657	8.4%
Otago	30,522	2,811	6.1%	3,663	450	3.1%	753	102	1.8%	1,617	333	2.4%

Source: IDI 2019 *Notes:* N=813,741 in-work households. Working and poverty definitions described in Section 1.

Table A 2. Income sources of in-work non-poor households

	NZ European			Maori			Pacific peoples			Asian		
	WaS	Benefits / WfF & AS	Other sources	WaS	Benefits / WfF & AS	Other sources	WaS	Benefits / WfF & AS	Other sources	WaS	Benefits / WfF & AS	Other sources
Couple only	93.6%	0.8%	5.6%	92.7%	2.0%	5.3%	92.7%	2.3%	4.9%	95.6%	1.1%	3.3%
Couple with child(ren)	94.3%	3.1%	2.5%	90.2%	6.8%	3.0%	87.8%	8.7%	3.5%	92.8%	4.5%	2.7%
One parent with child	81.1%	14.1%	4.8%	76.8%	19.3%	3.9%	79.3%	15.6%	5.1%	82.9%	13.0%	4.0%
Two or more family household	79.1%	14.6%	6.2%	75.3%	19.3%	5.4%	78.0%	15.4%	6.6%	83.2%	10.9%	5.9%
One-person household	95.7%	2.3%	2.1%	94.4%	3.8%	1.8%	95.3%	3.1%	1.7%	97.9%	1.3%	0.7%
Household of (un)related people	89.0%	5.6%	5.3%	84.9%	9.2%	5.9%	85.7%	8.2%	6.1%	93.8%	2.7%	3.5%

Source: IDI 2019.*Notes*: N=757,668 in-work non-poor households Working and poverty definitions described in Section 1. Income sources = WaS (wages and salaries); benefits, WfF and AS; and Other sources (includes income from pensions, paid parental leave, withholding payments, ACC claims, and student loans.

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