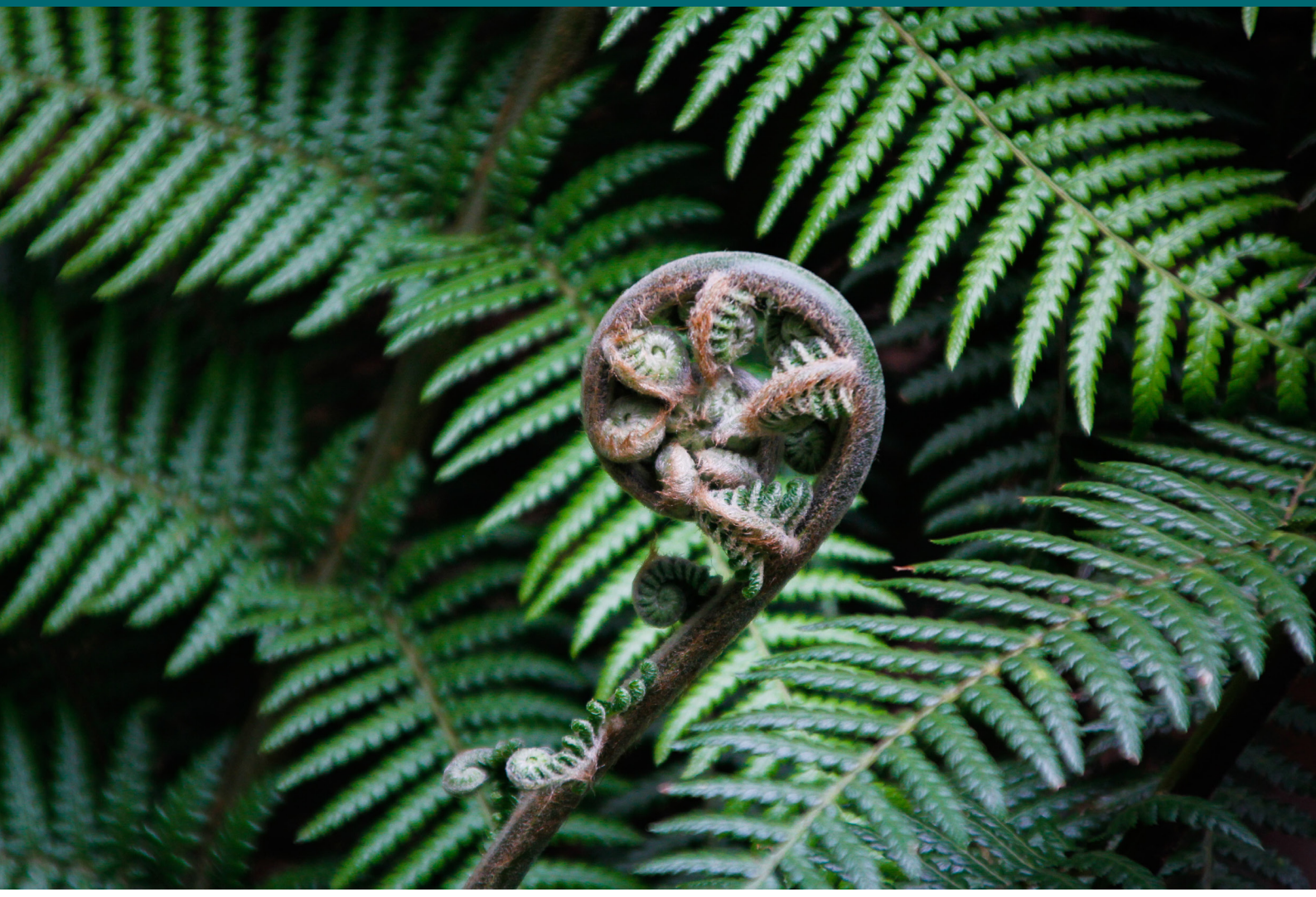
PPG
Pacific Pay Gap Inquiry

Empirical analysis of Pacific, Māori and ethnic pay gaps in New Zealand



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Short Summary

This research note aims to explore the factors that contribute / explain the Māori and ethnic pay gaps in New Zealand. In particular, pay gaps for Māori, Pacific, and Asians relative to Europeans. We use Stats NZ data from the Household Labour Force Survey for 2019 and 2020.

A descriptive profile of the four ethnic groups, by gender, is provided to illustrate the heterogeneities across populations in terms of a number of variables grouped into the following categories: individual characteristics, educational attainment, region, household and job-related characteristics.

The main empirical analysis involves estimation of the statistical contribution of observed factors (within each of the aforementioned categories) towards explaining the ethnic pay gaps. As this research is primarily aimed as an input towards the Pacific Pay Gap Inquiry being conducted by the Human Rights Commission, we focus our summary of the key findings on the Pacific – European pay gap.

> The Pacific Pay Gap (with Europeans) was 24 and 15 percent in 2020 for males and females respectively. We find that differences in job-related characteristics are the key contributor to the pay gap regardless of gender.

This includes variables on permanent contract status, an indicator if in part-time work, occupation, and industry. These results are therefore likely an indication of the strong role of occupational segregation in the labour market. An additional factor that had a relatively strong contribution to the pay gap, particularly for the Pacific – European female gap, was educational attainment.

Overall, even after accounting for differences in job-related characteristics and educational attainment, amongst a number of other observed factors, it was still found that only 27 percent of the pay gap for Pacific males (relative to Europeans) could be explained; and the corresponding proportion for females was 39 percent.

The remaining portion of the Pacific Pay Gap is likely to reflect a range of causes that cannot be quantified or disentangled in this analysis – such as not including other factors of importance as they weren't observed in the data (for example, literacy proficiency or field of study for qualification attained); ethnic differences in preferences for non-wage components of the job; unconscious bias; and discrimination.

Introduction

> This research note aims to explore the factors that contribute / explain the Māori and ethnic pay gaps in New Zealand. The gaps between the average (as well as median) hourly wages for the European workforce relative to Māori and Pacific workers is substantial.

A statistical analysis by Treasury in 2018 also showed that the ratio in average hourly wages (based on published survey estimates by Stats NZ) for both ethnic groups, relative to Europeans, had stayed at a similar level for the last decade, as stated on p.1 "there has been movement from year to year but no consistent upward or downward trend" (Treasury, 2018).

The substantive and persistent ethnic pay gaps warrant empirical analysis, as it is important to control for differences in characteristics. These include individual, household, occupation, industry and other job characteristics of the individuals. The analysis within this note has been undertaken as an input to the Pacific Pay Gap Inquiry that is being conducted by the Human Rights Commission in New Zealand. Their motivation for the Inquiry is to better understand why the Pacific Pay Gap exists and how it can be closed. In addition to this research input, the Human Rights Commission is also collecting evidence via surveys, submissions, workshops and Talanoa.

This study is a short note wholly focussing on the empirical analysis of Māori and ethnic pay gaps in New Zealand. We therefore do not delve into the wider employment picture for these population groups, such as the mechanisms by which various groups acquire labour market attributes (such as educational attainment), the functioning of labour market institutions, or the nature of potential discriminatory practices. A useful starting point for building a wider picture of Pacific peoples in New Zealand is research undertaken on a range of aspects of this population by the Ministry of Pacific Peoples (2021).

This analysis makes use of unit record Income Survey data from Stats NZ to estimate the ethnic pay gaps for three groups relative to Europeans: Māori; Pacific and Asian. We employ the Oaxaca-Blinder decomposition technique which apportions each of these gaps into two parts: the explained and unexplained. Simply put, the explained reflects differences in the observable characteristics of the ethnic groups; while the unexplained reflects differences in returns.

The format of the remainder of this note is as follows: Section 2 describes the data, key variables and descriptives of our sample; while Section 3 details the method and results. The results include ethnic comparisons for the aggregate survey population, as well as ethnic differences by gender.

Data and descriptives

Data

The data used in this study is sourced from the June 2019 and June 2020 quarters of the Income Survey. The Income Survey is a supplemental survey to the Household Labour Force Survey (HLFS). While the HLFS is conducted quarterly, the Income Survey is only conducted in the June quarter of each year.

The HLFS is the standard data source for analysing hourly earnings information in New Zealand. It provides earnings data for approximately 15,000 households per quarter (which equates to around 30,000 individuals). The survey asks for information on both pay and work hours and provides a comprehensive picture of the labour market with respect to a range of individual, household, and job characteristics (including data on an individual's occupation and industry category). An alternative data source for earnings information is the Inland Revenue Department (IRD). IRD provides more frequent data (monthly) on earnings, and is population wide, but unfortunately does not include work hours information for our sample period. Therefore, we have primarily relied on the HLFS.

Our key results are based on analysis using the June 2020 sample. However, because the Covid-19 pandemic hit in late March 2020, and New Zealand entered a lockdown period from then till mid-May, we also repeat our analysis with the June 2019 sample, in case any of the results from 2020 are Covid-affected. In the results section, for the sake of brevity, we only report the results from the 2020 sample. It is worth noting that in most cases, the 2019 and 2020 results are qualitatively very similar.

We limit our sample to the working age population (i.e. aged 16 to 64). We also trim the sample to remove the top and bottom 1 percent of hourly wage earnings, and exclude the self-employed.[1]

Ethnic groups

Ethnic groups available in our data can be categorised as European, Māori, Pacific, Asian, Middle Eastern, Latin American and African (MELAA), and Other. Our focus in this empirical analysis is comparing the earnings outcomes (and factors that contribute to earnings gaps) for Māori, Pacific and Asian, relative to European. Due to their small sample size, we do not delve into the outcomes for MELAA or the 'Other ethnicity' category.

Focussing on these four ethnic groups, we find that those who list only European as their ethnicity account for 58.5 percent of our sample; whereas the corresponding proportions that only list Māori, Pacific, and Asian are 6.7; 4.9; and 14.3 percent respectively. With respect to overlaps across ethnic groups, where an individual reports affiliation to more than one ethnic group, the largest overlap is between European and Māori – this accounts for 4.6 percent of our sample. European and Pacific are less than 1 percent; as are Māori and Pacific; European and Asian; and those who report the three ethnic affiliations of European, Māori and Pacific.

For the purposes of our decomposition analysis, we use prioritised ethnicity classifications, so as to create mutually exclusive ethnic categories. The order of prioritisation is Māori, Pacific, Asian, MELAA, Other, and lastly, European.

[1] All imputed and proxy observations are included in our sample.

Descriptives

Table 1 provides definitions of the outcome variable (usual hourly earnings) and the characteristics to be included in the empirical analysis. They cover the following domains: individual characteristics; highest educational attainment; household characteristics; region; occupation; industry; and other job-characteristics.

Table 2 then provides descriptives for all the variables by prioritised ethnic group, and gender. All descriptives are weighted by weights provided by Stats NZ.[2] Furthermore, the descriptives are derived from the regression sample.

Table 1: Variable definitions

Variable	Definition
Hourly wage	Usual hourly total earnings from main job, before tax ($)
Individual characteristics	
Age	Age in years
Ethnicity	6 Dummy variables for prioritised ethnicity: Māori; Pacific; Asian; MELAA; Other; European
Born in NZ	Dummy variable: 1 = Born in NZ; 0 otherwise
Educational attainment	
Education	6 Dummy variables for highest educational attainment: No school qualification; School, Post-school; Bachelor's; Post-graduate; PhD
Household characteristics	
Sole parent	Dummy variable: 1 = one parent with one or more dependent children; 0 otherwise
Partnered	Dummy variable: 1 = Married / living as married; 0 otherwise
Number of dependent children	Number of children in the household aged less than 18 years who are not employed full time
Household income decile	Income deprivation decile ranging from 1 (most deprived) to 10 (least deprived)
Region	
Regional council	12 Dummy variables for regional council: Northland; Auckland; Waikato; Bay of Plenty; Gisborne/Hawke's Bay; Taranaki; Manawatu-Wanganui; Wellington; Nelson/Tasman/Marlborough; Canterbury; Otago; Southland
Occupational characteristics	
Occupation	9 Dummy variables for occupation based on the ANZSCO Level 1 classification: Manager; Professional; Technical and trades worker; Community and personal service worker; Clerical and administrative worker; Sales worker; Machinery operator or driver; Labourer; Other

[2] All imputed and proxy observations are included in our sample.

Industry characteristics	
Industry	15 Dummy variables for industry based on the ANZSIC Level 1 classification[3]: Agriculture, forestry, fishing and mining; Manufacturing; Electricity, gas, water and waste services, and construction; Wholesale trade; Retail trade; Accommodation and food services; Transport, postal and warehousing; Information media and telecommunications, financial and insurance services, and rental, hiring and real estate services; Professional services; Administrative and support services; Public administration and safety; Education and training; Health care and social assistance; Arts and recreation services; Other services
Other job characteristics	
Part-time	Dummy variable: 1 = part-time, i.e. working less than 30 hours per week; 0 otherwise
Permanent	Dummy variable: 1 = permanent employment; 0 otherwise

Notes: Variables sourced from HLFS June 2020.

Table 2: Descriptive profile of ethnic groups, by gender

Variable	European		Māori		Pacific		Asian	
	Male	Female	Male	Female	Male	Female	Male	Female
Hourly earnings ($)	35.72	31.34	28.92	27.58	27.32	26.67	30.68	28.62
Age (years)	39.83	40.35	36.10	37.89	36.95	37.43	36.12	37.63
Born in NZ	77.10%	78.57%	98.41%	98.24%	50.43%	51.19%	8.41%	7.34%
No school	10.13%	7.07%	20.86%	16.69%	27.09%	15.50%	5.01%	4.20%
School	6.01%	6.39%	8.83%	7.26%	4.40%	7.01%	1.03%	0.74%
Post-school	52.56%	43.68%	56.81%	51.44%	56.46%	56.38%	38.69%	31.79%
Bachelor's	25.43%	35.92%	11.39%	22.11%	10.38%	19.51%	42.87%	52.94%
Postgraduate	4.62%	5.63%	2.03%	2.22%	1.68%	1.60%	10.89%	8.63%
PhD	1.24%	1.30%	0.08%	0.27%	S	S	1.51%	1.69%
Sole parent	1.84%	4.91%	3.33%	10.39%	1.06%	6.62%	0.52%	2.61%
Partnered	67.13%	66.44%	59.99%	55.99%	63.54%	52.47%	61.92%	73.88%
No. of dependents	0.72	0.67	0.97	0.89	1.13	0.95	0.64	0.69
Household income decile	7.57	7.43	7.27	7.21	7.43	7.34	7.13	7.20
Northland	2.69%	2.84%	7.79%	6.76%	S	2.01%	0.93%	0.92%
Auckland	26.70%	28.23%	18.99%	22.21%	72.48%	71.20%	58.05%	61.38%
Waikato	9.75%	9.31%	12.51%	11.86%	4.33%	5.16%	8.38%	8.10%
Bay of Plenty	5.92%	5.80%	10.74%	11.56%	2.61%	3.35%	3.76%	3.41%
Gisborne/Hawke's Bay	3.65%	3.81%	11.05%	9.65%	S	0.91%	1.71%	0.95%
Taranaki	2.48%	2.36%	2.62%	4.30%	S	0.16%	0.72%	0.59%
Manawatu-Wanganui	5.34%	5.02%	7.71%	8.03%	3.31%	2.47%	2.78%	2.02%
Wellington	13.55%	13.87%	11.41%	10.65%	11.42%	10.80%	9.34%	9.84%

[3] Traditionally there are 19 industry categories at ANZSIC Level 1, but due to small size of ethnic groups in some categories, we have collapsed several, to reduce these to 15 categories.

Variable	European		Māori		Pacific		Asian	
	Male	Female	Male	Female	Male	Female	Male	Female
Nelson/Tasman/ Marlborough/West Coast	4.83%	4.39%	4.44%	2.37%	S	0.91%	1.11%	1.05%
Canterbury	16.29%	15.58%	7.95%	8.00%	5.00%	2.78%	8.40%	8.23%
Otago	6.48%	6.60%	2.72%	2.01%	S	S	2.98%	2.36%
Southland	2.31%	2.18%	2.07%	2.58%	0.85%	0.26%	1.83%	1.16%
Manager	20.71%	15.27%	12.84%	11.37%	7.08%	7.73%	15.26%	8.96%
Professional	24.73%	34.04%	13.72%	26.53%	11.47%	22.06%	27.44%	33.92%
Technician and Trades Worker	18.95%	4.32%	17.91%	3.64%	20.61%	4.02%	18.10%	5.20%
Community and personal service worker	4.75%	11.60%	7.18%	14.29%	7.60%	15.58%	6.06%	13.53%
Clerical and administrative worker	6.47%	17.25%	4.48%	15.86%	6.51%	17.30%	6.61%	15.40%
Sales worker	6.67%	11.30%	4.81%	12.18%	5.13%	14.34%	9.31%	12.05%
Machinery operator or driver	8.01%	1.05%	18.19%	3.09%	21.74%	2.55%	7.53%	1.73%
Labourer	9.22%	4.53%	20.17%	12.01%	19.05%	15.43%	9.00%	8.44%
Other	0.49%	0.64%	0.70%	1.03%	0.80%	0.98%	0.69%	0.78%
Agriculture, forestry, fishing, mining	5.36%	2.53%	8.18%	3.32%	2.15%	0.56%	4.27%	1.64%
Manufacturing	13.36%	5.58%	17.48%	8.70%	20.44%	9.21%	10.44%	6.92%
Electricity, gas, water and waste services, construction	16.08%	3.44%	20.20%	3.19%	15.90%	2.97%	10.94%	2.59%
Wholesale trade	5.51%	3.43%	5.08%	2.11%	8.42%	3.07%	4.82%	3.26%
Retail trade	8.11%	10.37%	8.78%	11.66%	9.30%	12.52%	13.13%	12.11%
Accommodation and food services	2.79%	4.44%	1.96%	6.56%	2.34%	7.43%	10.98%	9.54%
Transport, postal and warehousing	5.02%	2.44%	7.18%	3.85%	7.39%	7.11%	5.65%	2.31%
Information and media, financial services, and real estate services	7.17%	7.50%	2.71%	5.31%	4.23%	4.83%	7.40%	7.74%
Professional services	10.62%	8.49%	3.92%	3.27%	3.99%	4.01%	10.72%	8.66%
Administrative and support services	2.38%	3.12%	2.64%	3.43%	2.73%	5.37%	1.89%	4.23%
Public administration and safety	7.82%	8.85%	8.05%	10.90%	7.00%	8.88%	4.91%	5.34%
Education and training	4.90%	14.13%	5.82%	15.03%	4.59%	6.39%	3.86%	8.94%
Healthcare and social assistance	3.51%	19.70%	3.82%	17.47%	5.35%	22.06%	5.64%	22.49%
Arts, recreation and other services	7.38%	5.97%	4.18%	5.22%	6.18%	5.59%	5.38%	4.22%
Part-time	7.13%	25.91%	8.46%	23.64%	4.94%	18.01%	10.74%	21.35%
Permanent	96.08%	93.91%	93.75%	91.68%	94.86%	93.11%	94.75%	91.82%
Sample size (unweighted)	4,305	4,623	855	969	432	447	1,194	1,128

Notes: Definitions of all variables are provided in Table 1. All means are weighted by weights provided by Stats New Zealand. Descriptives are derived from the regression sample. S = suppressed due to small sample size.

Table 2 begins with the wage profile comparison across ethnic and gender groups. In particular, average hourly earnings are provided from the main job (excluding overtime earnings). As expected, European wages are higher than other ethnic groups, irrespective of gender. The average European male pre-tax hourly earnings in June 2020 in our sample is $35.72. The corresponding figure for Māori males is 81 percent of that figure; and for Pacific males, is 76 percent. To understand if the regression sample constructed using the HLFS is representative of the wage profile of the full survey, we compare these ratios to those available from public estimates from the HLFS (Stats NZ, 2021). It is important to note the differences between the regression sample and full survey before the comparison. As detailed earlier, we trim the bottom and top 1 percent of the wage distribution to exclude the influence of outliers; we also remove the self-employed; our ethnic groups are based on prioritised ethnicity; and we focus on 16-64 year olds. In comparison, the available estimates for the full survey use the population aged 15+; don't prioritise ethnic groups and don't make any other exclusions. Interestingly, we find almost identical wage ratios between ethnic groups in our comparison. For example, the average hourly wage ratio for Māori, Pacific, and Asian females relative to European females is 88 percent, 85 percent and 91 percent respectively in our regression sample; and 89 percent, 85 percent and 92 percent in the published estimates for the full survey. This illustrates the representativeness of our regression sample with respect to the full survey.

The educational attainment section of Table 2 illustrates that on average males are more likely to have a post-school qualification relative to females; and the reverse is true in terms of bachelor's qualifications. The proportion of Māori males without a school qualification is approximately double the corresponding proportion for European males; with the likelihood that Pacific males do not have a school qualification being just over 2.7 times that for European males.

In terms of household characteristics, females are much more likely than males to be a sole parent. Further, while the proportion of European females that fall into this category is just under 5 percent; the corresponding figure for Pacific females is nearly 7 percent; and over 10 percent for Māori females. Additionally, Pacific households tend to be larger on average, relative to the other ethnic groups.

Next on Table 2 are descriptives to illustrate the regional distribution for these ethnic sub-groups. It is clear that Pacific peoples are heavily concentrated in the Auckland region; and a similar pattern is evident for Asian peoples. Nearly three quarters of Pacific in our sample reside in Auckland. The comparable number for Europeans is just over a quarter; and approximately one-fifth for Māori.

The remainder of Table 2 is dedicated to job-related characteristics. Apart from the 'Other' category for occupation, the hierarchy of classification ranges from labourer through to Manager.

Pacific peoples are in general, less likely to be a manager, and more likely to be in a labour type occupation. Pacific men are also the most likely to work in the Manufacturing industry, while for Pacific women, it is the Healthcare and Social Assistance industry. In terms of hours of work, approximately 7 percent of European males work part-time. The comparable figure for Māori and Asian males is approximately 8 and 11 percent respectively. In contrast, just under 5 percent of Pacific males work part-time. The same pattern is also evident for females, with Pacific women being the least likely to work part-time. The last variable of interest in Table 2 relates to security of employment and is a binary indicator for whether the individual has a permanent employment contract. There is not a lot of variation evident here – for most population groups, the probability if employed to have a permanent contract is over 90 percent. The groups with the lowest probability (but not by much) are Māori and Pacific females.

Method and results

Method

We use the standard approach to decomposing pay disparities in the literature, as introduced by Oaxaca (1973) and Blinder (1973). This involves initially estimating, separately, the wage models for two ethnic groups. These are labelled in the following equations as group 1 and group 2.

$$ln(w_i^1) = \beta^1 X_i^1 + \varepsilon_i^1 \quad (1)$$

$$ln(w_i^2) = \beta^2 X_i^2 + \varepsilon_i^2 \quad (2)$$

In the above wage models, the *I* subscript refers to the *i*th wage earner, *w* stands for hourly wages, *X* is the vector of explanatory variables (as shown in Table 1). The outcome in the wage models is the natural logarithm of usual hourly wages. The ethnic pay gap is calculated in (3) and decomposed in (4):

$$\overline{\ln(w^1)} - \overline{\ln(w^2)} = \widehat{\beta^1}\overline{X^1} - \widehat{\beta^2}\overline{X^2} \quad (3)$$

$$\overline{\ln(w^1)} - \overline{\ln(w^2)} = \widehat{\beta^1}\overline{X^1} - \overline{X^2}) + (\widehat{\beta^1} - \widehat{\beta^2})\,\overline{X^2} \quad (4)$$

Based on the decomposition shown in (4), the first part of the right-hand side is the component of the ethnic pay gap that can be explained by differences in average characteristics of the two ethnic groups. This is essentially the 'explained' component of the pay gap, and as will be shown in the results, this can be further broken down to the contribution of each of the domains in Table 1.

The second part of the right-hand side of equation (4) is the component of the ethnic pay gap that is left unexplained. This equates to differences in the returns to characteristics in the labour market. Why are there unexplained differences? There are several possible reasons. These include: (i) unobserved differences in characteristics not captured in the current data; (ii) ethnic differences in the non-pecuniary elements of jobs; (iii) discriminatory behaviour; (iv) unconscious bias, etc.

A recognised issue in the literature in implementing decompositions is whether the estimated β coefficients used to weight the explained part of the model should relate to Europeans or to the comparator ethnic group, or be estimated from a pooled regression of all workers (i.e. both ethnic groups). The choice of which weights to use can lead to substantive variations in results. We choose to use the estimated β coefficients from a pooled regression as weights, which requires less strict assumptions over the alternative choices regarding the counterfactual wage structure.

Another often acknowledged issue in the literature with the Oaxaca-Blinder approach is that it may suffer from sample selection bias (Heckman, 1979), as wages are only available for employed individuals. Since the decision to enter the labour market is systematically linked to the wages an individual is likely to receive, by omitting non-employed from the analysis, we may bias our results. Therefore, to correct for sample selection bias we apply the Heckman procedure and do this for both ethnic groups.

The following variables are used in the Heckman selection model; individual characteristics (age, born in NZ); educational attainment (6 dummy variables); regional council (12 dummy variables); and household characteristics (sole parent, partnered, number of dependent children and the income decile of the household). The variables included in the main model are all those illustrated in Table 1, except for household characteristics. Household characteristics are excluded to allow identification of the Heckman selection model.

Results

Tables 3 and 4 present the results with and without adjustment for sample selection bias, i.e. pre and post-application of the Heckman procedure. For each pay decomposition, the reference group are European. The contributing factors that are included in the analysis represent four domains as mentioned earlier – individual characteristics; educational attainment; region; and job-related characteristics (encompassing occupation, industry, permanent and part-time status).

Table 3: Oaxaca decomposition without adjustment for sample selection bias

Variable	Māori		Pacific		Asian	
	Male	Female	Male	Female	Male	Female
Hourly pay difference (%)	19.03	11.71	24.27	14.76	13.90	8.19
Explained (% of difference)	92.33***	84.67***	46.41***	47.33***	-27.58***	-36.48**
Explained						
Individual	27.81***	12.92***	16.02*	30.08***	-11.24	-68.71*
Education	18.93***	40.13***	33.77***	63.94***	104.53***	117.47***
Region	5.81*	7.03*	-27.15***	-55.77***	64.04***	104.46***
Job-related	42.05***	36.82***	79.17***	62.56***	-58.99***	-56.64***
Sample size	5,157	5,592	4,737	5,070	5,502	5,748

Note: Variable categories correspond to domains in Table 1. *, **, and *** denote significance at the 10%, 5%, and 1% levels respectively.

There are a few patterns evident from Table 3. First, for Māori, regardless of gender, much of their pay gap with Europeans can be explained by observable characteristics. In particular, individual and job-related characteristics for males; and educational attainment and job-related characteristics for females. The role of individual characteristics for pay differences between Māori males and European males is likely due to the younger age profile of the Māori population relative to their European counterparts. Age is also a proxy for employment experience. The important role of job-related characteristics emphasizes the occupational segregation present in the labour market.

For Pacific peoples, the difference in job-related characteristics with respect to the reference provides a substantial contribution in explaining the pay gap, for both males and females. Given that occupational segregation is interrelated with a higher likelihood of experiencing poverty, understanding the drivers in this space are critical. They include, but are not limited to, discriminatory practices; barriers to upskilling; and the influence of neighbourhood networks and residential segregation.

The negative contributions for region for both Pacific males and females means that the overall wage difference would be even larger if Pacific and European had a similar regional distribution. Pacific peoples are disproportionately located in Auckland, where wages are higher on average. If they were not more concentrated in this region, then the ethnic pay gap would increase. Note that, as shown in Table 2, 72 percent (71 percent) of the male (female) Pacific population in our sample were living in the Auckland region; whereas the corresponding proportions for European and Māori were 27 percent (28 percent) and 19 percent (22 percent) respectively.

> The key result for Pacific males and females in Table 3 is that just under half of the pay gap with Europeans is explained. This is after controlling for a wide variety of contributing factors.

Finally, for Asian, the standout result in Table 3 is that educational differences explain greater than 100 percent of the pay gap with Europeans. This is signalling that despite Asians on average having higher educational attainment levels on average, they are not receiving the return to that skill level at the same rate as their European comparators.

Next, Table 4 adjusts the results for sample selection bias. Importantly, the patterns described in Table 3 generally hold, particularly in terms of the relative importance of the contributing domains to the explained proportion of pay gaps.

For example, it still stands that differences in individual and job-related characteristics are the main contributors to the pay gap for Māori males; while differences in education and job-related characteristics are the primary contributors to the pay gap for Māori females.

For both Māori and Pacific, after adjusting for sample selection bias, the proportion of the respective pay gaps that can be explained has fallen. For Māori, it ranges between 70 and 73 percent that can be explained, dependent on gender. For Pacific, the explained proportion is now a meagre 27 percent for males and 39 percent for females. As was the case in Table 3 as well, differences in job-related characteristics are an important contributor to the explained component; and for Pacific females in particular – differences in educational attainment with their European counterparts.

Table 4: Oaxaca decomposition with adjustment for sample selection bias

Variable	Māori		Pacific		Asian	
	Male	Female	Male	Female	Male	Female
Hourly pay difference (%)	19.03	11.71	24.27	14.76	13.90	8.19
Explained (% of difference)	70.37***	72.77***	27.07***	38.55***	-22.12***	-21.36*
Explained						
Individual	27.77***	13.95***	15.99*	36.80***	-0.16	-86.93**
Education	14.98***	35.52***	27.01***	65.23***	74.57***	117.49***
Region	5.92*	6.42***	-50.95***	-87.42***	64.03***	142.31***
Job-related	51.33***	44.11***	107.95***	85.40***	-38.44**	-72.87***
Sample size	5,160	5,592	4,737	5,067	5,499	5,748

Note: Variable categories correspond to domains in Table 1. *, **, and *** denote significance at the 10%, 5%, and 1% levels respectively.

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