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Te Pūtea Matua

Analytical Notes

Labour Market Cycles Across Different Groups: What Does History Tell Us?

Part I: Theory, Ethnicities

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Key Findings

- We analyse how Māori, Pasifika, and Europeans have been impacted in previous labour market cycles.
- We find that Māori and Pasifika are much more exposed to labour market fluctuations than Europeans.
- Contractions in labour market activity also last considerably longer than falls in gross domestic product (GDP).
- Further work will compare these findings with the ongoing COVID-19 pandemic crisis in more detail.

Introduction[1]

COVID-19 and the associated lockdown and travel restrictions resulted in a severe recession in New Zealand during the middle and latter stages of 2020, where employment dropped below its maximum sustainable level (MSE). However, while the recovery to date has been strong and has outpaced initial expectations, its effect on employment remains uneven across regions, sexes, and other groups.

To put these developments into context, we analyse the past experiences of different ethnicities, age groups, sexes, and regions during historical recessions in New Zealand in a series of three *Analytical Notes*. This will provide us with a better understanding of how unemployment in these groups has changed in a more typical recession than the current one, and a good foundation for more in-depth comparisons and analysis in future work.

In this first *Note* we analyse how previous labour market cycles have impacted Māori, Pasifika, and European people; the other two *Notes* will address employment by age group and sex, and regions.

It is well-known that labour market outcomes for Māori and Pasifika are consistently worse than for other groups in New Zealand (figure 1). In this paper we are interested specifically in labour market cycles, and whether outcomes over these cycles are different for Māori, Pasifika, and Europeans.

We find that:

- Labour market cycles are much more severe for Pasifika and Māori than for European.
- Labour market contractions generally last much longer than contractions in GDP.

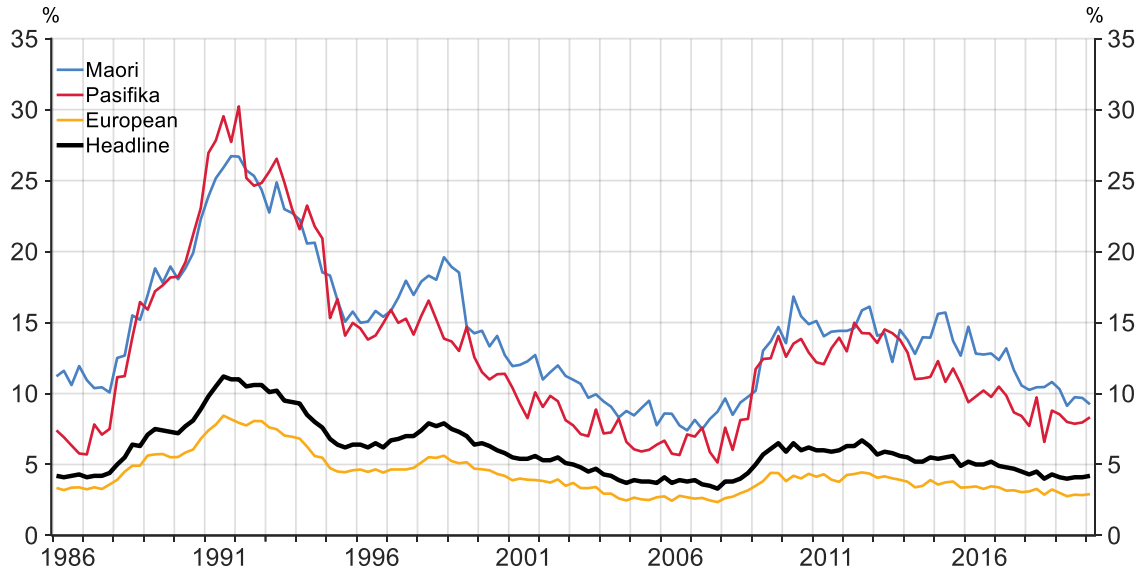
1 The authors would like to thank colleagues in the Economics Department for discussions and feedback.

What Can Previous Research Tell Us?

Ethnic minorities experience consistently poor labour market outcomes across countries. Furthermore, some authors find that these poor outcomes are particularly exacerbated during recessions and the associated recoveries.[2]

Hoynes et al. (2012) find that labour market outcomes differ across ethnic groups in the US, particularly during recessions. Ethnic minorities (i.e., Black, Hispanic) have experienced consistently poor labour market outcomes across recessions, where unemployment rates spike more during a recession and remain persistently high relative to other ethnicities.

Figure 1: Unemployment by Ethnicity (s.a.)



Source: Stats NZ, author estimates.

Montenovo et al. (2020) look at the impacts of Covid-19 on the US labour market and draw comparisons to previous recessions. They find that young workers, ethnic minorities, and people with children have experienced greater unemployment than other subgroups during the current recession. This is consistent with previous recessions. Overall job losses are driven by low skilled jobs and those that cannot work remotely, which disproportionately impacts the groups mentioned above.

Hogarth et al. (2009) find evidence of 'partial' hyper-cyclicality for ethnic minorities in the UK. Unemployment rates rise faster for these ethnicities relative to those of white ethnicity during recessions, but do not recover faster. Instead, they remain relatively high.

In the New Zealand context, Maré (2018) finds that Māori and Pasifika people experienced a sharp rise in unemployment during the GFC, and this has remained persistently high relative to other groups.

2 This literature also investigates other groups, such as age and gender. We analyse these groups in forthcoming *Analytical Notes*.

How Do We Analyse Labour Market Cycles?

The 'BB' Algorithm

In this study, we describe business cycles in the spirit of Burns and Mitchell (1946). Burns and Mitchell's approach relies on identifying cyclical patterns in the level of a series. These cyclical patterns are called *classical cycles*.[3] A well-known part of this identification is the idea that a recession occurs when the level of GDP declines for two quarters in a row.

The Burns and Mitchell approach involves the identification of cyclical patterns through visual methods. Bry and Boschan (BB) (1971) established an algorithm that formulates this approach that has been widely used to date business cycles.[4]

In this study, we use the BB algorithm with amplitude restrictions.[5] This additional restriction is needed because we are using survey data from the *Household Labour Force Survey* (HLFS). This survey comes with sampling errors, reported by Statistics New Zealand. To avoid counting resulting volatility in the HLFS as a cycle, we impose the restriction that the distance from the peak to the trough of a cycle and vice versa (the amplitude) must be at least as large as the sampling error for the time-series.

What Data Do We Use?

We apply the BB algorithm to seasonally adjusted participation, unemployment, and employment rates for Māori, Pasifika, and Europeans. We also apply the algorithm to the headline rates. The analysis spans 1986 Q1 to 2020 Q1.

The data are from the HLFS, and HLFS sampling errors published by Statistics New Zealand are used for our amplitude restriction.

One limitation of ethnic statistics in New Zealand is that the categorisation of survey respondents into different ethnicities changed in 2007, creating a structural break. Prior to 2007, a respondent would only be assigned to one ethnicity in the HLFS, even if they reported belonging to multiple ethnicities.[6]

In order to have enough data to carry out our analysis, we back-date our data from 2007 to 1986 using the data based on the old definition of ethnicity.

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3 An alternative method is *growth cycles* which involve cyclical patterns in detrended series. Given the controversy around detrending methods, we opt for classical cycles for most of this study to produce more robust and transparent results.

4 Bry-Boschan algorithm is used, among many other institutions, by NBER to date US business cycles, and by OECD to build leading indicators. The algorithm involves first singling out local minima and maxima in the series to identify potential turning points. Next, certain censoring rules and logical restrictions are applied to find business cycle turning points. The former include duration and amplitude restrictions about the cycle. The latter mostly incorporate common sense, such as peaks and troughs should alternate, and a trough should be lower than the preceding peak (and vice-versa). See Harding and Pagan (2002) for an excellent account of the BB algorithm.

5 We mostly rely on James Engel's MATLAB code, which we have modified to account for amplitude restrictions. Engel's code is available from ncer.edu.au/resources/data-and-code.php.

6 See Statistics New Zealand: archive.stats.govt.nz/~/media/Statistics/browse-categories/population/census-counts/review-measurement-ethnicity/impact-of-prioritisation-on-the-interpretation-ethnicity.pdf

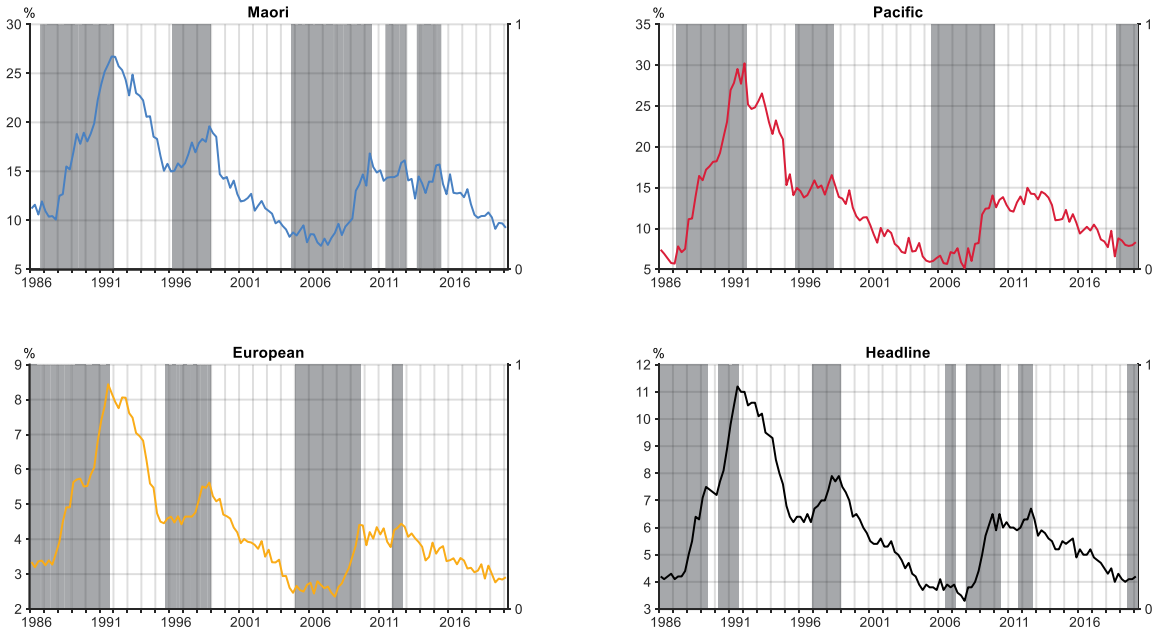
What Are The Results Of Our Analysis?

Figure 2 shows the unemployment rates for Māori, Pasifika, and European people, alongside the headline unemployment rate. The grey shading shows labour market contractions, as indicated by the BB algorithm.

As expected, many of the labour market cycles correspond with the GDP cycles identified by Hall and McDermott (2016). They identify four recessions over the HLFS sample period, starting in 1988, 1991, 1997, and 2008 respectively. Visual inspection of figure 2 shows that for each of these GDP recessions, there is also a labour market contraction (grey shading).

Additional labour market cycles are also identified by the BB algorithm. Māori, for example, appear to have experienced labour market contractions in 2011 and 2013. Due to our amplitude restriction, we can be reasonably confident that these cycles reflect genuine declines in labour market outcomes for Māori, rather than volatility in the HLFS.

Figure 2: Unemployment Rate Cycles by Ethnicity



Note: Grey shading indicates labour market contractions, identified by the BB algorithm. A labour market contraction is equivalent to an expansion in the unemployment rate.

Source: Stats NZ, author estimates.

How Long Are Labour Market Cycles?

We can calculate the average duration of labour market contractions and expansions by ethnicity, using the BB dates. These durations are shown in figure 3. We find, on average, that expansions in unemployment last:

- 12 quarters for Europeans,
- 14 quarters for Māori, and
- 16 quarters for Pasifika.

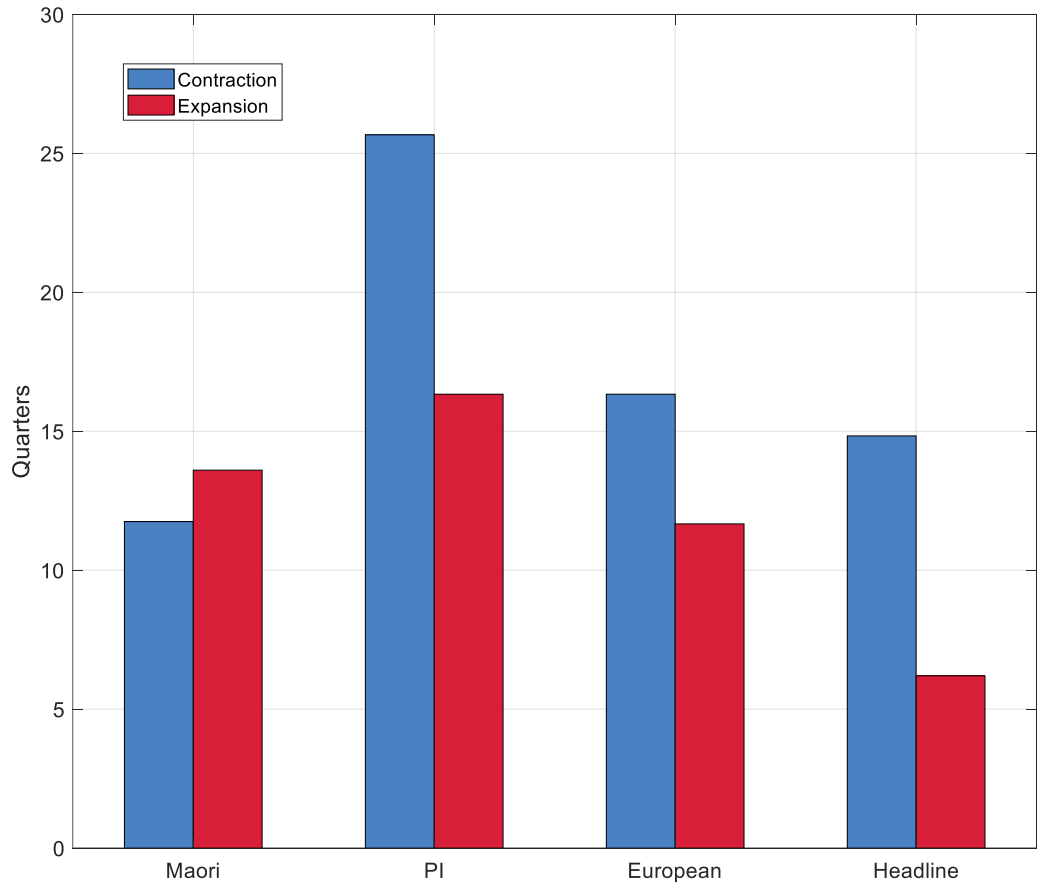
These results indicate that during labour market contractions, when unemployment is rising, labour market outcomes for Māori, Pasifika, and Europeans deteriorate for a similar length of time.

The higher frequency of unemployment expansions for Māori means that contractions in unemployment do not last very long for Māori. European and Pasifika unemployment contractions last 16 and 26 quarters on average, whereas Māori unemployment contractions only last 12 quarters.

How Severe Are Labour Market Cycles?

Figure 3 showed that unemployment expansions last a similar length of time for Māori, Pasifika, and Europeans. However, large differences emerge when we ask how *much* does unemployment increase for each group during a labour market downturn?

Figure 3: Duration of Unemployment Contractions and Expansions



Note: Contraction means unemployment is falling, expansion means unemployment is increasing.

Source: Author estimates.

The amplitude of an unemployment cycle measures how far the unemployment rate increases from the peak of the previous labour market cycle, to its current trough. These results are reported in figure 4.

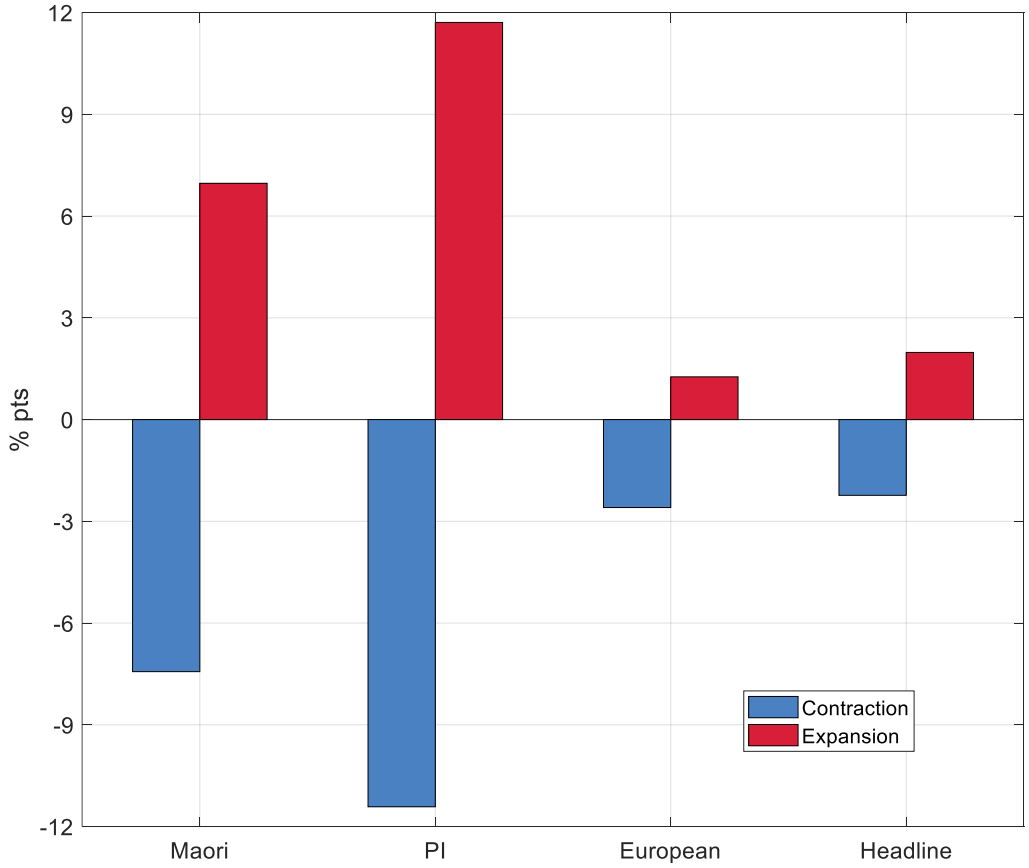
The differences are stark. On average, European unemployment rises by 1.3 percentage points during a labour market contraction. By comparison, Māori unemployment increases by 6.9 percentage points, and Pasifika unemployment increases by 11.7 percentage points.

What Are The Limitations Of This Analysis?

This analysis is purely a descriptive exercise. We have applied a well-established method for business cycle analysis to labour market data in New Zealand, and reported on the results for Māori, Pasifika, and Europeans.

However, this methodology does not enable to us to explain why we see different impacts for Māori, Pasifika, and Europeans. For example, if some groups have different average skill levels, or are more concentrated in certain industries or regions, this could explain some of the differences we see.

Figure 4: Amplitudes of Unemployment Expansions and Contractions



Source: author estimates.

A next step for this research could be to use household-level data to investigate why Māori and Pasifika people appear to be so much more exposed to labour market fluctuations than Europeans. This research could then determine to what extent the difference is due to factors such as education, region, industry, or ethnicity.

Conclusions – What Does This Research Tell Us About The Future?

Our analysis has shown us how the labour market has responded to previous downturns, and that Māori and Pasifika people tend to be much more vulnerable to downturns. We have also found that labour market contractions last considerably longer than contractions in GDP.

If the labour market would have responded to the COVID-19 pandemic crisis in a similar way as to previous economic downturns, then these results would suggest a strong decline in labour market outcomes for all groups to decline over 2020 and 2021, and significantly higher unemployment for Māori and Pasifika than for Europeans. Unemployment would have also remained at high levels for a substantial period, especially for Māori and Pasifika.

A full comparison to the COVID-19 recession is beyond the scope of this Note and left for further research. Data so far suggests that unemployment did rise, and more so for some groups than others, but not to the degree suggested by the above results. However, even with the pronounced rebound in economic activity, we may expect that the increase in unemployment lasts for some period and that some groups take longer to recover than others.

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