

Analytical Notes

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

Part III: Regions

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Key Findings

- We analyse how New Zealand's regions have been impacted by previous labour market cycles.
- We find that different regions experience very different labour market cycles. For example, Northland's unemployment rate typically increases by twice as much as Wellington's during labour market contractions.
- Further work will compare these findings with the ongoing COVID-19 pandemic crisis in more detail.

Introduction¹

This *Note* is the third in a series of analytical notes where we look at the past experiences of different ethnicities, age groups, sexes, and regions during historical labour market cycles in New Zealand.

In this *Note* we analyse how previous labour market cycles have impacted New Zealand's regions to put the impacts of the ongoing COVID-19 pandemic crisis into a better context. We find that:

- The length of labour market cycles differs across regions.
- Smaller regions tend to experience more volatility in unemployment cycles than larger regions. For example, Northland's unemployment rate increases by twice as much as Wellington's during labour market contractions.

What Can Previous Research Tell Us?

Previous research suggests that regions that are metropolitan and diverse in industry are less susceptible to economic shocks.

For example, Martin et al. (2016) find that metropolitan areas (i.e., London and the 'Greater South East' in the UK case) are more resilient to recessions. These regions experience a lower peak in unemployment and recover quicker, so have less volatility. Martin et al. suggest that this may be the case because these areas have a higher share of jobs that require higher levels of qualifications than other regions in the UK.

Han and Goetz (2015) note a similar story in the US, but also highlight the fact that different industries are at the forefront of different shocks. For instance, the financial industry was hit the hardest during the Global Financial Crisis, so regions that had a high share of employment in the financial sector experienced deeper downturns.

Based on these previous insights from the literature, we would expect large regions to be less impacted by recessions. This may be due to the fact that they do not rely on only a few industries for employment. However, the impact of the recession also depends on the nature of the shock. The shock associated with COVID-19 is likely to have a larger impact on industries that rely on face-to-face transactions and international visitors, such as tourism and hospitality. Therefore, regions that rely on such industries are likely to be heavily impacted.

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

How Do We Analyse Labour Market Cycles?

The first *Note* in this series, on ethnicities, explains our approach in more detail. Essentially, we follow Bry and Boschan's (BB) (1971) widely used method of dating business cycles date business cycles.²

We apply the algorithm to seasonally adjusted unemployment rates for each region, from the *Household Labour Force Survey* (HLFS). We also apply the BB algorithm to the headline rates. The analysis spans 1986 Q1 to 2020 Q1.

What Are The Results Of Our Analysis?

Figure 1 shows the unemployment rates for each region alongside the headline unemployment rate. The grey shading shows labour market contractions, as indicated by the BB algorithm.

Many of the regional labour market cycles correspond with the national 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. Additional labour market cycles are also identified by the BB algorithm for each region.

How Long Are Labour Market Cycles?

We can calculate the average duration of labour market contractions and expansions by region, using the BB dates.

These durations are shown in Figure 2, and reveal that the durations of unemployment expansions vary significantly across regions. These durations range from just under 9 quarters for Taranaki, to 16.5 quarters in Gisborne and Hawke's Bay.

How Severe Are Labour Market Cycles?

Figure 3 shows that the severity of labour market cycles differs across different regions. It appears that volatility becomes greater as regions become smaller.³ For example, in Northland and Bay of Plenty, the average labour market contraction leads to a 6 percentage point increase in unemployment. By contrast, unemployment increases by 2 percentage points in Wellington region.

² The Bry-Boschan algorithm is used, among many other institutions, by NBER to date US business cycles, and by OECD to build leading indicators. Also see Harding and Pagan (2002) for an excellent account of the BB algorithm. 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. The additional amplitude 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 quarterly volatility in the HLFS as a cycle, we impose the restriction that the distance from the peak to the trough of a cycle (the amplitude) must be at least as large as the sampling error for the time-series.

³ We plot the regional share of national GDP against amplitude. This shows that regions with a smaller share of national GDP have larger amplitudes than regions that have a larger share of national GDP, with Auckland being an outlier.

Conclusions – How Do These Results Relate to Other Groups and What Does this Research Tell Us About The Future?

Our analysis has shown us how regional labour markets have responded to previous downturns. Some smaller regions tend to be more vulnerable to downturns than other regions, and the duration of the labour market cycles varies considerably across regions.

If the labour market would have responded to the COVID-19 pandemic crisis in a similar way to previous economic downturns, then these results would suggest a strong decline in labour market outcomes for all regions over 2020 and 2021. Some regions would have seen a much stronger labour market downturn than others, and the different durations could imply that even as headline figures start to recover, some areas of New Zealand could still be experiencing deteriorating conditions.

The sector-specific nature of the COVID-19 recession could further increase the vulnerabilities of some regions. Some regions may be more likely to rely on face-to-face industries, such as tourism and hospitality, which will be significantly impacted by COVID-19 and border closures going forward. This, in turn, may result in fewer opportunities for employment in these regions.

The regional results may also help to explain the results in the other *Notes* in this series. For instance, Māori and Pasifika people may be concentrated in smaller regions where there is not a diverse mix of industries, and the industries that are located there may be more susceptible to shocks. A next step for this research could be to investigate this more closely.

References

Bry, G., and C. Boschan (1971). 'Cyclical analysis of time series: selected procedures and computer programs', *NBER Books*, National Bureau of Economic Research, Inc.

Burns, A. F., and W. C. Mitchell (1946) 'Measuring business cycles', *NBER Books*, National Bureau of Economic Research, Inc.

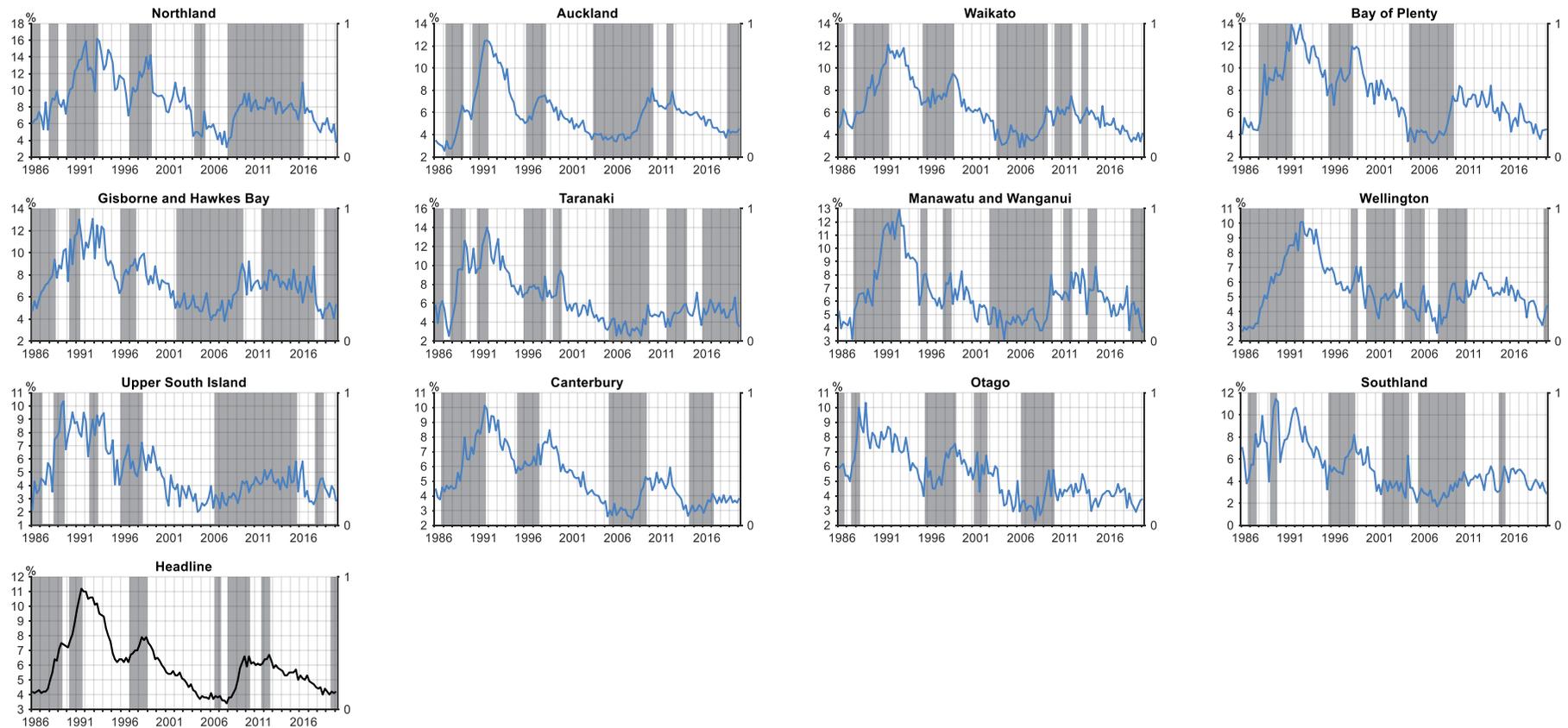
Hall, V. B., and C. J. McDermott (2016) 'Recessions and recoveries in New Zealand's post-Second World War business cycles', *New Zealand Economic Papers*, 50(3), pp. 261-280.

Han, Y., and S. J. Goetz (2015). 'The economic resilience of US counties during the Great Recession'. *Review of Regional Studies*, 45(2), pp.131-149.

Harding, D., and A. Pagan (2002). 'Dissecting the cycle: a methodological investigation', *Journal of Monetary Economics*, Elsevier, vol. 49(2), pages 365-381.

Martin, R., P. Sunley, B. Gardiner, and P. Tyler (2016). 'How regions react to recessions: Resilience and the role of economic structure'. *Regional Studies*, 50(4), pp.561-585

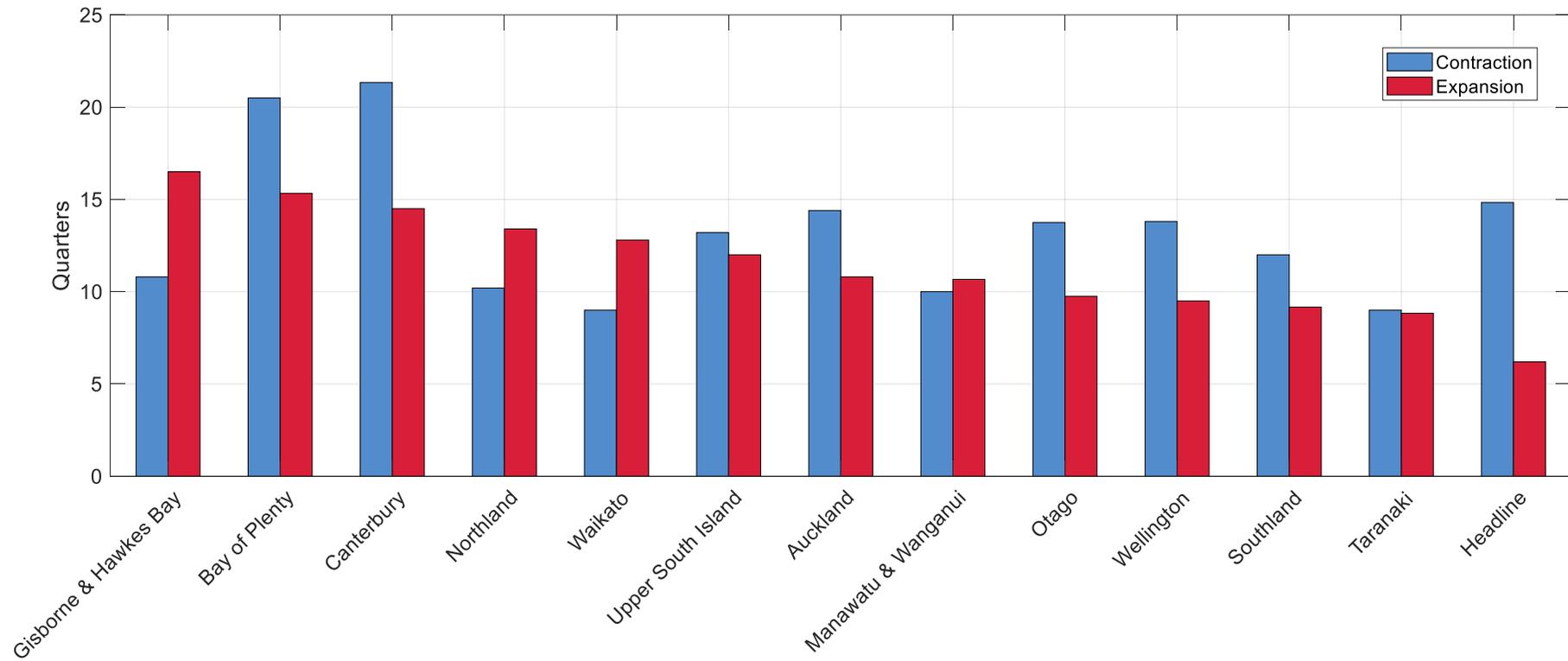
Figure 1: Unemployment Rate Cycles by Region



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.

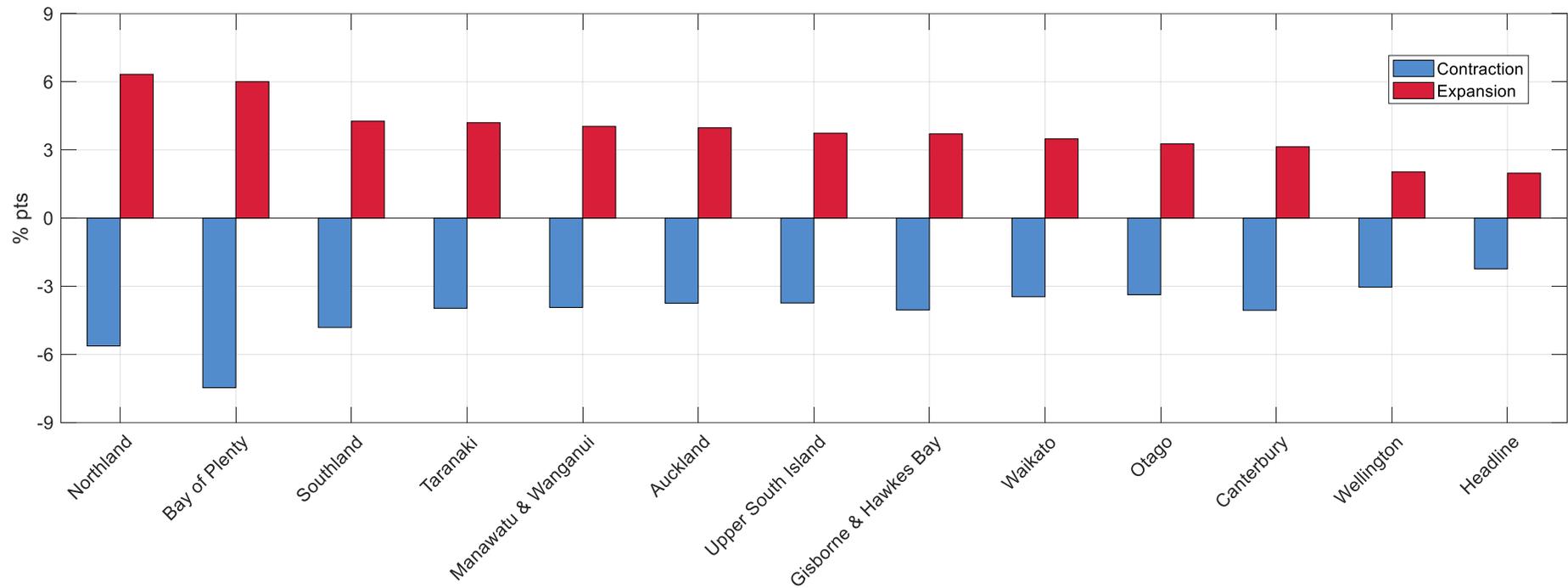
Figure 2: Duration of Unemployment Contractions and Expansions



Note: A contraction means unemployment is falling, and an expansion means unemployment is increasing.

Source: Author estimates.

Figure 3: Amplitudes of Unemployment Expansions and Contractions



Note: A contraction means unemployment is falling, and an expansion means unemployment is increasing.

Source: Author estimates.