



**Centre of Full Employment and Equity**

**Working Paper 09-01**

**Dynamic tracking of the Employment Vulnerability Index against  
Centrelink labour market payments data**

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## 1. Introduction

In March 2008, the Centre of Full Employment and Equity (CofFEE) and the Griffith University's Urban Research Program (URP) published its *Employment Vulnerability Index* (EVI) which provides a national ranking of suburbs according to the level of vulnerability to job losses in the event of a major economic downturn. At the time, the labour market had begun to deteriorate significantly and the EVI was intended to promote a debate concerning the spatial consequences of that deterioration.

While at an aggregate level the impacts of increasing unemployment are significant, the EVI provides insights into the spatial dimensions of joblessness. Even during the recent boom times our cities endured disadvantage 'hot spots' as individuals in particular suburbs have been unable to successfully negotiate the labour market.

This spatial concentration has resulted in an increase in multiple disadvantages and acts to further limit the opportunity of people living in these disadvantaged places.

The EVI was developed as an indicator of job loss potential at the level of suburbs for Capital cities and large non-metropolitan urban regions.

The derivation of the EVI is outlined in Baum and Mitchell (2009) and the Appendix of this paper. Table 1 describes the EVI classifications for the ranked suburbs according to their index outcome.

Table 1 EVI classification scheme

EVI classification	Map Colour Code
Red alert suburbs – those with high potential job loss;	
Amber alert suburbs— those with Medium-high potential job loss;	
Medium-low potential job loss suburbs; and	
Low potential job loss suburbs.	

It should be noted that the underlying modelling used to compute the EVI takes into account both suburb and individual characteristics. As a result, any one person in a Red alert suburb may have little risk of job loss while any one person in a Low risk suburb might, in fact, be very vulnerable to job loss. But in aggregate, we expect the job losses to fall predominantly in the Red and Amber alert suburbs.

A complete list of the rankings and different perspectives is available from the EVI Home Page at [http://e1.newcastle.edu.au/coffee/indicators/job\\_loss\\_index/](http://e1.newcastle.edu.au/coffee/indicators/job_loss_index/). All the maps are also available from the EVI Home Page.

Since the publication of the EVI the labour market has shown considerable resilience in the face of the downturn. It is clear that the fiscal stimulus packages introduced by the Australian government provided enough aggregate demand (and helped expectations adjust positively) such that the job losses that were initially considered inevitable have been attenuated.

There has still been a sharp rise in the unemployment rate and underemployment has risen as firms have made adjustments in hours. But the major employment losses have not eventuated.

Even so, we have been developing dynamic tracking tools to help us assess the accuracy of the EVI framework. While initially we were hoping to do this using the Department of Education, Employment and Workplace Relations (DEEWR) *Small Area Labour Market data*, that quarterly series has not been released since March 2009 due to on-going work by DEEWR realigning their geographic boundaries to accord with the Australian Bureau of Census (ABS) 2006 Census of Population and Housing boundaries.

The next best dataset that is currently available is DEEWRs *Labour Markets and Related Payments – A Monthly Profile*. The data reports the number of Newstart and Youth Allowance (Other) job-seeker recipients for each month, for each Centrelink Customer Service Centre throughout Australia. The figures for each month are an average of the number of people who were eligible on each Friday of the reference month. The figures do not include Allowance recipients who are not required to be looking for work.

This paper aims to explain the methodology that was used to compute the underlying datasets and geographic regions which feature in the Flash Dynamic Tracking Tools (DTT) available on the EVI Home Page (noted above).

The FDTT provide a series of maps which reveal the monthly change in the Centrelink counts of unemployment at a regional level throughout Australia since December 2008. The database underlying the DTT is updated regularly and at the time of writing was current as at August 2009.

It should be noted that these counts understate the true unemployment situation in each region because they only record those persons who are eligible and desire to receive unemployment benefits (Newstart or Youth Allowance).

## **2. Methodology – computing the unemployment change**

The EVI was assembled using data from the ABS 2006 Census of Population and Housing at the suburb level. There is no labour market data published at that level between Censuses. Centrelink data is published by Centrelink office areas which are defined in terms of postcodes.

Each Centrelink Customer Service Centre covers an area determined by postcodes. However some postcodes are included in the coverage areas of two or more Centres. For these postcodes we have allocated them to an appropriate Centre based on the geographic proximity of the postcode coverage to the towns. In addition some smaller Centres cover postcodes that are also covered entirely by a larger neighbouring town's Centre. In these cases we have incorporated the figures from the smaller Centre completely with the larger Centre and only made reference to the one (larger) area.

In Victoria, there were groups of postcodes that were identically covered by two similar sized towns. In these cases we have combined their data but have kept both their names in naming the areas. Further, some of the Newstart and Youth Allowance numbers are allocated to special purpose Centrelink Centres. We simply incorporated the data for these special purpose Centres into the main Centre for that area.

Small regional areas that were covered by the EVI have not been included in this analysis, as in these regions the coverage area for one Centre was larger than the area the EVI covered. Indeed, one of the strengths of the EVI was how it captured characteristics in areas that were considered analogous, in contrast to these large areas

that are covered by a single Centrelink Customer Service Centre and cover areas that are dissimilar and will provide no real indication of where unemployment took place within that area.

Once the postcode aggregation was done we were then able to gather data to provide a base for each area which we could use to compare movements in the numbers. We used the Labour Force figures from the 2006 Census of Population and Housing as this base. Hence we combined the Labour Force data for all of the postcodes covered by each Centrelink Customer Service Centre in our aggregation, to provide an aggregated Labour Force for the area each Centre covered.

The next obvious step was to look at the rate of Newstart and Youth Allowance (Other) job seekers per Labour Force for each area, that is, Newstart and Youth Allowance (Other) job seekers divided by Labour Force. Our main concern was to see what rate changes occurred from month to month, not the actual rates, as we were not using these figures as an unemployment rate.

It is important to note that while we used a similar formula as is used to determine the unemployment rate, unemployed persons are not necessarily captured in the Newstart or Youth Allowance recipient numbers, and similarly not all Newstart or Youth Allowance recipients necessarily satisfy the definition of being unemployed. Further, the Labour Force figures we used do not change with possible Labour Force increases that have taken place in areas since the 2006 Census of Population and Housing, as that data is unavailable.

We took November 2008 as the base month and looked at changes in the rate since then. So for each month in the analysis, the unemployment change is the change from the rate in November 2008 to the current month's rate.

At each month, once the rate changes were determined for each area they were analysed together and divided into four groups depending on their rate relative to the mean.

Table 2 Unemployment change groupings

Job seeker increase category	Relationship to the mean
Very high increase in job seekers	> 1 standard deviation above the mean
High increase in job seekers	< 1 standard deviation above the mean
Medium increase in job seekers	< 1 standard deviation below the mean
Low increase in job seekers	> 1 standard deviation below the mean

Note that there were a few areas that actually decreased their number of job seekers from November.

We found this was the most accurate and robust way of noting trend changes in unemployment given no actual unemployment rate. Other comparisons considered included looking at the percentage increase in the raw number of recipient job seekers – however small areas would have unfairly higher percentage changes, while areas with already large unemployment in November would escape notice. Another consideration was to use population as the denominator as it was a larger figure which would possibly be more appropriate given the imprecision of the data, however it was

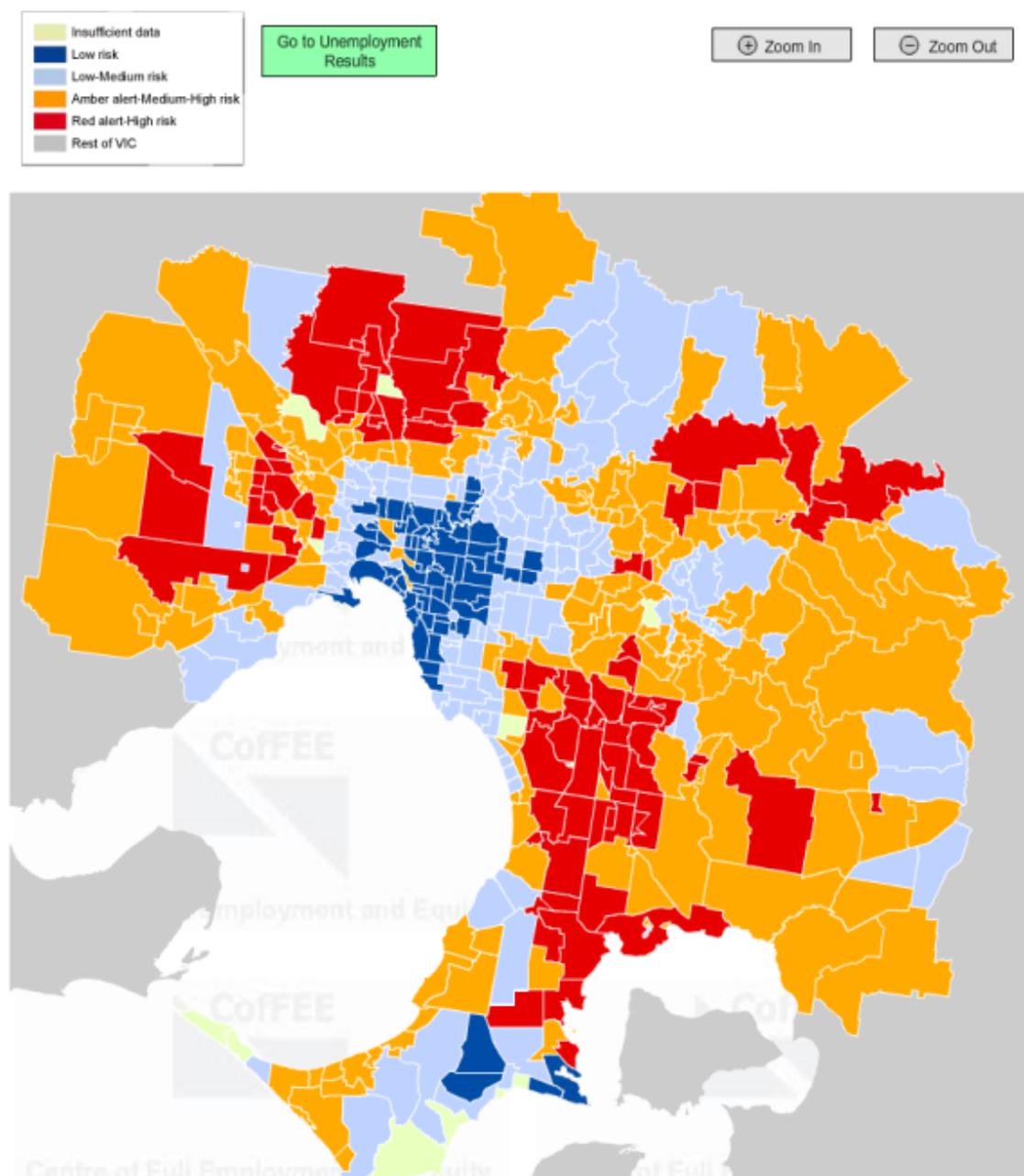
thought the difference in Labour Force participation in some areas was quite stark that Labour Force would provide a better base.

### 3. Using the Dynamic Tracking Tools

When you go to the EVI Home Page you will have access to the Flash Dynamic Tracking Tools. You can select which city you wish to examine and a popup window with the tool will appear as shown in Figure 1. Figure 1 starts with the map of the EVI for the particular city you have chosen. You can see the 4 EVI regions by colour and you can zoom in and out to examine the suburbs in more detail.

Running a mouse over the map will generate suburb-specific data derived from the EVI database.

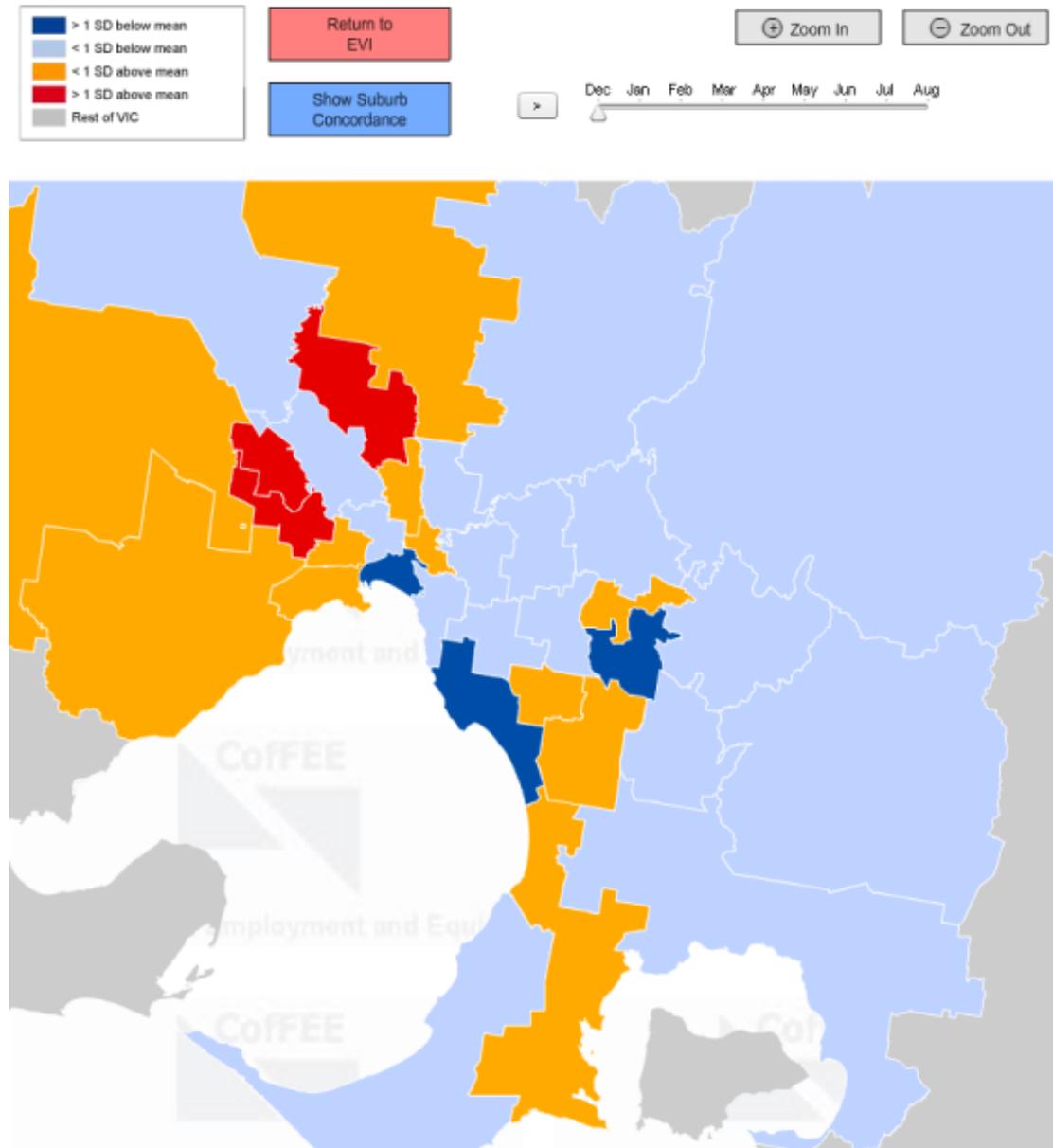
Figure 1 Initial flash window – EVI by suburbs



You then can click the **Go to Unemployment Results** box which then allows you to view the geographic distribution of the Centrelink data for the chosen city.

Figure 2 shows you the screen you will see in the popup window once you choose to examine the actual unemployment data.

Figure 2 Labour Markets and Related Payment data by region window



Note that you can return to the EVI data at any time and toggling back and forth allows you to make relatively instant comparisons.

You can also find out details of the regions by running your mouse over the surface of the map.

Further you can zoom in and out to examine the regions in more detail and also overlay the EVI suburbs on the postcode aggregations (Centrelink regions) by clicking the **Show Suburb Concordance** button.

The legend shows the 4 categories of unemployment change defined in Table 2.

Note that there is a time slider starting in December 2008 (Dec) and currently extending to August 2009 (Aug). You can manually drag the slider to whichever month you seek to examine using your mouse.

Alternatively to see an animation of the changing geographic distribution of the unemployment changes you can just click the forward arrow in the slider shown below. Once activated the regional changes from December 2008 to (currently) August 2009 will be played out before your eyes.



The animations provide a powerful graphical depiction of the dynamics of the labour market in the city that you are viewing.

Exiting the application is just a matter of closing the popup window. You will then be taken back to the EVI Home Page and you can select a new city to examine.

#### **4. Conclusion**

We are planning more tracking tools in the future. Further, once the SALM data is available we will integrate that into our databases and produce new regionally specific maps to include in the DTT framework.

#### **References**

Baum, S. and Mitchell, W.F. (2009) *Red alert suburbs: An employment vulnerability index for Australia's major urban regions*, Centre of Full Employment and Equity Research Report, March.

## Appendix A Methodology

### Computing the Employment Vulnerability index

The simple methodological approach used to build the job loss potential index follows a similar approach used by the Centre for Cities in the UK in developing their index of economic development (Centre for Cities, 2009).

We have taken three key indicators of the types of jobs at most risk:

1. The proportion of people employed in construction, mining, manufacturing, retail, accommodation and tourism, financial services and real estate;
2. The proportion of employed people without post school qualifications; and
3. The proportion of people working part-time.

An aggregation technique was used to create an index which reflects the relative weightings of these vulnerability factors. Using a principle components analysis we obtain factor loadings for these indicators and use these to develop a simple weighted index.

Each of the 2500 suburbs across the Australian capital cities were analysed together and divided into 4 groups depending on their score relative to the mean.

Table A1 Assessment criteria

Job loss potential category	Relation to the mean
High job loss potential	> than 1 standard deviation above the mean
Medium-High job loss potential	< than 1 standard deviation above the mean
Medium-Low job loss potential	< than 1 standard deviation below the mean
Low job loss potential	> than 1 standard deviation below the mean

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