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# Australian labour market flows over the business cycle\*

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## **Abstract**

This paper analyses the behaviour of Australian labour market transition rates. Since the early 1980s the job finding rate has been significantly more volatile and pro-cyclical than the job loss rate and is strongly pro-cyclical. The economic downturns in the early 1980s and early 1990s were associated with an up to 10 percentage point decline in the average job finding rate. In comparison, the recent economic downturn was associated with a less significant decline in the job finding rate. During these periods the job loss rate has shown less significant volatility. The findings of this paper suggest job search activities of workers are potentially more relevant in explaining the volatility of labour market variables such as the unemployment rate and whether emerging skills shortages can be addressed. Moreover, policies that assist job search and skills development of workers are important, as is the search intensity of workers.

# 1. Introduction

There is increasing attention on the recent performance of the Australian labour market and how much further the national unemployment rate will decline as the economy recovers from an economic downturn associated with the global financial crisis (GFC). The re-emergence of skills shortages across a number of occupations, industries and regions is also of relevance in the current environment.

The direction of the national unemployment rate and the degree to which skills shortages can be tackled partly depends on the efficiency of the labour market in 'matching' people looking for work with job vacancies (Pissarides (2000), Mortensen and Pissarides (1994)). The movement (or 'flows') of people between the three labour market states of employed, unemployed or not in the labour force varies over the business cycle and can help explain aggregate labour market outcomes (see Shimer (2005) for the United States).

This paper analyses the behaviour of Australian labour market transition rates over the last thirty years using data which examines the flows of people between the three labour market states. A unique contribution of this paper is the examination of job finding and job loss rates over six identified economic 'downturns' for Australia. Other related studies that are relevant to Australia include Panomareva and Sheen (2010). This study examines transitions using a four state model and finds that difficulties in finding employment are the key feature of recessions (rather than job losses). Chindamo and Uren (2010) examine the ability of a search and matching model of labour market flows to explain the behaviour of Australian labour market variables over the business cycle. Similar to Shimer (2005), they find that the model fails to produce substantial volatility among

unemployment or vacancies. Moreover, Dixon, Freebairn and Lim (2004) provide a framework for understanding the impact of labour market flows on the dynamics of the unemployment rate, including adjustment of labour market flows data to reflect stock estimates.

The present paper finds that since the early 1980s the job finding rate has been much more volatile than the job loss rate is significantly pro-cyclical. The economic downturns in the early 1980s and early 1990s were associated with an up to 10 percentage point decline in the average job finding rate. In comparison, the recent economic downturn period in 2008-09 was associated with a less significant decline in the job finding rate. During these same episodes the job loss rate has shown less significant movement. Hence declines in the job finding rate appears to be more significant in explaining aggregate labour market behaviour.

## 2. Labour market gross flows

### 2.1 Gross flows from the matched sample data

The ABS provides estimates of movements of people between the three labour force states from one month to the next based on the Labour Force Survey, and these data are referred to as labour market gross flows.<sup>1</sup>

The ABS is able to match Labour Force Survey respondents who report in consecutive months so that transition of individuals (or gross flows) between the different labour force states can be estimated. The gross flows figures represent approximately 80 percent of the Labour Force Survey sample. Table 1 provides an example of monthly gross labour market flows for Australia.

**Table 1: Gross flows March 2010 to April 2010** <sup>(a)</sup>

| Persons, '000, original     |                          | Labour status April 2010 |               |             |
|-----------------------------|--------------------------|--------------------------|---------------|-------------|
|                             |                          | To Not in labour force   | To Unemployed | To Employed |
| Labour status in March 2010 | From Not in labour force | 4413                     | 130           | 195         |
|                             | From Unemployed          | 118                      | 293           | 118         |
|                             | From Employed            | 258                      | 82            | 8734        |

(a) Data source: Australian Bureau of Statistics (ABS), *Labour Force, Australia*, June 2010, cat. 6206.0.

Table 1 shows that of the matched sample, there was a flow of 130,000 persons from the not in the labour force state to unemployment from March 2010 to April 2010. This was smaller than the number of persons moving from not in the labour force direct to employment (195,000). The number of unemployed persons in March 2010 that moved to not in the labour force or to employment was equal (118,000) while the number employed that moved to unemployment totalled 82,000.

## 2.2 Calculating transition rates: job finding and job loss rates

From the gross flows data we can calculate monthly transition rates between the labour market states which provides us a better understanding of labour market dynamics. Two key transition rates are the job finding rate and the job loss rate.

The average job finding rate is defined as the flow of persons from unemployment to employment plus the flow of persons from not in the labour force to employment, divided by a measure of the non-employed at the end of the previous month (i.e. persons not employed but who want a job at some point during the next month, including those officially classified as not in the labour force but who 'want a job'). The denominator in the job finding rate is calculated using the approach by Fujita and Ramey (2006) which assumes the average job finding rate for unemployed workers is equal to the rate for not in the labour force persons who want a job in the current month. The average job

loss rate is defined as the flow of persons from employment to unemployment plus the flow of persons from employment to not in the labour force over the current month, divided by the stock of employment persons at the end of the previous month.<sup>2</sup>

The matched sample is approximately 80 per cent of the corresponding Labour Force Survey sample.<sup>3</sup> Hence the transition rates are adjusted by a multiplicative factor of 1.25 to account for the inability to match workers across time. A more ‘sophisticated’ method involves using the residual allocation method (see Dixon, Freebairn and Lim (2004)) and the X12 seasonally adjusted procedure is also applied to convert the transition rates into seasonally adjusted terms. Table 2 compares the descriptive statistics of the resulting job finding and loss rates for Australia.

**Table 2: Descriptive statistics for estimated job finding and job loss rates for Australia** <sup>(a)</sup>

| Sample: 1981Q4 to 2010Q1 | Job finding rate | Job loss rate |
|--------------------------|------------------|---------------|
| Mean                     | 0.251            | 0.049         |
| Median                   | 0.243            | 0.051         |
| Maximum                  | 0.358            | 0.058         |
| Minimum                  | 0.189            | 0.042         |

(a) Quarterly averages of monthly transition rates data.

Table 2 shows the monthly job finding rate averaged 25.1 per cent since the early 1980s or an average non-employment period for those looking for work of about 1/3 of a year.<sup>4</sup> The job loss rate averaged 4.9 per cent over the same period, suggesting a job lasts an average of 1.7 years. The next section examines the behaviour of the transition rates over time.

### 3. The behaviour of the labour market transition rates

Figure 1 presents the average job finding rate for Australia since December 1981. The figure also identifies periods of economic downturn, approximated as periods of two or more consecutive quarters of negative growth in domestic final demand. Hence the periods of economic downturn

identified are December 1981 to March 1982; March 1983 to June 1983; September 1989 to December 1989; December 1990 to June 1991; September 2000 to December 2000; and December 2008 to March 2009.

The economic downturns in the early 1980s and early 1990s were associated with an up to 10 percentage point decline in the average job finding rate. In comparison, the recent economic downturn in 2008-09 was associated with a less significant decline in the job finding rate and there was minimal movement in the job finding rate for the downturn period in the early 2000s.

**Figure 1: Job finding rate for Australia**

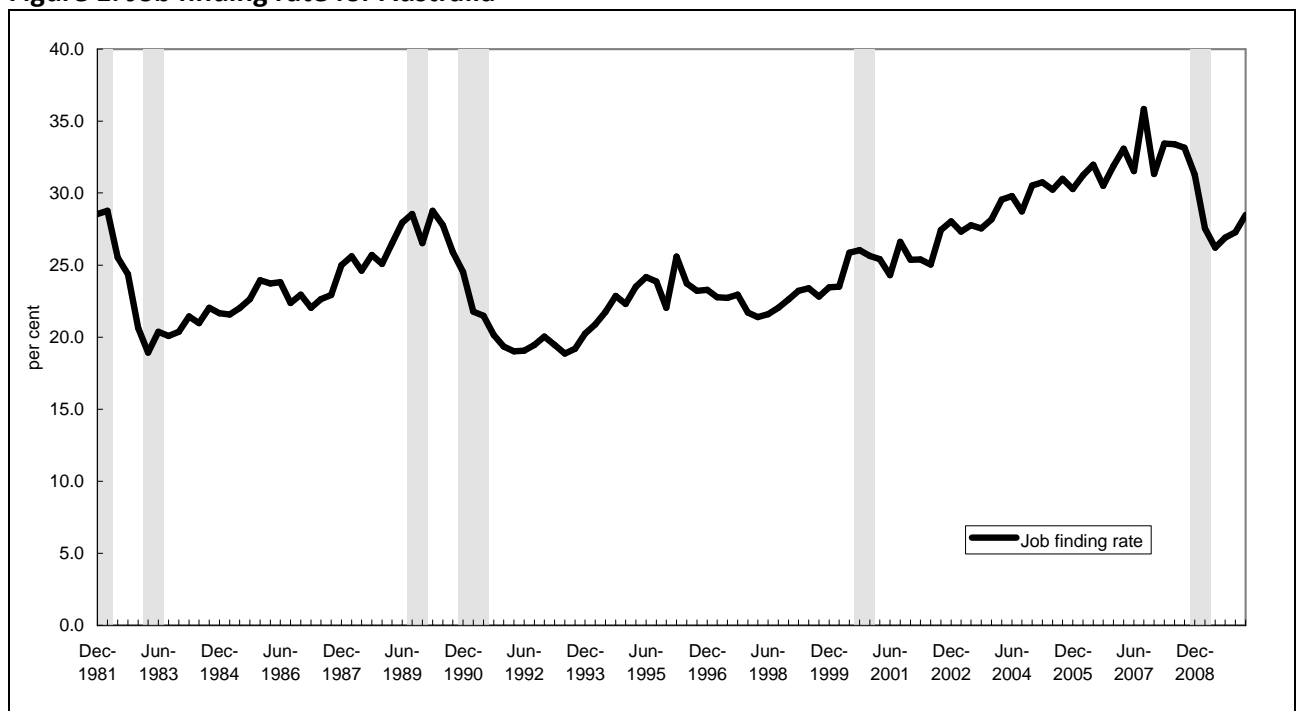


Figure 2 presents the average job loss rate for Australia since December 1981.

**Figure 2: Job loss rate for Australia**

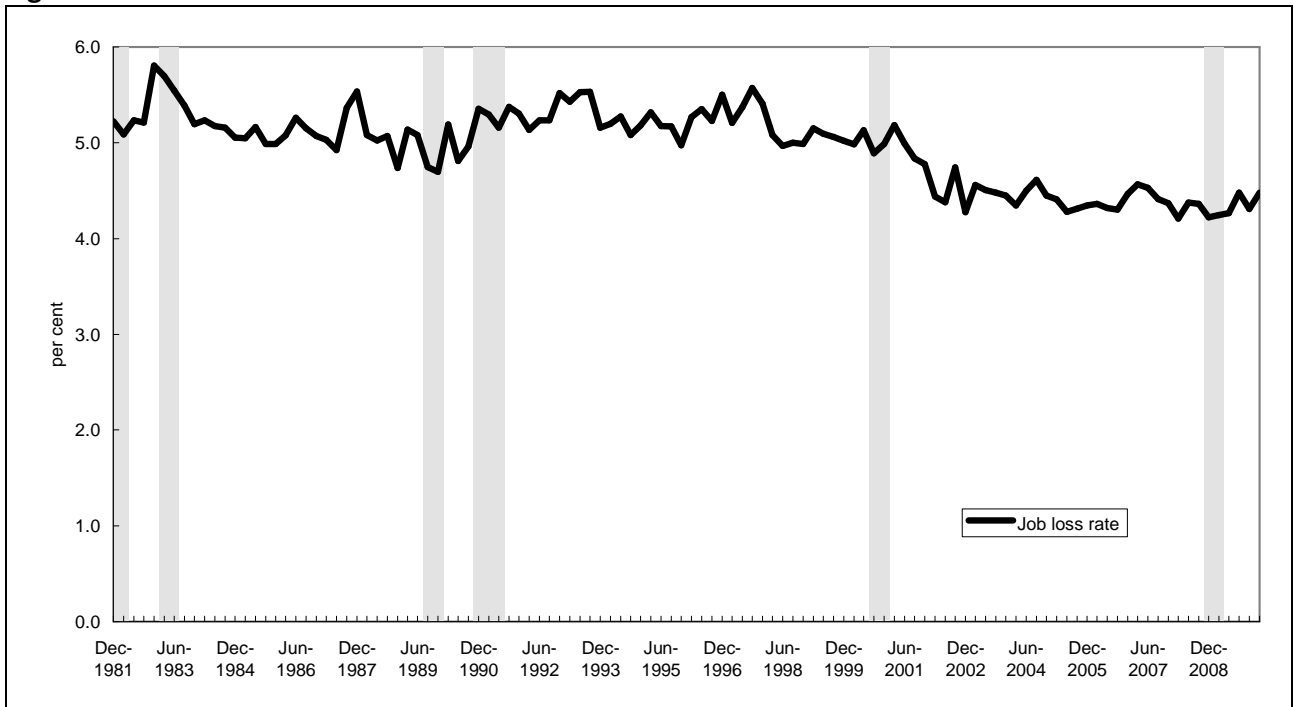
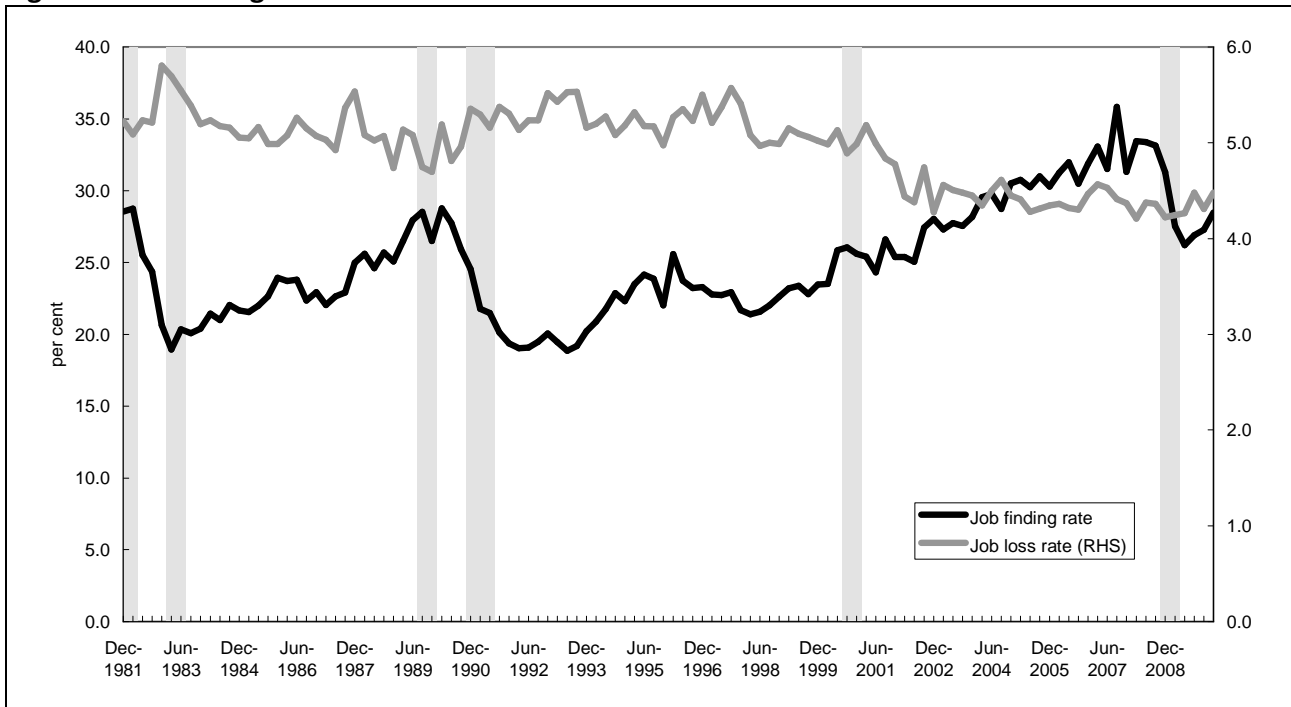


Figure 2 shows there was a slight rise in the job loss rate in the economic downturn period during the early 1980s and again during the early 1990s. However, the last two downturn periods have not been associated with any significant rise in the job loss rate.

Figure 3 shows the job finding and loss rates together. This more clearly demonstrates that the periods of economic downturn have been associated with a significant drop in the job finding rate rather than a significant upward movement in the job loss rate. Over the whole sample there is a correlation of -0.92 between the job finding rate and the unemployment rate. In contrast, the correlation between the job loss rate and the unemployment rate is 0.82.



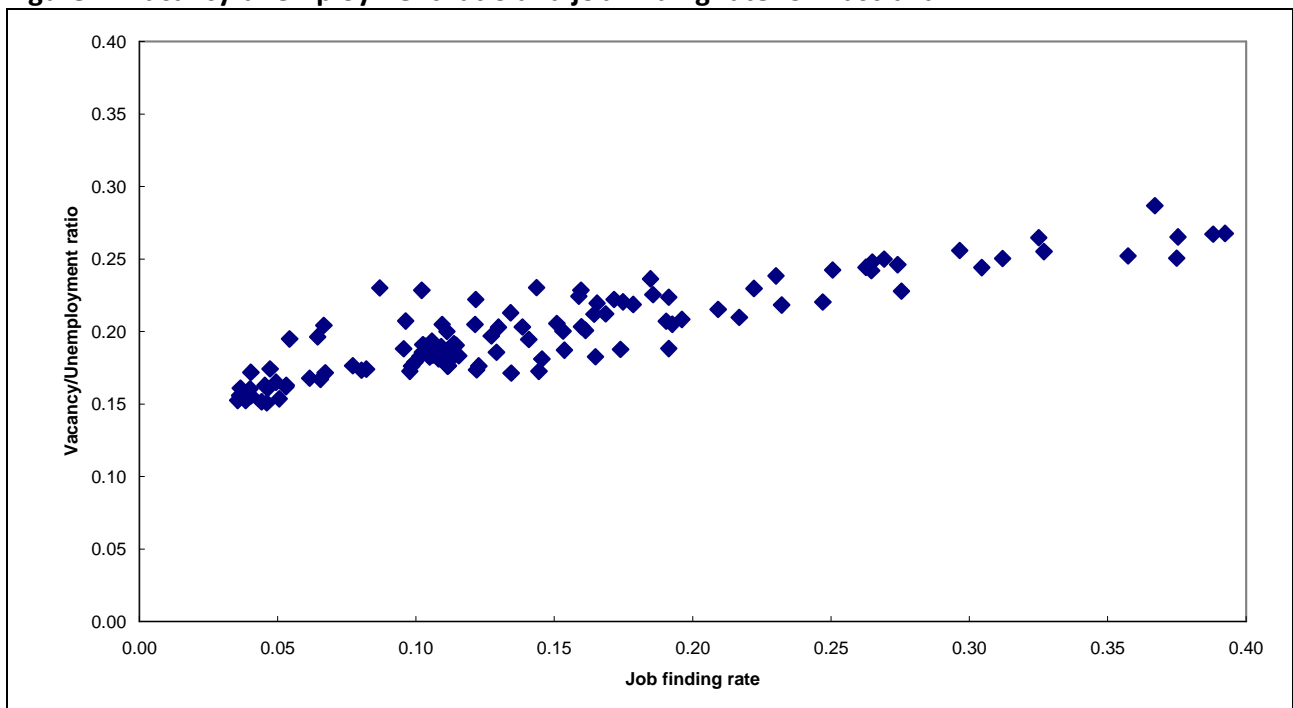
**Figure 3: Job finding and loss rates for Australia**



The decline in the job finding rate during the periods of economic downturn can be explained in the context of the job vacancies/unemployment ratio. During periods of economic downturn, businesses may reduce their hiring intentions and hence advertise fewer vacancies. This makes the job search success of workers much more difficult. Conversely, during periods of economic upturn, businesses may increase their hiring intentions and increase the number of vacancies they advertise (Pissarides 2000). Hence in this situation, for a given number of unemployed persons, there are a greater number of job vacancies and a higher probability a searching worker will be able to find a job. This relationship is illustrated for Australia in Figure 4 where the job vacancies/unemployment ratio (a measure of labour market ‘tightness’) is plotted against the job finding rate. Clearly the job finding rate is a positive function of the job vacancies/unemployment ratio.

The comparative performance of the job finding and loss rates over time also suggests that factors impacting on job search by workers are particularly important in explaining the extent of unemployment. Factors include the discouraged worker effect, skills atrophy while (long-term) unemployed and transaction costs associated with job searching.

**Figure 4: Vacancy-unemployment ratio and job finding rate for Australia**

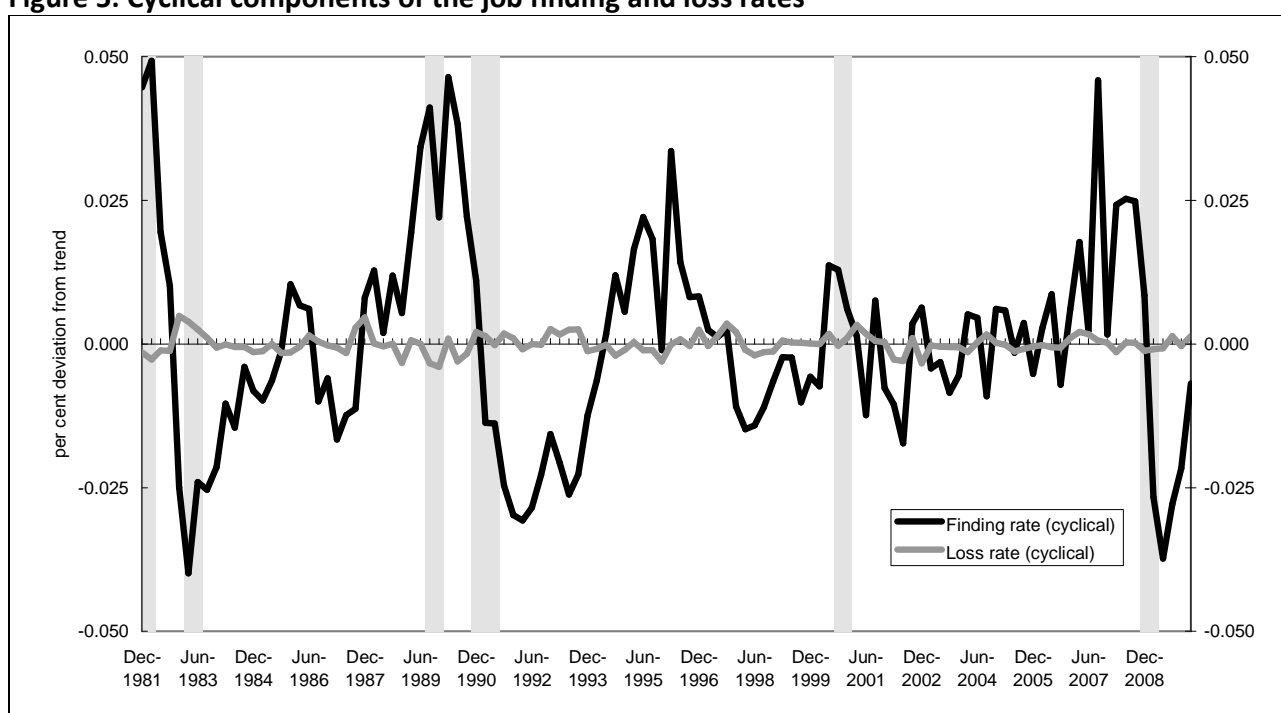


To further examine the cyclical nature of the transition rates, Figure 5 presents the cyclical components of these time series using a Hodrick Prescott filter with smoothing parameter set at 1600.<sup>5</sup>

Figure 5 shows that the job finding rate is clearly pro-cyclical. The cyclical component of the job finding rate shows extreme volatility in the economic downturn of the early 1980s and early 1990s. The volatility is also more significant in the recent economic downturn during 2008-09. In contrast, the cyclical component of the job loss rate has been much less volatile.

When comparing the two cyclical time series over the entire sample period, the cyclical component of the job finding rate has been approximately 18 times more volatile than the cyclical component of the job loss rate. This suggests the job search and finding activities of workers in the labour market are potentially more relevant in explaining the volatility of labour market variables such as the unemployment rate.

**Figure 5: Cyclical components of the job finding and loss rates**



## 4. Conclusion

The movement of people between the three labour market states varies over the business cycle and the job finding and loss rates can explain the magnitude of movements between the three states. Since the early 1980s the job finding rate has been much more volatile than the job loss rate and has also been much more pro-cyclical. The economic downturns in the early 1980s and early 1990s were associated with an up to 10 percentage point decline in the average job finding rate. In comparison,

the recent economic downturn period in 2008-09 was associated with a less significant decline in the job finding rate. During these same episodes the job loss rate has shown less significant movement. This suggests that downward movements from unemployment or not in the labour force to employment are much more important in explaining aggregate labour market behaviour, such as the unemployment rate, than have flows resulting in job losses.

The implications of the findings of this paper are that frictions in labour market search and matching are relevant to Australia's labour market performance and whether the unemployment rate can decline further post the GFC. Job search and finding activities of workers in the labour market are potentially more relevant in explaining the volatility of labour market variables, such as the unemployment rate, and whether emerging skills shortages can be addressed in the short-term. Policies that assist in job search and skills development of workers are important, as is the search intensity of workers.

## Endnotes

1 Labour market gross flows data from 1997 were obtained from the ABS (Cat No. 6202.0 - Labour Force, Australia) and data from 1981 to 1997 were obtained from Dr Robert Dixon of the University of Melbourne.

2 Shimer (2007) outlines a method to account for intra-period flows (such as flows from one employment state to another employment state within a month) in the transition rates.

3 Given the 80 per cent matched sample it means that gross flows data cannot be reconciled with labour force survey stock estimates. The ABS is working on expanding the matching sample to allow this reconciliation.

4 The average monthly job finding rate is 0.251, implying an annual period of non-employment of  $(1/0.251)*12 = 0.332$  years.

5 The cyclical series have been constructed using a Hodrick Prescott filter. Other filters were tested, including the Baxter-King band pass filter. The results do not change appreciably.

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