

# Who Benefits from Growth? Disadvantaged Workers in Growing Regions

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## Abstract

*Despite Australia enjoying unprecedented growth since the early 1990s, pockets of socio-demographic and regional disadvantage persist. Studies of disadvantaged workers often focus on regions experiencing employment decline; this paper instead explores how disadvantaged workers have fared in expanding labour markets. How much do workers at the bottom end of the labour market benefit from employment growth? Are policies that focus on the delivery of employment growth sufficient for determining labour market outcomes, or is continuing disadvantage a reflection of personal characteristics?*

*At the aggregate level, high growth regions appear to have had more equitable rates of growth across occupations relative to low or medium growth regions. However growth in the late 1990s has not significantly altered the structure of labour market disadvantage and the gap in the relative probabilities of unemployment between disadvantaged and non-disadvantaged participants persists. This is particularly so for labour market participants with low English proficiency, in state housing, renting and non-metropolitan Australians, and the trend is more pronounced amongst females.*

## 1. Introduction

Over the 1990s Australian GDP grew by 3.5 per cent per annum, faster than the U.S. and a third greater than the OECD as a whole. Despite this, unemployment averaged 8.6 per cent over the 1990s (ABS, 2006) and was thus insufficient to create full employment. The growth was also spatially uneven, evidenced by the strong spatial concentration of unemployment (Mitchell and Bill, 2004). In many cases where regions have experienced strong employment growth, the supply push into those regions has meant that the unemployment reductions have been muted (Bill, Mitchell and Watts, 2006). The 1990s and early part of this decade have also been marked by rising levels of underemployment. Wilkins (2005) finds that the underemployed now out-number

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the unemployed (600,000 to 530,000) and nearly a half of men and a third of women working part-time would like to work more hours.

Several studies of unemployment in Australia have used unit record files (Beggs and Chapman, 1988; Wooden, 1991; Le and Miller, 1999; Le and Miller, 2000). However, this work largely focused on individual determinants of unemployment and ignored demand and regional specific effects; being essentially 'aspatial' in application. Gordon (2003) lists a range of 'sub-market effects', separable from population-mix factors, which impact on labour market outcomes, including a region's demand for labour. Additionally housing, industry composition, employment accessibility, transport availability, access to other amenities and mismatch between residents and potential workplaces may impact. Neighbourhood effects may also perpetuate sub-optimal outcomes overtime in certain regions (Andrews *et al.*, 2004; Heath, 1999). Regional interactions in the form of trade-spillovers, and commuting are also influential in determining labour market outcomes net of personal characteristics (Molho, 1995).

There has thus been little Australian research, particularly using unit record data, into: (a) the impact of such local labour markets factors on individual labour market outcomes; (b) whether there is systematic geographic variation in this effect across socio-demographic groups; and (c) whether employment growth specific to local economies plays a substantive role.

Supply-side explanations suggest that the regional unemployment pattern is a function of the distribution of workers with adverse personal characteristics and associated lower employability. Yet, without an understanding of how employment growth impacts on regional labour markets, these explanations can only ever be partial. Mitchell and Bill (2005a) argue that employment constraints dominate regional unemployment outcomes and the supply-side factors function to shuffle the unemployment queue in a job-rationed environment. Without careful examination of the role of local demand and supply factors in local concentrations of unemployment the appropriate policy response to regional unemployment will remain ambiguous. Buck and Gordon (1987, p.77) note if residential characteristics more than an area's relative employment growth and decline are responsible for the high or low incidence unemployment, then "it raises questions about the potential effectiveness both of policies seeking to relieve unemployment through local employment creation and policies of encouraging the movement of disadvantage groups away from areas of decline." If the converse is true then a role for government led intervention in the form of regionally-focused demand side strategies is indicated.

The principal focus of this paper is to analyse whether high employment growth regions over the late 1990s delivered benefits to workers with characteristics typically associated with disadvantage.

Buck and Gordon (1987) cite two reasons why disadvantaged workers may benefit from residence in high growth regions. First, high- and low-skill workers have different mobility patterns. The benefits gained by any occupational group from local growth depend partly on the proportion of workers in that group commuting and/or migrating into that area in response to employment growth. Inflows from neighbouring residents reduce the benefits of new job creation for local residents (Bill, Mitchell and Watts, 2006). High status workers (professionals) undertake longer commutes and have higher rates of migration compared to low skilled manual workers (Coombes *et al.*, 1988; Green, 1995; Bailey and Turok, 2000). Thus for any aggregate employment

change, professionals can expect to receive more competition for newly created jobs from in-migrants or in-commuters than low-skilled workers (Buck and Gordon, 1987). Unskilled workers also have less information about vacancies and fewer personal contacts which reduce their search effectiveness (McGregor, 1983; Stone, Gray and Hughes, 2003). Thus unskilled workers in growing areas face less outside competition for jobs and are more likely to directly benefit from local changes in employment growth (Bailey and Turok, 2000). Second, in tighter labour markets disadvantaged groups are in a better competitive position because employers have less choice over who they employ (Buck and Gordon, 1987). Conversely, when overall demand deficiency occurs, more qualified and mobile workers can 'bump down' less qualified workers out of jobs in high growth areas by accepting positions below their skill levels. The net outcome for less skilled workers is the product of these conflicting dynamics.

The paper is organised as follows. Section 2 details the data used and preliminary data analysis. Section 3 examines the relationship between unemployment rates and employment growth. It highlights the role that supply shifts have played in high growth areas in attenuating the reductions in unemployment, particularly among less-skilled workers. Section 4 more formally investigates the proposition that disadvantaged workers receive substantial benefits from high employment growth. We find that the structure of opportunities, given the overall higher level of growth, does not seem to be particularly favourable towards many disadvantaged groups in high growth versus low growth regions, and this trend is more pronounced for females than males. Concluding remarks follow.

## **2. Data and preliminary analysis**

### ***2.1 Data sources and definitions***

Data for the preliminary analysis (Section 2 and 3) are SLA level aggregates drawn from the ABS Time Series Profile (TSP), 1996-2001. While spatially rich, this data precludes detailed exploration of labour market disadvantage because of the limited number of cross-tabulations of labour force and other characteristics available. The SLA data are combined to form Statistical Regions (SRs) using an SLA to SR concordance for 2001. Custom ABS Labour Force Survey (LFS) data for August 2001, providing counts of unemployed persons by occupation of last full-time or part-time job broken down by LFS dissemination region (roughly equivalent to SRs) was also obtained. The demarcations between low, medium and high growth regions in this Section 2 and Section 3 are based on Census estimates of resident employment growth for the 64 SRs. In these sections, high growth regions are defined as one standard deviation (4.6 per cent) above the median employment growth of (8.4 per cent) while low growth regions are one standard deviation below the median.

Section 3 also employs custom Centrelink data of counts of all New Start and Youth Allowance recipients (excluding full-time students) unemployed on August 17 2001, for each postcode in Australia disaggregated into two duration categories: (a) STU - those who have been unemployed for less than 12 months; and, (b) LTU - those who have been unemployed for 12 months and over. Unemployment is not defined consistently across the Census, Labour Force Survey and Centrelink datasets. While all three definitions of 'unemployed' capture persons 15 years and over, currently in the labour force and not employed, the LFS and Census rely on self-reporting of unemployment, whereas the LFS definition of 'employed' follows the standard

international definition, which requires a person only work one hour or more a week (ILO, 1983). A person is unemployed in the Centrelink dataset if they receive New Start or Youth Allowance (excluding full-time students) in August 2001. Yet a person (under New Start rules) can be in receipt of unemployment benefits and work one hour or more a week.

We calculated occupational unemployment rates from additional custom ABS LFS data for August 2001 which provided counts of unemployed persons by occupation of last full-time or part-time job broken down by LFS dissemination region (roughly equivalent to SR's). In the LFS, information about the occupation of last job is only collected of unemployed persons who have worked for two weeks or more in the last two years. After two years, a person is deemed to have lost their occupational 'attachment'. Hence total unemployed persons does not equal total persons across the occupation categories.

The regression analysis in Section 4 employs the 2001 Census Household Sample File (HSF) and based the demarcations between growth regions on the median employment growth computed from that CURF data. Accordingly, a high growth region was defined as having growth of one standard deviation (4.3 per cent) or more above the median (8.3 per cent) and a low growth region was defined as having growth of one standard deviation or more below the median. The CURF data is a 1% sample of private dwellings, with their associated family and person records, and a 1 per cent sample of persons from all non-private dwellings together with a record for the non-private dwelling. The geographic areas provided in the HSF are derived from Statistical Regions (SR's) or some aggregation of Statistical Regions, and number 48 in total. To ensure confidentiality, with the exception of the Northern Territory, these are based on a minimum population size of 250,000 persons in 2001 (ABS, 2001:11). Other Territories comprising Jervis Bay, Cocos (Keeling) and the Christmas Islands have been excluded.

The considerable heterogeneity of regional data, employed in Section 2 and 3, is a useful tool for exploring questions about how labour markets operate. However caution needs to be exercised in the use of spatial data. For instance, considerable variation (particularly in terms of labour force size) exists within common units, such as SLAs. It is also unclear where the theoretical boundaries of a unit lie - although for practical purposes of this paper they are said to conform to standard units devised by the ABS for statistical dissemination. The results of spatial analysis will also vary with the spatial unit chosen - the so-called Modifiable Areal Unit Problem (MAUP). A related problem of ecological inference arises when the exact patterning within the spatial unit of two or more variables is unknown and variables in fact display different spatial groupings. In this case correlations calculated without accounting for the effects of disparate grouping will be spurious. The MAUP is overcome in Section 4, because we undertake econometric analysis using unit record data from the Census - that is people. We can also perhaps be more certain when using this micro-data that the link between regional characteristics, demographic characteristics and economic outcomes is straight forward. The downside of using Household Sample File (HSF) is owing to the need to protect confidentiality and issues of sample size and sample variability, some geographic detail is lost.

## **2.2 Preliminary data analysis**

Mitchell and Bill (2005b) provide extensive analysis of the data for each of the 64

regions. We summarise their results here: (a) Average male employment growth was nearly half the female rate (6.2 compared to 11.4 per cent) from 1996 to 2001; (b) Sydney and Melbourne experienced strong employment growth in the late 1990s as did Western Sydney (Fairfield-Liverpool) and its surrounds, Gosford-Wyong, South-Eastern, Northern and Outer-Western Melbourne, also the Mornington Peninsula, South West Metropolitan WA and Brisbane's outer city ring; (c) Non-metropolitan SR's such as inner-regional SR's of South and East Moreton and North and West Moreton on the NSW Queensland border, Darling Downs in southern Queensland, South Eastern South Australia (including Mt Gambier), Loddon-Mallee (including Bendigo) and the Barwon-Western, covering Geelong also experienced high growth; (d) Declining male employment mostly occurred in regional and remote areas; (e) Above average male employment growth mostly occurred in metropolitan regions.

Occupation provides a very broad indicator of a person's social and economic disadvantage, capturing both pecuniary and non-pecuniary aspects of a job (Le and Miller, 2001, p.353). An occupational breakdown of employment growth helps us determine whether sufficient employment opportunities have been provided for disadvantaged labour market participants (Buck and Gordon, 1987). Of-course, the area's occupational mix reflects as much the characteristics of accessible jobs as the characteristics of residents filling these jobs (Molho, 1987).<sup>2</sup>

Employment demand, especially in Australia's large cities, became increasingly occupationally polarised over the 1990s (Sassen, 1991; Baum, 1997). Overall, occupational growth has been heavily skewed to non-manual, high-skill jobs. Total employment growth occurred predominantly in professional, clerical, sales and service occupations. Males experienced sluggish growth in manual occupations, where 30 per cent of male employment was concentrated in 2001. The pattern of occupational shares is common across high, medium and low growth regions. There is very little difference between growth categories in the relative distribution of workers by gender or across occupations in 2001. Labourers and tradespersons have a slightly higher share of employment in low growth regions, and intermediate clerical workers have a slightly higher share of employment in high growth regions (Mitchell and Bill, 2005b).

Table 1 summarises occupation growth rates for high, medium and low growth regions. Occupational classifications have been devised to maintain distinctions between 'advantaged' and 'disadvantaged' labour market participants, and to preserve gender splits between occupations. We broadly follow Reich's (1992) classification isolating Managerial, Professional and Technical (MPT) (an aggregation of professional, associate professional and managerial occupations) workers, who might be thought of as 'symbolic analysts' - involved in high skill, analytical activities. These are likely to be advantaged labour market participants, enjoying good pay and conditions, opportunities for promotion and high job security. Advanced and intermediate clerical sales and service workers are also combined on the basis that they are in the middle-range of labour market advantage and roughly constitute 'in-person service workers'.

<sup>2</sup> An occupational breakdown is only one way in which disadvantaged and advantaged labour market participants might be distinguished, education or other characteristics explored in Section 4 might also be very useful. Unfortunately standard release Census data (such as the Basic Community Profile, the Expanded Community Profile and the Time Series Profile) are restricted in the number and types of cross-tabs provided. Labour force status cross-classified by these socio-demographic variables is not available, except via custom request (the ABS plans that the 2006 Census output will be much more flexible in this respect).

Elementary clerical workers, Reich's 'routine production workers' represent a low skilled group, with poor pay and job security. Finally tradespersons and labourers are separated from those other 'routine production workers' because these are jobs predominately undertaken by males. First, the differential between overall male and female employment growth is much greater in low growth regions than high growth regions in the period 1996 to 2001. Second, tradespersons and intermediate transport and production workers experienced growth well below national trends in all three 'growth regimes'. Conversely, Managerial, Professional and Technical (MPT) and elementary clerical, sales and service workers experienced strong growth across the three 'regimes'. In low growth labour markets, growth in entry-level clerical and services employment was significantly stronger than in other occupational groups. However, with these exceptions, occupations in high to medium growth areas are ranked in the same order as in low growth regions. Consistent with Buck and Gordon (1987), the relative pattern of occupational growth rates is similar across the three types of regions, with growth rates uniformly more favourable across occupations in high growth areas.

Table 1 - Percentage change in employment for selected occupations within low, medium and high growth regions, 1996-2001 and 1991-1996

	1996-2001			1991-1996		
	Low	Mid	High	Low	Mid	High
<b>Total</b>	1.6	8.4	15.7	4.0	7.2	14.0
Male Employment	-0.9	6.3	13.5	1.1	4.4	11.1
Female Employment	5.1	11.1	18.3	7.3	10.8	18.1
Tradespersons	-5.5	2.7	6.8	-1.0	1.3	7.1
Labourers	2.3	7.9	10.9	-0.8	1.7	4.0
Clerical, Sales and Service	0.3	7.6	15.2	14.0	19.2	27.3
Elementary Clerical, Sales & Service	10.0	16.6	23.4	-18.1	-15.4	-8.1
MPT	5.9	12.2	22.9	20.7	25.0	37.4
Intermediate Production & Transport	-3.2	1.5	5.0	4.3	9.6	14.2
Not Stated	-25.2	-19.1	-9.7	-57.0	-57.6	-54.7
<b>Males</b>						
Tradespersons	-5.7	2.7	6.8	-1.1	1.0	6.9
Labourers	5.6	13.0	16.9	0.8	4.6	5.3
Clerical, Sales and Service	-4.1	4.8	13.8	5.1	10.5	20.2
Elementary Clerical, Sales & Service	9.1	16.3	22.0	-19.6	-17.1	-9.1
MPT	1.6	8.1	19.0	15.5	19.2	31.0
Intermediate Production & Transport	-1.9	3.7	8.1	3.2	10.4	15.4
Not Stated	-25.2	-19.1	-9.7	-57.0	-57.6	-54.7
<b>Females</b>						
Tradespersons	-4.0	3.1	7.3	0.1	3.5	8.9
Labourers	-3.1	0.2	2.2	-3.4	-2.7	1.8
Clerical, Sales and Service	1.8	8.6	15.7	17.5	22.5	30.1
Elementary Clerical, Sales & Service	10.5	16.8	24.2	-17.4	-14.5	-7.6
MPT	12.1	17.8	28.1	29.1	34.0	47.2
Intermediate Production & Transport	-12.2	-10.4	-9.0	11.3	5.5	9.0
Not Stated	-19.5	-14.0	-2.9	-60.2	-60.2	-56.5

Note: Mid is medium, Low region's (SRs) experienced employment growth in 1996-2001 or in 1991-1996 one standard deviation below the overall median, while high growth is one standard deviation above the overall median in each of the respective 5 year periods.

Source: ABS, CDATEA, 2001 - Time Series Profile (TSP). All other regions, with employment growth between one standard deviation above and below the median, are classified as medium growth.

Third, while tradespersons suffered declining employment in low growth areas, they enjoyed strong growth in high growth regions. However, this was still moderate compared to growth experienced by all occupations. Labourers also fared well in high growth regions relative to their fortunes in low growth areas. We conclude that high growth regions have sustained employment opportunities for unskilled workers whereas in low growth regions this group has been squeezed.

Table 2 - Employment change by occupation as a percentage of total employment change for low, medium and high growth regional labour markets, 1996-2001 and 1991-1996.

	<i>Low</i>	<i>Medium</i>	<i>High</i>
Unemployment rate, Females	6.5	6.4	7.6
Unemployment rate, Males	8.2	7.7	8.6
Unemployment rate, 2001	7.5	7.1	8.2
Unemployment rate, 1996	8.6	8.9	10.8
% Change Unemployment Rate, 1996-01	-13.7	-19.7	-24.0
% Change Unemployment, 1996-01	-13.5	-14.6	-14.6
% Change Employment, 1996-01	1.6	8.4	15.7
% Change Employment, Male, 1996-01	-0.9	6.3	13.5
% Change Labour Force, 1996-01	0.6	6.4	12.4
LF participation rates, 2001	59.4	60.6	59.6
LF participation rates, 1996	60.2	60.7	59.6
% Change Labour Force, Males, 1996-01	-2.2	4.1	10.2
LF participation rates, Males, 2001	67.3	68.5	67.1
LF participation rates, Males, 1996	69.5	69.9	68.2
% Change Labour Force, Females, 1996-01	3.7	9.4	9.9
LF participation rates, Females, 2001	54.6	55.4	55.5
LF participation rates, Females, 1996	52.4	55.5	52.9

*Source:* CDATA, 2001. Growth categories devised on the basis of employment change, 1996-01.

Table 2 asks the same question but in a slightly different way, examining how the net employment generated in each of the 'growth regimes' in the late 1990s have been shared across occupational groups. Employment growth has favoured non-manual and high skill occupations. In low growth regions, of the small amount of net employment generated between 1996 and 2001, a very large share went to persons employed in professional, managerial and associate professional occupations. Tradespersons and, to a lesser extent, intermediate production and transport occupations bore the brunt of the slow employment growth. Offsetting this was relatively strong growth in elementary clerical occupations. Labourers, unlike tradespersons received a reasonable share of the small number of net employment opportunities in low growth regions.

In contrast, the jobs growth in high growth regions is shared more equitably across occupational groups. While high skill occupations gained most of the net employment growth, the proportion gained in high growth regions is below the national average for this group. The low skilled occupations also gained higher shares compared to their outcomes in low growth regions. So although unskilled workers have not greatly increased their share of employment opportunities relative to other occupational groups inside high growth regions, high growth has been relatively beneficial to

unskilled workers. Further, males in low growth regions have dramatically 'lost share', whereas in high and medium growth regions, males and females enjoy almost equal shares in net employment generated over the late 1990s.

### 3. Employment growth and unemployment rate dynamics

A complex relationship exists between unemployment rates and employment growth. Employment growth will only translate into lower unemployment rates if labour supply and the level of frictional unemployment remain constant. Where there are significant variations in the rate of labour force growth, or its composition, this will impact via the balance between demand and supply on unemployment.

Further, while neoclassical arguments emphasise barriers between sub-markets, Gordon (2003, p.56) argues that few adjustment barriers exist at the small area level. Neighbouring regions interact strongly, and so adjustments (via commuting and migration) to disequilibria travel quickly across all sub-markets (Tobler, 1970; see Mitchell and Bill, 2004, 2005a for empirical application to Australian data). Migration reacts positively to a stronger economy and it is the uneven distribution of employment opportunities which is likely to be the key motivator, rather than differentials in the rewards and risks of the destination region (Gordon, 2003, p.59).

Lawson and Dwyer (2002) study migration between Australian regions and conclude that in regions with both falling (rising) employment and unemployment there is significant out-(in-) migration and that the impact of regional unemployment differentials on migration is secondary to employment growth (see also McGuire, 2001; and Trendle, 2004). Bill, Mitchell and Watts (2006) decompose employment growth in the Greater NSW Metropolitan Statistical Region and find that in-commuting is a dominant adjustment response followed by in-migration for both males and females, while local unemployment's response has been muted. They conclude that high growth regions may not enjoy lower unemployment because of these supply shifts.

Table 3 highlights the slow labour force growth in low employment growth regions and the relative labour force shrinkage (out-migration, slow in-migration or low rates of natural growth); have resulted in lower unemployment rates than might be expected. Meanwhile there has been very rapid labour force growth in high growth regions driven largely by in-commuting and migration (see Bill, Mitchell and Watts, 2006). Notably participation rates do not appear to vary significantly between regions or over time. On average, unemployed local residents in high growth regions have not benefited from the employment growth as much as they would have if their regions were relatively closed. Conversely workers in low growth regions have suffered less because job competition has been muted as a result of slow labour force growth (declining for male).

One explanation for higher unemployment rates found in high growth regions is that rates were significantly higher at the starting period, 1996. While employment growth has not yielded the lowest unemployment rates, high growth regions experienced the greatest percentage reduction in rates between 1996 and 2001. Rates fell by 13.7 per cent in low growth regions, 19.7 per cent in medium growth regions and by 24.0 per cent in high growth regions. However the percentage reduction in unemployment between the three types of regions is relatively similar: 13.5 per cent in low growth regions, 14.6 per cent in medium growth regions and 14.6 per cent in high growth regions.

Further analysis by skill level, using custom data from the ABS Labour Force Survey (LFS), confirms that tradespersons and labourers clearly have significantly higher chances of being unemployed compared to professional, administrative and managerial workers in all three growth regimes (table 4). It also confirms the somewhat counter-intuitive relationship between employment growth and unemployment across all occupational groups. An important exception is that high growth regions have delivered lower unemployment rates for manual workers and the relatively unskilled compared to medium growth labour markets. The greatest geographical variation (measured by coefficient of variation) occurs in the professional series, reflecting perhaps the spatially uneven distribution of 'new economy' jobs. Amongst the growth categories, the unemployment rate for professional workers is highest in high growth regions, as is the unemployment rate for clerical, sales and service workers.

Table 3 - Average labour force changes, employment growth and unemployment rates, 1996-2001, high, medium and low growth labour regions.

	<i>Low</i>	<i>Medium</i>	<i>High</i>
Unemployment rate, Females	6.5	6.4	7.6
Unemployment rate, Males	8.2	7.7	8.6
Unemployment rate, 2001	7.5	7.1	8.2
Unemployment rate, 1996	8.6	8.9	10.8
% Change Unemployment Rate, 1996-01	-13.7	-19.7	-24.0
% Change Unemployment, 1996-01	-13.5	-14.6	-14.6
% Change Employment, 1996-01	1.6	8.4	15.7
% Change Employment, Male, 1996-01	-0.9	6.3	13.5
% Change Labour Force, 1996-01	0.6	6.4	12.4
LF participation rates, 2001	59.4	60.6	59.6
LF participation rates, 1996	60.2	60.7	59.6
% Change Labour Force, Males, 1996-01	-2.2	4.1	10.2
LF participation rates, Males, 2001	67.3	68.5	67.1
LF participation rates, Males, 1996	69.5	69.9	68.2
% Change Labour Force, Females, 1996-01	3.7	9.4	9.9
LF participation rates, Females, 2001	54.6	55.4	55.5
LF participation rates, Females, 1996	52.4	55.5	52.9

*Source:* CDATA, 2001. Growth categories devised on the basis of employment change, 1996-01.

Unemployment rates might be higher in high growth labour markets because workers seek out new employment opportunities when the business cycle improves, that is labour market 'churning' increases. If it is plausible that employee-initiated job mobility (voluntary quits) represent a greater share of unemployment in high growth regions we would expect unemployment spells to be shorter. Table 5 examines numbers and rates of short term (duration of less than one year) and long term (duration of more than one year) unemployment across the three growth groups. Rates of long-term unemployment do not seem to be significantly lower in high growth regions compared to low growth regions. This is largely owing to South and East Moreton and North and West Moreton in the high growth group. Both have significantly higher rates of long (4.6 per cent and 5.6 per cent respectively) and short term unemployment (4.4 per cent and 4.8 per cent respectively). Looking at average weeks spent

unemployed, derived from the LFS August 2001, high growth regions are associated with a reduced time spent unemployed in the case of the long term unemployed. A long term unemployed person in a high growth region spent, on average, approximately 3 years unemployed, compared to 4 years spent unemployed in a low growth region on average. For the short-term unemployed there is little difference between regions.

Table 4 - Estimated occupational unemployment rates high, medium and low growth regions, August 2001.

	<i>MPT</i>	<i>Clerical, Service and Sales</i>	<i>Tradespersons and Labourers</i>	<i>Intermediate Production and Transport Worker</i>
<b>Low Growth</b>				
Unemployment Rate (%)	1.5	3.9	5.8	4.6
Unemployed ('000)	6.955 (1.42)	14.099 (1.81)	16.777 (1.93)	6.779 (1.40)
<b>Medium Growth</b>				
Unemployment Rate (%)	1.8	4.6	7.5	5.8
Unemployed ('000)	37.398 (2.55)	76.023 (3.30)	89.541 (3.48)	30.586 (2.39)
<b>High Growth</b>				
Unemployment Rate (%)	2.4	5.3	6.0	4.6
Unemployed ('000)	9.051 (1.55)	20.002 (2.06)	19.040 (2.03)	0.447 (0.57)

*Source:* Custom data from ABS, Labour Force Survey (LFS), August 2001; ABS, LFS - Employed Persons by LFS Dissemination Region and Industry Division (RQ1), August 1996 and August 2001 and Employed Persons by Region, Sex and Occupation, (RQ2). Growth categories devised on the basis of employment change, August 1996-01. Estimated standard errors are shown in brackets.

Table 5 - Unemployment duration by low, medium and high growth regions, August 2001.

	<i>STU (persons)<sup>a</sup></i>	<i>LTU (persons)<sup>a</sup></i>	<i>STU duration (weeks)<sup>b</sup></i>	<i>LTU duration (weeks)<sup>b</sup></i>
<b>Low</b>				
Total	36,996	48,321		
Average per region	3,699	4,832	14.1 (1.07)	210.2 (34.7)
% Labour Force	3.0	3.9	-	-
<b>Medium</b>				
Total	181,386	206,410		
Average per region	4,218	4,800	13.8 (0.36)	184.0 (11.3)
% Labour Force	3.0	3.4	-	-
<b>High</b>				
Total	61,641	70,240		
Average per region	6,164	7,024	14.2 (0.70)	161.0 (20.0)
% Labour Force	3.7	4.2	-	-

*Source:* a Centrelink Administrative Data, 2001 and LFS, b Labour Force, Australia, Detailed - Electronic Delivery, Monthly, RM3 - Unemployed Persons by Duration of Unemployment, Sex, Dissemination Region - August 2001, 6291.0.55.001. STU is short-term unemployment (less than one year) and LTU is long-term unemployment (spells of joblessness over one year in duration). Growth categories are devised on the basis of employment change, 1996-01. Estimated standard errors are shown in brackets.

#### 4. Logit regression analysis of labour market outcomes

In this section, we employ logistic regression to more formally examine the proposition that disadvantaged workers do not receive benefits from high employment growth (see Buck and Gordon, 1987). Assuming the labour force participation decision has been taken we estimate the probability that an individual will be unemployed in 2001 after controlling for a number of personal, household and regional employment characteristics. The dependent variable, LFSTATUS equals one if the person is unemployed and zero otherwise. There were 88,928 observations in the labour force out of a total of 147,370 observations in the HSF 2001 sample (7.2 per cent of the labour force were unemployed and the participation rate was 60.3 per cent). To overcome some clear 'self-selection' and endogeneity issues involved with people who moved between Censuses (for example, the movement of new workers into high employment regions is endogenous to the definition of high growth regions), we separated the sample into 'movers' and 'non-movers' (pre-existing workers in each region). The non-mover sample was 70756 (6.2 per cent of the non-mover labour force was unemployed). This allows us to analyse how residents with pre-existing disadvantages fare from high employment growth compared to new arrivals.

We specifically explore whether the probability of being unemployed across high and low growth regions differs for an individual with similar characteristics (including specific attributes typical of disadvantaged workers)? The demarcation between high and low growth regions outlined in Section 2 using the CURF data aggregates creates starkly contrasting 'labour markets'. Further research on the benefits of movement will be considered in a further study and is outside the realm of this paper.

We initially ran a pooled logit regression (all regions) for movers (moved in the last 12 months) with intercept dummies included for gender, high growth regions and low growth regions. The gender dummies were significant at the 1 per cent level and we thus ran separate male and female regressions pooled for all regions. Interactive terms using the high and low growth dummies were also explored. The results (not reported) are highlighted by the statistical significance of the intercept dummies at 1 per cent level for males and 1 per cent level for females in high growth regions and 5 per cent for females in low growth regions). Further, some interactive terms were also statistically significant: (a) males with bachelors' degrees or higher enjoy further advantage in terms of unemployment risk in high growth regions; (b) males and females with trade certificates enjoy better prospects in low growth regions, other things equal; (c) females with poor English are further disadvantaged in high growth regions; (d) females aged 15-24 years reduce their overall disadvantage in low growth regions, other things equal; and (e) male and female sole parents reduce their overall disadvantage in high growth regions, other things equal.

The statistical significance of the intercept region growth dummies and some of the interactive terms justifies following the approach used by Buck and Gordon (1987) who ran logistic regressions separately for males and females in high and low growth regions (see Buck and Gordon, 1987). We continue to confine the analysis to non-movers leaving the issue of whether movement is beneficial to another paper. Table 6 presents the odds ratios (representing the proportional change in the relative

odds of unemployment against employment associated with each explanatory variable) for the estimated coefficient for high and low growth labour markets and males and females respectively. An odds ratio of less than (greater than) one indicates a negative (positive) effect on the unemployment likelihood.

The constant terms show the odds for workers with 'standardised characteristics' (Buck and Gordon, 1987: 98) - so an individual (male or female) who is single, 25-29 years old, has no trade or tertiary education, has no dependents, is not a sole parent, does not rent privately or live in state housing, owns a vehicle, does not use the Internet, is proficient in English, was not born overseas and lives in a non-metropolitan area. The estimated constants show that for the base case worker the likelihood of being unemployed is higher in the high growth regions.

The statistically significant coefficients on many of the variables in the regressions suggest there are substantial differences in the unemployment likelihood across different groups in both high and low growth regions which confirm the insights yielded by the pooled regression results. The estimates show us whether particular characteristics (other things equal) generate equal advantages or disadvantages in both growth scenarios.

Females and males aged 15-24 years are disadvantaged in high growth areas, other things equal, and this extends to 15-24 year old males in low growth regions. Older females (55-59 years) are also more likely to be unemployed in low growth areas whereas high growth favours 60-64 year old males, other things constant.

Married workers, uniformly, have a lower chance of being unemployed. The results may reflect stronger labour market attachment or employer perceptions of stronger work-commitment. Other aspects of family structure (sole parents, dependents) do not appear to be statistically significant among the non-movers.

As expected, trade training and tertiary education is generally advantageous (other things equal) to the individual. Trade certificates substantially reduce the probability of unemployment for both males and females in low growth regions and for females in high growth regions. A bachelor's degree or higher qualification bestows considerable advantage of both females and males in both labour markets although the impact is statistically significant at the 10 per cent level for males and 5 per cent for females in low growth regions. Males, in particular benefit from obtaining degrees in high growth regions where job competition is stronger. Female diploma holders also benefit in high growth regions.

Internet usage, perhaps reflecting the ability to network and access timely information, is strongly beneficial for males and females in both high and low growth regions, although the gains are higher in lower growth areas.

For both males and females the impact of not owning a car or other vehicle, a proxy for mobility, is adverse across both high and low growth regions. This suggests that improved transport system infrastructure in regional areas where unemployment is entrenched and concentrated may be beneficial, although reverse causation remains an issue in interpreting this finding.

Housing acts to sort workers of varying quality workers across space. Workers, relying on state housing and private rentals, may be locked into locations where jobs are less accessible. Males and females in state housing and private renters, in general

face a higher likelihood of unemployment in both high and low growth areas (see Randolph and Halloway, 2005 who find evidence of growing disadvantage in private rentals in Sydney and Melbourne). The effects are strongest for females in state housing. Multidirectional causality is likely and people probably live in certain less accessible areas because they are unemployed, rather than being unemployed because of where they live (Cheshire *et al.*, 2003). Conversely, housing tenure may place people in certain social environments that undermine successful job search (because of poorer information networks) or in locations likely to attract employer discrimination.

Males and females born overseas are more likely to be unemployed, other things equal, in high growth areas and for males in both areas. Building on the ethnicity, is the language issue. Poor English proficiency strongly increases the unemployment likelihood for males and females in high growth areas.

Table 6 - Logit regressions for high and low growth areas by gender, Australia 2001.

Variable	Males		Females	
	High Growth Odds Ratio	Low Growth Odds Ratio	High Growth Odds Ratio	Low Growth Odds Ratio
Constant	0.249	0.223 *	0.263 ***	0.248 *
Aged 15-24 years	1.439 **	1.775 **	1.590 *	1.016
Aged 30-34 years	1.195	1.103	1.060	0.968
Prime Age	0.775	0.729	0.905	0.949
Aged 55-59 years	0.901	0.518	1.264	1.887 *
Aged 60-64 years	0.233 **	0.369	1.330	1.463
Married	0.525 *	0.499 *	0.422 *	0.333 *
Dependents	1.116	1.220	0.878	1.159
Trade Certificate	0.976	0.474 **	0.697 *	0.514 *
Degree or higher	0.315 *	0.575 ***	0.568 *	0.482 **
Diploma	1.066	0.933	0.624 **	0.857
Internet Use	0.698 *	0.527 *	0.704 *	0.574 *
No Motor Vehicle	2.358 *	3.300 *	3.520 *	3.292 *
Renting privately	1.664 *	1.959 *	1.676 *	2.086 *
State Housing	3.037 *	2.779 *	3.531 *	5.551 *
Sole Parent	1.118	1.219	0.650	1.288
Born Overseas	2.032 *	1.788 **	1.435 *	1.182
Poor English	3.478 *	2.182	3.397 *	1.921
Metropolitan Area	0.553 **	0.455 **	0.613 **	0.832
Employment Density	1.017	0.996 *	1.033	0.998 **
Employment Growth	0.013	0.000 ***	0.049	0.000 **
Observations	5273	3220	6570	4231
Unemployed in sample	359	194	502	320
% Unemployed	6.8	6.0	7.6	7.6

Source: ABS, Household Sample File, 2001. Note: \* significant at the 0.01 level; \*\* significant at the 0.05 level, and \*\*\* significant at the 0.10 level.

Employment growth *per se* and employment density, are important factors, reducing the chance of being unemployed in low growth labour markets for both males and females. Area level employment growth, 1996-2001, is derived from the full Census Time Series Profile and merged onto the HSF file based on a common region identifier.

Employment density is measured as employed persons per square kilometre calculated within the person's region, also derived from the 2001 Census and merged onto the HSF file. It is an indicator of the efficiencies derived from the close proximity of firms and workers, increasing information flows which aid search and matching. In high growth labour markets, there is no growth or density factor operating across regions within this group. We would expect increased search and matching efficiency in highly populated regions and these factors may be particularly important when overall demand is constrained. Similarly, metropolitan regions provide better chances for males and females in both high and low growth regions compared to non-metropolitan areas.

Table 6 highlights that there is little evidence of specific advantages accruing to disadvantaged groups from residence in regions experiencing high employment growth in the late 1990s. The employment advantages from residence in high growth regions tend to accrue to those who are married, with higher education qualifications and those in metropolitan areas. Overall, the results suggests that the beneficiaries of growth in the late 1990s have been somewhat selective, and, as suggested in Section 3, supply shifts into high growth areas may have played a role in eroding the relative labour market position of the most disadvantaged within growing regions (see Bill, Mitchell and Watts, 2006 for recent evidence).

## 5. Conclusion

At the aggregate level, high growth regions appear to have more equitable rates of employment opportunities across occupation groups relative to low or medium growth regions. High growth has not necessarily favoured low-skilled workers, but employment shifts have been more beneficial to them than in low growth regions and unemployment rates for the manual and unskilled are lower than in medium growth regions. Manual and low-skilled workers' job opportunities have been eroded in low growth regions over the 1990s with the exception of elementary clerical employment (although this growth principally represents a recovery from falls in the first part of the 1990s). Gender differences in employment growth are pronounced in low growth regions, where male employment growth has trailed behind that of females.

There is evidence that low-skilled workers in high growth regions have had to face increased job competition (via 'bumping down' processes) due to strong labour market adjustments in the form of in-migration and in-commuting (labour force participation is also marginally higher than other labour markets). Thus employment growth has not translated into lower unemployment rates overall relative to medium and low growth regions (see Bill, Mitchell and Watts, 2006).

Residential composition remains a strong explanatory factor in overall area unemployment rates, and explains the higher unemployment rates experienced in aggregate within high growth labour markets. Inside a high growth labour market, however, the probability of unemployment is still proportionately higher for many of those with disadvantaging characteristics. So the structure of opportunities, given the overall higher level of opportunities, does not seem to be particularly favourable towards many disadvantaged groups in high growth versus low growth labour markets. This trend is more pronounced for females than males. The variability of returns to population and contextual characteristics between the two labour markets is an interesting feature of these results, and indicates 'place' may be independently influential in the determination of labour market outcomes.

While at a micro-level growth does deliver benefits to workers, the highly localised nature of this growth may have worked against some disadvantaged residents. When growth is as geographically uneven as it has been over the 1990s, rapid increases in migration and commuting essentially transfer the problems of demand-constrained origin regions to destination regions. Unless growth is sufficiently strong, rapid supply increases will not be able to be absorbed, and the excess supply queues everywhere will reflect the ascriptive characteristics of the disadvantaged.

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