EMPLOYMENT OUTCOMES IN NON METROPOLITAN LABOUR MARKETS: INDIVIDUAL AND REGIONAL LABOUR MARKET FACTORS

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ABSTRACT: There has been a growing awareness that the issue of labour market disadvantage is substantially greater than merely considering unemployment and the ability to find a job. There is an increasing literature that points to the advantages of considering a broader concept which accounts for those people who are traditionally unemployed, but also individuals who are under-employed and those who are sub-unemployed or discouraged workers. Taking multi-level survey and census data for Australian non-metropolitan regions this paper applies a broad employability framework to an understanding of labour underutilisation which presents the risk of underutilisation as a function of individual characteristics, personal circumstances and the impact of local labour market characteristics. The analysis finds that the risk of labour underutilisation in non-metropolitan regions is associated with a range of individual characteristics and circumstances together with the characteristics of the local labour market. The findings indicate that policy designed to address issues of labour underutilisation needs to focus on both supply and demand-sides of the labour market in order to be effective.

1. INTRODUCTION

There can be little doubt that questions regarding employment adequacy have been at the forefront of research that has dealt with questions of socio-economic disadvantage at a regional level. Researchers from various academic disciplines as well as practitioners and policy makers are interested in understanding the drivers of economic performance and labour market outcomes in non-metropolitan regions and have been interested in the ways in which disparities in labour market outcomes develop between competing regions. Almost universally the key indicator of labour market outcomes has been the rate or level of unemployment. Some time ago Clogg (1979, 2) argued that

[i]t is difficult indeed to conceive of another socioeconomic statistic that has been more influential in public policy debate, more critical in the shaping of modern political cleavage, or more central to social scientific theory about the

socioeconomic order.

Regional scientists have focused on, among other things, understanding how unemployment hot spots and cold spots develop, how regional unemployment disparities persist in the face of changing economic circumstances and the association between unemployment and other indicators of socio-economic disadvantage (Brown and Sessions, 1997; Badinger and Url, 2002; Lawson and Dwyer, 2002; Trendle, 2002; Pes-Bazo et al, 2005; Sunley et al, 2006).

Despite the currency given to unemployment rates in understanding the labour market and socio-economic health of regions and the people that live in them it is generally agreed that the assumptions underpinning traditional conceptions of unemployment are becoming less valid as the boundaries between work, inadequate work and non-work have become increasingly fluid (Beck, 1992; Dooley and Catalano, 2003). A stylised view of labour markets now includes reference to increasing casualisation of jobs and a rise in part-time employment, a growth in so-called good jobs and bad jobs, an increase in the reference period for long-term unemployment and a more complex picture of occupation and employment mobility that may also include periods of marginal labour market attachment. In short this increasingly fluid picture is no longer just a divide between employment and unemployment but is now increasingly multi-dimensional resulting in other avenues of labour resource wastage that are not captured by the unemployment rate.

In the face of these changing employment dynamics, the broader concept of labour underutilisation is seen as increasingly important for articulating a wide range of employment hardship and disadvantage (Jensen et al, 1999; Carter, 1982; Clogg, 1979; Hauser, 1974). Defining labour underutilisation moves beyond the narrow notion of unemployment to include other types of inadequate employment or other forms of dislocation from the labour market. It includes individuals who want to work but are excluded from official unemployment statistics because they are not actively seeking employment, and it also includes individuals who are not working full time but would like to work more hours. Within broader definitions it also may include individuals who are working full time or part time voluntarily but who receive very low wages (working poor) and those who are employed in jobs that are classified as low skilled relative to the individual's qualifications.

While an understanding of trends in labour underutilisation provide a useful overview of the problem this paper moves beyond this to concentrate on understanding the broad range of factors that are associated with the risk of labour underutilisation at the individual level. There is a significant body of evidence illustrating that certain social groups and individuals are more vulnerable to underutilisation (Wooden, 1993; Acoss, 2003; Wilkins, 2004; Flynn, 2003; De Anda, 1994; De Jong and Madamba, 2001; Soltero, 1996; Zhou, 1993; Nord, 1989). Early work by Wooden (1993) identified that the individuals characterised as underutilised were more likely to be female, aged less than 25 years of age, un-married and to be from a non-English speaking background (NESB). The likelihood of being underutilised was also higher for those working in less skilled occupations and for those working in the recreation and

personal services and construction industries. The more recent work by Wilkins (2004) expands these findings illustrating that for males and females, part-time underutilisation is higher among younger than older respondents, respondents who are single and who have low levels of human capital, although for females part-time underutilisation is also high for those aged 35 to 44 years and for respondents in couple families with dependent children. There is also a notable, although insignificant difference between indigenous males and other males. For full-time underutilisation, males aged 25 to 34 years were more likely to be underutilised, while for both males and females there was a higher incidence of full-time underutilisation for those from a non-English speaking background. An early US study by Nord (1989) reflects these findings suggesting that human capital and age are among the important factors driving the probability of an individual being underutilised. Jensen and Slack (2000) report that the risk of labour underutilisation is strongly related to age, with a u-shaped relationship – those aged 18-24 years having highest risk with the risk falling but increases again among those who are nearing retirement age (55–64) – but is also higher for females, respondents from an Hispanic or Native American background, respondents who were unmarried and those with low education. While much of the research into labour underutilisation have used an aggregate measure of underutilisation (i.e. underemployment versus adequately employed) others have identified the important differences that may arise when different states of labour underutilisation are considered. Using a disaggregated measure of labour underutilisation that includes low hours and low wages Flynn (2003) identifies important gender, age and race factors associated with labour underutilisation. Of significance are the gendered differences that exist in labour market outcomes with women more likely to suffer low pay and men more likely to suffer low hours

Critically, these individual supply-side factors are often taken to be the main drivers of labour underutilisation and are taken as the evidence base for policy development. However, equally important are the range of other contextual factors, including aggregate labour demand characteristics, which impact on labour market outcomes. Early research by Nord (1989) specifically considers the importance of broader labour market demand characteristics on labour underutilisation. By including the level of service employment in the local area and the labour force participation rate Nord finds that net of individual characteristics the risk of labour underutilisation is significantly associated with these two demand-side characteristics. In the more recent paper by Flynn (2003), labour market demand variables accounting for the availability of jobs in services and manufacturing were included, with the findings suggesting that net of the range of individual level factors the aggregate labour demand characteristics were important in explaining the risk of marginal employment outcomes. Using regional proxies for labour market demand differences Jensen et al. (1999) find an association between these proxies and transitions into and out of states of underutilisation, net of individual level characteristics. The use of regional proxies have been also applied in Australian research with the recent work by Wilkins (2003) finding that the incidence of full-time underutilisation is

marginally higher in major cities than in other areas.

Set within this context this paper acknowledges the need to consider issues of employment adequacy from a wider viewpoint and extends the analysis of labour market disadvantage in non-metropolitan Australia by considering the wider notion of labour underutilisation, rather than simply unemployment. Moreover, encouraged by the need to provide broader understandings of labour underutilisation, this paper suggests a holistic model of labour market outcomes within Australian non-metropolitan labour markets. Specifically the paper uses individual and aggregate level data and applies multinomial logit models to consider the association between labour underutilisation and a range of individual and contextual factors. The analysis allows us to consider the multi-level nature of labour underutilisation risk and provides a useful broad framework with which to consider appropriate policy responses. In what follows we first consider the individual and contextual issues associated with understanding the risk of labour underutilisation before discussing in detail the methods and data adopted for the analysis. Following this we present the findings from our analysis, before undertaking a discussion of the implications of our analysis.

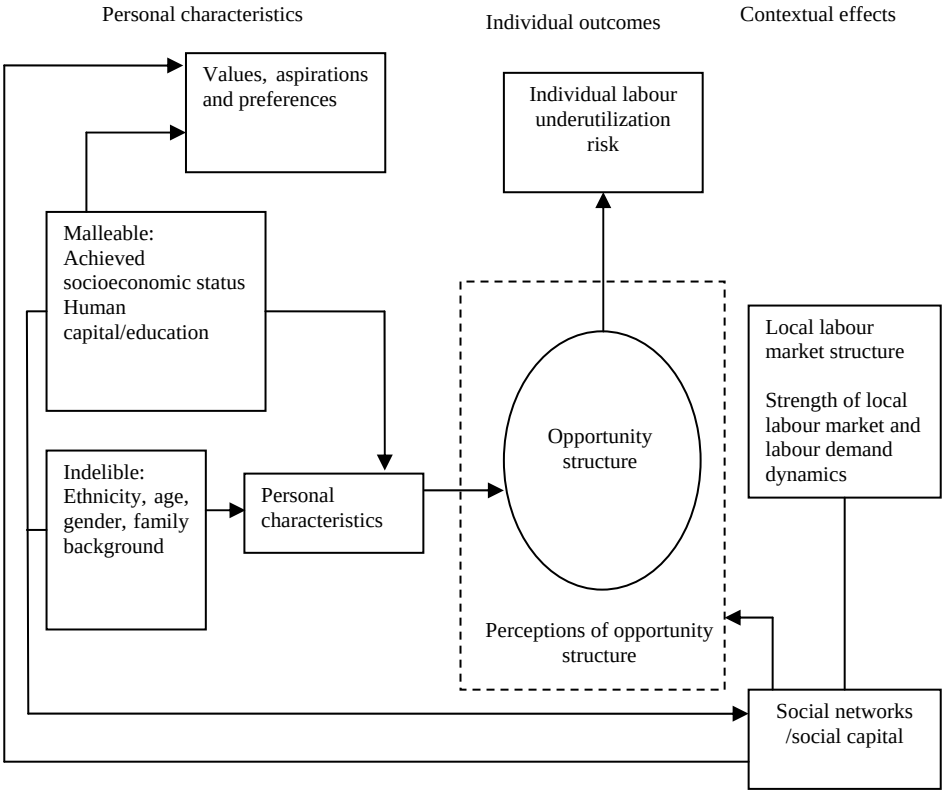
2. LABOUR UNDERUTILISATION RISK: INDIVIDUAL AND CONTEXTUAL ISSUES

As a genre of broader labour market research, the study of labour underutilisation can be understood from a range of conceptual approaches developed across a number of social science disciplines. Often these approaches are piecemeal, focusing on narrowly defined drivers and processes. However, there has been an increasing movement towards utilising a broader framework focusing on aspects of employability. While various definitions have been applied, including those narrowly focused on simple supply side characteristics only, a more holistic definition of employability would include:

the capability to move into and within labour markets and to realise potential through sustainable and accessible employment. For the individual, employability depends on: the knowledge and skills they possess, and their attitudes; the way personal attributes are presented in the labour market; the environmental and social context within which work is sought; and the economic context within which work is sought. (DHFETE, 2002, p. 7)

A broad employability context therefore includes both supply side characteristics and demand side characteristics of the labour market.

Heuristically, the broad employability framework resembles the model shown in Figure 1 with individual labour market outcomes seen as a function of three interrelated factors including individual and personal circumstances and external or contextual factors (McQuaid and Lindsay, 2005; see also Galster and Killen, 1995). The first two relate to individual and personal circumstances and are thought of as labour supply factors. The third set of factors are considered largely external to the individual and can be seen as representing a broad range of contextual factors including those characteristic of labour market demand (McQuaid, 2006).



Adapted from Galster and Killen (1995)

Figure 1. Heuristic Model of Individual Labour Underutilisation Risk

Individual characteristics, both malleable and indelible, that includes skills and attributes such as basic education, transferable skills, demographic characteristics, health and well-being, job seeking skills and an individual's level of adaptability and mobility. Ascribed and achieved personal characteristics, such as education both formal and learned job skills, social status, age etc are often included in models attempting to understand labour market outcomes and impact on labour underutilisation risk by the effect on the perceived and real opportunity structure but also though aspirations and preferences. In particular, the 'operations of the opportunity structure objectively vary greatly across individuals, depending on their personal characteristics and how these characteristics are evaluated by the markets and institutions operative in the individual's place of residence' (Galster and Killen, 1995, p. 14; see also Little and Bradley, 2005). We would therefore expect that in addition health and wellbeing such as long-term disabilities or other illness may affect the ability to

do certain jobs or to be employed at all, as does an individual's job seeking behaviour and knowledge which may act to funnel information about known jobs (possibly in connection with an individuals social networks) and hence have a direct impact on an individual's opportunity structure and eventual employment outcomes. Lastly, adaptability and mobility refers to the extent to which an individual is willing to change/adapt to meet changing labour market conditions or in some cases be geographically mobile (McQuaid and Lindsay, 2005).

Personal circumstances include many socio-economic contextual factors which generally relate to an individual's social, family and household circumstances. Family background can also impact on an individual's opportunity structure via the impact of personal characteristics of the individual, but also through the impact of social networks and social capital of parents and other intergenerational effects which impact on social capital more generally (Case and Katz, 1991). Importantly, the impact that social networks might have on an individual's employment outcomes is widely discussed and includes the impact on perceived and real opportunity structures and individual aspirations and preferences (Buck, 2001; Elliott, 1999). Following a 'network model' Buck (2001) suggests that an individual's links into social and interpersonal networks provide critical information and support that are important to understanding eventual employment and other social outcomes. In situations where social networks are not widely developed, and this is often compounded by residential concentrations in disadvantaged neighbourhoods or localities, job search including information regrading employment opportunities are thought to be less effective and hence are associated with negative individual employment outcomes.

The impact of local or regional resources or local context effects is most often related to the quality, quantity and diversity of institutions at a neighbourhood or local level. It refers to 'the array of markets and institutions that provide the potential means of social mobility within which an individual may interact, such as labour, housing and financial markets, schools and the social welfare and criminal justice systems' (Galster, 2002, p. 6). McQuaid and Lindsay (2005) refer to these context effects as a range of external factors that include local labour market demand and enabling support factors such as local jobs policies. Importantly for our understanding of labour underutilisation the spatial organisation of metropolitan labour market opportunities is important. Although researchers such as Buck (2001) question whether local labour demand can be considered as a source of local or regional contextual effect, others including Green (1996), Noble and Smith (1996), Gould and Fieldhouse (1997), Jargosky (1997), Flynn (2003) and Sunley et al. (2006) all point to its necessary inclusion in an analysis of individual labour market outcomes. Significantly 'there is no such thing as a national labour market, but rather a complex geographical mosaic of overlapping local and sub-national labour markets' (Sunley et al, 2006, p. 43) which will have differential effects on individual's opportunity structures and hence on employment outcomes. In situations where local labour markets do not provide sufficient quality jobs for all who want to work, we can expect to see a direct impact on labour underutilisation either

through increases in unemployment or sub-unemployment, or through an increase in the numbers of people who are working part-time and would like more hours.

3. METHODS AND DATA

3.1 Methods

The investigation of the impacts and associations of individual behaviour and outcomes has, as pointed out by Galster (2003), assumed several methodological guises with the focus often being on the best way to account for data that is hierarchical or composed of indicators taken at different levels of measurement. In the case of the current research we are faced with data measured at the individual level together with data measured at a broader regional labour market level. In order to consider the issues raised in this paper we ran a series of multivariate logit models which take into account the clustering of observations at the level of the local labour market region. This provides us with a modelling technique that produces robust outcomes in the face of the two level structure of our data. Prior to fitting the final set of models several alternative approaches were considered including the fitting of multilevel models that specifically take into account the hierarchical nature of the data (Goldstein, 2003). While this type of approach has become increasingly popular, it was not used in the final analysis as initial modelling suggested that, with reference to the data set and sample we use, no additional benefit is gained by fitting a multilevel model versus a standard multi-variate model accounting for clustering.

We estimate a range of multi-nominal logit models with individual respondents placed in one of four categories depending on responses to a range of questions regarding their employment situation. The four categories used are:

- Adequately employed-Employed persons who do not fit the categories below, including those that are working part-time voluntarily;
- Involuntarily part-time- persons who are working part-time, but would like to work more hours (under-employed);
- Unemployed; Persons not working but actively looking for work; and
- Sub-unemployed (Discouraged worker, also known as hidden unemployed); persons not working and not looking for work, who would take a job if one became available.

The models are built up in several stages:

- Model 1: individual level predictors, showing differences in labour underutilisation risk between respondents with different socio-economic and demographic characteristics;
- Model 2: Model 1 plus the addition of predictors accounting for personal circumstances, showing the added difference of personal circumstances on labour underutilisation risk; and
- Model 3: Model 2 plus the addition of local labour market predictors, showing the added difference of local labour market demand conditions on labour underutilisation risk.

3.2 Data

The main data used in this paper has come from the Household, Income and Labour Dynamics in Australia (HILDA) survey and aggregate level data from the Australian Bureau of Statistics (ABS). The HILDA survey is a broad social and economic survey conducted annually which contains information on employment, individual socio-economic characteristics and household/family characteristics. It also contains identifiers to allow broad spatial characteristics (such as labour market or local area available from census data and labour force surveys) to be considered. This current paper considers the first wave of the HILDA survey (2001) with subsequent papers considering longitudinal outcomes. The wave one survey file contains a total of around 19,000 respondents. A reduced data set is used in this paper which includes individuals defined as either adequately employed, involuntarily working part-time, unemployed of discouraged and who are living outside the metropolitan regions. This reduced data set includes 3813 individuals.

The dependent variable used in this paper is defined above. The individual level predictor variables are developed with regard to the availability of data and the framework presented in the previous section and are similar to those used elsewhere in micro-level studies of employment outcomes (Caspi et al, 1998; Dujardin, 2006; Le and Miller, 1999; Beggs and Chapman, 1988; Brooks and Volker, 1985; Harris, 1996, Dex and McCulloch, 1997; Flynn, 2003). We have included the following independent variables. **AGE2544**: Age 25 to 44 years (1 if aged 25 to 44, 0 otherwise), **AGE4564**: Age 45 to 64 years (1 if aged 45 to 64, 0 otherwise), **GENDER** (1 if female, 0 if male), **DEGREE**: Education at university level (1 if yes, 0 otherwise), **POST_SECOND**: Education beyond high school but not university (1 if yes, 0 otherwise), **MARRIED**: Marital status (1 if currently married, 0 otherwise), **ATSI**: Indigenous Australian background (1 if ATSI, 0 otherwise), **DISABLE**: Self reported disability or long term health issue (1 if have disability, 0 otherwise), **ENG_PROF**: Self reported English proficiency (1 if poor very/ poor English, 0 otherwise) and **SINGLE**: Single parent (1 if single parent, 0 otherwise).

Two predictor variables were included to account for the impact of family background and personal circumstances. One, **PAR_UN** measured the impact of parental employment (employed role model/parent in childhood- 1 if no employed adult role model/parent, 0 otherwise), while the other, **PAR_OS**, accounts for the ethnic background of parents (parent country of birth- 1 if one or both parents born in NESB country, 0 otherwise). In addition to family background, the HILDA data allows us to include proxies for the impact of social networks on labour underutilisation. While we experimented with a range of possible measures we include only one in the analysis presented in this paper. An index, **SOC_NET**, accounting for an individual's social networks is included to account for the potential impact that social networks may play in labour underutilisation and was developed using responses to questions relating to the

extent to which individuals had contact with friends and colleagues.[1]

We model the effects of regional labour markets by considering Local Government Areas, with data available from the Australian Bureau of Statistics 2001 and 1991 census data. Six variables are included in the analysis. Employment growth is considered to be an important determinant of the robustness of labour demand. Two components of employment growth are included in the model. Using shift-share analysis (See Mitchell and Carlson, 2003a and 2003b) to decompose regional employment growth into industry mix employment growth effects (**LGA_IM**) and region-specific employment growth effects (**LGA_RS**). The **LGA_IM** variable captures the share of regional employment growth that can be attributed to the local industry mix and reflects the degree to which an industry is specialising in industries that are either fast growing or slow growing nationally. A region that has a lot of industries that are fast growing will have a positive **LGA_IM** whereas a region with a concentration of industries that are slow-growing (or declining) nationally will have a negative **LGA_IM**. **LGA_RS** captures the growth or decline in industry employment due to local factors. Several studies have indicated the impact that significant shares of manufacturing employment may have on regional unemployment. Gregory and Hunter (1995) have documented the very significant and disproportionate impact of deindustrialisation on employment population ratios for males in low socio-economic status urban areas. We include the percentage share of employment in manufacturing within the local government area (**LGA_MAN**) to account for this impact. We also include a measure of the share of employment within the service sector (**LGA_SERV**) to account for the likely impact of labour demand in this sector, especially on part-time employment. The percentage of people with certificate or tertiary education is included as a measure of the region's aggregate human capital (**LGA_EDUC**) and has been shown to impact on regional labour market outcomes (Glaeser and Shapiro, 2001). While the impact may vary it might be hypothesised that a region with highly skilled labour force may have more success in attracting firms thereby providing increased regional labour demand. The final regional variable included is the level of population change in the local government area (**LGA_PC**) which accounts for changing population dynamics on potential labour market outcomes.

4. LABOUR UNDERUTILISATION IN NON-METROPOLITAN LABOUR MARKETS

To explore the associations between the range of predictors and labour underutilisation in a meaningful way we fit a series of multinomial logit models using the four categories of employment outcome. We build models in three

[1] The social network index was constructed by considering the main components from a PCA of questions coded on a five point Likert scale. The questions included in the index are: People don't come to visit me as often as I would like; I often need help from other people but can't get it; I don't have anyone I can confide in; I have no one to lean on in times of trouble; I often feel very lonely.

stages as described in the section above. The results of the three separate models are presented in Tables 1 to 3. The tables contain the regression coefficient, robust Z-scores and the relative risk ratio for each category of labour underutilisation relative to adequate employment. In all cases values on the relative risk ratio above one indicate that higher values of the explanatory variable increase the predicted probability of being in the particular category of labour underutilisation, compared to being adequately employed. Coefficients less than one indicate the opposite.

4.1 Individual Level Predictor Model

We begin by modelling only the individual level predictors. The first subsection of Table 1 report the result for the relative risk of being involuntarily employed part-time versus adequately employed. An analysis of Table 1 reveals that the coefficients on the age variables are significant at the 1 percent level. Older cohorts are significantly less likely to be involuntarily part time compared with being adequately employed. The coefficients of the two education variables are significant and largely reflect existing studies. Having a higher degree or above, or some form of post-secondary education is associated with a reduced risk of being employed involuntarily part-time. Importantly the significant gender variable suggests that females are more likely to be classified as involuntary part-time and similarly being a single parent has an increased relative risk. Being currently married reduces the relative risk of being involuntarily employed part-time. The variable indicating indigenous background (ATSI) is included so as to account for the impact of racial disadvantage associated with employment outcomes. The ATSI variable is mildly significant and suggests that the risk of involuntary part-time employment is higher for individuals from an indigenous background. Having a disability typically restricts the job opportunities available to an individual and consequently the coefficient on the variable accounting for the presence of a long-term disability is positive and significant.

The second category of labour underutilisation is unemployed versus adequately employed, with the outcomes for this category reported in the second subsection of Table 1. Largely the significant variables reflect the vast amount of research exists which purports to understand supply –side factors that predict unemployment. The two age variables are significantly related to the relative risk of unemployment with negative coefficients in both cases. The education coefficients are also negatively associated with unemployment illustrating the expected inverse relationship between negative labour market outcomes and increasing levels of education. The ATSI variable is highly significant and suggests that the risk of unemployment is a significant issue for individuals from an indigenous background. The variable ‘disability’ had the expected significant positive association with unemployment. The two variables currently married and single parent are both significant and not surprisingly reflect opposite impacts. Being currently married is associated with a reduced relative risk of being unemployed, while being a single parent is associated with an increased relative risk of being unemployed. The results on both of these variables concur

with previous studies of unemployment risk.

Table 1. Multinomial Logit Results, Individual Level Predictors and Disaggregated Labour Underutilisation

	Involuntary part-time		
	β	**Robust z scores**	**Exp β**
AGE2544	-0.491**	3.32	0.612
AGE4564	-0.769**	4.60	0.464
GENDER	0.825**	6.79	2.282
ATSI	0.579+	1.78	1.784
ENG_PROF	0.757	0.64	2.132
DISABLE	0.467**	3.12	1.596
MARRIED	-0.607**	4.91	0.545
SINGLE	0.606**	3.47	1.833
DEGREE	-0.716**	3.17	0.489
POST_SECOND	-0.366**	2.60	0.693
CONSTANT	-1.641		
	Unemployed		
	β	**Robust z scores**	**Exp β**
AGE2544	-0.399*	2.37	0.671
AGE4564	-0.407*	2.14	0.666
GENDER	-0.009	0.07	0.991
ATSI	1.209**	3.48	3.352
ENG_PROF	1.923	1.56	6.844
DISABLE	0.765**	5.42	2.148
MARRIED	-1.435**	8.25	0.238
SINGLE	0.649**	3.58	1.914
DEGREE	-1.382**	3.98	0.251
POST_SECOND	-0.492**	3.00	0.611
CONSTANT	-1.440		
	Sub-Unemployed		
	β	**Robust z scores**	**Exp β**
AGE2544	-0.847**	(5.34)	0.429
AGE4564	-1.006**	(5.91)	0.366
GENDER	0.943**	(7.60)	2.567
ATSI	1.211**	(4.22)	3.356
ENG_PROF	0.422	(0.27)	1.525
DISABLE	1.029**	(7.08)	2.798
MARRIED	-0.477**	(3.47)	0.620
SINGLE	0.877**	(5.75)	2.403
DEGREE	-1.376**	(6.54)	0.253
POST_SECOND	-0.708**	(4.57)	0.493
CONSTANT	-1.388		

Notes: Log pseudo-likelihood = -3087.038; + significant at 10%; * significant at 5%; ** significant at 1%

The final subsection of Table 1 presents the results for the final category of labour underutilisation, sub-unemployed or discouraged workers. The two age variables are significantly related to the relative risk of sub-unemployment with negative coefficients in both cases. The two variables accounting for education are again significant reflecting the negative association between human capital and the risk of underemployment generally. The gender variable has a

significant coefficient and indicates that like the category of involuntary part-time workers, females are more likely to be sub-unemployed or a discouraged worker. The variable ATSI is positively associated with the relative risk of sub-unemployment. As with the previous categories of labour underutilisation the variable accounting for disability is positive and significant. As with the variables associated with unemployment the 2 variables currently married and single parent are both significant and reflect opposite impacts. Being currently married is associated with a reduced relative risk of being sub-unemployed, while being a single parent is associated with an increased relative risk of being sub-unemployed.

4.2 Individual and Personal Circumstances Predictor Model

Table 2 presents the outcomes of the multinomial logit model including the individual and personal circumstances predictors. Adding the predictors accounting for aspects of personal circumstances changes the individual level predictor variables only marginally.

The first sub-section of Table 2 contains the results for the sub-category involuntary part-time versus adequately employed. Only one of the personal circumstances predictors was significant. The variable 'parents born overseas' is significant at the 5 percent level and suggests that respondents whose parents were born in an non-English speaking country were at a higher risk of being involuntarily employed part-time.

The second sub-section of Table 2 presents the results for the category unemployment versus adequately employed. All three variables accounting for personal circumstances are significant. The variable **PAR_UN** accounts for the presence of positive work role models in a respondent's childhood household. The positive coefficient on this variable indicates that the presence of positive role models is important to labour market outcomes and situations where such role models are absent are associated with a higher relative risk of unemployment. In line with an increasing amount of research looking at the role of personal contacts and labour market outcomes the social networks variable is negative suggesting that the often hypothesised association between unemployment and weak social networks is supported in this case.

The results for the final sub-category of labour underutilisation are presented in the bottom sub-section of Table 2. For the category of sub-unemployed or discouraged worker the signs of the coefficients are similar to those for the previous unemployment category, with the addition of a significant outcome on the predictor accounting for parental birthplace. The positive coefficient on the variable accounting for having parents in paid employment during childhood indicates that the presence of positive role models is also important for understanding the relative risk of being sub-unemployed or a discouraged worker. The significant coefficient on the variable accounting for parental country of birth indicates that having parents born in a non-English speaking country is associated with an increased relative risk of being sub-unemployed or a discouraged worker. Finally the social networks variable is negative suggesting that the relative risk of being sub-unemployed or a discouraged

worker is higher in the presence of weaker social networks.

Table 2. Multinomial Logit Results, Individual Level Predictors, Personal Circumstances and Disaggregated Labour Underutilisation

	Involuntary part-time		
	β	**Robust z scores**	**Exp β**
AGE2544	-0.379*	2.38	0.685
AGE4564	-0.655**	3.66	0.520
GENDER	0.840**	6.95	2.316
ATSI	0.629+	1.94	1.875
ENG_PROF	0.326	0.27	1.386
DISABLE	0.505**	3.32	1.657
MARRIED	-0.540**	4.29	0.583
SINGLE	0.680**	3.77	1.973
DEGREE	-0.688**	3.05	0.502
POST_SECOND	-0.349**	2.48	0.705
SOC-NET	-0.023	0.40	0.977
PAR-OS	0.462**	3.16	1.588
PAR-UN	0.129	0.46	1.137
CONSTANT	-1.884		
	Unemployed		
	β	**Robust z scores**	**Exp β**
AGE2544	-0.444*	2.51	0.641
AGE4564	-0.414*	2.10	0.661
GENDER	0.024	0.18	1.024
ATSI	1.127**	3.14	3.087
ENG_PROF	1.874	1.59	6.512
DISABLE	0.736**	5.17	2.088
MARRIED	-1.415**	7.83	0.243
SINGLE	0.592**	3.20	1.808
DEGREE	-1.369**	3.95	0.254
POST_SECOND	-0.502**	3.06	0.605
SOC-NET	-0.185**	2.93	0.831
PAR-OS	-0.013	0.06	0.988
PAR-UN	0.557*	2.14	1.746
CONSTANT	-1.466		
	Sub-Unemployed		
	β	**Robust z scores**	**Exp β**
AGE2544	-0.775**	4.51	0.461
AGE4564	-0.911**	5.07	0.402
GENDER	0.981**	7.59	2.668
ATSI	1.217**	4.26	3.376
ENG_PROF	-0.023	0.02	0.977
DISABLE	1.051**	7.12	2.862
MARRIED	-0.388**	2.81	0.678
SINGLE	0.926**	5.91	2.526
DEGREE	-1.338**	6.43	0.262
POST_SECOND	-0.695**	4.52	0.499
SOC-NET	-0.150**	2.94	0.860
PAR-OS	0.464**	2.82	1.591
PAR-UN	0.434*	2.04	1.543
CONSTANT	-1.648		

Notes: Log pseudo-likelihood = -3068.8651; + significant at 10%; * significant at 5%; ** significant at 1%

4.3 Individual, Personal Circumstances and Local Labour Market Predictor Model

The final multinomial logit model includes all three levels of predictors, with the results reported in Table 3. The addition of the local labour market predictors only result in a minor change in the magnitude of the individual level and personal circumstances level predictors. The direction of the association remains unchanged.

The results for the category involuntary part-time employment are presented in the first sub-section on the left of Table 3. Only one of the regional labour market predictors is significant. The predictor LGASERV is positive and weakly significant at the 10 percent level suggesting that regional labour markets with greater shares of employment in service industries will increase the individual risk of being employed part-time involuntarily.

The results for the second category labour underutilisation (unemployment versus adequately employed) are presented in the second sub-section on the right of Table 3. Three of the regional labour market predictors are significant in this case. There is a significant (at the 10 percent level) and positive association between the share of manufacturing employment in a regional labour market and an increased risk of individual unemployment. Interestingly, there is a positive association between the level of population growth in a region and the risk of unemployment. Finally the predictor accounting for the regional shift effect is significant and has a negative coefficient suggesting that regions which are encountering positive regional growth effects act to reduce the relative-risk of unemployment.

Finally the results for the third category of labour underutilisation, sub-unemployed or discouraged workers, are presented in the bottom sub-section of Table 3. As with unemployment there is a significant association between the level of population growth in a region and the risk of sub-unemployment. The positive coefficient suggests that the risk of being sub-unemployed is greater in regions with higher rates of population growth. The predictor accounting for the regional shift effect is significant and has a negative coefficient suggesting that regions which are encountering positive regional growth effects act to reduce the relative-risk of sub-unemployment.

5. DISCUSSION AND CONCLUSION

This paper sets out an analysis of labour underutilisation in Australian non-metropolitan labour markets using a combination of data from the first wave of the Household, Income and Labour Dynamics in Australia (HILDA) survey and aggregate employment data from the 2001 Australian Census of Population and Housing. Acknowledging that there exists a range of frameworks within which to place issues surrounding labour underutilisation, we cast the research conducted in this paper in terms of a model that considers labour underutilisation risk as a function of broadly defined employability concepts. The employability framework used in this paper follows earlier work by McQuaid and Lindsay (2005) and others and considers employability to be:

Table 3. Multinomial Logit Results, Individual Level Predictors, Personal Circumstances, Local labour Market Effects and Disaggregated Labour Underutilisation

	Involuntary part-time			Unemployed		
	β	**Robust z scores**	**Exp β**	**β**	**Robust z scores**	**Exp β**
AGE2544	-0.428**	2.60	0.652	-0.500**	2.77	0.606
AGE4564	-0.675**	3.70	0.509	-0.446*	2.26	0.640
GENDER	0.837**	6.93	2.308	0.013	0.10	1.013
ATSI	0.684*	2.12	1.982	1.192**	3.26	3.294
ENG_PROF	0.364	0.31	1.439	1.969+	1.70	7.161
DISABLE	0.501**	3.25	1.650	0.734**	5.19	2.084
MARRIED	-0.502**	4.09	0.606	-1.405**	7.61	0.245
SINGLE	0.667**	3.63	1.949	0.552**	2.88	1.736
DEGREE	-0.755**	3.32	0.470	-1.388**	3.94	0.250
POST_SECOND	-0.401**	2.83	0.669	-0.540**	3.27	0.583
SOC_NET	-0.019	0.33	0.981	-0.175**	2.71	0.840
PAR_OS	0.465**	3.13	1.592	-0.055	0.27	0.947
PAR_UN	0.161	0.58	1.174	0.544*	2.02	1.723
LGA_MAN	-0.003	0.22	0.997	0.034+	1.69	1.035
LGA_SERV	0.054+	1.78	1.056	0.047	1.37	1.048
LGA_EDUC	0.008	0.34	1.008	-0.032	1.07	0.969
LGA_PC	0.027	1.45	1.027	0.049**	2.69	1.050
LGA_IM	-2.537	0.90	0.079	-4.202	1.12	0.015
LGA_RS	-2.162	1.59	0.115	-4.229*	2.35	0.015
CONSTANT	-3.504**	4.20		-2.623*	2.44	

	Sub-unemployed		
	β	**Robust z scores**	**Exp β**
AGE2544	-0.841**	4.69	0.431
AGE4564	-0.944**	5.12	0.389
GENDER	0.979**	7.58	2.663
ATSI	1.282**	4.39	3.605
ENG_PROF	0.089	0.06	1.093
DISABLE	1.038**	7.12	2.823
MARRIED	-0.362*	2.57	0.696
SINGLE	0.911**	5.75	2.486
DEGREE	-1.377**	6.44	0.252
POST_SECOND	-0.740**	4.91	0.477
SOC_NET	-0.144**	2.72	0.865
PAR_OS	0.441**	2.68	1.554
PAR_UN	0.453*	2.14	1.573
LGA_MAN	0.004	0.21	1.004
LGA_SERV	0.008	0.29	1.009
LGA_EDUC	-0.007	0.22	0.993
LGA_PC	0.050**	3.10	1.052
LGA_IM	-2.997	0.94	0.050
LGA_RS	-3.857*	2.48	0.021
CONSTANT	-2.309*	2.42	

Notes: Log pseudo-likelihood = -3042.1562; + significant at 10%; * significant at 5%; ** significant at 1%

the capability to move into and within labour markets and to realise potential through sustainable and accessible employment. For the individual, employability depends on: the knowledge and skills they possess, and their attitudes; the way personal attributes are presented in the labour market; the environmental and social context within which work is sought; and the economic context within which work is sought. (DHFETE, 2002, p. 7)

In this case labour underutilisation, defined here as involuntary part-time employment, unemployment and sub-unemployment or discouraged workers, is a function of a range of individual level characteristics together with contextual effects that include personal circumstances such as social networks and family background and the impacts of regional labour market demand characteristics.

It is not surprising, given the established literature dealing with labour underutilisation to find that individual characteristics such as human capital, gender, age and race are implicated in the risk of labour underutilisation. Being in an older age cohort, having high formal qualifications or currently being married universally reduces the risk of labour underutilisation. Against this being a single parent, having a disability or being from an Aboriginal or Torres Strait Islander (ATSI) background acts to increase the risk across all categories of labour underutilisation. Reflecting the gendered nature of labour market engagement, being female is associated with an increased risk of being employed involuntarily part-time and being sub-unemployed or a discouraged worker.

While the inclusion of the individual predictors in the models provides validation for existing research, it is the variables accounting for personal circumstances and regional labour market context that are perhaps the most interesting. Researchers such as Wilson (1987) have persuasively argued that household and family dynamics are important to understanding disadvantage in labour markets net of other factors. Social capital, the role models and social/employment networks imbued by parents impact on the life chances of children and these impacts are likely to have significant impact even into adulthood (Caspi et al, 1998; McClelland et al, 1998; Pech and McCoull, 1999). Parental employment engagement background was a significant influence on unemployment and sub-unemployment risk, while parental country of birth impacted on the risk of being involuntarily working part-time and being sub-unemployed.

Apart from issues surrounding intergenerational transfers of disadvantage, captured by whether the respondent's parents were working, our model suggests that individuals who have narrower social networks have a higher risk of some forms of labour underutilisation than those with wider social networks. There has been significant work on the impact that social networks have on employment outcomes and our findings support the suggestion that 'social isolation impedes individual success in the labour market because it denies residents informal job contacts that are critical not only for finding jobs but good jobs that promote prolonged labour force attachment' (Elliott, 1999, p. 200). In particular the social network variable exerted a significant impact on the risk of being unemployed or sub-unemployed.

The final level at which our framework acts on individual labour market

outcomes is through the impact of regional labour market processes. Although much existing research tends to ignore the impact of these demand-side factors, focusing only on the narrower supply-side influences, we have illustrated the important impact that aggregate demand variables may have. It is clear that those regional labour markets which have job deficiencies result in an increase in the risk of negative labour market outcomes, in our case labour underutilisation, at the individual level net of other characteristics. This is a similar message to that presented by researchers including Green and Owen (1998), Turok and Edge (1999), Turok and Webster (1998) and Sunley et al. (2006). Deficiencies in jobs may be measured in a number of ways and the variables included in this paper suggested that while the general strength of the local labour market is important (i.e. as suggested by the regional shift predictor), it is also important to consider the types of jobs available. Hence the predictor accounting for the regional shift effect suggests that local and regional conditions driving jobs growth (i.e. local jobs growth program) are important net of individual level employability as are the sectors in which jobs are found. Those regions with old economy sectors which are often characterised by relatively large shares of manufacturing have often been identified as having potentially weaker labour markets, while some regions that are characterised by significant service sector jobs may have their own set of labour market problems. The upshot is that these regional labour market conditions act to ration the supply of adequate employment and interact with individual employability in negative ways. Finally, an important aspect of regional development, population change, was seen as having an impact on the relative risk of both unemployment and sub-unemployment. Although further modelling is required using longitudinal data, there does appear to be some support for arguments that link regional population growth to potential negative labour market outcomes as population in-migration outstrips jobs growth and less skills or employable workers get bumped down (Bill and Mitchell, 2006).

Returning to consider the broad employability framework set out in the beginning of this paper, it would appear that given the available data and the sample we have utilised a broad understanding of labour underutilisation that takes into account both individual level, supply-side factors and more aggregate contextual factors is indeed a useful approach. Importantly the approach provides a useful framework for considering policy, especially as it relates to attempts to improve employment outcomes across groups in society and across spatially distinct communities. In several industrialised countries the emphasis of government policy on combating labour market disadvantage is to improve personal employment prospects by introducing schemes which focus on the employment assets of the individual job seeker that are increasingly neo-liberal in their approach. However, improving the employability of individuals is, in itself insufficient and to a large extent simply reshuffles the existing queue for the available jobs. A more sustainable and successful approach is likely to include also improving the available job opportunities and considering other contextual effects. This is clearly what the broader employability framework aims to achieve. Within Australia and elsewhere labour market policies which ignore the need for this broader approach remain a significant impediment to

ensuring that available workers are employed in the most efficient manner. Until these deficiencies are properly addressed the wasted human resources that are reflected in joblessness and more broadly labour underutilisation will remain a significant social problem.

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