People, Space and Place: a Multidimensional Analysis of Unemployment in Metropolitan Labour Markets

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Abstract

It is becoming increasingly apparent that, in order to understand a range of socio-economic outcomes, research needs to be focused on a multi-dimensional approach that accounts for individual characteristics and behaviours together with locality and activity within space and place. Within labour market analysis there is a need to situate empirical analysis within a conceptual framework that considers both the assets of individuals within the labour force and the social and local labour market contexts in which they find themselves. Using a broad notion of employability, this paper develops an analysis of unemployment in Australia's metropolitan labour markets. Specifically it uses a combination of individual survey data and aggregate labour market data to consider the associations between these multi-level factors. It finds that, while individual characteristics are important in understanding unemployment in metropolitan areas, it is equally the case that the strength of spatially distinct labour markets also plays a role. The paper reaches the conclusion that, while contemporary labour market policy tends to focus on individual characteristics, there is a need to widen the policy understanding of labour market outcomes so that other broader contexts, including the impact of space and place, are also seen as being influential.

KEY WORDS *regional labour markets; unemployment; employability; space and place; disadvantage*

Introduction

Questions regarding the uneven nature of labour market outcomes are a key topic within the social science literature. Research has focused on, among other things, understanding the uneven nature of jobs growth and questions of distributional outcomes (Partridge and Rickman, 2003; Bartik, 1993; Mitchell and Carlson, 2003a; Cutler, 2007) and exploring the problems of unemployment and other forms of labour underutilisation (Martin, 1997; Elhorst, 2003;

Badinger and Url, 2002; Mitchell and Carlson, 2003b). Within the geographical literature and in other spatially focused sub-disciplines, attention has been given to understanding the broad geography of labour market outcomes and associated socio-economic performance (see for example Baum, 2006; Baddelery *et al.*, 1998; Badinger and Url, 2002; Mitchell and Carlson 2003a, b; Vipond, 1980). This type of analysis has provided us with insights into how patterns at a broad regional level operate. For example we

know that a socially disadvantaged region is likely to be close to other regions with similar disadvantages or that regional unemployment rates are a function of a range of regional level explanatory factors such as the aggregate level of human capital or industry composition. What we have less understanding of are the ways in which phenomena at the *regional* or *spatial levels* are associated with *individual level* characteristics and other *social contexts.*

This point raises an important challenge for geographers and other spatially oriented social scientists – how do we contribute to an understanding of socio-economic disadvantage which accounts for the spatial or geographical contexts in which individuals operate as well as the impacts of other contexts, including the social and the individual? In short, while geography is clearly important, as shown by a range of studies, a full understanding of the potential drivers of disadvantage should include a focus on the multi-dimensional associations between the individual, the social and the spatial – that is between people, space and place. For academic researchers these multi-dimensional approaches to understanding social and economic outcomes have become increasingly popular (Baum *et al.*, 2008; Andersson *et al.*, 2007; Blasius and Friedrichs, 2007; McCulloch, 2001). In some of this research the focus has been on understanding the ways in which individual level outcomes are influenced by broad social and geographic (community, neighbourhood, regional) scales. Such an approach can be placed within a larger and developing international social science literature seeking to interrelate changes from the global to the local scales, or the macro to the micro, and to understand the effects of associations between these changes on human lives (Sampson *et al.*, 2002; Friedrichs *et al.*, 2006).

For policy makers, a multi-dimensional approach refocuses debate on the broader range of factors and questions the best mix of policy responses. Labour market outcomes and processes, like many other important public policy areas, exhibit the characteristics of wicked problems. Wicked problems are those that 'cross departmental boundaries and resist the solutions that are readily available through the action of one agency' (Leat *et al.*, 2002, 34). A focus that includes both local geography and individual and social contexts helps provide a more holistic evidence base which can be used to address the potential negative outcomes when wicked problems are seen to exist. In particular, a focus on

people, space and place draws attention to the tension between people prosperity and place prosperity (O'Connor *et al.*, 2001; Karmel *et al.*, 1993; Kraybill and Kilkenny, 2003; Partridge and Rickman, 2006; Bolton, 1992). Fostering place prosperity involves dealing directly with places when policy is designed and implemented. In contrast, growing people prosperity is associated with economic and social policies that influence the social and economic fortunes of people, irrespective of where they live.

The approach suggested in this paper fundamentally situates people within a geographic context and raises questions regarding potential conflicts in understanding the associations that exist with regard to socio-economic advantage and disadvantage and hence the need for different policy responses. Different human beings, based on their individual capacities, can experience the same geographic contexts in profoundly different ways thereby generating considerable variation in socio-economic outcomes. If individual capacities are the significant drivers of individual outcomes (i.e. if geography is less important) then the appropriate policy response may be to focus on improving individual capacities or assets. Alternatively individual capacities may be less important as compared to the geographic contexts in determining socio-economic outcomes. Here, a different set of policies would be indicated, namely those which focus on improving opportunities and outcomes based on where people live and their spatial interactions. A third, more likely, alternative focuses on both individual capacities and on the impacts of the geographic contexts and therefore on the ways in which a combination of people and place based policies can aid in mitigating the negative impacts of social disadvantage.

It is within this introductory context that this paper considers the issue of labour market disadvantage and, more specifically, unemployment in Australia's metropolitan regions. Applying a broad framework, it considers unemployment to be a function of a number of contexts including both the impact of local geographic differentials in labour market performance, and a range of individual and social characteristics. In what follows we first consider the geographic and other contexts associated with understanding the risk of unemployment before discussing in detail the methods and data adopted for the analysis. Following this we present the findings from our analysis, before providing some concluding comments.

Geography and other contexts: approaches to understanding unemployment risk

The type of multi-dimensional approach suggested in this paper requires a focus across different levels of scale from the broad aggregate geography of labour market processes, to finer micro labour market processes and trends. In this sense a useful framing approach has been the broad discussions that have emerged regarding the concept of employability. While various definitions have been applied, including those narrowly focused around 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, 7).

Within this context labour market outcomes depend on a range of factors that are external to the individual – i.e. local labour market demand and local environment – and a range of factors internal to the individual – i.e. individual employability assets (Figure 1).

The components covering external factors are likely to include the impact of local or regional resources or the local opportunity structure and are most often related to the quality, quantity and diversity of institutions at some 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, 6). Importantly for our understanding of unemployment, the geographic context of labour markets is most important.

These geographic contexts refer to the segregated set of spatial labour markets which nationally may be characterised in terms of journey-to-work regions, local labour market regions or local employment fields (Morrison, 2005) and which have processes reflected in broad geographic labour market outcomes and which, in a labour market system, may be seen as impacting on individual outcomes independent of other factors. In Australia, Watts (2004) and Watts *et al.* (2006) have identified the spatial nature of labour market regions in New South Wales and nationally, while earlier work by O'Connor (1978) and O'Connor and Maher
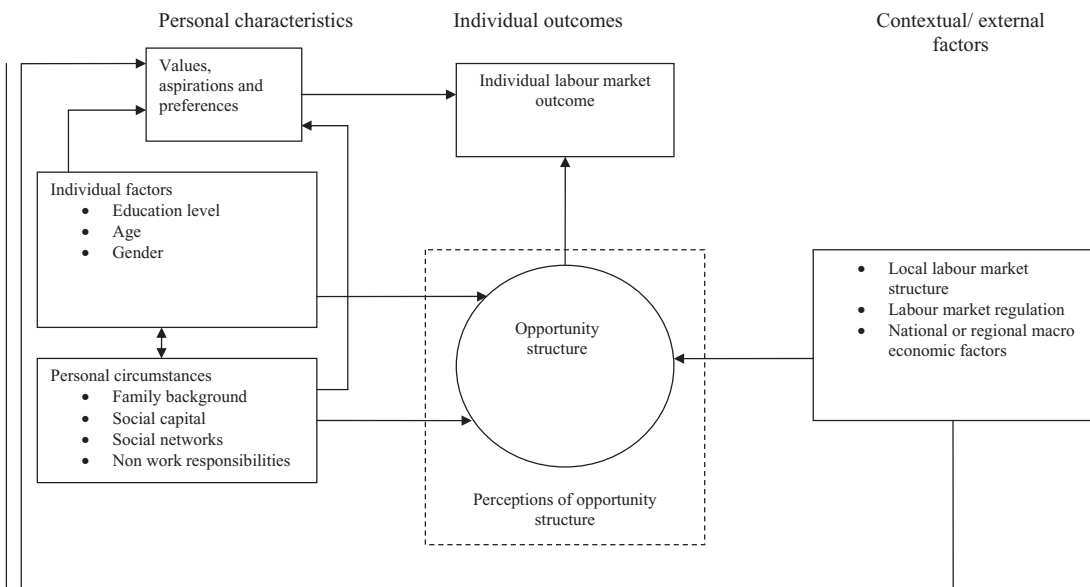

Figure 1   Heuristic model of individual unemployment risk.
Source: Adapted from Galster and Killen (1995).

(1979) explored the geography of labour markets in Melbourne through analyses of journey to work patterns. These studies allow us to begin to understand the broad geographic contexts of labour markets, while other aggregate level labour market research has allowed us to begin to consider the characteristics and potential processes under way in geographically defined labour markets (Lawson and Dwyer, 2002; Mitchell and Carlson, 2003a, b; Baum and O'Connor, 2005; Mitchell and Bill, 2005a, b; Trendle 2002; Karmel *et al.*, 1993). This work has identified the existence and the persistent nature of unemployment hot spots and cold spots (Mitchell and Bill, 2005b), the geographic nature of growth and decline (Baum and O'Connor, 2005), the ways in which labour markets are geographically segmented (Beer *et al.*, 2003; Fagan, 2002) and the characteristics and processes underpinning change in geographically segmented labour markets (Karmel *et al.*, 1993; Lawson and Dwyer, 2002).

This type of research serves as background to an understanding of the potential impact of local geographic contexts for individual labour market outcomes. We would hypothesise that the ability to successfully attain positive outcomes will be influenced by the strength and characteristics of labour markets which are set in particular geographic contexts. If, as is seen above, geographically segmented labour markets offer differing labour market opportunities and processes within which individual action is undertaken, then we would expect to see the impact of geography remain, even when individual characteristics and contexts are taken into account.

Following from this, and in line with the general argument in this paper, the structure of internal factors will also be important. The components covering the internal factors associated with employability relate to the ways in which individual characteristics and capabilities impact on opportunity structures and socio-economic outcomes. 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, 14). These individual contexts include a person's skills and employability assets. These are generally well understood, include levels of formal education and are associated with discussions of human capital theory (Becker, 1975). Internal factors also

include a range of demographic factors – age, gender, race/ethnicity – along which labour markets are segmented (Piore, 1983) together with health status and the potential and ability to move to other labour markets. Following Sen (1999), if an individual's capabilities are low, then we can expect that outcomes across multi-dimensional opportunities will be disadvantaged net of other influences.

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 opportunities through the impact of their personal characteristics, but also through the impacts of social networks and the social capital of their parents and through other intergenerational effects which impact on social capital more generally (Case and Katz, 1991). Importantly, the impacts that social networks might have on an individual's employment outcomes are widely discussed and include the impact on perceived and real opportunity structures and individual aspirations and preferences (Holzer, 1988; 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 our understandings of their eventual employment and other social outcomes. In situations where social networks are not widely developed, this is often compounded by residential concentrations in disadvantaged neighbourhoods or localities. Job searches, including information regarding employment opportunities, are thereby thought to be less effective and hence are associated with negative individual employment outcomes. The question raised by considerations of individual contexts is the extent to which individual characteristics and background are important regardless of the geographic context. The range of existing research focusing on the impacts of individual characteristics on labour market outcomes provide significant background information on the likely outcomes (see for example Beggs and Chapman, 1988; Wooden, 1991; Le and Miller, 1999, 2000) and we would expect these impacts to remain when a multi-dimensional approach is considered.

The research by Karmel *et al.* (1993) and Lawson and Dwyer (2002) referred to earlier does go some way to providing an understanding of the outcomes of individual and geographic contexts in analyses of unemployment. Using

aggregate level census data, these studies distinguish between factors attributed to individuals in a particular place and factors attributed to locality. Both studies report associations across both levels, but the use of aggregate level data only to imply outcomes attributable to individuals does raise some questions regarding the level of interpretability – in particular questions regarding the ecological fallacy. There have been other Australian studies that have attempted to analyse both individual level (captured at the individual level) and aggregate level attributes. This includes the work by researchers including Borland (1995), Hunter (1996), Cardak and McDonald (2001), Andrews *et al.* (2002), and Shields and Wooden (2003), all of which have yielded interesting and useful findings. Despite this, the study of the impacts of multi-dimensional contexts on labour market outcomes remains largely undeveloped thereby providing additional impetus for the analysis reported here. This deficiency in knowledge is significantly a result of the failure of these studies to use a research design employing sophisticated multi-level modelling techniques and of the availability of appropriate data. This issue is taken up in the next section.

Data and methodology
The investigation of the impacts and associations between individual behaviour and outcomes have, as pointed out by Galster (2003), assumed several methodological guises. Often the focus is 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 or spatial level. In order to consider the issues raised in this paper we ran a series of logit models which take into account the clustering of observations at the local labour market level. This provided us with a modelling technique that produces robust outcomes in the face of the hierarchical data structure and accounts for concerns regarding the independence of residuals in the regression when individuals are from the same region (the Brent Moulton Problem). 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 because initial modelling suggested that, with

reference to the data set and sample we used, no additional benefit was gained by fitting a multi-level model rather than using a standard multi-variate model accounting for clustering.

The main data used in this paper has come from the Household, Income and Labour Dynamics in Australia (HILDA) survey together with aggregate census data. 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 information available from census data and labour force surveys) to be considered. This current paper considers the first wave of the HILDA survey (2001); subsequent papers will consider longitudinal outcomes. The wave one respondent persons file contains a total of 13,969 respondents. A reduced data set is used in this paper which includes only those individuals currently in the labour force (employed or unemployed) and living in the metropolitan capital cities. This reduced data set includes 5044 individuals.

The dependent variable used in this paper is whether the respondent is unemployed or employed and is thereby coded 1 and 0. We have included the following independent variables: Age (1 if less than 25 (reference category), 2 if aged 25 to 44 years, 3 if aged 45 to 64 years), Gender (1 if female, 0 if male), Education (1 if educated up to year 12 (reference category), 2 if educated beyond year 12, but not university (secondary plus), 3 if university bachelor degree or higher (degree plus), marital status (1 if married, 0 otherwise), ATSI background (1 if ATSI, 0 otherwise), disability (1 if have disability, 0 otherwise), self reported English proficiency (1 if poor very/poor English, 0 otherwise), single parent (1 if single parent, 0 otherwise) and residential mobility (1 if respondent had moved in the past 12 months, 0 otherwise). Two variables were included to account for the impact of family background. One 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 accounted for the ethnic background of parents (parent country of birth – 1 if one or both parents born in NESB country, 0 otherwise).

The HILDA data set allows us to include proxies for the impact of social networks on labour market outcomes. Two measures are

included: one is an index accounting for an individual's social networks or broad social contacts; and one is an interaction between an index of neighbour contacts and the collection district unemployment rate[1]. The former is included to account for the potential impact that social networks may play in unemployment risk, while the latter is included to account for the impact of local socialisation and unemployment. Given that these two mechanisms may impact on potential employment either through information regarding job opportunities or through the provision of positive or negative role models, their inclusion is thought to be important.

The metropolitan local labour market contexts are modelled using data relating to Australian Bureau of Statistics labour force survey regions. All of the metropolitan regions considered here (Sydney, Melbourne, Brisbane, Adelaide and Perth) consist of several labour force survey regions which can be thought to approximate the types of local travel-to-work areas used in other research of this kind (McCulloch, 2001). A total of 36 regions are included and data from the ABS census product allows us to construct local labour market variables accounting for the general strength of the local labour market for each of these 36 areas. Local labour market strength has been accounted for using various indicators (McCulloch, 2001; Bartik, 1993; Flynn, 2003). In this paper, although several

possibilities were considered, we have used the employment rate in the local labour market region as the preferred indicator.

Employment outcomes: individual and local labour markets

Employment outcomes and individual level characteristics

In order to investigate unemployment risk we fit a series of logit models beginning with a reduced model containing only the individual level predictors. The results are presented in Table 1 with the exponential of the β interpreted as the odds of being unemployed relative to the reference category (employed). From the previous discussion, certain individual level predictors are thought to be more likely to be associated with increased unemployment risk than others.

The likelihood of unemployment will be influenced considerably by level of educational attainment, with some arguing that it is the most important indicator of labour market outcomes (Le and Miller, 1999; Brooks and Volker, 1985; Inglis and Stromback, 1986). The data in Table 1 indicate that there is a significant association between educational attainment and unemployment risk with lower education levels being associated with higher unemployment risk. Considering the regression coefficients more specifically, we evaluate unemployment risk

Table 1   Regression results; individual level, social networks/social capital variables and unemployment risk.

	β	Standard error	P > z	$e^β$
Constant	−2.46	0.25	0.000	
Age (age less than 25 reference)				
25 to 44	−0.65	0.15	0.000	0.52
45 to 64	−0.39	0.18	0.028	0.68
Gender	−0.36	0.10	0.001	0.70
ATSI background	1.41	0.33	0.000	4.09
Poor English	1.12	0.28	0.000	3.09
Single parent	0.28	0.10	0.005	1.32
Moved in the past 12 months	0.59	0.11	0.000	1.8
Disabled	0.47	0.15	0.001	1.59
Currently married	−0.34	0.17	0.044	0.71
Education (year 12 or less reference)				
Secondary plus	−0.48	0.16	0.004	0.62
Degree plus	−0.97	0.28	0.001	0.37
Parental non-employment	0.54	0.26	0.038	1.71
Parental Ethnic background	0.85	0.14	0.000	2.36
Social network index	−0.34	0.06	0.000	0.71
Neighbour influence interaction	−0.002	0.007	0.790	0.99
Log Pseudo likelihood −1006.81				

relative to those with education to year 12 or less. Compared to those with lower education, individuals with some post secondary education but no university education are only about half as likely ($e^{-0.478} = 0.62$) to be unemployed, while those individuals with a university education are considerably less than half as likely ($e^{-0.97} = 0.37$) than those with lower schooling to be unemployed.

Within research and policy circles there is significant concern regarding the associations between age and unemployment risk (Layard *et al.*, 1991; Brown and Sessions, 1997; Pissarides and Wadsworth, 1990). In our model we compare those respondents aged between 25 and 44 and 45 to 64 with those aged less than 25. In both cases, being in the younger age group is associated with increased likelihood of unemployment, although the likelihood for the older age group is also higher than that for the middle aged group. In particular, those respondents aged between 25 and 44 were only half as likely to be unemployed than those aged 15 to 24 ($e^{-0.65} = 0.52$), while those aged 45 to 64 years had a slightly higher likelihood of unemployment ($e^{-0.39} = 0.68$).

The inclusion of gender in an unemployment model often results in varying outcomes depending on the level of analysis considered and the sample used (Le and Miller, 1999; Bradbury *et al.*, 1986). In our model the variable for gender suggests that the likelihood of unemployment is higher for males than for females, with females being just over half as likely ($e^{0.036} = 0.70$) to be unemployed as males.

The under-representation of individuals from a non-English speaking background or those with an Indigenous background in employment is an important social and economic issue and has been commented on elsewhere (Borland, 2003; Miller, 1989; Inglis and Stromback, 1986). The independent variable accounting for Indigenous background (ATSI) was highly significant with individuals from an Aboriginal and Torres Strait Islander background facing increased unemployment risk ($e^{1.41} = 4.09$). Ethnic background is accounted for here by self reported English proficiency and was associated with increased unemployment risk. Respondents reporting that they had poor/very poor English skills were more than three times more likely to be unemployed than those with good/very good English skills ($e^{1.12} = 3.09$). Having a disability is also likely to be associated with increased risk of unemployment (Junankar and Wood, 1992; Harris 1996).

The independent variable accounting for disability was highly significant and suggested that those with a disability were over one-and-a-half times more likely to be unemployed ($e^{0.47} = 1.59$) than those without a disability.

Household and family characteristics have been shown to have an influence on labour market outcomes with high unemployment being associated with individuals who are single, divorced or separated (Le and Miller, 1999; Dawkins *et al.*, 2002). In our model the predictor for single parents was significant, with single parents being almost one-and-a-half times ($e^{0.28} = 1.32$) more likely to be unemployed than others. Several hypotheses are provided regarding the association between marital status and unemployment risk (Le and Miller, 1999). Here the variable marital status measures if the individual is currently married and is significant, suggesting that the likelihood of unemployment is half that ($e^{-0.34} = 0.71$) for those currently married than for others.

It has been argued that there may be a relationship between period of residence and unemployment risk, with individuals who have arrived recently being less attractive to employers who are looking for a sign of stability in their work force (Brown and Sessions, 1997; Pissarides and Wadsworth, 1990; Hughes and McCormick, 1991). In our model those individuals who had moved in the past 12 months were more than one-and-a-half times more likely to be unemployed ($e^{0.59} = 1.8$).

An interesting finding from our analysis has to do with the potential for intergenerational transfers of disadvantage (Caspi *et al.*, 1998; McClelland *et al.*, 1998). The measure of parental unemployment relates to any periods of non-employment (either unemployment or being outside the labour market) during childhood (age 14). Individuals who had had two non-working parents or one parent in a single parent family were over one-and-a-half times as likely ($e^{0.54} = 1.71$) to be unemployed as were individuals who had more positive parental employment role models as children. Moreover, it is hypothesised that parental ethnic background may also be influential. In our model the independent variable accounting for parental ethnic background considered those individuals who have one or both parents born in non-English speaking countries. The significant regression coefficient suggests that individuals in this group are over twice as likely to be unemployed ($e^{0.85} = 2.36$).

Of the two independent variables included to account for social networks and socialisation

only the social network index is significant. The significant coefficient indicates that a higher score on this index is associated with a lower likelihood of unemployment ($e^{-0.34} = 0.71$).

Employment outcomes: individual characteristics, social capital/social network effects and local labour market effects
The second model considered in this paper includes all the individual, family and social capital/network variables plus the independent variables accounting for the strength of the local labour market (Table 2). The variables associated with individual/family level characteristics and the social capital/social network characteristics are similar to those of the previous model, changing only in terms of magnitude.

Existing aggregate level analysis is suggestive of the association that exists between unemployment risk at the individual level and the strength of the local labour market (see Baum *et al.*, 2005; Mitchell and Bill, 2005b; Mitchell and Carlson, 2003a; Sunley *et al.*, 2006). In weak labour markets, i.e. those lacking job opportunities, it is expected that the risk of unemployment will be higher. In our model labour market strength is accounted for by the proportion of persons in the labour market region who are employed. The risk of unemployment for individuals was 0.92 times

($e^{-0.08} = 0.92$) lower with each 1 percent increase in the percent employed within a given labour market region.

Concluding comments
We began this paper by arguing that in order to understand the social and economic processes underway in cities and regions it is necessary to undertake analysis which is of a multi-dimensional nature and which accounts for the interplay between individuals and the places where they live and work. To this end the analysis presented in this paper has focused on understanding how a range of individual characteristics and social and locational contexts impact on labour market outcomes and in particular on the risk of unemployment. The broader contention of the paper was that different human beings based on their individual capacities can experience the same spatial context in profoundly different ways generating considerable variation in labour market opportunities. Emerging from this was the argument that policy must increasingly take cognisance of this potential variation and be adjusted accordingly.

The multi-dimensional analysis outlined in the paper illustrates that, while a range of personal characteristics were important, the physical locations of the labour markets also impacted on

Table 2   Regression results; individual level, social networks/social capital, labour market variables and unemployment risk.

	β	Standard error	P > z	e^{β}
Constant	5.43	2.76	0.05	
Age (age less than 25 reference)				
25 to 44	−0.66	0.15	0.000	0.52
45 to 64	−0.38	0.18	0.033	0.68
Gender	−0.34	0.10	0.001	0.71
ATSI background	1.33	0.33	0.000	3.78
Poor English	1.15	0.28	0.000	3.16
Single parent	0.28	0.10	0.005	1.32
Moved in the past 12 months	0.58	0.12	0.000	1.78
Disabled	0.47	0.15	0.001	1.58
Currently married	−0.34	0.17	0.045	0.71
Education (year 12 or less reference)				
Secondary plus	−0.43	0.17	0.015	0.65
Degree plus	−0.88	0.29	0.003	0.41
Parental non-employment	0.56	0.26	0.031	1.75
Parental Ethnic background	0.88	0.14	0.000	2.41
Social network index	−0.34	0.06	0.000	0.71
Neighbour influence interaction	−0.003	0.007	0.694	1.0
Local Labour market employment	−0.08	0.03	0.006	0.92
Log Pseudo likelihood −1003.20				

employment outcomes. While the individual level variables might be thought of as accounting for the risks associated with belonging to a particular socio-economic group or having weaker individual employability assets, local geography forms a contextual milieu which acts on unemployment risk independently of the individual level characteristics. In this sense the type of analysis presented here suggests that individuals with similar employability assets, when placed within different geographic labour market contexts, are likely to face differing unemployment risk profiles, as will those with different employability assets in the same geographic contexts. The point to be made here is that both the individual context and the spatial context in which individuals find themselves contribute to an overall understanding labour market outcomes. The research message for geographers and others involved in understanding the ways in which society works is clearly that a multi-dimensional approach to understanding social problems and issues provides a much more holistic and wide ranging way of addressing the types of research questions we pursue.

For policy makers, an understanding of these multi-dimensional factors refocuses debate on the broader range of correlates and questions regarding the best mix of policy responses. In an age where broad social and economic problems are increasingly within the realm of wicked problems (Leat *et al.*, 2002), the type of framework and empirical approach applied here contribute to the evidence base required to overcome these issues. Within the framework outlined in this paper the policy focus was on an understanding of the potential contribution of people and place based approaches when addressing issues of unemployment. The empirical example discussed here showed that the outcomes for individuals in terms of unemployment were a function of a range of factors aligned to individuals and of factors aligned to the performance of the local labour market, which was geographically defined. One view of this outcome might suggest that it is the factors associated with the individual that were most important. Here it would be simple for policy makers interested in addressing labour disadvantage to focus on increasing an individual's skills and general human capital or addressing other issues which act to increase an individual's employability assets. These labour supply side approaches have held favour across many industrialised countries in the wake of international discussion such as

the OECD's 1994 jobs study and the increasing move to a more neo-liberal approach to handling labour market and employment policies.

Improving the employability of individuals by increasing their employability assets or helping them to overcome other personal constraints to adequate employment is, in itself, insufficient and to a large extent such an approach simply reshuffles the existing queue for the available jobs. A more sustainable and successful approach is likely to include also improving the job opportunities available. Turok and Webster (1998) and Sunley *et al.* (2006) argue that employment creation that is targeted at the local level (i.e. is place based) is the missing element in much contemporary labour market policy. Similar arguments have been put forward by Australian researchers including Mitchell and Watts (1997) who suggest that buffer stock employment schemes or public sector employment schemes are required to address disadvantage in the labour market appropriately. A significant question also relates to the correct balance of jobs. While the exact mix between people based polices and place based policies will require careful consideration and further understandings of this mix need to be developed, there can be little debate on the need to consider both. The framework and the empirical example presented in this paper provide some guidance towards this understanding.

NOTE

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. The neighbour contacts 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: Neighbours helping each other out;

Neighbours doing things together. Both indices were constructed using PCA in SPSS. Tests for the robustness produced alpha scores above 0.7 in both cases.

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