

Dropping off the edge.

**the distribution
of disadvantage
in Australia**



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ISBN: 0957780354

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Publisher: Jesuit Social Services / Catholic Social Services Australia

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Design: John van Loon

'We need to find innovative ways to break the vicious cycles of poor parenting, low levels of education, unemployment and health problems that can afflict some individuals and communities. We need to find ways of restoring order to zones of chaos in some homes and communities – zones of chaos that can wreck young Australian lives.'

The Hon John Howard MP
Prime Minister of Australia
Address to the 10th Anniversary Dinner
Westin Hotel, Sydney
2nd March 2006

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Acknowledgements

THE CURRENT PROJECT was founded in the 'agreement in principle' of the State Premiers and Territory Chief Ministers to cooperate by providing assistance in the gathering of the social data required for the study. A contact person was nominated within each jurisdiction and that person either rendered direct assistance or brought others who were better placed to assist into contact with the researchers. It is not possible here to acknowledge all of the individuals or agencies to whom we are indebted but there are officers and services whose patient and sustained help require special acknowledgement:

DATA

- Queensland: Rick Williams, Manager Research, Department of Communities.
- New South Wales: Senior officers and research staff of the Departments of Health, Community Services and Corrective Services, Bureau of Crime Statistics and Research.
- Victoria: Senior officers and research staff of the Department for Victorian Communities and Departments of Human Services and Justice.
- South Australia: John Glover, Director, Public Health Information Development Unit, University of Adelaide; Adam Graycar, Head, Cabinet Office.
- Western Australia: Shawn Boyle, Director, Social Policy Unit, Department of Premier and Cabinet; Tony Satti, Program Manager, Health Data Collections Branch; Ian D'Mello, Department of Corrective Services.
- Tasmania: Bob Rutherford, Deputy Secretary of the Department of Premier and Cabinet; Jo Hall, Policy Division, Department of Premier and Cabinet.
- ACT: Stuart Malloch, Senior Policy Officer, Social Policy Branch, Cabinet and Policy Group.
- Northern Territory: Ian McCutcheon, Australian Bureau of Statistics, Darwin.
- National data: Centrelink; Australian Bureau of Statistics; Australian Taxation Office; Health Insurance Commission.

DATA PROCESSING

Brian Cooper, data analysis consultant, rendered invaluable service with the processing of the variables provided by the above sources and the preparation of the maps presented in the report and at the project website.

PEOPLE

Father Peter Norden, S.J., Associate Director, Jesuit Social Services, has facilitated the project at every stage and Mr Frank Quinlan, Executive Director, Catholic Social Services Australia, has been a source of encouragement and support.

Dr Jen Harrison of the University of Sydney has provided wise counsel throughout the project and supervised the production of the final manuscript.

The author

Emeritus Professor Tony Vinson

TONY VINSON'S CAREER has alternated between university positions and roles in the public service and community sector. He was appointed Foundation Director of the NSW Bureau of Crime Statistics and Research in 1970 and in the mid seventies took up the position of Professor of Behavioural Science in the Faculty of Medicine at the University of Newcastle. Following a revelatory Royal Commission into the NSW prison system, for three years (1979-1981) Tony Vinson headed the Department of Corrective Services during a period of intense reform. An extended period as Head of the School of Social Work and Dean of the Faculty of Professional Studies at the University of New South Wales followed, as well as Visiting Professorships in Sweden and Holland.

In 2001 Tony was invited to Chair an Independent Inquiry into NSW Public Education on behalf of the Federation of Parents and Citizens' Associations, the Teachers Federation and senior teachers' groups. Many of the Inquiry's recommendations attracted support from politicians and the community generally and resulted in substantial improvements to public education in New South Wales. Other smaller scale education projects have ensued and in 2003 the NSW Government honoured Professor Vinson with an inaugural Meritorious Service to Public Education award. Concurrent with these forays into public education, Tony Vinson has undertaken research work with Jesuit Social Services, Mildura Regional City Council and other community groups. He is an Emeritus Professor at the University of New South Wales and an Honorary Professor in the Faculty of Education and Social Work at Sydney University which recently conferred on him the title of Honorary Doctor of Letters.

Foreword

SPEAKING IN MARCH 2006 on the occasion of his 10th anniversary in office, the Prime Minister, John Howard, challenged us to find ways of breaking down entrenched poverty when he said:

We need to find innovative ways to break the vicious cycles of poor parenting, low levels of education, unemployment and health problems that can afflict some individuals and communities. We need to find ways of restoring order to zones of chaos in some homes and communities – zones of chaos that can wreck young Australian lives.

With the publication of this report, Jesuit Social Services and Catholic Social Services Australia provide Australia with an important tool to address this challenge.

This research report, *Dropping off the edge*, identifies and describes the complex web of disadvantage that ensnares generations of Australians. The entrenched, intergenerational patterns identified could easily lead us to abandon any hope that public policy might be effectively deployed to address these problems. However, the report also identifies how and where public policy can be used effectively to overcome these long term problems. The report demonstrates that our strategies must be well targeted, multi-faceted and coordinated, sufficiently resourced and sustained.

Jesuit Social Services has completed two previous reports on the geographical distribution of social disadvantage in New South Wales and Victoria in the last ten years. While this report now provides a national picture of the extent of disadvantage in this country, it also builds on the knowledge we have already accumulated about these two states.

Dropping off the edge has been prepared because of our commitment to a more just society, a society in which the value and dignity of the lives of all Australians can be recognised. To quote the words of US Bishops in their statement 'Economic Justice for All:

The prime purpose of this special commitment to the poor is to enable them to become active participants in the life of society. It is to enable all persons to share in and contribute to the common good. ...The extent of their suffering is a measure of how far we are from being a true community of persons.

If we are to advance our community together it is incumbent on all of us – churches, citizens, policy makers and governments at all levels – to do all we can to ensure all people share in the prosperity and comfort that Australia offers.

Julie Edwards
Chief Executive Officer
Jesuit Social Services

Frank Quinlan
National Director
Catholic Social Services Australia

Preface

THE LEVEL OF social disadvantage in Australian society has been one of the hotly debated areas of social policy in recent years. The tempo of that debate will increase in the coming months, as our nation moves closer to a federal election in the second half of 2007.

This research investigation completed by Emeritus Professor Tony Vinson on behalf of Jesuit Social Services and Catholic Social Services Australia offers documented evidence that can help ground that debate and take it beyond different political affiliations and perspectives.

Using data provided by the Australian Bureau of Statistics, the Australian Taxation Office, Centrelink and the Australian Health Insurance Commission, and a broad range of departments from each of the state and territory governments, Professor Vinson has produced a map that can only assist federal, state and local governments to better grapple with the reality, often hidden from our eyes.

His two previous reports completed for Jesuit Social Services, *Unequal In Life* (1999) and *Community Adversity and Resilience* (2004) focused on New South Wales and Victoria alone. This third stage of our research covers all states and territories of Australia.

The policy and research arm of Jesuit Social Services, The Ignatius Centre, has developed a research partnership with Catholic Social Services Australia, one of the largest networks of community service organisations in this country, to produce this report.

Dropping off the edge contains not only statistically reliable and consistent information about every population centre in this country on more than twenty different disadvantage factors, but also an analysis of that data which provides an insight into the way in which social disadvantage can become entrenched, if not addressed in an integrated way by government authorities.

This national research study can show the links that exist, through statistical analysis of the data, between such factors as early school leaving, low job skills, long term unemployment, court convictions and eventual imprisonment. We can display these links for every population centre in Australia, from the inner city suburbs of the big metropolitan centres of Sydney, Melbourne, Brisbane, Perth and Adelaide, to the most remote rural communities in outback Queensland, New South Wales, South Australia, Western Australia and the Northern Territory.

With the exception of the Northern Territory, the detailed interactive maps and statistical data for every region in Australia are available through the web pages of Jesuit Social Services (www.jss.org.au) and Catholic Social Services Australia (www.catholicsocialservices.org.au).

Professor Vinson, as a former Head of School of Social Work at the

University of New South Wales, was also the Foundation Director of the New South Wales Bureau of Crime Statistics and Research.

During an interlude from his professional role as educator and social scientist, he was invited to take on the administration of the New South Wales prison system in the 1970s, at a time of critical need. He saw there at first hand the ultimate consequences of failing to address social alienation and disadvantage in individuals, families and local communities.

Recently, I was present at a planning workshop in the United States that explained how the State of Louisiana was using the reading scores of ten to twelve year old children to predict how many prison cells they needed to construct in ten years time. Australians are rightfully shocked whenever I recount this story in this country. They know that there is a moral responsibility to ensure there is better early intervention to prevent this escalation of disadvantage and social exclusion.

Yet, with the statistical links that have been established between a broad range of disadvantage factors outlined in this research report, we could perhaps direct the same sense of outrage to Australian state and federal government authorities if they fail to address the early characteristics of disadvantage, such as illiteracy and early school leaving, and resort instead to the further expansion of prison systems around the country.

Professor Tony Vinson has provided the Australian community, through its elected leaders and policy planners and program administrators in federal, state and local government authorities, with a rich tapestry of data and information about some of the most damaging impacts of entrenched and localised poverty and disadvantage in this further study, *Dropping off the edge*. It is the expectation of Jesuit Social Services and its research partner, Catholic Social Services Australia, that this information be analysed and used to promote a unified and vibrant Australian community in the coming decade.

With the publication of this report we invite leaders of all political persuasions to draw upon the information provided in this national mapping exercise of disadvantage in Australia. Failing to address this invitation will pave the way for more and more young Australians to lose a sense of direction and the hope that they can make a positive contribution to the community in which they live.

We believe that a more collaborative approach between the three levels of government and the business, industry and community sectors in addressing the warning signs contained in this data would result in a more cohesive, united Australian community in the future: in other words, a 'fair go' for all Australians.

Father Peter Norden, S.J.
Associate Director, Jesuit Social Services
Project Manager, *Dropping off the edge*

Executive summary

THE PRESENT REPORT focuses upon the potential value to those immediately affected, as well as the society generally, of identifying areas of concentrated disadvantage throughout Australia. This approach is not emphasised in disregard of the importance of macro-economic and general social policies to the wellbeing of all sections of the community. However, when social disadvantage becomes entrenched within a limited number of localities the restorative potential of standard services in spheres like education and health can diminish. A disabling social climate can develop that is more than the sum of individual and household disadvantages and the prospect is increased of disadvantage being passed from one generation to the next. In such cases general social and economic policies need to be supplemented by locality specific ones.

A prerequisite of remedial action is the identification of localities that fit the foregoing description and increasing our understanding of the main dynamics associated with the onset and maintenance of geographically concentrated disadvantage. The report pursues that task in two complementary ways: first, by focusing on areas within each Australian State or Territory that consistently rank highly on a range of indicators of disadvantage and examining the characteristics that they share in common. The second and in policy terms more important method employs a statistical procedure known as Principal Components Analysis to take account of each area's position on every indicator in assigning a single disadvantage score to each locality. The result is a complete ranking of the localities in each Australian jurisdiction from the most to the least disadvantaged and an indication of the characteristics that are most salient in shaping the rankings.

The indicators employed in the project had the character of being direct manifestations of disadvantage involving a minimum of theoretical speculation. Their inclusion rests on research evidence of their close association with social disadvantage. Chapter 2 provides the rationale for employing the indicators tabulated below. The necessary data has been derived from a combination of centralised statistical sources including the Australian Bureau of Statistics, Centrelink and the Health Insurance Commission, and State and Territory authorities and services. The cooperation received from the different jurisdictions has been good but the states and territories varied with respect to the scope of their statistical collections and their experience in combining data from different sources. The result was

that, with the exception of the Northern Territory for which very limited data was available, the range of indicators used was almost double that of previous similar projects in Victoria and New South Wales. The number of indicators employed varied between 20 and 25 depending on the circumstances of each State or Territory.

Available indicators

1 Social distress:

Low family income
Rental stress
Home purchase stress
Lone person households

2 Health:

Low birth-weight
Childhood injuries
Deficient immunisation
Disability / sickness support
Mortality (life expectancy)
Mental health patients treated in hospitals / the community
Suicide

3. Community Safety:

Confirmed child maltreatment
Criminal convictions
Prison admissions
Domestic violence

4. Economic:

Unskilled workers
Unemployment
Long-term unemployment
Dependency ratio
Low mean taxable income
Computer use / access to internet

5. Education:

Non-attendance at preschool
Incomplete education (17-24 year olds)
Early school leaving of local population
Post-schooling qualifications

The geographic units selected for analysis in each case were the smallest for which relevant data was obtainable. In the cases of Victoria, New South Wales and the ACT the units were postcode areas, in Queensland and South Australia a counting unit called Statistical Local Areas (SLAs) was used. In Tasmania and Western Australia it has been necessary to work within the framework of Local Government Areas (LGAs). In the Northern Territory the limited data available and the way in which it has been compiled have resulted in an initial picture of the distribution of social disadvantage across seven standard reporting regions. Needless to say the sheer number of occurrences of the different events covered by the indicators within each of the relevant geographic units has to be interpreted in the light of the make-up of the population. For example, the number of children in the area under fifteen years of age, or the number of people in the workforce have had to be taken into account when calculating comparative rates of, say, confirmed child maltreatment or unemployment.

APPROACH 1: Areas of concentrated disadvantage

As already mentioned, a first main step of the project was to identify localities with consistently high scores on the indicators. The procedure adopted has been to rank the geographic units on each indicator assigning first position to the locality with the highest negative score (the highest proportion of early school leavers, the highest number of residents on sickness / disability payments and so forth). Then we count the number of times each area falls into the 'top group' of most disadvantaged places defined in general as approximately the top 5% (with minor variations depending on the number of localities involved in each jurisdiction). Thus we derive a first estimate of the relative disadvantage experienced by each locality. Coincidentally, this procedure also throws light on the extent to which 'high' (that is, negative) scores are concentrated in a comparatively small proportion of the areas studied and, in the cases of previously studied jurisdictions (Victoria and New South Wales), the extent to which these concentrations have remained stable over time.

The detailed evidence presented in the report shows a marked degree of geographic concentration of disadvantage within all of the States and the Australian Capital Territory (comparable data was not available for the Northern Territory). In general, 1.7% of the geographic counting units in each jurisdiction account for seven times their share of the top ranking positions across all of the indicators. The comparisons with previous Victorian and New South Wales results showed a very high degree of consistency of the rankings of areas that is more precisely quantified in the next section dealing with the Principal Components Analysis. However, the most disadvantaged localities identified by the present approach included the following (arranged alphabetically in each State and by postcode order in the ACT).

Victoria (by postcode):

3531: Berriwillock, Boigbeat and Springfield	3000: Melbourne
3889: Cabbage Tree Creek, Bemm River, Combiensbar, Errinundra, Manorina	3887: Nowa Nowa, Lake Tyers, Wairewa
3061: Campbellfield	3595: Nyah West Club Terrace,
3520: Korong Vale, Knypanial	3965: Port Welshpool
	3835: Thorpdale
	3544: Ultima, Gowanford, Waitchie

New South Wales (by postcode):

2831: Armatree, Byrock, Balladoran, Billeroy, Brenda, Bullagreen	2807: Koorawatha
2409: Boggabilla	2834: Lightning Ridge
2839: Brewarrina, Bogan, Gongolgon, Talawanta, Weilmoringle	2879: Menindee, Copi Hollow
2427: Harrington, Crowdy Head	2369: Tingha, Stannifer, Old Mill
2466: Iluka, Woody Head, The Freshwater	2306: Windale
	2836: Wilcannia, White Cliffs, Gemville

Queensland (by SLA):

Biggenden (S)	Mount Morgan (S)
Burke (S)	Spring Hill
Hervey Bay(C)	Wacol
Murgon (S)	

South Australia (by SLA):

Ceduna (DC)	Playford (C) - Elizabeth
Coober Pedy (DC)	Playford (C) - West Central
Onkaparinga (C) - North Coast	Port Adelaide Enfield (C) - Port
Peterborough (DC)	

Western Australia (by LGA):

Dundas (S)	Ngaanyatjarraku (S)
Halls Creek (S)	Sandstone (S)
Menzies (S)	Upper Gascoyne (S)

Tasmania (by LGA):

Break O'Day	Derwent Valley
Central Highlands	

Australian Capital Territory (by postcode)

2604: Causeway, Kingston, Narrabundah	2612: Braddon, Campbell, Reid, Turner
2609: Fyshwick, Bonshaw, Majura, Pialligo, Symonston	2620: Oaks Estate

The indicators that were to the fore in the profiles of the high ranking localities were as follows. The degree of overlap with the results from the second method used will be apparent in the next section.

- Low income families
- Limited computer use
- Early school leaving
- Year 12 incomplete
- Limited internet access
- Disability/sickness support
- Long-term unemployment
- Criminal convictions
- Lack of post-school qualifications
- Unemployment
- Prison admissions
- Confirmed child maltreatment

APPROACH 2: Principal Components Analysis

A second and potentially administratively more applicable method of identifying areas of concentrated disadvantage involves a statistical procedure for calculating what the range of indicators used share in common. Knowledge of that 'communality' is then employed to assess the degree of disadvantage of all areas on all of the indicators used. Differences between the list of vulnerable areas derived by this *Principal Components* approach and those identified by the previously described method is due to the first-mentioned approach taking account of where the areas stand: high, middling or low, on all of the indicators. The Principal Components method also accords more weight to some variables that are more salient in determining a locality's susceptibility to disadvantage. Together the two lists afford an indication of the foundations of disadvantage in both its general distribution in society and the additional features that characterise areas in which it is highly concentrated. In fact there is a high degree of overlap between the results of both approaches as can be seen from the table below. In combination they tell the familiar but enduring story of the disadvantaging consequences of limited education and associated lack of information retrieval and exchange skills, deficient labour market credentials, poor health and disabilities, low individual and family income and engagement in crime. Localities with markedly high rankings on these and other forms of disadvantage are areas in which child maltreatment is also more likely to come to notice.

Another related perspective is provided by the indicators that are highly inter-correlating with other indicators. This form of analysis again emphasises the importance of limited education and information skills, low family income and employment related skills. Whatever other measures are necessary to combat the geographic concentration of the problems highlighted by the table that follows and other analyses outlined in the report, it is difficult to deny the centrality of limited education and its impact on the acquisition of economic and life skills in the making and sustaining of disadvantage in Australia.

Loadings on general disadvantage factor - across jurisdictions, ≥ 0.65*	Differentiating attributes of high ranking places - across jurisdictions (Chapter 3)
Low income families	✓
Limited computer use	✓
Early school leaving	✓
Year 12 incomplete	✓
No internet access	✓
Disability / sickness support	✓
Long-term unemployment	✓
Criminal convictions	✓
Low work skills	-
Average mean taxable income	-
Dependency ratio	-
Attributes identified by other analyses	
Lack of post school qualifications	✓
Unemployment	✓
Prison admissions	✓
Confirmed child maltreatment	✓

* Had loadings ≥ 0.65 in four or more instances

Across Australia slightly more than half (52%) of the areas identified as disadvantaged by the *Principal Components* method were in rural areas, and a fraction under a quarter in both metropolitan and rural urban localities. Chapter 6 presents an analysis of the effects of social cohesion or strength of the social bonds or 'connectedness' of people living in an area on the impact of social problems and disadvantageous conditions. Much research testifies to the strong associations or correlations between conditions like high unemployment and imprisonment rates and limited parental education and the rate of childhood accidents. Data relevant to the assessment of local social cohesion was available for almost 500 Victorian postcodes enabling their division into three categories of approximately equal size: 'low', 'medium'

and 'high' social cohesion. Taking 24 pairs of variables like the examples cited above which research has generally shown to be positively associated, it was found that without exception the degree of association or correlation was weaker in the 'high' cohesion category than in the 'low' cohesion category. The results indicate that strengthening the social bonds between residents can be an important first step in minimising the harmful effects of disadvantageous social and economic conditions. It is argued that this capacity can be a necessary but not sufficient means of redressing many problems that require additional external leverage and support.

The disadvantage rankings for each Australian jurisdiction presented in Chapter 5 of the report constitute a useful policy and administrative tool. They take account of multiple strands of deprivation and identify a hierarchy of disadvantaged localities. Their use is not limited to identifying localities that already suffer entrenched disadvantage; they can be used to anticipate and help prevent a local area's slide towards that state. Both functions assume the continuing availability of data of the present kind and an approach that necessitates the collaboration of different government portfolios. The report presents examples of ways in which the disadvantage index should be used. Three reports in the present series testify to the stability of established major disadvantage. The same names appear in lists of highly disadvantaged areas; the correlations between the ordered lists are of an unusually high magnitude. Yet the monitoring of progress within a small number of localities that have benefited from community strengthening programs provides a message of hope that entrenched disadvantage can be 'turned around'. In the course of, or shortly following the completion of projects generally of two to three years of actual intervention, an improved rank position is apparent. Unfortunately, if positive intervention is suspended at this point, this improvement is not sustained and a rebound occurs in the direction of the pre-intervention position (see Table 7-3, Summary and Conclusions). Overseas experience is cited to support the view that interventions of more realistic duration are needed if real progress is to be made in opening life opportunities for the residents of markedly disadvantaged areas, especially the children and young adults. The report concludes with a listing of such areas that would benefit from sustained Commonwealth involvement and the creation of models of effective intervention.

Introduction

Some Preliminary Information about this Publication

DATA AVAILABLE ONLINE

Data supplementary to the information contained in this publication can be accessed online via links at the following web pages:

<http://www.jss.org.au>

<http://www.catholicsocialservices.org.au>

THE INFORMATION AT the website includes maps showing the distribution of disadvantage within the Australian states and the ACT. Apart from the rankings of areas within the ACT and Northern Territory which are presented in the report, the disadvantage scores of localities in the six states are tabulated at the website. The areas are arranged alphabetically within 5% bands.

On the website it will be possible to compare in some detail the profiles of different locations. Apart from taking a 'bird's eye view' of regions, readers will be able to magnify smaller sub-regions and their characteristics such as comparative ranked positions on different indicators.

The boundaries of postcode areas

It will be clear throughout the report that the boundaries used to examine the geographic distribution of disadvantage vary according to the circumstances of different jurisdictions. Postcodes are used in Victoria, New South Wales and the ACT. Previous publications in this series have employed postcode boundaries as defined by the Australian Bureau of Statistics. These have proved less familiar to readers than Australia Post boundaries. The two sets of borders are similar but after carefully adjusting the population statistics, postal boundaries have been adopted for the present study.

The identification of disadvantaged areas

When *Unequal In Life*, a previous report in this series, was published in 1999 there were sound reasons for identifying the precise ranking of localities in terms of their comparative social disadvantage. A measure of public attention has now been gained for the needs of areas burdened by cumulative disadvantage and it is possible to use a slightly different approach without obscuring the priority claims of such areas to special assistance. Throughout the report rankings are presented in terms of 'bands' or categories of relative disadvantage and explanations provided as to the nature of the groupings.

The mapping of different degrees of disadvantage

The maps that appear in the publication and on the website, showing the spatial distribution of disadvantage, use five categories of severity. The boundaries for these categories are based on a technique known as 'natural breaks.' Although a computing process is used, the underlying notion is similar to the recognition of such breaks in a histogram of a data variable with counts in the y-axis and values in the x-axis. We can intuitively deduce classes from such a representation. The computer can be used to statistically optimise the natural breaks approach with groups of localities being clustered in a way that distinguishes them from localities outside the group. This method is employed on this occasion to generate five categories of disadvantage.

1

Scope, nature and materials of the present study

THE study of the geographic distribution of social disadvantage has a rich heritage. As early as the mid-nineteenth century Mayhew (1861) mapped the spatial concentration of crime in London in relation to other facets of *social disadvantage* including illiteracy and the rate of teenage marriage. His work helped to pioneer what became an established method of mapping the spatial concentration of social variables including those linked to the concept of social disadvantage. Today this perspective on society is thought by those who work within the tradition to throw light upon the relationship between issues often characterised as social problems (mental illness, crime, child maltreatment and the like) and what are called 'ecological' variables, such as poverty and urbanisation.

The concept of 'social disadvantage' that informs the present study refers to a range of difficulties that block life opportunities and which prevent people from participating fully in society. Obviously the difficulties in question include economic poverty but they are wider than a lack of financial resources. They include limiting factors in one's life situation such as poor health, disabilities, lack of education and skills, and being subjected to inequitable treatment or discrimination in a variety of forms (Rowntree Foundation, 2003).

The present project, nation-wide in scope, is in the social-ecological tradition of Mayhew and his successors but takes advantage of contemporary data sources and methods. It is the third in a series of studies that began in 1999 with the publication of *Unequal In Life* and continued in 2004 with *Community Adversity and Resilience*¹. Without over-emphasising the importance of localised causes of social deprivation, the significance of the current project rests on the following assumptions, touched upon in the 1999 report and stated explicitly in *Community Adversity and Resilience*:

... where an accumulation of problems makes a serious impact upon the wellbeing of residents of a disadvantaged area, locality-specific

¹ Vinson, T., (1999) *Unequal In Life*, and Vinson, T., (2004) *Community Adversity and Resilience: The distribution of social disadvantage in Victoria and New South Wales and the mediating role of social cohesion*, both published by the Ignatius Centre, Jesuit Social Services, Richmond, Victoria.

measures may be needed to supplement general social policy. Continuing research also is needed to identify areas of special need and to gain a better understanding of the restorative strategies that may be available (p.15).

The above statement was made in full awareness of research findings that stress the influence of structural macroeconomic factors in creating concentrations of poverty (Atkinson and Kintrea, 2001). Social problems, such as family breakdown, can flow directly from unemployment. Positive changes in the economy can also impact positively on poor areas with many residents benefiting from the upswing. However, as the title of this report implies, even in times of relative prosperity the individuals and families of some neighbourhoods can continue to miss out or 'drop off the edge', with consequences for their wellbeing and particularly that of their children. As Atkinson and Kintrea (2001) also report, there are associations between poor neighbourhoods and other social problems that are more than the consequences of macroeconomic forces and household characteristics. The researchers comment: 'The larger and longer-running an area's problems, the stronger the cumulative impact becomes, causing a drain on services with resultant lower-quality 'outputs', such as educational performance or health care.'

In *Community Adversity and Resilience* considerable attention was given to the role of local social environments in creating and sustaining disadvantage. Research tracing the impact of community level characteristics like the confidence and will to work at local problems – called *collective efficacy* - was outlined. So, on this occasion it has been decided not to repeat the coverage of that material and with just two exceptions this report will concentrate on indicators of social disadvantage derived from the numbers of individuals in specified localities manifesting signs of disadvantage.² The major exception is the examination in Chapter 6 of the impact of variations in an environmental condition: *social cohesion*, upon the life outcomes for people affected by disadvantageous conditions. The other exception is the inclusion on this occasion of a social indicator: *dependency ratio*, that characterises in a summary way an overall economic feature of the local population.

The present study covering all Australian states and territories is based on indicators or 'signposts' which, taken in combination, help to identify areas of concentrated disadvantage. To avoid confusion it needs to be emphasised that the primary purpose is not to reveal causal patterns but rather, by overlaying the spatial distributions of varied but conceptually related characteristics, bring into focus areas of concentrated disadvantage. The

² Of course, the number of instances of a problem needs to be related to the size of the sub-population that can be affected by it. The way of dealing with this issue is discussed in later chapters.

choice of indicators for this purpose cannot be random: the indicators need to be conceptually related in two senses. First, it needs to have been demonstrated that they are linked to social disadvantage. Chapter 2 presents such a rationale for the substantial array of indicators employed in the study.

The second sense in which indicators need to be conceptually related is that they are consistent with respect to their theoretical assumptions. For example, the Australian Bureau of Statistics' *Index of Relative Socio-Economic Disadvantage* (2001) is derived from some attributes that overlap with those used in the present approach, including low income, low educational attainment, high unemployment, and jobs in relatively unskilled occupations. However the ABS index also includes, in its own words, 'variables that reflect disadvantage rather than measure specific aspects of disadvantage, for example, Indigenous and separated / divorced [variables]'. The assessment of disadvantage employed in the two preceding studies in this series, and in the present one, is conceptually distinct from that of the ABS index. The variables that have been used are manifestations of disadvantage entailing a minimum of theoretical supposition, for example, about the disadvantageous consequences of people belonging to particular social / cultural groups or having a particular marital / family status. In addition to ABS variables that meet the 'manifestation of disadvantage' criterion, others garnered from government departments and agencies include confirmed child maltreatment, prison admissions, criminal court convictions, domestic / family violence, psychiatric hospital admissions and psychiatric patients treated in the community.

At the margin of the distinction between variables that measure *specific aspects* of disadvantage and those that *reflect* disadvantage are deprivations that arise out of what David Donnison (1969) described as a situation of disadvantage and which compound that situation's ill-effects. For the first time we have chosen to include two variables that are of this general nature, namely, the use of computers and access to the internet. The operational definitions given to these and the other variables used are described in Chapter 2. Suffice it to say in this brief overview that we have increased the number of indicators used in the 1999 and 2004 studies of Victoria and New South Wales from 10 and 13 respectively to between 20 and 25 in the current study of eight jurisdictions. This increase reflects newly available or newly located data and has not been achieved by simply augmenting the range of variables employed by including available census information. Our actions in this regard are consistent with the belief of two prominent researchers in the field that merely adding census variables to indexes entails conceptual confusion (Carstairs and Morris, 1991). Instead they recommend extracting some of the wealth of relevant information that lies hidden within government departments and that is precisely what has been attempted in the present instance.

Because of the breadth of the present study and the varied experience of Australian governments in collecting and actually making use of social data, it was to be expected that some jurisdictions would be able to cooperate more fully than others in meeting our data requirements. Many studies in this field are conducted at the Local Government Area (LGA) level and there is a problem of the populations within these areas being so heterogeneous as to dilute the concentrations of disadvantage in sub-locations. Ideally the information provided by the authorities should be expressed in terms of geographic units small enough to accurately capture the social character of different localities. It cannot be assumed that every resident of a deprived area is deprived but the use of small spatial areas increases the accuracy of the picture conveyed. However, even with the high level of cooperation that the project has generally received from the authorities, the kind of information that we have sought could not always be rendered in the precise form requested. In addition to that limitation we encountered variable boundaries used for reporting purposes by authorities within some jurisdictions.

The practical solution adopted in previous work has been to use postcode areas as the principal level of analysis and that approach has been adopted here for New South Wales, Victoria and the Australian Capital Territory. In Queensland and South Australia ABS conversion methods have been used to recast the data in a consistent form, a moderately sized basic counting unit called Statistical Local Areas (SLAs) which are discussed in Chapter 3. In Tasmania and Western Australia it has been necessary to work within the framework of LGAs. In the Northern Territory the limited data available and the way in which it has been compiled have resulted in what, at best, could only be described as an initial picture of the distribution of social disadvantage across seven standard reporting regions.

Throughout the report reference is made to comparative rates of occurrence of different indicators like child maltreatment and unemployment. This approach is our way of getting around the problem that the sheer number of times an indicator of disadvantage occurs may, as much as anything, reflect the number of people in the local population exposed to that hazard. Therefore we have been obliged to take into account the relevant population base (for example, the number of children in the area under fifteen years of age, or the number of people in the workforce) before calculating comparative rates of, say, confirmed child maltreatment or unemployment.

What, then, are the outcomes that can be expected of the present study? These outcomes will unfold in detail in Chapters 3, 4, 5 and 6 but in general terms they are intended to:

- *provide a first picture of where disadvantage is concentrated* – by means of simple counts of the number of times localities within each state or territory rated highly on the indicators;
- *present a snapshot of what attributes dispose an area to be highly disadvantaged* – by developing profiles of the highly disadvantaged areas and noting the indicators that appear to be recurring features of markedly depressed localities;
- *look beneath the surface for patterns of connectedness between the indicators* – using correlation analysis to illuminate the ways in which different strands of disadvantage are woven into a web that constrains the life opportunities of residents;
- *use information about what the indicators share in common to devise a single social disadvantage score for each locality within each jurisdiction* – using a technique called Principal Components Analysis that enables the localities to be ranked from the most to the least disadvantaged;
- *combine the rank orders within the states and territories to identify highly disadvantaged localities warranting national as well as state and territory attention;* and
- *examine the effect of a 'communal' environment on the consequences of generally harmful local conditions* – by comparing outcomes across a range of localities that vary with respect to their degree of 'social cohesion'.

2

Choice of indicators

The following table shows the range of indicators employed in the present study. The list of variables, while comprehensive and often accessed with great difficulty, was even longer at the outset of the project. Not all of the listed variables were available in each of the eight jurisdictions considered, but they were sufficiently commonly available to warrant an explanation at

TABLE 2-1: Overview of indicators used

<p>1. Social distress Low family income Rental stress Home purchase stress Lone person households</p> <p>2. Health Low birth-weight Childhood injuries Deficient immunisation Disability / sickness support Mortality (life expectancy) Mental health patients treated in hospitals / the community Suicide</p> <p>3. Community safety Confirmed child maltreatment* Criminal convictions Prison admissions Domestic violence</p>	<p>4. Economic Unskilled workers Unemployment Long-term unemployment Dependency ratio Low mean taxable income Computer use / access to internet</p> <p>5. Education Non-attendance at preschool Incomplete education (17-24 year olds) Early school leaving of local population Post-schooling qualifications</p> <p>6. Community engagement Membership of local groups Membership of groups that tackle local problems Local volunteering Help from neighbours when needed Feel safe after dark Trust people Attendance at local community events Feel valued by society</p>
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* Signifies item for inclusion in correlational and other general analyses but specific postcode results not published. Postcode scores below 6 on any variable given the same standard (low) rank score.

this stage of the reasons for their inclusion in a study of the geographic distribution of disadvantage throughout Australia. That explanation is provided in this chapter.

A General perspective

Consideration of the separate indicators listed in Table 2-1 needs to be prefaced by mention of the more generally illuminating perspective on social disadvantage provided by the World Health Organisation's concept of the socio-economic gradient. WHO's authoritative 1998 publication *Social Determinants of Health* summarises the evidence for the influence of social factors in the following way. Poor social and economic circumstances affect health throughout life. People further down the social ladder usually run at least twice the risk of serious illness and premature death of those near the top. Disadvantages tend to concentrate among the same people and their effects on health are cumulative. Reviewing the continuing evidence of this relationship, Macdonald (2005) states that the 'clustering and accumulation of psycho-social disadvantage is perhaps the most powerful determinant of health status'. Not only is this conclusion derived from studies in a variety of cultures but also the insights extend to non-human primates who exhibit a similar social gradient with corresponding risks of deteriorated health (Marmot, 2003). Social determinants of health are relevant to communicable and non-communicable disease alike. A telling example of health inequalities within countries is the twenty year gap in life expectancy between Australian Aboriginal and Torres Strait Islander peoples and the Australian average (Marmot, 2005).

Since WHO published *Social Determinants of Health*, the longer-term consequences of early life disadvantage have continued to be researched and documented. The consequences of early life disadvantage continue to be of strong interest for researchers. Hertzman, 1999 (cited in Bradley and Corwyn, 2002) describes this process as the 'biological embedding' of early experience, a concept that includes the effects of early biological damage and differences in the quality of early environments. There is recent evidence that neighbourhood of residence is associated with health prior to birth. Vrijheid, Dolk, Stone, Abramsky, Alberman and Scott (2000) have found that the risk of non-chromosomal anomalies increases according to the socio-economic rating of different areas. Research on early life disadvantage is particularly important as it points to opportunities for early intervention and preventative social policy initiatives.

A team of researchers who have examined the life course accumulation of disadvantages has made another recent contribution to the tracing of continuous health difficulties in life. Holland, Berney, Blane, Davey-Smith, Gunnell and Montgomery (2000) have studied the association between physical and social disadvantage during childhood and lifetime exposure to

health-damaging environments within and outside of people's homes. Childhood height and the presence or absence of signs and diagnoses of chronic disease were chosen as indicators of childhood health. The hazards considered varied from residential dampness to air pollutants and occupational fumes and dust. For both males and females age-adjusted height during childhood was found to predict total lifetime exposure to combined hazards. This association was most pronounced among males from manual class backgrounds and the authors conclude that 'a series or a chain of problems was experienced because one precipitated another' (pp. 1293-94). The accumulative nature of childhood disadvantages has been revealed in another very recent study of child health (Bauman, Silver and Stein, 2006). The findings of this research support the view that social structural factors have a cumulative effect on child health status. 'Poverty, low parental education and single parent family structure are not simply proxies for a single underlying disadvantage but have additive effects on the life chances of children.' (Bauman et al., 2006)

While there has been a particular research emphasis on the interplay of social and biological factors in affecting health, the web of different strands of disadvantage that can limit life opportunities generally has also attracted attention. Two earlier publications in the present series: *Unequal In Life* (1999) and *Community Adversity and Resilience* (2004), have attempted to chart the vulnerability of Victorian and New South Wales neighbourhoods to social ills using a range of indicators. Some data has been derived from sources like the national census but considerable trouble has been taken to systematically secure additional information about important aspects of social disadvantage (like child maltreatment and psychiatric illness) from human service agencies.

A somewhat similar project but with a particular focus on the wellbeing of children has recently been undertaken within Australia by the National Centre for Social and Economic Modelling (NATSEM). The Centre's recently published report: 'Poverty and disadvantage among Australian children: a spatial perspective' (Harding, McNamara, Tanton, Daly and Yap, 2006), aimed to increase knowledge about child disadvantage and the geographical distribution of this disadvantage 'by developing a single, child-based indicator of social exclusion risk available at a small area level'. Data from the Australian 2001 *Census of Population and Housing* disaggregated to Statistical Local Areas (SLAs) was employed for this purpose and the absence from this source of data pertaining to some aspects of social exclusion duly acknowledged. The main analytic procedure used: *Principal Components Analysis*, is the same as that used in the present series to identify a first principal component that 'explains the largest amount of the variation in the original variables' and can be used to summarise the original set of variables into a single indicator of child social exclusion. The findings show that areas

with high child social exclusion are much more likely to be rural than urban. Relatively small proportions of children in state capital cities were found to be at high risk of social exclusion although spatial differences were present. For example, the western and south-western areas of Sydney have elevated rates of child social exclusion. Similarly, some southern and western suburbs of Melbourne have a relatively high risk of exclusion. Substantial gaps were found between states and territories in terms of the percentage of children at risk of social exclusion. These comparisons emphasised the greater risk for children in Tasmania and Queensland and the lesser risk facing children in the ACT and Victoria.

Categories of indicators

1. Social distress

Low family income

Rental / home purchase stress

Lone person households

Low family income

Family income is a central factor in shaping individual and family life opportunities. It can be the consequence of factors like limited education, limited skills and poor health, and serve to amplify individual and communal problems like mental illness, crime and child maltreatment.

Family income is interwoven with the influence of other forms of disadvantage represented by the range of indicators included in the present study. A contentious issue is whether it is the absolute material standard of living within an area that is the important ingredient for health and wellbeing or is it inequality per se that is bad for the health of an area or nation? There is considerable evidence supporting the latter of these two views with perhaps the best known proponent of the relative inequality position: R. G. Wilkinson (1998, 2000), arguing that the evidence strongly suggests that the health effects of income distribution 'involve comparative social cognitive processes, rather than the direct effects of material standards' (Wilkinson, 1998). One of Wilkinson's collaborators (Marmot, 2003) argues that the meaning of a particular socio-economic position will depend on the society and the social environment in which an individual is located: 'Being a low status clerical assistant will have a different meaning in a society where the state provides high levels of health and social services, amenities, and education than in a society where these are available patchily and to a higher level for those with the ability to pay.' (Marmot, 2003)

A family income of less than \$600 per week attracts some forms of

governmental assistance and is often used as an indicator of relatively low income, as is the case in the present study.

Rental / home purchase stress

Housing is viewed in most western societies as a basic material need and homelessness symbolic of exclusion and disadvantage. Fels (2004) recently pointed to the impacts on wellbeing when households are suffering housing stress including poor health, lower school performance, higher crime rates and unemployment. While there has been much comment about the inflation of house prices, Fels contends that: 'far more serious housing affordability problems are being experienced by low-income households that rent their residences. Many Australians spend such a high proportion of their income on rent that they are left without sufficient funds to meet other basic needs such as food, clothing, transport, medical care and education.' (Fels, 2004)

In practice and policy terms, people allocating 30% or more of income to meet housing needs are viewed as experiencing 'housing stress'. This definition, despite some criticisms (see for example Harding, Phillips and Kelly, 2004), has been adopted in the present project. While this benchmark has its practical and policy uses, research by Burke and Ralston (2004) shows that it may underestimate the real extent of housing stress in Australia. Taking into account the capacity of people to pay their rent once they have met reasonable costs of living suggests that low income households may be living in housing stress even when the benchmark suggests otherwise. Sizeable numbers of low income public and private tenants living below the described benchmark report experiencing 'missing out' on leisure, new clothing, holidays and socialising, as well as 'cash flow' problems and hardship in the forms of going without meals, inability to heat homes and needing to sell possessions to make ends meet.

Lone person households

Social isolation is a potent risk factor for illness and mortality, with its major influence being experienced among elderly people, poor people and members of ethnic minority groups (Cacioppo and Hawkley, 2003). In some studies the perception of being socially connected has been more strongly associated with protective physical states (for example, lower blood pressure and lower levels of stress hormones) than objective social connectedness or support. Sophisticated studies of how the social world interacts with the physical have revolved around ratings on the key statement: 'I feel lonely'. People who feel socially isolated are characterised by high levels of anxiety, dejection, hostility, fear of negative evaluation, and by lower levels of optimism and life satisfaction. While the association between social isolation (perceived and objective) and health is established, the research findings

indicate that 'the social world does not get under the skin through any one means but through a variety of general means which, combined with physiological or behavioural vulnerabilities, manifest as a wide array of disorders across individuals' (Cacioppo and Hawkley, 2003).

According to a study commissioned from the UK Future Foundation, Bridget Jones' single existence is now the dominant pattern in the UK, with families as an *alternative* lifestyle. In that country single-person households have overtaken families as the most common living arrangement (Cosh, 2002). In Australia, the 2006 census is expected to confirm that the number of people living on their own will form the dominant household type; it is predicted that about thirty percent of the population will be living alone (Jokic, 2001). While living as a single is increasingly a matter of choice for some young people, individuals live alone for many reasons. They may have never lived with a partner, or be divorced, separated, or widowed. Widows make up the bulk of the group but their proportion is declining, making way for divorcees over 45 and people in their 30s and 40s who have never partnered or don't plan on having children.

2. Health

Low birth-weight
Childhood injuries
Deficient immunisation
Disability / sickness
Mortality (life expectancy)
Mental health patients treated in hospitals / the community
Suicide

Individual physical, mental and social wellbeing shapes life opportunities and experiences in a range of ways. For some this may result in premature death or suicide, whilst for others it may severely curtail their education, employment and social opportunities.

Self-reported health (self-rated, self-assessed or self-perceived health), has been much studied in recent times. The advantages of the approach include the integrated nature of the assessment, the fact that it incorporates the physical, mental and social dimensions of health and demonstrated associations between the ratings and more objective measures of morbidity (Kaplan, Goldberg and Everson, 1996; Niedhammer and Chea, July, 2003). A recently reported large-scale study in France (Niedhammer and Chea, April, 2003) explored the structure and function of workers' environments upon self-reported health. The researchers found that a lack of social support and

dissatisfaction with social relations were predictive of poor health status but weak social networks were not. A more subtle aspect of the findings was that, at least in France, the negative effect of low social support was strongest among men who held high occupational status while for women the effect was strongest for those in high and low occupational groups.

Studies have shown an association between social status assessed at an area level and self-reported health. Illustrative projects of this kind were given substantial coverage in earlier publications in this series, particularly in the section 'Do Neighbourhoods have Independent Effects?' in Chapter 2 of *Community Adversity and Resilience* (2004). The evidence for this association continues to build; recent research by Adams, Ryan and White (2005) showing that what are known as Townsend Deprivation Scores for UK census units (*Enumeration Districts*) are predictive of self-reported health (as are individual measures of deprivation). Another recent major analysis based on results of the Health Survey for England started from the point that there are consistent socio-economic gradients of the kind described at the opening of this chapter that apply to both morbidity as well as mortality. The study by Asthana, Gibson, Moon, Brigham and Dicker (2004) aimed to assess the relative role of age, gender and social class as factors underpinning these gradients. Socio-economic status (SES) in this study was determined by the occupation of the 'head of household', an approach historically used in UK studies of class-based health inequalities. While revealing a degree of 'light and shade' on this topic, the findings were consistent with a large number of studies that have repeatedly demonstrated that 'profound social gradients exist in disease prevalence' (Asthana *et al.*, 2004). However, the impact of class on morbidity is weakest in younger age groups. The social gradient appears less marked for women and, not surprisingly, older people suffer poorer health and the stronger association with age confounds the association with class. Moreover, the relationship between SES and health does not necessarily travel in one uniform direction. Health status can affect SES although the causal path from SES to health is stronger than the reverse (Mulatu and Schooler, 2002). More than a third of the overall SES-health relationship appears to be accounted for by health-related lifestyles/behaviours and psycho-social distress.

Low birth-weight

Low birth-weight, defined in the present study as birth-weight below 2.5 kilograms, is a strong risk factor for infant mortality and varies by social class. After controlling for social and economic factors, low birth-weight has an independent negative effect on child health outcomes. This effect worsens as birth-weight decreases. A number of studies have indicated links between low birth-weight and reduced school performance, psychomotor development and emotional wellbeing, and conduct disorders in children and adolescents

(Cheung, 2002). On the side of physical development, there appear to be added risks for defective pulmonary function, physical growth and neurological outcome (Gissler, Jarvelin, Louhiala, Rahkonen and Hemminki, 1999).

Risk factors for low birth-weight include adolescent births, multiple births, cigarette smoking, violence, alcohol consumption and drug use, poor nutrition, under-use of antenatal services and poor social support (NSW Health, 2002). A decline in social status, the level of parental education (especially that of mothers), living in economically deprived areas, diminished support networks, the timing of pre-natal care and community unemployment rates are among the factors implicated in the occurrence of low weight babies.

Studies that have focused on community level social phenomena show the contribution of a cluster of variables subsumed by the term *economic hardship* to the occurrence of low birth-weight deliveries. Low *per capita* incomes, unemployment, indicators of social class generally, environmental stressors and poor housing conditions are among the predisposing factors (Roberts, 1997; O'Campo, 1997). Across Australia an Aboriginal woman is twice as likely to have a low birth-weight baby compared to a non-Aboriginal woman (ABS, 2000). This pattern reflects the broader social and economic disadvantages faced by Aboriginal and Torres Strait Islander people.

Childhood injuries

It has been calculated that each year in Australia 1,500 deaths of children aged 0–14 years can be attributed to socio-economic disadvantage. In addition, many thousands of children's life opportunities are affected by childhood injuries.

Research has regularly shown that injuries to children are not spread evenly over all social groups. In Aboriginal and Torres Strait Islander children, average death rates remain 2.5 times those in non-Indigenous children (Zwi and Henry, 2005). Hospital accident department studies show that more frequent and more severe injuries occur among the families of unskilled workers. Children from low socio-economic groups are more likely to suffer injury from particular causes including house fire or assault, which more often have fatal results than other causes of injury (Australian Institute of Health and Welfare, 2005). Increased levels of maternal education and increased maternal age are also associated with decreased risk of serious accidents involving children (Alwash and McCarthy, 1988). Localities characterised by low-income households, single parent families, low education and unemployment have higher rates of childhood accidents with low income being of particular significance. A recent Scottish review (Scottish Executive Central Research Unit, 2000) indicates that the incidence of traffic injury in deprived urban areas is greater than in more prosperous areas. Social class was found to correlate highly with mortality for

all ages by all causes of death with child pedestrian death rates correlating closely with all causes of child deaths.

Deficient immunisation

Preventable diseases (such as measles, polio, and diphtheria) adversely affect children's life opportunities through disruption of schooling and potential long-term health difficulties.

In 2001 the National Centre for Immunisation Research and Surveillance reported that immunisation coverage in Australia for all scheduled vaccines was approximately 94% by 12 months, and 90% by 24 months of age (NCIRS, 2001). Low coverage reported in inner urban areas of the capital cities seems to reflect under-reporting to the Australian Childhood Immunisation Register but coverage estimates in some rural and other non-capital city metropolitan areas appear to be a truer reflection of low immunisation uptake in those areas. Linking immunisation to the Maternity Allowance and Child Care Benefit has encouraged both uptake and timeliness of immunisation. However, children in larger, lower income families are less likely to be age-appropriately immunised (NCIRS, 2001, p. ix). In the UK the areas with the lowest measles-mumps-rubella immunisation coverage also tend to be the inner cities, particularly those exhibiting high levels of deprivation (Wright and Polack, 2005). In industrialised countries lower vaccination uptake is associated with younger parents, single mothers, larger families and lower socio-economic status.

For the purposes of the present study, deficient immunisation has been calculated on the basis of the proportion of 12 month olds in an area not covered for all scheduled vaccines.

Disability / sickness support

There is a threefold linkage between disability and socio-economic disadvantage. First, there is frequently pre-existing disadvantage among people who become disabled – referred to as a 'selection effect'. In addition, there is the impact of disability onset itself, and the consequences of remaining disabled. Employment rates fall with disability onset and continue to decline the longer a disability episode lasts (Jenkins and Rigg, 2004).

To be eligible for sickness and disability support, people have to manifest either short-term or enduring incapacity to a degree that warrants financial assistance. Eligibility for assistance takes account of an applicant's assets and income. High rates of these benefits reflect a combination of economic stress and the social influences that are associated with illness, justifying the use of a combination of the two forms of benefit as an additional indicator of disadvantage.

Life expectancy

Variations in life expectancy within and between countries are one manifestation of the health inequalities described in the introduction to this review. There is also variability in mortality rates across time, British studies having shown that absolute mortality has been falling at the same time that inequalities in mortality have increased (Acheson, 1998). Furthermore, there is a strong association between mortality and income *inequalities*, both between geographical areas within countries and between countries (Cass, Cunningham, Wang and Hoy, 2001, Davey-Smith, Hart and Watt, 1998). People living in countries with greater income inequality have a shorter life expectancy (Wilkinson, 1992).

Unequal In Life (1999) reported some partial findings in respect of mortality rates using a synthetic indicator. On this occasion standardised mortality rates for all postcode areas have been calculated, taking into account the age differences between the areas. Essentially the indicator measures the difference between the number of deaths in each locality and what would be expected on the basis of state-wide rates, given the age profile of the locality.

Mental health patients treated in hospitals / the community

Psychological distress and treatment (whether in a hospital setting or otherwise) may have adverse consequences such as unemployment, cessation of education, poverty and homelessness (Aneshensel and Sucoff, 1996).

An association between admissions to hospital for mental illness and socio-economic status has been acknowledged for more than fifty years. The classical study of Faris and Dunham (1939) has recently been updated with respect to the independent effect of place of residence on mental wellbeing (Silver, Mulvey and Swanson, 2002). The most common explanation for socio-economic disparities in mental health is in terms of individuals in lower socio-economic groups being more likely to experience both acute and chronic stressful events and lacking material and psychological coping resources (Almeida, Neupert, Banks and Serido, 2005).

A study of social factors associated with illness status conducted in an Australian community revealed that twenty four percent of adults were psychiatrically impaired. Life event stress, adverse childhood experience and poor social support were related to psychiatric illness (Andrews, Tennant, Hewson and Schonell, 1978). While the inverse relationship between socio-economic background and mental illness has been attested to by a great variety of studies of different designs, the contemporary interest resides more in trying to understand the dynamics involved in the relationship. A recent study of Massachusetts (Hudson, 2005) showed that the correlation of socio-

economic standing (measured in a variety of ways) and mental illness is a non-linear one, mostly affecting middle and low-income groups. The results have been interpreted as showing that the effects of SES are through adverse economic conditions (such as poverty, unemployment, and housing unaffordability) that most dramatically affect those low on the SES scale.

Another aspect of mental health currently receiving attention is whether the endurance of higher levels of psychopathology within lower socio-economic groups reflects a single set of people who have chronic psychopathology or changing sets of people who have psychopathology of short duration. Miech, Eaton and Brennan (2005) have used two psychological assessments thirteen years apart and found that, when education is used as the index of class position, the connection between SES and mental illness is due primarily to a single set of respondents with chronic psychopathology.

It is sometimes assumed that early motherhood leads to psychological distress, welfare dependence and socio-economic disadvantage. An Australian study employing sophisticated statistical methods shows that when pre-existing disadvantages are controlled for, the additional deficits experienced by early mothers are relatively minor (Lee and Gramotnev, 2006). Social disadvantage predisposes women to become mothers early and to adopt unhealthy behaviours but early motherhood does not instigate these consequences.

In this project psychiatric hospital admissions and mental health patients treated in the community have been calculated as a rate per 1,000 of the population over eighteen years of age in a locality.

Suicide

Australia continues to have one of the highest rates of suicide in the western world, giving rise to grave political and community concern.

Following Emile Durkheim's (1897) classical studies of suicide, sociologists have argued that, while appearing to be a highly personal act, suicidal behaviour is subject to group-level processes (Stack and Gundlach, 1994). The unemployed are, according to Durkheim, more likely to be socially isolated, and it may be hypothesised that suicide is more common amongst this group. Indeed a number of contemporary studies indicate that suicide is more frequent among people who are unemployed. Agerbo's (2003) commentary on the present state of knowledge of the connection between suicide and unemployment suggests that mental illness may be a mediating factor, but there are possible confounding influences that have yet to be adequately tested. Arguing from Australian unemployment figures of the 1990s, Maley (1994) believed that at the aggregate level the evidence strongly supports the hypothesis that unemployment is significant as a predisposing factor for

increasing the risk of suicide, especially in males in the 20-24 years age group.

A wide range of variables appears to be implicated in the occurrence of suicide in middle and later life. The Australian Institute for Suicide Research and Prevention's summary of these variables includes several of the indicators used in the present study (De Leo, Hickey, Neulinger and Cantor, 2001). Living alone in middle adulthood has been associated with a higher risk of suicide among women. Living alone is not necessarily synonymous with social isolation and the actual evidence of an association between living alone and suicide among elderly people is not clear. Losses of various kinds (declining health, financial difficulties, bereavement, marital breakdown), are among the risk factors for suicidal behaviour. So, too, is psychiatric morbidity, particularly mood disorders.

At the other end of the age spectrum, Wilson's (1987, 1996) 'deindustrialisation' thesis relates youth suicide to more general forms of disadvantage arising from changes in social structure. The theory has its roots in the altered socio-economic structure of American inner cities but would appear to have implications for our understanding of changes in Australian cities. Decline in manufacturing work and its replacement with less stable and poorly compensated service sector employment have led to racially segregated communities characterised by acute poverty, joblessness and a sense of alienation from mainstream society (Kubrin, Wadsworth and DiPietro, 2006). The changes documented by Wilson have informed our understanding of trends with regard to several of the indicators canvassed in this chapter, especially the relationship between structural disadvantage and crime. However, suicide is part of the same picture. Kubrin *et al.* (2006) have researched the connections between the macro-social attributes in question and suicide among young African-American males. Their findings demonstrate that the structural characteristics influencing suicide among young black males are almost identical to those that influence suicide among young white males. Nevertheless, the process of deindustrialisation is especially detrimental to black communities because of their historical involvement in manufacturing industries and residential concentration in central cities.

The occurrence of suicide in the areas included in the present study is expressed as a rate per 1,000 of residents over eighteen years of age.

3. Community safety

Confirmed child maltreatment

Criminal convictions

Prison admissions

Domestic violence

Confirmed child maltreatment

Child maltreatment or abuse has been recognised as a significant social problem for the past three decades. Abuse experience in childhood can have grave short, medium and long-term consequences for individual life opportunities.

International and local studies of the distribution of confirmed instances of child abuse have revealed a tendency for such cases to be geographically clustered. A Sydney study highlighted the social detachment from their general neighbourhood of people living in areas with high rates of child abuse (Vinson, Baldry and Hargreaves, 1996, Vinson and Baldry, 1999). Using state-level panel data, Paxon and Waldfogel (2002) recently reported that socio-economic circumstances, including income and employment status, affect the incidence of child maltreatment. Increases in the fraction of children living below 75% of the poverty line are associated with higher rates of child maltreatment. Ernst's (2001) examination of the neighbourhood correlates of child maltreatment indicates that structural factors, including poverty and residential mobility, are related to high rates of child maltreatment. A typical pattern is for unemployment to be one element of a recurring constellation of social factors within low-income urban areas that includes crime, single parent households and mobility, as well as limited cohesion and support among neighbours (Roosa, Jones, Jenn-Yun and Cree, 2003).

Instances of confirmed maltreatment are expressed here as a rate per 1,000 of children and young people under 15 years of age living in the areas studied within each Australian jurisdiction.

Criminal convictions

Police and prison statistics indicate that the bulk of crimes are committed by people from low socio-economic background with limited formal education, suggesting some form of association between disadvantage and crime (Vinson and Homel, 1975, Hirschfield and Bowers, 1997).

There has been an increasing emphasis upon neighbourhood studies of crime rather than larger population groups. The general direction of the findings of this research is that a small proportion of offenders commit a large proportion of crime and that a small proportion of areas (and victims) suffer a large proportion of crime committed. Those charged with perpetrating

crime are more often found in a limited number of poorer socio-economic localities (Hope and Hough, 1998). Another recent development has been an observed relationship between income inequality and homicide, assault, and robbery, but not property crimes (Wilkinson, Kawachi and Kennedy, 1998).

Another study by Stretesky, Schuck and Hogan (2004) found an interaction between variables that measure city disadvantage (for example, poverty) and poverty clustering scores in accounting for variations in homicide rates: 'Specifically, disadvantage has a much stronger relationship to homicide in cities with high levels of poverty clustering.' This line of research is part of more recent, sophisticated studies of factors that mediate the relationship between socio-economic deprivation and crime. For example, a study in Christchurch (Fergusson, Swain-Campbell and Horwood, 2004) showed that childhood socio-economic disadvantage was associated with clear increases in rates of both self-reported crime and officially recorded convictions. However, a range of parental, individual, school and peer factors was identified as intervening between socio-economic disadvantage and crime, so that when these factors were controlled for, the association between socio-economic disadvantage and crime was reduced to a negligible level.

The levels of crime committed by residents in different parts of the Australian jurisdictions are compared in terms of the rate per 1,000 of people between eighteen and fifty years who are convicted during specified intervals. An overwhelming proportion of adult crime involves people in the specified age range.

Prison admissions

Imprisonment by its very nature disrupts individuals' life opportunities. It can reflect and help to sustain limited education, unemployment, poverty, homelessness and associated social difficulties.

A long established relationship exists between social disadvantage and high rates of imprisonment. The unskilled occupational background of the majority of prisoners and their poor level of formal education – two-thirds are functionally illiterate in NSW – testify to their markedly depressed economic and social backgrounds.

The present project affords the opportunity to examine the relationships between imprisonment rates within areas and a wide array of other indicators of disadvantage.

Domestic violence

The World Health Organisation has shown that domestic violence is known not only to have short-term adverse effects upon victims' life opportunities but also in some cases negative consequences for the long term (WHO, 2002). In addition to impacting upon physical and mental health, domestic

violence may have employment, education and social consequences.

Rather than disability affording protection from domestic violence, research evidence is accumulating that the reverse is the case. Disability introduces additional vulnerability for abuse in women's lives (Nosek, Foley, Hughes and Howland, 2001). Whilst there is considerable research on the individual factors that contribute to domestic violence (see for example McConahay and McConahay, 1977; Sugarman and Hotaling, 1989; Reitzel-Jaffe and Wolf, 2001), broader community or neighbourhood factors 'remain generally unexplored' (Naved and Lars, 2005). Despite the limited empirical data on broader community factors, economic disadvantage has been highlighted in studies of individual factors. Reviewing North American literature, Black, Schumacher, Smith and Heyman (1999) reported that physical violence is consistently linked to low income. From the 1980s onwards evidence has grown that 'although physical violence against wives cuts across all socio-economic groups, women living in poverty are disproportionately affected' (Naved and Lars, 2005).

A recent Queensland study mapped the incidence of reported domestic violence in Brisbane (Bartolo, 2001). The study used a measure of multiple disadvantages (*Index of Relative Socio-Economic Disadvantage*, ABS 2001) to provide a statistically significant prediction of reported domestic violence. It found that relatively worse-off families experienced a significantly higher incidence of reported domestic violence.

The present study relies on the quantification of available records within the different jurisdictions and the relevant indicator is the number of domestic/family violence orders issued as a rate per 1,000 of households with two or more residents in each locality.

4. Economic

Unskilled workers
Unemployment
Dependency ratio
Low mean taxable income
Computer use / access to internet

Unskilled workers

The least skilled in our community have become, in Heckman's (1997) words, 'detached from the modern economy'. Particularly affected are young people, elderly people, people with disabilities, unskilled workers, and members of ethnic minority groups.

Changes in the nature of work in recent decades have underpinned one of the most dramatic social transformations of recent times. By the middle of the twentieth century blue-collar workers comprised the majority of the working population in western industrial societies. By the commencement of the present century, notwithstanding the expansion of industrial production, the demand for unskilled labour has shrunk to the point where blue-collar workers account for something like an eighth of the workforce.

As Peter Drucker (1994) has pointed out, more and more people gain access to work, jobs and social position through formal education. Formal education can play a major role in the onset of unemployment. It has been found that individuals without formal educational or trade qualifications face at least double the risk of unemployment as a consequence (Buck and Gordon, 1987). A recent Swedish study of young unemployed people indicates a link between the degree of financial hardship, the health and social effects of unemployment and the number of experiences of shame. The young people with the most financial hardship and the largest number of shameful experiences had the poorest health, lacked confidence and did less in their free time (Rantakeisu, Starrin and Hagquist, 1999).

Recent Finnish research has examined the plight of unskilled young people in the competition for jobs and the results appear equally applicable to Australian society. The consequences of being unemployed can have 'run on' effects that progressively erode young people's adaptive capacities. As their resources and options become narrower, their ability to deal with other problems may be further eroded and their self-confidence suffers: 'Such young people become unwilling to test their competence and capacity for fear of losing self-confidence, and the gap between their self-image and actual abilities grows wider and wider.' (Johansson, 2003) In the absence of career planning and goal setting, these young people can more readily come under the influence of sub-cultures including crime and substance abuse and are in danger of becoming permanently excluded from society.

Unemployment

The World Health Organisation states that unemployment puts health at risk and unemployed people and their families suffer a substantial increased risk of premature death. Job uncertainty and the threat of job loss are related to increased psychological disorder, anxiety, depression, and harmful bodily effects. Fearing unemployment or passing in and out of the workforce can have a profound effect on wellbeing (Emanoil, 2000).

When joblessness becomes concentrated within particular neighbourhoods, an environment is created that isolates residents from the world of work and promotes a culture of dependency (Wilson, 1987). More recent research (O'Regan and Quigley, 1998) generally confirms Wilson's thesis.

Young people living in urban areas in which they have limited residential contact with the non-poor are less likely to be employed.

Dependency ratio

There is much discussion in Australia at present about the impending aging of the population. This trend is considered important because as the proportion of people engaged in the workforce decreases in relation to those who are not, there is increased strain upon the economically productive to support the upbringing and income support of the economically dependent. Australia's dependency ratio in 2001 was 50.3 percent, indicating that there were approximately two people of working age for every person that was either under 15 years or over 65 years of age. The national dependency ratio had been slightly higher in both 1991 and 1996 (50.9%).

The same consideration can apply at the local level and in the present study the dependency ratio is calculated as the ratio between the proportion of local residents engaged in the workforce to the proportion which is not. Around Australia the dependency ratio varied quite considerably from a low of 41.9 percent in the Australian Capital Territory to a high of 53.7 percent in Tasmania in 2001 (ABS 2003).

Access to computer / internet

The ability to use and access computers and the internet is today vital to schooling and education generally and participating effectively in the economy and many aspects of modern society.

In July 2006 the Australian Competition and Consumer Commission reported that around 54% of Australian households had access to the net, either at home or at work (Caslon Analytics, 2006). Those lacking such access, in the words of Smith Family researchers, amounted to the 'usual suspects' (McLaren and Zappala, 2002), described in the Caslon Analytics profile *The Digital Divides* as: 'those on low incomes, without tertiary education, living in rural/remote areas, of Aboriginal and Torres Strait Islander heritage, with disabilities, with a language background other than English, and aged over 55' (Caslon Analytics, 2006). The inclusion of 'access to a computer and the internet' in this set of social indicators is warranted because the lack of those opportunities adds to the burden of disadvantage besetting the aforementioned groups. As McLaren and Zappala (2002) commented: 'The existence of the digital divide is compounding disadvantage for some because having access to ICT is becoming so central to being able to fully participate in the economic, social, political and cultural spheres of society.'

In the present study the relevant indicator is based on home access to a computer and the internet.

5. Education

Non-attendance at preschool
Incomplete education (17-24 years)
Overall education of local population
Post-schooling qualifications

Research has generally indicated that the number of years of formal schooling is among the best predictors of good health (Stacey, 1998). People with higher levels of education also experience better mental health, including low levels of depression and psycho-physiological illness. The benefits of education appear to extend into later stages of life. Studies have also demonstrated that children who attend preschool are much more likely to complete their schooling (Karoly, Kilburn and Cannon 2005, Schweinhart 2005a, 2005b). However, the Australian Bureau of Statistics (2004) has shown that children's preschool participation tends to increase in line with increases in household income. The ABS (2004) has also found that a low level of parental education is associated with lower preschool participation.

Extended education is associated with the amount and quality of time parents spend with their children and the number and spacing of births. It is negatively associated with early family formation, child abuse and neglect and, with respect to maternal education, severe emotional disturbances in early adolescent children (Mason, Chapman and Scott, 1999). In the sphere of crime prevention, the socialising and supervisory aspects of education appear to play an important role (Stacey, 1998).

School departure is enmeshed with other dimensions of disadvantage, as has been illustrated by Carnahan (1994) who showed that it is possible to predict, with 80% accuracy, which students will drop out of school. The variables used for this purpose and of relevance to Australia included: low socio-economic status, urban environment, parent dropped out of school, parent incarcerated, belief that life events are externally determined (*external locus of control*), delinquency, disciplinary problems in school, truancy and pregnancy. An English study has explored the geography of high school exam performance and found that the strongest association is between lower performance and the proportion of unemployed lone-parent families, although social class and ethnic factors are also significant.

However, educational outcomes are not entirely determined by the presence of such factors. A recently evaluated program shows that school experience can be a positive force in overcoming the negative influences that may come from home and the community (Nowicki, Duke, Sisney, Stricker and Tyler, 2004). A study by Dunn, Chambers and Rabren (2004) has shown that there is a significant relationship between certain aspects of school programs and student outcomes. Factors that are predictive of whether a

student drops out of school include the perception of general preparation received during school for life after high school, identification of a helpful person in school, and identification of a helpful class while in school. If students think that school is not preparing them for their goals and that classes are not helpful, the holding power of school is diminished.

According to a University of Melbourne survey, girls who leave school early are three times more likely to end up working in part-time or casual jobs than boys. A third of boys go on to apprenticeships compared to less than 10% of girls. A study in South Australia reached similar findings and concluded that today there are very few unskilled career paths for girls. Many of the girls surveyed indicated that they were contemplating having children early (Allison, 2004). However, disengagement from school is not necessarily the same thing as disengagement from education and training generally. According to a study by the Australian Council for Educational Research, a goodly proportion of students who do not finish school leave for positive reasons, such as pursuing an apprenticeship or going to TAFE (Colman and Colman, 2003). Without diminishing the importance of early school leaving in generating later problems for the young people involved, it seems that dropouts in Australia are more likely to participate in post-school education and training and more likely to settle into productive employment than is the case with their US counterparts (Rumberger and Lamb, 2003). Hence the value of including an indicator that looks at what 17-24 year olds are undertaking in the way of education and training.

Earlier studies of the distribution of social disadvantage throughout Victoria and New South Wales employed an educational attainment indicator in the form of the proportion of postcode populations that left school before 15 years of age. That variable is repeated on this occasion. In addition, an indicator that reflects the educational and training backgrounds of young adults has been constructed on the basis of the number of young people between 17 and 24 years who have not completed high school and are not undergoing further education or training.

Overview

Table 2-1 which follows presents an overview of the indicators that were available for each jurisdiction. In addition to the indicators that are shown, in Chapter 6 we employ a number of what are termed *Community Engagement* indicators which attempt to capture the quality of the connections between people living in geographic units. Their description and application are best deferred until Chapter 6, following our examination of the relative disadvantage of localities throughout the Australian states and territories.

TABLE 2-2: Indicators available in each jurisdiction

VARIABLE	ACT	NSW	NT	QLD	SA	TAS	VIC	WA
Social Distress								
Low family income	✓	✓	✓	✓	✓	✓	✓	✓
Rental stress	✓	✓	✓	✓	✓	✓	✓	✓
Home purchase stress	✓	✓	✓	✓	✓	✓	✓	✓
Lone person households	✓	✓	✓		✓	✓	✓	✓
Health								
Low birth-weight	✓	✓	✓	✓	✓	✓	✓	
Childhood injuries		✓					✓	✓
Deficient immunisation	✓	✓		✓	✓	✓	✓	✓
Mortality (life expectancy)	✓	✓		✓	✓	✓	✓	✓
Disability / sickness support	✓	✓	✓	✓	✓	✓	✓	✓
Psychiatric hospital admissions		✓	✓	✓		✓	✓	✓
Psychiatric patients in community				✓	✓	✓		
Suicide	✓		✓	✓		✓		
Community Safety								
Confirmed child maltreatment		✓		✓	✓		✓	
Criminal convictions	✓	✓		✓	✓	✓	✓	
Prison admissions	✓	✓	✓	✓	✓	✓	✓	✓
Domestic violence	✓	✓	✓	✓	✓		✓	
Economic								
Unskilled workers	✓	✓		✓	✓	✓	✓	✓
Unemployment	✓	✓	✓	✓	✓	✓	✓	✓
Long-term unemployment	✓	✓	✓	✓	✓	✓	✓	✓
Dependency ratio	✓	✓		✓	✓	✓	✓	✓
Low mean taxable income	✓	✓		✓		✓	✓	✓
Computer use	✓	✓		✓	✓	✓		✓
Internet access	✓	✓		✓	✓	✓	✓	✓
Education								
Non attendance at preschool	✓	✓	✓	✓	✓	✓	✓	✓
Incomplete education	✓	✓		✓	✓	✓	✓	✓
Early school leaving of local population	✓	✓		✓	✓	✓	✓	✓
Post-schooling qualifications	✓	✓		✓	✓	✓	✓	✓

3

Cumulative disadvantage

THIS CHAPTER HAS TWO main objectives: (i) to calculate by simple means the burden of disadvantage experienced by different localities within Australia's states and territories, and (ii) gain a preliminary understanding of the structure of geographically distributed social disadvantage, at least in the areas in which our first scan indicates that it is highly concentrated. Essentially, in this chapter we lay the foundations for later more sophisticated analyses and in the process we employ very simple methods. We apply between 20 and 25 indicators that we have available to each jurisdiction and identify a relatively small number of localities (postcode areas, Statistical Local Areas (SLAs) or Local Government Areas (LGAs), depending on circumstances) that are burdened by comparatively high scores on a range of indicators. We then look at what these areas have in common and construct a general profile of their characteristics. By spelling out some of the differentiating characteristics of these localities we gain one important perspective on cumulative social disadvantage. Later, in Chapter 5, we use more technical means to gain another perspective of wider application. In that chapter we combine the information provided by all of the variables at our disposal to calculate a weighted score for each and every location. This enables them to be ranked from the most to the least disadvantaged within each jurisdiction. While our focus is national, the Northern Territory remains somewhat apart because of the severe limitations of the data available for that jurisdiction.

A first step in this chapter is to identify localities with 'comparatively high scores' on the indicators. What constitutes a comparatively high score is basically a matter of judgement rather than observance of an established standard. The procedure adopted here is to rank the geographic units on each indicator assigning first position to the locality with the highest negative score (the highest proportion of early school leavers, the highest number of residents on sickness / disability payments and so forth). Then we count the number of times each area falls into the 'top group' of most disadvantaged places defined in general as approximately the top 5% (with minor variations depending on the number of localities involved in each jurisdiction). Thus we derive a first estimate of the relative disadvantage experienced by each locality. Coincidentally, this procedure also throws light on the extent to which

'high' (that is, negative) scores are concentrated in a comparatively small proportion of the areas studied and, in the cases of previously studied jurisdictions (Victoria and New South Wales), the extent to which these concentrations have remained stable over time.

Finally, in a somewhat 'clinical', observational way rather than via the more precise numerical results presented in Chapters 4 and 5, we begin in this chapter to discern patterns of core disadvantages that are characteristic of the most consistently high-ranking places within each of the eight Australian jurisdictions. While the present state or territory-based data does not permit direct comparisons to be made of the absolute degrees of disadvantage experienced by them, the patterns of interconnections between the indicators lend themselves to comparison.

Tasmania

The relatively small size of the Tasmanian population makes it a suitable starting point for illustrating the simple methods employed in this chapter. Moreover, the results serve to illustrate a degree of compactness to the geographic distribution of social disadvantage across the island state. However, the necessity in terms of the limited scale of population of using 29 Local Government Areas (LGAs) rather than smaller geographic units of analysis may, to some extent, have diluted the picture of 'concentration' that emerged. Notwithstanding that possibility, if 'top' positions are defined as the first five ranked positions on each of the 24 indicators available, a clear pattern is revealed. A little more than a third (35 %) of the available (5 x 24 = 120) top rank positions are filled by just three of the 29 LGAs (Break O'Day, Central Highlands and Derwent Valley).¹ Add one further LGA (Tasman) and the proportion of top 5 places accounted for by four of the 29 areas becomes 43.3%. From that point the inclusion of extra sites begins to have diminishing consequences, a result consistent with the 'concentration' assumptions underlying this entire project. Nevertheless, the addition of Brighton, George Town and Southern Midlands – a total of seven areas representing 24% of the total number of LGAs – accounts for two-thirds (65.8%) of the top 5 positions across all of the indicators used.

The identification of these seven areas of Tasmania (see Table 3-1) experiencing considerable cumulative social disadvantage marks the completion of our first task. We now report the results using an approach that will be followed in the other jurisdictions. To invite consideration of the special needs of disadvantaged localities while avoiding stigmatising publicity, they are listed alphabetically within two categories of relative severity of disadvantage.

¹ Listed alphabetically rather than in order of score attained, as is the case throughout this report.

TABLE 3-1: Tasmania's most disadvantaged localities (number of top 5 rankings)**Most disadvantaged**

Break O'Day
Central Highlands
Derwent Valley

Next most disadvantaged

Brighton
George Town
Southern Midlands
Tasman

Major characteristics

If these seven LGAs are areas of considerable cumulative social disadvantage, are there features of their indicator profiles that help to distinguish them from other sub-regions of Tasmania? This is a question that we will attempt to further illuminate with greater statistical precision in later chapters. Meanwhile, the data to hand reveals that the seven high-ranking LGAs displayed some characteristics more than others:

- all seven were in the top seven rank positions on disability / sickness support payments;
- six ranked equally highly on long-term unemployment;
- five occupied one of the top seven rank positions on limited computer use and internet access, and imprisonment; and
- four were similarly placed on mortality, low family income, criminal convictions, general unemployment and suicide.

These were the main distinguishing features of the profiles of the seven areas that displayed a high degree of cumulative disadvantage. These characteristics will be reconsidered when later in this chapter we will be in a position to make comparisons across Australian states and territories.

TABLE 3-2: Major characteristics of 7 of Tasmania's most disadvantaged LGAs

Disability / sickness support
Long-term unemployment
Limited computer use
No Internet access
Imprisonment
Mortality
Low family income
Criminal convictions
Unemployment
Suicide

Victoria

Data has been collected on 726 postcode areas of Victoria; that total reflecting an increase in the number of postcodes since the completion of previous studies in this series. The addition of new indicators (see Table 2-2, Chapter 2, page 21) and the increase in the number of postcodes necessitates caution when comparing the present results with those obtained in 1999 and 2004, particularly since the 'top 40' now more closely approximates the highest ranking 5% of postcodes on the indicators rather than the previously used 'top 30'. Accordingly, in Victoria a total of 1,000 'top 40' rank positions are analysed (25 indicators x 40 top ranked localities). The data continues to support the idea of a very considerable degree of concentration of the State's social disadvantage within a limited number of Victorian localities.

- 1.5% (11) of the postcode areas accounted for 13.7% of the top 40 positions, a ninefold over-representation.
- 6.2% (45) of the postcode areas accounted for 30.3% of the top 40 positions, an almost fivefold over-representation.
- 10.0% (72) of the postcode areas accounted for 41.6% of the top 40 positions, a fourfold over-representation.

There were 27 localities that appeared six or more times in the top 40 lists. They are presented below in alphabetical order:

TABLE 3-3: Victoria's most disadvantaged postcodes (top 40 rankings)

Top 30 2004	Postcode	Locality
		MOST DISADVANTAGED
✓	3531	Berriwillock , Boigbeat, Springfield
✓	3889	Cabbage Tree Creek , Bemm River, Club Terrace, Combienbar, Errinundra, Manorina
✓	3061	Campbellfield
✓	3520	Korong Vale , Knypanial
✓	3000	Melbourne
✓	3887	Nowa Nowa , Lake Tyers, Wairewa
✓	3595	Nyah West
✓	3965	Port Welshpool
✓	3835	Thorpdale
✓	3544	Ultima , Gowanford, Waitchie
		NEXT MOST DISADVANTAGED
	3022	Ardeer , Deer Park East
	3900	Benambra , Cobberas, Uplands
✓	3019	Braybrook , Braybrook North, Robinson
✓	3047	Broadmeadows , Dallas, Jacana
	3053	Carlton , Carlton South
	3460	Daylesford , Basalt
✓	3523	Heathcote , Argyle, Costerfield, Derrinal, Heathcote South, Knowsley, Moormbool West, Mount Camel, Redcastle
✓	3423	Jeparit , Lake Hindmarsh
✓	3580	Koondrook
✓	3515	Marong , Wilsons Hill
✓	3482	Massey , Morton Plains, Warmur, Watchem, Watchem West
✓	3964	Minyip
✓	3594	Nyah
	3223	Portalington , St Leonards
	3940	Rosebud West
✓	3701	Tallangatta Valley , Dartmouth, Eskdale, Fernvale, Granite Flat, Granya, Mitta Mitta, Shelley
✓	3712	Thornton , Bellbird Creek, Rubicon

It is also possible to assess the stability of the list of high-ranking localities by asking whether they appeared two or more times in the top 30 equivalent in 2004. A tick before the postcode number in the preceding table indicates that this was the case in 21/27 instances. Within the group designated *most disadvantaged* seven of the ten localities had earlier appeared four or more times. That still leaves the question of whether the six new postcodes (3022, 3053, 3223, 3460, 3900 and 3940) reflect a significant degree of rapid change in the status of some localities. In fact, another explanation is more plausible in at least five of the six cases. There have been boundary changes which seem to have had the effect of concentrating the degree of disadvantage within smaller areas. This is not true of the sixth case (3053 Carlton) whose elevation in the list of disadvantaged localities reflects another general possibility in this field. Introduce a wider range of indicators and there is the possibility that a postcode's standing can significantly change. That is what has happened with Carlton, accounting for the difference from its 2004 result. However, in 1999 Carlton had been placed within the first seventeen Victorian postcodes according to the number of times it occupied a top 30 ranking.

Major characteristics

Were there particular attributes that were characteristic of the localities experiencing cumulative disadvantage? To answer this question we have examined the profiles of the 27 Victorian postcode areas listed above:

- fourteen or fifteen of them were in the top 40 on (i) low family income, (ii) early school leaving, (iii) limited computer use and (iv) internet access;
- twelve or thirteen were in the top 40 on (i) unemployment and (ii) disability / sickness support; and
- ten or eleven were equally highly ranked on (i) domestic violence, (ii) child maltreatment, (iii) criminal convictions, (iv) rental stress and (v) lack of qualifications.

These eleven attributes (Table 3-4) appear to be central features of those Victorian communities burdened with cumulative disadvantage. That is not to imply that comparable areas in other large states will have identical profiles. Some overlaps are to be expected as well as some distinguishing features. For example, the rate of adult imprisonment in Victoria is considerably lower than in New South Wales and might therefore play a lesser role in defining areas of major disadvantage.² In fact, only three of the 27 high-ranking Victorian

² NSW is more than 1.5 times higher. Australian Bureau of Statistics (2004) 'Corrective Services Australia, September, 2004': <http://www.abs.gov.au/Ausstats/abs@.nsf/e8ae5488b598839cca25682000131612/2f6fee5bb6262d64ca256fd300777c04!OpenDocument>

postcode areas appeared in the top 40 list for admissions to prison. Other indicators that seemed less central in identifying highly disadvantaged areas in Victoria included admissions to psychiatric hospitals, long-term unemployment, low birth-weight babies, home purchase stress, mortality ratio, average taxable income and childhood injuries, all of which appeared in the top 40 rank positions five or fewer times. Occupying an in-between status – indicators that were part of the profile of the 27 areas between seven and nine times – were dependency ratio, Year 12 incomplete, lone person households, non-attendance at preschool and deficient immunisation rates. Inter-jurisdictional comparisons will follow at the end of this chapter but the profile of significantly disadvantaged communities in Victoria appears to be as follows:

TABLE 3-4: Major characteristics of 27 of Victoria's most disadvantaged postcode areas

Low family income
Early school leaving
Limited computer use
No Internet access
Unemployment
Disability / sickness support
Domestic violence
Child maltreatment
Criminal convictions
Rental stress
Lack of qualification
Slightly less important
Dependency ratio
Year 12 incomplete
Lone person households
Non-attendance at pre-school
Deficient immunisation

New South Wales

Data is available on 647 postcode areas of New South Wales for 25 indicators of social disadvantage (see Table 2-2, Chapter 2, page 21). The geographic spread of social disadvantage has been analysed by identifying the highest ranking 5% of postcodes on each indicator, effectively the 'top 40'. Accordingly, in NSW a total of 1,000 'top 40' rank positions are analysed (25 indicators x 40 top ranked localities).

The NSW data on markedly disadvantaged areas lends itself to an analysis parallel to that employed with the Victorian data. Starting with the question of the degree of concentration of the state's social disadvantage within a limited number of NSW localities, we find results somewhat similar to those in Victoria:

- 1.7% (11) of the 647 NSW postcode areas accounted for 12.5% of the top 40 positions, a more than sevenfold over-representation. (In Victoria: 1.5% in 13.7% top positions)
- 6.0% (39) of the NSW postcode areas accounted for 30.6% of top 40 positions, a fivefold over-representation (In Victoria: 6.2% in 30.3% top positions)

Both NSW and Victoria show a very considerable geographic concentration of cumulative disadvantage.

There were 36 NSW localities that appeared six or more times in the top 40 lists (the corresponding Victorian figure was 27). They are listed below (Table 3-5) in alphabetical order to avoid public focus upon just a few localities. All eleven of the postcodes included in the 'most disadvantaged' category on the basis of ten or more top 40 appearances had featured four or more times in the top 30 lists in 2004. Indeed, all but one of them (2831) had appeared two or more times in the top 30 rankings in 1999 when only nine social indicators were used. Six of the eleven most disadvantaged NSW areas – including the four that topped the rankings this time – had appeared six or more times in 1999. This degree of stability of disadvantage in the absence of highly purposeful and *sustained* interventions is a recurring theme throughout the present study. The stability over time evident in Victoria is also apparent in NSW.

Again it is possible to assess the stability of the entire 36 high-ranking localities by asking whether they appeared in the top 36 equivalent in 2004. A tick before the postcode number indicates that this was the case in 29 instances. Of the seven that had not, 2440 (Crescent Head), 2293 (Wickham) and 2717 (Dareton) appeared twice in the top 30 lists:

TABLE 3-5: NSW's most disadvantaged postcodes (top 40 rankings)

Top 36 2004	Postcode	Locality
		MOST DISADVANTAGED
✓ *	2831	Armatree , Byrock, Balladoran, Billeroy, Brenda, Bullagreen
✓	2409	Boggabilla
✓	2839	Brewarrina , Bogan, Gongolgon, Talawanta, Weilmoringle
✓	2427	Harrington , Crowdy head
✓	2466	Iluka , Woody Head, The Freshwater
✓	2807	Koorawatha
✓	2834	Lightning Ridge
✓	2879	Menindee , Copi Hollow
✓	2369	Tingha , Stannifer, Old Mill
✓	2306	Windale
✓	2836	Wilcannia , White Cliffs, Gemville
		NEXT MOST DISADVANTAGED
✓	2361	Ashford , Atholwood, Bonshaw, Limestone, Pindaroi
	2347	Barraba , Banoon, Caroda, Cobbadah, Gulf Creek, Gundamulda
✓ *	2469	Bonalbo , Beau Creek, Banyabba, Bingebeebra Creek, Boomoodeerie, Bottle Creek
✓	2449	Bowraville , Argents Hill, Buckra Bendinni, Girralong, Kennaic Creek, Killiekrankie
✓	2404	Bingara , Upper Bungara, Dinoga, Keera
	2726	Bundarbo , Jugiong
✓ *	2462	Calliope , Coldstream, Diggers Camp, Gilletts Ridge, Lake Hiawatha, Lavadia
✓	2846	Capertee , Glen Davis, Kangaroo Flat, Round Swamp
✓	2559	Claymore , Blairmount
✓	2833	Collarenebri
✓	2426	Cooperook , Langley Vale, Moto
	2440	Crescent Head , East Kempsey, Sth. Kempsey, West Kempsey, Aldavilla, Austral Eden, Bellbrook, Belmore River, Comara, Corangula, Euroka, Frederickton, Kinchela, Millbanik, Pola Creek, Turners Flat, Yarravel
✓	2717	Dareton
✓ *	2443	Diamond Head , Camden Head, Bobs Creek, Coralville, Deauville, Dicks Head
✓ *	2441	Grassy Head , Bril Bril, Bonville, Allgomera, Ballengarra, Barraganyatti, Brinerville, Cooperabung, Eungai, Fishermans Reach, Sturts Point, Rollands Plains, Yarrahapinni, Telegraph Point

table continues

Top 36 2004	Postcode	Locality
	2356	Gwabegar
✓	2848	Kandos , Brogans Creek, Charbon, Clandulla,
	2000	Sydney , Sydney South, The Rocks, Dawes Point, Haymarket, Millers Point
✓	2297	Tighes Hill
	2485	Tweed Heads
✓	2455	Urunga , Newry, Newry Island, Spicketts Creek, Wenonah Head
✓	2832	Walgett , Come By Chance, Angledool, Boorooma, Cryon, Cumborah
✓	2502	Warrawong , Lake Heights, Primbee, Cringila
✓	2017	Waterloo , Zetland
	2293	Wickham , Maryville

* 2831 was labelled Western Plains MSC in 2004; 2462 was labelled Ulmara; 2469 was Northern Rivers MSC; 2443 Diamond Head was Laurieton, 2441 was Mid North Coast.

Major characteristics

Were there particular attributes that distinguished the NSW localities experiencing cumulative disadvantage? Employing similar standards and methods to those used in analysing the Victorian results and applying them to the 36 NSW postcode areas listed above:

- 21 of them were in the top 40 on (i) early school leaving, and (ii) limited computer use. This matched the priority attached to these aspects of the profiles of markedly disadvantaged areas in Victoria but for the equal emphasis in that state on low family income (see next point);
- between 15 and 18 of the 29 NSW areas occupied top 40 rank positions on (i) low family income, (ii) limited internet access, (iii) criminal convictions and (iv) prison admissions; and
- between 10 and 14 areas occupied top 40 rank positions on (i) post-schooling qualifications, (ii) Year 12 incomplete, (iii) low mean taxable income, (iv) long-term unemployment, (v) unemployment, and (vi) child maltreatment.

Two notable differences from the Victorian profiles were the greater relative emphasis in that state on disability / sickness support, domestic violence and rental stress, and the greater significance of prison admissions in NSW.

TABLE 3-6: Major characteristics of 36 of NSW's most disadvantaged postcode areas

Early school leaving
 Limited computer use
 Low family income
 Limited internet access
 Criminal convictions
 Prison admissions
 Post-school qualifications
 Year 12 incomplete
 Low average tax income
 Long-term unemployment
 Unemployment
 Child maltreatment

Queensland

Compiling the data for our Queensland analysis has been a formidable challenge. The major difficulty has been converting the varied geographical frameworks used by different authorities and inconsistencies in their application into a common framework. In the latter regard Statistical Local Areas (SLAs) have been adopted as that framework using the appropriate ABS conversion tool (Australian Bureau of Statistics, 2002a). That has not completely overcome certain coding difficulties. Information is missing for Inner Brisbane on health indicators. This has necessitated the amalgamation of 'City Inner' and 'City Remainder' into a single category called City (Brisbane). In particular, there are gaps in the available data on Aboriginal communities and we have been obliged in those cases to incorporate the communities in question into larger adjacent aggregates. These problems are worth correcting in any circumstances but become more important as the authorities seek to integrate or 'join up' the functions of different departments and agencies in dealing with social problems. A reliable, consistent system of social indicators can be a spur and guide to such endeavours. Meanwhile, the current analysis based on 459 SLAs (ASGC, 2005) does provide useful beginning insights into the distribution and character of social disadvantage in Queensland.

In order to identify areas experiencing cumulative disadvantage we have focused on areas that appeared between six and eleven times in top 20 rank positions and this has yielded the list of 25 localities arranged alphabetically in Table 3-7. Twenty five indicators have been available for this exercise (see Table 2-2, Chapter 2, page 21). The method employed is a simple way of determining the most disadvantaged localities in the state, subject to confirmation using the more refined methods employed in Chapter 5 that take account of an area's position on *all* of the indicators:

TABLE 3-7: Queensland's most disadvantaged SLAs (top 20 rankings)

Most disadvantaged (8-11 times in top 20)
 Biggenden (S)
 Burke (S)
 Hervey Bay (C)
 Murgon (S)
 Mount Morgan (S)
 Spring Hill
 Wacol

Next most disadvantaged (6-7 times in top 20)
 Aurukun (S)
 Bendemere (S)
 Boulia (S)
 Carpentaria (S)
 City (Brisbane)
 Cook (S)
 Doomadgee (S)
 Eidsvold (S)
 Isisford (S)
 Kingston
 Kolan (S)
 Mornington (S)
 Paroo (S)
 Perry (S)
 Redland (S) Bal
 Torres (S)
 Wondai (S)
 Woodridge

Key: (S): shire; (C): council.

The most commonly recurring features of the above 25 SLAs, in terms of our set of indicators, are presented below. There is a distinct emphasis on the role played by educational and skills factors in identifying areas of marked disadvantage in Queensland.

TABLE 3-8: Major characteristics of 25 of Queensland's most disadvantaged Statistical Local Areas

Year 12 incomplete
 Early school leaving
 Limited computer use
 No internet access
 Post-school qualifications
 Unemployment
 Long-term unemployment
 Criminal convictions
 Imprisonment
 Average taxable income
 Disability / sickness support
 Child maltreatment

Slightly less important

Non-attendance at preschool
 Deficient work skills
 Low income families
 Suicide

South Australia

This section draws upon available data from 114 Statistical Local Areas (SLAs) and utilises 23 social indicators of disadvantage. The social data available for South Australia was either in the form of SLAs or existed in a form readily convertible to SLAs. The latter are general purpose spatial units which act as common denominators integrating other Australian statistical classification structures. In census years, an SLA consists of one or more whole census collector districts.³ For the purpose of examining the degree of concentration of different forms of social disadvantage within South Australia's 114 SLAs, we calculated the number of times each locality appeared in the 'top 12' listings of each of the 23 available indicators (Table 2-2, Chapter 2, page 21), creating 276 top ranking positions. This threshold, representing approximately 10% of the total number of SLAs, is a little more expansive than the criterion of 'high scoring' used to assess the other jurisdictions but should be pragmatically useful to the state's social planners. It helps to

³ Australian Bureau of Statistics, (2001) '1216.0 Australian Standard Geographical Classifications,' <http://www.abs.gov.au/Ausstats/abs@.nsf/66f306f503e529a5ca25697e0017661f4BF2827AC128BF62CA256AD4007F680C?opendocument>

identify a number of localities where relative disadvantage would have been overlooked had we, for example, concentrated only on the top 10 rank positions.⁴

The pattern of concentration of disadvantage was similar to that of the other states and territories:

- 2 localities (1.8% of SLAs) accounted for 10.3% of top 12 positions (over-representation: 5.7 times)
- 5 localities (4.4% of SLAs) accounted for 23.8% of top 12 positions (over-representation: 5.4 times)
- 7 localities (6.1% of SLAs) accounted for 31.0% of top 12 positions (over-representation: 5.1 times)
- 17 localities (14.0% of SLAs) accounted for 50.4% of top 12 positions (over-representation: 3.6 times)

The South Australian SLAs that most readily fit the category of cumulative disadvantage are those that appeared five or more times in the top 12 lists. There are fourteen of them (12.3% of the 114 SLAs). They are listed below in alphabetical order within two categories of severity of disadvantage:

TABLE 3-9: South Australia's most disadvantaged SLAs (top 12 rankings)**Most disadvantaged**

Ceduna (DC)
 Coober Pedy (DC)
 Onkaparinga (C) - North Coast
 Peterborough (DC)
 Playford (C) - Elizabeth
 Playford (C) - West Central
 Port Adelaide Enfield (C) – Port

Next most disadvantaged

Barunga West (DC)
 Onkaparinga (C) - Hackham
 Port Adelaide Enfield (C) - inner
 Port Augusta (C)
 Port Pirie C Dists (M) - City
 Whyalla (C)
 Yorke Peninsula (DC) - South

Key: (DC): district council; (C): council; (M): municipality.

⁴ It would not have affected the scores of the two areas that had the greatest number of appearances in the top 12 list.

Major characteristics

To what extent is this pattern of repeated high placement on the top 12 lists accompanied by a discernible set of core disadvantages? There were no top 12 indicators that appeared in the profiles of all fourteen high-ranking SLAs. There were, however, ten that appeared either seven or eight times. They included confirmed child maltreatment, community psychiatric treatment, criminal convictions, imprisonment, low income families, dependency ratio and long-term unemployment (all appearing eight times), and computer use, domestic violence and unemployment (seven times). These ten variables appear to be central features of South Australia's most disadvantaged SLAs. Several of the characteristics mentioned, particularly long-term unemployment, low income families, criminal convictions and limited computer use have been recurrent themes in the profiles of disadvantaged areas in other jurisdictions, an issue to which we will return in the concluding section of this chapter.

TABLE 3-10: Major characteristics of 14 of South Australia's most disadvantaged postcodes

Confirmed child maltreatment
 Community psychiatric treatment
 Criminal convictions
 Imprisonment
 Low income families
 Dependency ratio
 Long-term unemployment
 Limited computer use
 Domestic violence
 Unemployment

Western Australia

The analysis for Western Australia draws upon the distribution of 21 indicators across 142 Local Government Areas (LGAs). Initially the project in this state was to be based upon Statistical Sub-Divisions. However, because of complications in obtaining data in that form and also because the small population units outside of the capital (Perth) displayed limited variability, it was necessary to focus on larger LGAs.

For the purpose of examining the degree of concentration of the 21 forms of disadvantage (see Table 2-2, Chapter 2, page 21) we examined the number of times each locality appeared in the 'top 14' listings of each indicator,

creating $21 \times 14 = 294$ top positions. The pattern of concentration was as follows:

- 2 localities (1.4% of LGAs) accounted for 7.8% of top 14 positions (over-representation: 5.6 times)
- 6 localities (4.2% of LGAs) accounted for 17.9% of top 14 positions (over-representation: 4.3 times)
- 13 localities* (9.2% of LGAs) accounted for 30.2% of top 14 positions (over-representation: 3.3 times)

*Range of top 14 scores from 12 to 5

The degree of concentration of disadvantage in Western Australia resembled that of other jurisdictions although it became a little less intense beyond the 6% of LGAs with the greatest number of top 14 ratings.

There were thirteen Western Australian LGAs that appeared between five and thirteen times in the top 14 lists. On that simple basis they can be grouped (alphabetically) within the following two categories:

Most disadvantaged

Dundas (S)
 Halls Creek (S)
 Menzies (S)
 Ngaanyatjarraku (S)
 Sandstone (S)
 Upper Gascoyne (S)

Next most disadvantaged

Carnarvon (S)
 Denmark (S)
 Kondinin (S)
 Laverton (S)
 Murchison (S)
 Perth (C)
 Trayning (S)

Key: (S): shire; (C): city.

Major characteristics

Do the 13 localities that most frequently occupied top 14 rating positions share distinctive features?

- Three indicators: *imprisonment, long-term unemployment and limited computer use*, were among the top 14 rankings of eight of the localities.
- *Mortality ratio and lack of internet access* were top 14 rankings for seven of

the LGAs.

- Year 12 incomplete was among the top 14 rankings of six localities.
- Four LGAs had *early school leaving, low income families, disability / sickness support* and *inadequate immunisation* among their top 14 ratings.

The foregoing 10 indicators appear to be the main features distinguishing LGAs subject to cumulative disadvantage in Western Australia. When we take a general look at the major characteristics of the six states and the ACT (Table 3-16) it will be apparent that all but two of the indicators immediately below were reasonably common to disadvantaged areas in the other jurisdictions. The two exceptions were inadequate immunisation and mortality ratio (life expectancy) which were more prominent in the profiles of Western Australia's most disadvantaged areas.

TABLE 3-12: Major characteristics of 13 of Western Australia's most disadvantaged LGAs

Imprisonment
Long-term unemployment
Computer use
Mortality ratio
Internet access
Year 12 incomplete
Early school leaving
Low income families
Disability/sickness support
Inadequate immunisation

Australian Capital Territory (ACT)

Concentration of disadvantage

In this section, available data on 23 indicators of social disadvantage is applied to 24 ACT postcode areas (see Table 2-2, Chapter 2, page 21). A basic means of gauging the extent to which social disadvantage is concentrated within the ACT is to simply calculate how frequently different localities occupy 'top' positions on each of the 23 available indicators. Since in this case 23 postcode areas have been used for the analysis it makes sense to focus on a relatively small number of top rank positions.⁵ We have, therefore, calculated the number of times each postcode falls within the five highest rank positions

⁵ Postcodes 2911 and 2608 were excluded from this analysis as they are industrial / commercial postcodes with limited residential elements. 2600 and 2601 were combined as they appear to relate to the same geography.

on each of the available 23 indicators. This means that $23 \times 5 = 115$ rank positions are available to be filled.

It is telling that slightly more than a quarter (26.0%) of those top ranking positions are accounted for by just two postcodes. The picture of concentration of disadvantage does not stop there. Six postcodes (a quarter of the areas studied) fill slightly more than half (61/115: 53.0%) of the top positions. An additional three postcodes (a total of nine) account for almost two-thirds (73/120; 63.5%) of the top rank positions. Using six or more appearances in the top 5 lists as a cut off point, Table 3-13 (below) highlights eight postcode areas. They are listed in the order of their postcode numbers within two categories of relative severity of disadvantage. The reason for presenting some place names in bold is explained in the following paragraph.

TABLE 3-13: Most disadvantaged localities in ACT (number of top 5 rankings)

Most disadvantaged	
2604:	Causeway, Kingston, Narrabundah
2609:	Fyshwick, Bonshaw, Majura, Pialligo, Symonston
2612:	Braddon , Campbell, Reid , Turner
2620:	Oaks Estate ⁶
Next most disadvantaged	
2615:	Charnwood , Dunlop, Fassifern, Florey, Flynn, Fraser, Higgins, Holt, Kippax, Latham, Macgregor, Melba, Pine Ridge, Spence
2618:	Hall
2905:	Bonython, Calwell, Chisholm, Gilmore, Isabella Plains, Richardson, Theodore
2906:	Banks, Conder, Gordon

In 2002 the National Centre for Social and Economic Modelling (NATSEM) published a report *Addressing Disadvantage in the ACT, Locating Poverty in the ACT* (Bill, Lloyd and Harding, 2002). Some aspects of the findings of that study are not immediately comparable with those of the present project because (i) the predominant unit of analysis was Statistical Local Area (SLA) approximating to 107 suburbs in the ACT, and (ii) different and fewer indicators were used. Income estimates took account of household size and composition and on that basis NATSEM identified the ten suburbs in the ACT with the highest poverty rates. Despite the differences in approach there are some distinct convergences in the two sets of findings. Firstly, six of the ten suburbs rated by NATSEM as having the highest poverty rates (based on

⁶ That part of 2620 that is within the ACT.

adjusted income) are located within the eight postcode areas that we have emphasised. Their names are in bold in the above list. The number grows to seven if Symonston, ranked separately by NATSEM as third on the percentage of people in poverty in ACT suburbs⁷ but excluded for technical reasons from the list of ten with the highest poverty rates⁸, is included in the comparison.

The unemployment rate is one of the variables used in our determination of cumulative disadvantage. Of the list of 38 suburbs within our highest ranking eight postcodes, approximately half (18/38) appear in NATSEM's list of the 38 highest-ranking suburbs on rate of unemployment. A similar comparison shows that 22 of the 38 suburbs within our eight most disadvantaged postcodes were among the 38 ACT suburbs identified by NATSEM as having the least access to the internet. After allowing for four or five years difference in the currency of the data, these comparisons offer a measure of reassurance. Finally, there is one point of direct comparison that is possible. Towards the end of the NATSEM (2002) report poverty numbers were aggregated to the postcode level and poverty rates were recalculated accordingly. Again, there were differences in the approaches used and even the exclusion of one important postcode with a complicated set of boundaries. However, the seven highest ranking poverty postcodes determined by NATSEM are contained within the top nine identified by the present project.

Major characteristics

The eight localities that we have identified as being most disadvantaged displayed some common characteristics. One distinctive feature of the profile is the emphasis upon accommodation pressures.

- Six of the eight ranked in the top eight on rental stress.
- Five ranked in the top eight on home purchase stress.
- Five also ranked in the top eight on the related aspects of Year 12 incomplete, no internet access, low skills and limited qualifications.
- The same number appeared within the top eight on criminal convictions and domestic violence.
- Four, or half of the postcodes in question, were characterised by high (top 8) rankings on dependency ratio, disability / sickness support, imprisonment, limited computer use, long-term unemployment, low family income and suicide.

These were the most dominant features of the disadvantage profiles of the eight postcode areas involved. They will shortly be compared with similar profiles from the most consistently high-ranking localities in the other jurisdictions.

⁷ Appendix A.2, p. 42.

⁸ On the ground of 'not being representative of ACT suburbs' (p.11).

TABLE 3-14: Major characteristics of eight of the ACT's most disadvantaged postcodes

Rental stress
Home purchase stress
Year 12 incomplete
Limited internet access
Low work skills
No qualifications
Criminal convictions
Domestic violence
Slightly less important
Dependency ratio
Disability / sickness support
Imprisonment
Limited computer use
Long-term unemployment
Low family income
Suicide

Northern Territory

The pattern of settlement of the Northern Territory and the administrative framework for reporting comparatively scarce social data limit what can be said about the distribution of social disadvantage in this case. Fundamentally, we are restricted to descriptions of the rankings of six and, in one instance, five regions on 11 different indicators. No doubt the remoteness of some localities affects the rate of reporting of some of the matters covered and more than the usual degree of difficulty exists in interpreting the data. However, Table 3-15 could be the starting point to the local development of more adequate social reporting systems. The data does not permit of more refined analyses such as those conducted in relation to the other seven jurisdictions in Chapters 4 and 5.

TABLE 3-15: Rank positions of Northern Territory regions on available indicators

	Darwin SD &	Darwin Region	East Arnhem Environs	Katherine Region Balance	Barkly Region	Central Region
Psych. hosp. treatmt. (2001/02 & 2003/04)	1		5	3	4	2
Low family income (2001, 2003, 2005)	5	2	6	2	1	4
Disability / sickness support (June, 2003)	4	5	6	2	1	3
Low birth-weight (1999)	6	2	1	3	5	4
Suicide (1999-2003)	Equal 2	1	Equal 2	Equal 2	6	Equal 2
Lone person households (2001)	2	5	6	4	3	1
Non attendance at preschool (2003)	1	2	6	5	4	3
Domestic violence applications (2004)	6	3	5	2	1	4
Prison admissions (2004)		6	4	5	3	1 2
Unemployment (Dec. quarter 2004)	6	1	2	5	4	3
Long-term unemploy (June, 2003)		6	1	2	3	5 4

By the criterion of ranking first or second on the indicators, all of the regions were prominent in respect of at least four of the eleven indicators. However, the administrative area known as 'Darwin Region Balance' with seven 1st or 2nd rank positions appears to be the most generally disadvantaged locality. On the other hand, a glance at the table that follows (3-16) shows that three of the four first rank positions occupied by Barkly were on indicators (low family income, disability / sickness support and prison admissions) that were associated with concentrated disadvantage in the other jurisdictions.

Overall picture

There is no rigid framework within which to gain an overview of the profiles of the localities in each state or territory marked by considerable cumulative disadvantage. However, the inductive approach adopted in each case has, with one exception, yielded between ten and twelve dominant features or characteristics of the disadvantaged areas. In the case of the ACT the differentiating features of the eight disadvantaged postcode areas were a little

more extensive, involving several indicators that were additional to those that were prominent across the board. These included home rental and purchase stress, low occupational skills, suicide and dependency ratio. More generally, there were twelve characteristics that were prominent in the profiles of disadvantaged areas within four or more of the seven jurisdictions. Computer use, criminal convictions, prison admissions, low family income, long-term unemployment and internet access, were to the fore in six or seven of them; unemployment and disability / sickness support in five; and early school leaving, limited post-school qualifications, Year 12 incomplete and child maltreatment in four jurisdictions. Since Tasmania and Western Australia were not able to furnish child maltreatment data in a form usable in this study, the finding that this variable was prominent in the profiles of four of the five relevant jurisdictions would seem to confirm its elevated importance:

TABLE 3-16: Major characteristics of most disadvantaged areas in each jurisdiction

	Vic. N = 11	NSW N = 12	Qld. N = 12	S. A. N = 10	W. A. N = 10	Tas. N = 10	ACT N = 15
Low family income	✓	✓		✓	✓	✓	✓
Rental stress	✓						✓
Home purchase stress							✓
Lone households							
Low birth-weight							
Childhood injuries							
Deficient immunisation					✓		
Disability / sickness	✓		✓		✓	✓	✓
Mortality ratio					✓	✓	
Psych. hospital admss.				✓			
Psych. comm. treatment				✓			
Suicide						✓	✓
Child maltreatment	✓	✓	✓	✓	N/A*	N/A*	
Criminal convictions	✓	✓	✓	✓		✓	✓
Prison admissions		✓	✓	✓	✓	✓	✓
Domestic violence	✓			✓			✓
Low skilled workers							✓
Unemployment	✓	✓	✓	✓		✓	
Long-term unemploy.		✓	✓	✓	✓	✓	✓
Dependency ratio				✓			✓
Low taxable income	✓	✓					
Limited computer use	✓	✓	✓	✓	✓	✓	✓
Limited internet access	✓	✓	✓		✓	✓	✓
Preschool attendance							
Yr. 12 incomplete		✓	✓		✓		✓
Early school leaving	✓	✓	✓		✓		
Post-school quals.	✓	✓	✓				✓

* N/A: not available

4

Interconnections between the indicators

IN A technical sense this chapter is a necessary stepping stone between the profiling of disadvantaged areas (Chapter 3) and the ranking of all localities within each jurisdiction according to their relative degrees of disadvantage (Chapter 5). The latter is a major goal of the present project. The early chapters can be considered pathways to its attainment. Once it is possible to arrange all of the localities within each jurisdiction like ‘beads on a string’ according to their overall degree of disadvantage, the way is open to reviewing the adequacy of existing measures to combat entrenched social disadvantage.

To reach that goal a statistical measure must be introduced. The measure in question enables us to gauge the degree of association or *correlation* between variables and that tool is introduced and illustrated in the present chapter. The same technique plays a pivotal role in achieving a second major goal that need not distract us until Chapter 6, namely, examining whether *social cohesion* helps to attenuate the impact of generally harmful social and economic conditions on people’s lives.

While it is our intention in this chapter to set the groundwork for the analyses described, our purposes are not simply preparatory. The chapter aims to provide a deeper understanding of the interconnectedness of the indicators of social disadvantage. We first briefly discuss the approach taken to analyse the data and then present findings for each jurisdiction.

A suggestion to readers ...

The dilemma involved in tabling this information is that it needs to be reasonably detailed to be useful to those with an interest in a particular jurisdiction but it is somewhat excessive in its totality. Therefore we suggest that most readers may wish to read the section immediately following (*Background*), and then the section on Victoria which illustrates in some detail the approach adopted, plus the coverage of another jurisdiction of particular interest before proceeding to the final *Overview* section. Those impatient to get to the lists of areas identified as most disadvantaged in Chapter 5, could

settle for reading the *Background* section immediately below and the final *Overview of inter-correlations within jurisdictions* section before turning to Chapter 5.

Background

In Chapter 3 we considered some of the separate elements of social disadvantage and their tendency to accumulate within a restricted number of localities. In this and the following chapter we turn our attention to the interconnections between the separate strands of disadvantage. The purposes of this endeavour are threefold:

- To gain an improved general understanding of how separate forms of deprivation work together to constitute a *web of disadvantage*, a system of constraints on the life opportunities of people residing in some communities.
- To identify those variables that by the sheer number and scope of their connections with other measures of deprivation appear to be key elements of the structure of localised disadvantage. These key elements will be compared with the profiles of disadvantaged areas generated in the preceding chapter to add to our understanding of the nature of geographically distributed disadvantage.
- After discarding a limited number of indicators found wanting on the basis of the afore-mentioned sifting exercises, we will proceed in Chapter 5 to calculate the relative weights to be assigned to the remaining indicators when assessing the general vulnerability of all localities to social disadvantage. Using available statistical procedures, this vulnerability will be captured by assigning a single score to each locality enabling it to be ranked against others in the same jurisdiction according to the extent of their cumulative social disadvantage.

As discussed in Chapter 3, we have in all but one instance (Northern Territory) employed between 20 and 25 variables that indicate disadvantage in its various forms in an attempt to build up a picture of the distribution of social disadvantage throughout the Australian states and territories. The intention to this point has been to identify concentrations of disadvantage based on the evidence of some localities’ accumulation of high rank positions on the indicators. Using a method known as correlation analysis it is now possible to examine the extent to which the signs of disadvantage that we have used increase or decrease together, at least within each of the jurisdictions. The caveat is necessary because the pattern of interconnectedness manifested in one state or territory may not be matched in all others. Moreover, there can be some qualitative differences in the data collected by different jurisdictions. Nevertheless, on the basis of past experience in two states, there is purpose

in assessing whether some indicators play key roles in threading individual strands of disadvantage into an overall pattern of interconnectedness.

The immediate practical challenge comes down to this: to what extent do areas with 'high', 'middling' or 'low' scores on one indicator tend to have similar scores on the other indicators used in the study? To answer this question we take advantage of an index of co-variation, the correlation coefficient that is known as r , or more specifically, the Spearman rank order correlation. The correlation coefficient lies between -1.00 and +1.00. When r is 0 we say there is 'no correlation' between two variables (in this case pairs of indicators). Where r is -1.00 there is a perfect negative correlation; that is, when X increases, Y decreases. Where r is +1.00 there is a perfect positive correlation; when X increases, Y increases. In the present exercise as an informed 'rule of thumb' the degree of interconnectedness of the indicators is assessed in terms of whether r is at the +0.50 level or higher depending on the scale of correlations in each instance. A summary of our findings follows. The detailed information (correlation matrices) underpinning the analyses presented in this chapter is available at the project web site (see the *Introduction* for details).

Victoria

An illustration of the general method

A little under half (10/23) of the Victorian indicators correlated at or above +0.50 level with nine or more of the other indicators. *Low income families* not only fulfilled this threshold requirement with twelve of the other variables but did so above the .70 level in seven instances (limited computer use: .81; disability / sickness support and average taxable income: each .80; post-school qualifications: .74; dependency ratio: .73; and early school leaving: .72). In addition to these substantial correlations, other significant ones included lone person households and Year 12 incomplete (both .61), low work skills (.59), mortality (.57) and crime (.54).

Another recurrent theme in the patterns of association was the prominence of *limited computer usage* and *internet access*. The first mentioned correlated with twelve other indicators at or above +0.50 and the last mentioned correlated with eleven. Apart from an expected high association between the computer-related variables (.93), the six other indicators with which limited computer use correlated at or above .70 coincided with six of the seven correlates of internet access (post-school qualifications, low family income, average taxable income, early school leaving, Year 12 incomplete and disability / sickness support). The additional *internet* correlate was dependency (.73). The latter was really another factor in common, for when associations in the range .50 to .69 are considered, dependency is found to

correlate with computer use (.67) along with three other indicators (low work skills, crime and mortality) that are significantly associated with both of the computer variables.

One could infer from what has already been said that *disability / sickness support* is another common thread linking many of the variables studied. In fact, this indicator correlated above +0.50 with eleven others, exceeding .70 in four cases: low family income (.80), post-school qualifications (.72), internet access (.78), and limited computer usage (.76). Disability / sickness support was also significantly associated with mortality (.69), early school leaving (.62), average taxable income (.61), criminal convictions and dependency (each .60), Year 12 incomplete (.56) and low skills (.53).

Remaining major correlations

TABLE 4-1: Indicators that correlated at +0.50 level or above with between eight and ten other indicators*

	Year 12 incomplete	Early school leavers	Dependency ratio	Low work skills	Ave. taxable income	Criminal convictions
Limited computer usage	✓	✓	✓	✓	✓	✓
No internet access	✓	✓	✓	✓	✓	✓
Post-school qualifications	✓	✓	✓	✓	✓	✓
Average taxable income	✓	✓	✓	✓		✓
Low income families	✓	✓	✓	✓	✓	✓
Disability / sickness support	✓	✓	✓	✓	✓	✓
Year 12 incomplete		✓	✓	✓	✓	✓
Early school leaving	✓		✓	✓	✓	
Low work skills		✓			✓	✓
Long-term unemployment		✓				
Mortality			✓			
Lone person household			✓			
Criminal convictions	✓			✓		
Imprisonment						✓
Dependency ratio	✓	✓			✓	

*3 indicates correlation at the +0.50 level or higher.

Six Victorian indicators: Year 12 incomplete, early school leavers, dependency, low work skills, average taxable income and criminal convictions, each correlated at or above the .50 level with between eight and ten other indicators. The preceding summary (Table 4-1) provides an overview of a substantial degree of interconnectedness between these six variables. The table shows that all six variables in question correlated with seven other indicators shown in the grey area of the table (Year 12 incomplete, computer use and internet access, post-school qualifications and average taxable income, low family income and disability / sickness support).

Major inter-correlating variables

Taking into account indicators that correlated with others eight or more times above +0.50 enables us to identify the key roles played by eleven indicators.¹

TABLE 4-2: Comparison of indicators emphasised by the Victorian correlation analysis and the major characteristics of 27 disadvantaged postcode areas.

MAJOR CHARACTERISTICS	Inter-correlating indicators	27 disadvantaged areas
Low family income	✓	✓
Early school leaving	✓	✓
Limited computer use	✓	✓
No internet access	✓	✓
Disability / sickness support	✓	✓
Criminal convictions	✓	✓
Lack of post-school qualifications	✓	✓
Dependency ratio	✓	
Year 12 incomplete	✓	
Low work skills	✓	
Average taxable income	✓	
Unemployment		✓
Domestic violence		✓
Confirmed child maltreatment		✓
Rental stress		✓

The nominated eleven inter-correlating indicators appear to be those which, on a state-wide basis, represent the main linkages between the different facets of geographic disadvantage studied. What they share in common and how that communality can be expressed as a single score for each postcode area, are issues pursued in Chapter 5. At that point we will look to the form of analysis

¹ To go further down the list than the eleven would involve the *mortality* indicator which correlated .69 with the disability / sickness indicator but otherwise hovered to an equal extent just above or below the .50 level.

employed (*Principal Components Analysis*) for a final ordering of the weight to be assigned to each element of disadvantage in calculating the overall relative disadvantage score of each Victorian postcode area. For the moment, the indicators that have been highlighted in the correlation analysis do not coincide in all respects with the major characteristics of Victoria's most disadvantaged areas, as discussed in Chapter 3. Some forms of disadvantage, such as child maltreatment and rental stress, may be magnified in the presence of multiple forms of social disadvantage. Nevertheless, there are similarities between the major characteristics of 27 of Victoria's most disadvantaged postcode areas (as identified in Table 3-4) and the highly inter-correlating variables.

Tasmania

In Tasmania three of the available 24 indicators correlated with ten other indicators at the +0.50 level or higher. *Early school leaving* was one of these three indicators. It had strong associations with low income (0.78), low internet access (0.73), mean taxable income (0.71), disability/sickness support and limited computer use (both 0.65) and year 12 incomplete (0.64). It also had moderately strong associations (upwards of +0.50) with unemployment, long-term unemployment, criminal convictions and absence of post-school qualifications. Many of the variables associated with limited school education, including unemployment and low income, could be seen as consequences of entering adult life without the credentials necessary to progress in today's world (see Chapter 2).

Unemployment was another of the indicators that correlated above 0.50 with ten other variables, most significantly with disability / sickness support (0.91), long-term unemployment (0.88), low family income (0.80) and mean taxable income (0.60). As we have just noted, there was also a moderately high association with early school leaving. The same is true of limited computer use and internet access, criminal convictions and imprisonment, and community psychiatric treatment. *Internet access* has not been included as an indicator in the preceding series of social disadvantage studies but in Tasmania it has proved one of the most inter-correlating variables. It was to be expected that it would be strongly associated with limited computer usage (0.91) but it also correlated relatively highly with Year 12 incomplete (0.79) and early school leaving (0.73), and moderately highly with disability / sickness support, unskilled workers, mean taxable income, unemployment, low birth-weight, low income and long-term unemployment. Apart from access to the internet, *limited computer use* also correlated with much the same variables, particularly year 12 incomplete (0.74), early school leaving (0.65) and to a lesser degree with long-term unemployment, disability / sickness support, unemployment and mean taxable income.

To this point the highly inter-correlating variables in Tasmania emphasise a pattern of limited initial education (*early school leaving*) and lack of access

to contemporary sources of information and means of communication (the two computer variables), on the one hand, and limited capacity to satisfy basic material needs on the other (*unemployment, low family income, low taxable income*). This impression is further strengthened by consideration of three other indicators: *disability / sickness support, low income and long-term unemployment*, that correlated above the +0.50 threshold with eight other indicators in the set. The most significant of the associations in the case of *disability/sickness support* were unemployment (0.91), long-term unemployment and low family income (each 0.88), mean taxable income (0.66) and early school leaving (0.65), with computer and internet usage and prison admissions also correlating at a moderately high level. *Low family income* was strongly associated with disability / sickness support (0.88), unemployment (0.80), and early school leaving (0.78), mean taxable income (0.75), and long-term unemployment (0.74). There were also moderately high associations with dependency, internet usage and absence of post-school qualifications. Finally, *long-term unemployment* correlated highly with unemployment (0.88) and to an equal degree with disability / sickness support. It was also strongly associated with low family income (0.74) and to a lesser but important extent with imprisonment, limited computer use and internet access, early school leaving and mean taxable income.

Major inter-correlating variables

So, the following indicators between them appeared to capture some of the major threads of geographically distributed disadvantage in Tasmania:

TABLE 4-3: Comparison of indicators emphasised by the Tasmanian correlation analysis and the major characteristics of 7 disadvantaged LGAs.

MAJOR CHARACTERISTICS	Inter-correlating indicators	7 disadvantaged areas
Early school leaving	✓	
Unemployment	✓	✓
Limited computer use	✓	✓
No internet access	✓	✓
Disability / sickness support	✓	✓
Low income	✓	✓
Long-term unemployment	✓	✓
Criminal convictions		✓
Imprisonment		✓
Mortality index		✓
Suicide		✓

The indicators highlighted by the correlation analysis reflect the connections between different facets of disadvantage across the whole of Tasmania and not just the most disadvantaged localities. However, six of the seven variables above are among the ten earlier described as *important* elements of the profiles of seven areas with a concentration of disadvantage. On the whole, these two sets of results reflect a significant degree of concordance that is further enhanced when the +0.50 correlation threshold is lowered slightly. Had, for example, the threshold been set at +0.44, this would have had the effect of drawing three other indicators listed in the major characteristics of Tasmania's disadvantaged areas (criminal convictions, imprisonment and mortality index) into the list of most inter-correlating variables.

New South Wales

Nine of the 25 NSW indicators correlated at or above the +0.65 level with between six and ten other variables. At the heart of the patterns of inter-correlation was a combination of deficits in four spheres: educational achievement (school and post-school), computing, financial and occupational standing.

On the financial side, *low family income* correlated with ten other indicators at the +0.65 level or above, and *average taxable income* with eight others. In both cases the correlating variables included long-term unemployment, limited computer use and internet access, early school leaving, Year 12 incomplete, post-school qualifications, occupational skills and long-term unemployment.

Limited computer use and *internet access* both correlated highly (+0.87 and +0.85 respectively) with early school leaving, and equally highly (+0.89) with the absence of post-school qualifications, +0.79 with low occupational skills and low family income, and above +0.65 with Year 12 incomplete, average taxable income and dependency ratio.

Long-term unemployment correlated more frequently with other indicators than shorter-term unemployment (eight instances compared with two). The variables with which long-term unemployment correlated above +0.65, in addition to those already mentioned, included criminal convictions and low occupational skills. The nine correlates of *low work skills* included early school leaving, Year 12 incomplete and the absence of post-school qualifications, as well as low family income (0.73) and average taxable income (0.68).

Early school leaving, post-schooling qualifications and *Year 12 incomplete* made up the remainder of the list of nine NSW indicators that correlated above the +0.65 level with at least six other variables. A number of the indicators did not correlate with any others above the +0.65 level. They included rental and purchase stress, non-attendance at preschool, low birth-weight, confirmed child maltreatment, immunisation, childhood injuries, lone person households and mortality ratio. Modest numbers of inter-correlations above the specified threshold (ranging from one to three) involved disability

/ sickness support, employment, dependency ratio, criminal convictions and rate of imprisonment.

Major inter-correlating variables

Compared with the other jurisdictions except Queensland, the NSW indicators more frequently correlated with one another above the +0.65 level. Taking into account indicators that correlated with others six or more times at or above 0.65 enables us to identify the key roles played by nine indicators. Eight of the nine inter-correlating indicators were also included in the list of twelve major characteristics of the 36 NSW localities earlier identified as experiencing cumulative disadvantage.

TABLE 4-4: Comparison of indicators emphasised by the NSW correlation analysis and the major characteristics of 36 disadvantaged postcode areas.

MAJOR CHARACTERISTICS	Inter-correlating indicators	36 disadvantaged areas
Low family income	✓	✓
Average taxable income	✓	✓
Limited computer use	✓	✓
No internet access	✓	✓
Long-term unemployment	✓	✓
Low work skills	✓	
Early school leaving	✓	✓
Post-schooling qualifications	✓	✓
Year 12 incomplete	✓	✓
Criminal convictions		✓
Low family income	✓	✓
Average taxable income	✓	✓
Limited computer use	✓	✓

Queensland

Of the 25 indicators available for Queensland there were 74 instances in which the coefficients registering the degree of association between pairs of indicators were of the order of +0.65 or higher. Nine indicators attained that level of association on six, seven or eight occasions. They are listed in the following table which also shows that it was the associations between pairs of them that accounted for 67/74 (90.5%) of all the correlations at or above the +0.65 level across all 25 indicators. These nine indicators were the most inter-correlating and table 4-5 (below) portends the variables that are likely to emerge in the *Principal Components Analysis* that follows in Chapter 5 as shaping the distribution and character of social disadvantage in Queensland.

TABLE 4-5: Most inter-correlating indicators in Queensland (✓ indicates $r > +0.65$)

	Disability / sickness support	Early School leaving	Limited computer use	Limited internet access	Low family income	Average taxable income	Low work skills	Post-school quals	Year 12 incomplete
Disability/sickness support		✓ .78	✓ .71	✓ .68	✓ .72	✓ .65		✓ .65	
Early school leaving			✓ .88	✓ .90	✓ .70	✓ .69	✓ .73	✓ .84	✓ .75
Limited computer use				✓ .95	✓ .72	✓ .71	✓ .77	✓ .81	✓ .83
Limited internet access					✓ .72	✓ .77	✓ .82	✓ .90	✓ .88
Low family income						✓ .79	✓ .68	✓ .67	
Average taxable income							✓ .79	✓ .77	✓ .67
Low work skills								✓ .85	✓ .75
Post-school quals									✓ .78
Year 12 incomplete									

How similar is the list of most correlating variables to the indicator profile of Queensland's 25 most disadvantaged areas identified on the basis of their number of top 20 ratings (Chapter 3)? Twelve characteristics were said to be 'most important' in that earlier exercise. Seven of the nine above indicators were included in the list and the two that were not (low family income and limited work skills) appeared in a supplementary *slightly less important* category. Part of the difference between the two sets of results probably has to do with their different focus, concentrated disadvantage on the one hand and its state-wide distribution on the other. This may account for the greater prominence of criminal convictions, prison admissions and long-term unemployment in the top 20 profile data:

Major inter-correlating variables

TABLE 4-6: Comparison of indicators emphasised by the Queensland correlation analysis and the major characteristics of 25 disadvantaged postcode areas

MAJOR CHARACTERISTICS	Inter-correlating indicators	25 disadvantaged areas
Disability/sickness support	✓	✓
Early school leaving	✓	✓
Limited computer use	✓	✓
No internet access	✓	✓
Low family income	✓	
Average tax income	✓	✓
Low work skills	✓	
Post-school qualifications	✓	✓
Year 12 incomplete	✓	✓
Unemployment		✓
Long-term unemployment		✓
Criminal convictions		✓
Prison admissions		✓
Confirmed child maltreatment		✓

South Australia

Twenty-three South Australian social indicators were involved in the correlation analysis.

Limited computer use was the most inter-correlating of the South Australian variables. Apart from an expected high correlation with access to the internet (0.92), limited computer use was also highly associated with low income families (0.81), early school leaving (0.79) and long-term unemployment (0.73), as well as nine other indicators above the +0.50 level. *Long-term unemployment* was associated above the +0.50 level with eleven other variables, especially low income families (0.74), limited computer use (0.73), internet access (0.65), imprisonment (0.64), and community psychiatric treatment and child maltreatment (each 0.62).

Several of the already mentioned variables were also inter-correlated with seven or eight other indicators above +0.50. *Imprisonment* was most closely associated with long-term unemployment (0.64) but *low income families* had substantial correlations with internet access and limited computer use (0.82 and 0.81 respectively), early school leaving (0.79) and dependency ratio (0.74). Apart from the just mentioned low income association, *internet access* correlated highly with the two education indicators: early school leaving (0.84) and Year 12 incomplete (0.71). *Child maltreatment* was linked with

unemployment and long-term unemployment (each 0.62) and criminal convictions (0.79). *Community psychiatric treatment* was also associated with long-term unemployment (0.63) and as we have already seen, *early school leaving* correlated significantly with the computer variables and low income families (0.79). *Year 12 incomplete* was not a major characteristic of the most disadvantaged SLAs reviewed in the previous chapter but in this analysis correlated above +0.50 with eight other indicators, especially unskilled workers (0.71), limited computer use and internet access and average taxable income (.61). In the light of the results for other jurisdictions and previous research, *disability and sickness support* was an uncharacteristic omission from both the highly disadvantaged area profiles of South Australia and the highly correlating indicators. The sole variable with which it correlated above +0.50 was unemployment (0.66).

Major inter-correlating variables

A summary of the correlation data is presented below (Table 4-7). The 'major characteristics of most disadvantaged areas' are based on the profile material presented in Chapter 3 and the 'most correlating South Australian indicators' are those that correlated above +0.50 with seven or more variables. Since the South Australian data will be subjected to *Principal Components Analysis* in Chapter 5, we will have a further opportunity to consider the structure of social disadvantage in that state and review, for example, the status of the disability and sickness support indicator in the distribution of social disadvantage.

TABLE 4-7: Comparison of indicators emphasised by the South Australian correlation analysis and the profiles of 14 disadvantaged SLAs.

MAJOR CHARACTERISTICS	Most correlating indicators*	14 disadvantaged areas
Confirmed child maltreatment	✓	✓
Community psychiatric treatment	✓	✓
Criminal convictions	✓	✓
Prison admissions	✓	✓
Low family income	✓	✓
Long-term unemployment	✓	✓
Limited computer use	✓	✓
Limited internet access	✓	
Early school leaving	✓	
Year 12 incomplete	✓	
Domestic violence		✓
Unemployment		✓
Dependency ratio		✓

* Correlated with other indicators above +0.50 seven or more times.

Western Australia

Twenty-one West Australian social indicators were involved in the correlation analysis. The degree of their inter-correlation in the sense of the number of times the correlation coefficient equalled or exceeded +0.50 was less than that for the other states. Lowering the threshold marginally to +0.48 meant there were 30 pairs of variables warranting closer examination. Our efforts in that direction have provided some useful insights that are discussed below. However, the finding of less widespread interconnections between the variables raises at least the following two possibilities:

- geographically distributed social deprivation in Western Australia is less of an interlocking set of reinforcing disadvantages than is generally the case in other Australian jurisdictions; and/or
- we have still to access the social data at the geographic levels most revealing of that latent interconnectedness.

Internet access was the most inter-correlating of the West Australian variables. Apart from its expected association with computer use, internet access correlated strongly with early school leaving (0.76) and more moderately (in the range +0.50 – +0.54) with low income families, limited post-school qualifications and Year 12 incomplete. *Limited computer use* also correlated strongly with early school leaving and more moderately with Year 12 incomplete and limited work skills. In addition to its associations with the two computing items, *early school leaving* correlated 0.56 with low income families and limited post-schooling qualifications. *Low income families*, besides the two already mentioned threshold level associations, also correlated (0.59) with post-schooling qualifications. Communities marked by a relatively *high dependency ratio* were moderately (+0.54 – +0.58) associated with rental stress, unemployment and limited work skills.

Major correlating variables

By comparison with the general range of 10-15 inter-correlating variables in the other jurisdictions, the major correlating indicators in this instance were sparse in number. The following seven indicators (Table 4-8) appeared to capture some of the major threads of geographically distributed disadvantage in Western Australia:

TABLE 4-8: Comparison of indicators emphasised by the Western Australian correlation analysis and the major characteristics of 13 disadvantaged Local Government Areas.

MAJOR CHARACTERISTICS	Most correlating indicators	13 disadvantaged areas
Limited internet access	✓	✓
Limited computer use	✓	✓
Early school leaving	✓	✓
Low family income	✓	✓
Dependency ratio	✓	
Post-school qualifications	✓	
Low skill workers	✓	
Prison admissions		✓
Long-term unemployment		✓
Mortality		✓
Year 12 incomplete		✓
Disability / sickness support		✓
Deficient immunisation		✓

* Correlated with other indicators above +0.50 at least three times.

Australian Capital Territory (ACT)

Three indicators: *low income families*, *early school leaving* and *criminal convictions* were the most inter-correlating of the 23 ACT variables. They were associated at or above the +0.50 level with between eight to ten other indicators. They were also significantly associated with one another:

- Early school leaving / low family income: $r = +0.77^*$
- Early school leaving / criminal convictions: $r = +0.74^*$
- Criminal convictions / low family income: $r = +0.59^*$

* Correlations significant at the .01 level.

There were also strong associations between *low income families* and lone person households (.83), computer usage (.69), imprisonment (.66) and immunisation (.65). In addition to the connections already noted, *early school leaving* correlated with imprisonment (.70) and lone person households (.69), and *criminal convictions* with disability and sickness support (.66) and long-term unemployment (.50).

Internet access (seven correlations above +0.50) was another relatively strong connecting thread linking a range of education and skills related indicators (Year 12 incomplete .79; low skills .72; post-school qualifications .73). But internet access also had moderate, significant correlations with taxable income (.61); suicide (.57) and domestic violence (.54). *Imprisonment*,

immunisation, lone person households and long-term unemployment each correlated with six other indicators above .50 and Year 12 incomplete, domestic violence, computer use, suicide and taxable income correlated at the same level with four other indicators.

Major inter-correlating variables

The list of variables that follows identifies the most inter-correlating indicators in the ACT. They are shown alongside the community attributes earlier identified as the recurring characteristics of the eight most disadvantaged areas. There was a degree of overlap between these two sets of variables associated with disadvantage as well as some important differences. In particular, the two forms of accommodation stress that appear characteristic of the most disadvantaged postcode areas and to a lesser degree the higher dependency ratio and rate of disability/sickness support scores were not as prominent in the correlation analysis findings. Had indicators that correlated above .50 with four other variables been included then the emphasis upon suicide, Year 12 incomplete, domestic violence and computer use in the disadvantage area profile would have been matched by the correlation data. What indicators appear to play a very minor role in the geographic distribution of disadvantage in the ACT? This category includes low birth-weight, childhood injuries, mortality, confirmed child maltreatment, domestic violence and post-school qualifications.

TABLE 4-9: Comparison of factors emphasised by the ACT correlation analysis and the profiles of 8 disadvantaged postcode areas.

MAJOR CHARACTERISTICS	Most correlating indicators	13 disadvantaged areas
Limited internet access	✓	✓
Long-term unemployment	✓	✓
Criminal convictions	✓	✓
Low skill workers	✓	✓
Post-school qualifications	✓	
Prison admissions	✓	
Low family income	✓	
Suicide		✓
Year 12 incomplete		✓
Domestic violence		✓
Limited computer use		✓
Rental / home purchase stress		✓
Dependency ration		✓
Disability / sickness support		✓
Early school leaving	✓	
Deficient immunisation	✓	
Lone person households	✓	
Unemployment	✓	

General overview of inter-correlations

The extent to which some indicators inter-correlated highly (or sparingly) with others is summarised in Table 4-10 (below). The first thing to be said about this summary is that it tells only part of the story. Previously (Chapter 3) we noted patterns of recurring difficulties borne by locations that occupied more than their share of top positions on indicators of social disadvantage. That was one preliminary perspective on geographically concentrated disadvantage and, using the criterion of repeated high rankings, particular localities were identified as being markedly disadvantaged.

TABLE 4-10: Most inter-correlating indicators in each jurisdiction

	Vic. N = 11	NSW N=12	Qld. N=10	S. A. N=12	W. A. N=7	Tas. N=10	ACT N=15
Low family income	✓	✓	✓	✓	✓	✓	✓
Rental stress							
Home purchase stress							
Lone households							✓
Low birth-weight							
Childhood injuries							
Deficient immunisation							✓
Disability / sickness	✓		✓			✓	
Mortality ratio							
Psych. hospital admis.							
Psych. comm. treatmt.				✓			
Suicide							
Child maltreatment				✓			
Criminal convictions	✓			✓			✓
Prison admissions				✓			✓
Domestic violence							
Low skill workers	✓	✓	✓		✓		✓
Unemployment						✓	✓
Long-term unemploy.		✓		✓		✓	✓
Dependency ratio	✓				✓		
Low mean tax income	✓	✓	✓				
Limited computer use	✓	✓	✓	✓	✓	✓	
Limited internet access	✓	✓	✓	✓	✓	✓	✓
Preschool attendance							
Yr. 12 incomplete	✓	✓	✓	✓			
Early school leaving	✓	✓	✓	✓	✓	✓	✓
Post-school quals.	✓	✓	✓		✓		✓

Another perspective is to view localised disadvantage from the viewpoint of the ways in which it is patterned and held together by 'struts' in the form of indicators that correlate with a number of others. These connecting elements in the form of the major inter-correlating variables that have been the focus of this chapter are part of the structure of disadvantage. From Table 4-10 (previous page) we can see that eight indicators were the most inter-correlating variables across seven jurisdictions. The following were identified as serving that role in four to seven instances: low family income, low skilled workers, Year 12 incomplete, long-term unemployment, early school leaving, limited post-schooling qualifications, limited computer use and lack of access to the internet.

It would be surprising if the identified educational and skill limitations and associated restricted finances did not overlap to a considerable degree with the recurring characteristics of the disadvantaged areas identified in Chapter 3. That they do can be seen from Table 3-16 (Chapter 3, page 40) which summarises the major characteristics of the most disadvantaged areas. For convenience they are reproduced in Table 4-11, following. Six of the seven previously-mentioned most inter-correlating variables overlapped with those of the disadvantaged areas (low work skills was the exception). However, because of the concentration in Chapter 3 on extreme cases – markedly disadvantaged localities – some additional characteristics that can be manifested under conditions of intense deprivation also demanded recognition.

TABLE 4-11: Comparison of inter-correlating variables and major characteristics of disadvantaged areas.

MAJOR CHARACTERISTICS	Most correlating indicators*	Most disadvantaged areas
Low family income	✓	✓
Low work skills	✓	
Early school leaving	✓	✓
Post-schooling qualifications	✓	✓
Limited computer use	✓	✓
Limited internet access	✓	✓
Year 12 incomplete	✓	✓
Unemployment		✓
Long-term unemployment	✓	✓

* Correlated with other indicators across 4 or more jurisdictions

Essentially what we have are two complimentary pictures of geographically distributed social disadvantage. The combination of the two pictures alerts us to the elements of disadvantage that need to be accorded some prominence in any formula for ranking all of the locations within a jurisdiction on a scale of social disadvantage. That is precisely the task pursued in the next chapter. The only caveat is that we should expect some variations in that formula to match the varying circumstances of the individual states and the ACT.

5

How the areas rank: disadvantage factor and overall locational vulnerability

THE AIM OF this chapter is to pull together the information that we have about the postcode areas, Local Government Areas (LGAs) and Statistical Local Areas (SLAs) that have already been considered with a view to assessing their general susceptibility to social disadvantage. Our goal is the very practical one of summing the information to hand in a way that enables the localities within each jurisdiction to be ranked according to their relative degree of disadvantage. Without minimising the potential value to planners of the separate strands of data provided by government agencies and statistical bureaux, that information becomes enlivened, more comprehensible and inviting of remedial action when melded into a composite disadvantage index. As we have previously stated, we want to arrange the localities in an array, like beads on a string, ranging from the area that is most generally vulnerable to the problems represented by our indicators, to the one that is least vulnerable. Our intention is to group like-positioned areas into bands thereby avoiding the singling out of localities for concentrated public comment without losing sight of the priority needs associated with a high ranking on the general disadvantage index.

There is a statistical procedure that we can call upon to assist us in our endeavour. Our use of this procedure – called *Principal Components Analysis* – is conventional and in accord with standard practice when we apply it to the five jurisdictions with substantial numbers of data collection units (Victoria, New South Wales, Queensland, South Australia and Western Australia). There is a technical requirement that the ratio of such units to the number of items assessed (our indicators) should be of the order of five or ten to one. That condition, which is not the subject of total agreement between statisticians, is met within the five jurisdictions mentioned. Of the other three jurisdictions, the Northern Territory does not lend itself to further refined analysis at this stage. In the cases of Tasmania and the Australian Capital Territory we employ *Principal Components Analysis* in an exploratory way in an attempt to add additional insights, cautiously interpreted, to those already available from the

analyses reported in Chapters 3 and 4. In adopting this course we are reassured by the findings of a recent study by Osborne and Costello (2004) that found no evidence of a 'critical ratio' but rather diminishing returns that can occur even with large subject to item ratios.¹ The important thing in the case of the three jurisdictions with smaller numbers of localities is to see the principal components findings as supplementing the earlier reported ones.

Principal Components Analysis

This is a way of examining the structures that underlie the patterns of correlation between the social indicators within each state and the ACT, as discussed in the previous chapter. If what is called the first component accounts for a sufficiently high percentage of the total variance of the 20+ indicators in each instance, the task of arranging localities according to their degree of susceptibility to disadvantage is reduced to examining scores along a single dimension.

Victoria

Working through the findings for Victoria in some detail should serve to illustrate the approach adopted and enable a more compressed presentation of findings for the other jurisdictions. The *Principal Components Analysis* resulted in the extraction of a major factor that accounted for 35.2% of the total variance of the 24 indicators across the 726 Victorian postcodes. The proportion of the variance accounted for by the first component was of the same general order as the equivalent findings in 1999 and 2004 (34.7% and 31.8% respectively). A second component accounted for 13.4% of the variance. We are justified in treating this first component as a 'general disadvantage' factor that captures along a single dimension many aspects of disadvantage previously reflected in 24 indicator scores.

This does not mean that all of the indicators are reflected to an equal extent by the Victorian 'disadvantage' factor. Ten variables correlated with this factor at the .65 level or above and, as expected, they were all on the list of the eleven most correlating variables in Victoria presented in the preceding chapter. Of course the number of indicators used has grown across the three studies in this series (11 in 1999; 13 in 2004; and 24 in 2006). The following summary shows the consistency with which some variables that span all three studies have correlated above +0.60 with the first component *disadvantage* factor:

¹ The authors report that they found no evidence of a 'critical mass' or 'critical ratio': "... they do not plateau, the lines are not asymptotic. There are diminishing returns but even at large subject to item ratios and Ns (such as 20:1 ratio or N > 1000) ... PCA can produce error rates up to 30%".

TABLE 5-1: Victoria: Indicators correlating $\leq +0.60$ with 'disadvantage' factor

Indicators correlating $\leq +0.60$ with disadvantage factor (2006)	2004	1999
Computer use	N/A	N/A
Internet access	N/A	N/A
Low income families	✓	✓
Post-school qualifications	N/A	N/A
Disability/sickness support	✓	N/A
Early school leavers	✓	✓ *
Low work skills	✓	✓
Year 12 incomplete		N/A
Dependency ratio	N/A	N/A
Criminal convictions	✓	✓

*Included although 0.58

A second component in 2006 accounted for 13.4% of the total variance. This is approximately half of the proportion (25.4%) accounted for by a second component in 2004. The details are in *Appendix A: Technical Appendix* but three variables that had low or negative correlations with the first component (low average taxable income, imprisonment rate and rental stress) correlated above +0.70 with the second component which has the character of an extreme financial-legal marginality factor. This would appear to be a focus worthy of further study but because of its link to our present main objective, we continue to treat component 1 as our primary concern. This disadvantage factor represents an attempt to capture what the indicators measure in *common*, rather than an attempt to summarise *all* of the information conveyed by the entire set of indicators.

What remains now is to convert what is known about the disadvantage factor into a single score for each of Victoria's 726 postcodes. A postcode's position along the disadvantaged continuum is determined by weighting each of its 24 indicator scores by a value that reflects that particular indicator's loading on the general disadvantage factor for its state (see the Technical Appendix for the component loadings). The final score for each locality (postcode in Victoria, the ACT and New South Wales, SLA or LGA in other jurisdictions) then becomes the weighted sum of scores on the indicators. The outcome of these procedures is the listing of the 40 highest-ranking Victorian localities within bands of disadvantage (Table 5-2, below). The areas are listed alphabetically within the first five bands of six localities and a sixth band of ten areas. The remaining postcode areas are listed according to their degree of disadvantage on the project's web site. In the case of Victoria almost all

(16/18) of the localities in the first three bands were in the top 40 equivalent ranking in 2004 and two-thirds (13/18) were so placed in 1999². The rank order correlation of the factor scores in 2004 and 2006 (.918) certainly confirms the stability of spatially distributed disadvantage. After taking into account the major expansion of the range of indicators used, the rank order correlation of factor scores in 1999 and 2006 is also high (.748).

TABLE 5-2: Victoria: 40 highest-ranking postcode areas on 'disadvantage' factor

Band	Postcode	Localities arranged alphabetically within each band	Estimated total population
BAND 1	3047	Broadmeadows , Dallas, Jacana	19,327
	3523	Heathcote , Argyle, Costerfield, Derrinal, Heathcote South, Knowsley, Ladys Pass, Moormbool West, Mount Camel, Redcastle	3,459
	3520	Korong Vale , Kinypanial	252
	3465	Maryborough , Bowenvale, Adelaide lead, Alma, Bung Bong, Cotswold, Craigie, Daisy Hill, Flagstaff, Golden Point, Havelock, Homebush, Majorca, Moolort, Moonlight Flat, Natte Yallock, Rathscar, Rathscar West, Rodborough, Simson, Timor, Timor West, Wareek	9,631
	3595	Nyah West	653
	3940	Rosebud West	4,355
BAND 2	3019	Braybrook , Braybrook Nth. Robinson	6,888
	3984	Corinella , Adams Estate, Caldermeade, Coronet Bay, Grantville, Jam Jerrup, Lang Lang, Lang Lang East, Monomeith, Pioneer Bay, Queensferry, Tenby Point, The Gurdies	3,812
	3177	Doveton , Eumemmerring	10,554
	3517	Inglewood , Bullabull, Bears Lagoon, Brenanah, Glenalbyn, Jarklin, Kingower, Kurting, Powlett Plains, Rheola, Salisbury West, Serpentine	1,498
	3887	Lake Tyers , Nowa Nowa, Wairewa	559
	3995	Wonthaggi , Anderson, Archies Creek, Cape Patterson, Harmers Haven, Hicksborough, Kilcunda, Lance Creek, Nth Wonthaggi, Powlett River, South Dudley, St Clair, Wattle Bank, Woolamai	8,280

table continues

² Of the remaining five, four were in the top 12% of rank positions.

Band	Postcode	Localities arranged alphabetically within each band	Estimated total population
BAND 3	3250	Colac , Colac East, Colac West, Elliminyt	10,954
	3214	Corio , Norlane, North Shore	25,278
	3472	Dunolly , Bet Bet, Betley, Bromley, Dunluce, Eddington, Goldsborough, Inkerman, McIntyre, Moliagul, Mt Hooghly	1,452
	3556	Eaglehawk , Comet Hill, California Gully, Campbells Forest, Eaglehawk North, Jackass Flat, Myers Flat, Sailors Gully, Sebastian, Whipstick, Woodvale	10,208
	3713 3915	Eildon , Lake Eildon Hastings , Tuerong	952 6,997
BAND 4	3061	Campbellfield	5,648
	3081	Heidelberg West , Heidelberg Hts, Bellfield	13,717
	3950	Korumburra , Kardella South, Korumburra Sth, Strzelecki, Whitelaw	3,931
	3392	Minyip , Sheep Hills	693
	3594 3549	Nyah Robinvale , Robinvale Irrigation District(s), Annuello, Bannerton, Happy Valley, Liparoo, Tol Tol, Wandown, Wemen	403 3,808
BAND 5	3450	Castlemaine , Moonlight Flat	6,495
	3414	Dimboola , Antwerp, Tarranyurk	2,060
	3219	East Geelong , Breakwater, Newcomb, St Albans Park, Thomson, Whittington	19,605
	3888	Orbost , Bendoc, Bete Bolong, Bonang, Brodribb Rv., Cabanandra, Cape Conran, Corringale, Delegate Rv. East, Goongerah, Haydens Bog, Marlo, Martins Creek, Omeo Valley, Simpsons Creek, Wombat Creek, Waygara, Tubbut, Tostaree, Nurran, Lochend	3,608
	3939 3962	Rosebud , Boneo, Cape Schanck, Fingal Toora , Toora North, Agnes, Christies, Grand Ridge, Wonyip, Woorarra	12,839 1,394
BAND 6	3467	Avoca , Moyreisk	1,151
	3373	Beaufort , Chute, Cross Roads, Lake Goldsmith, Lake Wongan, Main Lead, Mena Park, Nerring, Raglan, Shirley, Stockyard Hill, Stoneleigh, Trawalla, Waterloo	2,029
	3672	Benalla , Benalla West	7,594
	3060	Fawkner , Fawkner East, Fawkner North	12,598
	3584 3909	Lake Boga , Tresco West Lakes Entrance , Kalimna, Lake Bunga, Lake Tyers Beach, Nungurner, Nyerimilang, Toorloo Arm	885 7,615

table continues

Band	Postcode	Localities arranged alphabetically within each band	Estimated total population
	3324	Lismore , Mingay, Mount Bute	511
	3608	Nagambie , Bailieston, Goulburn Weir, Graytown, Kirwans Bridge, Mitchellstown, Wahring, Wirrate	3356
	3380	Sebastopol , Delacombe, Bonshaw Stawell , Stawell West, Bellellen, Bridge Inn, Mokepilly, Winjallok	11,850 6,585

New South Wales

In the case of NSW the principal component accounted for 42.8% of the total variance of the 25 indicators across 647 postcodes. This result approximates to the value of the same figure in 1999 (46.6%) and is below the 52.3% of total variance accounted for by the principal component in 2004. However, it continues to well serve the purpose of summarising the disadvantage experienced by different postcode areas. A second component accounted for 13.0% of the variance (see Technical Appendix for component loadings). As with the Victorian result we are justified in treating the first component as a 'general disadvantage' factor that captures along a single dimension many aspects of disadvantage previously reflected in 25 indicator scores. Nevertheless, it must again be noted that not all variables are reflected to an equal extent by the disadvantage factor. Fourteen variables correlated with this factor at the +0.65 level or above and they overlapped with the nine most correlating variables in NSW presented in the preceding chapter³.

As previously noted the number of indicators used in the present series of studies has grown across the three projects. Nonetheless, the consistency with which certain variables⁴ that have been part of all three studies have correlated with the disadvantage factor is clear from the following table:

³ Criminal convictions, prison admissions, disability / sickness support, confirmed child maltreatment and unemployment correlated with the first component above 0.65 and were additional to the nine other variables on both lists.

⁴ Confirmed child maltreatment is the exception.

TABLE 5-3: NSW: Indicators correlating $\geq +0.60$ with 'disadvantage' factor

Indicators correlating $\geq +0.60$ with disadvantage factor (2006)	2004	1999
Computer use	N/A	N/A
Low family income	✓	✓
Internet access	N/A	N/A
Early school leaving	✓	✓
Post-school qualifications	N/A	N/A
Low work skills	✓	✓
Long-term unemployed	✓	✓
Criminal convictions	✓	✓
Year 12 incomplete	✓	N/A
Low mean taxable income	N/A	N/A
Unemployment	✓	✓
Dependency ratio	N/A	N/A
Admissions to prison	✓	N/A
Disability/sickness support	✓	N/A
Child maltreatment	–	–

It now remains to apply the weights assigned by the first component to each indicator to derive a single score for each of NSW's 647 postcode areas (see the Technical Appendix). The outcome of this procedure is the listing of localities within bands of disadvantage, commencing with the top 40 ranking localities (Table 5-4, below) and continuing to completion on the project's web site. Thirteen of the 18 localities in the first three bands occupied top 40 places in 2004 and 12 were similarly placed in 1999⁵. The rank order correlation of the factor scores in 2004 and 2006 (.902) matches the stability of rankings observed in Victoria. The same figure for the 1999 and 2006 rankings (.805) slightly exceeds the comparable Victorian result.

⁵ Two additional places were in the top 10% in 1999.

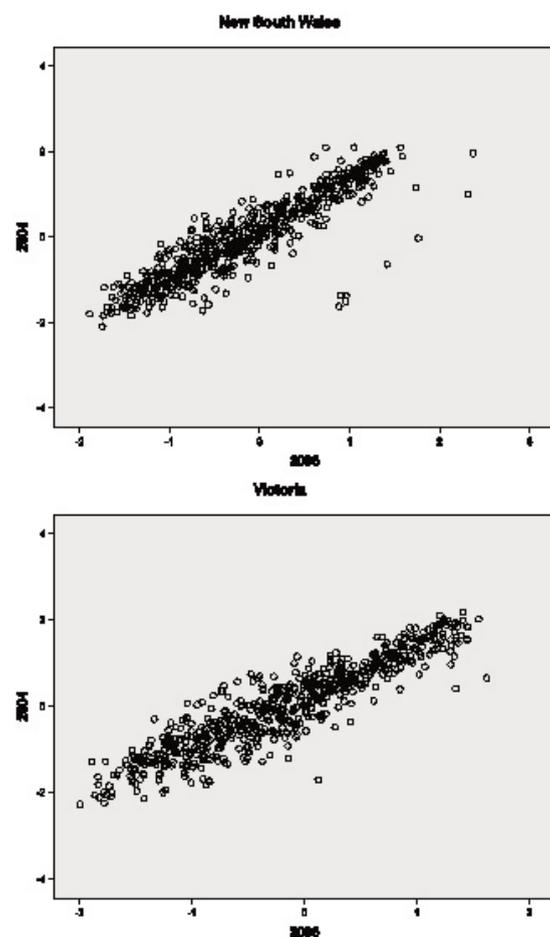
TABLE 5-4: NSW: 40 highest-ranking postcode areas on 'disadvantage' factor

Band	Postcode	Localities arranged alphabetically within each band	Estimated total population	
BAND 1	2469	Bonalbo , Beau Creek, Banyabba, Bingeebeebra Creek, Boomooderie, Bottle Creek	4,503	
	2839	Brewarrina , Bogan, Gongolgon, Talawanta, Weilmoringle	1,566	
	2440	Kempsey , East Kempsey, South Kempsey, West Kempsey, Crescent Head, Aldavilla, Austral Eden, Bellbrook, Belmore River, Carrai, Comara, Corangula, Euroka, Frederickton, hat head, Kinchela, Millbanik, Pola Creek, Turners Flat, Yarravel	22,334	
	2834	Lightning Ridge	3,245	
	2369	Tingha , Stannifer, Old Mill	902	
	2306	Windale	3,075	
	BAND 2	2449	Bowraville , Argents Hill, Buckra Bendinni, Girralong, Kennaicle Creek, Killiekrankie	2,154
		2470	Casino , North Casino	13,233
		2371	Deepwater	1,203
		2879	Menindee	692
2455		Urunga , Newry, Newry Island, Spicketts Creek, Wenonah Head	3,323	
2820		Wellington	6,913	
BAND 3	2831	Armatree , Byrock, Balladoran, Billeroy, Brenda, Bullagreen	929	
	2471	Coraki , East Coraki	2,315	
	2427	Harrington , Crowdy Head	1,633	
	2448	Nambucca Heads	8,438	
	2485	Tweed Heads	11,008	
	2832	Walgett , Come By Chance, Angledool, Boorooma, Cryon, Cumborah	3,411	
BAND 4	2428	Forster	21,173	
	2327	Kurri Kurri	6,965	
	2263	Toukley	22,211	
	2326	Weston	6,157	
	2476	Woodenbong	813	
	2836	Wilcannia , White Cliffs, Gemvil	1,150	
BAND 5	2409	Boggabilla	1,148	
	2559	Claymore , Blairmount	4,798	
	2807	Koorawatha	312	
	2672	Lake Cargelligo	1,810	
	2431	South West Rocks	4,402	
	2372	Tenterfield	5,014	

table continues

BAND 6	2361	Ashford , Atholwood, Bonshaw, Limestone, Pindaroi	947
	2840	Bourke , Barrington, Enngonia, Fords Bridge, Gumbalie, Gunderbooka, Hungerford, Louth, Tilpa, Urisino, Wanaaring, Yantabulla	4,043
	2880	Broken Hill , Broken Hill West/ North / South	21,391
	2443	Diamond Head , Camden Head, Bobs Creek, Coralville, Deauville, Dicks Head	8,290
	2466	Iluka , Woody Head, The Freshwater	1,884
	2360	Inverell	12,962
	2770	Mt. Druitt	57,196
	2452	Sawtell	9,891
	2430	Taree , Taree South	29,701
	2502	Warrawong	11,826

Figure 5-1: Scattergrams of principal component scores, Victoria and NSW, 2004 and 2006.



A scattergram shows the scores on one variable plotted against scores on another. These scattergrams show the relationship between the rank positions of localities in 2004 and 2006. If a line is projected through the centre of the data in both states the scatter about that line is quite small. Low rankings in one year correspond to low rankings in the other, and vice versa. There is a strong positive co-relation between the sets of data.

Queensland

In similar fashion to the other jurisdictions so far considered in this chapter, the *Principal Components Analysis* of the Queensland data resulted in the extraction of a major factor, in this instance accounting for 38.8 % of the total variance of the 24 indicators involved⁶. A second component accounted for 15.7% of the variance. We are justified in treating this first component as a ‘general disadvantage’ factor that captures many aspects of disadvantage previously reflected in 24 indicator scores. Ten variables correlated with this factor at the .65 level or above and all but one – long-term unemployed – were all on the list of the nine most correlating variables presented in the preceding chapter.

TABLE 5-5: Queensland: Indicators correlating $\leq +0.65$ with ‘disadvantage’ factor

Indicators correlating $\leq +0.65$ with disadvantage factor	Correlation with ‘disadvantage’ factor	Nine most inter-correlating indicators (see Chapter 4)
Early school leaving	0.88	✓
Limited internet access	0.88	✓
Limited computer use	0.86	✓
Post-school qualification	0.86	✓
Disability/sickness suppt.	0.84	✓
Low income families	0.81	✓
Average taxable income	0.78	✓
Low work skills	0.78	✓
Year 12 incomplete	0.76	✓
Long-term unemployed	0.72	

The indicators that correlated most highly with the second component which accounted for 15.7% of the total variance, with coefficients ranging from +0.68 to +0.54 were community mental health treatment, unemployment, hospital admissions, court convictions and prison admissions. The details are in Appendix A but four of the five variables correlated to a reasonably similar extent with the first *general disadvantage factor*, the exception being the community mental health treatment indicator⁷.

In any event, component 1 remains our primary concern because it represents an attempt to capture what the indicators measure in *common*, rather than an attempt to summarise all of the information conveyed by the entire set of indicators. The next step is to weight the 24 Queensland

⁶ Low birth-weight which consistently correlated poorly with the other indicators was eliminated from this principal component analyses.

⁷ Community mental health treatment correlated +0.68 with the second component and +0.35 with the first.

indicators in accordance with the outcome of the *Principal Components Analysis* and sum the results for each of the 459 Statistical Local Areas (see the Technical Appendix for the component loadings). The results for Queensland's most disadvantaged SLAs can be seen in Table 5-6 (below), the remainder of the localities being recorded at the project website (see Introduction for details).

TABLE 5-6: Queensland: 40 highest-ranking SLAs on 'disadvantage' factor

Band	Localities arranged alphabetically within each band	Estimated total population
BAND 1	Biggenden (S)	1,570
	Hervey Bay (C) - Pt B	4,012
	Kingston	12,896
	Mount Morgan (S)	2,974
	Murgon (S)	3,753
	Woodridge	18,266
BAND 2	Caboolture (S) - Central	18,194
	Cooloola (S) - Gympie Only	16,441
	Inala	12,462
	Kolan (S)	4,542
	Mornington (S)	1,044
Tiaro (S)	5,105	
BAND 3	Bribie Island	15,899
	Coolangatta	4,959
	Hervey Bay (C) - Pt A	47,806
	Marsden	18,776
	Paroo (S)	2,156
	Redland (S) Bal	6,817
BAND 4	Acacia Ridge	7,028
	Bundaberg (C)	46,540
	Clontarf	8,222
	Eagleby	9,141
	Isis (S)	6,250
	Mareeba (S)	18,850
BAND 5	Burke (S)	483
	Carpentaria (S)	2,352
	Durack	5,986
	Loganlea	8,170
	Margate-Woody Point	10,774
	Perry (S)	442

table continues

Band	Localities arranged alphabetically within each band	Estimated total population
BAND 6	Atherton (S)	11,212
	Bilinga	1,440
	Bowen (S)	12,546
	Burnett (S) - Pt A	14,396
	Cairns (C) - Pt B	4,876
	Cooloola (S) (Excl. Gympie)	20,217
	Deception Bay	20,727
	Maryborough (C)	25,714
	Townsville (C) - Pt B	3,599
	Waterford West	5,527

South Australia

The *Principal Components Analysis* for South Australia resulted in the extraction of a first component that accounted for 36.4% of the total variance of the 23 indicators across 114 Statistical Local Areas (SLAs). A second component accounted for 13.5% of the variance. We are justified in treating the first component as a general disadvantage factor that affords an opportunity to capture what the indicators share in common in a single disadvantage index score.

Twelve of the South Australian indicators correlated with the first component or factor at or above the +0.65 level. There are no previous findings for this state with which to compare the current results but eight of the twelve that correlated with the 'disadvantage' factor at the stated level were previously on the list of the most correlating variables described in Chapter 4. Of the remaining four, three were on the supplementary list of indicators described as 'slightly less important' but correlating with other indicators above +0.50 five or six times:

TABLE 5-7: SA: Indicators correlating $\geq +0.65$ with 'disadvantage' factor

Indicators correlating $\geq +0.65$ with disadvantage factor	Most inter-correlating indicators* (Chapter 4)	Supplementary indicators† (Chapter 4)
Limited computer use	✓	
Long-term unemployment	✓	
Limited internet access	✓	
Low income families	✓	
Year 12 incomplete	✓	
Child maltreatment	✓	
Early school leaving	✓	
Disability / sickness support		
Criminal convictions	✓	
Dependency ratio		✓
Average taxable income		✓
Low work skills		✓

* correlated with other indicators above +0.50 seven or more times

† correlated with other indicators above +0.50 five or six times

On the basis of their substantial correlations with the first component (see Appendix A), the character of the disadvantage factor for South Australia and, therefore, the weighted scores assigned to the 112 SLAs were influenced by limited education and training, associated poor work skills, low income and long-term unemployment, child maltreatment, generalised poor health and disabilities, involvement with crime and, associated with these circumstances, limited access to, and familiarity with computing. The following list of the thirty most disadvantaged SLAs resulted from the application of the factor weightings (see technical appendix). The position of the remaining SLAs can be viewed at the project website (see Introduction for details).

TABLE 5-8: SA: 30 highest-ranking SLAs on 'disadvantage' factor

Band	Localities arranged alphabetically within each band	Estimated total population
BAND 1	Coober Pedy (DC)	3062
	Murray Bridge (RC)	16,532
	Onkaparinga (C) – North Coast	17,207
	Peterborough (DC)	1,945
	Playford (C) - Elizabeth	25,154
BAND 2	Playford (C) – West Central	12,465
	Berri & Barmera (DC) - Barmera	4,303
	Copper Coast (DC)	10,546
	Mid Murray (DC)	8,448
	Port Adelaide Enfield (C) - Port	24,710
BAND 3	Port Augusta (C)	13,516
	Port Pirie C Dists (M) - City	13,575
	Ceduna (DC)	3,697
	Charles Sturt (C) – North-East	24,872
	Port Adelaide Enfield (C) - Inner	19,163
BAND 4	Renmark Paringa (DC) - Renmark	7,947
	Salisbury (C) - Central	26,839
	Whyalla (C)	21,614
	Alexandrina (DC) - Coastal	9,282
	Berri & Barmera (DC) - Berri	6,977
BAND 5	Goyder (DC)	2,439
	Onkaparinga (C) – Hackham	13,737
	Salisbury (C) – Inner North	23,994
	Yorke Peninsula (DC) - South	2,345
	Charles Sturt (C) – Inner East	21,037
BAND 6	Flinders Ranges (DC)	1,869
	Port Lincoln (C)	13,233
	The Coorong (DC)	5,660
	Wakefield (DC)	6,270
	Yorke Peninsula (DC) - North	7,209
BAND 6	Barunga West (DC)	2,484
	Charles Sturt (C) – Inner West	23,765
	Loxton Waikerie (DC) - West	4,626
	Loxton Waikerie (DC) - East	7,318
	Mount Gambier (C)	22,751
Port Pirie C Dists (M) Bal	3,499	

To what extent do the thirty SLAs in question resemble the earlier compiled list based on the number of times areas appeared in the top 12 highest rankings on the indicators? Without exception, the fourteen SLAs so identified reappeared in the top 30 based on the disadvantage factor scores. Eleven of the fourteen occupied positions in the first three disadvantage factor bands. One interesting difference concerned Murray Bridge, located in the first band of the factor scores but not included in the earlier list of most disadvantaged localities. There is an explanation for this difference: although Murray Bridge was only placed in the top 12 rankings three times, it occupied top 20 rankings on eight indicators and this contributed to an overall high score on the disadvantage factor.

TABLE 5-9: SA: comparison of 14 disadvantaged localities (see Chapter 3) and 30 areas with highest rankings on 'disadvantage' factor

Fourteen disadvantaged areas	Included in top 30 list
Ceduna (DC)	✓
Cooper Pedy (DC)	✓
Onkaparinga (C) – North Coast	✓
Peterborough (DC)	✓
Playford (C) – Elizabeth	✓
Playford (C) – West Central	✓
Port Adelaide Enfield (C) - Port	✓
Barunga West (DC)	✓
Onkaparinga (C) – Hackham	✓
Port Adelaide Enfield (C) – inner	✓
Port Augusta (C)	✓
Port Pirie C Dists (M) – City	✓
Whyalla (C)	✓
Yorke Peninsula (DC) - South	✓

Western Australia

The results of the *Principal Components Analysis* for Western Australia are problematic. The first component accounted for 25.4% of the variance while a second component accounted for 15.5%. Together they account for 41% of the variance. Six indicators correlated with the first component at the (reduced threshold) of +0.50 or above. Four of them (internet access, computer use, low family income and post-school qualifications) were among the seven most inter-correlating Western Australian variables identified in the previous chapter. Two of the three remaining variables on the inter-correlating list were dependency ratio and low work skills, both of which correlated above +.50 with the second component (together with unemployment and rental stress).

TABLE 5-10: WA: indicators correlating $\geq +0.60$ with first and second components

The 6 indicators correlating $\geq +0.60$ with 'disadvantage' factor	The 4 indicators correlating $\geq +0.60$ with second component
Internet access	
Limited computer use	
Low family income	
Post school qualifications	
Year 12 incomplete	
Long-term unemployment	
	Low skill workers
	Dependency ratio
	Unemployment
	Rental stress

Given the comparatively small number of LGAs involved we need to interpret the localities identified by disadvantage factor scores with particular caution in this case. It would be both pragmatic and appropriately vigilant to first look at LGAs identified as disadvantaged by the *combined* evidence of the 'top 14' approach used in Chapter 3 and priority rankings on the bases of the weights assigned by the first and second components. Then areas revealed as significantly disadvantaged either by the top 14 ratings or high rankings on either of the components could be added to the list of most disadvantaged areas.

Nine of the thirteen LGAs derived on the basis of 'top 14' rankings in Chapter 3 reappear among the first 13 localities generated by first component or second component weightings. These nine head the list on the right.

Carnarvon (S)
Denmark (S)
Dundas (S)
Halls Creek (S)
Menzies (S)
Murchison (S)
Ngaanyatjarraku (S)
Perth (C)
Upper Gascoyne (S)

Five of the first ten LGAs identified on the basis of first component weights as disadvantaged were not among the original 'top 14' localities. They should be added to the disadvantaged list.

Cranbrook (S)
Derby-West
Kimberley(S)
Kellerberrin(S)
Mullewa (S)
Tammin (S)

Similarly, the five LGAs not already included but with the highest rankings based on the second component should be added to the disadvantaged list.

Gingin (S)
Kwinana (T)
Mandurah (C)
Northam (S)
Wanneroo (C)

Finally, the remaining LGA identified by the top 14 approach (Chapter 3) as among the *most disadvantaged* localities, but not so far included, should be added to this final composite list.

Sandstone (S)

The test of the utility of the 20 above-named disadvantaged LGAs is not whether others could be added to the list. What is important is that here are 20 localities which, on the basis of the available evidence, warrant close consideration and strategic action to combat their comparatively high disadvantage among the 142 Western Australian LGAs studied.

Furthermore there is ample evidence that the 20 localities had more than their share of high rankings on the 21 indicators. Between them they accounted for 18 of the 21 first rank positions on those indicators. All of them were in top 20% rank positions at least five times, fourteen of the twenty being so placed on at least seven indicators, and ten holding top 20% places on at least eight indicators.

Tasmania

Tasmania is one jurisdiction in which the ratio of LGAs to the number of items or indicators (29:24) makes the use of *Principal Components Analysis* technically questionable. Nonetheless the fact that the first principal component accounted for 35.1% of the variance, and the second component 14.1%, has encouraged us to employ the technique in an exploratory, supplementary way.

Nine of the indicators correlated with the first component / 'disadvantage' factor at or above the +0.65 level. In the following table they are arranged in order of the magnitude of the correlations. The first seven are the same as the variables identified in Chapter 4 as the 'most inter-correlating' indicators.

TABLE 5-11: Tasmania: Indicators correlating $\geq +0.65$ with 'disadvantage' factor

The nine indicators correlating $\geq +0.65$ with disadvantage factor	Seven most inter-correlating indicators (Chapter 4)
Disability/sickness support	✓
Low income	✓
Early school leaving	✓
Internet access	✓
Unemployment	✓
Computer use	✓
Long-term unemployment	✓
Average taxable income	
Year 12 incomplete	

The *Principal Components Analysis* yielded the weights to be attached to the indicators in ordering the general susceptibility of Tasmanian local government areas to social disadvantage. The results were markedly similar to those derived from simply aggregating the number of times each locality appeared in the list of the top five rankings on each of the 24 indicators.

TABLE 5-12: Tasmania: 7 highest-ranking LGAs on 'disadvantage' factor (alphabetical order)

First seven ranks on disadvantage factor score (alphabetical order)	Featured in top 5 individual indicator scores (Chapter 3)	Estimated total population
Break O'Day	✓	6,519
Brighton	✓	14,906
Central Highlands	✓	2,487
Derwent Valley	✓	10,239
Glamorgan/Spring Bay		4,445
Southern Midlands	✓	6,152
Tasman	✓	2,299

Australian Capital Territory

Again we are faced by the problem of a technically difficult ratio of postcode areas to 'items' or indicators (24:22). Unlike Tasmania, the proportions of variance accounted for by the first and second components are similar (30.8% and 22.4% respectively) and the relatively high indicator/factor correlations are more evenly split between the two components (see Appendix A). In these circumstances, the simpler findings presented in Chapter 3, which relate well to those of NATSEM, remain a secure fall-back position. Nonetheless when the *Principal Components Analysis* is conducted and the first factor weightings are derived and used to calculate a single score for each ACT postcode, the results are similar to those reported in Chapter 3 and are again consistent with NATSEM's earlier work. Eight of the ten highest disadvantage factor rankings match those on the NATSEM list and the two that do not (2614 and 2603) correspond to locations that still have relatively high poverty rates. The ten areas identified by our analysis (Table 5-15 below) supplemented by two additional postcodes (2905 and 2906) that attracted a substantial number of 'top 5' rankings (Table 3-13, Chapter 3) provide a sound insight into the distribution of social disadvantage in the ACT.

TABLE 5-13: ACT: 10 postcodes with most 'disadvantaged' factor scores compared with NATSEM's 10 postcodes with highest poverty rates (alphabetical order within two bands)

Disadvantage factor rankings	NATSEM'S ten highest poverty rates	Estimated total population
Most disadvantaged		
2602 Dickson , Ainslie, Downer, Hackett, Lyneham, O'Connor, Watson	✓	25,475
2609 Fyshwick , Bonshaw, Majura, Pialligo, Symonston	✓	1,141
2604 Kingston , Narrabundah, Causeway	✓	7,833
2620 Oaks Estate , 2612 Turner, Braddon, Campbell, Reid	✓*	772
	✓	10,193
Next most disadvantaged		
2615 Charnwood , Dunlop, Florey, Flynn, Fraser, Higgins, Holt, Kippax, Latham, Macgregor, Melba, Spence	✓	37,841
2618 Hall	✓	351
2614 Jamison , Hawker, Macquarie, Page, Scullin, Weetangera	(13th)	15,155
2603 Manuka , Forrest, Griffith, Red Hill	(14th)	8,766
2606 Woden , Chifley, Lyons, O'Malley, Phillip, Swinger Hill	✓	7,280
NATSEM locations not included in disadvantage factor list		
2912 Gungahlin		
2617 Belconnen		

* For technical reasons not included but 5th among suburbs with highest percentage of people in poverty (p.35)

In the *Conclusion* section of this report some general observations will be made on the significance of the 'disadvantage' rankings presented in this chapter. First, in Chapter 6, we consider the potential role of social cohesion in dampening the ill-effects of the disadvantageous social conditions that have been the subject of the report to this point.

6

Assessing the impact of social cohesion

IT HAS BEEN frequently asserted but less frequently tangibly demonstrated that aspects of the social climate of an area can either dampen or exacerbate the effects of disadvantageous conditions, like unemployment, limited education and poor health. Theorising of this kind has been encouraged by the observation that some communities burdened by disadvantage appear more resilient than others in overcoming adversities. Some of the earliest sociologists sensed that the seat of this countervailing influence is located in the quality of the bonds between community members. Three qualities in particular: trust, reciprocity and common identity, gained early prominence. However, as is common in attempts to unravel the workings of social phenomena, it has been the *observable manifestations* of relationship qualities that have been emphasised – such as affinity, shared identity, intensity of interaction, reciprocity, trust, and informal social control – rather than the common root of these properties in the form of an underlying structure or structures.

That is not to deny the value of examining the association between community-level characteristics like the aforementioned ones and the harm wrought by socially disadvantageous conditions. In a preceding report, *Community Adversity and Resilience* (2004, pp.76-81) we empirically examined some effects of the presence in postcode communities of three aspects of the generic concept *social cohesion*. Our assessment of social cohesion was based on (i) the extent of local volunteering, (ii) the availability of help from neighbours in times of adversity, and (iii) participation in 'sociable' recreational activities. We found that a relatively high degree of 'cohesion' measured in these terms weakened the connections between unemployment, limited education, low income and limited work skills and a range of common *sequelae* (low birth-weight, court convictions, imprisonment and, to some extent, child maltreatment).

The Department for Victorian Communities has afforded the present project the opportunity to re-examine these findings with the advantage of a

substantially larger sample and a wider range of relevant variables. This information has been gained by aggregating survey data gathered continuously over the period 2001-2005. Application of the same threshold requirement that there should be a minimum of 10 respondents from each postcode area for that locality to be included in this phase of our study has yielded a sample of 495 postcode areas and 37,544 respondents. The 2004 study was based on 277 postcodes and 14,994 respondents to Victorian Population Health Surveys.¹

The next step has been to divide the 495 postcode areas into sub-categories that reflect their degree of *social cohesion*. This generic concept has frequently been given operational meaning by reference to three qualities: identification with the local community, sociability among residents and reciprocal support between individuals and households (Buckner, 1988). There were eight variables among those at our disposal that related to these three dimensions of social cohesion. *Volunteering* is a basic expression of identification with community (Stürmer and Kampmeier, 2003). Trust in others also arises from and reinforces communal identification as well as facilitating local relationships and initiatives (Durkheim, 1964; Coleman, 1990; Putnam, 2000). However, social interaction within a locality occurs more frequently and people identify more readily with their community when they *feel safe* moving within it. Conversely, people who are apprehensive about becoming the victim of crime engage less frequently in social interaction, thereby diminishing the likelihood of positive identification with their area, the development of trust in others and engaging in neighbourly, mutually supportive relations (Sampson, 1991). *Participation* in local groups and *attendance* at local events reflect and strengthen patterns of sociability while the anticipation of *help from neighbours* in times of adversity is sustained by patterns of reciprocal support among local people (Australian Institute of Health and Welfare, 2003). Six questions in the Victorian continuous surveys (see below) cover these aspects of social cohesion.

There is also a seventh element of relevance to our assessment of social cohesion that requires a little more comment. The foregoing properties: positive identification with group or community, trust, interaction and sociability, reciprocity of help, and the environment in which they flourish, are closely related to the classic distinction made in sociology between 'primary' and 'secondary' relations. Of these, primary relations, at least in greater degree, 'involve a certain fusion of individualities in a common whole, so that one's very self, for many purposes at least, is the common life and purpose of the group' (Cooley, 1906; Tönnies, 1957). Families, neighbourhoods and friendships are frequently cited examples of primary groups. A member of a primary group is responded to by other members as an integrated identity (Fallding's 1961 notion of a *cardinal role*) and not in terms of some limited and less personally involving specific role (salesperson,

¹ Also the participation in sociable forms of recreation was based on the responses of 23,892 people interviewed in Australian Institute of Sport surveys.

customer, party supporter and the like). This acceptance of the comprehensive self (*who you are*) can be a source of personal support and encourage a sense of being valued 'for oneself', as well as indicating membership of a primary group. Hence a further item of information available to us and relevant to identifying degrees of social cohesion concerns whether people feel valued by members of their community. Unfortunately, the item used by the authorities asks respondents whether they feel 'valued by society?' a question of some importance but less salient for our immediate purposes than if the focus had been upon residents of the local area. Nevertheless, we have included the item as a seventh piece of information in assessing social cohesion within each of the 495 postcodes of interest.

The final (eighth) item that we have used is of a slightly different order to those already discussed. In a general way it assumes that the cohesive influences already spoken of represent necessary but insufficient means for containing the harmful effects of disadvantageous social conditions (unemployment, limited education, poor health and the like). The 'something extra' that is needed is the willingness of local people to take action to promote the common good. In the words of a major proponent of this view (Sampson, 1997):

Socially cohesive neighbourhoods will prove the most fertile contexts for the realisation of informal social control. In sum, it is the linkage of mutual trust and the willingness to intervene for the common good that defines the neighbourhood context of collective efficacy (p. 918).

In his research Sampson has emphasised the importance of a combination of (i) a close-knit and trusting neighbourhood and willingness to intervene to promote the best interests of the community, and (ii) people's willingness to assume a direct role in undertaking informal social control. The available data enables us to tap variations in different localities' pursuit of community wellbeing via local group action and not the direct social control interventions of individuals. This capacity, in addition to the other seven elements of our cohesion measure, approximates to the conclusion of Browning and Cagney (2002) that: 'It is the sense of attachment to community in combination with the willingness on the part of residents to intervene on each other's behalf ... that is critical to the community level capacity to implement shared objectives.' (p.385)

So, what we have is an unusually rich set of communal qualities related to the concept of social cohesion. They may well be the visible manifestations of some underlying factor or factors that constrain the harmful influence of disadvantageous social conditions. After detailing the eight items upon which we rely, the remainder of this chapter is an exploration of the aforementioned possibilities bearing on the structure of social cohesion, and testing the hypothesis that social cohesion constrains the harmful effects of generally damaging social conditions.

The eight survey items that provide the data for the present study:

- (i) Are you a member of a local group? [COMBINING SEPARATE QUESTIONS ABOUT MEMBERSHIP OF A SPORTS/CHURCH/SCHOOL/ANY OTHER COMMUNITY GROUP]
Yes (50.7%)
- (ii) Have any of these groups that you are involved with taken any LOCAL action on behalf of your community in the last 12 months? (Question asked of persons who belonged to any of the groups).
Yes (35.6%)
- (iii) Do you help out a local group as a volunteer?
Yes & Sometimes (38.8%)
- (iv) Can you get help from neighbours when you need it?
Yes (56.1%)
- (v) Do you feel safe walking alone down your street after dark?
Yes (58.6%)
- (vi) Do you agree most people can be trusted?
Yes & Sometimes (77.5%)
- (vii) Have you attended a local community event in the past six months (eg: church fete, school concert, craft exhibition)?
Yes & Sometimes (25.1%)
- (viii) Do you feel valued by society?
Yes (52.0%)

The structure of social cohesion

If the eight variables tap aspects of the same latent construct one would expect a reasonably high degree of inter-correlation or association between them. To assist the non-technical reader we again present a simple explanation of what is meant by the correlation coefficient (r). An understanding of the measure is vital if the reader is to follow the research strategy used in this chapter.

When r is 0 we say there is 'no correlation' between two variables.

Where r is -1.00 there is a perfect negative correlation; that is, when X increases, Y decreases.

Where r is +1.00 there is a perfect positive correlation: when X increases, Y increases.

Using Spearman's rank order correlation we have compiled the following correlation matrix. It is not directly comparable with similar data presented in a recent admirable Department for Victorian Communities publication (Pope, *Indicators of Community Strength*, 2006). The correlations between the Department's indicators are based on Local Government Areas while those included in Table 6-1 (below) are based on postcode areas. Nonetheless, where the reported correlations overlap (for example, the correlates of

volunteering) their direction is generally similar but in our case weaker with respect to being valued by society. All but one of the correlations reported in Table 6-1 are statistically significant but by the simple measure of whether r attains 0.40, the association between six of the variables (volunteering, help from neighbours, groups and local action, safety and trusting others) is greater than with the remaining two variables (attendance at a community event and feeling valued by society). Nevertheless the extensive linkages between the variables suggest the existence of some underlying structure that is common to them.

TABLE 6-1: Correlations between variables constituting the cohesion measure

	Local volunteer	Help from neighbours	Groups & local action	Member of local group	Feel safe	People trusted	Community event	Valued by society
Local volunteer		.65*	.70*	.70*	.59*	.45*	.43*	.29*
Help from neighbours			.48*	.52*	.53*	.30*	.39*	.26*
Groups & local action				.65*	.53*	.42*	.22*	.32*
Member of local group					.47*	.46*	.21*	.35*
Feel safe						.48*	.27*	.33*
People trusted							.14*	.37*
Community event								.03
Valued by society								

* Correlation is significant at the 0.01 level (2-tailed)

To identify what the variables share in common we again take advantage of *Principal Components Analysis* (see Chapter 5). The analysis resulted in the extraction of a major factor that accounted for 50.8% of the total variance of the eight variables. A second component accounted for 13.9% of the variance. We are justified in treating the first component as a *social cohesion* factor that captures along a single dimension many aspects of cohesion previously reflected in eight separate item scores. As noted earlier in relation to 'disadvantage' factors, this does not mean that all of the variables are reflected to an equal extent by the social cohesion factor. Six of them correlated at the +0.64 level or higher and, as could be expected from Table 6-1, two (local event and valued by society) correlated below that level:

TABLE 6-2: Correlations between eight communal variables and the social cohesion factor

Communal variable	Component 1	Component 2
Volunteer	.88	-.19
Member local group	.80	-
Group action	.79	-
Neighbours	.76	-.29
Safety	.76	-
Trust	.64	.37
Local event	.44	-.69
Valued by society .49	.60	

We are now in a position to calculate a single cohesion score for each of the 495 Victorian postcodes for which relevant data is available. It is a weighted sum of scores on the eight variables, an expression of the overlap or common ground they share as reflected in the application of the Component 1 weights. The distribution of the 'cohesion' scores of 495 postcodes can then be divided into three categories: high, medium and low cohesion using the 'natural breaks' method rather than an arbitrary division into three equal parts. The natural breaks approach identifies breakpoints by looking for groupings and patterns inherent in the data using a formula that minimises the variation within each class. The boundaries to the classes reflect relatively large jumps in the values of the variable in question (Environmental Systems Research Institute, 1996). This method identified three cohesion categories of approximately equal size:

Low cohesion	164 (33.1%) postcodes
Medium cohesion	176 (35.6%) postcodes
High cohesion	155 (31.3%) postcodes

The majority of the areas that meet the sample size criterion are in either the Melbourne metropolitan or rural urban areas:

Metropolitan Melbourne	217 postcode areas
Rural urban	221 postcode areas
Rural	57 postcode areas

The 155 high cohesion areas were disproportionately located within the non-metropolitan categories. Rural urban and rural had approximately two-thirds as many again of the high cohesion postcode areas as might have been expected on a share-of-sample basis. Metropolitan Melbourne had eight times fewer than might have been expected on the same basis:

TABLE 6-3: Distribution of high cohesion areas

Zone	Share of total sample	Share of high cohesion postcodes	
		Expected	Actual
Metropolitan Melbourne	43.8%	68	8
Rural urban	44.7%	69	118
Rural	11.5%	18	29
Total		155	155

This result resonates with the findings of research at the Victorian Local Government Area level, indicating that rural localities generally have higher scores on community strength indicators than their metropolitan counterparts (Department for Victorian Communities, 2005).

Research strategy

The strategy for exploring whether an area's location in one of these three cohesion categories affects the impact of disadvantageous social conditions turns on the fact that we have available data that replicates established connections between such conditions and problematic outcomes. These connections were discussed in Chapter 2 where we reviewed the evidence supporting the choice of indicators for the project. They include circumstances like unemployment, limited work skills, early departure from schooling, and low income and their association with states of affairs like low birth weight, criminal convictions, imprisonment, childhood accidents, psychiatric hospital admissions, and child maltreatment. There are 24 pairs of such variables within our present data (twelve were used in the 2004 study). They have been selected because in every instance the literature indicates a positive association between the variables (see Chapter 2). We have calculated the size of the correlation between each of the 24 pairs of variables across the 495 postcode areas for which we have a cohesion rating and that figure appears in the first column of Table 6-4 (coloured grey). The crucial question is whether the recalculation of the same correlations between, say, unemployment and imprisonment, or low family income and child maltreatment, *within* the three categories of social cohesion produces a consistent change in the strength of the connections. That is to say, does social cohesion in the particular mathematical form that we have defined it, operate as an intervening variable to constrain or 'dampen down' the ill-effects of disadvantageous social conditions?

Judged by the contrasting correlation coefficients within the 'low' and 'high' cohesion categories (Table 6-4), *with a reduction in every instance* in the

degree of association between the 24 pairs of variables, social cohesion does indeed exert a strong buffering effect. If anything, the strength of this effect was reinforced by the fact that in three instances variables had weaker associations across the 495 localities than would be inferred from the literature. These were the correlations of Year 12 incomplete with child accidents and low birth weight, and low family income and birth weight. The results even in these instances still served to highlight the relative strength of impact of the disadvantageous conditions within the low cohesion category, remarkably so in the case of Year 12 incomplete/child accidents.

The findings parallel those obtained in 2004 in relation to 12 pairs of variables. On that occasion three aspects of social cohesion (volunteering, neighbouring and sociable recreation) were simply added together to provide a cohesion index. However, the more refined concept of cohesion used on this occasion saw bigger reductions in the correlations between the low and high cohesion categories in eight of the twelve examples available to both studies. Overall, the size of the correlations within the high cohesion category was (at least) halved from that in the low category in 17 of the 24 pairs of variables considered on this occasion.

The contrast of extreme categories is always more likely to reveal a consistent pattern than 'in between' categories. Apart from measurement issues, there is the possibility that the effect, for example, of cohesion is only felt beyond a threshold point that lies outside the middle range. Nevertheless, the direction of 'middle cohesion' scores in Table 6-4 is generally consistent with the hypothesised buffering effect of social cohesion. There are five cases in which the correlation coefficient in the middle category does not fit neatly between those in the two extreme categories. This still leaves 19/24 instances in which the size of r in the middle category is between that in the low and high cohesion groups (see Table 6-4 below). In one case – the correlation between 'early school leaving' and 'psychiatric hospital admissions' – the coefficient in the middle cohesion category is substantially higher than that in the low cohesion category. In the remaining four cases there were modest increases in r in the middle cohesion compared with the low cohesion category. Overall, the contrasting effects of the extreme categories of cohesion and the general uniformity of direction of the middle category constitute a social research finding of unusual consistency and promise to social development practitioners.

Some implications for that field will be drawn in the *Conclusions* section of this report (Chapter 7). Meanwhile, on the research side, it is important to remember that we are dealing here with a construct which affords opportunities for further methodological refinement of the operational definition of 'cohesion'. Those endeavours are proceeding.

TABLE 6-4: Correlations between antecedent and outcome variables within areas with different degrees of social cohesion in Victoria

	Across 495 postcode areas with cohesion scores	Low social cohesion N=164	Medium social cohesion N=176	High social cohesion N=155
Crime				
Unemployment/imprisonment	.44	.67	.30	.17
Unemploy./crim.convictions	.49	.67	.48	.30
Early sch. leav./imprisonmt	.42	.47	.16	.14
Low fam. income/imprisonmt	.48	.64	.17	.09
Yr 12 incomplete/imprisonmt	.16	.25	.09	.08
Low work skills/imprisonmt	.49	.42	.14	.19
Early sch. leav./convictions	.48	.51	.66	.37
Child maltreatment				
Unemploy./child mistreat	.44	.63	.44	.26
Low fam. inc./ child mistreat	.36	.59	.42	.27
Childhood injuries				
Year 12 incomplete/ injuries	.05	.53	.04	-.11
Non-attendance at pre-school				
Low fam. inc./ preschool	.39	.56	.44	.17
Early sch. leaving/ preschool	.42	.57	.46	.17
Unemployment				
Low work skills/ unemploy.	.49	.55	.54	.39
Early sch. leaving/ unemploy.	.42	.67	.62	.14
Low work skills/long-term unemployment	.34	.37	.41	.18
Early school leaving/ long-term unemployment	.56	.62	.61	.42
Psychiatric hospital admissions				
Unemploy./psych. admiss	.30	.50	.35	.12
Early sch. leaving/admissions	.47	.40	.59	.37
Domestic violence				
Disability/domestic violence	.30	.50	.52	.33
Unemploy./domestic violence	.41	.44	.42	.30
Low birth-weight				
Unemployment/low weight	.34	.43	.30	.20
Early school leaving/low wt	.19	.46	.17	.11
Year 12 incomplete/low wt	.13	.26	.18	.14
Low family income/low wt	.10	.43	.18	.03

7

Summary and conclusions

BECAUSE OF THE cooperation extended by the States and Territories, it has proved possible to assemble a substantial body of data on the distribution of social disadvantage throughout Australia. As foreshadowed by the Chief Minister at the outset of the project, the geography and pattern of settlement of the Northern Territory have posed particular challenges for the type of locality-based analysis adopted in this report. In some other instances the separate data systems of different authorities within the one jurisdiction have made it necessary to convert data to a common framework that, while serving our purposes, has been less than optimal.

Notwithstanding these difficulties, the blending of statistical data obtained from national sources with State and Territory administrative data, compiled in some instances for the first time, has provided considerable insight into the geography of disadvantage. The identification of disadvantaged areas on the simple basis of their disproportionate share of top ranking positions on the indicators (Chapter 3) overlapped considerably but not entirely with the list generated by employing the disadvantage factor scores (Chapter 5). Differences between the lists are due to the latter's taking account of where the areas stood: high, middling or low, on all of the indicators. The latter method also accorded more weight to some variables that are more salient in determining a locality's susceptibility to disadvantage. Both perspectives have their usefulness. To know the recurring characteristics of highly disadvantaged localities within a jurisdiction is to begin to order priorities when it comes to remedial or preventive action. Similarly, to see the ways in which disadvantageous conditions are 'bundled' in the sense of being inter-correlated (Chapter 4) invites consideration of the more systemic constraints that need to be loosened if residents' life opportunities are to be increased. For example, if, as appears commonly to be the case, unemployment and crime correlate with limited education and limited work skills, then the preventative and remedial pathways need to take heed of these interconnections.

In summary, there have been three sets of indicators in this study that have

appeared particularly salient in identifying markedly disadvantaged areas. In order of their appearance in the report, the first concerned the attributes of consistently high-ranking locations. The twelve key indicators were presented at the conclusion of Chapter 3 and they are listed in the middle column of the table (7-1) below. Eight of them coincided with the eleven indicators that most consistently had the highest loadings on the general disadvantage factors for seven jurisdictions (Chapter 5). Together these two lists afford the clearest indication of the foundations of disadvantage in both its general distribution in society and the additional features that characterise areas in which it is highly concentrated. In combination they tell the mundane but enduring story of the disadvantaging consequences of limited education and associated lack of information retrieval and exchange skills, deficient labour market credentials, poor health and disabilities, low individual and family income and engagement in crime. Localities with markedly high rankings on these and other forms of disadvantage are areas in which child maltreatment is also more likely to come to notice.

Highly correlating variables (the third column of Table 7-1) by their nature throw a different kind of light on the structure of localised disadvantage. They represent the connecting threads between the indicators and capture more generic dimensions of disadvantage. However, they again underline the importance of limited education and information skills, low family income and employment related skills as links connecting the more detailed manifestations of disadvantage revealed by the 'top ranking' and *Principal Components* analyses. Whatever other measures are necessary to combat the geographic concentration of the problems highlighted by Table 7-1, it is difficult to deny the centrality of limited education and its impact on the acquisition of economic and life skills in the making and sustaining of disadvantage in Australia.

TABLE 7-1: Convergence of indicators (loadings on principal components, attributes of high ranking places and highly correlating variables).

Loadings on general disadvantage factor - across jurisdictions, ≥ 0.65 *	Attributes of high ranking places – across jurisdictions (Chapter 3)	Highly correlating variables – across jurisdictions (Chapter 4)
Low income families	✓	✓
Limited computer use	✓	✓
Early school leaving	✓	✓
Year 12 incomplete	✓	✓
No internet access	✓	✓
Disability / sickness support	✓	—
Long-term unemployment	✓	✓
Criminal convictions	✓	—
Low work skills	—	✓
Average mean taxable income	—	—
Dependency ratio	—	—
Attributes identified by other analyses		
Lack of post school qualifications	✓	✓
Unemployment	✓	—
Prison admissions	✓	—
Confirmed child maltreatment	✓	—

* Had loadings ≥ 0.65 in four or more instances

In regional terms, how was social disadvantage distributed? Across the five states, where it makes sense to compare the relative concentrations of disadvantage in metropolitan and non-metropolitan areas, approximately 52% of the 170 disadvantaged localities identified in Chapter 5 were in rural areas.

TABLE 7-2: Distribution of disadvantaged localities in five states

Jurisdiction	Metropolitan	Non-metropolitan urban	Rural	TOTAL
Queensland	8	8	24	40
NSW	10	11	19	40
Victoria	11	16	13	40
SA	10	2	18	30
WA	3	3	14	20
TOTAL	42	40	88	170

Without minimising their material difficulties, especially in times when natural forces impose additional problems, many rural areas have an

advantage when it comes to taking collective action. The analysis of social cohesion and its effects (Chapter 6) showed a greater concentration of high cohesion localities in rural Victoria. More generally it would seem from our results that strengthening the social bonds between residents can be an important first step in minimising the harmful effects of disadvantageous social and economic conditions. Needless to say this capacity can be a necessary but not sufficient means of redressing many problems that require additional external leverage and support.

A policy tool

Government administrations need a comprehensive and clearly ordered framework as a basis for policy decisions. This is where the overall disadvantage rankings determined by the analyses employed here come to the fore. They take into account multiple strands of deprivation and identify a hierarchy of disadvantaged localities. The rankings based on the analyses represent a coherent, pragmatic administrative tool that can be used either to focus restorative endeavours or anticipate and help prevent a local area's slide towards entrenched disadvantage. Both functions assume the continuing availability of data of the present kind and an approach that necessitates the collaboration of different government portfolios. A few examples follow of ways in which the index should be used.

'Place effects' – the net influence exerted by a locality on people's wellbeing after allowing for individual and family disadvantage – appear to be strongest during the early stages of life and late adolescence. In the health field the disadvantage index should be used to ensure that post-natal outreach services, parenting support programs and children's diagnostic services are strongly represented within highly disadvantaged neighbourhoods, including those in rural and remote areas. The same is true of adolescent health services.

The education portfolio must necessarily be involved in combating disadvantage. At many points the project's findings remind us of the importance of completing school education in overcoming or avoiding disadvantage. Preschool offers elemental learning that can compensate for educationally and socially disadvantaged backgrounds. Preschools closely linked to primary schools need to be readily accessible in disadvantaged areas. A special effort needs to be made to help students in these areas to successfully negotiate the mid-primary years, for the educational – and therefore personal and social – futures of many people depend on it. Part of the solution lies in ensuring a balance of old and new hands among the teachers in disadvantaged areas.

An adequate level of community transport needs to be provided in disadvantaged areas to ensure that residents can take advantage of human services

provided by health, employment and income support agencies. This applies to rural as well as urban areas.

In the sphere of government utilities, power and water suppliers need to be guided by knowledge of the cumulative social disadvantage in the areas they serve to deal equitably with defaults and delays in the payment of fees. Public housing authorities administering to socially disadvantaged neighbourhoods have a particular responsibility to attract and support the contributions of other government and non-government agencies.

The policing of disadvantaged areas can be linked with the work of other social agencies in search of ways of improving community functioning. Experience with community strengthening projects has shown that this problem solving approach to policing can be implemented without forfeiting the Service's fundamental duty to protect residents' wellbeing and property

Governments also need feedback on the social and family consequences of drawing an ever-increasing number of prisoners from a relatively small number of neighbourhoods. The correctional arm of government does not stand outside the process of rational social planning. It should monitor the social impacts of its own operation and synchronise its endeavours with other portfolios of government.

Stability of rankings

The current project has provided continuing evidence of the durability of social disadvantage in the absence of sustained constructive interventions. Victoria and New South Wales have been the subject of similar previous studies. The 11 NSW places with six or more top 40 rankings in 2006 had dominated similar lists in 2004 and 1999. A similar pattern existed with respect to the counterpart Victorian localities. When it comes to the stability of factor scores, the correlation of Victoria's postcode rankings in 2004 and 2006 (.918) confirmed the stability of spatially distributed disadvantage in that state. The corresponding figure for NSW was .902. After taking into account the major expansion of the range of indicators used, the rank order correlations of factor scores in 1999 and 2006 were also high (.748 for Victoria and .805 for NSW).

A second source of evidence of longer-term stability of disadvantage involves NSW studies conducted more than 30 years ago (Australian Government Social Welfare Commission, 1975; Australian Department of Social Security, 1976). Some localities identified then as being disadvantaged have remained so to the present day. There have been instances in which relatively short-term supportive interventions (usually around two to three years) have seen crucial improvements including some in early life-stage wellbeing. Where this has happened, at least in three of the four New South Wales projects for which data is available, the cessation of the support

program has seen a rebound to previous levels of disadvantage. Cases 'C' and 'A' appear outstanding in that regard while the status of area 'D' has remained essentially unaltered.

TABLE 7-3: Shifts in disadvantage rankings of six NSW community strengthening sites, 1999-2006

Location	Rank in 1999	Rank in 2004	Rank in 2006
'A' (1997-2004)	81	109	68
'B' (2001-2004)	320	339	280
'C' (2001-2004)	41	116	66
'D' (1999-2002)	168	146	153

The above trajectories contrast with a project of substantially longer duration employing a community development approach in the Sydney suburb of Waterloo. Involving a range of different agencies and with the sustained support over eleven years of the University of New South Wales the ranking of the postcode area was 22nd in 1999, 14th in 2004 and 91st in 2006. This duration matches that of the UK trust projects discussed below.¹

Such findings caution against a view that an inadequate single 'dose' of assistance is better than no help at all. When the will of a long disadvantaged community to deal with its problems is stirred and assistance is proffered, the let-down occasioned by the premature withdrawal of help can leave people feeling more hopeless than before the process began. It is no comfort that, to use the modern parlance, the community strengthening program is 'rolled out' to other disadvantaged communities. Tough decisions are required about staying the distance with a manageable number of highly disadvantaged communities in order to 'turn around' the life prospects of those who reside in them. No absolute time limit can be set for that endeavour but it will need to be nearer to seven or eight years than the standard two or three characteristic of state initiatives and (effectively) the current Commonwealth Communities for Children program. The consolidation of disadvantage over decades cannot be reversed in a year or two.

There are many overseas examples of the effectiveness of long-term investment in addressing disadvantage. One such example is the Groundwork network of trusts, which has operated since the early eighties throughout much of England, Wales and Northern Ireland. In recent times the range of trust activities has broadened to embrace much of the new neighbourhood renewal agenda. The trusts believe that working in areas of major disadvantage demands long-term commitment. All Groundwork activities

stress the importance of maximising community involvement and rebuilding capacity where local confidence and self-esteem have been destroyed.

The long-term nature of the Groundwork network of trusts' investment in disadvantaged communities is evident in three examples:

- 'Groundwork Merthyr and Rhondda Cynon Taff – commenced work in 1985 and has 28 full-time staff;
- Groundwork Medway Swale – commenced work in 1999 and has 24 full-time staff; and
- Groundwork Merton – described as a 'relatively new trust' was established in 1996 and is in its final year of 'development funding' with 14 full time staff.

An evaluation of the work of the Groundwork movement funded by the Rowntree Foundation (2002a) highlights the following lessons for policy makers:

- rebuilding neighbourhoods long neglected is a long term process;
- lengthy lead-in times are needed to equip communities to engage in strategy development;
- even where there has been community development and capacity building, vulnerable communities need support in the long term; and
- these processes impose limits on the speed with which impacts on programme outcomes can be achieved.

Geoff Fordham, co-author of the Rowntree Foundation report has summarised the project findings in these terms: 'The extent of deprivation on many estates means that change can only be achieved in the long term. As Groundwork has recognised, it takes time to equip communities with the confidence and skills to play a proper part in planning and implementing regeneration activity. Groundwork's experience of community-based renewal could be of great value to those policy makers in local and central government who have yet to learn that quick fixes are not the answer.' (Rowntree Foundation 2002b)

There are major implications in this statement for Australian Government initiatives, such as the Communities for Children program, and state-level community strengthening projects as well as similar endeavours sponsored by non-government organisations. Australia's commitment to the principle of a 'fair go' requires that community level interventions be sustained for the duration needed to genuinely enhance the life opportunities of all residents.

Whose responsibility?

In recent years State and Territory authorities have been developing initiatives to combat social disadvantage that is concentrated in particular areas. The findings of the present project, especially the identification of the most disadvantaged localities presented in Chapter 5 and continued on the project

¹ The author acknowledges a personal involvement in the development of the Waterloo project.

website, show the need for an expansion of these endeavours – but not at the cost of unrealistically compressing individual projects into too short a period. As already mentioned, that problem is not confined to the States and Territories: the Commonwealth's current substantial investment in 45 four-year duration Communities For Children programs will generally see around two years of actual community strengthening activity before evaluations are commenced.

It is a corollary to Commonwealth Government policies aimed at engaging people in economically and socially productive lives that the Commonwealth should play a significant part in combating localised conditions that obstruct the achievement of such policies. While there is no disadvantage measuring rod that is applicable to all eight jurisdictions², it is possible to identify areas of such high national priority as to both justify the Commonwealth's leadership in remedial programs and provide demonstration models of effective intervention for wider emulation. Apart from the localities where Communities for Children and COAG Whole of Government Indigenous Initiatives are operating, and without lessening the need for state community building projects in other areas specified in Chapter 5, the present findings indicate the following areas of high national priority:

Priority areas for effective intervention

NSW:	Windale Bowraville-Kempsey
VICTORIA:	Rosebud Braybrook
QUEENSLAND:	Mt Morgan Woodridge
SA:	Priority areas already covered by Commonwealth schemes: COAG: Anangu Pitjantjatjara (AP) Lands; Communities for Children: Onkaparinga, North Western Adelaide, Port Augusta, Salisbury, Murray Bridge
WA:	Priority areas already covered by Commonwealth schemes: COAG: East Kimberley; Communities for Children: Kwinana, Lower Great Southern, Girrawheen/Koondoola/Balga/Mirrabooka, Armadale, East Kimberley, West Pilbara
TASMANIA:	Southern Midlands Break O'Day
ACT:	Kingston (Narrabundah, Causeway)

² As previously explained there are some qualitative differences in the administrative data furnished by the states and territories.

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Appendix

Technical appendix Loadings on principal components

	Victoria		N.S.W		Queensland		S.A.		W.A.		Tasmania		A.C.T.	
	Comp.1	Comp.2	Comp.1	Comp.2	Comp.1	Comp.2	Comp.1	Comp.2	Comp.1	Comp.2	Comp.1	Comp.2	Comp.1	Comp.2
Limited computer use.	.92	*	.89	-.27	.86	-.34	.89	*	.82	*	.81	-.36	.69	.40
No internet access	.90	-.19	.88	-.35	.88	-.42	.84	-.27	.84	*	.84	-.42	.22	.90
Low income families	.88	-.11	.88	-.15	.81	-.11	.82	*	.66	-.16	.85	.34	.90	*
Post-school qualifications	.87	-.13	.84	-.38	.86	-.36	.50	.54	.59	-.52	.43	.32	.11	.89
Disab. / sick. support	.82	-.19	.65	.20	.84	*	.71	*	—	.24	.87	.39	.57	-.26
Early school leaving	.79	-.29	.85	-.26	.88	-.25	.73	-.29	.34	*	.84	*	.88	*
Low work skills	.72	.25	.84	-.20	.78	-.39	.65	-.32	.49	.57	*	*	*	.92
Year 12 incomplete	.72	*	.80	-.19	.76	-.41	.73	-.49	.66	.10	.73	-.51	*	.84
Dependency ratio	.71	-.17	.73	-.13	.47	-.13	.68	.16	.10	.77	.37	.24	.22	.27
Criminal convictions	.66	.35	.81	.19	.57	.53	.70	.19	—	—	.54	.13	.82	*
Mortality ratio	.57	-.17	.36	*	.26	.38	.30	-.43	.37	.13	.6	-.37	*	*
Lone person households	.54	.20	.46	.31	—	—	.24	.63	-.12	-.24	*	-.10	.79	-.35
Unemployment	.48	.42	.73	*	.57	.62	.54	.51	.21	.79	.84	.41	.62	*
Non-attend. Preschool	.46	.34	.25	*	.56	-.15	*	.14	-.11	-.37	*	.52	—	—
Average tax. Income	-.32	.78	.79	-.17	.78	-.32	.67	-.11	.29	.20	.74	.14	-.33	.73
Prison admissions	.33	.74	.65	.36	.55	.54	.49	.12	.34	.33	.42	.22	.74	*
Rental stress	*	.71	*	.80	*	.39	-.42	.57	-.55	.60	-.40	.59	.62	.21
Child maltreatment	.36	.50	.63	.29	.45	.42	.73	.25	—	—	—	—	.22	.20
Purchase stress	.12	.45	*	.71	.13	*	*	.61	-.23	.30	.27	-.48	.17	*
Domestic violence	.46	*	.57	.33	.59	.24	.35	*	—	—	—	—	.34	.59
Psychiatric hospital	.43	*	.37	.56	.47	.58	—	—	*	*	-.13	.61	—	—
Psychiatric community	—	—	—	—	.35	.68	.61	.42	—	—	.35	.50	—	—
Long-term unemploy.	.42	-.30	.83	—	.72	.40	.84	.13	.58	.13	.80	.30	.73	-.14
Childhood accidents	*	.32	.45	.30	—	—	—	—	.35	-.41	—	—	.24	*
Deficient immunisation	-.14	.34	*	.68	-.17	.35	*	.66	-.26	.35	*	*	.70	-.59
Suicide rate	—	—	—	—	—	—	—	—	—	—	—	—	.44	.40

* Value less than \pm 0.10

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