

SOCIAL EXCLUSION OF CHILDREN: THE REGIONAL DIMENSION

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ABSTRACT: Recently, new evidence relating to the differences between the states and territories of Australia and their associated risks of child social exclusion has emerged. Daly et al (2008) found children living in Queensland, Tasmania, the Northern Territory, and to a lesser degree, South Australia, are associated with a greater likelihood of living in an area with higher degrees of social exclusion compared to other states and territories. In this study it is concluded that once socioeconomic and demographic factors have been taken into account, coastal regions, Tasmania, and to a lesser extent South Australia, are associated with a lower risk of child social exclusion. The Northern Territory and remote regions however, are associated with a significantly higher incidence of social exclusion. In addition, this study concludes that most of the regional variation in child social exclusion is explained by the attributes of the inhabitants.

1. INTRODUCTION

In a recent study in this journal, Daly et al (2008) examined the relationship between regional location and the associated risk of child social exclusion. The study employed data from the 2001 Census of Population and Housing and used Statistical Local Areas (SLA) as the spatial unit for analysis.

Daly et al (2008) used a variety of variables to best capture the theoretical definition of child social exclusion from the available data. These variables included: proportion of children aged 0-15 in sole parent families; proportion of children aged 0-15 with no-one in the family having completed Year 12; proportion of children aged 0 – 15 with highest occupation in family blue collar worker; proportion of children aged 0 – 15 in public housing; proportion of children aged 0 – 15 in a family with no parent working; proportion of children aged 0 – 15 living in dwellings where no-one used a computer at home in last week; proportion of children aged 0 – 15 in household with no motor vehicle; and proportion of children aged 0 – 15 in household with income in the bottom quintile of equivalent gross household income for all households in Australia. From these variables a Child Social Exclusion Index was created using Principal Component Analysis and the SLA were ranked accordingly by region.

Daly et al (2008) concluded children living in Queensland, Tasmania, the Northern Territory, and to a lesser degree, South Australia, are associated with a greater likelihood of living in an area with higher degrees of social exclusion compared to other states and territories. They postulated that this is caused by more children in Queensland, Tasmania, and the Northern Territory living in sole

parent families, where no one is employed, and that these children are coming from families with low levels of education. There were similar results for the two age subgroups they examined; subgroup one, preschoolers (0-4 years) and those of school age (5-15 years), subgroup two. The results also suggested that children living outside capital cities around Australia were linked with an increased risk of child social exclusion.

In this study it is found that once the socioeconomic and demographic factors are accounted for, Tasmania and to a lesser extent South Australia are associated with a lower risk of child social exclusion. The Northern Territory is associated with a significantly higher incidence of social exclusion. Similarly, children living in remote areas are also associated with a greater risk of exclusion. However, coastal regions are associated with a lower incidence of social exclusion.

2. REGIONAL EFFECTS AND SOCIAL EXCLUSION

Research overseas has indicated that the level of social exclusion an individual experiences is related to the area one lives in (see for instance Bradshaw et al 2004). The British Social Exclusion Unit and the Eurostat Taskforce on Social Exclusion and Poverty Statistics both include in their definitions of social exclusion spatial or neighbourhood effects. Bradshaw et al. (2004, p.86) defines a neighbourhood effect as 'the net change in the contribution to life chances made by living in one area rather than another'.

Neighbourhood effects have been explained by other authors by focusing on the attributes of the local residents, neighbourhood effects, and intergenerational mobility. It has been found that the housing market sorts families into areas by housing affordability, which concentrates the disadvantaged into the areas of cheaper housing (Daly 2006). This can make it hard for researchers looking to separate each of the neighbourhood effects from the housing market effect. It is also important to note that the use of one of these effects does not exclude another from being present. In fact, the use of multiple effects at the same time may well bolster the overall explanation by enabling the researcher to better connect with the actual experience of the disadvantaged (Kelly & Lewis 2002).

It may be that differences in human capital and demographics of an area contribute to the employment opportunities available. This implies declining employment opportunities in low socioeconomic status areas are due to the unemployed or individuals prone to unemployment concentrating in areas that are already disadvantaged. Hunter (1996) and Karmel et al (1993) explain that the majority of regional variation in unemployment is due to the attributes of the inhabitants.

In a similar vein, other authors have tried explaining differences in areas by looking at the area's industry endowments. The main point here is that the people are not where the jobs are; they are essentially spatially mismatched or structurally unemployed.

There are a few ways in which this might develop: a relative reduction in blue collar or low skilled/unskilled labour demand would tend to affect the disadvantaged areas more as they are likely to be the predominant types of

employment for disadvantaged districts. A reduction in employment opportunities for an area caused by a declining industry; or an overall economic decline in economic activity within an area reduces the numbers of employed persons and decreases employment ratios which decrease the median income for the area and increases the risk of child social exclusion (Kelly & Lewis 2002). Lawson and Dwyer (2002) found that regions experiencing relatively little structural change had higher out-migration levels due to the lack of new growth industries causing high unemployment rates. Garnett & Lewis (2007) also assert that population shifts occur, in part, due to labour market conditions and employment growth.

Buck (2001) develops a number of hypotheses attempting to explain neighbourhood externalities which affect individuals negatively based on their place of residence. First, the 'epidemic model' argues behaviour is contagious due to peer pressure and may produce negative outcomes for group members. For example skipping school or dropping out of school by some members in a group encourages similar behaviour for other members in the group. A 'collective socialisation' model which looks at the role models within a particular area of residence suggests that the role models present have significant influence on a child's socialisation. If a child lives in an area where many adults, for one reason or another, collect income support, the child may consider dependency on government income support the norm. The 'institutional model' suggests neighbourhood effects are present due to the existing services in the area. Essentially neighbourhoods are in competition with one another for services and some neighbourhoods are better at attracting essential services than others. The role of social networks in creating employment opportunities can also be a significant factor between neighbourhoods 'it's not what you know it's who you know'. Finally Buck (2001) includes physical barriers in his list of neighbourhood effects relating to the remoteness of some communities and the availability of transport.

There is a substantial body of evidence both overseas and in Australia relating to social exclusion in regions. Bradshaw et al (2004) concluded from their survey of Britain that neighbourhood effects affecting social exclusion are significant but not as large as individual and family determinants. The main factors where neighbourhoods made a difference were in health, child development, educational attainment, poverty and unemployment. Buck (2001) found in Britain there are small negative neighbourhood effects due to people's expectations about starting a job which were lower in poor neighbourhoods and that the probability of leaving poverty was lower and re-entering poverty higher in poor neighbourhoods compared with other areas. Gibbons et al (2005) studied the effect of neighbourhoods on employment, educational outcomes for children and crime victimisation in the UK. They found that the housing market is an important determinant of neighbourhood effects and that these effects were small for employment, and educational outcomes, but considerable for crime victimisation. The physical barrier of available transport has been of research and policy interest within Britain and the US. In Britain, the lack of adequate transport has been found to be an issue that restricts an individual's access to

work, education and training, hospitals, cheaper food and social, cultural and sporting activities (Bradshaw et al. 2004).

Wilson's (1987) work on underclasses examined neighbourhood effects in the USA. He focused on the 'concentration effect' in allocating more disadvantaged people into one location where they become socially removed from employment opportunities and from successful role models. He found that for neighbourhoods where the vast majority of families often endure spells of long-term joblessness, the residents experience a social isolation that excludes them from job networks. When the prospects for employment diminish, welfare and the underground economy are common practice and become normalized in the area. Furthermore children seldom interact on a sustained basis with people who are employed or with families that have a steady breadwinner, offering no appropriate role models for future generations (Wilson 1987).

Durlauf (2001) summarised US evidence on neighbourhood effects and concluded that there is a small amount of evidence to support the role of group effects in contributing to poverty, but the mechanisms for this remain unclear. Vartanian and Buck (2005) also find evidence of a childhood neighbourhood effect on adult earnings in the USA.

In Australia, Hunter and Gregory (Gregory and Hunter 1996; Gregory and Hunter 2001; Hunter 1995; Hunter 2003) investigated whether Australian cities have developed concentrations of disadvantaged people that have been isolated from job networks and the social interactions of mainstream society. They found income and employment in the poorest collection districts (CD) declined relatively from 1976 to 1991. Hunter (1995) argues that the restructuring of the Australian economy had a significant influence on employment outcomes in the low income CDs. In 2003 Hunter compared the incomes across Australian postcodes with similar spatial units in the US and Canada and found that there was less difference between neighbourhoods in Australia than in the other two countries. However, Hunter (2003) also found evidence of increasing differentiation between neighbourhoods over time from 1980/81 to 1990/91 in each of these three countries.

Other Australian research on the residential component of disadvantage has focused on income measures and has found the income distribution between residential areas expanding. This growing disparity in income between residential areas is principally due to structural changes affecting the labour market that have taken place in the last twenty years. This has meant a shift away from the agriculture and manufacturing industries towards the service sector creating significant changes to the occupational distribution within Australian residential areas (Lewis 2008).

3. METHODOLOGY

3.1 Data

The data used in this study are from the Australian Bureau of Statistics Census of Population and Housing. The spatial unit used in this paper is the Statistical Local Area or SLA. As argued in Daly et al (2008), SLAs are the best

choice of geographical unit due to their coverage of Australia and avoidance of data confidentiality issues present in smaller geographical zones such as Census Collection Districts. Of the 1,332 SLAs in Australia in 2001 there was large variation in the population numbers attributed to each SLA. For example, on the one hand, Australia's Capital Territory comprises less than 2 percent of the total Australian population, yet the ACT is split into 107 SLAs or 8 percent of the total number of SLAs. Queensland has 34 percent of the total number of SLAs, but contains only 19 percent of Australia's population. New South Wales, on the other hand, has 34 percent of Australia's population, yet has only 15 percent of the total number of SLAs. To deal with this uneven distribution, SLAs in Brisbane and Canberra were aggregated into thirty three Electoral Ward's for Brisbane and seven Statistical Subdivisions (SSD) for Canberra. This aggregation of SLAs was carried out using a technique developed by Baum et al (2005).

This study uses the indexes from Daly et al (2008) matched to data containing demographic and economic variables from the 2001 census. Three specific groups of children had measures of social exclusion computed by Daly et al (2008). These groups were 0 to 15 years (from here on referred to as all), children aged 0 to 4 years, and finally children aged 5 to 15 years. Daly et al (2008) present the indexes from the point of view of the child, which looks at the characteristics of the family of which they are part. The sample omits some groups of children that do not reside within private dwellings such as children that attend boarding school, are in a juvenile detention centre, or in hospital during the Census. Furthermore as reported by Daly et al (2008), homeless children are also unaccounted for in the sample.

3.2 The Social Exclusion Indexes

Daly et al (2008) applied principal component analysis to a range of variables thought to be indicators of child social exclusion, in order to create indices of child social exclusion. The Census data available limited the variables that could be included into the child social exclusion indexes as not a great deal of information had been collected relating to children directly.

Daly et al (2008) used variables for the index (see Table 1) in which they knew to be important factors affecting child social exclusion and that related to the household in which the child resides (see UNICEF 2005; and Bradbury 2003; Bradshaw, Kemp, Baldwin and Rowe 2004). Factors relating to sole parenthood, poor housing and the absence of transport (Daly et al 2008, p. 177).

Principal component analysis is designed to examine the degree to which general factors explain variation between observations according to a set of variables and to identify the degree to which the general factors are related to each variable. In the present context, principal component analysis is concerned with analysing the underlying nature of the various characteristics of disadvantage (the variables) thought to measure social exclusion. Thus, principal component analysis is designed to establish the communality of the chosen set of disadvantage characteristics.

Table 1. List of Social Exclusion Variables

Variable in Census	Social Exclusion Measure Developed
<i>Family Type</i>	Proportion of children aged 0 – 15 in sole parent family
<i>Education in family</i>	Proportion of children aged 0 – 15 with no-one in the family having completed Year 12
<i>Occupation in family</i>	Proportion of children aged 0 – 15 with highest occupation in family blue collar worker
<i>Housing tenure</i>	Proportion of children aged 0 – 15 in public housing
<i>Labour force status of parents</i>	Proportion of children aged 0 – 15 in family where no parent working
<i>Personal computer usage</i>	Proportion of children aged 0 – 15 living in dwellings where no-one used computer at home in last week
<i>Motor Vehicle</i>	Proportion of children aged 0 – 15 in household with no motor vehicle
<i>Income</i>	Proportion of children aged 0 – 15 in household with income in bottom quintile of equivalent gross household income for all households in Australia

Source: Daly et al (2008) p. 176.

The method of principal components consists of assigning weights to the variables (the disadvantage characteristics) and forming linear combinations (principal components) of the variables. The weights are chosen in such a way the first principal component is that linear combination of variables which explains as much as possible of the variance between the observations. Successive linear combinations (principal components) of the variables are constructed to account for as much as possible of the remaining, unexplained, variance. It follows that if the original variables have a good deal of variation common to them all then it is possible to explain most of the variation with fewer components than the original number of variables. In addition, the first principal component can be regarded as the best summary measure, or index, of social exclusion (Flatau & Lewis 1993).

Table 2 presents the final list of variables with their respective loadings and eigenvalues for the social exclusion index. There is one full sample index which covers children from age 0 to 15 and two subgroup indexes which splits the children into two groups of 0 to 4 and 5 to 15. The eigenvalues measure the percentage of total variance explained in each of the original variables by the respective indices.

3.3 Demographic and Regional Variables

The independent variables (Table 3) relate to the characteristics of the region with respect to a variety of socioeconomic variables as discussed above. In the case of dummy variables a category is always omitted and is indicated by italics.

Industry and occupation type variables were transformed into proportions by dividing the total number employed in each individual industry and occupation type by the total number employed for every SLA.

Table 2. Variables, Loadings and Eigenvalues for the Social Exclusion Index

	Loadings		
	All children 0- 15 years	Children 0 to 4 years	Children 5-15 years
Sole parent	0.60	0.71	0.55
Education	0.87	0.91	0.84
Occupation	0.49	0.42	0.51
Tenure type	0.80	0.77	0.79
Labour force status	0.82	0.84	0.81
Computer use	0.93	0.91	0.95
Motor vehicle	0.80	0.80	0.81
Income	0.84	0.82	0.86
% variance explained	61.5	61.0	60.5

Source: Daly et al (2008) p. 180.

Table 3. List of Independent Variables

<u>Industry</u> Agriculture, Forestry and Fishing Mining Manufacturing Electricity, Gas and Water Supply Construction Wholesale Trade Retail Trade Accommodation, Cafes and Restaurants Transport and Storage Communication Services Finance and Insurance Property and Business Services Government Administration and Defence Education Health and Community Services Cultural and Recreational Services Personal and Other Services	<u>Educational Attainment</u> University Advanced Diploma Certificate No Post School Qualification
	<u>Other</u> Median Income Jobless Rate Female to Male Ratio
	<u>Age Groups</u> 0-9 years 10-14 years 15-19 years 20-24 years 25-34 years 35-44 years 45-54 years 55-64 years 65+
<u>Occupation</u> <i>Managers and Administrators</i> Professionals Associate Professionals Tradespersons and Related Workers Advanced Clerical and Service Workers Intermediate Clerical, Sales and Service Workers Intermediate Production and Transport Workers Elementary Clerical, Sales and Service Workers Labourers and Related Workers	<u>States and Territories</u> Australian Capital Territory zero and one dummies for each state and territory
	<u>Regions</u> Capital Cities Other Metropolitan Coastal Inland Remote

The variables for educational attainment are also proportions of the total number of persons with a respective qualification.

The median income for each of the SLAs didn't require any such transformations. The jobless rate was included rather than the unemployment rate as Lewis (2006) has argued that many disadvantaged persons receive pensions rather than unemployment benefits and should be regarded in the same category as the unemployed. The jobless rate was calculated by summing the population between the ages of 20 and 54, subtracting the total number employed, and then dividing by the summed number of persons aged between 20 and 54 for each SLA. This gave the proportion of people in each SLA without a job.

The gender mix is measured by the female to male ratio for each SLA. Dummy variables were created for the states and territories and regional variables.

The method of regional classification used here is that developed by the Australian Bureau of Agriculture and Resource Economics (ABARE 2001). The regions are classified by SLA into five main regions (see Garnett and Lewis 2007):

•Capital Cities:	Eight capital cities
•Other Metropolitan:	SLAs other than in capital cities that contain whole or part of an urban centre with population of 100,000 or more
•Coastal:	SLAs within 80km of the coastline
•Remote:	Coded by road distance between populations and from the nearest urban centre, according to the ARIA ¹
•Inland:	All remaining SLAs

4. RESULTS

The estimated coefficients of the variables in the model are shown in Table 4. In these equations the coefficients of the dummy variables can be interpreted relative to the omitted category; 'transport' for the industry group, 'managers' for the professional group, '45 to 54' for the age group, 'ACT' for the states and territories group, and lastly, 'Capital Cities' for the regional group.

4.1 Child Social Exclusion Index 0-4

Table 4 shows the estimates of the coefficients for the model for the social exclusion index for children aged 0 to 4.

¹ The Accessibility/Remoteness Index of Australia (ARIA) was devised by the Department of Health and Aged Care (2001). This index classifies Statistical Local Areas (SLAs) according to their distance from a major centre. It has since been updated by the ABS to ARIA Plus.

Table 4. Regression Coefficients for the Child Social Exclusion Index 0-4

Variable	Coefficient	t Statistic	P Value
Agriculture, Forestry and Fishing	-3.32	-3.020	0.003***
Mining	4.84	4.760	0.000***
Manufacturing	0.06	0.060	0.951
Electricity, Gas and Water Supply	2.63	1.100	0.272
Construction	-1.27	-0.750	0.452
Wholesale Trade	1.48	0.790	0.432
Retail Trade	0.93	0.610	0.544
Accommodation, Cafes and Restaurants	4.65	3.210	0.001***
Communication Services	-5.61	-1.310	0.190
Finance and Insurance	2.64	0.920	0.358
Property and Business Services	7.46	4.710	0.000***
Government Administration and Defence	7.02	6.930	0.000***
Education	6.60	4.280	0.000***
Health and Community Services	5.59	3.810	0.000***
Cultural and Recreational Services	4.97	1.910	0.056*
Personal and Other Services	14.30	5.860	0.000***
Professionals	-7.94	-4.500	0.000***
Associate Professionals	-8.13	-4.380	0.000***
Tradespersons and Related Workers	-2.86	-2.190	0.029**
Advanced Clerical and Service Workers	-7.19	-2.290	0.022**
Intermediate Clerical, Sales and Service Workers	-8.17	-4.800	0.000***
Intermediate Production and Transport Workers	-1.98	-1.610	0.108
Elementary Clerical, Sales and Service Workers	3.11	1.370	0.170
Labourers and Related Workers	7.05	9.930	0.000***
University	-9.14	-5.000	0.000***
Advanced Diploma	-14.32	-4.180	0.000***
Certificate	-9.11	-5.400	0.000***
0-9 years	-5.94	-3.110	0.002***
10-14 years	-7.17	-2.560	0.011**
15-19 years	-8.74	-3.010	0.003***
20-24 years	-10.30	-3.850	0.000***
25-34 years	-2.35	-1.370	0.172
35-44 years	-21.27	-8.130	0.000***
55-64 years	-5.63	-2.230	0.026**
65+	-10.67	-6.930	0.000***
Median Income	0.00	-13.360	0.000***
Jobless Rate	4.88	15.220	0.000***
Female to Male Ratio	1.19	0.980	0.328
New South Wales	0.35	1.450	0.147
Victoria	0.00	-0.010	0.990
Queensland	-0.11	-0.450	0.655
South Australia	-0.25	-1.020	0.308
Western Australia	0.04	0.150	0.882
Tasmania	-0.83	-2.400	0.017**
Northern Territory	0.74	3.070	0.002***
Other Metropolitan	0.04	0.470	0.638
Coastal	0.02	0.180	0.856
Inland	0.06	0.780	0.437
Remote	0.53	4.930	0.000***
Constant	11.60	6.120	0.000***

Notes: 1. Adjusted $R^2 = .94$. 2. *, **, *** denotes significance at 10%, 5%, and 1% respectively.

Industry - When compared to the transport industry, regions with a higher proportion of people employed in the agricultural industry are associated with relatively lower levels of social exclusion in children, significant at the 1 percent level. Alternatively, regions with a higher proportion of people employed in the mining, accommodation, property, government, education, health and personal sectors are associated with increased levels of disadvantage, also significant at the 1 percent level. Furthermore the cultural sector is associated with increased levels of disadvantage but at a lower level of significance.

Occupation - When compared to managers, regions with a higher proportion of people in the occupation professionals, associate professionals, and intermediate clerical are associated with a lower degree of social exclusion, significant at the 1 percent level. Similarly, regions with a high proportion of tradespersons and advanced clerical are also related to a decreased risk of exclusion, but at a lower level of significance. Regions with a high proportion of labourers, on the other hand, are linked with an increased risk of exclusion, significant at the 1 percent level. Furthermore, of all the occupations, Labourers has the greatest degree of significance.

Education - Regions with higher proportions of people with post school qualifications such as university degrees, advanced diplomas, and certificates are associated with lower levels of disadvantage, significant at the 1% percent level.

Age - When compared to the age group of 45 to 54, regions with higher proportions of people in the age groups 0 to 9, 15 to 19, 20 to 24, 35 to 44 and 65 plus, are linked with a reduced degree of child social exclusion, significant at the 1 percent level. To a lesser degree of significance, so to are the age groups of 10 to 14 and 55 to 64.

Income - Of all the variables, a low median income is the most significant factor associated with child social exclusion.

Jobless Rate - The jobless rate is one of the most highly significant factors associated with higher levels of child social exclusion.

Gender - The gender mix of a region does not make a significant difference to the level of social exclusion between regions.

States and Territories - After all other factors have been accounted for, compared to the Australian Capital Territory, Tasmania had a reduced incidence of child social exclusion, significant at the 5 percent level. The Northern Territory was linked to higher levels of social exclusion, significant at the 1% percent level.

Regions - When compared to capital cities, only remote regions are associated with an increased degree of child social exclusion, significant at the 1 percent level.

4.2 Child Social Exclusion Index 5-15

Table 5 shows the estimates of the coefficients for the model for the social exclusion index for children aged 5 to 15.

Table 5. Regression Coefficients for the Child Social Exclusion Index 5-15

Variable	Coefficient	t Statistic	P Value
Agriculture, Forestry and Fishing	-5.57	-6.750	0.000***
Mining	4.79	5.590	0.000***
Manufacturing	-2.13	-2.590	0.010**
Electricity, Gas and Water Supply	-4.11	-2.140	0.033**
Construction	-3.10	-2.400	0.017**
Wholesale Trade	-2.41	-1.660	0.098*
Retail Trade	-0.61	-0.490	0.622
Accommodation, Cafes and Restaurants	5.87	4.850	0.000***
Communication Services	0.78	0.230	0.819
Finance and Insurance	9.91	4.210	0.000***
Property and Business Services	5.67	4.420	0.000***
Government Administration and Defence	4.66	5.780	0.000***
Education	3.58	2.520	0.012**
Health and Community Services	5.47	4.620	0.000***
Cultural and Recreational Services	2.48	1.370	0.170
Personal and Other Services	15.97	8.160	0.000***
Professionals	-10.96	-8.040	0.000***
Associate Professionals	-12.34	-8.730	0.000***
Tradespersons and Related Workers	-7.06	-6.670	0.000***
Advanced Clerical and Service Workers	-9.90	-3.970	0.000***
Intermediate Clerical, Sales and Service Workers	-8.34	-6.100	0.000***
Intermediate Production and Transport Workers	-3.22	-3.370	0.001***
Elementary Clerical, Sales and Service Workers	-6.36	-3.470	0.001***
Labourers and Related Workers	6.46	10.700	0.000***
University	-6.82	-4.820	0.000***
Advanced Diploma	-12.47	-4.620	0.000***
Certificate	-6.85	-5.160	0.000***
0-9 years	1.68	1.060	0.290
10-14 years	3.95	1.740	0.082*
15-19 years	-1.76	-0.820	0.414
20-24 years	2.44	1.120	0.262
25-34 years	6.33	4.550	0.000***
35-44 years	-8.55	-4.010	0.000***
55-64 years	7.72	3.810	0.000***
65+	-2.85	-2.230	0.026**
Median Income	0.00	-16.040	0.000***
Jobless Rate	5.63	22.260	0.000***
Female to Male Ratio	-0.19	-0.210	0.838
New South Wales	-0.01	-0.050	0.962
Victoria	-0.24	-1.270	0.206
Queensland	-0.26	-1.410	0.158
South Australia	-0.45	-2.340	0.019**
Western Australia	-0.20	-1.100	0.271
Tasmania	-1.10	-4.050	0.000***
Northern Territory	0.37	1.950	0.051*
Other Metropolitan	0.09	1.370	0.171
Coastal	-0.20	-3.120	0.002***
Inland	-0.06	-0.990	0.323
Remote	0.45	5.320	0.000***
Constant	7.19	4.730	0.000

Notes: 1. Adjusted $R^2 = .96$. 2. *, **, *** denotes significance at 10%, 5%, and 1% respectively.

Industry - When compared to the transport industry, regions with a higher proportion of people employed in the agricultural industry are associated with a relatively lower level of social exclusion, significant at the 1 percent level. Similarly, regions with a high proportion of people employed in manufacturing, electricity, construction and wholesale have also been associated to a reduced risk of exclusion, but at the 5 percent level of significance. Alternatively, regions with a higher proportion of people employed in the mining, accommodation, finance, property, government, health and personal sectors are associated with increased levels of disadvantage, also significant at the 1 percent level. Furthermore regions with a higher proportion of people employed in the education sector are also associated with increased levels of disadvantage but at a lower level of significance.

Occupation - When compared to managers, regions with a higher proportion of people defined as being professionals, associate professionals, tradespersons, advanced clerical, intermediate clerical, intermediate production, and elementary clerical are associated with a lower degree of social exclusion, significant at the 1 percent level. Regions with a higher proportion of people employed as labourers, on the other hand, are associated with an increased risk of exclusion, significant at the 1 percent level.

Education - Regions with higher proportions of people with post school qualifications such as university degrees, advanced diplomas, and certificates are associated with lower levels of disadvantage, significant at the 1 percent level.

Age - When compared to the age group of 45 to 54, regions with higher proportions of people in the age groups 35 to 44 and 65 plus, are linked with a reduced degree of child social exclusion, significant at the 1 and 5 percent level respectively. On the other hand, regions with higher proportions of people in the age group 35 to 44 and 55 to 64 were associated with higher levels of child social exclusion, significant at the 1 percent level.

Income - Of all the variables, a low median income is one of the most highly significant factors associated with child social exclusion.

Jobless Rate - The jobless rate is one of the most highly significant factors associated with higher levels of child social exclusion.

Gender - The gender mix of a region does not make a significant difference to the level of social exclusion between regions.

States and Territories - After all other factors have been accounted for, compared to the Australian Capital Territory, Tasmania and South Australia had a reduced incidence of child social exclusion, significant at the 1 and 5 percent level respectively. The Northern Territory is linked to higher levels of social exclusion, but only significant at the 10 percent level.

Regions - When compared to capital cities, remote regions are associated with an increased degree of child social exclusion, significant at the 1 percent level. Alternatively, coastal regions are linked to lower levels of child social exclusion, significant at the 1 percent level.

4.3 Child Social Exclusion Index all

Table 6 shows the estimates of the coefficients for the model of the social exclusion index for all children.

Industry - When compared to the transport industry, regions with a higher proportion of people employed in the agricultural industry have been linked to relatively lower levels of social exclusion in children, significant at the 1 percent level. Similarly, regions with a higher proportion of the people employed in the manufacturing and construction industries are also related to lower levels of exclusion, but at a lower level of significance. Alternatively, regions with a higher proportion of people employed in the mining, accommodation, finance, property, government, education, health and personal sectors are associated with increased levels of disadvantage, also significant at the 1 percent level.

Occupation - When compared to managers, regions with a higher proportion of people defined as being professionals, associate professionals, tradespersons, advanced clerical, and intermediate clerical are associated with a lower degree of social exclusion, significant at the 1 percent level. Similarly, intermediate production and elementary clerical are also related to a decreased risk of exclusion, but at a lower level of significance. Regions with a high proportion of labourers, on the other hand, are consistently linked with an increased risk of exclusion, significant at the 1 percent level.

Education - Regions with higher proportions of people with tertiary qualifications such as university degrees, advanced diplomas, and certificates are all related to lower levels of disadvantage, significant at the 1 percent level and relative to the regions with a high proportion of people with no post school qualification.

Age - When compared to the age group of 45 to 54, regions with higher proportions of people in the age groups 35 to 44 and 65 plus, are linked with a reduced degree of child social exclusion, significant at the 1 percent level. Alternatively, the age groups 25 to 34 and 55 to 64, when compared to the age group of 45 to 54 are associated with an increased risk of child social exclusion significant at the 1 and 5 percent level respectively.

Income - Of all the variables, a low median income is one of the most highly significant factors associated with child social exclusion.

Jobless Rate - An increased jobless rate is consistently found to be one of the most highly significant factors linked with higher levels of child social exclusion.

Gender - The gender mix does not make a significant difference as to the level of social exclusion between regions.

States and Territories - After all other factors have been accounted for, compared to the Australian Capital Territory, Tasmania and South Australia had a reduced incidence of child social exclusion, significant at the 1 and 10 percent level respectively. The Northern Territory is linked to higher levels of social exclusion, significant at the 1 percent level.

Table 6. Regression Coefficients for the Child Social Exclusion Index All

Variable	Coefficient	t Statistic	P Value
Agriculture, Forestry and Fishing	-4.93	-5.660	0.000***
Mining	4.21	4.990	0.000***
Manufacturing	-2.14	-2.570	0.010**
Electricity, Gas and Water Supply	0.33	0.180	0.859
Construction	-3.08	-2.210	0.028**
Wholesale Trade	-1.42	-0.950	0.340
Retail Trade	-0.05	-0.040	0.967
Accommodation, Cafes and Restaurants	5.59	4.590	0.000***
Communication Services	-2.69	-0.770	0.439
Finance and Insurance	7.37	2.950	0.003***
Property and Business Services	5.82	4.600	0.000***
Government Administration and Defence	4.81	5.790	0.000***
Education	4.08	2.850	0.005***
Health and Community Services	4.80	3.960	0.000***
Cultural and Recreational Services	2.75	1.450	0.146
Personal and Other Services	14.29	7.200	0.000***
Professionals	-10.79	-7.590	0.000***
Associate Professionals	-11.11	-7.430	0.000***
Tradespersons and Related Workers	-4.26	-3.890	0.000***
Advanced Clerical and Service Workers	-9.65	-3.690	0.000***
Intermediate Clerical, Sales and Service Workers	-6.21	-4.390	0.000***
Intermediate Production and Transport Workers	-1.88	-1.930	0.054*
Elementary Clerical, Sales and Service Workers	-4.73	-2.550	0.011**
Labourers and Related Workers	7.75	12.570	0.000***
University	-6.14	-4.130	0.000***
Advanced Diploma	-7.93	-2.880	0.004***
Certificate	-8.27	-5.910	0.000***
0-9 years	1.22	0.770	0.442
10-14 years	-0.50	-0.210	0.835
15-19 years	-0.96	-0.440	0.661
20-24 years	-3.22	-1.430	0.152
25-34 years	4.38	3.050	0.002***
35-44 years	-14.45	-6.710	0.000***
55-64 years	4.91	2.380	0.017**
65+	-4.66	-3.590	0.000***
Median Income	0.00	-15.550	0.000***
Jobless Rate	5.52	21.140	0.000***
Female to Male Ratio	1.52	1.610	0.109
New South Wales	0.07	0.380	0.705
Victoria	-0.14	-0.760	0.450
Queensland	-0.23	-1.270	0.205
South Australia	-0.37	-1.940	0.052*
Western Australia	-0.09	-0.510	0.612
Tasmania	-1.08	-3.930	0.000***
Northern Territory	0.60	3.210	0.001***
Other Metropolitan	0.08	1.130	0.258
Coastal	-0.14	-2.040	0.042**
Inland	-0.01	-0.220	0.826
Remote	0.61	7.180	0.000***
Constant	7.21	4.540	0.000

Notes: 1. Adjusted $R^2 = .96$. 2. *, **, *** denotes significance at 10%, 5%, and 1% respectively.

Regions - When compared to capital cities, remote regions are associated with an increased degree of child social exclusion, significant at the 1 percent level. Coastal regions are linked to lower levels of child social exclusion, significant at the 1 percent level.

4.4 Summary of Results

In the modelling exercise the indexes of child social exclusion developed by Daly et al (2008) are employed as dependent variables and a set of socioeconomic and demographic variables including regional specifications included as explanatory variables. The unit of observation is the statistical local area (SLA) and the modelling attempts to explain how the characteristics of a region define the likely extent of child social exclusion. The explanatory variables include income, industry and occupation structure, levels of education, gender mix, age, joblessness, State and region.

The results suggest that a number of factors are associated with social exclusion but low income and joblessness are the most significant. When all the socioeconomic and demographic factors are accounted for the results suggest that Tasmania and South Australia have a reduced incidence of child social exclusion while the Northern Territory is linked to higher levels of social exclusion. Remote regions are associated with an increased degree of child social exclusion, while coastal regions are linked to lower levels of child social exclusion.

5. CONCLUSION

In recent studies, evidence has emerged which suggest differences in the levels of child social exclusion between the regions and states of Australia exist Daly et al (2008). In particular, Queensland, Tasmania, Northern Territory, and to a lesser extent South Australia, have been associated with greater risk of child social exclusion.

However, this study found that once the socioeconomic factors were accounted for, Tasmania and to a lesser extent South Australia are associated with a lower risk of child social exclusion. The Northern Territory, however, is associated with a significantly higher incidence of social exclusion. Similarly, children living in remote areas are also associated with a greater risk of exclusion. However, coastal regions are associated with a lower incidence of social exclusion.

Thus most of the regional variation in child social exclusion is explained by the attributes of the inhabitants.

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