



No. 160

Regional Development and Crime

Carlos Carcach

Official crime statistics show that in regional Australia, violent and property offences have increased at faster rates than in major urban centres. Drug offences are an exception to this trend. So while the absolute rates of crime in regional Australia are lower than in metropolitan Australia, there are challenges for arresting the fast growth of violent and property crime in regional areas.

Based on New South Wales and Victorian data, this study explores some links between crime and regional development. Regional development translates into improved quality of life and life opportunities. However, crime is one of the many factors that affect quality of life. This paper provides new information on crime trends in non-metropolitan (regional) Australia. The results show that there is less crime in regions with stable populations, low unemployment, and an economic structure that is less vulnerable to short-term shocks.

Adam Graycar
Director

The concept of regional development is associated with improvements in the quality of life and life opportunities for the residents of specific geographic areas or regions. Regional development is more than just expanding agricultural or industrial output and growth in real per capita income. As such, it embraces the more familiar terms of economic and social development. The level of social and economic development of a region is reflected in its degree of urbanisation, the diversity of its economic base, the relative importance of service-oriented economic activity in the whole regional economy, population growth and mobility, and the quality of its infrastructure.

Discussions on regional development usually revolve around metropolitan and non-metropolitan issues. The notion of non-metropolitan is often, though not necessarily, associated with concepts such as geographical isolation, low population density, limited access to government and other services, concentration of primary industries, and to specific forms of lifestyle. This paper uses the term "regional" to refer to non-metropolitan areas.

Communities in regional Australia have gone through complex processes of urbanisation and modernisation together with the demographic, economic and social changes that are associated with an urban lifestyle arising from economic prosperity and increases in crime. Economic decline, resulting in negative growth and migration, is also recognised as one factor leading to rising rates of regional crime.

Examining the link between socioeconomic change and crime is an important first step in the process of developing crime prevention initiatives. This paper looks at areas in terms of their metropolitan and non-metropolitan character. Metropolitan areas correspond to capital cities and major urban centres, usually located around capital cities. It examines data for Local

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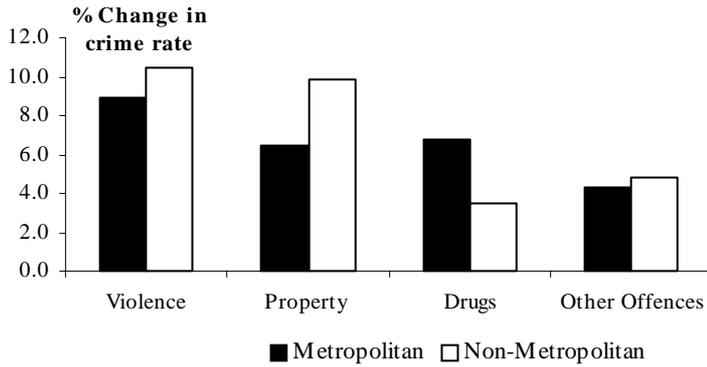
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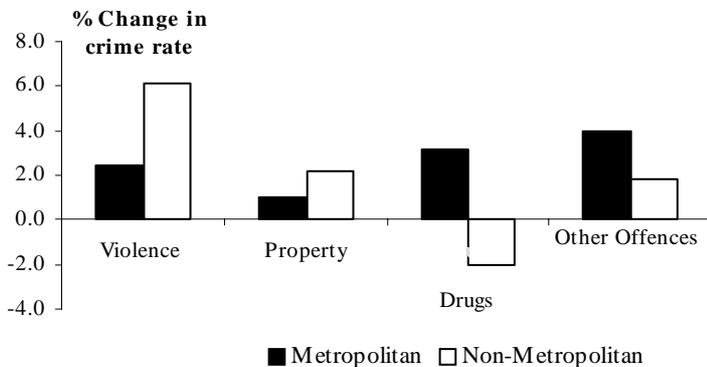
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Figure 1: *New South Wales 1995-98, Metropolitan and Non-metropolitan Local Government Areas, Average Annual Change in Crime Rates*



Source: Based on data from New South Wales Bureau of Crime Statistics and Research, New South Wales Recorded Crime Statistics 1995-98, LGA Supplementary Tables.

Figure 2: *Victoria 1994-95 to 1998-99, Metropolitan and Non-metropolitan Local Government Areas, Average Annual Change in Crime Rates*



Source: Derived from data in Crime in Victorian Postcodes, Total Crime, Yearly Comparison of Offences Recorded from 1994-95 to 1997-98, Victoria Police, Statistical Services Branch.

Government Areas (LGAs) in New South Wales and Victoria, and pays attention to issues other than population density that may affect, or may be affected by, crime. The aim is to identify factors that are subject to public policy for regional development, which in turn drove the selection of LGAs as units of analysis.

LGAs included in the statistical divisions of Sydney and Melbourne, the statistical subdivisions of Newcastle and Wollongong, and the LGA of Greater Geelong (C) were classified as metropolitan. The remaining LGAs were classified as non-metropolitan. Non-metropolitan LGAs contributed to 26.5 per cent and 24.2 per cent of the total population of New South Wales and Victoria respectively (PMP Software 1998).

These areas accounted for 26.2 per cent and 15.5 per cent of total crime recorded by police in New South Wales and Victoria respectively during the 1994-98 period. Figures 1 and 2 indicate that between 1995 and 1998, with the exception of drug offences, non-metropolitan areas have experienced larger increases in crime than metropolitan areas, in both New South Wales and Victoria. The observed decline in non-metropolitan drug crime rates in Victoria seems remarkable. Without more detailed analysis, which goes beyond the purposes of this paper, it is difficult to determine whether this is due to a true decline in drug-related offences or to changes in police recording practices.

Figures 1 and 2 indicate that in New South Wales and Victoria, for both violent and property offences, non-metropolitan crime rates are increasing faster than metropolitan ones. These results are consistent with findings from United States research, based on uniform crime reports, showing that non-metropolitan crime rates have been increasing since 1984 (Rephan 1999). Increases in non-metropolitan crime are often related to factors such as a worsening in the economic and social conditions underlying crime, or displacement due to more effective law enforcement in metropolitan areas, or to non-metropolitan areas having higher rates of reporting crimes to police than metropolitan areas.

This paper focuses on the likely links between socio-economic change and crime in the non-metropolitan LGAs, or regions, of New South Wales and Victoria.

The Relationship between Crime and Regional Development

The following factors can contribute to explain crime differentials among non-metropolitan regions.

Urbanisation

Densely populated areas usually have crime rates higher than sparsely populated areas. The lower the population density of an area, the lower is the number of potential contacts between motivated offenders and attractive targets. Moreover, in less densely populated areas, it is more difficult for criminals to operate under conditions of anonymity, which, other things being equal, increases the probability of being caught. It can be argued that in non-metropolitan areas, most of these contacts will involve people who somehow know each other, which heightens the psychosocial costs of committing crimes (Freudenburg and Jones 1991). Therefore, increased social transactions derived from wider community networks guards against the incidence of crime.

Residential Mobility

Residential mobility reflects commuting behaviour, migration and the presence of transient populations. Residential mobility is, together with socioeconomic heterogeneity, central to the social disorganisation theory of community crime (Bursik and Grasmick 1993). Communities in regions with mobile populations tend to be less cohesive than communities in regions with more stable populations. Neighbours have fewer opportunities to form relationships as well as implement mechanisms of social control. Regions with stable populations foster the development of trust among neighbours, which in turn decreases transaction costs and makes it possible certain efficient forms of economic organisation (Fukuyama 1995). Residential stability is seen as one source of stronger ties among community members, which decreases the potential for individual opportunistic behaviour (Glaeser and Sacerdote 1999).

Industrial Structure

The industrial composition of a local economy has been associated with the incidence of crime. Regions with industries employing large numbers of unskilled workers are often regarded to be at risk (Donnermeyer 1994). These regions tend to attract workers with lower levels of education and fewer alternative opportunities. In addition, the economies of these regions are often more vulnerable than those of areas with more diversified industrial structures, which makes them more likely to go through frequent periods of prosperity and decline. This may have an impact on residential stability through worker mobility and also contributes to poverty.

Tertiary industries, such as retail and wholesale trade, services and finance, insurance and real estate, may be associated with rising crime rates. These industries require customers to

visit specific places to buy goods and services. Such places usually concentrate in business districts or large shopping malls creating opportunities for crime in a number of ways. The actual at-risk population in these business areas may fluctuate widely during different times of the day or days of the week, which makes crime rates to be less accurate indicators of crime prevalence. Varying population flows enable offenders to operate under increased anonymity and to target potential victims with whom they have no bonds, decreasing the social costs associated with the commission of crime (Felson 1986; Lederman, Loayza and Menendez 1999). The goods available in commercial areas make inviting targets for theft (Sampson and Wooldredge 1987).

Economic Conditions

Economic conditions represent returns available in the legal sector and are measured by regional indicators of well being, growth and public support such as household income, per capita income, unemployment rate, employment growth, poverty level and income inequality, and welfare dependence.

Lower levels of crime are not necessarily associated with improved economic conditions. If disparities within a region remain large, improvements in wealth and income may encourage the less privileged groups to commit crimes against the more affluent groups (Glaeser and Sacerdote 1999). Economic growth would contribute to a reduction in crime if it reduces unemployment and social inequality, and it improves the opportunities of community members (Mosser and Shrader 1998). Rapid economic growth also may disturb regions, particularly when they have little time to adapt to the new conditions. It may cause massive immigration, it may increase the size of transient populations, weaken local capability to

develop networks and to provide social control (Bursik and Grasmick 1993).

The role that welfare dependency may have on crime is complex. On the one hand, having access to welfare assistance is expected to lower the need for individuals to engage in criminal activities to meet their basic needs. On the other, welfare dependency may have a stimulative effect on crime if instead it contributes to create a culture that fosters social problems (Jarrel and Howsen 1990).

Demographics

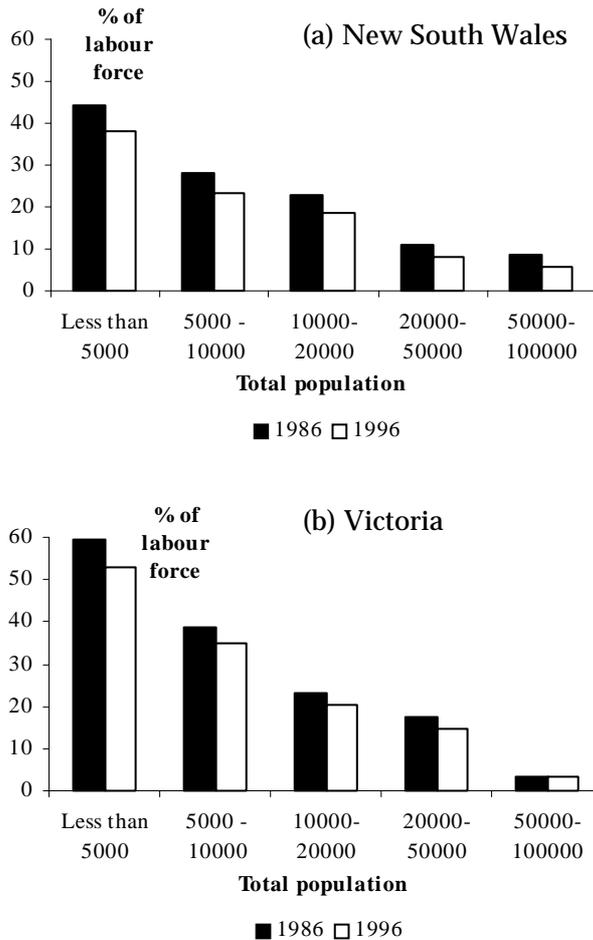
Gender, age and racial composition have been identified among the factors that affect regional crime. Criminological research would suggest that regions with high concentrations of young males would experience higher crime rates than regions where this group does not make a significant contribution to total population (Gottfredson 1981). In Australia, the age structure of the Indigenous population is younger than for non-Indigenous Australians. This may be one reason for the disproportionately high risk of contact of Indigenous Australians with the criminal justice system (Mukherjee et al. 1998).

Law Enforcement

Economic research indicates that increases in the likelihood of arrest and punishment have greater potential than longer or more severe sentencing to deter criminal activity (Sullivan 1990). The relative strength of law enforcement strategies on regional crime rates has been found to depend upon factors such as:

- the effective strength of police and other law enforcement agencies;
- crime reporting practices of citizens;
- public attitudes toward crime; and
- policies/practices of other components of the justice system (United States Department of Justice 1996).

Figure 3: *New South Wales and Victoria 1986 and 1996, Non-metropolitan Local Government Areas, Percentage of Labour Force Employed in Agriculture and Mining*



An Empirical Investigation

This section discusses the results of an analysis of regional crime rates using the concepts developed in the previous sections. It is based on data on crime counts for New South Wales and Victoria. For the former, data were available for the period 1994 to 1998 and, for the latter, for the period 1994–95 to 1998–99. The aim of the analysis was to explain variation of crime rates among non-metropolitan areas as well as to determine whether there were significant variations among the states.

Our hypothesis was that economic change would cause crime rates to increase. Residential stability and economic conditions affecting the level of social and economic homogeneity of a region mediate this link. As regions are not able to cope with rapid economic change, there is migration to

other areas perceived as offering better opportunities. On the other hand, economic change may result in new residents coming to the region. This results in residential mobility, which in turn may reduce communities' ability to develop informal and formal social control mechanisms, which may increase crime.

There is a trend towards a decline of employment in agricultural and mining industries, together with a slight increase in employment in manufacturing and service industries across all the non-metropolitan LGAs of New South Wales and Victoria, irrespective of the population base of the areas (see Figure 3). Agriculture or mining industries often make a high contribution to the local economy of non-metropolitan areas, in particular those with small populations. Therefore, any decline in the activity associated with primary

industries has the potential to represent a significant change to the economy of the area.

Economic change also affects the current economic regional conditions. Declines in the dominant type of industry may result in increased unemployment. Unemployment may also be the result of rapid changes to the industrial structure of a region in ways that make it difficult for people to adapt to the new labour market conditions.

Economic change was measured from the percentage change in employment in each of the agriculture and mining, manufacturing, and service industries in 1996, relative to 1986. Changes in regional economic structure are not expected to have an immediate impact on crime rates. It is reasonable to expect that such impact might occur in the future. Technically, this requires one to incorporate lagged terms for the indicators economic structure as part of the regression model. These data are available at Census date only. Change in employment between 1986 and 1996 serves as proxy for such lagged terms.

The technique known as linear regression was used to test our working hypothesis. Table 1 shows the coefficients of the models fitted to the data. Two types of result would give support to our hypothesis. First, the relationship between economic change and the crime rate may disappear after controlling for the effect of residential stability and economic conditions, which means that economic change and crime are conditionally independent of each other. This would imply that economic change has no immediate impact on crime. It affects the elements associated with social organisation. Second, the relationship between economic change and crime may hold after controlling for residential stability and economic conditions, which would mean that there is a direct and perhaps

Table 1: *New South Wales, 1996 and Victoria, 1996-97, Economic Change, Residential Stability, Economic Conditions and Crime, Regression Coefficients ^(a) (Dependent Variable: Nature Logarithm of Crime Rate)*

Variable	New South Wales		Victoria	
	Violent Crime	Property Crime	Violent Crime	Property Crime
Proportion of Persons Residing at a Different Address 5 Years Ago ^(b)	0.046***	0.043***	0.002	0.015
Unemployment Rate ^(b)	0.048***	0.028***	0.043	0.100***
Change in Employment in Agriculture and Mining ^(b)	0.003	0.004	0.016*	0.006
Change in Employment in Manufacturing ^(b)	-0.002	-0.0001	-0.001	-0.0001
Change in Employment in Services ^(b)	-0.0007	0.002	-0.008*	-0.007***
Number of residents in the region exceeds 20 000 ^(c)	-0.106	0.064	0.385**	0.360***
Location Quotient for Employment in Agriculture/Mining ^(d)	-0.022	-0.127	-0.623**	-0.060
Location Quotient for Employment in Manufacturing ^(d)	-0.126	-0.071	-0.329	-0.073
Location Quotient for Employment in Services ^(d)	-0.693**	-0.478**	-0.289	-0.037
Constant	1.269	2.747	2.641	1.352
R ²	0.74	0.85	0.68	0.88

(a) The regression coefficient represents the proportionate change in the crime rate per unit change in the relevant variable. For instance, in New South Wales, an increase of 1 point in the unemployment rate is associated with a 4.8 per cent increase in the rate of violent crime.

(b) Source: PMP Software, Australian 1996 Census Data, Census 96 Explorer.

(c) Derived from data extracted from PMP Software, Australian 1996 Census Data, Census 96 Explorer.

(d) Location quotients were calculated using data on employment by type of industry extracted from: PMP Software, Australian 1996 Census Data, Census 96 Explorer.

*** (p<0.01)

** (p<0.05)

* (p<0.10)

immediate link between these two variables.

The data in Table 1 indicate that economic change, measured from the change in employment in agriculture and mining, manufacturing and services, does not have the same impact on crime rates, either by state or by offence type. Our results suggest that, in Victoria, there is a direct link between economic change and crime beyond what may be accounted for by residential stability and economic conditions. This does not seem to be the case for the non-metropolitan LGAs of New South Wales.

In New South Wales, residential mobility and the unemployment rate explained most of the variation in regional rates of violent and property crime. A 1 per cent increase in the proportion of transient residents was associated with a 4.6 per cent increase in the rate of violent crime and 4.3 per cent increase in the rate of property crime. A 1 per cent increase in the unemployment rate results in increases of 4.8 per cent and 2.8 per cent in violent and property crime rates respectively.

In Victoria, both violent and property non-metropolitan crime rates were sensitive to changes in employment in services. A 1 per cent change in the participation of service industries in total employment resulted in 0.8 per cent and 0.7 per cent declines in rates of violent and property crime. Furthermore, a 1 per cent change in employment in agriculture and mining generated a 1.6 per cent increase in the rate of violent crime. These results seem to support the notion that as local economies move toward less cyclical industrial structures, the level of crime tends to decline.

Note that economic conditions had the largest impact on property crime rates for non-metropolitan LGAs of Victoria. A 1 per cent increase in the unemployment rate caused property crime rates to increase by 10 per cent.

Local economies tend to stabilise after periods of turmoil. Despite the fact that all the non-metropolitan LGAs included in this study have gone through processes of economic change, they still have a dominant activity. This would no doubt

exercise great influence on the features of the local economy. Location quotients are used as measures of economic structure. The data in Table 1 show that, in Victoria, the larger the location quotient for employment in primary industries the lower the rate of violent crime. In New South Wales, larger location quotients for employment in service industries are associated with reduced rates for both violent and property offences.

Urbanisation, measured from the population size of the LGAs, is another factor with a potential to affect crime rates. The larger the population of a LGA, the more urbanised it is and the higher its crime rate. The results in Table 1 indicate that in Victoria, non-metropolitan LGAs reaching the threshold of 20 000 residents had higher rates of violent and property crime than LGAs with smaller populations. Areas where agriculture and mining make the greatest contribution to local employment were associated with lower rates of violent crime up to the point to offset the increasing effect of population size.

In New South Wales, crime rates were not associated with the population size of the regions. These results suggest that in New South Wales, the increasing effect that residential mobility and economic conditions have on crime rates was offset by a decreasing effect due to an economic structure dominated by service-oriented industries.

Conclusion

The relationship between economic change and regional crime is complex and difficult to disentangle. Our findings indicate that there is a link between economic change and the crime rates in non-metropolitan LGAs, but this link does not operate uniformly across offence types and states. Nevertheless, it is possible to draw some general conclusions.

- Areas with more stable populations are associated with lower crime rates.
- Regional unemployment is a factor that contributes to increases in regional crime rates.
- Non-metropolitan areas that reach the threshold of 20 000 residents have higher crime rates than areas with smaller populations.
- Economic stability contributes to reductions in regional crime rates. It is not clear whether dominance of a particular type of industry is associated with a high or low level of crime.
- Economic fluctuations, in particular those affecting agriculture and mining industries, tend to increase crime rates. In some cases this occurs directly, while in others it occurs via the effect of economic change in residential stability and economic conditions.

Our findings can only be considered as preliminary, but they suggest the existence of a link between economic change and crime. The analysis must include other states to verify whether the findings are applicable under different conditions. It is also necessary to look for better measures of economic change,

which raises the issue of availability of regional data. This paper used data from the latest Census. Data on the social and economic conditions of regional Australia need to be produced on a regular basis. Crime data are available at several levels of temporal and geographic aggregation. However, there are doubts about their quality. Crime victim surveys are not designed to produce statistics for regions such as LGAs. Despite these problems, our results are, in general, consistent with theoretical expectations.

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