

Data Infrastructure for Evidence-based Local Government Policy

Analysis

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ABSTRACT

This paper outlines an approach for collecting and integrating data useful for evidence based planning and decision making in the not-for-profit sector, in particular for local government policy and planning. Given the methodological advances in multi-level analysis and the nature of rigorous policy analysis, leading academics and practitioners are advocating that policy driven research to be undertaken at a number of levels of analysis. Recent years have brought an explosion of public domain data in many aspects of social, economic and cultural aspects of society (cites and examples) and with this comes the opportunity, as outlined here, to integrate relevant public domain data in order to construct community profiles for local government areas in Victoria.

Keywords: *local government; evidence based planning; decision-making; strategy*

Over the last ten years there has been a noticeable increase in the use of advanced analytic or evidence-based research methods for program evaluation and policy analysis, particularly at lower levels of government (Hendrick 1994). It has been argued that these methods will increase government effectiveness by increasing accountability and improving the quality of policy interventions and outcomes (Sanderson 2002). At the same time, social scientists have argued for the need to explore the social world at multiple, rather than single levels of analysis (Sampson 1988; Griffen 1997; Raudenbush and Sampson, 1999a; Raudenbush and Sampson 1999b). Given methodological advances in multi-level analysis and the demand for rigorous policy analysis, leading academics and practitioners are advocating the use of policy driven research to be undertaken at a number of levels of analysis (Earls and Buka 2000; Raudenbush and Sampson, 1999a; Morenoff and Sampson 1997). For example, there has been an increased demand for

community and neighbourhood level data within local government areas, in order to better understand and address local issues within relevant contexts and to be used for evidence-based planning. In Australia, the movement towards the adoption of such methods to evaluate policy outcomes has been problematic, due to the lack of consistency in the collection of public domain data that can be used to construct community level profiles. The data collection approach we outline provides an opportunity to achieve this by integrating a variety of data sources and multiple methods of data into a database of community characteristics at a postcode level. We describe this database, briefly review multi-level analysis, outline some potential applications and explain how the database can be extended.

MEASURING ‘CONTEXT’: MULTI-LEVEL METHODOLOGY

Academic researchers in a variety of fields are increasingly interested in studying social phenomena at multiple levels of analysis. Recent theoretical and empirical developments in the area of multi-level modelling now make it possible to measure ‘contexts’ (such as ‘environment’, ‘organisation’, ‘community’ or ‘neighbourhood’) in addition to ‘individuals’ or ‘households’. Hierarchical or ‘multi-level’ modelling techniques originated in agronomy, but were developed primarily in the field of educational research, in order to estimate separate parameters for the effects of the school, teacher and pupil on a student’s academic achievement (Goldstein 1995; Singer 1997). The technique of multilevel modelling involves estimating higher level effects from the data, then using these higher level estimates as constants in the analysis of units at lower levels of analysis. This enables effects at lower levels to be determined while taking into account the tendency of (lower level) individuals in similar (higher level) contexts to exhibit similar responses (Goldstein 1995; Bryk and Raudenbush 1992; Aitkin and Longford 1986; Raudenbush and Bryk 1986). Multi-level modelling is the name for a range of techniques developed from ‘hierarchical’ approaches. Gorard describes it in this way: “MLM is therefore simply regression that allows the analyst to use both individuals and groups of individuals in the same model to

avoid flouting the assumption of independent cases, since the accuracy ('standard error') of any results can be affected by the clustered nature of the data." (2003: 49)

The statistical developments in multi-level research have stimulated increased attention to multi-level theories in many fields in addition to education, including sociology, psychology, social work, organisational theory and criminology. For example, understanding aspects of social capital, such as the tendency to volunteer, involves understanding aspects of individuals and the characteristics of communities in which these individuals are involved. Communities may differ with respect to density of social relationships, infrastructure characteristics (such as number of business premises versus residential, parkland, number of schools), homogeneity, heritage, community safety and structural aspects (such as age and gender distribution and household composition). Similarly, individuals may differ in terms of demographics, personality, attitudes, values, behaviours or motivation. Examples of specific research questions are: Do individuals in one community behave more like each other than individuals in another community? Do members of one volunteer fire brigade behave more like each other than an individual from another fire brigade? In multi-level modelling these types of questions can be answered because cases are not treated independently of each other (see Gorard 2003).

Examples of research designs explicitly oriented to multi-level methods includes the Project on Human Development in Chicago Neighbourhoods and the Los Angeles Family and Neighbourhood Survey (LA FANS). Both projects attempt to disentangle the intricate effects of individual, family and community factors on the human development of children and juveniles, by undertaking a longitudinal investigation of individuals, communities and individuals within their community. So, in studying crime in an area there is a need to understand aspects of individuals, communities and individuals in their community perhaps in comparison with other communities.

The aim of the Los Angeles Family and Neighbourhood Survey¹ is twofold – firstly to study the impact of neighbourhood, family and peers on children’s development, and secondly to study how and why families choose to live in certain neighbourhoods. The focus of this study is to provide in-depth understanding of these relationships to inform policy development, particularly welfare policy interventions by the State.

The Chicago Neighbourhoods Project² endeavours to reveal the causes and implications of deviancy amongst residents of several Chicago neighbourhoods. Over an 8-year period, researchers gather official data about neighbourhood characteristics, including the economic, social, political, business and cultural structures within the neighbourhood. Information about individuals within these neighbourhoods is also collected through a series of co-ordinated longitudinal studies that trace 7,000 randomly selected children through to young adults, looking at personal characteristics, changing circumstances and the exhibition of delinquent behaviours. The aim of this study is to identify juveniles at risk and to develop intervention strategies (in conjunction with the State, schools, law enforcement agencies and community groups) to prevent delinquent activity developing into serious anti-social or criminal activity.

Other studies have shown that collective characteristics of areas of residence can affect population health outcomes, independent of individual characteristics of residents. For example, in New Zealand, Howden-Chapman & Tobias (2000) found at the level of residential area that health status gradients mirror gradients in income, education, occupational status and deprivation. Other aggregate-level studies have identified the importance of public amenities (such as parks and recreational facilities) and social and cultural services to residents’ well-being (Baum 1999; Warin et al 2000; Oldenburg 1997).

¹ Refer to <http://www.lasurvey.rand.org>

² Refer to <http://phdcn.harvard.edu/about/about.html>

In Australia, there has been no large scale, systematic study that attempts to describe the characteristics of geographic regions in this manner. The main difficulty for Australian researchers attempting this type of undertaking is that there was no consensus amongst government agencies about how the geographic element of this data would be collected. For example, the Victorian Business Register identifies the geographic location of businesses by the postcode they are located in, while Federal and State Government election results are recorded by electoral district and crime statistics are recorded by local government area. In an attempt to address this inconsistency, the Australian Bureau of Statistics has recently revised its geographical classification scheme in order to facilitate the production of statistics that are comparable and can be integrated (ABS 2001).

CONSTRUCTING A DATABASE OF VICTORIAN COMMUNITY PROFILES

Recent years have brought an explosion of public domain data in many aspects of social, economic and cultural aspects of society including statistics on crime, local business growth, number of schools, recreation facilities and other types of infrastructure. In response, our project aims to source, collate and integrate relevant public domain data in order to construct community profiles for local government areas in Victoria. Compositional or contextual characteristics have been previously examined through use of aggregate population and survey data (Congdon 1995; Kawachi & Kennedy 1997; Kawachi et al 1997; Rose 2000; Shouls et al 1996; Yen & Kaplan 1999; Joshi et al 2000). In particular, we are interested in the complexity and diversity of community environments in order to clarify the relationship between community infrastructure, characteristics and performance as well as individual characteristics such as well-being, demographics and individual satisfaction with life and economic performance of local government areas.

A similar initiative has been conducted by academics at Massey University in New Zealand. Witten, Exeter and Field (2002) have developed an areas based index of 'locational access' to

community services, facilities and amenities. The index enables comparisons to be made across urban neighbourhoods and provides a starting point from which to identify relationships between opportunity structures in the local environment and residents' health and well-being.

The data we have sourced and integrated has been collected at the postcode level. That is, the data can be treated as roughly representative of geographical communities. It is acknowledged that the 'postcode' is an administrative boundary that may not exactly reflect the social ecology of the residence. However, it offers an advantage in that there are many different types of data available at the postcode level.

The type of data available includes: demographic data and electoral data (in Australia this is available for 1996 and 2001, both years in which there was both a census and a federal election), data on the incidence and perceptions of crime, the number and locations of licensed premises, the number and location of churches and religious institutions (as well as other cultural institutions), the number of schools, the number and type of recreational facilities, social services (such as law courts, legal centres, community centres) and the number and location of businesses, government offices and agencies and causes of death. A detailed list of the type and source of data is included in Appendix 1.

APPLICATION AND EXTENSIONS

The community level dataset can be integrated with phone and household surveys by using stratified sample designs that first sample on postcodes, and then sample individuals or households within those postcodes. Contextual and situational data can be further extended through systematic social observation (SSO) and ethnographic fieldwork (Raudenbush and Sampson 1999a and 1999b). Identifying and mapping the variation in community characteristics provides a rich information source for case selection in ethnographic fieldwork. Furthermore, information about the characteristics of communities and neighbourhoods can be integrated with the detailed descriptions of ethnographies and social observations in order to further understand

complex social situations and interactions. An example of this type of extension is found in Raudenbush and Sampson (1999a and 1999b), a study of social disorder in Chicago. They combine social observation, census data, police records and a survey of residents to test a theory of structural constraints with local collective efficacy in order to understand the sources and consequences of social and physical disorder in urban areas.

Sourcing, collating and integrating community level data over time also provides enormous potential for measuring macro-level structural change. For example, our database enables us to aggregate the data of local government areas for 1996 and 2001. This will then enable the analyses of variation between council areas at each point in time, and reveal changes within council areas over the two periods. This has important policy applications for studying and understanding community capacity building, community regeneration and social capital over time.

CONCLUSION

Theoretical developments in multi-level theory and policy and planning requirements make it timely to collect and integrate data from a number of sources in order to better understand the context in which social action occurs. The data set that we describe is constructed by collecting data from a number of different sources, all either available at postcode level or capable of being aggregated to this level. This data can then be aggregated and extended to a higher level of analysis, such as the region or the state, or disaggregated into neighbourhoods or streets, if combined with further data collection methods. The community profiles available from these data can be used to identify and pinpoint the effects of social change across a range of social levels, from a state wide level down to the detail of a particular street if need be.

These applications stem directly from the recent abundance of publicly available data and the development of effective ways in which the community profiles may be constructed and used. Academic researchers, policy workers and local or state governments are among the first groups

that may immediately benefit from the introduction and adoption of this method of social inquiry. The kind of multi level data collection and analysis discussed here and incorporated into the Los Angeles Family and Neighbourhood Survey and Human Development in Chicago Neighbourhoods projects, will become an established and invaluable part of social research, planning and policy analysis.

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Appendix 1

Table 1: Data type and source

CATEGORY	DATA TYPE	DATA SOURCE
Demographics	Census	Australian Bureau of Statistics
Business	Victorian Business Registry	Australian Bureau of Statistics
Crime	Victorian Crime Statistics	Australian Bureau of Statistics
Education	State Schools – primary	Victorian Government Department of Education & Training website
	State Schools – secondary	Victorian Government Department of Education & Training website
	State Schools – technical	Victorian Government Department of Education & Training website
	Private Schools - primary & secondary	Victorian Independent Schools Directory
	Victorian Universities	Federal Government Department of Education Science & Technology website
	Victorian TAFEs	Street Directory Index
	Adult Migrant Education	Yellow Pages
	Kindergartens	Yellow Pages
	Special Developmental Schools	Victorian Government Department of Education & Training website
	Special Schools	Victorian Government Department of Education & Training website
	Language Schools	Victorian Government Department of Education & Training website
	Special Education Units	Victorian Government Department of Education & Training website
Death	Coroners Court data	Monash University
	Cemeteries	Street Directory Index
	Funeral Directors	Yellow Pages
Religious Centres	Religious Centres by denomination	Street Directory Index
	Masonic Centres	Street Directory Index
Recreation	Reserves/parks & leisure centres	Street Directory Index
	List of all athletics clubs	Street Directory Index
	Bicycle tracks	Street Directory Index
	BMX tracks	Street Directory Index
	Boat Clubs	Street Directory Index
	Boat Launching Sites	Street Directory Index
	Bowling Clubs	Street Directory Index
	Indoor Bowling Clubs	Street Directory Index
	Cinemas	Yellow Pages

	Croquet Clubs	Street Directory Index
	Golf Clubs - Public	Victorian Golf Association website
	Golf Clubs - Private	Victorian Golf Association website
	Golf Driving Ranges	Street Directory Index
	Gun Clubs	Victorian Government
		Department of Tourism, Sport & the Commonwealth Games
	Indoor Cricket	Street Directory Index
	Life Saving Clubs	Victorian Government
		Department of Tourism, Sport & the Commonwealth Games
	Motor Cycle Tracks	Street Directory Index
	Nightspots	Yellow Pages
	Racing tracks (horse & greyhound)	Street Directory Index
	Riding Schools and Clubs (horse)	Street Directory Index
	Scout Parks	Street Directory Index
	Public Squash Courts	Street Directory Index
	Public Skating Rinks	Street Directory Index
	Public Swimming pools	Street Directory Index
	Public Tennis Courts	Street Directory Index
	Liquor Licences	Victorian Government
		Department of Human Services
	Gaming Licences	Victorian Government
		Department of Human Services
Services		
	Ambulance Services	
	Drug Advice	Yellow Pages
	Law Courts	Victorian Magistrates, County and Supreme and Family Court websites
	Nursing Homes	Street Directory Index
	Police Stations	Street Directory Index
	Post Offices	Australia Post website
	RSL Clubs	RSL website
	Railway stations	Street Directory Index
	Designated refuge areas	Street Directory Index
	Rubbish tips	Street Directory Index
	State Emergency Services	Victorian Government
		Department of Infrastructure website
	Animal Hospitals	Street Directory Index
	Veterinarians	Yellow Pages
Cultural		
	Art Galleries	Yellow Pages
	Theatres	Yellow Pages
	Libraries	Street Directory Index
	Museums	Street Directory Index
Holiday		
	Caravan Parks	Street Directory Index
	Hotels and Motels	Street Directory Index
Government Services		
	Centrelink	Victorian Government
		Department of Employment website
	Consulates	Street Directory Index
	State Emergency Services	Victorian Government

	Department of Infrastructure website
Community Services	
Community Corrections Centres	Street Directory Index
Community Health Centres	Victorian Government Department of Human Services website
Halls	Street Directory Index
Health and Community Services	Victorian Government Department of Human Services website
Hospice and Palliative Care	Victorian Government Department of Human Services website
Hospitals - public	Victorian Government Department of Human Services website
Hospitals - private	Street Directory Index
Hostels - migrant	Street Directory Index
Hostels - youth	Street Directory Index
Maternal and Child Health Centres	Street Directory Index
Municipal Offices	Street Directory Index
Neighbourhood Houses	Local Government websites
Retirement Villages	Yellow Pages
Child Care Centres	Yellow Pages
