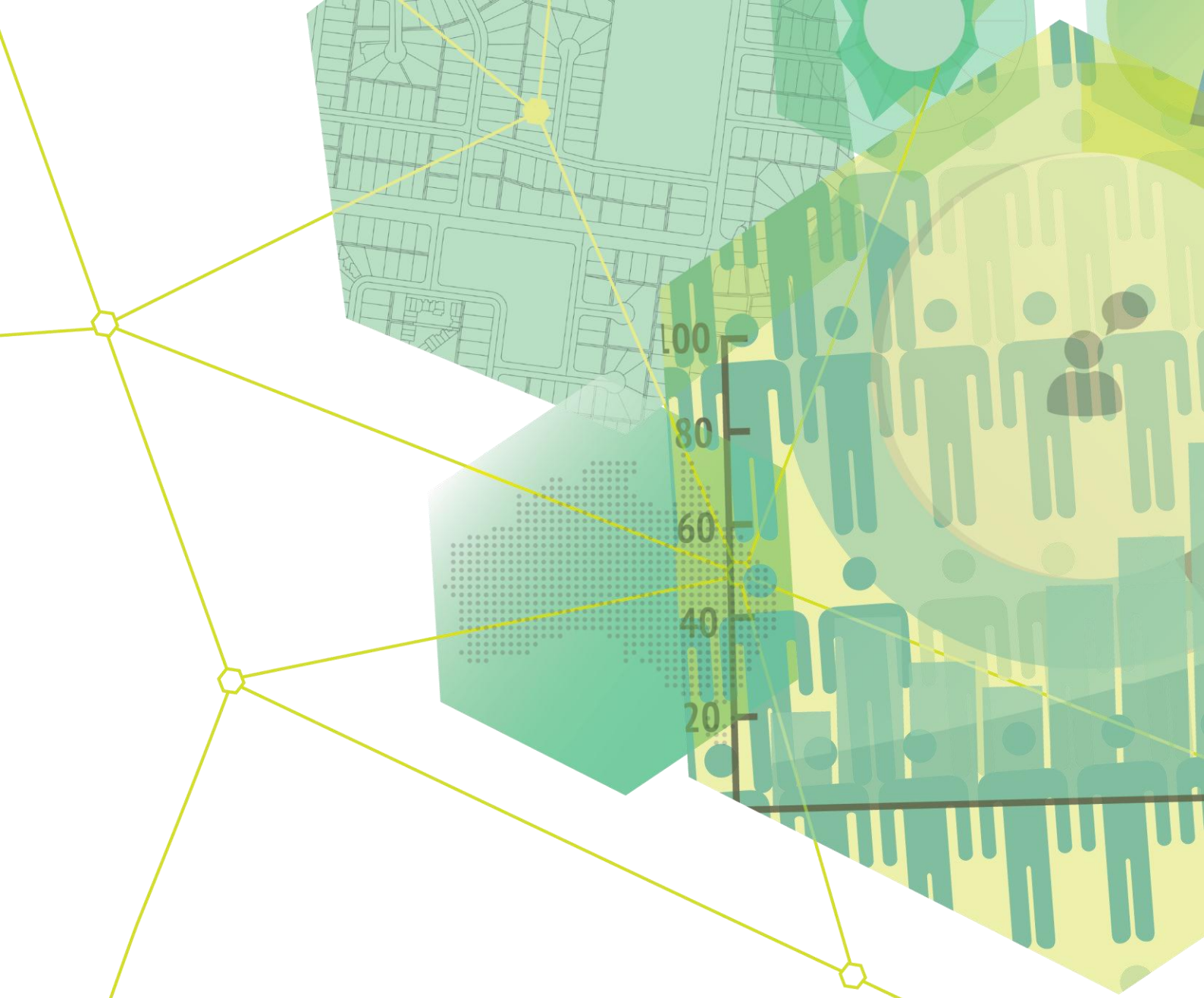

Looking Ahead

A Guide for Local Government Practitioners' Use of Demographic Data

ACELG
Australian Centre of Excellence for Local Government

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Acknowledgements

This paper was prepared by John Lavarack, Research Officer with the Australian Centre of Excellence for Local Government, and Jackie Ohlin, Associate with the UTS Centre for Local Government (CLG).

Before joining ACELG John worked as a sustainability professional in the local government and higher education sectors. He has developed a practice focused on engaging people in workplaces and communities with diverse data related to sustainability, and on ways of shaping practice in response to the data.

Jackie has worked in and with local governments in the fields of social planning, social policy and community development for 30 years. She specialises in social planning advice and social change initiatives.

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Introduction

a Why develop a paper to guide local government use of demographic data?

A national consultation undertaken on behalf of the Australian Centre of Excellence for Local Government (ACELG) (Evans 2010) identified the need for local government to respond effectively to demographic change as one of the top ten critical issues facing the sector. This need was seen as a strategic policy issue, in which councils need to exercise leadership, holistic perspectives, and a strengthened set of skills and approaches to a crucial form of information. This finding is reinforced by a report from the Council of Australian Government's Reform Council (2012) that, in investigating Australia's capital city strategic planning systems, found none were consistent with criteria set for addressing nationally significant policy issues – with 'population growth and demographic change' heading the list. This was seen as having serious implications for Australia's future 'competitiveness, productivity, sustainability and liveability'.

The International Year of Statistics falls in 2013, and is supported by over 1,950 organisations internationally, including the Australian Bureau of Statistics.[1] It is timely, therefore, to join in the call for the improved use of demographic data. The theme of 'demographic change' appears frequently in discussions about challenges facing local government. Demography is part of the daily currency of local government officers who are charged with building pictures of local populations supported by analysis of evidence, such as Census data, in order to make the case for, and inform, strategic planning and broader decision-making processes.

The improved accessibility and use of demographic data can support engagement by local government of local communities in community planning. It can also assist local government to position itself not only to respond more effectively to demographic change, but also to lead the change. For example, when local government undertakes both to understand and to respond to measures of community wellbeing that incorporate demographic data, ensuring that the data is widely shared and understood can be seen as a key aspect of following up that undertaking (Morton & Edwards 2012). The *National Local Government Workforce Strategy 2013–2020* (LGMA 2013) calls for investment in workforce skills and identifies a shortage of people in local government with skills in Urban and Regional Planning (ACELG 2012). The use of demographic data in strategic policy is posited as one of the skills requiring development.

This paper is written for people in local government who may not have been trained in the use of demographic and other population data but who play a role in strategic planning, urban planning, social planning, business and service development, or broader decision-making functions and processes. Using demographic data may be perceived as the specialist skill of demographers and social researchers, and therefore to be contracted to consulting services. It is the premise of this paper that, while this is a legitimate approach, the use of demographic data is a skill that may be best developed 'in-house' by local government. The arguments for this are:

[1] http://www.statistics2013.org/

- There are rapidly expanding resources – particularly available online at little or reasonable cost – that enable local government decision-makers to effectively use and analyse demographic and other population data;
- Planning issues require multidisciplinary approaches that can be enabled by in-house skills in the use of demographic and other population data (Brown et al. 2010; Ley et al. 2013); and
- Even where specialist expertise may be needed for complex data analysis, there is a cost benefit in developing a reasonable level of in-house skills in order to minimise dependence on external consultants or researchers – this is especially true for councils experiencing skill shortage issues (COWW 2010).

b The research questions and the approach taken to address them

This paper addresses two research questions:

- What does the literature say about excellence in local government's use of demographic and other population data for local government planning?
- What practical guidance can be developed from the review of literature that would assist local government planners and decision-makers to more effectively use demographic and other population data?

The approach the paper takes to answering these questions will be practitioner-focused, providing guidance for those in local government who wish to strengthen their use of demographic data for planning and decision-making purposes. The sections of the paper and their topics are:

Section 1 provides an overview of demographic issues relevant to local government in Australia

Section 2 provides a summary of demographic issues in their national context

Section 3 develops frameworks for the use of demographic and other population data in local government planning and decision-making

Section 4 provides information on where to find sources of demographic and other population data and how to use them.

Section 5 provides some tips and principles to guide the use demographic and other population data sources in general.

The reference list at the end provides further reading, along with a comprehensive set of online resources.

The paper also includes a number of case studies that aim to show how demographic data has been used in actual local government practice. It should be clear from these that the stakeholders in the strengthened use of demographic and other population data are diverse. They include those in the council organisation and the local community who have an interest in the quality of services and infrastructure that the council develops, and those who have an interest in how decisions about services and infrastructure get made.

2 An overview of demographic issues relevant to Australian local government

a Defining demography

Demography, derived from the Greek and literally meaning 'description of the people', is the study of the characteristics of human populations. While head counting has been the business of states since ancient times, particularly for taxation purposes, the modern idea of demography was first developed in 17th century Europe with the publication in 1662 of John Graunt's *Observations Upon the Bills of Mortality* (Pollard et al. 1990). In this work, early scientific observations were made about the statistical regularity of sex ratio at birth and the relationship between birth and death rates over seasonal and annual variations. The idea was originally framed as 'political arithmetic' since it provided the kind of broad-scale view of population trends that could inform what government did in response to those trends.

The idea of demography has since expanded to include areas such as economic, social, cultural and biological processes that are related to the dynamics of populations. In this paper, 'demography' is taken to mean both those areas of information narrowly defined as demographic, and broader population data that relates closely to demography and helps to 'fill out' the picture provided through the lens of demography, such as building approval data or police and health data.

Modern demography is made possible to a great extent by one of the costliest efforts at data collection undertaken by societies – the Census, usually covering an entire nation state (UN 2008 p.1). In Australia the Census occurs every five years, with the most recent one occurring in 2011, the hundredth anniversary of censuses in the country. The Australian Census aims to account for all individuals present in Australia on Census Night. It provides lists of numerical figures, both absolute (i.e. totals) and relative (i.e. ratios or percentages), of people collated according to certain characteristics (i.e. 'variables')[2], such as gender, age range, place of residence, and country of birth.

There are other sources of data which describe the socio-economic circumstances of the population, such as state-based statistics collected by health departments, police forces, transport agencies or education departments, or locally collected information such as building approvals. These data are augmented by other federal government data sources, such as comprehensive taxation data, welfare registration systems, and vital events (e.g. birth or death registration systems). These data can be pulled together to create holistic pictures of status and trends in human communities – such as the ageing of the population – and of what they may mean for service and infrastructure needs.

b Demography and Australian local government

Local government use of demographic data fits with broader concerns in government policy-making circles regarding the use of evidence to inform and support policy decisions and their implementation. This is underscored by the rapidly growing capacity to access and process data, enabled in particular by the

[2] See the ABS website for more information about statistical language. Visit: http://www.abs.gov.au/websitedbs/a3121120.nsf/home/statistical+language

proliferation of information technology (IT). This changing capacity can assist users of demographic (and other population) data to more readily access and analyse the information.

The trends that receive attention often reflect a shift from a former consensus about the demography of developed nations such as Australia to a new understanding that underscores the following characteristics:

- life expectancy extending beyond the 75 year limit that was once assumed in policy making , with increasing numbers of people aged up to 85 years and beyond (Rowland 2012);
- increasing percentages of people over 65 years of age;
- birth rates falling below that required to replace the current population in the long term, rather than a formerly assumed long-term stability in population; and
- the delayed effect of the baby boom (people born 1946–1961) , with increasing numbers of people moving into retirement age, and relatively smaller numbers of people earning income and paying taxes, with impacts likely to be felt over the next 30 to 40 years.

These trends reflect the relevant themes in demographic data in the Treasury's Intergenerational Report (2010) that set out the populations of concern to the Australian Government's long-term planning. These themes are only useful for local government decision-makers if they can be translated into local, place-based perspectives backed by analysis of local impacts and needs. While national trends may be reflected in local trends, there may be quite different issues in some regions or localities. Local government planners may need to present a local perspective that will challenge assumptions based on national trends. Also, even if the same population trend is evident as that seen nationally – such as an ageing population – the reasons underlying population change may be different across different locations.

Questions to get started …

At the outset it can be useful to sit down with colleagues and begin to ask questions about demographic data.

Imagine you are looking at statistical data, for instance, that shows a sudden surge in births in a particular area. Some of your first questions might be:

- What's the story here – who are the people having babies?
- What does it mean for us in this place?
- Is this trend likely to continue?
- What other questions does this finding pose for us (or, what else do we know or need to know about this particular issue)?

Understanding local trends and needs will feed into decision-making in areas such as funding new services and infrastructure, or changing workforce capabilities (ALGA 2010). To this end, publicly available demographic and other population data can provide the detailed information required to enable councils to better understand and respond to the needs of target populations[3] – including people from culturally and linguistically diverse backgrounds, people with a disability and Indigenous populations.

[3] For more information on specific definitions of different types of population that get counted by the ABS, visit http://www.abs.gov.au/websitedbs/a3121120.nsf/home/statistical+language

For councils, the ability to use data, and act on it, can be developed for local settings. An example is data that indicate changing population composition, such as the increasing presence of ageing people, measured in terms of percentages of population in a particular area. Such an increase could result from an influx of retirees, the ageing of existing long-term residents, an exodus of young people who can no longer afford housing costs or who are looking for better job prospects or who leave the area to attend educational institutions, or a combination of these and other factors. Depending on what the comparison of individual characteristics reveals about the population being analysed, once basic analysis is undertaken, there will likely be a need to go out into the community to verify the information and to fill in the gaps in the story, in order to determine whether the trend is passing or emerging, irrelevant or significant.

Demographic data needs to provide 'snapshots' of local populations – which might amount to an account of how a local resident community is positioned at a certain time. But it may also be needed to understand the mobility of the population (within a region and between regions) as well as to think about future population change. Census data can be used to look at population movements between regions[4] and commuter patterns of the labour force.

When analysing future population change, it is difficult to accurately predict the trends that will affect planning well into the future. It will require making clear assumptions about what circumstances could generate population growth or decline in a local area, and then using demographic data to assess the net effect of these assumed changes. Local government is well placed to know what might happen in regions, and so it should be involved in the process of producing population estimates for different future scenarios.[5]

Population analyses can go beyond what is happening in a local population in terms of variables measured at a particular point in time, to delve into why particular trends are occurring. Such analyses are about developing plausible, verifiable narratives that may point to what will happen in the future. These analyses and narratives can be continuously revisited and 'recalibrated' as new data comes to hand that confirms or challenges the original view.

c The local government decision-making context

The effective use of demographic data is not only useful for government administration but is also a key element in a local government agenda that places local communities at the heart of its governance (Pillora & McKinlay 2011). Council staff should take an interest in the information, as should the local communities that wish to ensure that the aspects of life that make their neighbourhoods liveable are taken into account and enhanced in planning and policy. Indeed, in setting agendas for the engagement of councils with their communities, demographic data can help indicate not only who the planning is for, but also who should be involved in decision-making about planning. This is particularly important for groups within the community which are regarded as 'hard to reach' or hard to identify, such as people with a disability or people from culturally and linguistically diverse communities, or simply 'the silent majority'.

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[4] For more information, see the ABS publication 'Perspectives on Regional Australia: Population Growth and Turnover in Local Government Areas (LGAs), 2006-2011' http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/1380.0.55.0072006-2011

[5] See ABS website for definitions and explanations of 'projection' and forecast'. Visit http://www.abs.gov.au/websitedbs/a3121120.nsf/home/statistical+language

Beyond this, there is a role that the effective use of demographic data has in strengthening local government's voice in forums to argue for integrated policy and action. These forums may occur within councils, between councils in regional settings, or between different levels of government. For instance, in areas facing rapid increases or decreases in population there may be an urgent need to advocate for innovative approaches, such as shared services arrangements, to address the anticipated dynamics (Creighton & Hartwich 2011). In conjunction with iterative planning approaches, effective financial management, and shared understandings of trends, needs and capabilities, the effective use of local demographic data may assist in resolving complex planning issues that involve the mobilisation of significant resources. Councils, operating as they do in local settings and engaging in democratic processes to underpin decisions, have a particular need to ensure that they understand their local communities and can account for their needs and aspirations. The skilful use of demographic data to establish shared understandings of these needs will be an essential aspect of this undertaking.

Case Study 1: The delivery of a new service to a regional council

A regional council commissioned a study to determine whether community centres (delivering services to vulnerable populations and to the community in general) were optimally located to best meet community needs.

The study methodology included: a survey of current uses; condition reports on existing centres; community consultations; and a demographic analysis. The demographic analysis was detailed, and included consideration of the needs of the existing population according to ABS census and Socio-Economic Indexes for Areas (SEIFA) data. It involved segmentation of data by suburb and locality as well as by relevant cohort and population characteristics associated with need. The analysis included an understanding of how the population had changed over time (referring to previous census data) and to projected populations (drawing upon relevant central government data bases).

The outcomes of this analysis were validated through consultations with community centre managers and council staff. Together with other inputs these consultations informed the evidence base and recommendations for the council's deliberation and decisions. Key outcomes of the study were council decisions to:

- invest resources in building one new community centre in a location of population growth and demonstrable need;
- close one community centre which was poorly located and largely inaccessible (due to poor public transport and the incidence of road closures during adverse weather events);
- co-locate services in key locations around particular community centres (and form partnerships with other facilities to deliver certain services which could not appropriately be delivered at the centres, e.g. out-of-school-hours care in schools);
- streamline centre management processes.

The lesson learned from this exercise was the benefits of council having confidence in, and standing by, a robust, evidence-based process. This confidence enabled council to avoid reactionary responses such as yielding to pressure from groups with a vested interest in keeping a community centre operating even though it was longer viable and did not meet community needs.

3 Demographic data in the national context

a Overview

Planning in local government occurs against the backdrop of national demographic trends that play out, at the local level, in diverse ways. This section outlines how demographic data informs discussions related to population changes, and ways of understanding the trends in order to ensure responsive planning. Overall national population growth, for instance, equates to high growth for a few councils, moderate growth for most, and population decline for others (ABS 2013). This means that while current arrangements between different levels of government – to provide revenue, set policy, and provide other resources in response to population change – may function well enough for many, for others the arrangements require more complex analyses and negotiations. In particular, demographic data may assist in understanding the particular issues that require attention, including those that may be accommodated by current planning frameworks and provisions, and those that require advocacy across jurisdictions for realignment of resources.

b Changes in population size and their implications

Projections for population growth in Australia range between a 34% and an 84% increase by the middle of the 21st century (ABS 2008), depending on the amount of influence attributed to each of the following factors:

- fertility rates (i.e. expected number of babies per woman);
- net overseas migration (i.e. numbers of people arriving from overseas to live in Australia minus people leaving to live overseas); and
- life expectancy at birth (number of years males and females, respectively, are likely to live).

The current growth rate of the Australian population stands at around 1.7% per year[6], driven in good part by overseas immigration (ABS 2012). Population growth is not evenly distributed across Australia, with some areas experiencing population growth rates of 2.7% per year or more – particularly in new urban development on the fringe of metropolitan areas (NGAA 2012). Other areas are experiencing population decline, including parts of regional Australia where the changing structure of traditional economic bases, such as agriculture, are resulting in diminishing employment opportunities (Budge et al. 2012). In addition young people from these areas are moving to urban centres where economic, educational and social opportunities are more accessible, leaving behind an increasingly ageing population. For the young, this does not necessarily mean a move to capital cities.

In general, in Australia, there has been a shift over the last 40 years from the traditional distinction between urban and rural areas to classify human settlements. It is now common to include a third form of development around

[6] For more information, visit http://www.abs.gov.au/ausstats/abs@.nsf/Previousproducts/3101.0Main%20Features1Sep%202012?opendocument&tabname=Summary&prodno=3101.0&issue=Sep%202012&num=&view=

capital cities and, in particular, along the coastal fringes (Hugo et al. 2003; Salt 2001). This has seen areas of high growth in places such as Tweed Heads and Ballina in NSW, and Surf Coast in Victoria. These areas are characterised by large influxes of retirees – a cohort that is expected to grow as baby-boomers enter retirement – along with young families seeking affordable housing close enough to metropolitan centres (Brisbane, the Gold Coast and the Sunshine Coast, and Melbourne in the above examples) to allow access to employment (DIT 2011).

The economic opportunities may be more local than the nearest big city, given that many traditional urban functions once associated with capital cities are being increasingly relocated to peri-urban areas (Hugo et al. 2003). Furthermore, the increasing capacity of the internet, particularly in view of the rollout of the National Broadband Network, is driving changes in work and travel by offering the capacity to work remotely.

While most councils in Australia deal with population change to some extent, some deal with very high levels of it and face particular challenges in managing the resulting dynamics. Some areas expect population increases of one-third over the next ten years (NGAA 2012), and there are difficulties experienced in providing the necessary levels of services and infrastructure to ensure a sufficient economic base to meet future community needs. For local government these difficulties arise in part from a disconnection between the current capacity to raise revenue from rates and charges, and the need to build infrastructure that is not yet needed and for which a ratepayer base is not yet present (Creighton & Hartwich 2011).

A sound understanding of demographic trends is needed to support negotiations to raise finance, particularly for investment that goes beyond the engineering services normally provided by government (e.g. roads, water, sewerage) to include social, sporting and community infrastructure such as community centres, sports and leisure facilities, arts and cultural facilities, learning centres, libraries and community service facilities – these latter services are sometime collectively referred to as 'social infrastructure'. This infrastructure is increasingly understood to underpin productivity, community wellbeing and social cohesion (NGAA 2012; Kelly 2012), although in planning discussions it can tend to be eclipsed by 'big ticket' infrastructure investments such as roads or sewerage services. Social infrastructure can also support economic growth by providing the conditions, through planning and policy, that allow businesses to get established (Kelly 2012).

It is important to recognise that populations may change through outright growth (additions to the population) but also through population turnover (people moving out and in with little apparent overall growth). Both types of change should be analysed. Population turnover can also impact on the kinds of services and infrastructure needed in a community.

c Changes to population composition and implications

- In terms of demographic composition, the key national trends which are likely to be relevant for local government are:
- ageing;
- shrinking working segments of the population in relation to dependent population;

- smaller households; and
- more single households.[7]

These characteristics are often combined, and so coordinated approaches to service delivery and infrastructure development are required. For instance, the ageing population is marked by people surviving well into their eighties, living alone for many years following the death of a spouse, and needing services that address health and community safety issues as well as the need for social connection (O'Brien & Phipps 2011).

There are also 'hidden issues' related to population composition that are characterised by social disadvantage. The areas in which local government may have a particularly strategic role relate to:

- planning for sustainable service provision;
- housing affordability;
- access to employment;
- the needs of single households and single parents;
- English language proficiency;
- the nature of neighbourhoods related to the welfare and social development of children and young people; and
- personal safety and security.

These issues also relate to changing population characteristics and the nature of transitional experiences as people move from one stage of life to another, with implications for services and infrastructure. Councils need to lead changes to services and infrastructure. This includes re-purposing infrastructure that may or may not relate to overall urban design. More likely, it will relate to providing input to discussions (between the different levels of government and between neighbouring councils) on strategic service locations; identification of service and infrastructure standards; and attention to local planning provisions (e.g. construction of walkways or access ramps to accommodate older pedestrians, people with a disability, and parents with children in strollers).

Australian Government program and policy decisions are increasingly concerned with making good decisions relevant to location of services – particularly in relation to health, aged care, child care and some engineering infrastructure works. Co-location of particular services can promote sustainability by making possible the judicious use of scarce land and the increased capacity to design environmentally friendly facilities. Co-location can also increase safety for service users and providers as well as the convenience for users of having these services in the one location.[8]

[7] It should be noted that these latter two trends – smaller household size and more single households – have slowed in recent years and now seem to have stabilised. Visit http://www.aifs.gov.au/institute/info/charts/households/index.html#hprojected

[8] There are now websites providing relevant local information on "My Schools"; "My Medicare Local"; "My Region" and "My Aged Care". These are separately managed by different agencies, whereas local governments try to plan for the coherent integration of services at a local level.

For local government, issues arising from changes to population composition can vary widely according to local circumstances. Councils are mindful of a range of special needs for groups such as children and young people, young families, people from culturally and linguistically diverse backgrounds, Indigenous Australians, the aged, and people with a disability. At the very least, the effective use of demographic data can allow decision-makers to gain not only a picture of the community as a kind of highly detailed 'snapshot' but also a picture of changes over time. This can assist understanding of how the community is changing and, therefore, how to try and anticipate future requirements. This can enable approaches to planning which are designed to ensure that community needs are understood and addressed, and that the community is engaged in appropriate ways regarding development of services and infrastructure.

Case Study 2: Meeting the challenge of rapid growth on an urban edge

The City of Greater Dandenong (CGD) and the Victorian Local Governance Association (VLGA) embarked on a collaboration to produce statistical profiles of local communities across a range of social, health and economic outcome areas.[1] The City of Greater Dandenong is an outer suburb of Melbourne that has experienced the challenges of rapid growth, a diversity of cultures, unemployment and a high youth population.

The profiles combine a range of data including ABS Census data, topic-specific ABS survey data and data obtained through state government agencies to provide a narrative across a range of factors likely to be of interest to local governments. The profiles are highly accessible and include: basic community demographic data; factors indicative of community strength (i.e. volunteering and creativity); results of gambling venue applications; factors indicative of community safety and factors indicating relative advantage or disadvantage (i.e. SEIFA Indexes). The data are provided for every LGA across the State of Victoria, thus allowing for basic comparisons with other LGAs or the state average. The site also provides mapping facilities and the capacity to build tailored regional and small area profiles. In addition to the various data, the site provides guidance on the use of basic statistics and tips on survey techniques.

This case study illustrates the capacity of councils to develop statistical profiles tailored to specific needs and geographic areas, using reliable primary data. It also demonstrates the capacity for such data to be used both creatively and for comparisons in order to develop a narrative of local communities in an accessible way.

[1] http://www.greaterdandenong.com/document/42/social-statistics
[2] See the discussion in Section 4 on ABS services

4 Frameworks for the use of demographic data in local government

a Overview

The context in which data is used will determine the way it is used and the way it evolves as it is used by different stakeholders. This section aims to provide approaches to viewing demographic data and understanding the way users engage with it. It highlights the different ways data is seen and used and how users of the data may work together to develop holistic pictures of communities and places in the context of local government decision-making

b The roles of local government users of data

The roles that government can take in the challenging task of using evidence to inform policy and action are covered extensively in the literature (COA 2010c, Taylor 2005, Dunworth et al. 2008). Local government decision-makers at all levels, from officers to executives and elected representatives, along with concerned community members and other key stakeholders, have an interest in being informed about how demographic and other population data is developed, accessed and analysed. There needs to be enough shared understanding to query the data, assess the appropriateness of analytic methods, understand the significance of findings, and productively deal with those situations in which evidence is contested – perhaps because it cuts across already well-established policy agendas (Edwards 2004). To add to this challenge, data specialists, developing evidence to inform decision-making, may treat their job as complete once findings are written up, and may seek to withdraw from the policy-making process (Taylor 2005). Where academic research is involved, there may be arguments presented that advancing theory on one hand, and testing it in practice on the other, should be kept as separate activities (Regan 1994, p.47). In general, data specialists may have valid reasons for maintaining independence from policy analysis to ensure that their data is credible and unbiased.[9]

Given the potentially contested and complex nature of applying demographic data in policy making or developing strategy that could be implied from the issues outlined above, local government practitioners need to manage the development of findings and frame information that will be useful and coherent. They need to account for compliance needs, political cycles, organisational learning needs, community expectations and professional standards. Where demographic data is used to 'forecast' – that is, to underpin scenarios for planning or 'visioning' for the future – an adaptive approach to the implementation of plans can be taken, accommodating progressive refinements or corrections of what is known about the population in question.

An in-house capacity to conduct research can facilitate the regular review of information used for decision-making and progressive reiterations of planning or strategy statements (COA 2010c; Stoker & John 2009). This will be essential for ensuring that planning and strategy – and their implementation – respond to the actual local context, and that the demographic data informs coherent, evidence-based decision-making. This process can engage multidisciplinary approaches to understanding demographic data. Such an approach is of particular benefit where

[9] The ABS is established as an independent statistical agency under the *Census and Statistics Act* – deliberately divorced from policy to ensure integrity.

the issues are complex and stakeholder engagement is crucial, because it can accommodate diverse approaches to developing findings within the framework of 'commonsense inquiry' (Table 1). In this framework, demographic and other population data is not solely the domain of specialist disciplines and people within the local government organisation, working with relatively narrow frames for methods of enquiry or types of questions asked. This points to the authoritative insights that local government may draw from within the community or beyond.

Table 1: Contributions to collective decision-making (Brown et al. 2010)

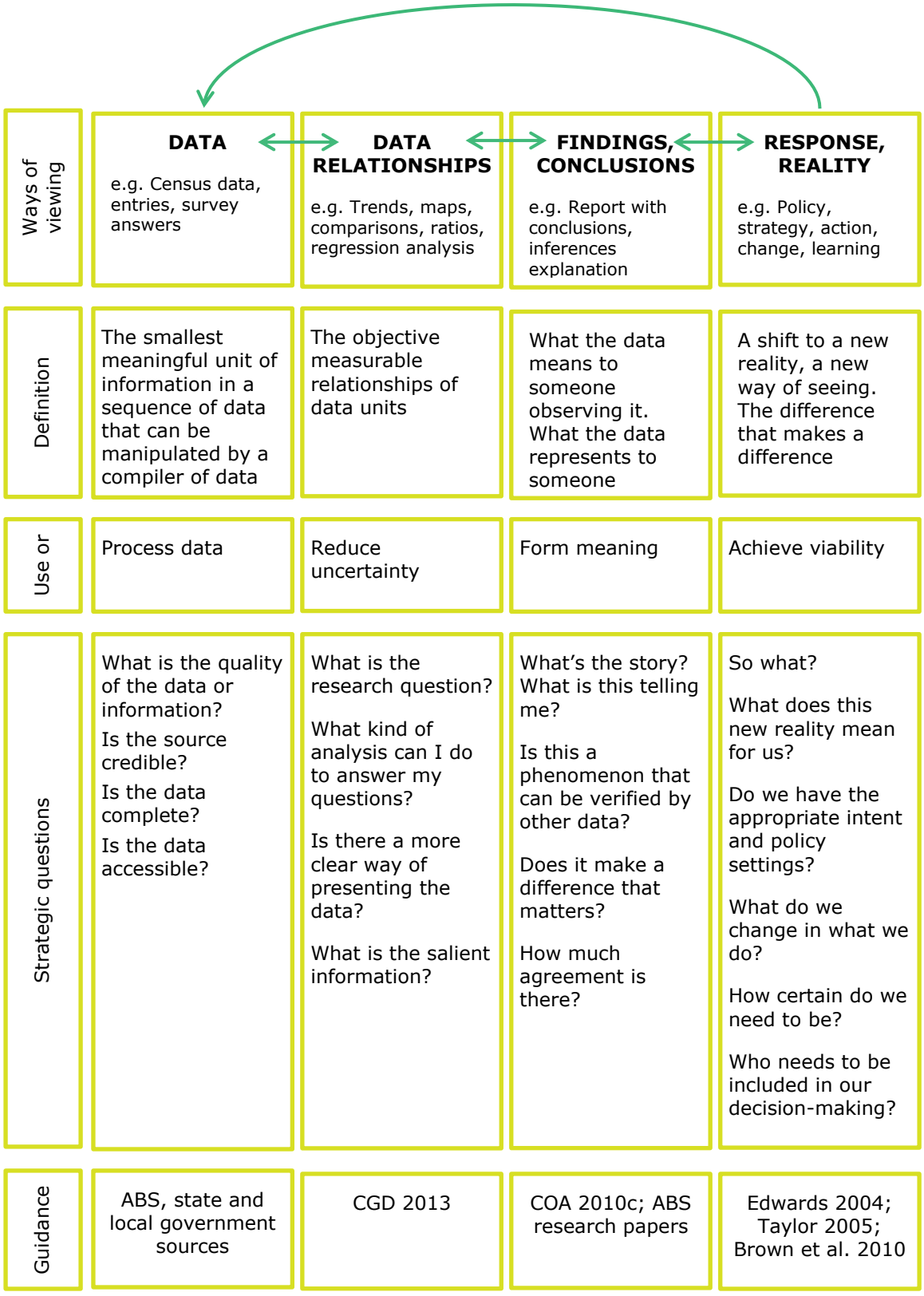
	Contributors to collective decision-making				
Dimension:	**Individual**	**Community**	**Specialised**	**Organisational**	**Holistic**
Content:	Personal lived experience	Mutual place-based experience	Academic disciplines, professions	Agendas, regulations, precedents	Symbols, metaphors, images
Method of inquiry:	Reflection	Dialogue	Specific tools	Cost/benefit	Imagination
Type of question:	Introspective	Social	Empirical	Strategic	Aesthetic
Evidence:	Memory	Stories	Reproducible	Will it work?	Meaning
Role models:	Personal heroes	Eminent citizen	Nobel prize winners	Powerful leaders	Writers, artists

To assist this collaborative approach to research driven by an in-house capacity, there is an emerging practice of framing local government strategic planning explicitly as a research undertaking. This is the subject of an ACELG publication, *Knowledge City* (Ley et al. 2013), that explores how this kind of capability was developed in a council setting. ACELG has also produced a guide for practitioners on developing and documenting in-house research, *Make Your Knowledge Matter* (Asker & Pillora 2013), that may assist in developing this kind of approach to inquiry.

c Approaches to the use of demographic data in planning and decision-making

There is a good deal of literature which can assist people in local government to make use of demographic and other data. However, the translation from the 'raw data', for instance, Census data formatted in large tables, into something such as a strategic plan is not necessarily straightforward (Edwards 2004, Taylor 2005). Using demographic data is likely to require an investigation through a back-and-forth process of asking questions about the data, getting answers, refining the questions and getting more specific answers, and revealing patterns that are significant and which may indicate an emerging reality that requires a response in policy or action. An example of a finding of relevance may be seen in a statement such as 'Our population is ageing much more rapidly than we believed 10 years ago' or, 'An increasing and significant proportion of the population speaks Tamil at home'.

Figure 1: Ways of viewing data or information



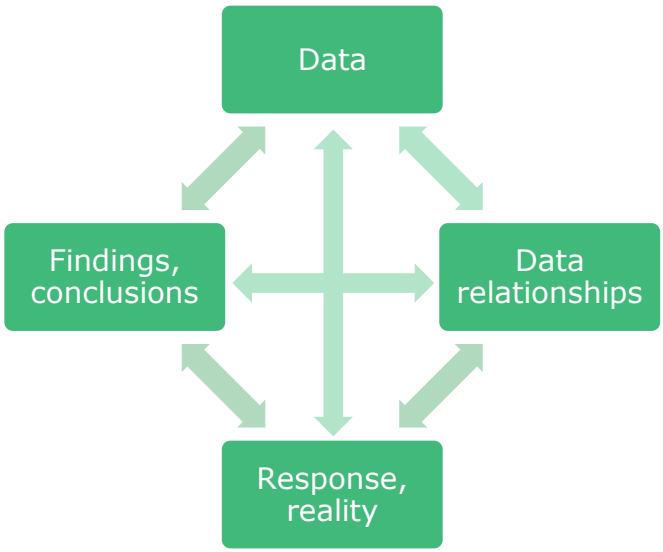
Ways of viewing	DATA e.g. Census data, entries, survey answers	DATA RELATIONSHIPS e.g. Trends, maps, comparisons, ratios, regression analysis	FINDINGS, CONCLUSIONS e.g. Report with conclusions, inferences explanation	RESPONSE, REALITY e.g. Policy, strategy, action, change, learning
Definition	The smallest meaningful unit of information in a sequence of data that can be manipulated by a compiler of data	The objective measurable relationships of data units	What the data means to someone observing it. What the data represents to someone	A shift to a new reality, a new way of seeing. The difference that makes a difference
Use or	Process data	Reduce uncertainty	Form meaning	Achieve viability
Strategic questions	What is the quality of the data or information? Is the source credible? Is the data complete? Is the data accessible?	What is the research question? What kind of analysis can I do to answer my questions? Is there a more clear way of presenting the data? What is the salient information?	What's the story? What is this telling me? Is this a phenomenon that can be verified by other data? Does it make a difference that matters? How much agreement is there?	So what? What does this new reality mean for us? Do we have the appropriate intent and policy settings? What do we change in what we do? How certain do we need to be? Who needs to be included in our decision-making?
Guidance	ABS, state and local government sources	CGD 2013	COA 2010c; ABS research papers	Edwards 2004; Taylor 2005; Brown et al. 2010

Source: Adapted from McKinney & Yoos 2010

Figure 1 presents a framework for approaching demographic data which adapts a taxonomy of 'information' developed in the academic discipline of Information Systems (McKinney & Yoos 2010; Lee 2010). Reading from left to right, one way of viewing (i.e. sharing an understanding of) data or information forms the 'building blocks' for the next way of viewing data. This should not be taken to mean that this is how people actually process information in practice (i.e. starting at one end of a process with data and ending up at the other with a response); rather, it shows how the views of data or information are both different and related. This underscores the possibility that the terms 'data' and 'information' can have multiple meanings that may cause confusion unless there is understanding of the different ways of seeing what is meant by 'information' or 'data', and an acknowledgement of the value of the varying views. This framework may help to map where decision-making sits in relation to an overall program of using demographic data, particularly regarding the strategic questions that may get asked at different times.

In general, the three views to the left of Figure 1 are the domain of research or inquiry – exploring the kind of information sources needed, 'data crunching' and investigation that may allow people to draw conclusions from the data. The right-most view, where the conclusions are drawn, implications understood and potential new realities emerge, is possibly of more direct relevance to the planner and decision-maker. In this view, what is important is the shared understanding of what the data is saying, the agreement on what is significant, and the translation of the information into strategy, policy, action and evaluation.

Figure 2: Views of information in a system



While the framework in Figure 1 is not intended as a research or enquiry agenda, with the information emerging in a simple linear way, it is intended to show how information is developed in a system, where it is seen in different ways and built up in a back-and-forth process of question and answer (Figure 2). An inquiry using demographic data could start in any view, using any of the strategic questions included in Figure 1 or elsewhere in this paper. The movement back and forth between different ways of viewing, creating, and approaching data, and of revisiting and building on earlier ways of understanding them, would aim to build confidence in the reliability and completeness of insights over the whole process so that the information can be adapted as a reliable view of reality. Possibly the most critical element of any research or analysis process is to ensure that you know what questions need answering to inform your policy and

decisions. What do you need to know? The process of gathering and analysing information may generate more pertinent questions which can be refined as you go.

d Using demographic data in action

The back-and-forth questioning and rethinking that applies demographic data can be considered in the following example. A community is advised that it is going to be a site for the resettlement of significant numbers of sub-Saharan African refugees. What does Council need to consider in terms of its research and analysis? It will need to include:

- an understanding of who the existing community members are and the how they use current infrastructure;
- the known characteristics of the incoming community (for example age, language groups, household structures, skills, proficiency in English, cultural practices etc.); and
- what has been identified about other communities undergoing similar change processes.

A capacity and gap analysis of the infrastructure needs of the incoming population will be needed. The analysis will need to include:

- data on suitable short- or long-term housing and/or serviced land;
- employment availability and readiness;
- childcare availability;
- health services (including capacity to address mental health needs, trauma and torture issues, etc.); and
- education needs (including English as a second language and vocational education skills).

Engagement with a broad range of stakeholders is likely to be a key component of using demographic data if it is to inform a successful resettlement strategy which is sustainable, supportive and builds community resilience. This will be supported by targeted stakeholder consultations, which could themselves be a component of analysis of information about infrastructure provided locally by councils, or state or Commonwealth Government agencies and private sector providers.

The analysis can be enabled by the large amount of demographic and other population data that are readily available to local government through agencies such as the ABS. There are online and IT-enabled data systems that allow the non-specialist to do their own manipulation (i.e. 'crunching') of data to investigate relationships between them and to develop findings. Information on these kinds of sources, and how to use them, is covered in the following sections.

Case Study 3: Encouraging economic development in rural Tasmania

Dorset Council, Tasmania, developed a prospectus[1] as part of its commitment to economic and regional development. Dorset is a small council, situated in north-east Tasmania. The areas of economic development it has promoted include: wind-farming; innovations in food processing and agriculture; broadband rollout; tourism and adapting to the ageing of the population. The prospectus was developed to stimulate interest among people visiting, revisiting or setting up businesses in the area. It identified a need to attract families and individuals, and to look after them in a range of social, sporting, educational and other dimensions.

The prospectus provides a strong focus on the area's liveability attributes. It also uses comparative demographic and socio-economic data (with state and national data) for: housing affordability and stress; employment and unemployment; household and personal income; educational achievement and various other population characteristics. Importantly, the application of these data is critical to the success of the policy drivers, identified above, of Council.

For example, it is clear that Dorset has a larger proportion of older people than does the state or Australia as a whole. The prospectus frames this as an opportunity for economic and regional development, to support ageing in place in an area renowned for its liveability. Furthermore, while the data for educational achievement indicate that the area's educational standards are low, the prospectus notes several signs that this is improving and identifies a number of educational institutions offering relevant courses to students locally and from further afield.

The Dorset case study illustrates that councils can use demographic and socio-economic data to frame their economic development strategies. And while those data might *prima facie* appear unattractive, they can also signal opportunity and, importantly, progress toward achieving community goals.

[1] http://www.dorset.tas.gov.au/webdata/miniSites/prospectus/index.htm

5 Demographic and other population data sources and how to use them

a Overview

There are many sources of demographic and other population data available to councils. These include primary and secondary data sources. Primary data are those which are new or original and collected at the source (such as ABS Census data or, possibly, council surveys). Secondary data are obtained from other records or when primary data are used for another purpose.[10] Either is legitimate for local government planning purposes. This section provides information on useful data sources, which include the ABS Census; other Australian Government agency data; state or territory agency data on areas such as planning, health, transport, education, or crime; and data collected by councils themselves. Other sources of demographic data include academic institutions and private firms which use a variety of sources to conduct local or regional studies (sometimes in partnership with councils). Information sourced directly from the community can also be valuable for providing details about specific aspects of local populations.

b ABS Census data

The Australian Bureau of Statistics[11] is the primary source for Census data. Census data is aggregated for every Australian household on gender, age, education, cultural background, marital status, household and familial characteristics, dwelling type and location, rental or mortgage paid, employment, occupation, income, etc. The Census of the population is conducted every five years, the most recent being in 2011.

Specific Census products of use to local governments include:

- **QuickStats**[12] which provide a snapshot of a population across a range of geographic layers from small areas to the national scale
- **Basic and Expanded Community Profiles (BCPs)**[13] which provide detailed data in relation to most topics on the Census form, arranged in six separate profiles according to place of residence
- **Socio-Economic Indexes for Areas (SEIFA)**[14] which include combinations of individual characteristics to assess the welfare of a population
- **The National Regional Profile (NRP)**[15] which provides a 'one stop shop' for a range of data for regions, covering economic, population, industry and environment data
- **TableBuilder**[16] which allows data, such as BCPs, to be manipulated at a range of geographic levels using basic or complex tables.

[10] See ABS website on Statistical Language for more information on 'Primary' and 'Secondary' data http://www.abs.gov.au/websitedbs/a3121120.nsf/home/statistical+language
[11] www.abs.gov.au
[12] http://www.abs.gov.au/websitedbs/censushome.nsf/home/quickstats?opendocument&navpos=220
[13] http://www.abs.gov.au/websitedbs/censushome.nsf/home/communityprofiles?opendocument&navpos=230
[14] http://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa?opendocument&navpos=260
[15] http://www.abs.gov.au/websitedbs/c311215.nsf/web/Regional+@+a+Glance
[16] http://www.abs.gov.au/websitedbs/censushome.nsf/home/tablebuilder?opendocument&navpos=240

These Census products are useful to local governments because of the need to describe communities at regional, local government area (LGA), and sub-LGA spatial levels. The spatial levels likely to be of most interest to local governments in the 2011 Census comprise the four 'statistical area levels', as well as suburbs, Indigenous locations and LGAs. The four statistical areas are:

- Statistical Areas Level 1 (SA1) are small regions of approximately 400 people.
- SA2 areas are small regions which correlate to the regions for which most ABS sub-state data will be released in inter-censal periods. These include estimated resident populations, health data and other vital statistics. SA2 regions range in population from 3,000 to 25,000, with an average of around 10,000.
- SA3 areas are regional cities or large transport/service hubs, with populations of between 30,000 and 130,000. There are approximately 330 of these regions across Australia.
- SA4 areas, of which there are approximately 90, are used for the release of Labour Force Statistics.

These statistical area levels are new geographic constructs in the 2011 Census. Other geographic boundaries, including suburb and LGA, remain the same. Mesh blocks (comprising 30–60 dwellings) are the smallest unit of Census collection and, as such, are only released as basic person and dwelling counts to ensure privacy.

Case Study 4: Transforming library services in Ipswich

Some years ago, Ipswich City Council identified both significant need and significant opportunity within its relatively young, culturally diverse and rapidly growing community at the heart of Queensland's South East Region and just 40 minutes west of Brisbane. Although parts of the Ipswich population could be characterised as 'relatively disadvantaged', Council instead chose to focus upon the positive aspects of youth, vigour, opportunity and the creation of environments to encourage skill development across the population.

It proposed that Ipswich Libraries would be a hub of lifelong learning and community engagement for the community and went about achieving this by building access to a wide range of books, audio books and now e-books; by expanding the lending library to include movies and music; by extending the range of online resources that can be accessed by community members (including internet access); and by creating a 'learning lounge' which includes a portal for life skills, English language development, online TAFE courses and a range of other study sites.

Council also provided training in using technologies like the internet, email and social media to ensure all members of the community have the skills to participate in the digital economy. More recently the Library has begun providing assistance with using e-devices to download e-books, music and magazines from the library's online catalogue**.** The physical library facilities, themselves are welcoming places where significant interaction between community members of all ages and backgrounds occurs.

While there are now many examples around Australia of councils developing community or 'lifelong learning' hubs with libraries at their heart, Ipswich was one of the pioneers in this field, driven by a strong understanding of its demographic base and its untapped potential.

c Using ABS Census products

QuickStats can be used to provide a snapshot of a population across a range of geographic layers. These are useful for doing a rapid community appraisal. They can also be used to compare data for one geographic area with another (for example suburb with LGA, or LGA with metropolitan, state or national data). Simple calculations, such as percentages or proportions of the total population, are also available. Comparisons of community change over time can also be undertaken, however some differences between 2006 and 2011 collections can affect these comparisons (explained on the ABS website).

An example regarding the use of QuickStats is to establish an overview of the community for the planning of current and future child care facilities. The initial questions asked may be:

- What have been the actual and proportional changes in the population over the past five years?
- Is it growing or declining?

A growing population may indicate more couples of child-bearing age, increased numbers of residents due to a housing boom, or a baby-boomer-led 'sea-or-tree-change'. Other questions to ask are:

- What is the median age of the population?
- Has there been any increase in the number of married couples and what is the median age?
- Is the median age of married couples relatively young?
- Are these couple families with or without children?
- How has this changed since the last Census?
- Has there been any recent growth in the proportions of children aged 0–4 years? This may help indicate the extent to which a baby boom is already underway.
- What is the proportion of single parent families?
- In what occupations is the population employed? Are both partners employed? This may indicate a greater need for child care provision.
- Do people work full- or part-time?
- What are the income levels of the population? This may assist in developing a picture as to the affordability and types of child care needed. Is this likely to be full day care, occasional care or family day care?
- What are the principal cultural groups in the area? This will help with understanding whether there any specific cultural needs in planning for children's services, and aid the process of considering how these needs can be addressed.

- What proportion of the population is purchasing or renting accommodation, and what proportion is in housing stress – using the proportion of income spent on securing housing? Again, this may help in obtaining indications of affordability and type of care.

Basic Community Profiles (BCPs) provide richer and more detailed data than QuickStats in relation to most topics on the Census form (e.g. age groups separated into five-year bands; separation of income bands; etc.). These are arranged in six separate profiles according to Place of Residence. This may be of greatest use to councils – as distinct from Place of Enumeration, which refers to where the person spent Census Night and may not be where she or he usually lives. Similar to QuickStats, BCPs can be used to develop a statistical 'picture' of a community, to make comparisons, or to do time series analysis (changes over time). BCPs in Data Packs for the Estimated Resident Population will be released in August 2013.

Again, using the child care planning example, BCPs may be useful to develop a detailed local picture or a regional picture, and to compare selected relevant characteristics across several LGAs, or across the main employment zones. This takes into account the reality that some community facilities may have a 'catchment' that is wider than local. In order to make sense of travel patterns, it also takes into account the preference for users of child care to deliberately select centres close to either their homes or places of work. Using Census data in tandem with other data sources can be useful to inform, confirm or validate observations. For example, referring to Travel Zone data manipulated by planning or transport departments (or lodging a special data request through ABS) can help with further investigations of a given population's travel to and from their work places.

Further, the use of data specific to service populations and generated by relevant agencies can inform councils about community needs and how they are being addressed. In the example of planning for the provision of child care, the Australian Government website[17] provides maps and details of different types of child care facilities by location Australia-wide. The site also provides statewide summaries of the number and proportion of child care types and the details of newly approved services.

Socio-Economic Indexes for Areas (SEIFA) are data assessing several variables associated with the welfare of a population. SEIFA actually comprises four indexes:

- The Index of Relative Socio-Economic Disadvantage (IRSD)
- The Index of Relative Socio-Economic Advantage and Disadvantage (IRSAD)
- The Index of Education and Occupation (IEO)
- The Index of Economic Resources (IER).

In general terms, the IRSD ranks locations from most to least disadvantaged; for the IRSAD an area with a high score indicates a high incidence of advantage and a relatively low incidence of disadvantage; the IER indicates high and low income and high and low wealth; and for the IEO, an area with a low score indicates a

[17] http://www.mychild.gov.au

relatively high proportion of people without qualifications, without jobs or in low skilled jobs. These data are available at small area levels. In the 2011 data, there is also a facility to map areas, providing a useful visual reference.

While SEIFA is often used to demonstrate community disadvantage, it is important to note the availability of measures of relative advantage which can also be useful in, for example, identifying the characteristics of an area conducive to community or economic development. Because they combine a range of variables and tend to be indicative rather than specific, the SEIFA indexes are most useful in combination with other data. The ABS suggests that both the ranking and the decile should be used to explain results, in part to avoid their 'flippant' use.

The telling of a story can be enhanced through reference to other research studies. The ABS produces topic-specific catalogues of survey reports on a wide range of issues, target populations or areas. Surveys of participation in sport and recreation, or culture and leisure, for example, might be of interest to local governments planning new facilities or rationalising existing facilities.

Aside from ABS Census data, many other datasets focused on the local level may be out of date or hard to find. It will be important to supplement data where possible using a range of sources, for example:

- General practitioner data regarding identified local health needs;
- Non-government organisations' survey data on the health needs of those with or at risk of specific illnesses and responses;
- State government data – from the Premiers Council for Active Living and the Department of Roads and Maritime Services (Journey to Work data);
- Australian Government data – from the Department of Immigration and Citizenship (family, humanitarian or skilled migration statistics) and the Department of Employment, Education and Workplace Relations (small area annual estimates of employment and unemployment);
- Individual councils' own surveys (which can provide community satisfaction ratings as well as data on key community indicators (e.g. smoking rates, alcohol consumption, physical activity, perceptions of crime, time available for volunteering, etc.).

The National Regional Profile (NRP) is a product available through the ABS website which provides about 400 data items from 20 different sources for every LGA and other regions of Australia. These will be of interest to local government decision-makers who want to get familiar with the range of regional data available in consistent national data sets. They include data from other Australian Government agencies (such as Australian Tax Office and Centrelink customer counts).

Regional data topics under the NRP cover:

- economy;
- population/people;
- industry;

- environment and energy.

Data is available for SA1, 2, 3 and 4 areas, Greater Capital City Statistical Areas and Local Government Areas.

TableBuilder is a facility available online through the ABS website. There are two versions. TableBuilder Pro is a product for experienced users of Census data, for which there is a charge. TableBuilder Basic is available free of charge for people with some familiarity with Census data who want to create simple data tables. Online tutorials are available to assist new users.

For local government users of TableBuilder Pro, registration and payment of an annual fee is required. This allows data such as BCPs and other data to be manipulated at a range of geographic levels (except for Mesh Block, which provides data on the smallest units and is not available for privacy reasons). Basic or complex tables can be created. Local government practitioners should note that only one licence is available per council at present, which may limit the amenity of the service.

d Other Australian Government sources

There is a range of sources of demographic and other relevant data from the Australian Government. Relevant departments and agencies include:

- The Department of Education, Employment and Workplace Relations
- The Australian Taxation Office
- The Australian Business Register
- In the Department of Infrastructure and Transport :
    - The Bureau of Infrastructure, Transport and Regional Economics has information on Passenger Movements between Australian cities
    - The Major Cities Unit - delivering, among other publications, the annual State of Australian Cities report
- The MyRegion website has mapped data and socio-economic data that overlaps with what is available through NRP.

The URLs for these agencies are listed with the references at the end of this paper.

Case Study 5: An inner metropolitan affordable housing study

Through discussions with the community, an inner urban council had heard anecdotally that certain community members of lower socio-economic standing were increasingly unable to obtain affordable housing in the council's affordable rental housing program. This situation concerned Council due to the known benefits associated with community diversity and the potential decline in diversity within the local area. The situation arose as a result of rent levels across the locality increasing significantly faster than metropolitan averages, and the practice of pegging affordable rental housing policy settings to metropolitan-wide averages. Accordingly, the division responsible for Council's affordable housing policy committed to undertaking a review of policy settings to ensure they appropriately captured potential users.

To provide a robust evidence base to inform decisions by Council's executive regarding the affordable housing policy settings, the division required analysis of existing rental affordability within the area. Socio-economic profiling of community members was also done and, anecdotally, some indicated they would have difficulty obtaining affordable rental housing should the policy settings be amended. The division required data to confirm income and rent levels and existing tenure arrangements for this target group, and the likely impact of amending the policy settings. Establishing the demographic evidence base involved two components and relied on 2006 and 2011 ABS Census of Population and Housing data:

- Comparative analysis of rental affordability between the local area and the metropolitan area, including profiling of all renters within these areas. This analysis also required a review of intercensal changes to identify the extent to which local area rents had increased relative to metropolitan area rents and the impact of rent-pegging to metropolitan averages on Council's existing policy.
- Socio-economic profiling of community member groupings that were excluded from the affordable rental housing policy as a result of pegging and significant increases in local rents. This analysis involved detailed profiling of target user groups by age, sex, personal and household income, rent levels, tenure type, dwelling type, household composition, and population mobility.

The findings of the analysis were to be used by Council's divisional staff to request the executive to make changes to the affordable rental housing policy in order to capture a greater number of potential users within the program.

Establishing the demographic evidence base to inform the decision-making process was a critical action in confirming anecdotal information received by Council's staff and reinforcing the divisional staff's professional opinion that the policy settings should be changed to more appropriately reflect changing local contexts. The use of TableBuilder, in this instance, allowed the relevant demographic data to be pulled together quickly, ensuring the consideration of the information within the agreed time frame.

e State planning agencies

Most state government planning agencies (or their equivalents) provide data on population projections. These are useful tools alongside other data for all facets of community planning. Some state agencies provide data projections in downloadable formats or with mapping facilities to illustrate projection effects. A list of relevant websites follows the reference list at the end of this paper.

In addition, many state and territory agencies involved in service planning and delivery employ data analysts to undertake forward planning, projecting many years into the future (for example in areas of transport, education, health and disability support infrastructure). These can be a great source of data for local government practitioners. Agencies may hold data specific to a locality or region which is unlikely to be held by another agency or organisation, such as data about disability types, levels of individual need and support available.

Other agency studies may be generated from combinations of data. For example, the NSW Bureau of Transport Statistics has:

- downloadable travel pattern data;
- population, employment and workforce data at the Travel Zone and LGA level to 2046, with mapping capability; and
- the capacity to compare local government profiles.

f Using data from state planning agencies

It is possible to compare population trends using, for example, ABS Census data over time, together with specific local knowledge regarding development potentials as a means of assessing how a local area is tracking in relation to these projections. It is also possible to project population migrations between geographic areas, both for residential populations or for daily journeys to work.

Some state agencies report crime statistics at a suburb or LGA level. The NSW Bureau of Crime Statistics and Research also has this data in a graphic form, which can be downloaded for reporting purposes. Used alongside SEIFA data and community knowledge, these provide a substantial platform for identifying community safety planning interventions.

Contact with demographers in the relevant government agencies can be a useful step in establishing opportunities for collaboration regarding data sharing, particularly in relation to significant or multipurpose infrastructure. Council practitioners are likely to have access to more timely data regarding areas such as land releases, while government agency data relating to planning for specific populations or service areas is likely to be the most complete.

Some state agency data – such as health data on burden of disease, determinants of health, or health inequalities – are publicly available at regional or sub-regional levels, which do not align neatly with LGA boundaries. However, many agencies can provide a facility to manipulate data to an LGA level on request.

Where only large area data are available, it is sometimes possible to project the proportion of an affected population. For example, where local statistics on the prevalence of disability are unavailable, a reputable source such as the Australian

Institute of Health and Welfare[18] can be used to project a likely population range for which services must be planned.

g Local government data sources and their uses

What data collections does your Council currently hold? Councils gather data routinely on areas as diverse as building approvals, burial records, airport passenger and freight movements (where councils control these facilities). Councils commonly also gather data through resident surveys. Councils may hold historic population data in their records or libraries. It will be important to know the caveats placed upon these collections, particularly in relation to privacy. It is also important to be mindful of de-identifying data which is to be discussed internally or publicly used.

Consider how service data (for example, ratepayers and property data, land use, building approvals; cemetery burials; infrastructure assets; customer service data; airport passenger and freight movements) can add relevant detail to planning tasks and decisions. Some local data is regularly collected and may be more timely and accurate, as well as aggregated in ways that are more useful, than the data provided over longer time frames. A review of the data collections currently held by a council will inform some potential data uses. Regular council surveys on specific topics can also include demographic data about the survey population which can be useful in identifying or projecting need.

It is possible to build a local research information base and to streamline data collection in a way that leverages existing systems, such as building approval records. This can focus more on analysis and synthesis, moving from data to information to knowledge (Figure 1). This approach to 'unlocking the data' is explored in the case study of the City of Melbourne (Ley et al. 2013). A lot of information and data is collected by different agencies but not made available to practitioners developing inquiries into local demographics. The *Australian Urban Research Information Framework* [19](AURIN) which was formed in 2011, provides one opportunity for local government practitioners interested in participating in this kind of approach to access and use data related to infrastructure and urban resource use. The *Local Government Research Network*[20] also provides an opportunity for local government practitioners to find links to research topics of interest and to share data and insights with other practitioners and researchers across the sector.

h Other data sources

As mentioned above, other demographic data sources can include academic institutions, often working in partnership with local governments to undertake local studies. These may be particular to topics relevant to the locality or region, such as health, education or economic development. These data sources may include surveys generated by the institution, as well as analyses of primary or secondary data.

Private and academic service providers in the area of demographic data also have a strong presence in local government. Some of these providers have websites that are used by a large number of councils.These websites may provide data in a 'finer grain' than government agencies, as well as provide

[18] Australia's national agency for health and welfare information and statistics, http://www.aihw.gov.au/
[19] http://aurin.org.au/
[20] http://www.acelg.org.au/

sophisticated analyses. The reference list at the end of this paper covers some of these providers.

While less often used, some community sources hold detailed demographic data about members of the communities they service. This data can provide additional information to assist planning, and can be of particular importance when identifying and considering 'hard to reach' populations.

As in all relationships, the establishment of trust will be vital prior to accessing community sources of demographic data. Consideration should be given to the benefits of data sharing as well as other partnership-based opportunities to generate and share data.

Case Study 6: Lessons learned from investigation for a workforce plan

Many councils are in the process of developing workforce plans. One council was surprised to see that their employment practices had large part-time and casual components and the gender balance in all types of employment was very biased one way or the other. Once demographics were further investigated, both internally and externally, Council found that the region had a significant number of people employed in part-time positions and that it was a 'lifestyle choice' destination, with a retirement 'tree change' trend characterised by affordable housing.

The age groups of the staff in the workforce were within family rearing age, so the need for a family friendly environment was a big factor in those studied. Casual employees were predominantly in the swimming pool and leisure centre / community services areas, which fitted with the main characteristic of employment options in those disciplines. They were predominantly females in these areas. The full-time workforce (less than 50% of total staff) were predominantly male, females being managers in the community and recreational areas and one customer service officer.

They had a predominantly male council and executive, however there is no specific data to date on gender bias overall. Female staff represented 60% of the total workforce. Many positions were long standing. In general, the staff turnover rate was low, management and council stable and morale in the council organisation seemed very high. The age profile was considered reasonable but on closer inspection there were some real succession issues in a couple of areas. Some people had held positions for a long time and were due to retire soon. This demonstrated the need to delve into the statistics more to understand the reason behind the trends.

When the information was presented to the CEO and Council, they were surprised and pleased by the results as this information had not been gathered before. It was seen as a real positive for workforce planning and recruitment and retention strategy development as so many shires are unsure or against part-time positions and with good reason, given some of their experiences. While the Council does not have a flexible workforce policy or active strategy, they have been responsive to organisational, staff and community needs in building this model.

The total picture is not yet completed but indications from analysis show that the Council's approach is affordable and sustainable and allows staff resources to flex up and down in capacity according to identified need. Of employed people in the local government area, approximately 14.5% worked 1 to 15 hours, 11.5% worked 16 to 24 hours and 44.5% worked 40 hours or more. Recent recruitment for a part-time human resources manager received a large response with a high standard of candidates. This is very much against the trend across the state, and perhaps reflects the 'lifestyle' factor at work in the general population.

The use of demographic data has reduced uncertainty for decision-makers and provided insights to allow for planning to target issues before they became problematic, such as succession issues. It also provided a positive outlook for the local government area in terms of the sustainability of workforce policy and strategy.

6 A few tips for using demographic data sources

a Overview

While detailed advice and training is available in the use of demographic data through agencies such as the ABS or through training and higher education providers, it is beyond the scope of this paper to provide this. This section aims to set out some tips and principles for users unfamiliar with demographic data, with the aim of highlighting basic issues in their use and indicating when external help may be useful.

The uses made by local government practitioners of demographic data can be as diverse as the sources from which they are obtained. Practitioners should be encouraged to be imaginative in both sourcing and using data. At the same time, it is important to take care that data are robust, that they describe what they are intended to, and that the privacy of individuals is protected. Using multiple demographic data sets is also appropriate to provide improved depth or breadth of information.

Demographic data can be used to answer a range of questions about the planning or delivery of services at a local level. These questions may include:

- What is the community served by local government?
- What are their needs and issues?
- How are these changing?
- How can local governments drive or influence change using demographic data?
- How can local governments enhance their access to better data?

The use of data can provide the evidence base needed for decision-making. It can also enrich the narrative about the planning and delivery process, facilitate bringing on board new stakeholders, and provide a baseline from which to evaluate the success of an initiative.

b Some challenges and opportunities in working out what to use and when

The challenges and opportunities of demographic data use are many. Rather than be overwhelmed by the volume of data available, it is important to become familiar with the data sets, spend some time in reviewing them, and ask what they describe about the community. Is this community relatively young or ageing? Is it well-off or less advantaged? Who lives here and how do they live? Are they a mobile or relatively stable population? For those who are new to data analysis, it is best to keep it simple. The ABS Census data, for example, offer the opportunity to progress through layers of detail and complexity from QuickStats to more complex comparative tables using the full range of Census data and methods of manipulating geographic scales.

Ensure that the data you source describe what they intend to. In particular, the use of surrogate indicators can be misleading. For example, a geographic area where the proportion of households having three or more cars could, at face value, indicate a very wealthy area, or it could indicate an area with poor public transport and vast distances to travel for participation in work or education.

As the Census is collected only every five years, the use of additional sources can provide an annual picture. The ABS National Regional Profiles aim to provide an annual picture of regions, using a range of different data sources – some of which cover the same broad topics as the Census, but the data items are likely to be different. Care should be taken to understand the different methods used when interpreting results from different sources. An inter-Censal data collection is one that aims to provide equivalent data to the Census, but on an annual basis and there are very few sources that do this. One example is the Estimated Resident Population which provides ongoing annual updates of population by age and sex.

The period when data are collected can also affect their relevance. If the purpose of a collection is, for example, to assess the effect of visitors on tourism infrastructure, it would be relevant to conduct a survey during a holiday period.

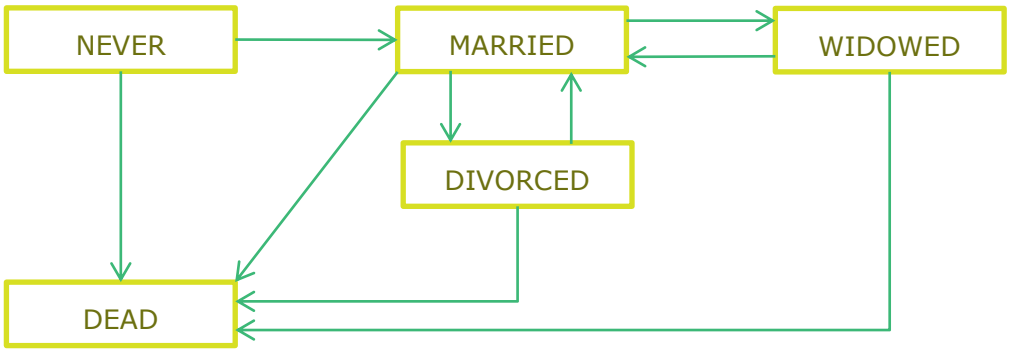
It is important to understand what population is being measured. The Census is conducted in August as the ABS has assessed that this is the best time to undertake the collection to ensure the best possible response rate and consistent quality of census data. The aim of the census is to describe the "usual resident population", so the timing of the collection is irrelevant to the results. People are asked their usual residence (where they lived for the most time in the last year) and this is where they are counted. If they happen to be away from home on census night, they are counted back at their usual residence. However, some data is also available for the Census Enumerated Population – which is where people happened to be on Census Night. While the Census is not designed to provide estimates of temporary populations like fly-in-fly-out workers or tourists – some regions can use this Census Night population to get an indication of how many people were visiting their region during August.[21]

c The use of relational logic

At one level, analysing demographic data should not be considered as daunting or as requiring a high level of mathematical skill. Skills in logic and in understanding potentially simple sets of relationships may be what are required, given that these often relate to segments of the population demonstrating narrow sets of characteristics. To illustrate: for demographers a key instance of the use of relational logic has traditionally been in the analysis of marriage (Hinde 1998). Marriage is a constantly evolving institution, and not necessarily a basic component of demography (compared to, say, births or deaths), but one with significance particularly in relation to levels of fertility.

[21] See the ABS article for an explanation of this at http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/2071.0main+features802012-2013

Figure 3: The marriage process, illustrating transitions between states (Hinde 1998)



In a census, people may enter their status as either 'never married', 'married', 'divorced' or 'widowed', and may pass from one state to another in a set of given transitions – they get married, divorced, remarry after widowhood or divorce, or die (Figure 3). Excluding the 'Dead' category and including 'de facto' relationships in the 'Married' category, the other four states would cover the current life experience of an entire population. The proportion from each category adds up to 100% across all four. Such an analysis could provide useful insights – for example, into whether one group is increasing as a proportion of the population and what this implies in relation to social need (e.g. for widowed elderly people). A more sophisticated analysis may explore more layered data (e.g. seeking to understand the level of social disadvantage experienced by single parents or the needs of sole-person households).

d How not to use the data

Estimates and indicators, not precise 'predictions'. Stress the need for a precautionary approach in a planning dialogue.

Depending on the level of analysis skills available, it is important to frame data realistically. There will be varying levels of confidence in findings and it will be important to understand them. Depending on the importance of the outcomes, expert advice may be needed before releasing data, and in developing findings from the data. On the one hand it is important not to overreach, to express as a certainty something for which findings are contested. On the other hand it is important not to refrain from drawing conclusions and pressing a case for responding to evidence where there is sufficient confidence in the data to do so. These extremes can be safeguarded against by taking an adaptive approach to planning and to the implementation of plans – allowing for their review at suitable intervals and having an ongoing program of inquiry or research that refines and updates information.

It is also important to exercise caution about the use of centrally collated forecast data (i.e. data from government or private providers). They may tend to be 'top-down' in their estimates and need to be validated against locally generated data sets where possible. An example is that population forecasts for regions may be overstated, while a council's development approval data (which are relatively up-to-date) may show more realistic growth expectations.

The problem of trying to compare too many data – they may not exist, may not be accurate, or may not be causal

Again, depending on the levels of analytical skills available, it is important not to overreach with analysis by attempting too much, or stating too much. There is a

range of inferential statistical techniques (which may involve hypothesis testing or multivariate analysis) that can produce important information, but this requires a high order of skills. Much depends on the robustness and relevance of the original data, the comparability of data, and the appropriateness of the analytical method used. Setting out to find the evidence for cause and effect, for instance whether an awareness campaign has had an impact on community attitudes, is fraught with difficulty and liable to generate contested findings, especially if an inappropriate means of establishing the connection is used.

Furthermore, there may be data that are assumed to exist but do not, which may mean reframing a research question or approach. Conversely, there may be useful data that do exist that you are unaware of – in other words it is important to be up-to-date on what is available. The ABS provides an online updating service that regularly informs users of new products and the latest releases of data. The following sections outline some of the more commonly used data sources that will be useful to local government strategic planning.

7 Next steps

This paper has been written in the interests of building the in-house capacity of councils to use important databases. The strengthened local government use of demographic data will not be driven by the data itself, but by the sector undertaking to strengthen its approach to policy and strategy, underpinned by the data. While the effective and judicious use of evidence may take the heat out of otherwise difficult debates happening in policy making circles about the best ways to approach key agenda items - such as the ageing population, social disadvantage, or productivity - it is unlikely to make the issues any less contentious.

Dealing with demographic change may be portrayed as a problem, in the face of which local government might argue for retreat, deferring to the 'market' or 'big society' as the better approach to address it. However, this can be countered by arguments for approaching problem solving at the local level, harnessing local government capabilities that may produce desired solutions that are, importantly, more effective and more efficient *because* they are locally generated.

In fiscal circumstances in which ongoing funding from other levels of government is expected to be constrained, evidence of demographic change can bolster arguments for redirecting expenditure – for instance, from high dollar engineering services such as roads, sewers and utilities, to social infrastructure needs. This may facilitate complex negotiations between different levels of government, particularly in relation to high growth areas or areas with rapidly changing demographic characteristics, such as the retirement of baby-boomers. Evidence of demographic change may also induce policy makers to account for those sections of the population that might be hard to reach or otherwise unaccounted for in plans and their implementation – and to include them in the policy dialogue.

The COAG Reform Council's (2012) call for an approach to strategic planning with improved accounting for population growth and demographic change described the desired outcomes as comprising 'competitiveness, productivity, sustainability and liveability'. Local government decision-makers, in working towards these objectives, need to strengthen their use of demographic data in order to become clear about how these objectives can be achieved collectively, rather than assuming that the individual objectives are only achievable at the expense of the others. Will increasing competitiveness, for instance, mean higher or lower liveability for communities, and less or greater access for people to economic bases? Will investment in transport infrastructure, such as freeways, boost productivity at the expense of the mobility of people without cars, on low incomes, or living with a disability? Will the provision of health care services for an ageing population lead to increased or decreased wellbeing, both for people benefiting from the services and for people bearing their cost?

The paper therefore concludes with a set of suggested next steps to promote strengthened skills in the use of demographic data. These are presented with the acknowledgement that there are already valuable moves by the Australian Bureau of Statistics, along with its industry partners, to develop increased training opportunities for local government practitioners in the use of ABS data. In particular this paper points to the need to support skills in:

- accessing demographic data held in a range of databases;

- the use of online resources to analyse data;
- transdisciplinary approaches to interpreting the findings;
- facilitating evidence-based decision-making taking place around policy responses to demographic change.

The National Local Government Workforce Strategy 2013–2020 (in press) advocates investment in workforce skills, particularly in those areas described as 'skills-in-demand'. The strengthened use of demographic data, specifically framed in terms of strategic capability, is one of those skills. This paper seeks to make a contribution to the support materials for the training and professional support of people in councils seeking to develop plans and action on behalf of the communities served by the local government sector.

References

Australian Bureau of Statistics (ABS) 2010, *A guide for using statistics for evidence based policy*, Cat. No. 1500.0, Commonwealth of Australia, Canberra.

ABS 2012, *Australia to reach 23 million on 23 April 2013*, media release, viewed 26 April 2013, <http://www.abs.gov.au/ausstats/abs@.nsf/MediaRealesesByCatalogue/A959C7C902683284CA257B550015D8D0?OpenDocument>.

ABS 2013, *Perspectives on regional Australia: population growth and turnover in local government areas (LGAs) 2006-2011*, Cat. No. 1380.0.55.007, Commonwealth of Australia.

Australian Centre of Excellence for Local Government (ACELG) 2012, *A national review of education and training in local government skills shortage areas*, Issues Paper No. 6, ACELG, University of Technology, Sydney.

Australian Institute of Health and Welfare (AIHW) 2013, *The desire to age in place among older Australians,* vol. 1, bulletin 114, Commonwealth of Australia.

Australian Local Government Association (ALGA) 2004, *Australia's ageing population: Economic implications for local government*, ALGA submission to the Productivity Commission Research Study into Economic implications for an ageing Australia, viewed 2 August 2013, <http://www.pc.gov.au/__data/assets/pdf_file/0013/14125/sub018.pdf>

Anderson, P., Bentley, F., Cowie, I., Di Iulioi, P., Emonson, G., Hartley, N., Hodges, F., Saba, Z. & Watson, K. 2011, *Managing demographic change,* research report prepared as part of the Australia New Zealand School of Government (ANZSOG), Inaugural School of Excellence in Local Government Leadership, ANZSOG, Canberra.

Advisory Panel on Demographic Change & Liveability (APDCL) 2010, 'Demographic change and liveability panel report', in Commonwealth of Australia, *A sustainable population strategy for Australia*, issues paper, Department for Sustainability, Environment, Water, Population and Communities, Canberra, pp. 25-162.

Asker, S. & Pillora, S. 2013, *Make your knowledge matter, guide to developing and documenting research*, ACELG, University of Technology, Sydney.

Bromell, D. 2012, *Evidence, values and public policy*, ANZSOG Occasional Paper, ANZSOG, Canberra.

Brown, V., Harris, J. & Russell, J. 2010, *Tackling wicked problems through the transdisciplinary imagination*, Earthscan, London.

Budge, T., Butt, A., Jorgensen, B., Kennedy, M., Martin, J. & Warburton, J. 2012, 'Typology of towns in the Loddon Mallee Region', Unpublished paper, La Trobe University.

City of Greater Dandenong (CGD) 2013, *knowing your community: a guide to understanding and using social statistics*, CGD, viewed 10 April 2013, <http://www.greaterdandenong.com>.

Commonwealth of Australia (COA) 2010a, *A sustainable population strategy for Australia,* Issues paper, Department of Sustainability, Environment, Water, Population and Communities, Canberra.

COA 2010b, *Demographic Change and Liveability Panel report*, (G Hugo: Chairman), commissioned by Minister for Sustainability, Environment, Water, Population and Communities.

COA 2010c, *Australia to 2050: future challenges*, Report released by the Treasurer.

Council of Australian Governments (COAG) Reform Council 2012, *Review of capital city strategic planning systems,* COAG Reform Council, Sydney.

City of Wagga Wagga (COWW) 2010, *Workforce Plan 2010–2014*, COWW, Wagga Wagga.

Creighton, A. & Hartwitch, O. 2011, *Australia's angry mayors: how population growth frustrates local councils*, Policy monograph, The Centre for Independent Studies, St Leonards.

Department of Infrastructure & Transport (DIT) Major Cities Unit 2011, *State of Australian cities 2011*, report by the Department of Infrastructure and Transport, Canberra.

Department of Planning (DOP) 2009, *New South Wales statistical local area population projections, 2006-2036,* Department of Planning, Sydney.

Dunworth, T., Hannaway, J., Holahan, J., & Turner, M. 2008, *Beyond ideology, politics, and guesswork: the case for evidence-based policy*, Urban Institute, Washington D.C.

Edwards, M. 2004, *Social science research and public policy: narrowing the divide*, Occasional Paper No. 2, Academy of Social Sciences in Australia, Canberra.

Evans, M. 2010, 'Leading the local state – what skills local government leaders say they need and why', ACELG, University of Technology, Sydney.

Hayes, A., Lixia, Q., Weston, R. & Baxter, J. 2011, *Families in Australia 2011: sticking together in the good and tough times*, Australian Institute of Family Studies, Melbourne.

Hinde, A. 1998, *Demographic methods*, Hodder Arnold, London.

Hugo, G. 2001, *A century of population change in Australia*, Australian Bureau of Statistics, viewed 2 August 2013, <http://www.abs.gov.au/Ausstats/abs@.nsf/0/0b82c2f2654c3694ca2569de002139d9>.

Hugo, G. 2012, *Population distribution, migration and climate change in Australia: an exploration*, Australian Climate Change Adaptation Research Network for Settlements & Infrastructure Discussion Paper – Node 2, National Climate Change Adaptation Research Facility, Southport.

Hugo, G., Champion, A. & Lattes, A. 2003, 'Toward a new conceptualization of settlements for demography', *Population and Development Review*, vol. 29, no. 2, pp. 277-97.

Kelly, J-F. 2012, *Social cities*, Report No. 2012-4, Grattan Institute, Carlton.

Ley, A., Baum, C., & Lavarack, J. 2013, *Knowledge city: the difference an in-house research team made to a council and its community,* ACELG, University of Technology, Sydney.

Local Government Managers Australia (LGMA) 2013, *Future-Proofing Local Government: National Workforce Strategy 2013-2020,* ACELG, University of Technology, Sydney.

McKinney, E. & Yoos, C. 2010, 'Information about information: a taxonomy of views', *MIS Quarterly*, vol. 34, no. 2, pp. 329-44.

National Growth Areas Alliance (NGAA) 2012a, *Addressing skills and employment gaps in outer metropolitan growth areas: an action plan*, Updated report prepared by Essential Economics Pty Ltd and Geographia.

NGAA 2012b, *Community infrastructure for growth areas: technical report*, prepared by Elton Consulting, Sydney.

Noronha, J. 2012, *Addressing skills and employment gaps in outer metropolitan growth areas: an action plan,* National Growth Areas Alliance, Bundoora.

O'Brien, E. & Phipps, P. 2011a, *Local government & ageing: literature review*, NSW Department of Family and Community Services, viewed 2 August 2013, <http://www.adhc.nsw.gov.au/__data/assets/file/0004/250825/21_OBrien_and_Phibbs_2011_Local_Govt_Ageing_Literature_Review.pdf>.

O'Brien, E. & Phipps, P. 2011b, *Local government & ageing: final report*, NSW Department of Family and Community Services, viewed 2 August 2013, <http://www.adhc.nsw.gov.au/__data/assets/file/0005/250826/20_OBrien_and_Phibbs_2011_Local_Govt_Ageing.pdf>.

Pink, B. 2006a, *An introduction to socio-economic indexes for areas (SEIFA)*, Information Paper, Cat. No. 2039.0, ABS, viewed 2 August 2013, <http://www.abs.gov.au/ausstats/abs@.nsf/mf/2039.0/>.

Pink, B. 2006b, 'Socio-economic indexes for areas', technical paper, Cat. No. 2039.0.55.001, ABS, Canberra.

Ragin, C. 1994, *Constructing social research: the unity and diversity of method*, Sociology for a New Century Series, Pine Forge Press, California.

Rowland, D. 2012, *Population aging: the transformation of societies*, International Perspectives on Aging series, Springer, New York.

Salt, B. 2001, *The big shift: welcome to the third Australian culture: the Bernard Salt Report*, Hardie Grant, South Yarra.

Salt, B. & Mikkelson, S. 2009, *Monash baby boomer study: property & demographic advisory*, KPMG, viewed 2 August 2013, <http://www.kpmg.com/AU/en/IssuesAndInsights/ArticlesPublications/Documents/Monash-Baby-Boomer-Study.pdf>.

State Government of Victoria (SGV) 2012, *Victoria in future 2012: population & household projection 2011–2013 for Victoria & its regions*, Department of Planning & Community Development, Melbourne.

Stoker, G. & John, P. 2009, 'Design experiments: engaging policy makers in the search for evidence about what works', *Political Studies*, vol. 57, no. 6, pp. 356-73.

Tan, S. F. 2012, *Workforce planning and development: capacity building opportunities*, Issues Paper No. 5, ACELG, University of Technology, Sydney.

Taylor, L. 2013, *Tackling the challenge of Tasmania's ageing population*, The Conversation, viewed 19 March 2013, <http://theconversation.com/tackling-the-challenge-of-tasmanias-ageing-population-11336>.

Trewin, D. 2005, *Regional policy and research in Australia – the statistical dimension: information development plan for rural and regional statistics*, Information paper, ABS, Canberra.

United Nations 2008, *Principles and recommendations for population and housing censuses: revision 2*, Department of Economic and Social Affairs, Statistics Division, New York.

Queensland Treasury & Trade (QTT) 2012, *Population growth highlights and trends, Queensland 2012*, Queensland Government, Brisbane.

WEB PAGES

Australian Bureau of Statistics pages:

Australia's Social Trends 2012, viewed 12 March 2013 <http://www.abs.gov.au/ausstats/abs@.nsf/mf/4102.0>

Measures of Australia's Progress 2012, viewed 12 March 2013 <http://www.abs.gov.au/ausstats/abs@.nsf/mf/1370.0.55.001>

Regional Statistics Programs webpage, viewed 12 March 2013 <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/1376.0main+features2002012>

Socio-Economic Indexes for Areas website, viewed 12 March 2013 <http://www.abs.gov.au/websitedbs/censushome.nsf/home/seifa>

TableBuilder <http://www.abs.gov.au/websitedbs/censushome.nsf/home/tablebuilder>.

Australian Government pages:

Department of Education, Employment and Workplace Relations <http://deewr.gov.au>

Australian Taxation Office – Australian Business Register <http://www.abr.gov.au>

Bureau of Infrastructure, Transport and Regional Economics <http://www.bitre.gov.au/about/index.aspx>

Major Cities Unit
<http://www.infrastructure.gov.au/infrastructure/mcu>

MyRegion website.
<http://myregion.gov.au/data>.

State- and Territory-based pages

<http://www.bts.nsw.gov.au> (Bureau of Transport Statistics NSW - provides population, employment and workforce to 2046, at LGA level, in an interactive format)

<http://www.health.nsw.gov.au/hsnsw/pages/default.aspx> (NSW Health Statistics)

<http://www.planning.nsw.gov.au> (NSW population projections to 2036)

<http://www.atlas.nsw.gov.au> (Atlas of NSW)

<http://www.greaterdandenong.com/document/42/social-statistics> (Statistical data for Victorian communities)

<http://www.data.vic.gov.au> (Victorian Government Data Directory)

<http://www.oesr.qld.gov.au> (Queensland Office of Economics and Statistical Research)

<http://www.planning.wa.gov.au> (Western Australia Tomorrow, 2012 - with population forecasts to 2036)

<http://www.sa.gov.au> (SA population projections to 2036; population ageing; workplace atlas and journey to work maps)

<http://www.dcac.tas.gov.au> (Demographic Change Advisory Council (Tasmania) with population projection data from 2008 for 29 local government areas)

<http://www.cmd.act.gov.au> (ACT Chief Ministers Department population projection data)

<http://www.treasury.nt.gov.au> (the Northern Territory Treasury population projection data for NT Government agencies and regional area).

Non-government service provider pages:

<http://www.taspop.tasbis.com> (Demographic Analytical Services unit, School of Sociology and Social Work, University of Tasmania has a number of links)

<http://aurin.org.au> (Australian Urban Research Infrastructure Network)

<http://home.id.com.au> (.id specialises in building population forecasts for Local Government Areas)

<http://home.id.com.au/id-community/public-resources> (idcommunity).

About ACELG

ACELG is a unique consortium of universities and professional bodies that have a strong commitment to the advancement of local government. The consortium is led by the University of Technology Sydney's Centre for Local Government, and includes the University of Canberra, the Australia and New Zealand School of Government, Local Government Managers Australia and the Institute of Public Works Engineering Australia. In addition, the Centre works with program partners to provide support in specialist areas and extend the Centre's national reach. These include Charles Darwin University and Edith Cowan University.

ACELG
Australian Centre of Excellence for **Local Government**

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PO BOX 123 Broadway NSW 2007
T: +61 2 9514 3855 F: +61 2 9514 4705
E: acelg@acelg.org.au www.acelg.org.au