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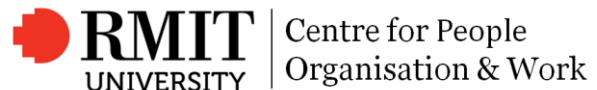
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Preface

The 40th Annual Conference of the Australian and New Zealand Regional Science Association International (ANZRSAI) was held at the RMIT University Melbourne from 5th to 7th December, 2016, co-hosted with the European Union Centre at RMIT and the RMIT Centre for People, Work and Organisation (with the RMIT Social Change Enabling Platform). A broad range of papers from academics, policy advisors and practitioners was presented to the conference. This publication contains the refereed proceedings of those contributed papers.

Participants who submitted their full paper by the due date were eligible to be considered for these refereed proceedings. There were twelve papers submitted to a double blind refereeing process, all of which were accepted for this publication. One was withdrawn by the author. As in previous conferences, I am very grateful to referees for their work within a short timeframe.

Three awards were presented at the conference dinner. The John Dickinson Memorial Award for best article in the *Australasian Journal of Regional Science* 2016 was awarded to Tony O'Malley for his article "Governance and Regional Incomes in Australia" published in volume 22(1), pp. 103-124.

The ANZRSAI Award for Best Conference Paper 2016 was awarded to Karim K. Mardaneh, Jerry Courvisanos and Ameeta Jain for their paper "Economic Resilience of Regions: A Longitudinal Study of the Australian Economy from 1986 to 2011". This paper is the first paper presented in these proceedings.

The ANZRSAI Award for Best Conference Paper by a Current or Recent Student 2016 was awarded to Amanda Qian Wu and Marion Myhill for their paper "Going off the Beaten Track: Exploring Chinese International Students' Motivations for Selecting Regional Australian Higher Education".. The committee highly commended one other entrant for this Award: Kelbesa Kenea, Susan Kinnear and Delwar Akbar, for their paper "Accessibility of Anbessa City bus service: Analysis of Stakeholders Opinions in Addis Ababa".

I thank all the participants for their involvement in our 40th Annual Conference, particularly those who had travelled some distance from overseas to attend. The international community of regional science scholars is strengthened when people gather to share their research and expertise at conferences such as this.

Professor Paul Dalziel
Editor, 40th Annual ANZRSAI Conference Proceedings

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Economic Resilience of Regions: A Longitudinal Study of the Australian Economy from 1986 to 2011

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ABSTRACT

Resilience is about addressing vulnerability, not only by surviving a shock to the system, but also thriving in an economic environment of change and uncertainty. A robust conceptual framework is required to navigate through underlining elements of vulnerability. An evolutionary model of regional adaptive cycles around four sequential phases in economic activity – reorganisation, exploitation, conservation and release – is adopted in this study as the framework for recognising such phase patterns. A data mining clustering method which utilises a k-means algorithm evaluates the impact of major shocks, notably economic recessions and drought, on four functional groups of regions (metropolitan, periphery, regional and rural). Applying this clustering method to the adaptive cycle model using census data from 1986, 1991, 1996, 2001, 2006 and 2011, the paper identifies patterns of economic resilience in regions by industry categories. Preliminary results show different resilience patterns and varied stability to this resilience for industry/functional regions ranging from non-resilient to very resilient regions.

Resilience is about addressing vulnerability, not only by surviving a shock to the system under investigation, but also for the system to thrive in an environment of change and uncertainty. Recent severe economic and ecological crises raise questions about sustainable development and resilience of regions within different industries (Courvisanos *et al*, 2016, p. 630)

INTRODUCTION

Investigating the vulnerability of regional economic systems in Australia to economic and ecological crises has been the major research objective of this research team over a significant period of time. The quotation above appears in the first peer-reviewed research output in which a robust conceptual framework was developed to navigate through the underlining elements of vulnerability. This framework of regional adaptive cycles is based on a four sequential phase model of economic activity – reorganisation, exploitation, conservation and release – that was initially advocated by Simmie and Martin (2010). By adapting this generalised pattern into a framework for examination of Australian regions and industries, and their income generation capability during cycles and crises, patterns can emerge that enables resilience against crises to be investigated.

In Courvisanos *et al*. (2016), the data analysed was from the 2001, 2006 and 2011 Australian Bureau of Statistics (ABS) Census. A data mining clustering method called k-means provided an algorithm to evaluate the impact of major shocks, notably economic recession and drought,

on four functional groups of regions (metropolitan, periphery, regional and rural) across all 558 local government areas (LGAs) in Australia. These four functional groups of regions were allocated over the 19 ABS defined industry sectors, thus creating a total of 76 functional regional groups and their relevant industries. Two major limitations emerged from the investigation of the available three prior Census data sets. First is that 41 of the total 76 functional regional groups and their industries could not be allocated to the four-phase evolutionary pattern due to two or more non-separable (non-significant) periods being identified. Second is that only three periods with census data points 2001, 2006 and 2011 were available to be accessed in order to build the database for clustering. This is a limited time horizon with only two shocks (mid-2000s drought and 2008-09 Global Financial Crisis) in the snapshot data points with which to examine the adaptive resilience of regions by industry.

To overcome these two limitations, the research team undertook further investigation by extending back in time to cover census periods that take in the 1989-92 recession and the 1999-2001 dot com bubble crash. This required the statistical data from ABS to reach back across a further three Census periods, 1986, 1991 and 1996. Given the number of LGAs and their respective industrial sectors, preparation of the data concordance for six Census dates was a huge data setting task. The ABS officers informed the team that concordance going back prior to the 1986 Census was not possible due to lack of comparability of the data available. This paper summarises the salient results from this larger investigation, identifying patterns and determining the resilience of regions and their industries vis-à-vis vulnerability to ecological and economic shocks. The research question for this paper continues to be the same as Courvisanos *et al.* (2016) and can be stated as: What is the nature of economic resilience within the four functional groups of regions with respect to their industries as identified in the Local Government Areas of Australia, when evaluated longitudinally over a period of significant crises? In this paper the period covered is across all Census data from 1986 to 2011.

As noted in Courvisanos *et al.* (2016, p. 630):

Analysis of Australia and the resilience of all its regions and its respective industries is a unique country-wide perspective in theory and application. Australia is usually ignored in the literature which generally focuses on the advanced economies of North America and Western Europe. As with other advanced economies, Australia is characterised by gradual loss of manufacturing and increasing reliance on mining and service industries. The Australian economy is based on a strong export-based primary sector, exposed by fluctuations in commodity prices. It is also underpinned by significant foreign direct investment in both these sectors and across this small open economy. The vagaries of the international economic environment coupled with public sector austerity, cyclical floods and droughts, and a volatile currency, play havoc with the Australian economy (Henry, 2013; Lim *et al.*, 2014). Therefore, the resilience of regions in the context of this national economic environment is worth evaluating and studying in its own right as an advanced economy commodity producer.

Further, this investigation continues to apply k-means cluster analysis, an approach thus far not used in the evaluation of resilience. This cluster analysis is able to apply measures of employment and income change over time to find associations between industries and regions in a rigorous statistical manner. As with the aforementioned article by the same authors, all 558 LGAs in Australia are evaluated for their reaction to endogenous shock (the Global Financial Crisis) (Wettenhall, 2011) and exogenous shock (drought) (Horridge *et al.*, 2005; Edwards *et al.*, 2009). The approach adopted in this analysis is to have measures of employment and income change over time calculated in order to appreciate the nature of resilience in relation to regions and their industries. This understanding occurs by providing

an overall macroeconomic picture of resilience across the entire country and all industries. Resilience is categorised over six Census periods in conjunction with the regional geography of LGAs.

CONCEPTUAL FRAMEWORK BASED ON RELEVANT LITERATURE

Much academic attention has been given to the concept of resilience in the regional economics literature since 2008; most notably Pendall *et al.* (2008), Fingleton *et al.* (2012), Bristow and Healy (2013), Cellini and Torrisi (2014), and Holm and Østergaard (2015), as well as issues of two regional studies journals having been dedicated to regional resilience. In 2010 *Cambridge Journal of Regions, Economy and Society* had an issue called “The Resilient Region” (Volume, 3, Number 1) which introduced theoretical evolutionary models and their adaptability to regions, with applications to the USA. Then, more recently in 2016 *Regional Studies* released an issue called “Resilience Revisited” (Volume 50, Number 4) because it examined the empirical evidence across Europe, UK, Wales, Turkey, Malaysia, and the Australian study by the present authors, and also reconsidering the theoretical models. Despite all this research, the issue of how regions adapt to vulnerable events and circumstances that build crises by generating income and employment that is both viable in the longer term and sustainable both socially and ecologically is far from clear. The main reason, as identified by Bailey and Turok (2016, p. 557), is the “marked differences” in how the concept of resilience is defined and empirically applied. The advantage of this paper is that the same consistent framework already applied in Courvisanos *et al.* (2016) is adopted across a doubling of the previous time period with identical LGA functional industry groups.

Already a seminal article, Simmie and Martin (2010) forms the basis of the framework developed in this investigation to identify regional resilience patterns, in which regional economic resilience is seen in terms of “adaptive ability”. Simmie and Martin (2010, p. 28) define this adaptive ability as “the differential ability of a region’s or locality’s firms to conditions that shape the evolutionary dynamics and trajectories of that regional or local economy over time”. In the context of regional economies, dynamic resilience means the ability of the regional economy not just to recover after an economic or ecological downturn, but also to adapt, innovate and grow. Regional economic systems need to co-evolve with other regional systems and the surrounding social and physical environment (Sotarauta and Srinivas, 2006).

Basic to this approach, regions are “resilient” in an economic sense when they are shock resistant such that “resilient regions avoid being locked into restrictive low income level equilibria” (Hill *et al.*, 2008, p. 4). Thus, resilient regions resist a situation where the shock resets the same equilibrium or results in the equilibrium (path) developing a downwards trajectory of economic development (Christopherson *et al.*, 2010). Applying this regional resilience in economics to industry sector-based activity, Holm and Østergaard (2015, p. 13) explain that “regional industrial resilience is a population concept on the adaptive capacity of a regional industry to make changes in response to a shock”. Taking adaptive into account, Boschma (2015) suggests a comprehensive view of resilience that incorporates industrial change, strong but loose networks, and coherent but flexible institutions. As far back as North (1992) evolutionary economics has seen industries in regions as playing a significant role as institutions which need to build adaptive economic resilience. Thus, the role of industry-based activity in the conceptual framework applied in this investigation.

The same conceptual framework applied by Courvisanos *et al.* (2016) is adopted in this paper in order to frame the quantitative assessment from the ABS Census data. This framework is grounded in Simmie and Martin’s (2010) “panarchy” model of regional resilience which

resides within the stream of evolutionary adaptive economic theory (Hodgson, 2004). “Panarchy” is a state in which there are complex interactions between institutions, industry, ecosystems and society. This panarchy state describes the resilience of the system as it interacts through the different phases of the adaptive cycle. For Simmie and Martin (2010, p. 34), resilience of a region “depends both on the longer term, region wide processes and on shorter term microscale processes and how these interact”. All of these interactions occur in different spatial and time frames, adding complexity to the understanding and analysis of these processes. Such complexity of adaptive systems depends on extent of self-organisation and learning that occurs in the nominated space in which the system exists (Folke *et al.*, 2002); in this study it is a regional space as defined by LGA. With such systems being in a constant state of flux through self-organisation and learning, adaptation and change occurs that makes mainstream equilibrium economics an approach that is totally irrelevant.

The adaptive ability framework applied in this investigation is able to recognise how regions can differ in their ability to adapt to changes and shocks of any description and magnitude. This approach, as specified by Martin *et al.* (2016), enables resilience to be viewed either as the ability to respond to a shock after the crisis (“hysteretic shift to a new path”) or to react to signs of upcoming crisis by first resisting the shock and then addressing it prior to any potential crash (set up a “pre-recession path”). Some regions make take a long time to organise a new path after crisis (e.g. Pittsburgh, USA; Giarratani and Houston, 1989), or remain in resistance to an upcoming shock that delays crisis but does not bring change (e.g. Stanhope, Australia; Courvisanos, 2007). Both such paths are slow and weak in adaptive capacity. Other regions can anticipate future shock and alter their development path (e.g. Qitaihe, China; Ke, Song and He, 2009) or quickly address the crisis that happens and move to a new path (e.g. Sheffield metals cluster, UK; Potter and Watts, 2012). Thus, resilience means both degree of resistance to shock (potential or actual) and then the ability to respond to the shock.

Responding to shock has its theoretical roots in the innovation model by Schumpeter (1942) with its shift to either industrial mutation or creative destruction. Thus, underlying the building of resilience in a regional system is innovation. This innovation needs to be able to create an adaptable industrial structure of sustainable development that can secure a regional development economic trajectory that broadly addresses financial, social, and ecological crises affecting the region (Courvisanos, 2012, pp. 224-50). Examples of successful innovation in the face of shocks are New York city women’s garment district (Rantisi, 2002), North Staffordshire external ties with Castellon, Spain and Sassoulo, Italy (Hervas-Oliver *et al.*, 2011), and 17 Spanish new service intensive regions (Navarro-Espigares *et al.*, 2012). In this paper, the aim is to identify adaptability within Australia of an LGA region, as one of four functional groups, in respect to different industry sectors. This possible adaptability is specified by the length of time across Census period data that an industry remains static or changes in relation to a crisis.

The conceptual framework, using Simmie and Martin (2010)’s panarchy model, has four phases of regional resilience that aim to explain adaptability of a region. The panarchy model is an adaptive cycle that evolves over time through four phases: conservation, release, reorganisation and exploitation. Since it is a cycle model, the analysis can begin at any of the four phases, but needs to proceed through these phases in the specified evolutionary sequence. The “conservation phase” has high connectedness and reflects a relatively stable pathway. This stable phase coincides with the “resistance” dimension in Martin *et al.* (2016) in which the region resists change due to shock (or impending shock). Over time a region may overcome resistance and evolve into the “release phase” which has high but declining connectedness and low but increasing resilience. This is a pathway that can be more easily

disrupted by external forces when connectedness decreases between the components within the system, forcing some change however reluctantly. Martin *et al.* (2016) see this as the “recovery” dimension in which actions are placed in the system to address the shock. Eraydin (2016) highlights these two phases together as a region’s “ability to respond” to shock (or potential shock). In essence, the issue in these two phases is increased vulnerability and the consequent response by the regional community.

With increased vulnerability, the region can respond by registering a level of innovation with increases connectedness that is called the “reorganisation phase”. In this phase, Martin *et al.* (2016) identify a dimension of “reorientation” in which innovation takes root as a niche activity. Finally, the “exploitation phase” evolves in which there is low connectedness but increasing resilience and strong seizing of opportunities. This permits the internalisation of external forces for the good of the region and thus Martin *et al.* (2016) identify this as the “renewal” dimension. Eraydin (2016) highlights these next two phases together as a region’s “adaptability and adaptive capacity” to shock (or potential shock). In essence, the issue in these two phases is the consequent response by the regional community to change and how much innovation is brought about by this change.

To assess regional resilience in the context of the four phases framework, this paper follows Courvisanos *et al.* (2016) by evaluating economic activity (or income contribution) of industries within regions over periods in which shocks have occurred or threatened to occur on a national basis. As with Fingleton *et al.* (2012), Courvisanos *et al.* (2016) analyses resilience of regions to employment shocks and significance to regional variations in recovery from employment shock, by (i) using broad quantitative assessment of the industry structure from ABS Census data and (ii) identifying relevant income generation impacts within different regional groupings. The groupings are four functional groups called Metropolitan-Core, Metropolitan-Periphery, Regional Cities, and Rural. What underlies this potential income generation is that (Courvisanos *et al.*, 2016, p. 632):

Regions that have access to endogenous knowledge and innovation in the manner of strong established regional innovation systems tend to do well in the face of adversity... On the other hand, regions that rely on one principal industry or activity or group exclusively tend to be less resilient... Further, those regions which enjoy vertical and horizontal linkages in their industries and institutions are considered more likely to be resilient.

Thus, income generation effects identified through five year Census data collection data can reveal strong or weak regional innovation systems.

With the four functional groups as different Australian regional economies set up, Courvisanos (2016) and this paper follow Martin (2012) by using employment level data to evaluate regional economies. In the UK study by Martin (2012) across three major recessions in 1979-83, 1990-93 and 2008-10, the conclusion is that the three recessionary shocks were different in nature and impact, yet after all three recessionary shocks employment recovery lagged behind output recovery. This indicates different levels of resilience which can be placed within specific resilience evolutionary phases. In this paper, same as in Courvisanos *et al.* (2016, p. 632):

...the measure of adaptability in the long term is evaluated by the changes in industry structure of the four functional groups of regions. An adaptable resilient region will demonstrate change in the nature of industry over time without significant reduction in employment or income despite shocks (or perturbations).

Once the measures are established, assessment of regional economic resilience is difficult for two reasons. First, there are no well-defined parameters. Han and Goetz (2015, p. 133) note two approaches commonly used to measure regional economic resilience. “One examines

regional properties or characteristics that reflect economic resilience...The other approach ...analyzes changes to a region's representative measure in response to a shock." The first approach is relevant to specific issue analysis (e.g. resource use, Matarrita-Cascante and Trejos, 2013; local knowledge networks, Crespo, Suire, and Vicente, 2014; and income equality, Augustine *et al.*, 2013). This investigation is along the lines of the second approach in which employment is used as a representative measure (as in Martin, 2012 and Han and Goetz, 2015). Whereas Martin (2012) uses a sensitivity index to gauge the extent of employment loss in a region compared with the nation, Han and Goetz (2015) uses a "drop and rebound" measure the employment effect of a shock. Both reflect a strictly economic measure.

This raises the second difficulty in measuring resilience where the measure adopted reflects an ontology specific to researchers' discipline training. In this investigation the measure exhibits an interdisciplinary ontology in which different discipline fields are used to identify appropriate epistemological tools (Miller *et al.*, 2008). The discipline fields are regional development (spatial groupings), economics (industrial activity, income, and factor endowment), public policy (initiatives and incentives), and information systems (data mining and clustering algorithm). From the previous study by Courvisanos *et al.* (2016), this represents the complex reality of diverse regions in which self-organising and learning evolve based on different experiences across the vast number of functional regional groups and industries. As Han and Goetz (2015, p. 133) note, such diversity is crucial because: "Even if most counties [regions] experience economic recession, some local areas may grow even during a downturn and exhibit different economic patterns." The contribution of Courvisanos *et al.* (2016) is to recognise that, despite the one country study with homogenous laws and one socio-political system, each region has unique characteristics which define its economic development trajectory, emergence and resilience. The four functional groups of regions allows this diversity across 558 LGAs to be reflected in 19 industrial sectors.

METHODOLOGY

The methodological research paradigm adopted in this study is positivist. The strength of this paradigm is in exploring a terrain with a very large data set requiring deep data mining (Saunders *et al.*, 2009). Based on a strong framework developed from the literature discussed in the previous section, this large quantitative study with a deductive approach is used to rigorously apply evolutionary theories and models in regional resilience to all LGA regions in Australia. With various adaptive resilience cycle patterns identified across the four functional groups, this positivist study, being an extension to Courvisanos *et al.* (2016) by double the data sets, opens the door for deep qualitative studies to understand the causal mechanisms that lie in the patterns (Elder-Vass, 2010).

Epistemological Approach

The epistemological approach taken to this study is not the standard hypotheses testing. The panarchy model has been well tested positively, as described in the literature reviewed in the previous section. The approach here is to use the panarchy model with functional groups of regions on an industry base as the conceptual framework, to which a data mining pattern matching algorithm (El-Ramly *et al.*, 2002) is applied to identify configurations of resilience across Australian regions. These patterns are set alongside the BASE case of the national adaptive cycle model as the reference cycle.

In Australia over the period 1986-2011, there have been a number of major shocks that affected the national economy. Table 1 sets out the Australian economic history of his period and incorporates the panarchy adaptive cycle model as it relates to this economic history. In

this way a national adaptive cycle pattern is established as the reference cycle to the pattern-matching for every industry sector within the four functional regional groups. At the national level, when there is a strong economic boom, then an assumption is made that overall employment across all industries, as a proportion income, is high. This is labeled as ‘H’ in Table 1, and reflects the high income generation capability of the national economy at that economic historical period and its positive role in providing employment in the national economy. On the other hand, when there is an economic recession or severe economic downturn, then an assumption is made that overall employment across all industries, as a proportion income, is low. This is labelled as ‘L’ in Table 1, and reflects the low income generation capability of the national economy at that economic historical period and its negative role in providing employment in the national economy.

Table 1: Period 1986-2011 and General National Adaptive Cycle Model

<i>Boom</i> 1986 H	<i>Release</i>	<i>Recession</i> 1991 L	<i>Reorganisation</i>	<i>Expansion</i> 1996 H	<i>Exploitation</i>	<i>Out of Downturn</i> 2001 L	<i>Conservation</i>	<i>Boom</i> 2006 H	<i>Release</i>	<i>Out of Downturn</i> 2011 L
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In Table 1 by the 1986 Census the national economy had reached a strong economic boom identified as **H**, on the back of a “social wage” accord with the trade unions. Out of the late 1970s/early 1980s stagflation, there was a strong financial boom that a strong flow-on effect to the rest of the economy. This ended with the first shock – the “Black Tuesday” stock market crash of 20 October, 1987 (due to time zone difference, throughout the rest of the Western world it is called “Black Monday”) – when 25 per cent of stock value was wiped out in one day (Sykes, 2012). Although short-lived, it sowed the seeds for “...a recession that lasted until the September quarter of 1991, over which period:

...GDP [Gross Domestic Product] fell by 1.7 per cent, employment by 3.4 per cent and the unemployment rate rose to 10.8 per cent. Like all recessions, it was a period of disruption and economic distress. It was particularly deep in Victoria, where a disproportionate share of the financial failure occurred. Victorian employment fell by 8.5 per cent compared with a fall of 2.1 per cent for the rest of Australia. (Macfarlane, 2006a)

Thus, by the time of the August 1991 Census, the economy had been in recession for nearly a year, identified as **L** in Table 1. From the adaptive cycle perspective, the period between the 1986 and 1991 Census can be considered as the “release phase” in which the economy can be very susceptible (with low connectedness) to external forces in negatively disrupting the economy. With low resilience, Simmie and Martin (2010, p. 33) call 1986-1991 a “Period of decline and destruction”.

When the 1996 Census came along, the economic narrative had moved on. There had been slow but rising economic growth from the low economic trough of 1991, right up to the next Census date, thus identified as **H** in Table 1. The economic reforms of the Hawke/Keating governments set the scene for major neoliberal economic restructuring of the Australian economy (privatisation, deregulation, labour market reforms and monetary stability), freeing up economic forces which during the 1990s allowed it take advantage of the growing economies of Asia, especially China, feeding their construction booms with Australian coal and steel exports (Macfarlane, 2006b). Thus, the period between the 1991 and 1996 Census, from the adaptive cycle perspective, can be considered as the “reorganisation phase” in which the economy is developing new connectedness and increasing resilience to negative external

forces while benefiting from growing networks. Simmie and Martin (2010, p. 33) call 1991-1996 a “Period of innovation and restructuring”.

The Australian economy prospered strongly through the late 1990s, giving the period sustained growth (Macfarlane, 2006b). The first signs of financial stress in the global economy occurred in July 1997 with the Asian Financial Crisis (AFC) that was caused by credit bubbles in booming Asian “tiger” economies and fixed currency exchange rates (Delhaise, 1998). This was followed quickly with the global “dot.com” collapse in which most new start-up internet-based companies that had become overinflated in stock value crashed to zero. This collapse slowly began to undermine stock values in very late 1999, but reached its nadir with the 11 September 2001 New York/Pentagon attacks (Lowenstein, 2004). The August 2001 Census in Australia reflected the low point of the early 2000s global recession, most notably in the USA where most of the “action” took place. Australia itself avoided a recession, but encountered a low and slow growth in 2001, thus identified as **L** in Table 1, noting this point as the Australian economy in a significant but not deep downturn. The period between the 1996 and 2001 Census, from the adaptive cycle perspective, can be considered as the “exploitation phase” in which the economy, having develop strong connectedness and high resilience, maximised its growth potential, but with darkening clouds. Simmie and Martin (2010, p. 33) call 1996-2001 a “Period of growth and seizing of opportunities”, but connectedness was now becoming low, with growing susceptibility to shocks.

Despite the ‘gray clouds’ amassing on the horizon, the Australian economy was being buoyed by massive commodity mining exports for the Chinese economic boom. The 2006 Census was held in the last full boom year before mid-2007 experiences of global bank failures (first was Northern Rock in UK) that led to the September 2009 Global Financial Crisis (GFC) implosion (Rohit, 2013). Census 2006 was also midway through a 13-year drought affecting the whole Australian rural economy, which is reflected in the first signs of a drought shock in rural communities (Horridge *et al*, 2005; Edwards *et al*, 2009). Thus, overall this Census in Table 1 is identified as **H**, the last boom the capitalist world, and Australia in particular, has experienced at the time of writing. The period between the 2001 and 2006 Census, from the adaptive cycle perspective, can be considered as the “conservation phase” in which the economy maintains its recently developed strong connectedness but with resilience declining from its 2001 peak. Resilience is lowering quickly with the normal drought cycle for the rural regions shifting into a major unfamiliar and unknowable continuing crisis for the whole economy and financial boom ready to be unravelled. Simmie and Martin (2010, p. 33) call 2001-2006 a “Period of stability and increasing rigidity” in systems that delivered strong prior growth.

By the time of the next Census in 2011 the world had turned, and the Australian economy consequently faced serious ‘stormy headwinds’. In early 2010 the 13-year drought ended with severe floods across the Eastern seaboard (Courvisanos and Richardson, 2011). This shock slowly accumulated over the years as the extent of the drought intensified and transferring more effects to first to regional cities, and then to periphery and core metropolitan regions. The other major national shock was the short sharp GFC shock in late 2009, which saw revival by mid-2010 unto a subdued growth trajectory into 2012 (Courvisanos, 2012, p. 84 Figure 3.2). As noted in Courvisanos *et al*. (2016, p. 633):

The GFC in macroeconomic quantitative terms was negotiated quickly and effectively so that economic activity could resume, but it had major structural change as some industries and regions were particularly heavily affected, such that many firms (especially in regional and rural communities) folded and some industries (especially manufacturing and tourism) suffered significant declines in activity through into 2011 (Stimson, 2011, p. 38).

The 2011 Census reflected the lowest point of an economic business cycle since the early 1990 recession. Australia avoided “The Great Recession” encountered by the rest of the developed capitalist economies (Rohit, 2013), but slow overall growth entailed through to the present. Thus, Table 1 has identified as **L** the 2011 Census, noting this point as the Australian economy coming out of a deep downturn. The period between the 2006 and 2011 Census, from the adaptive cycle perspective, can be considered as another “release phase” in which the economy from a boom, became highly susceptible (with low connectedness) to external forces (drought and GFC) in negatively disrupting the economy. With low resilience, Simmie and Martin (2010, p. 33) call 2006-2011 a “Period of decline and destruction”.

Method and Data Analysis

Having set out the national adaptive cycle in Table 1 as the reference to pattern-matching, the research question can be restated for data analysis as: How resilient have the 19 industries within the four functional groups of regions in Australia been to the shocks encountered since the 1986 Census as outlined above in Table 1?

Data mining is the general method adopted in this study. It facilitates the identification of useful information within data reservoirs and involves the application of discovery algorithms to the data. Cluster analysis (or “clustering”) is an important data mining tool with a process of pattern recognition which simplifies understanding of large data sets (Mardaneh, 2012). Clustering is the task of assigning a set of objects into groups (called clusters) so that objects in the same cluster are more similar (in some sense or another) to each other than to those in other clusters (Bagirov, 2008). Cluster analysis is used by contemporary researchers when the number of observations is very large, comprising a myriad of economic and social variables (Freestone *et al.*, 2003).

Cluster analysis, although developed as a data mining tool in information technology, it has also been used in other disciplines like marketing (Schaninger *et al.*, 1980). Different algorithms can be used for cluster analysis, including the k-means algorithm. The k-means algorithm has only recently been used in regional studies (Mardaneh, 2012). It considers each sample (LGAs in this study) in a dataset as a point in n-dimensional space (nR) and chooses k centres (also called Centroids) and assigns each point to the cluster nearest the centre. The centre is the average of all the points in the cluster; i.e. its coordinates are the arithmetic mean for each dimension separately over all the points in the cluster. This algorithm is sensitive to the choice of starting points. These points can converge on local minima and these local minima may be significantly different from global solutions as the number of clusters increases (Bagirov, 2008; Bagirov and Mardaneh, 2006).

Using the k-means clustering algorithm, this study addresses the gap in understanding the combined role of location, industry structure, and income level in the longitudinal analysis of the economic resilience of Australian regions. Data for this study is obtained from the six consecutive ABS *Census of Population and Housing* 1986, 1991, 1996, 2001, 2006 and 2011 (data from the recently conducted 2016 Census was not available as at the time of writing). This Census data was sourced as industry of employment (19 categories) and individual weekly income (12 categories). National Economics (2013) *State of the Regions Report* classifies LGAs under different regions as dispersed metro, independent city, knowledge base, lifestyle, resourced based, rural. Using these regions with an index of LGAs, each LGA was allocated into one of four functional groups as per National Economics (2002) categories: Metro-Core, Metro-Periphery, Regional Cities, and Rural. This study clusters the data using the k-means clustering algorithm to examine in combination location, income levels, and industry categories for economic resilience of each LGA within the four functional groups.

The study examines whether (for example) people earning relatively high incomes are associated with any particular industries within LGAs of the specified four functional groups.

Across the six census data periods, individual weekly income is used as a proxy for economic activity. In this paper, same as in Courvisanos *et al.* (2016, p. 634):

Income was initially used to separate LGAs into high and low-income LGAs and not to indicate resilience. To indicate resilience, the study linked the ‘income level’ with the industries present in a particular LGA and the employment proportion change across the three census data periods.

Table 2: Percentage of People within Income Categories in each Functional Group: 1986-2011

Functional Group	Median for Percentage of People within the Income Category			Number of People with the Income Category		
Income Category	\$1,000 - \$1,499					
Census Year	1986	1991	1996	1986	1991	1996
Metro-Core	98.3	4.7	7.8	2,465,389	120,145	215,623
Metro-Periphery	99.2	2.8	5.1	1,656,686	67,726	128,882
Regional Cities	99.0	2.3	4.8	740,572	27,386	50,210
Rural Areas	98.8	1.9	3.5	1,345,878	43,843	78,434
Income Category	\$1,500 and More					
Census Year	1986	1991	1996	1986	1991	1996
Metro-Core	1.7	2.5	3.5	52,983	78,643	124,839
Metro-Periphery	0.8	0.9	1.3	22,956	33,971	53,780
Regional Cities	1.0	1.2	4.8	7,699	10,257	17,301
Rural Areas	1.2	1.1	1.8	18,329	22,364	37,781
Income Category	\$1,000 - \$1,999					
Census Year	2001	2006	2011	2001	2006	2011
Metro-Core	8.3	16.9	21.8	4,948	10,833	15,300
Metro-Periphery	6.4	15.0	21.4	5,173	11,990	19,368
Regional Cities	5.8	12.5	18.0	2,736	5,855	9,283
Rural Areas	4.4	9.8	15.3	545	896	1,657
Income Category	\$1,499 and More					
Census Year	2001	2006	2011	2001	2006	2011
Metro-Core	4.6	4.7	7.9	3,462	3,386	6,096
Metro-Periphery	2.1	2.3	4.8	2,474	2,334	4,979
Regional Cities	2.0	1.8	3.7	1,043	978	2,264
Rural Areas	2.0	1.5	3.1	283	158	446

ANALYSIS OF THE RESULTS

With the clustering method and accompanying data sets developed, this section undertakes an analysis of the results by the four functional regional groups. Initially, Table 2 on the previous page shows the percentage of people within income categories in each of the four functional groups of regions over the six Census periods. For example, in the Metro-Core LGAs of the 1996 Census, the medians of people within income levels ‘AU\$1000-\$1499’ and ‘AU\$1500 and over’ are 7.8% and 3.5% respectively, whereas in the Metro-Periphery LGAs this same two income groupings medians are 5.1% and 1.3% respectively.

Table 3 indicates that for the Metro-Core in the 1996 Census, six industries show higher employment proportion within a high cluster. All these industries have lower employment proportions within a low cluster. As opposed to this, for the Metro-Periphery in the same 1996 Census (Table 4) there are only four ‘higher’ industries with a high employment proportion in a high cluster. For the Metro-Core (Table 3), the ‘higher’ industries are Information Media; Finance; Rental, Hiring and Real Estate Services; Professional, Scientific and Technical Services; Education and Training; and Health Care and Social Assistance Services. For the Metro-Periphery (Table 4), the ‘higher’ industries are Information Media; Finance; Professional, Scientific and Technical Services; and Education and Training. In the 1996 Census pattern, there are some similarities and differences between the Metro-Core and Metro-Periphery functional regional groups regarding employment proportion of industries in their LGAs, as evidenced when comparing Tables 3 and 4. Professional, Scientific and Technical Services have a high employment proportion within a high cluster in both regional groups; magnitude of which being higher in the Metro-Core as opposed to the Metro-Periphery. In contrast, Manufacturing, in both regional groups have a significantly higher level of employment proportion within a low cluster.

Table 3: Employment Level of Industries Within, Above and Below Median Income Clusters: Metro-Core LGAs, 1996

Industry	Cluster Category		Test of Independence	
	1	2	<i>t</i>	<i>Df</i>
	Cluster Centroids			
Higher Industries (given their high employment proportion in above median income cluster)				
Information Media and Telecommunications	3.9	2.8	4.1	50.7***
Financial and Insurance Services	5.8	4.4	4.0	65.8***
Rental Hiring and Real Estate Services	2.2	1.5	4.3	69.2***
Professional, Scientific and Technical Services	12.4	6.3	10.2	68.4***
Education and Training	9.6	7.6	3.8	68.6***
Health Care and Social Assistance	12.4	10.7	2.7	68.9**
Lower Industries (given their high employment proportion in below median income cluster)				
Manufacturing	7.5	13.1	-7.0	50.7***
Electricity, Gas, Water and Waste Services	0.5	0.7	-3.7	65.6***
Construction	4.1	6.3	-5.9	70.9***
Retail Trade	9.1	10.3	-4.8	67.7***
Transport Postal and Warehousing	3.4	4.9	-4.2	69.4***
Public Administration and Safety	5.6	7.0	-2.1	66.4*
Other Services	3.8	4.8	-7.2	70.6***
Non-separable Industries (non-significant difference employment proportion in either above or below median income clusters)				
Mining	0.6	0.5	1.0	63.5
Accommodation and Food Services	7.0	6.5	1.4	69.7
Administrative and Support Services	3.4	3.2	1.7	70.8
Arts and Recreation Services	2.1	1.8	1.7	70.7
Agriculture, Forestry and Fishing	0.6	1.1	-1.6	38.8
Wholesale Trade	5.4	5.7	-1.2	70.9

Table 4: Employment Level of Industries Within, Above and Below Median Income Clusters: Metro-Periphery, 1996

Industry	Cluster Category		Test of Independence	
	1	2	<i>t</i>	<i>Df</i>
	Cluster Centroids			
Higher Industries (given their high employment proportion in above median income cluster)				
Information Media and Telecommunications	2.6	2.1	3.5	33.3***
Financial and Insurance Services	4.5	3.6	2.5	33.6*
Professional, Scientific and Technical Services	7.0	4.5	5.0	21.8***
Education and Training	8.1	5.8	5.4	27.5***
Lower Industries (given their high employment proportion in below median income cluster)				
Manufacturing	13.3	17.5	-3.2	42.3**
Electricity, Gas, Water and Waste Services	0.8	0.9	-2.1	43.0**
Transport Postal and Warehousing	4.6	6.0	-3.5	31.6***
Administrative and Support Services	2.8	3.1	-2.1	43.0*
Non-separable Industries (non-significant difference employment proportion in either above or below median income clusters)				
Construction	7.4	7.2	0.5	38.8
Wholesale Trade	6.9	6.8	0.2	35.3
Rental Hiring and Real Estate Services	1.6	1.4	1.7	31.9
Health Care and Social Assistance	9.4	8.9	1.0	41.8
Arts and Recreation Services	1.4	1.3	0.9	41.2
Agriculture, Forestry and Fishing	1.5	1.7	-0.3	43.6
Mining	0.6	0.7	-0.2	34.5
Retail Trade	11.0	11.1	-0.4	28.6
Accommodation and Food Services	5.1	5.3	-0.7	32.9
Public Administration and Safety	5.5	6.1	-1.3	40.6
Other Services	4.9	5.1	-1.1	41.4

From Table 2, Regional Cities in 1996 have medians of people within both income levels ‘AU\$1000–1499’ and ‘AU\$1500 and over’ are 4.8%. For the same 1996 Census, Table 5 indicates that the Regional Cities have four industries with a higher employment proportion, of which all industries have a significantly higher level of employment within a high cluster. These are Mining; Construction; Professional, Scientific and Technical Services; and Administrative and Support Services.

For Rural in 1996 (Table 2), the medians of people within income levels of ‘AU\$1000–\$1499’ and ‘AU\$1500 and over’ are 3.5% and 1.8% respectively. For the same 1996 Census, Table 6 indicates that the Rural includes three industries with higher employment proportion, of which all industries have a significantly higher level of employment within a high cluster. These are Mining; Construction; Public Administration and Safety Services. For Rural, the magnitude of the employment in Public Administration and Safety Services within a high cluster is much stronger than Construction.

Overall, a decrease in the median for the percentage of people within the income categories from 1986 to 2011 is clearly evident progressing down the list of the four functional groups by industry in Table 2, from Metro-Core (highest) to Rural (lowest), particularly for 1991 and 1996. The Appendix with the supplementary data presents a detailed summary over the six census data sets of the average employment proportion within high and low clusters for each industry, as they apply across the four functional regional groupings. In the Appendix, the first set of census data columns indicate the average of employment proportions under high and low clusters obtained from Tables 3 to 6 (for 1996 data), and similar data calculations for the other five Census data sets. For example, for the Mining industry in 1996 (as evident in Table 6) the employment proportion in the high cluster for the Rural LGAs is 6.5, while in the

low cluster it is 0.8; thus the 1996 average of the two cluster centroids is 3.6 (as evident in the Appendix table). This average figure provides an indication of the proportion of economic activity and employment under each industry and their respective functional groups across the six census data periods. The second set of census date columns in the Appendix table labels each industry/functional region group with ‘H’ when the industry is located in the ‘higher’ industries section of Tables 3–6 (for 1996) and with ‘L’ when the industry is located in the ‘lower’ industries section. This labelling is also conducted for the remaining five Census data sets to produce the H and L contributions to income across the 76 functional regional groups.

Table 5: Employment Level of Industries Within, Above and Below Median Income Clusters: Regional LGAs, 1996

Industry	Cluster Category		Test of Independence	
	1	2	<i>t</i>	<i>Df</i>
	Cluster Centroids			
Higher Industries (given their high employment proportion in above median income cluster)				
Mining	5.5	0.4	2.8	11.1*
Construction	7.8	6.5	1.9	16.8*
Professional, Scientific and Technical Services	4.3	3.4	2.8	13.3*
Administrative and Support Services	2.6	2.2	3.2	24.9**
Lower Industries (given their high employment proportion in below median income cluster)				
Agriculture, Forestry and Fishing	1.8	6.1	-3.8	26.4***
Information Media and Telecommunications	1.8	2.2	-1.8	28.7*
Non-separable Industries (non-significant difference employment proportion in either above or below median income clusters)				
Electricity, Gas, Water and Waste Services	1.3	1.0	1.7	20.0
Transport Postal and Warehousing	4.5	4.3	0.5	27.4
Rental Hiring and Real Estate Services	1.6	1.5	0.6	23.3
Manufacturing	13.1	13.3	-0.1	20.1
Wholesale Trade	5.0	5.1	-0.3	26.1
Retail Trade	12.0	12.8	-1.4	22.0
Accommodation and Food Services	7.2	7.3	-0.1	28.3
Financial and Insurance Services	2.5	2.6	-0.2	17.2
Public Administration and Safety	4.8	5.2	-0.5	26.2
Education and Training	7.6	8.2	-1.2	23.2
Health Care and Social Assistance	10.2	11.2	-1.5	21.0
Arts and Recreation Services	1.0	1.1	-0.5	26.3
Other Services	4.7	4.8	-0.7	28.8

PATTERNS OF RESILIENCE

Based on the analysis of census data sets presented in the previous section, an appreciation of resilience pathways of industries in LGAs within the four functional regional groups can now be made based on the four phase adaptive cycle resilience model (as per Simmie and Martin, of the functional group of regions and their industries in the context of the shocks to the national economy as set out in Table 1. The Appendix is used to conduct this analysis in the second set of census date columns. Functional groups and the industries with a higher employment proportion within an above median income cluster (of LGAs) are marked as ‘H’ for a high cluster and the ones with a higher employment proportion within a below-median income cluster (of LGAs) are marked as ‘L’ for low clusters. Four functional groups of regions with 19 industry sectors for each grouping create a total of 76 functional regional groups and their relevant industries, which make up this analysis. Based on the Appendix, Table 7 summarises the six combinations of contributions across the six periods (1986 to 2011) that are observed. These combination patterns can be interpreted using the four-phase model:

Table 6: Employment Level of Industries Within, Above and Below Median Income Clusters: Rural LGAs, 1996

Industry	Cluster Category		Test of Independence	
	1	2	<i>t</i>	<i>Df</i>
	Cluster Centroids			
Higher Industries (given their high employment proportion in above median income cluster)				
Mining	6.5	0.8	6.0	98.1***
Construction	5.7	5.0	1.9	144.1*
Public Administration and Safety	7.0	5.3	2.9	110.9**
Lower Industries (given their high employment proportion in below median income cluster)				
Manufacturing	6.1	8.3	-3.2	191.7***
Wholesale Trade	3.5	4.0	-2.5	174.9*
Retail Trade	7.0	8.7	-4.7	182.5***
Financial and Insurance Services	1.4	1.7	-3.1	150.3**
Health Care and Social Assistance	6.9	8.3	-3.0	171.2**
Other Services	2.7	3.4	-4.8	162.5***
Non-separable Industries (non-significant difference employment proportion in either above or below median income clusters)				
Accommodation and Food Services	6.0	5.8	0.5	147.4
Transport Postal and Warehousing	4.0	3.9	0.4	143.9
Rental Hiring and Real Estate Services	0.8	0.7	0.1	167.4
Professional, Scientific and Technical Services	2.4	2.3	0.8	146.0
Administrative and Support Services	1.6	1.4	1.7	146.9
Agriculture, Forestry and Fishing	28.1	29.4	-0.5	156.3
Electricity, Gas, Water and Waste Services	0.9	1.0	-0.4	148.7
Information Media and Telecommunications	1.0	1.1	-1.1	159.6
Education and Training	6.9	7.3	-1.7	172.5
Arts and Recreation Services	0.6	0.7	-0.7	173.3

- Functional groups of regions and industries almost match the national economic pattern observed throughout the six periods as per Table 1. Also, the almost reverse of this pattern and labelled as ‘close to base’ and ‘close to reverse of base’ have only one each industry/functional group that exhibits such patterns.
- Functional groups of regions and industries which present high level of stability despite the economic shocks and are labelled as ‘stable high’ (SH1, SH2 and SH3). Twenty industry/functional groups of regions exhibit such patterns.
- Functional groups of regions and industries which present degrees of resilience (these are labelled resilient, very resilient, strongly resilient). Only five industry/ functional group of regions exhibit such patterns, all five were affected by the 1991 recession with an ‘L’.
- Functional groups of regions and industries which present low resilience with different levels. These are called low resilient with four slightly different patterns labelled LR1 to LR3. Eleven industry/functional group of regions exhibit such patterns. All these 11 regions had difficulty emerging from the 1996 recession, till remaining as ‘L’ in 1996 Census.
- Functional groups of regions and industries which are ‘non-resilient’ (NR). These are labelled non-resilient NR1 to NR 3. Sixteen industry/functional group of regions exhibit such patterns. All these 16 regions still remained in ‘L’ through both the 1996 and 2001 Census.

Table 7: Summary Patterns of Resilience based on Appendix

Rank	1986	1991	1996	2001	2006	2011	Industry/ Functional Region Patterns	Colouring/markings in the Appendix
1	H	L	H	L	H	L	0	
2	H	H	H	L	H	L	1	<i>Italic & Underlined</i>
3	L	H	L	H	L	H	0	
4	H	L	L	H	H	L	1	Grey
1	H	H	H	H	H	H	14	Green
2	H	H	H	H	H	L	4	Brown
3	L	H	H	H	H	H	2	Bold
1	H	L	H	H	H	H	1	Light blue
2	L	L	H	H	H	H	2	Dark blue
3	H	L	L	H	H	H	2	Lightest blue
1	H	L	L	L	H	L	3	<i>White italic</i>
2	L	L	L	L	H	H	3	Bold & Italic
3	L	L	L	L	H	L	4	Purple
4	L	H	L	L	L	L	1	Light pink
1	H	H	L	L	L	L	1	Light yellow
2	H	L	L	L	L	L	2	Orange
3	L	L	L	L	L	L	13	Red
1	NA	NA	-	-	-	-	8	Not coloured/marked
1	-	-	-	-	-	-	14	Identified 'IR'

- Functional groups of regions and industries which do not have data available for the 1986 and 1991 census are labelled as ‘NA’ in the table. Due to the data not being available for the periods mentioned, it is not possible to identify any meaningful pattern or draw any conclusions. Eight industry/functional group of regions are in this category.
- Functional groups of regions and industries which present patchy patterns. These are labelled as ‘Irregular’ regions (IR). These regions have irregular patterns that cannot at this stage of the research be identified in any consistent approach. Fourteen industry/functional group of regions exhibit such irregular patterns.

DISCUSSION

The pattern and distribution of industrial resilience identified provides an insight into the resilience of functional regions where these industries operate. Strong innovation allows industries to remain resilient and withstand both endogenous and exogenous shocks with impunity. Functional groups where such innovation is lacking demonstrate low resilience as evidenced by clusters with many ‘L’ periods identified. This lack of innovation is more prevalent in the Rural functional groups overall.

Preliminary evaluation of the data demonstrates that the overall aggregate relationship of all industry/functional groups with **H** and **L** clusters follows the national economic cycle (base) as set out in Table 1. To start off with the 1986 data, during the economic boom of 1986 there were 29**H** and 25**L** clusters (as can be seen by adding up for 1986 vertically all the **H** and **L** across the number on industry/functional regional groups in Table 7). This was followed by a recession in 1991, reflected by the increase to 31**L** clusters (+6) and a decrease to 23**H** (-2) clusters. Thus, the number of total **H** clusters was now less than the **L** clusters compared to 1986. This recession was followed in 1996 by a slow upswing in the economy from the deep 1991 trough, resulting in equal **H** and **L** clusters of 30 each (+7**H** and -1**L**). In fact, the 1996, 2001 and 2006 Census dates were characterised by continued upswing in economy. This is exhibited by an increase in **H** clusters to 34 in 2001 (+4) and then to 37 in 2006 (+3). This was accompanied by no reduction in the **L** clusters in 2001 due to a weak downturn after the dot.com collapse to 30 (no change), but then as the boom built strongly there was a reduction in **L** clusters to 25 (-5). The GFC followed in 2008-9 resulting in a severe global downturn, to be followed by a gradual weak upturn resulting in 25**H** (-12) and 38**L** (+13) clusters in 2011 (compared to 2006). From the national pattern, economic recovery is associated with a gradual increase in **H** clusters, with the number of **H** clusters outnumbering **L** clusters in boom times.

Despite the positive association between the national economic cycle and the number of clusters in **H** and **L** as set out in the previous paragraph, there is no single industry/functional group that mirrors the national average. The cluster of Accommodation & Food Services in the Metro-Core region is the closest to this cycle, with the only aberration being that it has an **H** cluster in 1991 as opposed to the national **L**, which would have reflected the national economic cycle. Accommodation & Food Services at Metro is a significant industry sector that closely tracks the national business cycle due to the high level of discretionary spending involved in this sector (Courvisanos, 1996), particularly in Metro areas of Australia that attract large number of tourists and locals who eat out great deal. There is also no industry/functional group that is exact opposite to the national cycle (or reverse of base national). The industry/functional group of Arts & Recreational Services in the Regional Cities is the closest to this reverse of base cycle, with reversal of the expected cluster category in 1986 and 1991 from **L/H** to **H/L**; and an additional **H** rating in 2001 instead of **L**. This

indicates the relatively small arts sector in Australia has artistic and cultural dimensions that drive the industry, especially in Regional Cities away from the major cultural centres.

Functional clusters that are stable independent of the economic cycle include Mining in the Metro-Core, Regional and Rural regions; Construction in the Metro-Periphery, Regional and Rural regions; Wholesale Trade, Health Care & Social Assistance, Financial & Insurance Services, Arts & Recreational Services, and Education & Training in the Metro-Core and Metro-Periphery regions; Rental Hiring & Real Estate in Metro-Core, Metro-periphery and Regional Cities; Public Administration in Regional Cities. It is clear that the majority of these functional groups are in the Metro-Core (7) and Metro-Periphery (7) regions. These industry

and functional groups demonstrated sustained ‘shockproof’ resilience over the study period, weathering the boom/bust cycle of the national economy due to their innovation (Education & Training) or alternatively because their products/services are essential (e.g. Health Care & Social Assistance in the Metro-Core and Metro-Periphery regions). It is also not unexpected that these industry clusters which require a higher proportion of the creative classes (Florida, 2002), access to finances, major transport and government support thrive in Metro areas. This is also in keeping with nearly 90 per cent of the population residing in Metro-Core and Metro-Periphery regions (Courvisanos et al., 2016).

At the same time it is important to review the functional groups that demonstrate this level of sustainability in the Regional and Rural Areas: Mining and Construction, both presumably on the back of the sustained demand for commodities from China and the accompanying mining boom. Similarly in Regional Cities, Rental Hiring & Real Estate and Public Administration are perhaps sustained due to decentralisation by government transfer of services to these sites, for example the Australian Taxation Office to Albury.

Other resilient patterns can be noted. Accommodation & Food Services in Rural regions is strongly resilient; Information Media & Telecommunications in Metro-Core areas as well as Rental Hiring & Real Estate Services in Regional Cities are considered resilient, with Financial & Insurance Services and Information Media & Telecommunications both in Regional Cities being resilient in this model. Resilient Information Technology in Metro and Regional Cities reflects the new information economy at the centre of major cities (Zagler, 2002), while financial services in major regional centres and tourism-based activity in rural areas provide strategic areas for regional development activity (Courvisanos, 2012, pp. 224-50).

The functional groups that demonstrate low resilience include LR1: Electricity Gas Water & Waste Services in Metro-Periphery, Wholesale Trade and Education & Training in Regional Cities; LR2: Retail Trade in Metro-Periphery and Rural, Financial & Insurance Services, Manufacturing, Education & Training in Rural, Public Administration & Safety in Metro-Periphery, and, Accommodation & Food Services in Regional Cities. It is of note that no Metro-Core appear in this list, while the Regional Cities and Rural dominate these low resilience clusters; importantly noting that most of these Regional/Rural industry clusters rely on a critical mass of population for resilience, a resource in scarcity in these regions. The functional groups in this low resilience grouping from Metro-Periphery are likely to be due to weak spillover effects from linked industries from Metro-Core.

For obvious reasons, Agriculture, Forestry & Fishing are non-resilient in Metro-Core, Metro-Periphery and Regional Cities. Surprisingly Public Administration & Safety in Metro-Core was also non-resilient. The non-resilience of manufacturing in Metro-Core, Metro-Periphery and Regional Cities is no surprise given the weak nature of manufacturing across the whole Australian Economy (Lim et al., 2014). Other functional groups with this non-resilient result

include Electricity Gas Water & Sanitation, and Construction in Metro-Core; Retail trade in Metro-Core and Regional Cities; Transport, Postal & Warehousing in Metro-Core and Metro-Periphery; Health Care & Social Assistance in Regional Cities and Rural; and Other Services in Metro-Core. Most of these functional groups are in the Metro-Core areas suggesting that Metro-Core has extremes of clusters, i.e. a higher proportion of stable high as well as non-resilient Clusters as opposed to other regions.

The industrial clusters of Professional Scientific & Technical Services and Administrative and Support Services have incomplete data, therefore could not be evaluated. The other industrial groups had patchy irregular resilience patterns that defy classification into any of the categories described above at this stage of the research.

CONCLUSION

This discussion makes it clear that first, there is no industry group that demonstrates stable high resilience for all functional groups through this period. Second, Metro-Core regions have extremes of resilience clusters: stable high and non-resilient; more than any other functional region. Third, industry/functional groups with low resilience are commonest in the Rural regions followed by Regional Cities. Fourth, Mining, Rental Hiring & Real Estate Services, Education & Training, Health Care & Social Assistance, and Arts & Recreational Services have the highest resilience across all regions. Fifth, Manufacturing and Transport Postal & Warehousing demonstrate lower resilience, both of which go hand-in-hand. Sixth, there was a stark disparity between the Health Care & Social Assistance services resilience, and by proxy availability, in Metro-Core and Metro-Periphery as opposed to Regional Cities and Rural. Seventh, Regional Cities demonstrate much higher resilience in Public Administration & Safety most likely due to shifting of State and Federal government services to Regional Cities as part of their decentralisation activities.

The insights produced from this research study potentially permits more accurate allocation of resources by all levels of government to try and invest in industry groups in appropriate functional regions to ensure ongoing resilience of the economy. A national (in this case Australian) economy is only as resilient as the industry-based functional regions within that country. Each industry/functional group is an economy itself, with its own resilient properties. Further implications for public policy need to be carefully thought through and presented in a coherent manner which is practical and possible to ensure best long term outcomes.

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Appendix: Detailed Summary of the Average Employment Proportion within High and Low Clusters (1986-2011)

Industry	Functional Group	Average % of categories 1 & 2					High (H); Low (L) contribution to the income					Irregulars	
		1986	1991	1996	2001	2006	2011	1986	1991	1996	2001		2006
Agriculture, Forestry and Fishing	Metro-Core	0.9	0.8	0.8	2.3	0.7	0.5	L	L	L	L	L	L
	Metro-periphery	2.0	1.6	1.6	2.1	0.3	1.1	H	H	L	L	L	L
	Regional	5.7	4.3	4.0	4.0	1.3	2.3	H	L	L	L	L	L
	Rural	35.5	31.4	28.7	23.6	9.8	18.6	H	H	L	L	H	L
Mining	Metro-Core	0.9	0.5	0.5	0.7	0.5	1.6	H	H	H	H	H	H
	Metro-periphery	0.6	0.6	0.6	0.6	0.5	1.6	L	H	L	L	H	H
	Regional	3.5	4.0	2.9	4.0	1.5	4.5	H	H	H	H	H	H
	Rural	2.4	2.7	3.6	4.2	2.0	6.0	H	H	H	H	H	H
Manufacturing	Metro-Core	15.0	12.6	10.3	9.4	3.6	6.4	L	L	L	L	L	L
	Metro-periphery	18.5	16.9	15.4	14.5	6.0	10.7	L	L	L	L	L	L
	Regional	15.1	14.2	13.2	11.8	4.6	9.5	L	L	L	L	L	L
	Rural	6.5	6.7	7.2	6.8	3.0	6.1	L	L	L	L	H	L
Electricity, Gas, Water and Waste Services	Metro-Core	1.7	1.1	0.6	0.8	0.4	1.0	L	L	L	L	L	L
	Metro-periphery	1.8	1.2	0.8	0.9	0.4	1.2	H	L	L	L	H	L
	Regional	2.4	1.7	1.1	1.4	0.6	1.5	H	H	H	H	H	L
	Rural	1.5	1.3	0.9	1.0	0.4	1.1	L	L	L	H	H	H
Construction	Metro-Core	5.7	5.1	5.3	5.1	2.8	6.4	L	L	L	L	L	L
	Metro-periphery	7.6	7.1	7.4	7.4	4.1	9.6	H	H	H	H	H	H
	Regional	7.3	6.8	7.1	7.0	3.6	8.5	L	H	H	H	H	H
	Rural	5.4	4.9	5.3	5.7	2.7	7.1	L	H	H	H	H	H
Wholesale Trade	Metro-Core	6.5	6.5	5.5	4.6	2.1	4.0	H	L	L	L	H	H
	Metro-periphery	6.7	7.4	6.8	5.9	2.4	4.7	H	H	H	H	H	L
	Regional	4.8	5.4	5.0	4.5	1.45	2.9	H	L	L	L	H	L
	Rural	3.4	3.8	3.7	3.6	1.2	2.4	L	L	L	L	H	H
Retail Trade	Metro-Core	13.1	12.9	9.7	9.7	4.7	9.0	L	L	L	L	L	L
	Metro-periphery	15.1	15.2	11.0	11.5	5.5	10.8	L	L	L	L	H	L
	Regional	16.5	16.4	12.4	12.7	5.6	11.8	L	L	L	L	L	L
	Rural	10.6	10.5	7.8	7.8	3.7	8.0	L	L	L	L	H	L
Accommodation and Food Services	Metro-Core	3.8	4.7	6.7	7.0	3.2	6.9	H	H	H	L	H	L
	Metro-periphery	2.3	3.0	5.2	5.4	2.5	5.4	H	H	L	L	H	L
	Regional	3.8	4.8	7.2	7.2	2.9	7.0	L	H	L	L	L	L
	Rural	3.8	4.5	5.9	5.8	2.6	6.1	H	L	H	H	H	H

Transport, Postal and Warehousing	Metro-Core	5.0	4.5	4.1	4.0	1.8	3.7	L	L	L	L	L	L	L
	Metro-periphery	6.0	5.3	5.3	5.3	2.6	5.5	L	L	L	L	L	L	L
	Regional	5.4	4.5	4.4	4.3	1.9	4.4	H	H	H	H	H	H	H
Information Media and Telecommunications	Rural	4.3	3.7	3.9	4.0	1.8	4.3	L	L	L	L	L	L	L
	Metro-Core	2.1	1.7	3.3	3.4	1.4	2.7	L	L	L	L	L	L	L
	Metro-periphery	2.2	0.8	2.3	2.3	0.4	1.6	L	L	L	L	L	L	L
Financial and Insurance Services	Regional	1.8	1.3	2.0	1.6	0.6	1.1	H	H	H	H	H	H	H
	Rural	1.6	1.1	1.0	0.9	0.3	0.5	L	L	L	L	L	L	L
	Metro-Core	5.7	6.0	5.1	5.0	2.7	5.5	H	H	H	H	H	H	H
Rental, Hiring and Real Estate Services	Metro-periphery	4.9	5.0	4.0	3.7	1.8	3.5	H	H	H	H	H	H	H
	Regional	3.2	3.1	2.5	2.3	1.0	2.1	H	H	H	H	H	H	H
	Rural	1.9	2.0	1.5	1.2	0.5	1.1	L	L	L	L	L	L	L
Professional, Scientific and Technical Services	Metro-Core	9.3	11.1	1.8	2.1	1.0	1.9	H	H	H	H	H	H	H
	Metro-periphery	6.4	7.5	1.5	1.7	0.8	1.6	H	H	H	H	H	H	H
	Regional	4.4	5.5	1.5	1.5	0.7	1.4	H	H	H	H	H	H	H
Administrative and Support Services	Rural	2.4	3.0	0.7	0.9	0.4	0.8	L	L	L	L	L	L	L
	Metro-Core	NA	NA	9.3	10.0	5.0	11.4	NA	NA	NA	NA	NA	NA	NA
	Metro-periphery	NA	NA	5.7	5.9	2.9	6.6	NA	NA	NA	NA	NA	NA	NA
Public Administration and Safety	Regional	NA	NA	3.8	4.0	1.7	4.2	NA	NA	NA	NA	NA	NA	NA
	Rural	NA	NA	2.3	2.5	1.0	2.5	NA	NA	NA	NA	NA	NA	NA
	Metro-Core	NA	NA	3.3	3.7	1.6	3.4	NA	NA	NA	NA	NA	NA	NA
Education and Training	Metro-periphery	NA	NA	2.9	3.4	1.6	3.2	NA	NA	NA	NA	NA	NA	NA
	Regional	NA	NA	2.4	3.2	1.2	3.1	NA	NA	NA	NA	NA	NA	NA
	Rural	NA	NA	1.5	2.1	0.9	2.2	NA	NA	NA	NA	NA	NA	NA
Health Care and Social Assistance	Metro-Core	5.5	5.6	6.3	5.8	1.7	6.9	H	H	H	H	H	H	H
	Metro-periphery	5.7	5.6	5.8	5.3	3.0	6.4	L	L	L	L	L	L	L
	Regional	4.8	4.7	5.0	6.0	3.0	7.2	L	L	L	L	L	L	L
Arts and Recreation Services	Rural	4.9	5.2	6.1	9.3	5.1	8.6	H	H	H	H	H	H	H
	Metro-Core	7.5	7.9	8.6	8.3	4.0	8.7	H	H	H	H	H	H	H
	Metro-periphery	6.4	6.7	6.9	7.2	3.6	7.9	H	H	H	H	H	H	H
Other Services	Regional	7.1	7.3	7.9	7.8	3.4	8.1	H	L	L	L	L	L	L
	Rural	6.0	6.8	7.1	6.9	3.3	8.1	L	L	L	L	L	L	L
	Metro-Core	11.0	11.6	11.5	10.5	5.3	11.7	H	H	H	H	H	H	H
Information Media and Telecommunications	Metro-periphery	8.0	8.6	9.1	9.2	4.9	11.1	H	H	H	H	H	H	H
	Regional	9.2	9.9	10.7	10.6	5.0	12.9	L	L	L	L	L	L	L
	Rural	6.0	6.9	7.6	7.4	3.8	9.2	L	L	L	L	L	L	L
Professional, Scientific and Technical Services	Metro-Core	2.5	2.6	1.9	1.8	0.8	2.0	H	H	H	H	H	H	H
	Metro-periphery	1.6	4.6	1.3	1.3	0.6	1.4	H	H	H	H	H	H	H
	Regional	1.3	1.5	1.0	1.1	0.4	1.1	H	L	L	L	L	L	L
Administrative and Support Services	Rural	0.7	0.8	0.6	0.8	0.3	0.9	L	L	L	L	L	L	L
	Metro-Core	3.5	3.6	4.3	3.4	1.6	3.2	L	L	L	L	L	L	L
	Metro-periphery	3.4	3.7	5.0	4.3	1.9	4.0	H	L	L	L	L	L	L
Public Administration and Safety	Regional	2.8	3.5	4.7	4.2	1.7	4.0	L	H	L	L	L	L	L
	Rural	1.9	3.2	3.0	3.0	1.3	3.8	L	L	L	L	L	L	L

Assessing Road Travel Conditions in the Bowen Basin Region: Implications for Transport Planning in Australian Mining Communities

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ABSTRACT

Effective road transport networks are essential for sustainability of mining activities as well as the liveability of the mining communities. This paper examines the mining impacts of road travel conditions in the Bowen Basin region, which produces about 83% of Queensland's total coal product. A household travel survey was conducted to explore mining communities' level of satisfaction with road travel experiences, through a case study of the Moranbah and Emerald townships. The pavement condition of regional roads was the primary issue raised by residents, followed by concerns about safety and congestion issues associated with over-dimensional vehicles, and perceptions of poor driver behaviour, particularly around speed, inattention and fatigue. The research identified support for confining the movement of wide loads to low-traffic periods (such as overnight), and introducing carpooling arrangements to reduce congestion and issues of driver fatigue. These findings have policy implications for all tiers of government as well as mining industries, with respect to future transport planning.

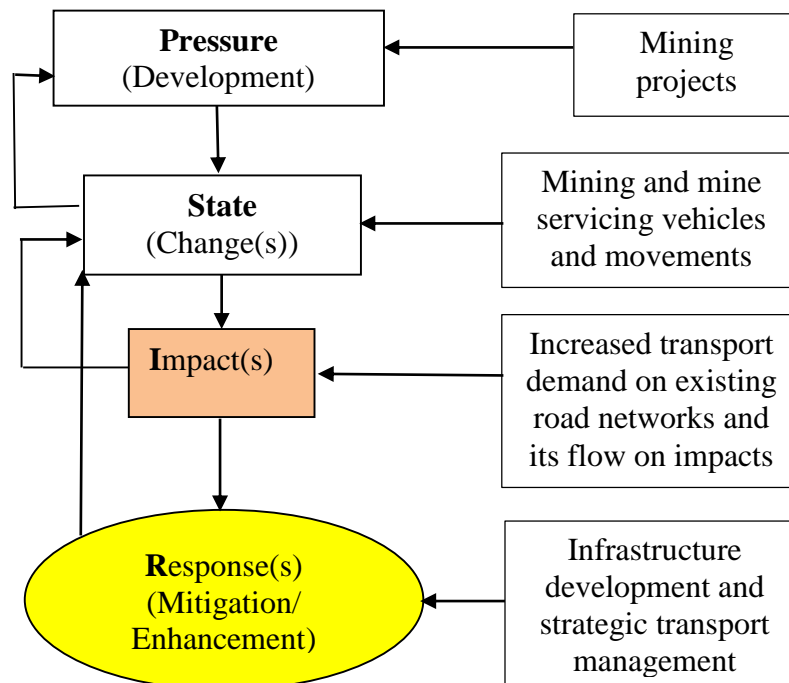
1. INTRODUCTION

Mining projects generate significant impacts on transport infrastructure, housing and human services in the mining towns (Akbar, Rolfe and Kabir, 2014; Miles and Kinnear, 2008). An effective transport network is essential to both ongoing growth of the resources sector, as well as to the sustainability of the regions that host resource development activity. For mining companies, modern and efficient transport infrastructure is necessary in order to move its product from mine to market; to enable easy, safe and effective employee access; and to provide for the non-coal freight supply to both construction and operations activities (Kinnear et al, 2014). Transport infrastructure is also essential for day to day travel by residents of regional and mining communities; and regional communities can also be negatively impacted through poor transport conditions and pressures on small businesses (Kinnear et al 2014). These problems are magnified where multiple resource sector operations are located in close proximity to mining towns. For instance, about 75 per cent of coal mining operations in central Queensland are within the proximity of Moranbah and Emerald townships (DEEDI, 2011). This paper aims to assess the mining impacts of road travel condition within the proximity of these two towns and to provide some policy guidelines for regional transport planning in the Bowen Basin region.

2. CONCEPTUAL FRAMEWORK AND METHODS

Transport impact assessment is comparatively new addition to the fully-fledged environmental impact assessment process in Australia, especially in the coal mining sector in Queensland. Currently transport impact assessment has been studied under the social impacts elements of Environmental Impact Statements (EISs) in Queensland (DSDIP, 2013). There appears to be a paucity of published research that has been undertaken on the impacts of resource development on regional transport system. This is true both in Australia as well as in other countries experiencing rapid growth in resource development (e.g. Canada, Mongolia and Africa) (Kinnear *et al*, 2013). A key challenge in transport impact assessment for major resource projects is to identify a process for impact assessment and mitigation. This can be illustrated with major resource developments in the Bowen Basin in Queensland, where rapid development of new coal mines and changing employment and social patterns has led to varying impacts on existing transport systems. Any development (pressure) makes changes to the current community and social setting (state), the pressures create changes (impacts), and impacts need to be addressed (response) in order to maintain community sustainability. This equation of pressure, state and impact on one side and response on the other side is generally known as the ‘Pressure-State-Response (PSR)’ model (Figure 1) (Akbar, Rolfe and Greer, 2009). This framework is often used for impact identification (Svarstad *et al*, 2008; Wolfslehner and Vacik, 2008) and impact management to some extent (Bowen and Riley, 2003; Storey and Jones, 2003).

Figure 1: Conceptual Framework of PSR Model



Source: Based on Akbar, Rolfe and Greer (2009); Svarstad *et al*. (2008); Storey and Jones (2003).

This paper entails a case study approach with quantitative methods for data analysis, and is focussed on illustrating mining transport pressure and travel satisfaction of the mining communities. The study collected information and data on mining vehicles and road travel

items from the EIS of selected mining companies, whose EISs were available online and then organised them under construction and operation phases of the mining project followed by a discussion on their possible impacts on the current road travel system. A household travel survey was conducted to understand the community perception about the mining transport impacts on two mining communities, Emerald and Moranbah. A total of 70 out of 76 households' responses were used. A Chi-square test and logistic regression model were used to ascertain the likely effects of independent variables on the dependent variable (i.e. respondent's satisfaction with the road condition).

3. PRESSURE AND STATE OF MINING ON THE ROAD TRANSPORT SYSTEMS: BOWEN BASIN

The Bowen Basin is an area of coal reserves and mining related communities that extends over approximately 60,000 square kilometres of Central Queensland in the State of Queensland, Australia. It represents 83% of the State coal production. The Bowen Basin can be divided into two subregions: the southern region, which is a mix of mining and agricultural land use and the northern Bowen Basin, which is a very dense coal mining region (Map 1).

This study chose the northern Bowen Basin region as a case study to represent other mining areas in Australia as well as to capture region-wide transport impact assessment that mostly arise from coal mining activities. As indicated above, a desktop review targeting EIAs lodged since 2009 for the region of interest was undertaken to identify the nature of the road and transport impacts. A total of nine EIAs of coal development projects in the northern Bowen Basin region reviewed in this study. Three coal projects in the Galilee Basin were included because these were expected to impact on the Capricorn highway, one of the major highways in the northern Bowen Basin region. Projects dealing with energy development (e.g. gas) or supporting infrastructure (e.g. rail, dams and pipelines) have not been considered for the purposes of this study. At the time of the research being conducted, there are also an additional four coal projects that have had EIS documents approved by are awaiting other assessment, and a further five in the initial stages of EIS preparation.

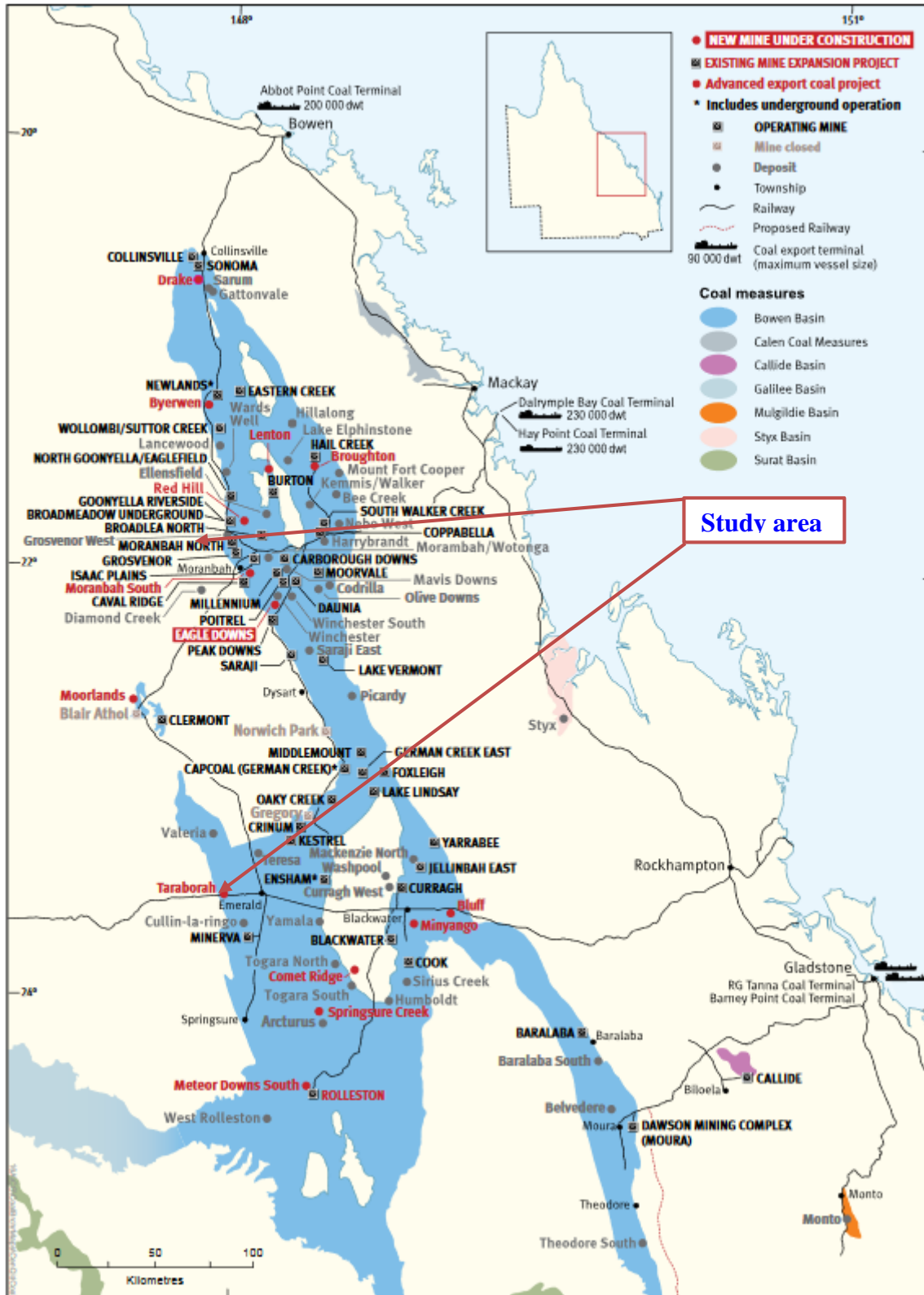
3.1. Over-size and Over-mass (OSOM) Loads

Estimates for the number of over size and over-mass (OSOM) loads expected for a site was prepared based on projections for the supply of equipment and materials. For example, in the construction phase, this may include deliveries of vehicles and equipment (e.g. earthmoving, cranes and water trucks), building supplies (including modular units used to administration buildings), fuel, concrete and steel. In the operational phase, OSOM loads may include periodic transport of ongoing supplies such as oil and fuel, as well as waste removal.

A preliminary analysis of OSOM estimates for resource development sites in the Northern Bowen Basin shows that the number and type of loads varies greatly across the different sites (Table 1).

It was also noted that EIS documents themselves vary widely in terms of the depth of detail. For example, it would have been particularly useful to be able prepare an estimate of the likely number of heavy loads, standardized to production tonnages, as this value could then be used as a rough guideline in future planning. However, this kind of exercise is frustrated by the variation in the level of detail provided by each proponent, and by differences in the ways that the information is presented. For example, some statements quote daily or weekly movements, whereas others refer to peak activity periods, values for the overall construction and/or operational phases, and/or figures for the overlap period between construction/operation.

Map 1: Queensland Coal mines and Advanced Projects – Bowen Basin



Source: DNRM (2016). Map was current as per date 2011.

Table 1: Summary of the Heavy Vehicle Loads Associated with Resource Development Sites in the Northern Bowen Basin

Mine Site and Total Production Per Year	Construction Phase	Operations Phase
Caval Ridge (5.5 mtpa)	Average 3,881 deliveries by type 1 Road Train & Single articulated vehicle Average 2,100 deliveries by concrete transit vehicle Oversized vehicles: to be determined based on final project design	1,175 annual deliveries by single articulated vehicle
Daunia (4mtpa)	Approximately 60 oversize loads, delivering indivisible construction and mining equipment; with primary load origin being Brisbane (20%) or Mackay (80%). 16 deliveries per day of construction materials/ infrastructure modules, through a combination of eight over-dimensional, semi-trailer and single unit truck loads.	5 to 10 semi-trailers per week No further information regarding ODL was provided.
Galilee Coal (40 mtpa)	290 heavy vehicle movements per day	180 vehicle movements per day
Kevin's Corner (30mtpa)	Average of 8 ODVs per day	Average of 2 ODL movements per day
Alpha Washpool (30 mtpa)	8 single truck units daily 8 articulated vehicles daily Pilot escorted oversize vehicles: approximately 65 construction loads and 47 mining fleet loads in total Police escorted oversize vehicles: Approximately 36 construction loads and 35 fleet load in total Approximately 200 general loads in total	8 single truck units daily 14 articulated vehicles daily Oversize vehicles may be required during operations, but no specific figures were provided
Codrilla (4 mtpa)	Up to 10 truck (heavy vehicle) movements daily Proponent indicated it would obtain relevant permits for OSOM vehicles, but no specific figures given	Up to 3 truck (heavy vehicle) movements daily Proponent indicated it would obtain relevant permits for OSOM vehicles, but no specific figures given
Drake (10 mtpa)	Yearly: 239 semi-trailers 40 tankers 1000 mixer (concrete) 273 AB-triple 210 general truck	Yearly: 408 tankers 210 general truck
Eagle Downs (7mtpa)	Not available [^]	Not available [^]
Grosvenor (7mtpa)	Approximately 90 ODVs to delivery machinery and materials to site	a limited number of deliveries of large indivisible materials and equipment
Middlemount Stage 2 (1.8 mtpa)	Estimated range of 0-4 vehicles per day between 2011- 2019; overweight/hazardous goods movement unknown	Estimated 4 heavy vehicles daily

Minyango (9mtpa)	16 heavy vehicles per day (materials) An undetermined number of escorted ODVs	12 heavy vehicles per day (materials) An undetermined number of escorted ODVs Road transport task of 50,000 tonnes per year (t/year) of ROM coal to the Cook Colliery.
Springsure Creek (9mtpa)	total 1,182 trucks over the 24 month construction timeframe, equivalent to 1.6 heavy vehicles per day approximately 80% originate from the local area.	total 51,077 heavy vehicles over the anticipated 40- year life of the mine, equivalent to 3.5 heavy vehicles per day a large proportion is expected from non-local destinations
Eaglefield (5.2 mtpa)	Range of 580 - 7528 heavy vehicle movements per annum. Of 14 movement categories, approximately 10 are oversized vehicles, ranging from one per month up to 15 per week depending on construction phase.	Approximately 54 heavy vehicle movements per week, for the life of the mine.
Newlands Expansion (11 mtpa)	Not available [^]	Not available [^]
Foxleigh (3.2 mtpa)	Not available (project mothballed)	Not available (project mothballed)
Millennium Expansion (5.5 mtpa)		38 oversized movements in 2011, then 22 oversized per year, 780 hazardous movements per year

Note: ODV = over-dimensional vehicle , ODL= over-dimensional loads, and OSOM= over size and over-mass.

Details on expected liquid loads (e.g. transport of ongoing fuel supplies) were mentioned in only some of the EIS documents; in others, it was difficult to distinguish these movements from other heavy-vehicle traffic (such as that required for waste removal or other general supplies). In several instances, the potential use of over-dimensional vehicles to transport indivisible pieces of plant & equipment were flagged, but no specific figures were provided except to say that negotiations with police escort and/or commercial pilot vehicles would follow as more details came to hand. Therefore, the size and number of mining vehicles may have been linked with substantial pressure on the existing road system and consequent low to high level of impacts such as accidents and fatalities, delays and congestion in the road travel system, especially in the Capricorn and Peak Downs Highways (Kinnear et al., 2014).

3.2. Workforce transport

All EIS documents are required to estimate the vehicle movements generated by resource sector employees, across both the construction and the operational periods. As might be expected, these also vary widely, according to the location and nature of the sites and the employment strategy being proposed. The latter includes the split between residential and non-residential employees as well as the overall proportions of company and contractor/subcontractor personnel. As was observed for the wide-loads estimates, it is very difficult to scan across sites and develop any ‘average’ measures relating to workforce transport, because of the genuine differences in the workforce approach used at each site, as well as variation in the reporting style used (Table 2).

Table 2: Summary of Workforce Transport Figures for Resource Development Sites in the Northern Bowen Basin (Data current as at date 2013)

Mine site	Construction Phase	Operations Phase
Caval Ridge	<ul style="list-style-type: none"> Approximately 5,128 two-way bus movements per annum Bus service for 80% of workforce, remaining 20% by private/company vehicles 	<ul style="list-style-type: none"> 165 two-way private vehicle movements daily Bus service for 70% of workforce, remaining 30% by private/company vehicles Less volume of personnel noted for maintenance shutdown periods
Daunia	<ul style="list-style-type: none"> 106 daily light vehicle (private car) trips 14 bus trips Mix of private cars and buses (80% buses) Average occupancy 1.5 persons per vehicle 	<ul style="list-style-type: none"> Average 134 daily light vehicle trips, concentrated in morning and evening shift change periods. Off-site workforce to travel to/from site by light vehicle (50%) and two provided shuttle buses (50%). Average occupancy 1.5 persons per (light) vehicle
Galilee Coal	<ul style="list-style-type: none"> 1450 vehicles per day* 	<ul style="list-style-type: none"> 900 vehicles per day*
Kevin's Corner	<ul style="list-style-type: none"> 69 light vehicles (workforce plus materials transport) 	<ul style="list-style-type: none"> 33 light vehicles (workforce plus materials transport)
Alpha Washpool	<ul style="list-style-type: none"> 4 chartered bus, 15 private vehicles (on-shift) 	<ul style="list-style-type: none"> 5 chartered bus, 48 private vehicles (on-shift)
Codrilla	<ul style="list-style-type: none"> Between 7 and 12 minibus vehicles daily 	<ul style="list-style-type: none"> Between 5 to 9 bus vehicles Up to 6 private vehicles daily
Drake	<ul style="list-style-type: none"> 5 buses daily (one way) 33 light vehicles (3 persons per vehicle) 	<ul style="list-style-type: none"> 7 buses daily (one-way) 43 light vehicles (3 persons per
Eagle Downs	Not available^	Not available^
Grosvenor	Not stated	<ul style="list-style-type: none"> 24 one-way daily bus movements 178 one-way private vehicle movements per day
Middlemount Stage 2	Varies according to year of construction, but with a range of 0-10 private vehicles daily and 0-6 shuttle bases daily, between 2011-2019.	<ul style="list-style-type: none"> 5 private vehicles daily, 8 shuttle buses daily
Minyango	18 bus movements and 12 light vehicle movements per day	12 bus movements and 59 light vehicle movements per day
Springsure Creek	<ul style="list-style-type: none"> 3 buses and 30 light vehicles daily (dayshift) 	<ul style="list-style-type: none"> 6 buses and 59 light vehicles daily (dayshift)
Eaglefield	<ul style="list-style-type: none"> 1 bus daily 2 light vehicles daily 	<ul style="list-style-type: none"> 4 buses daily, 9 light vehicles daily
Newlands Expansion	Not available^	Not available^
Foxleigh	Not available (project mothballed)	Not available (project mothballed)
Millennium Expansion	<ul style="list-style-type: none"> 4-6 shuttle buses and 4 light vehicles (95% BIBO and 5% private light vehicles) 	<ul style="list-style-type: none"> 12 bus movements and 8 light vehicles (95% BIBO and 5% private light vehicles)

3.3. *Transport Impacts*

With respect to the suite of planned projects in the Northern Bowen Basin, the transport survey of residents identified a number of recurrent themes for social impacts, including concerns about transport delays and congestion; safety and risk; and increased pressure on existing transport infrastructure (including support infrastructure, such as police vehicles) (Table 3).

Table 3: Social Impacts Related to the Regional Transport System, Resulting from Resource Development

Activity	Impact
Increased traffic movements and incidents	<ul style="list-style-type: none"> • Congestion, leading to increased travel time and associated losses in productivity/amenity • Increased need for emergency services to respond to road accidents due to congestion, fatigued driving, and transportation of fuel/ODL • Increased need for police patrols and calls for services to deal with traffic and other offences. • Need for fatigue management (workforce) • Dust pollution from vehicle movements on unsealed roads • Impacts on the movement of farming and farming equipment during harvesting (due to congestion) • Obstructed movement of stock/congestion at stock crossings
Movement of police-escorted ODL	<ul style="list-style-type: none"> • Pressure on existing police resources, as vehicles are required for escort duties
Transportation of hazardous and/or dangerous goods	<ul style="list-style-type: none"> • Increased incidence of spills, fires or explosions
Increased traffic delays	<ul style="list-style-type: none"> • Disruption of school bus and other public transportation activities

Where impacts were identified, these typically related to increased traffic volumes and their associated impacts to risk profiles, pavement damage, and other social and economic impacts. These are particularly noticeable when there are a significantly increased number of vehicle interactions, especially those involving heavy vehicles; being particularly evident on shared, higher-order routes (e.g. commonly used highways and arterial roads). The examination of existing EIS documents also highlighted that the proportion of DIDO, BIBO and FIFO workers used in a series of neighbouring projects was an important factor in determining likely cumulative impact(s).

4. PERCEIVED QUALITY OF ROAD TRANSPORT CONDITION

4.1. *Demographic Profile of the Survey Participants*

The household travel survey attracted a diverse profile of respondents, summarised briefly below:

- by occupation, participants ranged from entry-level retail and trades roles (newsagent, labourer), through to paraprofessional and professional roles (paramedics, doctors, accountants);
- almost half of participants were Moranbah residents and a further third were from Emerald, with smaller numbers being sourced from other Bowen Basin communities;

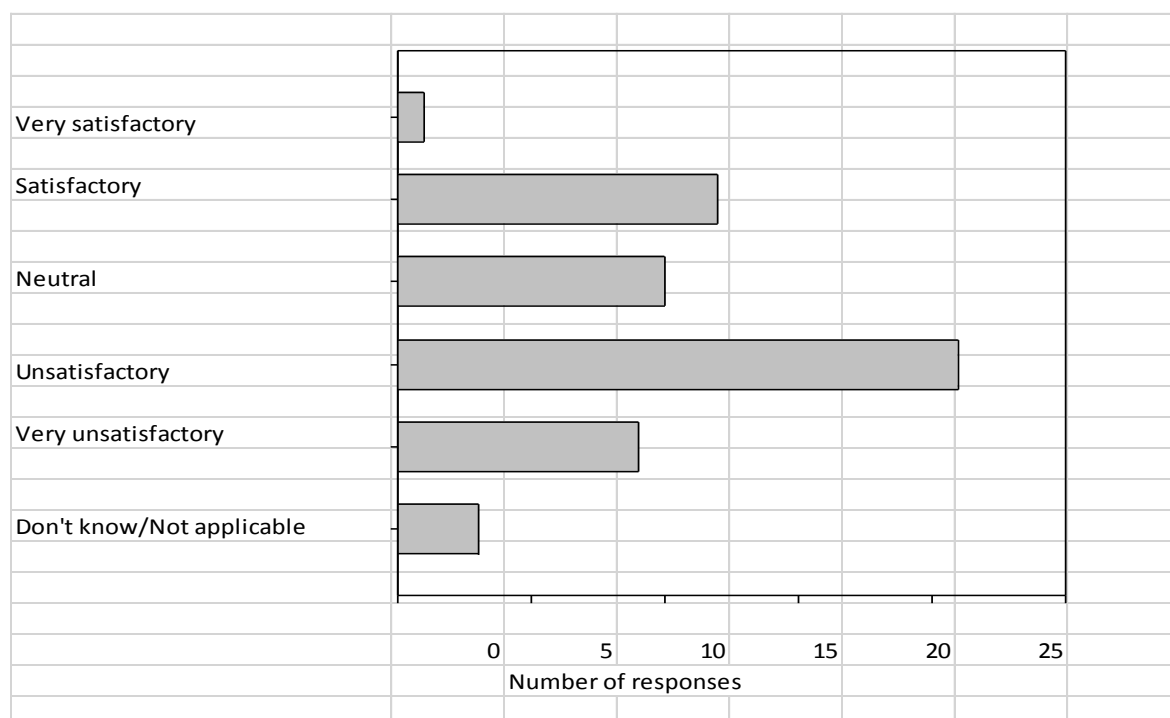
- the average length of (residential) stay was 9.2 years, with the maximum recorded being 44 years;
- the average reported household size was 3.2 people, with a maximum of 7 people;
- almost three-quarters of participants were within the 18-44 year age bracket, and the last quarter were 45-64 year bracket. There was only one respondent aged between 35-45 and only one in the 65+ year bracket. Less than 5% of participants reported having children in the household; and
- almost two-thirds of participants reported a household income of \$100,000 or greater.

Not surprisingly, these figures tend to reflect the skewed population demographics and income figures reported from communities that are strongly influenced by the resource sector. With respect to transport data, participants indicated that the average number of vehicles per household was 2.4, with the maximum recorded being eight in a single household. Overwhelmingly, participants and/or their household members appear to travel using private modes, with only five instances of public bus travel being reported across all participating households.

4.2. Quality of Road Transport Condition

A mix of responses were recorded regarding participants' levels of satisfaction regarding their road travel experience in the Bowen Basin (Figure 1). Overwhelming, the principal issue that was raised with respect to road travel was that of road quality, with participants citing problems with potholes, narrow shoulders, inadequate signing, line marking and lighting, inadequacy in the number of passing lanes, the unsatisfactory quality of road works, and the delay that road work activity caused to travel time. Many participants reported experiencing damage to private or company vehicles as a result of poor road quality. Other primary concerns included safety and congestion issues associated with over-dimensional vehicles; and perceptions of poor driver behaviour, particularly around speed, inattention and fatigue.

Figure 1: Respondents' level of satisfaction with road experiences in the Bowen Basin



A detailed statistical analysis of the satisfaction data was undertaken, to detect whether there were any significant factors underpinning residents' satisfaction with the quality of road condition in Emerald and Moranbah. This was conducted by way of cross-tabulations accompanied by Chi-Square testing; however, to meet the statistical assumptions, some variables were collapsed into smaller groups. This was necessary due to the relatively small sample size of the resident's group.

The five original satisfaction levels (from 'very satisfied through to very dissatisfied') were converted into a binary variable (either 'satisfied' or 'dissatisfied'). This allowed by the satisfaction of residents to be compared across different socio-demographic categories and the travel-related characteristics of survey participants. However, this exercise revealed that satisfaction with the roads was significantly influenced only by employment status, occupation and the number of journeys per week (Table 4). In particular, residents were more likely to be dissatisfied with the roads if they worked in trade occupations, if they worked full-time, and/or if they used the roads more frequently (e.g. 5 trips or more per week).

These findings were also corroborated by an alternative statistical approach: logistic regression analysis. Here, a logistic regression model is fitted to the dichotomous variable of 'satisfaction' to ascertain the likely effects of independent variables on the chances of some event occurring while controlling for a variety of different influences. The model produces a set of coefficients that allow us to predict a logit, that is, the natural log of the odds of being a 'satisfied' (coded with 1) or 'dissatisfied' resident (coded with 0) with road condition in the Bowen Basin area. The model is specified as:

$$\text{logit}(p) = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + \dots + b_kX_k \quad (1)$$

where p is the probability that a resident is 'satisfied' or 'dissatisfied' with road conditions. The coefficients b_1, b_2, \dots, b_k are estimated using a maximum likelihood procedure.

Five groups of variables representing socio-demographic and economic variables of survey participants (i.e. gender, age, household income, occupation, household type, occupation) were added to the right hand side of equation. Other travel-related variables in the model which distinguish journey-to-work patterns of residents include: self-containment (commuting within or outside the place of residence); number of journeys per week, and travel time. The detailed categories for these independent variables from the original survey data were collapsed into two or three groups to eliminate bias arising from a small sample size. This resulted in sufficient observations in each of the groups.

Similar to the Chi-square test results, the regression indicated that people engaged in full-time employment in trade-related occupations or labourers, and who required more frequent travel, are more likely to be dissatisfied with the road condition (i.e. the negative coefficients in Table 5). This effect was particularly strong for trade workers, who were 2.4 times more likely to be dissatisfied with road conditions than non-trade occupations. Interestingly, the time spent on travel to work had no significant effect on satisfaction levels, possibly because most of the survey participants reported travelling within a 30-minute range.

The model distinguished the variables well, with 80% of responses predicted accurately by the coefficient for the variable.

Table 4: Data Summary: Correlates of Residents' Levels of Satisfaction with the Road Travel Experience in the Northern Bowen Basin

Socio-demographic and travel related variables	Groups	Satisfied	Dissatisfied
Gender			
$\chi^2 = 0.001$ df = 1, p = 0.974, Insignificant	Male	42.1	57.9
	Female	41.7	58.3
Age			
$\chi^2 = 868.00$ df = 2, p = 0.648, Insignificant	18-44 years	46.0	54.0
	45-54 years	33.3	66.7
	55 years and above	33.3	66.7
Household Income			
$\chi^2 = 0.02$. df = 1, p = 0.969, Insignificant	Less than or equal to 100,000	43.8	56.3
	More than 100,000	43.2	56.8
Occupation			
$\chi^2 = 2.73$. df = 1, <u>p = 0.0098, Significant</u>	Trade persons and labour work	42.9	57.1
	Others	39.1	60.9
Employment			
$\chi^2 = 2.735$ df = 1, <u>p = 0.0095, Significant</u>	Full-time	55.2	74.4
	Others	44.8	25.6
Household type			
$\chi^2 = 0.01$ df = 1, p = 0.977, Insignificant	Singles and Couples	42.9	57.1
	Other households	42.5	57.5
Work to Work Containment			
$\chi^2 = 1.44$ df = 1, p = 0.230, Insignificant	Within the postcode	39.7	60.3
	Outside the postcode	60.0	40.0
Length of Living in the Area			
$\chi^2 = 0.194$ df = 1, p = 0.660, Insignificant	Less than or equal to 5 years	39.5	60.5
	More than 5 years	44.8	55.2
Travel Time			
$\chi^2 = 1.51$. df = 2, p = 0.469, Insignificant	Less than 16 minutes	39.0	61.0
	16-30 minutes	37.5	62.5
	More than 30 minutes	58.3	41.7
Number of Journeys per Week			
$\chi^2 = 7.99$ df = 2, <u>p = 0.0018, Significant</u>	Less than 5 trips	47.4	52.6
	5 trips	55.2	44.8
	More than 5 trips	12.5	87.5
Overall Sample (70)		41.4	55.7

Table 5: Data Summary: Results of the Logistic Regression Analysis Relating to Residents' Levels of Satisfaction with the Road Travel Experience in the Northern Bowen Basin

	B	Std Error	Significance	Exp(B)
Constant	0.022	2.220	0.992	1.022
Household Income (<100,000, >100,000)	1.494	1.054	0.156	0.445
Employment Status (Others, Full-time)	-3.031	1.117	0.007	1.48
Age				
18-44 years			0.601	
45-54 years	0.997	1.275	0.434	1.711
55 years and above	0.138	1.476	0.926	1.148
Occupation (Others, Trade workers and labourers)	0.895	0.943	0.342	2.448
Number of Journeys				
Less than 4 trips			0.189	
5 trips	0.700	1.216	0.564	2.015
More than 5 trips	-1.891	1.102	0.086	6.624
Travel Time				
Less than 15 minutes			0.583	
16-30 minutes	-1.374	1.331	0.302	0.253
More than 30 minutes	-1.328	1.696	0.433	0.265
Containment (within, Outside)	-0.073	1.375	0.958	0.930
Number of Vehicles (One, more than one)	-2.348	1.197	0.050	1.956
Gender	0.540	0.967	0.577	1.715

Chi-square Statistic = 2023.52 d.f. = 8; -2 Log Likelihood = 135935.71; Cox & Snell $R^2 = 0.310$, Nagelkerke $R^2 = 0.416$; and Hosmer and Lemeshow Chi-square = 165.07 at 0.05 level of significance. Cox & Snell R^2 indicates that the independent variables in the logistic model together account for 31 percent the explanation for why a respondent is 'satisfied' or 'dissatisfied'. Column B in the above table presents the coefficient estimates; a positive value indicates that the variable increases the logit transformation of the probability that a resident is satisfied with road condition.

5. STRATEGIES TO IMPROVE ROAD TRAVEL CONDITION

The final item on the survey asked respondents to provide suggestions on ways in which the current road transport situation might be improved. Participants were particularly asked to volunteer ideas outside of infrastructure solutions, as it had been acknowledged that such items typically involved decadal planning and investment periods, especially that led through state and Commonwealth Government; whereas the research was intended to identify short-term and 'grassroots' responses to road transport concerns. Despite this, infrastructure-related suggestions still featured throughout in the responses (Table 6).

There was support for confining the movement of wide loads to low-traffic periods (such as overnight); and several participants commented on the need for carpooling arrangements to reduce congestion and issues of driver fatigue. The notion of increasing speed limits on some road sections was suggested by one participant. However, this appears to be at odds with the concerns of many others who cited reckless driving behaviour as a key problem on the region's roads. It is also of note that in a recent review by the Queensland Department of Transport and Main Roads recorded strong support for reducing speed limits on the Capricorn Highway (e.g. between Emerald and Dingo) (DTMR, 2014).

Table 6: Residents' Suggestions for Strategies to Improve the Road Transport Situation in the Bowen Basin

Non-infrastructure based	Infrastructure related
Investigate alternative/confined hours for wide loads passage (particularly evening)	Confining road works to evening or low-traffic periods
Incentivise use of rail for freight; encourage back-loading of empty coal trains	Increase road maintenance and road upgrades
Increased police presence to address driver behaviour	Create more highway rest areas
Increase public transport (buses); increased provision of 'company transport'; carpooling program (including dedicated lanes for vehicles with 2 or more occupants)	Place retail facilities in smaller centres to negate the need for travel
Increased speed limit on some sections of highway (to 110 km/hour)	Increased towers to address lack of mobile phone reception (safety issue in relation to calling for help in case of road accident)
Introduce direct flights (Mackay-Cairns)	Increased number of overtaking lanes and road
Reduced focus on DIDO/FIFO employment models	Eton and Walkerston bypass roads

6. CONCLUSION

This study identified that there were increased traffic volumes and heavy vehicles movements in the northern Bowen Basin region. The Capricorn Highway and the Peak Downs Highway are most heavily used road in the northern Bowen Basin region as well as Bruce Highway as a main supply chain road. Full time worker, trade-persons and frequent travellers are mostly dissatisfied with the road conditions within the northern Bowen basin region. The frequency of road accidents is higher in Capricorn Highway between Rockhampton and Blackwater. Respondents are looking for more non-infrastructure solutions of the problem compared to infrastructure solutions. The Queensland Government has already undertaken several road improvements and widening programs within the region. However, non-infrastructure solutions such as alternative/confined hours for wide loads passage (particularly evening) may improve the current traffic condition, especially dealing with wide and heavy load trucks, and accidents.

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Perceived Risks to Housing Unaffordability in Resource and Regional Communities: Policy Implications for Regional Housing Affordability in Australia

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ABSTRACT

Housing unaffordability creates pressures on economic and social life of an individual to a community. Periodic housing unaffordability in Queensland resource and regional communities are common over the last two decades. This paper examined the perceived household risks to periodic housing unaffordability in Queensland resource and regional communities through a case study of Rockhampton and Gladstone cities. Two hundred households were surveyed from these two cities and then probability based consensus and agreement method used to identify the level of risks that the community perceived due to housing unaffordability. The study found that economic and social risks and stresses such as extra pressures on household budgets, reduction in disposable income, difficulty with children's schooling, strain in family relations and poor health were the common perceived risks in these two communities. An appropriate mix of housing development with suitable service options is required to maintain the well-being of various socio-economic groups during the resource boom period.

1. INTRODUCTION

Housing affordability in the Australian resource and regional towns is a major issue as it influences people's wellbeing and also impacts on liveability of resource towns (Akbar *et al*, 2009; McKenzie *et al*, 2009; Akbar, Greer and Rolfe, 2010). Traditionally housing affordability refers the relationship between household income and household expenditure on housing costs (Yates *et al*, 2007) but choice of affordable housing is a response to a complex set of economic, spatial, social and psychological drivers (Burke *et al*, 2007). Declining housing affordability can lead to social exclusion, increased community and travel fatigue (Yates *et al*, 2007; Akbar *et al*, 2010). For illustration, some households may choose to spend more on dwelling because they feel they can afford to, while others may not have a choice.

Housing affordability is not a new issue in the Australian context (Landt and Bray, 1997; Richard, 2008) and legacy of housing unaffordability is common to generations within the lower income groups and indigenous people. Yates (2007, p.6) found "intergenerational equity is compromised by the increasing disparities between those who gain access to home ownership and those who do not". So housing affordability is also not limited to conceptualisation by only financial affordability criteria. It is also related to choice of location, access to employment, education, essential services and proximity to social and

family networks (Somerville, Mackenzie and Owen, 2000; Cairney and Boyle, 2004; Paris, 2007; Akbar, Greer and Rolfe, 2009; Rolfe, Akbar and Chapman, 2012). Housing affordability is not only the individuals' capacity to afford a liveable dwelling but it is also a collective matter for communities where the people can afford to rent or buy a home as their choice.

Therefore an understanding of the social and cultural dynamics affecting housing is important as these phenomena impact on people's wellbeing and liveability of their communities. An analytical platform capturing people's perceptions towards key factors affecting housing affordability and its impacts on their wellbeing is yet to be developed. This study fills this gap at the methodological level with empirical evidence of housing affordability and its multi-dimensional impacts on resource communities.

This introduction forms Section One of the report followed by a literature review in Section Two on the dimensions and impact of housing affordability. Section Three describes the research methods used for identifying and examining risks associated with housing affordability. This is followed in Section Four by a description of the study area. Section Five presents the findings and analysis of the study followed by a conclusion in Section Six.

2. DIMENSIONS AND IMPACTS OF HOUSING AFFORDABILITY

Housing affordability can be described from four dimensions: economic, social, physical (i.e., environmental) and psychological (i.e., mental) (Kearns and Ellaway, 2000; Evans, Wells and Moch, 2003; Gabriel *et al*, 2005; Berry, 2006; Yates, 2007; Mallett *et al*, 2011). Interactions among these dimensions are very complex. These factors have both positive and negative impacts on the individual and the households (Kearns, Hiscock and Ellaway, 2000). For illustration, housing affordability has positive impacts on increased employment, productivity, education, community wellbeing, social cohesion and improved health. Conversely housing unaffordability has negative impacts of financial hardship, more time for journey to work, additional journey costs, labour market instability, inequity, reducing social cohesions, homelessness, lack of safety, emotional and physical stress (Hopton and Hunt 1996; Evans, Wells and Chan 2000; Cairney and Boyle, 2004; Burke *et al*, 2007; Taylor, Pevalin and Todd, 2007; Wright and Kloos, 2007).

The delivery and location of housing has significant economic implications for both the employability and functional efficiency of regional labour markets (Berry 2006; Akbar *et al*, 2009). The concentration of lower cost and lower rental households in remote or flood prone part of the towns can also lead to spatial isolation (Burke *et al*, 2007). Living in a low cost house but in a spatially segregated area can increase the severity of housing stress, as the households need to pay additional transport costs for journey to work and access to basic human services. Similarly, the distance of lower income housing to jobs may reduce the ability to secure employment (Gurran *et al*, 2007). Housing affordability affects both physical and mental health through dwelling quality, location and distance (Cairney and Boyle, 2004; Schanzer, Dominguez and Shrout, 2007; Foster *et al*, 2011; Mallet *et al*, 2011; Rebecca *et al*, 2011).

Australian resource and regional towns have been facing problems of housing affordability for a long time because of commodity boom and bust cycles (Akbar *et al*, 2010; Rolfe; Akbar and Chapman, 2012; Akbar, Rolfe and Kabir, 2013; DSDIP, 2013). Therefore, housing unaffordability has implications to individual's wellbeing and mental health. This study explores the perceived risks (i.e. "implications") of housing unaffordability in the resource and regional towns in Queensland.

3. METHODOLOGY

A mixed methodology has been undertaken, employing two methods: quantitative analysis of the structured questions in the household interviews and qualitative analysis of the open-ended questions in the same interviews, followed by a review of the housing affordability situation in Rockhampton and Gladstone Cities. These cities have been selected as the case to be studied because these are long-term regional resource cities with a relatively stable workforce. In addition, these cities also support other stable workforce from the agriculture and public services sectors. Thus, these two cities exemplify medium sized mining servicing cities in the Australian resources regions in terms of miners' socio-demographic dynamics and housing affordability.

The study conducted a household housing affordability survey in Rockhampton and Gladstone in March-April 2015. The sample size for this study was 200 households (i.e. 100 from each of the cities). A computer-assisted telephone interviews (CATI) was used to interview all respondents over a maximum of 15 minutes for completion. Households were selected randomly and those whose head was under the age of 18 or those not in a position adequately respond to the survey's intent were excluded. The household participation was on the basis that respondents were able to respond adequately to the survey questionnaire and that they voluntarily agreed to do so.

Data analysis was performed by categorising and tabulating evidence to understand the perceived risks of housing affordability in these two cities. A range of techniques were used: descriptive analysis, consensus and agreement analysis for quantitative data analysis and thematic issue analysis for the qualitative data. Under descriptive analysis, the study used a cross-tabulation to analyse the socio-demographic characteristic associated with housing affordability as currently perceived. A Likert scale (an ordinal scale, for example – 1. “not at all relevant”, 2. “somewhat relevant”, 3. “moderately /relevant”, 4. “very relevant”, and 5. “extremely relevant”) was used to capture households' opinions about the risks associated with housing affordability in these cities. Consensus and agreement measures were used to examine the relevance of risks associated with housing unaffordability.

Consensus is a measure of the general agreement among the members of a certain group or community i.e., to approximate the average dispersions among the responses. (Tastle and Weirman, 2006; Tastle and Weirman, 2007). It is a function of shared group feelings towards an issue such as risks associated with housing unaffordability. Tastle and Wierman (2007) estimated the consensus score with the following equation (equation 1).

$$\text{Cns}(x) = 1 + \sum_{i=1}^n p_i \log_2 \left(1 - \frac{|x_i - \mu_x|}{d_x} \right) \quad (1)$$

Where

$$\mu_x = \frac{1}{n} \sum_{i=1}^n x_i$$

$$d_x = x_{\max} - x_{\min} = 4 \text{ (here)}$$

$$p_i = \frac{f_i}{n}$$

In addition, an agreement measure, defined as a harmony of opinion or action to a defined level (or target) such as the highest level of relevance (here “5”) or lowest level of relevance (here, “1”) was used (Tastle and Weirman, 2008) (equation 2). A ‘harmony of opinion’ does not imply that all respondents convey the identical view.

$$\text{Agr}(x, \tau) = 1 + \sum_{i=1}^n p_i \log_2 \left(1 - \frac{|x_i - \tau|}{2d_x} \right) \quad (2)$$

Where

$$\tau = \text{target} (1,2,3,4 \text{ or } 5, \text{ here } \tau = 5),$$

$$d_x = x_{\max} - x_{\min} = 4 (\text{here})$$

$$p_i = \frac{f_i}{n}$$

$$0 \leq \text{Agr}(x, \tau) \leq 1$$

The consensus measure ranges from 0 to 1 or score of 0% and 100%, with 0% indicating no consensus or targeted agreement with the or relevance of the risks of housing unaffordability and 100% indicating complete consensus and targeted agreement, respectively.

This study further used chi-square test to determine if there is significant relationship between two categorical variables; here we aggregate two or more than two groups into one group to conduct this test. The survey also contained an open-ended question which sought respondents to indicate whether they have recently experienced any housing related stress or risk. This question generated a large amount of data which was analysed using a qualitative data analysis technique – thematic content analysis. The results of this analysis were presented in terms of key risks associated with housing unaffordability identified by the survey respondents. This qualitative content analysis complements the quantitative analysis.

4. CASE STUDY TOWNS – ROCKHAMPTON AND GLADSTONE

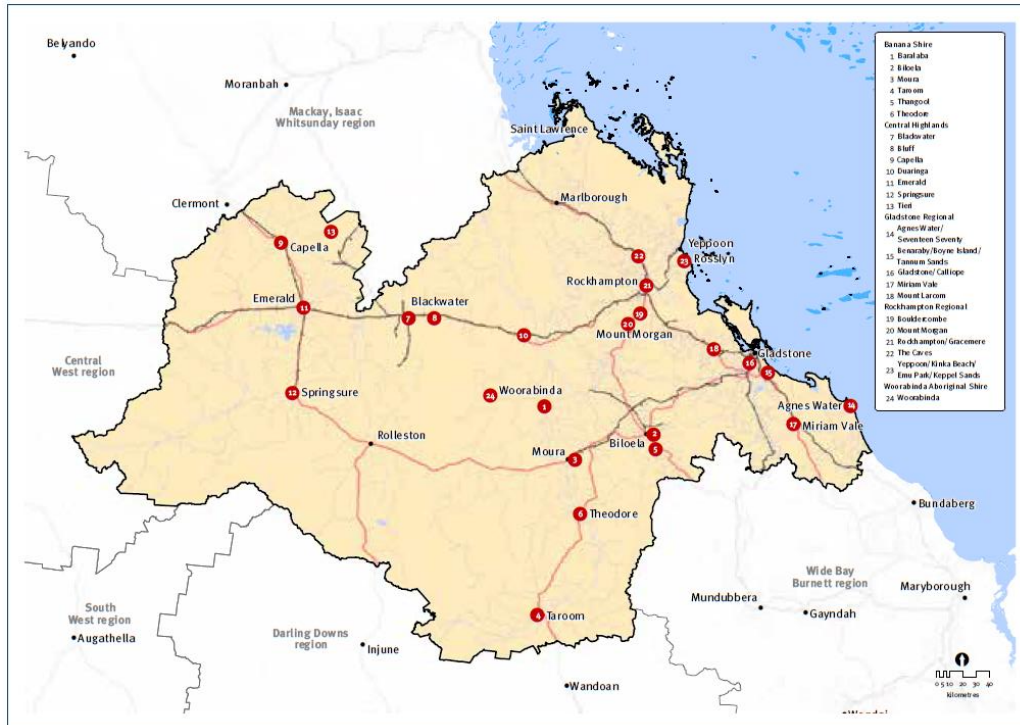
Gladstone and Rockhampton cities in central Queensland were historically resource and service providing cities. Gladstone is a port city and also an industrial city for resource processing and Rockhampton is now largely a regional city with providing services both to the mining and agricultural communities.

Housing stress takes many forms, including homelessness (the extreme of housing stress), overcrowding, affordability or cost-related pressures, stresses associated with poor quality dwellings, stresses arising from a lack of services, or isolation of dwellings, stresses arising from poor security of tenure and stresses arising from the appropriateness of a dwelling to the households’ needs (Rolfe, Akbar and Chapman, 2012). The homelessness rate in Gladstone is 74 per 10,000 of the population (Chamberlain and Mackenzie, 2009), which is higher than the rate for Queensland as a whole; the rate for Australia as a whole is 53 per 10,000 of the population (Rolfe, Akbar and Chapman, 2012).

Social and community rental housing has been delivered to eligible tenants with some form of subsidy from a government program—in the Gladstone and Rockhampton Regional Councils, these (Rolfe, Akbar and Chapman, 2012) include: Public Rental Housing Program,

Aboriginal and Torres Strait Islander Rental Housing Program, Crisis Accommodation Program (CAP), Long Term Community Housing (LTCH), Same House but Different Landlord Program (SHDL), Community Managed Housing Studio Units Program (CMSU), Community Rent Scheme (CRS) and Employment Related Accommodation Program (ERAP).

Figure 1: Gladstone and Rockhampton Cities in Central Queensland



Source: DSDIP, 2013a (pp.19)

The majority of social rental dwellings are owned and managed directly by the Department of Housing and Public Works (DS and DSD, 2002). Others are owned by the Department but managed by community housing providers and support services. Some community organisations such as Anglicare manage dwellings that are head-leased from the private market, and offered at discounted rents to eligible tenants. Social rental housing programs are also now being supplemented by assistance programs funded by the Liquefied Natural Gas project proponents in Gladstone (but not in Rockhampton), and by new rental dwellings constructed under the Australian Government’s National Rental Affordability Scheme (NRAS).

In addition to some long-standing programs for social and community rental housing, Gladstone residents have access to initiatives taken in the recent housing crisis in 2009-12 because of huge development pressures from the liquefied natural gas (LNG) sector. Gladstone Regional Council (GRC) provided rent assistance with funding provided by the LNG companies (GRC, 2012). Gladstone LNG, Queensland Curtis LNG and Australia Pacific LNG jointly provide funds to Council to support families and individuals who were struggling to keep their accommodation or experiencing rental stress. Recently Regional Services (RS) in partnership with Rockhampton Regional Council (RRC) facilitate mixed land development at Gracemere (an outer suburb of RRC) and Parkhurst to open up some affordable housing plots (DSDIP, 2013b).

5. CASE STUDY FINDINGS AND ANALYSIS

This section describes the case study findings which include Rockhampton and Gladstone residents' socio-demographic characteristics, their perceptions about the current housing affordability and risks associated with housing unaffordability.

5.1 Socio-demographic Characteristics

Rockhampton and Gladstone are the first and the third largest cities in central Queensland with a resident population of 110,582 and 60,317 respectively (ABS, 2012). About 49.7% are male and 50.3% female in Rockhampton while about 52.7% are male and 47.3% female in Gladstone (ABS, 2012). About one-quarter of the population are under the age of 24 years and about 15% of the population belongs to the older age group, 65 years and above, in Rockhampton while about 27 of the population is under the age of 24 years and about 9% of the population belongs to the older age group in Gladstone (ABS, 2008). Half the households have children and most of the children are either at childcare or school (ABS, 2008).

5.1.1. Age, Gender and Family Status of the Survey Participants

The study included more female than male respondents compared to the gender proportions in the region (Table 1). Respondents were categorised into six different age groups of which respondents in the 55-64 group were higher (29.5%) compared to other groups and respondents above 65 years were about 28.5% (Table 2). Thus, the study findings are more skewed towards the senior citizens of the region, which is one of the limitations of this study.

Table 1: Gender of the Respondents

Gender	Rockhampton (%)	Gladstone (%)	Overall (%)
Male	34	44	39
Female	66	56	61
Total =	100 (n=100)	100 (n=100)	100 (n=200)

Source: Housing Affordability Survey, 2015.

Table 2: Age group of the Respondents

Age group	Rockhampton (%)	Gladstone (%)	Overall (%)
18-24 years old	2	2	2
25-34 years old	5	10	7.5
35-44 years old	14	16	15
45-54 year old	16	19	17.5
55-64 years old	30	29	29.5
65 years and above	33	24	28.5
Total =	100 (n=100)	100 (n=100)	100 (n=200)

Source: Housing Affordability Survey, 2015.

Most of the respondents (more than 88%) had children (Table 3). More than 77% of respondents had two or more than two children, which is higher compared to any Australian metropolitan city. So the housing affordability issue may be more complex in these two cities compared to Australian metropolitan cities.

Table 3: Number of Children at home

Number of children	Rockhampton (%)	Gladstone (%)	Overall (%)
No child	14	10	12
One child	4	16	10
Two children	32	36	34
Three Children	24	20	22
Four children	14	10	12
More than four children	12	8	10
Total =	100 (n=100)	100 (n=100)	100 (n=200)

Source: Housing Affordability Survey, 2015.

5.1.2 Education, Occupation and Income

The majority of respondents (41%) held a secondary education or trade certificate as the highest level of education, followed by TAFE/vocational education (23.5%), tertiary education (24.5%) and primary education (4%) (Table 4).

Table 4: Highest level of respondent education

Level of education	Rockhampton (%)	Gladstone (%)	Overall (%)
Primary Education	15	7	11.0
Secondary Education	43	39	41.0
Certificate Level	12	17	14.5
Advanced Diploma And Diploma Level	10	8	9.0
Bachelor Degree Level	14	20	17.0
Graduate Diploma And Graduate Certificate Level	3	2	2.5
Postgraduate Degree Level	3	7	5.0
Total =	100 (n=100)	100 (n=100)	100 (n=200)

Source: Housing Affordability Survey, 2015.

The majority (55%) of respondents were retired or not working as a paid worker while about 30% of the respondents worked full time and 14.5% of the respondents worked part-time (Table 5). So housing affordability may be a serious issue within people who are working part-time or looking for work, students and other group.

While the residents were asked about their household income, about one quarter (24.5%) of the families had a weekly income of less than \$475 and are low income families under the ABS definition (ABS, 2013). Housing affordability is a serious issue within this income group in Gladstone and Rockhampton (Rolfe, Akbar and Chapman, 2012). On the other hand, a large proportion (20%) of the respondents, in particular, 29% in Gladstone were in the high income bracket (Table 6), which is above the national average.

Table 5: Respondents' Occupation Types

Occupation type	Rockhampton (%)	Gladstone (%)	Overall (%)
Working Full time	23	37	30.0
Working Part time	16	13	14.5
Retired	36	29	32.5
Home Maker	8	8	8.0
Student	2	1	1.5
Looking For work	2	9	5.5
Other	13	3	8.0
Total =	100 (n=100)	100 (n=100)	100 (n=200)

Source: Housing Affordability Survey, 2015

Table 6: Weekly Household Income of the Respondents

Income group	Rockhampton (%)	Gladstone (%)	Overall (%)
Less than \$475	26	23	24.5
Between \$476 and \$800	33	16	24.5
\$800 to \$1000	18	18	18.0
\$1000 to \$1200	8	7	7.5
\$1200 to \$1400	4	7	5.5
\$1400+	11	29	20.0
Total =	100 (n=100)	100 (n=100)	100 (n=200)

Source: Housing Affordability Survey, 2015.

5.1.3. Living in the region

When the residents were asked about how long they had lived in their cities, about 13% of them had lived there for five years or less but the majority (51.1%) had lived 20 or more (Table 7).

Table 7: Weekly Household Income of the Respondents

Age group	Rockhampton (%)	Gladstone (%)	Overall (%)
Up to 5 years	11	15	13.0
5 to 10 years	14	10	12.0
10 to 15 years	13	14	13.5
15 to 20 years	11	11	11.0
20 to 25 years	6	6	6.6
More than 25 years	45	44	44.5
Total =	100 (n=100)	100 (n=100)	100 (n=200)

Source: Housing Affordability Survey, 2015.

Thus, respondents' needs and perceptions about their housing needs may vary over time. About 79% of respondents were living in a self- or partner-owned property while 21% were renting or sub-leasing their dwellings (Table 8).

Table 8: Resident Tenancy Arrangement

Tenancy type	Rockhampton (%)	Gladstone (%)	Overall (%)
Own a house	78	76	77.0
Own an apartment/duplex/townhouse	1	3	2.0
Renting a house	14	11	12.5
Renting a duplex or townhouse	0	2	1.0
Renting an apartment or condo	4	3	3.5
Renting a manufactured (mobile) or manufactured home	0	1	0.5
Living rent free in a home owned by a friend or relative	2	3	2.5
Sub-Leasing space from a friend or relative	1	1	1.0
Total =	100 (n=100)	100 (n=100)	100 (n=200)

Source: Housing Affordability Survey, 2015.

5.2. Housing Affordability

When residents were asked about their perceived affordability of the monthly mortgage or rent, most (50.5%) indicated a desire to pay less than \$750 per month (i.e. less than \$188 per week) (Table 9), which is just below the one-third weekly family income of the people belong to the low income group (i.e., the families had a weekly income of less than \$475). However low income respondents are 24.5% of the total respondents (Table 6) but 50.5% of the total respondents would like to pay mortgage or rent less than \$188 per week. Therefore not only the low income families but also the respondents from other income groups would also like to pay mortgage less than \$188 per week, perhaps because of other pressures on household expenditure. Comparing this to their actual level of affordability (Table 11), 33.5% respondents could afford their rent or mortgage completely whilst others either could not afford completely or did not answer this question.

Table 9: Perceived Affordability of Monthly Mortgage or Rental Payment by the Respondents

Payment group	Rockhampton (%)	Gladstone (%)	Overall (%)
Under \$650	41	39	40.0
\$650 to \$750	10	11	10.5
\$750 to \$850	13	8	10.5
\$850 to \$950	7	10	8.5
\$950 or More	21	27	24.5
Dont know/Not sure	8	5	6.5
Total =	100 (n=100)	100 (n=100)	100 (n=200)

Source: Housing Affordability Survey, 2015.

Thus, both tables (Tables 9 and 11) confirmed that low income people could not afford current monthly rental or mortgage payment. Also Table 10 shows that majority of the respondents (54%) would afford to buy house within \$300,000 price range while a small proportion of respondent (3.5%) would afford up to \$100,000 price range.

Table 10: Perceived Affordable Price of Buying a Home by the Respondents

Home price	Rockhampton (%)	Gladstone (%)	Overall (%)
Under \$100,000	3	4	3.5
\$100,000 to \$200,000	15	7	11.0
\$200,000 to \$300,000	44	33	38.5
\$300,000 or More	36	56	46.0
Dont know/Not sure	2	0	1.0
Total =	100 (n=100)	100 (n=100)	100 (n=200)

Source: Housing Affordability Survey, 2015.

Table 11: Affordability of the Current Mortgage or Rental Payment by the Respondents

Level of affordability	Rockhampton (%)	Gladstone (%)	Overall (%)
Not affordable at all	1	3	2.0
Slightly affordable	6	2	4.0
Moderately affordable	10	13	11.5
Mostly affordable	10	15	12.5
Completely affordable	33	34	33.5
Not applicable	40	33	36.5
Total =	100 (n=100)	100 (n=100)	100 (n=200)

Source: Housing Affordability Survey, 2015.

Table 12: Affordability vs Perceived Mortgage or Rental Payment by the Respondents

Level of affordability	Under \$650	\$650 to \$750	\$750 to \$850	\$850 to \$950	\$950 or More	Total
Not affordable at all	1.6%	0.8%	0.0%	0.0%	0.8%	3.2%
Slightly affordable	3.2%	0.8%	0.8%	0.0%	1.6%	6.3%
Moderately affordable	6.3%	1.6%	4.0%	2.4%	4.0%	18.3%
Mostly affordable	7.1%	3.2%	0.8%	2.4%	6.3%	19.8%
Completely affordable	19.0%	6.3%	6.3%	4.8%	15.9%	52.4%
Total =	37.3%	12.7%	11.9%	9.5%	28.6%	100.0%
n =	47	16	15	12	36	126

Source: Housing Affordability Survey, 2015

Table 13: Affordability vs Perceived Affordable Price of Buying a Home by the Respondents

Level of affordability	Under \$100,000	\$100,000 to \$200,000	\$200,000 to \$300,000	\$300,000 or More	Total
Not affordable at all	0.0%	0.0%	0.8%	2.4%	3.2%
Slightly affordable	0.0%	4.0%	2.4%	0.0%	6.3%
Moderately affordable	0.8%	0.8%	11.1%	5.6%	18.3%
Mostly affordable	0.0%	2.4%	7.9%	9.5%	19.8%
Completely affordable	2.4%	6.3%	18.3%	25.4%	52.4%
Total =	3.2%	13.5%	40.5%	42.9%	100.0%
n =	4	17	51	54	126

Source: Housing Affordability Survey, 2015.

The study also cross-examined actual levels of affordability (Table 11) with perceived mortgage or rental payment (Table 12) as well as the perceived affordable price of buying a home (Table 13). 52.5% respondents were able to afford their rent or mortgage payment completely, slightly higher than previous figures given (Table 6.11). Only those who provided a complete response to this question were recorded. Again a large group of respondents (47.2%) did not feel themselves in an affordable situation when buying or renting a dwelling unit. (Tables 12 and 13). Therefore, housing affordability is a key concern in this region.

5.3. Perceived Household Risks to Housing Unaffordability

We found economic and social risks and stresses such as extra pressures on household budgets, reduction in disposable income, difficulty with children's schooling, strain in family relations and poor health condition are more relevant risks compared to the risks such as requirements to move to distance places and inaccessibility to the transport (Table 16). There is a higher level of agreement with increase in length of commuting in Gladstone (Table 16) that poses travel risks because of living in a distance place or the place is not well connected or the road condition is not good. These findings are also supported by the qualitative responses that we found in this study (Table 17), where 80% of respondents identified the economic and social risks that they might experience in because of unaffordable housing situation. However some of the respondents mentioned that they are currently having some psychological or mental health problem as they are away from their children and friends because of they could not afford their housing need in the same locations.

In addition, based on the chi-square test of independence, we found significant relationship between age group and the household moves to distance location; here the older age people feel more vulnerable if their relative move to distance people. Similarly this study also found there is significant differences between low and high income group in in terms of length of commuting.

From the above discussion it appears that the traditional financial risk of being in unaffordable housing situation is identified in the resource and regional cities in central Queensland, which is similar to any metropolitan region's risk towards housing unaffordability. However, social risks such as loss of social cohesion, family disintegration, and loss of social and family identities are the most important risks perceived by the survey respondents.

Table 6.16: Perceived Household Risks to Housing Unaffordability - Score Analysis

Types of risks	Rockhampton		Gladstone		Overall	
	Consensus	Agreement	Consensus	Agreement	Consensus	Agreement
Households move to remoter/distance locations to find cheaper housing,	42.44	65.51	52.77	69.64	47.50	67.57
Increase in length of commuting (such travel to work/school/shop)	50.07	71.30	58.71	76.69	54.08	73.99
Extra pressures on household budgets (such as spending more on fuel or transport)	62.47	77.86	58.82	70.86	60.03	74.36
Increases in homelessness and overcrowding.	55.62	64.59	64.31	70.53	59.56	67.56
<i>High mobility rate resulting in inability to integrate into community</i>	65.38	55.93	59.66	64.16	61.14	60.05
Affect on children's schooling	59.35	75.47	67.34	75.84	63.34	75.66
Reductions in disposable income (i.e., income after taxes)	68.24	75.31	60.92	71.52	64.06	73.41
Strain family relations	65.29	87.06	61.17	81.13	62.62	84.10
Affect health outcomes	69.74	82.75	64.72	82.69	67.22	82.72
Loss of home for those with high levels of debt	49.89	58.3	50.32	66.34	49.10	62.32
Average =	58.85	71.41	59.87	72.94	58.87	72.17

Note: Bold numeric score refers to higher level of consensus or agreement than that of average level.

Table 6.17: Thematic content analysis: Risks faced by the residents

Type of risks	Rockhampton	Gladstone
Economic	26.9%	32.0%
Social	42.3%	48.0%
Physical/environmental	26.9%	12.0%
Psychological	3.8%	8.0%
Total =	100.0%	100.0%

6. CONCLUSIONS

Housing affordability and households' perceived risks associated with housing affordability in the two case study cities of Rockhampton and Gladstone in central Queensland region have been examined. The study found that the lower income residents could not afford the current monthly rental or mortgage payment. In addition, some middle income residents were experiencing difficulties in paying higher rent or mortgage that they could barely afford. Therefore, this might reasonably establish the fact that about half of respondents in Rockhampton and Gladstone did not perceive themselves in an affordable situation when buying or renting a dwelling and, therefore, housing affordability is a key concern in this region.

Economic and social risks and stresses such as extra pressures on household budgets, reduction in disposable income, difficulty with children's schooling, strain in family relations and poor health condition are more relevant risks compared to the risks such as the

requirement to move to distance places, inaccessibility to transport. However, caution is required in using the findings from the qualitative open-ended questions as only about 40% of respondents answered these questions and most were seniors identifying the financial and social problems or risks that they were currently facing.

Though this study has some limitations, such as respondent participation rate and a skew towards females and seniors, the findings can be generalised to similar cities in the resources regions in Australia. Policy makers should take attention to address the risks associated with housing affordability and preparing better housing affordability in the resources cities and towns.

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The Triumph of the Market or the Doom of History? What is the Future for Regional Towns?

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ABSTRACT

Functionally, regional towns cannot be the city states of history. By necessity, whilst regional towns exist as a centre for the catchment area that sustains it, they are nonetheless subject to and rely upon the patronage of the 'centre' that the town 'relates' to. In return for this patronage regional towns are bound by the laws made at the centre. These laws have the capacity to both help and hinder the economic development of a regional town. Viewed through the prism of power, regional towns are necessarily in an inferior relationship to the centre upon which they depend. The life force of the town can be drained by both deliberate and inadvertent decisions made at the centre. This suggests that for regional towns to prosper they must develop an effective relationship with the centre. The corollary is that a dysfunctional relationship will lead to a town being blighted. An aspect of dysfunctionality is the potential impact of planning laws made at the centre which inhibit the flow of capital into a regional town. Is it time to question the effectiveness of the bureaucratic planning model? Regional towns need a people, a place and an economy. Without all three the town will not survive. The task of Planning Laws should be to promote participation in the economy of the town. Participation does not mean facilitating noisy public meetings to denounce development. Participation means having some skin in the game. Without participation of that sort there can be no progress for the town. Instead, senescence, decay and history will be their doom. To succeed in this challenging environment regional towns may need a different type of support from the centre. Maybe regional towns don't need planning laws at all? Now that is the sort of radical idea that could lead to a revolution.

INTRODUCTION

What is the future for Regional Towns? Or perhaps more correctly, do regional towns have a future? Having spent my adult life living in regional NSW I continue to hope that regional towns will be allowed to thrive and prosper. What troubles me in harbouring this expectation and a hope that it may become a reality is an emerging sense of disconnection between the planning decision-makers and the people that live in Regional towns. Since 2007 central planners in NSW have been busy rolling out Standard Template LEP solutions in the firm

¹ **Disclaimer:** The views expressed in this paper are the author's. The contents of this paper do not represent or reflect the views of the NSW Government.

belief that this singular approach will encourage rational development.² Into this mix flows the May 2016 announcement that in NSW fourteen new regional councils have been formed. All of these new councils will have multiple regional towns within the new council area.³ But will the creation of new councils *per se* be the panacea to the malaise that afflicts many regional towns? Or is it time to consider additional and even radical solutions? It is argued here that regional towns may need to create a different type of ‘participatory planning’ dynamic namely one that encourages people not to simply have their say but rather, to have ‘skin in the game.’⁴ If the LEP is meant to be the primary vehicle that drives built form outcomes in a regional town then unless it can be shown to be a planning mechanism that is in fact ‘working’ then perhaps it is time to start to really think outside the square?

In his recent book *Cities are Good for You* Leo Hollis suggests that a city is not a ‘rational, ordered place.’ Rather, a city is a ‘complex space that has more in common with natural organisms such as a beehive or ant colonies.’⁵ This is not an uncommon thesis.⁶ What struck me was the following comment:

If planners and architects were to pay more attention to the unusual ways that complexity works, and to think more about the life of the street rather than only seeing the empty spaces between buildings, our cities could be very different, perhaps even happier, places.⁷

And that led me to ponder what would happen if regional towns were freed of the shackles of planning law?⁸ Into a disordered organic place suffering from senescence would be unleashed an equally disordered and potentially chaotic dynamic being the self-interested market force.⁹

² The Standard Instrument approach to the making of LEPs is mandated by the current s117 Direction issued in 2007 by the Department of Planning accessed at: <http://www.planning.nsw.gov.au/~media/Files/DPE/Circulars/planning-circular-new-section-117-directions-2007-07-17.ashx>.

³ On 12 May 2016 the NSW Government announced the creation of 19 new councils with in principle support for 9 other new councils. Of these new councils 14 were regional councils with the prospect of up to 4 additional new regional councils. See Stronger Councils Stronger Communities website accessed at: <https://www.strongercouncils.nsw.gov.au/>.

⁴ Here used in the sense of having something at stake. The etymological roots of this phrase are opaque. The venerable Quoteland.com identifies an early reference to this phrase in ‘Town Talk,’ *The Oakland Tribune*, April 20 1912 but notes that this cannot be the source of the phrase. It also notes the relationship of the phrase to the verb ‘to skin’ and the connection as far back as 1812 to swindling and cheating someone see <http://fourm.quoteland.com/eve/forums/a/tpc/f/99191541/m/7811039581> at 12 Sep. 2010.

⁵ Leo Hollis, *Cities are Good for You*, Bloomsbury (2013), 6.

⁶ See for example William C Baer, ‘Planning for growth and growth controls in early modern northern Europe: Part 2: the evolution of London’s practice 1580 to 1680’ (2007) 78(3) *Town Planning Review*, 258-9. Baer recognises that ‘current growth control disputes’... ‘re-enact and rehearse’ arguments ‘first uttered 400 years ago.’

⁷ Hollis above n5, 63: what really intrigued me was the comment: ‘Almost by accident, planners formed their own priesthood, wrapped up in ritual and arcane liturgy; every type of neighbourhood was anatomised and catalogued from ‘inner-ring suburbs’ to ‘central business districts’, ‘exurbs’, ‘sun-belt cities’, creating zones that were regulated into stasis, horrified by the seeming anarchy of an evolving, vibrant environment. The planners stopped talking to the people whose lives they were attempting to improve; they knew better; they spoke in an idiom that no longer connected; **and as a result their expertise was no longer challenged.**’ (emphasis added)

⁸ See the analysis of Newcastle’s CBD by Marcus Westbury, *Creating Cities*, Niche Press (2015). As Westbury notes (p 36): ‘Finally, there were the burdens of regulation and the costs of actually doing anything. Newcastle’s buildings were often old, often in a state of disrepair, and many had been empty long enough that they had missed several waves of changing safety standards and building codes.’ This is an accurate statement of most small regional towns.

⁹ I know, this is not an original thought.

In terms of built form outcomes, could the result be any worse than the reality experienced by some regional towns now? If the State is not prepared to ‘own’ the town (think Canberra) then let those with the capital and energy to invest in the town take the risk.¹⁰

REGIONAL TOWNS

Historically, towns draw on the ancient tribal tradition of humans gathering together to live in community for reasons of security.¹¹ From ancient times it has been the opportunity for trade with other places that has driven the development of towns. Towns were the centre for the market. Wealth generated from trade was reinvested into the town. Towns that generated sufficient wealth to construct infrastructure such as ports and roads became important centres in their own right. Long before there were nation-states there were city-states which thrived on trade. These centres none the less still relied upon smaller towns to supply them. From this analysis we can theorise that regional towns need a people, a place and an economy. Without all three the town will not survive. For this reason regional towns constantly face an existential threat just to continue to exist in our post-modern, globalized civilization.¹² The doom of history confronts each town as its population waxes and wanes over the passage of time.

Functionally, regional towns operate as a centre for the locale. Without such a relationship the town will become senescent, its vital population will exit and eventually the town will cease to exist. But regional towns also exist in relationship to the political centre(s) that drives the economy of the state and the nation. These centres usually have the governance node, transport nodes and the head office of businesses that the region trades with.¹³ The economy of the regional town is thus dependent upon support from this centre. Whilst ever a relationship with the centre can be sustained a regional town will be able to thrive but only if it can maintain a population that wants to live in the town and provided it can maintain an economy to generate the necessary employment to give its people the means to survive and prosper. To thrive in this milieu regional towns must defy Geoffrey West’s unified theory of urban living.¹⁴ It is a challenge that matters daily to the thirty percent of the population of

¹⁰ As William M Rohe and Lauren B Gates, *Planning with Neighbourhoods* (1985), 55 note: ‘Roszak (1973) suggests that a reliance on expert knowledge leads to a disintegration of the urban community because it robs citizens of an important reason to come together and work to solve problems in the cooperative spirit that forms community solidarity.’ Moreover, traditional public planning which relies on experts cannot incorporate the values and spirit of the community.’

¹¹ Hugh Mackay, *Advance Australia ... Where?*, (2007), 286. As a social demographer Hugh Mackay explains: ‘we are social creatures who thrive on the sense of belonging to a community.’

¹² According to *id the population experts* our capital cities accounted for approximately 77% of our population growth over the past five years. Less than one in five people now live outside the top fifty centres with 47% of Australia’s population living in Sydney and Melbourne – see: ‘Top 50 largest cities and towns in Australia in 2016’ accessed at <http://blog.id.com.au/2016/population/australian-population/latest-population-figures-top-50-largest-cities-and-towns-in-australia/>

¹³ Hollis, above n5, 62. Hollis suggests that after the fall of the Roman Empire towns assumed a vital place as centres for learning. They were the incubus for the renaissance and the enlightenment. Saint Isidore of Seville, writing in the seventh century, said of a city: ‘A City (civitas) is a multitude of people united by a bond of community, named for its ‘citizens’ (civis), that is, from the residents of the city. Now ‘Urbs’ is the name of the actual buildings, while civitas is not the stones, but the inhabitants.

¹⁴ Geoffrey West, President of Santa Fe Institute renowned for its work on Complexity Theory. Cities follow a ‘superlinear’ power law. When a city doubles its size it increases its efficiency and energy use. It also increases its per capita income and becomes a more creative ‘connected’ place. West was

NSW that chooses to live outside the limits of the mega-city in NSW.¹⁵ Sometimes the centre may shift to another place but that does not necessarily spell the end of the town, especially if the town can diversify and develop multiple relationships. But it is within this flux of elements that a regional town functions from one decade to the next, its people constantly revisiting these fundamentals and adapting to change.

For change is the other constant. It is the remorseless tyranny that has fashioned the world as we know it today. As Andrew Riemer has noted: 'A society is something fluid, constantly changing, being redefined perhaps almost as soon as it has defined itself.'¹⁶ The answer to the question what is the future for regional towns in NSW is to be found in the mechanisms that the people in regional towns employ to adapt to change. The future of regional towns is therefore firmly within the grasp of the hands of its inhabitants. How they respond to change informs the outcome and the future of the town. Thus, whilst the focus of this paper is centred in the urban planning stream the challenge it sets for participants resonates just as loudly in the realms of social policy. Seen in that light this paper is firmly in the realm of the politics of urban space. We should not be afraid to enter this space.¹⁷

COLONIAL HISTORY & PLANNING LAWS

In the context of the future of development within a regional town it is to be firmly kept in mind that regional towns are geographic and cartographic places. Atkinson reminds us that the 'conquest of Australia involved both cartographic and legal innovation.'¹⁸ Hence, the very existence of regional towns, especially in NSW, is directly related to the colonisation of Australia by the British in the nineteenth century. With the British came British law and British perceptions of social relations.¹⁹ The English free settlers who came to New South Wales brought with them what Edwards describes as a 'Traditional Identity Schema.'²⁰ It explains the early popularity of Edward Gibbon Wakefield's ideas.²¹ But from the outset these settlers would be challenged by the reality that confronted them.

named as one of Time Magazines '100 Most Influential People in the World.' See Lehrer, J, 'A Physicist Solves the City', *New York Times*, 17 December 2010.

¹⁵ According to the Australian Bureau of Statistics as at June 2011 just under two thirds of the working age population lived in Greater Sydney. Between census this population increased by 12% whereas in contrast the working age population outside Greater Sydney increased by only 6%. See: <http://www.abs.gov.au/ausstats/abs@.nsf/Products/3235.0~2011~Main+Features~New+South+Wales>

¹⁶ Andre Riemer, *Where to Now? Australia's Identity in the Nineties*, (1993) (cited in Mackay, above n11, 137)

¹⁷ John Hirst, *Looking for Australia* (2010), 256: 'Politics is simply there. We appear sometimes to believe that we have politics only because a few egomaniacs want to be politicians. To be suspicious of politicians may be no bad thing. To be suspicious of politics is unhealthy for a free people.'

¹⁸ Alan Atkinson, 'Conquest' in Deryck Schreuder (ed), *Australia's Empire* (2008), 51.

¹⁹ D M Schreuder and S Ward, 'What Became of Australia's Empire,' in Deryck Schreuder (ed), *Australia's Empire* (2008), 11: 'To make sense of that complex story, it is crucial to comprehend that core historical dynamic of the British imperial system. Without that elemental lodestone of Empire, Australian history becomes an unsecured narrative, robbed of the power of its deepest forces and atavisms.'

²⁰ L. M. Edwards, 'Ideational social capital and the civic culture: Extricating Putnam's legacy from the social capital debates' (2009) 23 *Social Epistemology* 125, 139. In a Traditional Identity Schema 'social cohesion centres on maintaining the categories [of social relationship] and their norms of behaviour.'

²¹ John Hirst, 'Empire, State, Nation' in Deryck Schreuder and Stuart Ward (eds), *Australia's Empire* (2009), 165-6: 'The plan proposed in 1829 by Edward Gibbon Wakefield (and its variants) created a device which effectively employed a tax on land (by way of land sales) to subsidize and control labour

In his book *The Shield of Achilles* Phillip Bobbitt explains the relationship between Law Strategy and History. For Bobbitt, law and strategy are not made ‘in history’, they are made ‘of history.’²² In New South Wales a new history, a new *gemeinschaft*,²³ would have to be created by its people.²⁴ With typical British industry that is what the early colonials set about to do. In the van was the military, in particular, the surveyors. But they were closely followed by (and indeed at times preceded by) free settlers.²⁵ The Mabo decision has refined our understanding of radical title.²⁶ But regardless of whether or not the land of New South Wales was ‘owned’ by the crown upon colonization,²⁷ as a matter of pragmatic reality it was the governor that had the power to alienate land. To facilitate that alienation it was important that the land of the new colony be mapped for the purpose of fractionalising the land. Mapping facilitated the land of the colony being reduced into possession so that thereafter it could be alienated, by grant or sale. Town planning in its original form.²⁸

Having secured access to land the next problem confronting the settlers, seen through the lens of their settled perceptions, was virgin territory. The ordered agricultural society, culture and patterns of settlement with which they were familiar did not exist. There were no settled parishes, boroughs, pastures, towns, roads or infrastructure. There were none of the legal

migration (by generously assisted passages). This solution yielded a general social return which attracted capital and enterprise. ... The Wakefieldian specifications ensured an ideal balance between the sexes, a particular occupational profile, and some monitoring of age, character, and origins.’

²² Phillip Bobbitt, *The Shield of Achilles, War, Peace and the Course of History* (2002), 6. Bobbitt argues that ‘without its own history, its self-understanding, no society can have either law or strategy, because it cannot be constituted as an independent entity.’

²³ Fran Tonkiss, *Space, the City and Social Theory* (2005), 12. Tonkiss suggests that *Gemeinschaft* refers ‘to a mode of interaction where social ties are based on mutual dependence, and where individual’s relations with others take place within and derive meaning from the larger group.’ This concept is to be contrasted to *Gesellschaft*, ‘a formal mode of interaction which tends to the impersonal, instrumental and voluntary.’

²⁴ John Hirst, above n17, 134. Hirst argues that Captain Arthur Phillip began the process by instituting a colonial police force staffed with convicts. As Hirst notes, Phillip ‘established the pattern of making convict status as unimportant as possible, which was the key to the easy escape Australia had from its convict origins.’

²⁵ Richard Waterhouse, ‘Settling the Land’ in Deryck Schreuder (ed), *Australia's Empire* (2008), 56: ‘Squatters became licensed agents of Empire’ ... ‘Despite the proclamation of the Limits of Location in 1826, 1829 and 1835 – which defined boundaries beyond which occupation was not permitted – [Macquarie’s] successors failed to contain a significant movement of pastoralists, their workers and stock.’

²⁶ *Mabo v Queensland* [No 2] (1991-2) 175 CLR 1, 48: ‘As the sovereign enjoys supreme legal authority in and over a territory, the sovereign has power to prescribe what parcels of land and what interests in those parcels should be enjoyed by others and what parcels of land should be kept as the sovereign’s beneficial demise.’

²⁷ *Ibid*, 43. In particular, see the discussion: *Crown title to colonies and Crown ownership of colonial land distinguished*. Brennan CJ disagreed with the earlier view expressed by Isaacs J in *Williams v Attorney General (NSW)* (1913) 16 CLR 404, that when Governor Phillip received his commission in 1786 the ‘whole of the lands of Australia were already in law the *property* of the King of England,’ as being ‘wholly unsupported.’ Brennan’s view was that the acquisition of territory is the province of international law whereas the acquisition of property is the province of the common law. Applying the feudal doctrine of tenure, Brennan CJ (at 48) attributed to the Crown the ‘radical title to all land in the territory over which the Crown acquired sovereignty,’ this enabled the crown to grant land in the exercise of its sovereign power.

²⁸ As Robert Freestone, *Urban Nation: Australia's Planning Heritage* (2010), 48 notes, the gridiron plan ‘dominated town design’ because ‘it was an efficient means of carving up land to attractive dimensions for rapid sale and resale.’

traditions familiar to them in this new land. None of the indicia of the civilization they had left behind existed. Whilst the grace and favour of the Governor may have meant the difference between owning land or not, financial success depended upon the ability of the colonials to obtain from the Government the infrastructure that facilitated the development of the Colony. It was readily understood that individual parcels of land have no utility unless they are related to other parcels, and also to infrastructure such as roads bridges and the like. It was also fundamental that there existed a legal frame of reference to secure the benefits of property ownership. Having the ear of the Government meant the difference between towns and mere isolated hamlets. Aggregations of separate parcels, linked to community infrastructure, creates places and communities. Without these indicia of civilization, the formation of community becomes problematic. It is in community, as Tocqueville observed of the Americans, that civic culture develops.²⁹

The Australian historian John Hirst suggests that '[p]olitics is necessarily about power, about inequality.'³⁰ Land ownership allowed the community to have a voice in the development of the town. Mannheim argued that democracy 'implies a theory of power' that is about the 'ways of distributing and controlling communal power.'³¹ Hollis, referring to the city of Florence, the first 'modern' city, says succinctly that 'the design of the city is political; it is more than a place of habitation or exchange.'³² Describing the origins of Bathurst, the oldest inland city, Taussig suggests that the British set about to 'establish not so much centres of trade or communications as military outposts, strongholds from which attacks by hostile natives, if any, could be successfully withstood.'³³ But in these places created by the Government the institutions which are the indicia of power were installed. Within the stockade would be found the military (or 'police') outpost representing the law and there also was the prison for it was essential that there be order. The establishment of the nexus between the regional town and the centre of power goes back to the origins of colonial settlement.

What was perhaps unique to New South Wales was the development of a 'ratepayer ideology.'³⁴ The ratepayer ideology emerged out of the overt resistance by the people to attempts by the government to create a local government structure in the colony.³⁵ This resistance would successfully delay the implementation of municipal government until 1906

²⁹ J. Keane, *The Life and Death of Democracy* (2009), 306-311. As Keane explains:

'[Tocqueville] noted that these civil associations were small-scale affairs, and yet, within their confines, individual citizens regularly "socialise" themselves by raising their concerns beyond their selfish, tetchy, narrowly private goals. Through their participation in civil associations, they come to feel that they are *citizens*. They draw the conclusion that in order to obtain others' support, they must lend them their cooperation, as equals.'

³⁰ John Hirst, 'The distinctiveness of Australian democracy' (2002) 46(12) *Quadrant* 19, 23.

³¹ K Mannheim, *Freedom, Power and Democratic Planning* (1951), 45.

³² Hollis, above n5, 62.

³³ J C Taussig, 'How Bathurst Began,' in B Greaves (ed) *The Story of Bathurst*, 3rd ed (1976), 1.

³⁴ John Halligan and Chris Paris, 'The Politics of Local Government' in John Halligan and Chris Paris (eds), *Australian Urban Politics* (1984) 58, 61; '[t]his ideology derived from the legacy of property franchises and the centrality of property to municipal affairs. ... The effect of this ideology was to limit the number of people who could formally participate and also the content of local politics.'

³⁵ Andrew Kelly, *The role of local government in the conservation of biodiversity* (Ph. D. Thesis, University of Wollongong, 2004), 73. Kelly, citing the ratepayer ideology, suggests that municipalisation would have meant having to contribute to the cost of infrastructure provision. As Kelly notes: 'Many landholders who amassed wealth through profitable land uses and/or escalating property values owed much of their success to facilities provided by government, such as roads and bridges, without having contributed to their costs. As a result they were unwilling to embrace municipalisation.'

when the state government finally mandated the creation of municipal governments throughout NSW.³⁶ The people willingly accepted parcels of land granted by the crown, squatted on other crown land and bought land from others when it became available because of the economic opportunity it provided. As towns grew and as urbanisation became part of the fabric of society, the need for essential infrastructure grew. But this new landed class resisted paying for this infrastructure as they saw this as the responsibility of government in the new colony.³⁷ Landowners consequently benefited from ‘soaring property values due to government-funded roads and bridges’ that connected the emerging economy to established ports and trade routes.³⁸ Kelly and Mant suggest that the landed class resisted municipalisation because of the ‘grim spectre of property taxation.’³⁹ The landless people did not have to be enlisted to the resistance because of disenfranchisement by operation of law.⁴⁰

Planning law is equally about power, it is about the power of the state to regulate what occurs within the state, including what occurs in a regional town. Planning laws do not draw upon a participatory democratic tradition.⁴¹ Planning laws draw upon the historical precedent of the United Kingdom Parliament, through private bills, using the power of the law to secure and maintain control over the development of land for private purposes. The ‘topical’ nature of development and the fact that it occurs on a specific parcel of land makes planning laws vitally relevant to the people of regional towns both at a policy-making and decision-making level.⁴² Different and multiple ‘public interests’ exist at one and the same time in relation to each proposal to develop land in a town. It is out of this activity that the space which social geographers call the ‘place’ is created.⁴³ What is vital for the future of regional towns is that

³⁶ See Andrew Kelly and Natalie P Stoianoff, 'Local Government Rates in New South Wales, Australia: An Environmental Tax' in A Cavaliere et al (eds), *Critical Issues in Environmental Taxation* (2006) vol III, 111. Kelly and Stoianoff note that the 1906 act was based on the ‘Georgist Principle’ referring to American Henry George ‘who influenced the financial architecture’ of the Act based on an ‘incentive to develop’ philosophy.

³⁷ Hirst, above n21, 148. The ‘wide electorate made it easier for more people to make demands on the government – for roads, bridges, railways and local services.’ In Hirst, above n 17, 239, Hirst also makes the point that ‘[i]t was because [the colonists] were so certain that their British rights were protected that the Australians expanded the activities of the state so unconcernedly.’

³⁸ Kelly and Stoianoff, above n36, 541.

³⁹ Andrew Kelly and John Mant, 'Towards more effective structures at the local level' in Robert Freestone (ed), *Spirited Cities* (1993) , 239

⁴⁰ The NSW Constitution Act of 1848 contemplated the creation of District Councils with a land based franchise commensurate with the imposition of direct taxation based on land holdings. Governor Gipps proclaimed some twenty eight District Councils but as Kelly, above n35, 78, notes: ‘Widespread financial paralysis due to legislative problems and community antipathy guaranteed the inevitable demise of district councils.’

⁴¹ A J Scott, *The Urban Land Nexus and the State*, Routledge Library Ed (2007), 374. Scott would suggest that planning law is simply a necessary ‘ephemeral administrative media’ to the urban land nexus and that ‘in the world of actual urban planning, neither the inputs (particular problems) nor the outputs (political decisions) to and from the planning system are essentially dependent upon the specific administrative arrangements of that system.’

⁴² *The Macquarie Dictionary* (1981): ‘Topical: 3: of a place, local.’ In this paper topical is used in the context of place and locality. The *Environment Planning & Assessment Act 1979* (NSW) (EP&A Act) regulates how the development selected by the applicant will proceed in the place chosen by the applicant.

⁴³ Paul Jenkins, 'Space, Place and Territory: An Analytical Framework' in Cliff Hague and Paul Jenkins (eds), *Place Identity, Participation and Planning* (2005) 19, 20. Jenkins suggests: ‘Place on the other hand is seen as being the predominantly socio-cultural perception and definition of space,

private investment continues to flow into them. We want and need to encourage new people to elect to leave the mega-city and to come and populate these regional localities.⁴⁴

In land use planning law the mechanisms that are meant to facilitate, and therefore not obstruct, development are today created by legislation. It is axiomatic that if the legislation that regulates development does not facilitate investment in a regional town then it is time to question whether the problem is in fact the legislation and the instruments it spawns.

In the landscape that is our colonial history many regional towns could be compared to remnant paddock trees. Magnificent specimens standing testament to something that has been lost. Just like those paddock trees, because regional towns are land based economic units once located in the landscape it is difficult to transplant the town without losing something in the mix. But the corollary is that like the lonely tree on the top of the cleared paddock, once isolated it can lose the capacity to withstand external forces. To avoid this doom it is the people of the town and its leadership that must be motivated. The town is doomed if its future rests in an expectation that 'the Government' will save it. Encouraging such a frame of reference is dangerous.

PLANNING IDEOLOGIES

Patrick McAuslan's seminal work *The Ideologies of Planning Law* highlights the choices available to a government when framing land use planning systems.⁴⁵ Up until the advent of planning law in the twentieth century the ideology of private property governed the development of regional towns. Places like Bendigo and Ballarat are examples of what can be achieved when a people believe utterly in their place.⁴⁶ In Australia, since the middle of the twentieth century, McAuslan's ideology of the public interest has prevailed in terms of the governance of the built space. Law made in the centre and administered by bureaucratic planners has framed the interaction between market forces and development.⁴⁷

It is true that since the 1980s there has been a reaction against the dominance of the ideology of public interest particularly by those professing a preference for market mechanisms generally sourced to the ideas of Friedrich Hayek and the Austrian school of economics. The Austrian school advocates a return to the ideology of private property as the dominant

and is an important element of social identity – whether individual or collective – and can be understood as social geography.⁷

⁴⁴ Erhard Berner, 'The metropolitan dilemma: global society, localities and the struggle for urban land in Manila' in Ayşe Öncü and Petra Weyland (eds), *Space, Culture and Power: New identities in globalizing cities* (1997), 103. Berner argues that a locality 'is the focus of everyday life; it is not merely the place where people reside but where they spend much of their life, their *Lebenswelt* (life-world).'⁷

⁴⁵P McAuslan, *The Ideologies of Planning Law*, Urban and Regional Planning Series (1980). McAuslan identified the three grundnorm ideologies of land use planning namely: the ideology of Private Property; of the Public Interest and of Public Participation.

⁴⁶ The Traveller's Guide to the Goldfields, (2006), 44: 'All the Goldfields towns were significant and interestingly different in layout and building style. The dramas, successes, uncertainties and upheavals of mining were reflected in the built environments. The contrast between Ballarat and Bendigo can be used to make the point.'

⁴⁷ Planning laws were first introduced in NSW via the enactment of the *Local Government (Town and Country Planning) Amendment Act* (NSW) 1945 which introduced Part XIIA into the Local Government Act 1919. Writing in 1946 on the achievements of the McKell government, the ALP suggested that the reason for the legislation was to arrest 'the haphazard and unregulated growth of New South Wales during the past 153 years.' Cited in Australian Labour Party, *Five critical years: story of the McKell Labour government in New South Wales, May 1941-May 1946* (1946), 48.

mechanism for determining land use planning decisions. Competing within this ideological space have been the advocates of a ‘third way.’⁴⁸ They espouse ideas associated with Jurgen Habermas and Charles Lindblom. In this conceptualisation, land use planning is about the space called the ‘neighbourhood’ but viewed as part of a wider region territorially defined by rules of governance. Adopting a place based theory of planning, Hague and Jenkins argue that urban planning is ‘a set of institutions, ideas and practices that sits within a social context and is embedded in power relations.’⁴⁹ The ideology of public participation as framed by McAuslan sits within this ideological stream in that it stands for greater participatory mechanisms as an alternative to private property (price) mechanisms.

John Keane’s theory of monitory democracy has recently located the historical development of public participation in democratic governance.⁵⁰ There is a direct correlation between the use of law as an instrument of power and the struggle of the people to participate; to wrest power from the governing elite. In democratic societies, citizenship denotes the right of a person to participate in social institutions and to exercise deliberative rights. In her seminal paper Arnstein suggested that participation ‘is the cornerstone of democracy.’⁵¹ It is here argued that in the context of regional towns the evidence suggests that seventy years of bureaucratic planning laws in NSW demonstrates that the favoured tool of central government regulation may not be the most effective mechanism to encourage capital inflows. If that is so, is it time to loosen the strictures that inhibit investment in regional spaces?

The government does not have the funds nor the inclination to prop up regional towns. The declining population of many regional towns suggests that the citizenry is silently withdrawing to places where they perceive they (and their capital) may have a future. We need to do something different to avoid blight and disinvestment in regional towns.

ZONING FOR BLIGHT OR DEVELOPMENT?

Regional towns forever exist outside the critical mass point where densities of scale familiar to the mega-city become possible. Urban density is a feature of scarcity. Land is not as scarce in regional towns as it is in major urban centres. Regional towns are creative places but they

⁴⁸ Harry Smith, 'Place Identity and Participation' in Cliff Hague and Paul Jenkins (eds), *Place Identity, Participation and Planning* (2005) 39, 49. As Smith notes:

‘The third way is different [to strong state welfarism and neo-liberal ideology]. Just as customers do have power in markets and producers seek to manipulate their preferences, so in the public arena participants also have power that politicians seek to mould and capitalize upon. Participation can be a new channel for political action, bypassing clogged arteries of traditional representative democracy. Participation can reconnect politicians and the public.’

⁴⁹ Cliff Hague and Paul Jenkins (eds), *Place Identity, Participation and Planning* (2005), 8.

⁵⁰ J. Keane, above n29, xxvii. ‘[T]he emerging historical form of “monitory” democracy is a “post-Westminster” form of democracy in which power-monitoring and power controlling devices have begun to extend sideways and downwards through the whole political order.’ Monitory democracy is differentiated from other forms of democracy (at 737) in that ‘assembly based democracy belonged to an era dominated by the spoken word, backed up by laws written on papyrus and stone, and by messages despatched by foot, or by donkey and horse. Representative democracy sprang up in the era of print culture – the book, pamphlet and newspaper, and telegraphed and mailed messages – and fell into crisis during the advent of early mass communication media, especially radio and cinema and (in its infancy) television. By contrast, monitory democracy is tied closely to the growth of multi-media-saturated societies – societies whose structures of power are continuously “bitten” by monitory institutions operating within a galaxy of media defined by the ethos of communicative abundance.’

⁵¹ Sherry R. Arnstein, 'A Ladder of Citizen Participation' (1969) 35(4) *Journal of the American Institute of Planners* 216, 216.

do not have the opportunities that exist in the centre that they relate to. If we consider the nature of regional growth in the nineteenth century and contrast it to the nature of regional growth in the twentieth century perhaps there are lessons to be learned for regional towns in the twenty first century?

Consider the regional towns of Ballarat and Bendigo. Yes, the impetus that ignited the towns was a gold boom.⁵² But the focus I want to bring to the discussion is how private capital was expended in the hope that these towns were going places. Long before there were planning laws these towns sprang from nothing more than the prospect of gold. But once formed, these towns continued to grow in the late nineteenth century impelled by the profits that the metal secured. That growth fostered an economy. I suspect that the towns grew principally because the inhabitants had an optimism which fed upon itself. The people built their city and its economy in the hope that they had found the next happening place. The experience is described in *The Traveller's guide to the Goldfields*:

The quality of the achievements by a single generation is probably unequalled in world history. All goldfields communities were remarkably free to make their own way, unaffected by the policies of overseas investors. They dug their own capital and reinvested in their own future, resulting in distinctive buildings, still visible.⁵³

In our post-modern times regional towns cannot, as a matter of strategy, aspire to be like the city states of history. The luck of gold will not be their fortune. By necessity, regional towns are now subject to and rely upon the patronage of the 'centre' that the town 'relates' to. In return for this patronage regional towns are bound by the laws made at the political centre. These laws have the capacity to both help and hinder the economic development of a regional town. For this reason regional towns are necessarily in an inferior power relationship to the political centre upon which they depend. The life force of the town can be drained by both deliberate and inadvertent decisions made at the centre. This suggests that for regional towns to prosper they must develop an effective relationship with the law making centre. The corollary is that a dysfunctional relationship will lead to a town being blighted.

An aspect of dysfunctionality is the potential impact of planning laws made at the centre which inhibit the flow of capital into a regional town.⁵⁴ Land use planning is land centric. When democratic governments formulate land use planning policy and enact law to give effect to that policy, the implementation of the policy intersects with fundamental property rights enjoyed by people who own land. Planning policy and law is therefore best understood in the socio-political dimension.⁵⁵ At a practical level, what needs to be recognised by bureaucratic planners is that they are not actually architects commissioned to build the built

⁵² Geoffrey Blainey, 'After the Gold Rush,' Inquirer, *The Australian*, 27 Aug 2016. Blaney notes that: 'In the first 40 years after the initial discoveries, gold's impact on Australia was formidable. Most historians - persuaded by the calculations of Noel G. Butlin - now believe that, for about four decades, the Australian people enjoyed the highest - or close to the highest - standard of living in the world.'

⁵³ *The Traveller's Guide to the Goldfields*, above n46, 43.

⁵⁴ As Westbury, above n8, 71 notes of Newcastle: 'Amid the daily debates about developments and daydreams, amid front-page stories and artist illustrations, between the conceptual drawings and the master plans, in Newcastle in 2008 no one really seemed to notice that real estate agents weren't returning calls.'

⁵⁵ Clive Forster, *Australian Cities: Community and Change* (1995), 71, notes:

'Australia's major cities are, above all, residential environments. Most of their built-up areas consist of houses, streets and local facilities that constitute "home" for 10 million people. The kind of housing people live in, whether it meets their needs and what they have to pay for it largely determines their standard of living.'

form envisioned by their plans. Achieving that bureaucratic vision will require different thinking.

Urban planning, in its physical manifestation, has deep historical roots.⁵⁶ In contrast, the profession known as ‘Planning’ has very shallow historical roots.⁵⁷ Land use planning, as an institution, was first promoted by the Garden Cities Association formed in Britain in 1899.⁵⁸ However, the profession of land use planning was created out of the social chaos caused by the Great Depression and the Second World War.⁵⁹ These great social moments signalled the end of laissez faire economics and the reliance by governments on the self-regulating market.⁶⁰ Bates describes the advent of planning laws as a ‘great social revolution.’⁶¹ As a matter of history, planning laws were spawned out of the earlier social revolution known as the industrial revolution. This revolution sources its genesis to a social revolution in England when the people rose up to take sovereign power over their governance after a long history of struggle. It was a struggle against tyranny resulting in what we now describe as the Westminster System of representative parliamentary government.

Planning laws are located at the intersection of property law and public interest. The subjugation of the individual’s untrammelled right to develop his property was a concomitant outcome of the necessity to create a civil society. A J Scott, writing in the 1980s, suggests that urban planning is society’s way of ‘dealing with the historical imperative of controlling the crisis-ridden land-contingent logic that constitutes the urbanization process in capitalism.’⁶²

Why is that important in a regional context? It is important because the dynamic of development operating in a regional town is different to the dynamic that may apply in the mega-city. The task of Planning Laws should be to promote participation in the economy of the regional town. But what works in the city may not work in regional towns. Viewed in this context participation does not mean facilitating noisy public meetings to denounce development. Participation means the people of the town electing to have some skin in the game by actively participating in the creation of built form and active space through

⁵⁶ AJ Brown and HM Sherrard, *Town and Country Planning* (1959), 9. Brown and Sherrard recognise the debt we owe to archaeologists who ‘have brought to light evidence that in the dawn of history man had an appreciation of planning, of civic architecture and of engineering.’

⁵⁷ Andreas Faludi, *Planning Theory* (1973), 13. Faludi suggests that:

‘one of the component elements of the definition of a profession is that its skills are based on theory.’ ... ‘[planning] developed out of architecture, engineering and surveying, its area of concern being that of “system of land use settlement,” to use a modern term.’

⁵⁸ Andrew Kelly and Christopher Smith, ‘The Capriciousness of Australian Planning Law: Zoning Objectives in NSW as a Case Study’ (2008) 26(1) *Urban Policy and Research* 83, 84. Ebenezer Howard’s garden city movement and the association ‘provided a launch for planned separation of conflicting land uses, the centrepiece of Western land use planning.’

⁵⁹ Leonardo Benevolo, *The history of the city* (1980), 928: ‘Large-scale public intervention, in order to regulate to some extent the growth of England’s cities, only became possible in the 1930s when attempts were made to tackle the effects of the 1929 crisis, ...’

⁶⁰ B. Gleeson and N. Low, ‘Revaluing planning: Rolling back Neo-liberalism in Australia’ (2000) 53 *Progress in Planning* 83, 87, 90:

‘The world society which grew during the 19th century, based on the principle that the self-regulating market was a law of nature, had catastrophically failed by the 1930s. This failure was perceived to lie not in contingent political events such as the rise of Fascism, or even the war itself, but in the socially destructive power of the unfettered market.’ ... (at 90) ‘The idea of societal planning, hitherto associated with dictatorial regimes, had to be reconciled with democracy.’

⁶¹ Gerry Bates, *Environmental Law in Australia* (7th ed, 2010), 8: ‘The environmental movement [hardly four decades old] must therefore rank as one of the great social revolutions of history.’

⁶² A J Scott, above n41, 304.

investment. Without participation of that sort there can be no economic progress for the town. Instead, senescence and decay, in short, history will be its doom. So it is hypothesized here that to succeed in this challenging development environment regional towns may need a different type of support from the political centre. The question is, if such a change were necessary would those with the levers of power want to accommodate that need?

THE TYRANNY OF REGIONALISM

Conceptually, tyranny results when a government exercises power without consent.⁶³ It was Hobbes who postulated a civil society under the dominion of a forceful sovereign. As Uhr reformulated the concept, this civil society functioned through ‘the accommodation of competing self-interests, regulated into peace and security by the forceful sovereign’.⁶⁴ Locke softened the impact of Hobb’s position by postulating the concept of popular sovereignty in which ‘legitimate government rests on the consent and not simply fear of the governed’.⁶⁵ Within this beneficial framework wealth was generated by private property. Arguably, this concept continues to have application. In a perfect world there would be a ‘free and fair dialogue’ between the government and the ‘people in the streets.’⁶⁶ This is because Locke recognised that ownership and control over land was central to a person’s ability to derive wealth.⁶⁷ Stein argues that under Locke’s conceptualisation of civil society, its purpose was to protect property rights which rights ‘precede government and are inviolable’.⁶⁸ Yet, in the history of the development of land use planning law these property rights have been interfered with regularly by a forceful sovereign, exercising coercive legislative power for the common good.⁶⁹ A recent illustration of this process can be seen in the general adoption of template LEPs throughout NSW.

The implementation of government policy is felt directly in the neighbourhood.⁷⁰ When a social minority controls parliament, it makes the laws. Regional towns have suffered from remoteness due to the tyranny of distance from the centre. Citizens of regional towns know that whoever has the ear of government calls the tune. It has been so since colonial days. Unless the regional community voice is heard in the political centre a social minority called the political elite controls both the parliamentary processes and the destiny of the regional town. This form of control is potentially despotic if it is exercised to the exclusion of the

⁶³ John Locke, *Two Treatises of Government* (1821), 360. Locke suggested in his chapter XV111, *Of Tyranny*: ‘As usurpation is the exercise of power, which another hath a right to; so *tyranny is the exercise of power beyond right*, which nobody can have a right to.’ (emphasis in original)

⁶⁴ J. Uhr, *Deliberative democracy in Australia: the changing place of parliament* (1998), 44.

⁶⁵ *Ibid.*

⁶⁶ Hollis, above n8, in the chapter ‘Inside the beehive’ writes of two cites. One encapsulating the philosophy of Hobbes and the other of Locke. The paradigmic Hobbestown is Singapore. Newark, near New York, reflects the Lockean conception. Not pretty but pretty dynamic.

⁶⁷ Property rights are recognised by the UN Universal Declaration of Human Rights, Article 17 of which states: (1) Everyone has the right to own property alone as well as in association with others. (2) No one shall be arbitrarily deprived of his property.

⁶⁸ L. Stein, *Principles of Planning Law* (2008), 6.

⁶⁹ *Ibid.* Stein cites *Ambler v Village of Euclid* (1926) 272 U.S. 365 where the US Supreme Court determined that planning law was ‘a proper regulatory subject for the good of the community, whereby the state can modify rights associated with the free and unfettered use of one’s land.’

⁷⁰ Standing Committee on State Development, ‘Report 34: New South Wales Planning Framework’ (NSW Legislative Council 2009), 151. As the Standing Committee noted, decisions on whether or not to approve development ‘can have a profound effect on individuals and communities.’

voice of regional people.⁷¹ But participation is different to consultation.⁷² Without rights of participation, we are rendered mere subjects – in the sense of being under the dominion of a sovereign power.⁷³ There is therefore a tension between the concepts of participatory democracy (or public deliberation) and political representation.⁷⁴ And there is a tension between the role of central government and the rights of the individual.⁷⁵ Uhr suggests that the tension is about the means by which participation is made active.⁷⁶

JS Mill was undoubtedly correct when he said: ‘No man made the land. It is the original inheritance of the whole species.’⁷⁷ The difficulty that arises is that since time immemorial, man has made property laws. The inheritance has been fractionalised ever since.⁷⁸ The subdivision genie slipped out of the bottle quite some time ago.⁷⁹ Comprehensive legal

⁷¹ Mannheim, above n31, 45: ‘There is a great difference between functional and arbitrary power. Any society, however, may rightly be called despotic which permits ruling groups and individuals to wield more power than their functions require or allows them to use power arbitrarily.’

⁷² Participation was differentiated from consultation in the UK Dorby Report (1975), para 10.2 (cited in McAuslan, above n45, 16) ‘The process needs to be in effect ‘participation’ (which means taking an active part, from the outset, in the formation of ... decisions of strategic importance) rather than ‘consultation’ (which means giving the public an opportunity to express views on planning applications).’

⁷³ John Ralston Saul, *The Unconscious Civilization* (1997), 76: ‘The most powerful force possessed by the individual citizen is her own government. ... The individual has no other large organized mechanism that he can call his own. There are other mechanisms, but they reduce the citizen to the status of a subject. Government is the only organized mechanism that makes possible the level of shared disinterest known as the public good.’

⁷⁴ Sophie Body-Gendrot, *The Social Control of Cities? A comparative perspective* (2000), xix. Body-Gendrot suggests that: ‘At stake is a redrawing of what constitutes the legitimate responsibilities of individuals, collectivities, and the state.’

⁷⁵ Keane, above n29, 731-742, traces the development of ‘monitory democracy’ to the historical epoch of the immediate post war period starting with the development of the UN Declaration of Human Rights in 1948: ‘a new weapon to be used anywhere and everywhere against the presumption that the state had priority over the individual human being.’ Keane suggests that since that time: ‘the age of monitory democracy [has witnessed] constant public scrutiny and spats about power, to the point where it seems as if no organisation or leader within the fields of government or social life is immune from political trouble.’

⁷⁶ Uhr, above n 64, 11: ‘Advocates of liberal democracy have long been interested in exploring ways in which practices of active citizenship can be devised to keep alive the prospects of popular sovereignty in fact as well as in theory.’

⁷⁷ JS Mill, *Principles of Political Economy*, University of Toronto Press (1965), 230. Cited in David Farrier, *The Environmental Law Handbook* (2nd ed, 1993), 7. McAuslan, above, 45, ascribes the ‘philosophical ancestry’ of the public participation ideology to JS Mill.

⁷⁸ Compare s 88AB of the *Conveyancing Act 1919* (NSW). This is the section which deems carbon sequestration rights to be a *profit à prendre*. See also the discussion in Samantha Hepburn, ‘Carbon Rights as New Property: The Benefits of Statutory Verification’ (2009) 31 *Sydney Law Review* 239, 246. Hepburn reviews the legislative schemes for carbon rights in Australia and suggests that the schemes in Australia are in the forefront of recognition of carbon rights in the context of forestry legislation. The schemes variously seek to ‘formalise the separate proprietary existence of carbon rights.’ This is an example of a recent fractionalisation of property rights by the application of the subdivision principle. Carbon rights have become valuable, and so the market is looking for ways to commercialise the proprietary rights.

⁷⁹ At common law land in NSW was subdivided merely by deed (‘old system’ conveyancing). This gave rise to a need to register the deed to evidence the partition (in NSW see *Registration of Deeds Act 1897* (NSW)). Later, formal procedures for recognising title to land subdivided by registration of an

structures have been created to facilitate the fractionalisation of land to enable even space to be alienated by way of sale.⁸⁰ Webster and Lai describe this process as the application of the ‘subdivision rule’ to property rights.⁸¹

This discussion raises the interesting participatory question: who should have the power to control land use policy at the level of the regional town? This question is fundamental to the success or failure of regional towns.⁸² Should it be the government, the market or the people? If people who have no skin in the game can veto decisions made about property development then why is it surprising that people who have invested and who want to invest their capital in regional areas become disillusioned and frustrated.⁸³

In regional towns, with the exception perhaps of those who construct supermarkets and shopping centres, there is an implicit expectation that the people of the town are expected to invest their capital in land and businesses within the town. Yet when Government decisions divert development investment opportunities to the centre and cause the regional property market to become depressed is it a surprise that dissatisfaction will eventually feed into the political discourse? The people who own property in regional towns may well feel ‘tyrannised’ because the law made by parliament has usurped them of rights inherent to the ownership of property to develop it. Worse still, disinvestment results. Capital that may have been expended in the regional town does not eventuate.⁸⁴ Gleeson and Low view this conception of planning negatively seeing neo-liberal theories as ‘the subjugation of politics to economics.’⁸⁵ But the empty shops in the high streets of regional towns suggests that there is merit in allowing the market to assume the risk of misplaced investment.⁸⁶ This makes better

identifying plan were created by statute – see for example in NSW: *Real Property Act* 1862 and 1900 (NSW); *Local Government Act* 1906 and 1919 (NSW) and the *Conveyancing Act* 1919 (NSW).

⁸⁰ In NSW see *Strata Schemes (Freehold Development) Act* 1973.

⁸¹ Christopher Webster and Lawrence Wai-Chung Lai, *Property Rights, planning and markets: managing spontaneous cities* (2003), 11, 89: ‘Any particular configuration of property rights over a resource is a function of the value of the resource and of the costs of assigning effective property rights. ... If the value of a resource rises, or the cost of assigning property rights to a valued resource falls (due to technological or institutional innovation), then there will be a demand for a reassignment of property rights.’ (89) ‘In this way, urban land and buildings evolve by subdivision. As knowledge about a superior location spreads, the number of bids for land and buildings increases and prices rise. At some point it becomes profitable to demolish single homes and subdivide land rights into many smaller plots.’

⁸² Brown and Sherrard, above n 54, 196. Brown and Sherrard suggested, as early as the 1950s, that if we were to judge democratic systems by their results, then ‘the chaotic conditions in our towns is the result’ of too much ‘rugged individualism.’ They argued that ‘[i]n place of a discipline imposed from above by a despot or a bureaucrat, the individual must be prepared to discipline himself and to subscribe to behaviour which is for the common good rather than for his selfish ends.’

⁸³ As McAuslan, above n45, notes ‘the failure to adapt the law to meet these increased expectations [to participate] adds fuel to the flames of disillusionment and frustration with the planning system.’ Not only is it in the failure to adapt the law, it is also in the failure of politicians to articulate a vision so that the intent of the government can be discerned.

⁸⁴ As Neil Smith, *The New Urban Frontier: Gentrification and the revanchist city* (1996), 190 suggests, there is a dividing line between disinvestment and reinvestment:

‘Disinvestment involves the absolute or relative withdrawal of capital from the built environment. Reinvestment involves the return of capital to landscapes and structures that previously experienced disinvestment.’

⁸⁵ B. Gleeson and N. Low, above n 60, 97.

⁸⁶ As Westbury, above n8, 54 observes: ‘Local retailers have been out-scaled, swallowed up, bought out, merged into and marginalised by national and international chains. Many main streets –even as I understood them as a child – are gone or struggle to exist at all.’

sense if we are rejecting the vision ‘projected from the imagination of the grand wizard planner.’⁸⁷ All that the people in regional towns are seeking to do is to have the power to rebuild the town from the bottom up. It is in this context that reliance on zoning and the impact of planning law is relevant. Absent planning law the regional town would have, as Scott suggests, ‘a seamless garment of land uses forming a compact polarized agglomeration of spatially interdependent events.’⁸⁸

PARTICIPATION – THE HOLY GRAIL OF PLANNING

The favoured tool of planning is the concept of negative zoning. As a mechanism it is of only relatively recent origin being first introduced in New York in 1916. It is here posited that if the utility of legislating zoning, properly understood, is for the purpose of the end that it is a particular type of desired *and constructed* built form outcome in an urban setting, then if the evidence suggests that the desired end has not been achieved it probably means that the experiment has failed. What does that mean for the concept of participation in planning? Does it mean that urban planning cannot really be formulated along democratic lines?⁸⁹ This raises directly the issue of public participation. What ‘voting’ rights should the citizens living in the local government area have when it comes to the investment of capital in the regional town?⁹⁰

In the regional context it is not land that is in scarce supply. It is capital that is in scarce supply. Capital is only attracted to places where it perceives there is a reasonable opportunity of a return. The capital necessary to support the town will not be invested by Government as a matter of course though it will provide generous dollops from time to time. Similarly, councils do not have the financial resources to deliver the desired built form often represented in DCPs or urban Master Plans. So regardless of how careful we are in colouring the zoning map and producing award winning designs these planning measures simply do not facilitate the construction of urban spaces in regional towns. The brief historical excursus above supports the argument that the construction of built forms will occur in the absence of planning laws.⁹¹

If the theoretical intention of the legislative mechanism is to attract the market to build the desired built form then regional land use planning mechanisms will have to incorporate market incentives to attract the investment dollar to the desired place. Under the present system ‘the people,’ in reality meaning the grand wizard planners, want the built form to be constructed in a particular place on land that is not owned by ‘the people.’ Absent incentives the reality is that capital is drawn away from the regulated regional town to a place where capital perceives it will yield the best return on investment. It is here that planning laws operate as a disincentive to development. This occurs when the structure of planning laws,

⁸⁷ Hollis, above n5, 81.

⁸⁸ A J Scott, above n41, 7.

⁸⁹ The converse, argued by Elizabeth Farrelly, ‘Our cities reveal the ugly side of democracy’, *Sydney Morning Herald* (Sydney), 6-7 Oct 2007, 26, is that ‘public participation is as likely to militate against good architecture and beautiful cities as against bad or ugly ones; to enhance mediocrity at the expense of both extremes. The reasons for this go back to questions of art, control and authorship.’

⁹⁰ Rohe and Gates, above n10, 57-58 argue that: ‘[P]articipation in neighbourhood planning programs takes place within familiar local neighbourhoods, close to home and with familiar people. ... Thus, higher rates of participation are expected in neighbourhood planning programs. ... For planning to be effective it must develop a stronger political constituency among the public.’

⁹¹ Houston city has long ago rejected zoning. As Hollis notes above n5, 31, observes: ‘Houston, Texas, on the other hand, is so successful that it is expanding outwards in all directions; in the last decade over 1 million people have migrated there and have found a new home amongst the 2,000 square miles of sprawl that surround the city.’

taken as a totality, operate to inhibit development. Regional towns suffer that fate now. I am not aware of any work being done to measure what I describe as ‘silence.’ This is the antithesis of what is desired by the planning instruments. Silence is the result of the rigid application of current land use planning formulas designed along McAuslan’s ideology of the Public Interest. The result of silence is that the planning instruments remain in place but development occurs elsewhere. The price regional towns pay for accepting this land use planning regime is the unmeasured quantum of capital lost to a regional town because it is invested elsewhere.

The people who control the development of land create the ‘*umwelt*’ of the neighbourhood.⁹² Equality and access to power are essential to a functioning democracy.⁹³ It is at this junction of property rights and land use planning laws that the concept of public interest needs to be considered more closely. Who is to speak for regional towns?⁹⁴

THE ILLUSION OF PARTICIPATION

Every land use planning decision taken by government involves a conscious decision by government about the expected future built form of a locality. Decisions taken by government to impose planning instruments impact upon citizens because the plan is intended to shape the nature and character of future development that can occur in a locality. Planning laws therefore have both societal and local impacts. When a decision is made to adopt a policy to favour urban consolidation in Sydney a deliberate choice is made by government to intervene in the operation of the market.⁹⁵ Capital that may have been invested in a regional town is potentially diverted to the city - commonly called the ‘hot brick’ - because the likely return on investment or ROI is anticipated to be far greater than that which can be derived from investment in a land rich regional town. Thus, encouraging density in the mega-city distorts the property market both locally and regionally. Because regional towns are blessed with an abundance of land they will always struggle to densify. This is especially so in the CBD areas of regional towns where the template LEP usually only allows ‘shop top housing.’ By definition, this form of development excludes ground floor residential use.⁹⁶

⁹² B. Gleeson and N. Low, above n60, 151. Umwelt is the German concept for the environment which unites all semiotic processes of an organism into a whole – to function, all parts must work together co-operatively.

⁹³ Echoing Arnstein above n51, 216, the 2010 Environment Defender’s Office report ‘The State of Planning in NSW: With reference to social and environmental impacts and public participation’ (Environment Defender’s Office, 2010), 45, notes: ‘Public participation forms the cornerstone of the planning system. Planning is about people and communities and their environment, so it is essential that they have a genuine say in the future development of their areas. Further, the planning system is only workable if the community has confidence in it.’

⁹⁴ Nicholas Aroney, ‘Four reasons for an upper house : representative democracy, public deliberation, legislative outputs and executive accountability’ (2008) 29(2) *Adelaide Law Review* 205, 216. Aroney identifies the substantive theory of deliberative democracy ‘in which the virtues of participation and discussion are seen as essential to a healthy system of popular self-governance.’

⁹⁵ Robert Stokes, *The Battle for the Big Back Yard: An Examination of the Conflict Between Suburban Character and Urban Consolidation and the use of Public Participation in Managing this Conflict* (Ph.D. Thesis, Macquarie University, 2007), 1. Stokes thesis frames the contest as being ‘between the private property interest in safeguarding suburban character and the public interest in pursuing a policy of urban consolidation.’

⁹⁶ Standard Instrument Dictionary: ‘*shop top housing* means one or more dwellings located above ground floor retail premises or business premises.’

It is one thing for strip developments in Sydney located near transport nodes with zonings that permit such development to have vacant ground floor elements. At least some form of development will be constructed because the ROI stacks up. In regional towns the result is blight. If there is no ground floor tenant then there will be no incentive to build residential elements above vacant shops. The result is no development. The situation worsens when various localities within the same local government area are zoned in such a way that allows these places to compete with the intended function of the regional town.⁹⁷ Whilst such zoning theoretically creates a topical opportunity in each place, the fact of the zoning does not effectively dictate the investment decision made by those with capital. Planners are not architects with a commission to build the vision.

What can be said of such land use planning instruments is that through them the government is expressing the desire to achieve some built form outcome which it perceives the market cannot deliver without the planning instrument.⁹⁸ In this scenario, the decision-making process does not require the people to participate. The government, as the sovereign power in classic terms, makes the relevant decisions as the representative of the people. The decision is facilitated by reliance upon the advice of skilled experts in various fields. In this bureaucratic model the citizens do not have power (in the Arnstein sense) in the decision-making processes leading to the making of the planning instrument or the individual decision to approve development. The people may be consulted by the council and asked to comment, but this is tokenistic participation. In this reality, the people are, in the planning law context, mere subjects under law. It is a far cry from a participatory power sharing which is the intent of democratic institutions.⁹⁹ The function of public participation in this construct is as consumers of the product delivered as a result of the operation of the plan.

But what if the plan does not generate a built form outcome to consume? This is the situation that confronts even small developers wanting to enliven an existing space in a regional town with a new innovative vision. In regional towns the business proprietors know keenly the principle of interrelatedness. As Westbury notes, '[r]etail –or at least a lot of the infrastructure we've built for it – is interdependent.'¹⁰⁰ Lose a few shops and the CBD begins to look 'gappy.' That is the danger in regional towns. If the plan is not effective to incentivize the market to build the city then senescence and decay is the logical outcome. This is the decay caused by the development silence I refer to. The built form structures that are left in a state of disrepair or neglect are then made more difficult to 'renew' when modern regulation requires expensive up-grading. It is only the degraded brownfield sites that are renewed because they are purchased for land value and the existing structures, unless heritage

⁹⁷ Westbury, above n8, 89, describes this process in the city of Newcastle as a dysfunction that resembles 'a Rubik's cube, where no one piece could move independently. It was an accumulation of the unintended consequences of decisions made across three levels of government over dozens and probably hundreds of years.'

⁹⁸ A J Scott, above n41, 233, argues that: 'precisely because urban land development is privately controlled, the final aggregate outcomes of this process are necessarily and paradoxically out of control.' Hence the purpose of planning laws is to 'control' this process, vis (235): 'Concomitantly, collective action seeks to resolve the specific problems created by private decisionmaking and action, and to steer society as a whole into collectively rational options—consistent with existing social and property relations—that are not attainable by private action alone.'

⁹⁹ Keane, above n 29, 867. Keane says that a 'cheer' should be given to democracy 'for democratic power-sharing [which is] the best human weapon that has ever been invented against the folly and hubris that always comes with concentrations of unaccountable power.'

¹⁰⁰ Westbury above n8, 56-57. 'Modern retail is a precarious, complex and interdependent system.'

protected - which would not be unusual - can be demolished.¹⁰¹ Significant buildings, especially those that represent the heritage of the town, are left in glorious suspended animation waiting for ...? What?

It was the aggregation of separate parcels linked to community infrastructure that created these regional towns. They became places that people wanted to live in. They still do but often the missing ingredient is jobs. If regional towns are only about retail then the future is bleak as retail is experiencing its own existential reformation through the onslaught of disruptive technology like Amazon and a multitude of other on-line choices. The irony is that just when the sending of letters has died the boom in on-line trade has caused a renaissance in parcel delivery. Did the planning instruments predict this change and seek to accommodate it? No.

It is here speculated that without government interference to shape how land is to be developed the market will determine the ultimate built form of the regional town.¹⁰² Those with capital will have the power to buy land and have the incentive to develop it.¹⁰³ The motivation to do so will be the anticipation of a return on investment. If the gamble succeeds, the people will come.¹⁰⁴ The paradox is that absent people, the formation of community becomes problematic. To form community regional towns need people. To live in regional towns people need jobs and a future. The jobs are not in retail. The look of regional towns needs to adapt to this reality. To be sure, the ambience of the high street may be disrupted. But isn't that a better outcome than boarded up shops?

PREDICTING THE FUTURE FOR REGIONAL TOWNS

Under market theory, recognizing that cities are complex organisms, proponents of the theory suggest that it is best not to try to plan for future outcomes.¹⁰⁵ No conscious decision is made other than the individual decision of the transactors in the market to participate in the exchange of property rights. Through the dynamic of market exchanges the narrative of place is contested. Through the guidance of Adam Smith's invisible hand socially beneficial order will emerge out of the chaos.¹⁰⁶ The role of the government is passive. It is there to facilitate

¹⁰¹ In Nowra, NSW, where I reside, a 'Pressed metal clad industrial building' at 1 Berry Street (being a former garage now a marine repair shop) in the CBD is heritage listed in the schedule to the LEP making its redevelopment problematic.

¹⁰² A J Scott, above n41, 314, suggests that: 'As a consequence, urban planning begins to lose its Utopian and depoliticizing patina as that which 'seeks to promote human growth, and its true political nature begins to emerge with ever greater clarity.'

¹⁰³ As Mark Pennington, 'Hayekian Political Economy and the Limits of Deliberative Democracy' (2003) 51(4) *Political Studies* 722, 729, notes, the allure lies in the efficiency of the market: 'Under conditions of complexity, where millions of individual decisions must be coordinated with one another, it would be impossible for deliberative committees to comprehend the nature of the interrelationships between all relevant actors.' ... In markets, ... [t]he price system, albeit imperfectly, transmits knowledge in a compact form which represents the complex interrelated decisions of many dispersed actors.'

¹⁰⁴ Westbury, above n8, 157, is right. As he notes: 'we need to start building places and environments that initiative is attracted to. We rarely talk about initiative; we don't really have the language for it.'

¹⁰⁵ Stefano Moroni, 'Rethinking the theory and practice of land-use regulation: Towards nomocracy' 9(2) *Planning Theory* 137, 146. Moroni acknowledges the neo-liberal argument is that 'it is both impossible and undesirable to (authoritatively) plan complex social systems' such as cities.

¹⁰⁶ Adam Smith, *The Wealth of Nations* (2010), 240. As Smith argued in 1776: 'by directing [a person's] industry in such a manner as its produce may be of greatest value, he intends only his own gain: and he is in this, as in many other cases, led by an invisible hand to promote an end which was no part of his intention. Nor is it always the worse for society that it was no part of it. By promoting

the transaction. The function of law is to uphold the institution of property. The citizens remain consumers in the property market as a function of consumerism just as is the case now. Every individual decision to purchase land or undertake development will still impact on a locality but in an incremental and unconscious fashion.¹⁰⁷ The shape and nature of the regional town will be determined over time by the application of the ‘subdivision rule’ and by the price mechanism.¹⁰⁸

Individual decisions made to reside in a locality, to purchase land, to build or renovate commercial premises have real meaning to both the person who makes that decision and to their community. There is in fact a community of interest as these decisions are interrelated. The externalities of locality impact on the subjective enjoyment of being resident in a place as well as on the financial decision made to invest capital in a locality and/or to exploit an investment opportunity. Conversely, decisions made by others to invest or not to invest in that locality also impact directly upon the amenity of the locality and its attractiveness as such an investment opportunity.¹⁰⁹ Davies and Whinston argued, as early as 1966, that this concept was ‘so obvious as hardly to merit discussion.’¹¹⁰ Historically, this is why communities in the twentieth century sought to influence decisions made about development in the locality.

Whether the decision is about the type of zone to be applied or about the type of particular development proposed for a site; there is both self-interest and community interest in the outcome of the resultant planning decision. If you earn the right to veto development by merely being a citizen of the town will that power translate into the development of the planning vision expressed in the planning instruments?¹¹¹ Being a citizen of a regional town does not mean that you have skin in the game. But if you do have skin in the game, or want to

his own interest, he frequently promotes that of society more effectually than when he really intends to promote it.’

¹⁰⁷ Juval Portugali, 'Learning From Paradoxes about Prediction and Planning in Self-Organizing Cities' (2008) 7(3) *Planning Theory* 248, 257. Portugali goes so far as to suggest that cities are ‘*dual self-organising systems*’ (emphasis in original). Significantly, in such complex social systems: ‘the interacting elements in such systems are agent and not parts, that is, entities that have cognitive capabilities such as learning, thinking, decision-making and the like; one of these capabilities is planning – agents plan and take decisions according to their past experience (learning) and their plans.’ In this system, ‘an individual, a household, a private company or the city’s planning authority, is a planner at a certain scale.’

¹⁰⁸ Webster and Lai, above n81, 11.

¹⁰⁹ Nicole Gurrán, *Australian Urban Land Use Planning* (2007), 17: ‘Over time, the cumulative affect of many such developments can make a significant impact on the qualities of our shared urban and regional landscapes.’

¹¹⁰ Otto A Davies and AB Whinston, 'Chapter 3: The Economics of Urban Renewal' in James Q (ed) Wilson (ed), *Urban Renewal: The Record and the Controversy* (1966) 50, 53: ‘First of all, the fact that the value of any one property depends in part upon the neighbourhood in which it is located seems so obvious as hardly to merit discussion. ... Pure introspective evidence seems sufficient to indicate that persons consider the neighbourhood when deciding to buy or rent some piece of urban property. If this is the case, then it means that externalities are present in utility functions; that is to say the subjective utility or enjoyment derived from a property depends not only upon the design, state of repair, and so on of that property, but also upon the characteristics of nearby properties.’

¹¹¹ James Gray Pope, 'Republican Moments: The Role of Direct Popular Power in the American Constitutional Order' (1990) 139(2) *University of Pennsylvania Law Review* 289, 293: ‘According to Webber, power is “the possibility of imposing one’s will upon the behaviour of other persons.” Power may be, but need not be, exercised through economic or physical coercion. The “power of persuasion” is also, as the phrase indicates, a form of power.’

have skin in the game, then perhaps your voice should have the power to persuade?¹¹² Presently it is the state that has veto power. It is responsible for creating the ‘legal environment’ within which the market transactions occur. Fundamental to that legal landscape is the notion of ‘permissible development.’

It is only once the state makes development permissible in a place that a proponent can bring forward an application to develop the space. It is the state that designs the planning instrument. Through its agent, the local council, the state retains the right of veto over the submitted application as the EP& A Act confers on the council the power to reject the application. Under the design of the EP&A Act the people rarely have the right to contest the approval of the development.¹¹³ But the reality for regional towns is that despite this framework, it is the market that determines the allocation of capital. Without capital there can be no development. No built form will emerge (unless the state elects to expend its resources within the town). Irregardless of the desires of ‘the people’ there will be nothing to consume. Grand plans and award winning designs will remain dormant on the drawing boards.

THE LEGACY OF PAST DECISIONS INFECTING CURRENT CHOICES

The central difficulty for town planning is, as Portugali suggests,¹¹⁴ that it is not possible to predict (and therefore to legislate for) changes in localities over time. Without economic incentives in the planning instruments the market will not supply the built form. That the community has an interest in the resultant built form is a given. This ‘public’ interest is regularly reflected within local newspapers, not uncommonly, on the front page.¹¹⁵ The frequency with which planning matters are being politicised, made the subject of newspaper reports, media comment and even ICAC investigations suggests that there is genuine public interest in the outcome of planning and investment decisions.¹¹⁶ Out of this debate all that can be said is that the citizenry seems to have an idealised notion of built form space that is rightly offended by unsympathetic approvals and corrupt dealings. But if we are going to revitalize our regional towns we are still going to have to find ways to encourage people to come and live in them again. Preconceptions will need to be challenged and reshaped.¹¹⁷

¹¹² Webster and Lai, above n81, 70, according to market theory: ‘As the monopoly supplier of violence, the state has a fundamental role in creating a legal environment for market-based exchange and economic growth. At the minimum this includes making rules and sanctions that confer on individuals a) the secure right to exclusive use of private property, b) the rights to derive income from property and c) the right to trade (alienate) property.’

¹¹³ In NSW only a particular type of development known as designated development allows third party objector rights to appeal to the Court against the council’s grant of approval to development (EP&A Act s98).

¹¹⁴ Portugali, above n107, 250, notes that ‘current urban theory suggests that cities are complex, self-organising and non-linear systems and that as a consequence their future behaviour is in essence not predictable.’

¹¹⁵ The examples are numerous. At the time of writing the Sydney Morning Herald carried yet another report on its front page, see: J Saulwick and K Gair, ‘Sydney population boom and the only way is up and in,’ *Sydney Morning Herald* (Sydney), 12 September, 2016, 1.

¹¹⁶ Most notorious in recent years in Wollongong see ICAC, ‘Report on an Investigation into corruption allegations affecting Wollongong City Council’ (ICAC, 2008).

¹¹⁷ Ayşe Öncü, ‘The myth of the ‘ideal home’ travels across cultural borders to Istanbul’ in Ayşe Öncü and Petra Weyland (eds), *Space, Culture and Power: New identities in globalizing cities* (1997), 60. Öncü suggests that the concept of an ‘ideal home’ is a ‘global myth in the sense of discursive construct which claims for itself the moral superiority and legitimacy of a timeless and placeless truth.’ However, he concedes that the ‘optics of the local’ through which such myths are ‘mediated is always historically grounded.’

There is no manual that says that planning law must be designed according to the ideology of public interest. There are alternative planning ideologies indicating that a choice is available. The normative discourse suggests that planning laws are necessary to the public interest. Farrier argues that ‘the state has a vital interest’ in the regulation of land use because land (especially in its environmental context) is not only a scarce resource, it is irreplaceable.¹¹⁸ Yet in a capitalist society, the state has also legitimated the primacy of rights to, in and over property.¹¹⁹ When the ideology of property (which promotes the rights of individual owners of land), collides with the public interest ideology (which promotes the interests of the people as a collective),¹²⁰ the public interest is meant to prevail.¹²¹ This raises an issue of control, namely, who is best placed to determine the public interest?¹²²

If the public interest justifies the making of planning laws, and if the state has exclusive power to make such laws, then the state both defines what is in the public interest and makes lawful the dispossession of the property right. This is a valuable right. It is the right of the individual to determine how land in their ownership is to be developed. When parliament legislates to make law, it is, according to democratic theory, exercising a power conferred by the people.¹²³ Whilst the state exerts power, it is the people that are sovereign.¹²⁴ When a

¹¹⁸ Farrier, above n77, 7, endorses Mill’s concept that land is the original inheritance of the people. Yet the counter argument runs that property rights are ‘sacred’.

¹¹⁹ Uhr, above n64, 51. Uhr, referencing the Lockean conception of government, makes the point that ‘legislative power may not be used to take away subjects’ property without their “own consent, that is, the consent of the majority.”’

¹²⁰ WJV Windeyer, *Lectures on Legal History* (1938), 247. Windeyer dates the emergence of collectivism to the mid nineteenth century. This was a social moment when: ‘The idea that the state should not interfere with individual enterprise and freedom of contract gave place to a realisation that the state must interfere.’

¹²¹ And what ‘price’ should the individual/community pay? Sometimes compensation is not enough. It is difficult to quantify intangible rights such as the amenity of the neighbourhood. As the NSW Court of Appeal observed in *ING Bank (Australia) Ltd v O’Shea* [2010] NSWCA 71 (at [161]): ‘However, when compensation for loss of land rights is being considered, one must always bear in mind the aphorism of Lord Sumner cited in *Campbell JA* during the oral argument: ‘I doubt ... whether it is complete justice to allow the big man ... to have his way, and to solace the little man for his darkened and stuffy little house by giving him a cheque that he does not ask for.’ (*Leeds International Co-Operative Society Ltd v Slack* [1924] AC 851, 872)’.

¹²² In *Shoalhaven CC v Lovell* (1996) 136 FLR 58, 63, Mahoney P noted that the term ‘public interest’ was not defined in the EP&A Act. Citing with approval *O’Sullivan v Farrer* (1989) 168 CLR 210, 216 (Mason CJ, Brennan, Dawson and Gaudron JJ) the Land and Environment Court affirmed the following statement of principle: ‘Indeed, the expression “in the public interest”, when used in a statute classically imports a discretionary value judgment to be made by reference to undefined factual matters, confined only “in so far as the subject matter and the scope and purpose of the statutory enactments may enable ... given reasons to be [pronounced] definitively extraneous to any objects the legislature could have in view”’: *Water Conservation and Irrigation Commission (NSW) v Browning* (1947) 74 CLR 492 at 505 per Dixon J.’

¹²³ Uhr, above n64, 25. As Uhr notes: ‘deliberative institutions are less important as generators of wisdom than as conduits of consent, providing greater certainty for the legitimacy of government which, for all practical purposes, is retained in the hands of a small ruling group performing the related functions of executive decision and judicial arbitration.’

¹²⁴ Bobbitt, above n22, 216. As Bobbitt explains, ‘[The State] came into being in order to establish a monopoly on domestic violence, which is a necessary condition for law, and to protect its jurisdiction from foreign violence, which is the basis for strategy. If the State is unable to deliver on these promises, it will be changed; if the reason it cannot deliver is rooted in its constitutional form, then that form will change. A State that could neither protect its citizens from crime nor protect its homeland from attack by other states would have ceased to fulfil its most basic reason for being.’

parliament assumes responsibility for defining the public interest, unless that interest is coincidental to the wishes of the people, a form of tyranny may arise.¹²⁵

In the context of urban planning in regional Australia I hypothesise that our faith in bureaucratic planning as the vehicle to drive development is misplaced. Our planning instruments do not routinely facilitate development in regional towns. That is neither their design nor intent. In the highly competitive market that characterises the market for development dollars, when a planning instrument encourages ‘no’ to a proposal then the development dollar will flow to the locality where the prospect of investment will yield a ‘yes.’ This does not mean that the developer will always make a profit from the investment. That is never a guaranteed result. Indeed, the risk of failure is still high. But the difference is that in the one scenario there is the prospect of investment as contrasted to the other where the result is silence and despair.

Future forecasting is problematic.¹²⁶ Can we safely predict the future for retailing? If not, will the CBDs in regional towns be commercial centres or mixed use centres? Can we safely predict the mix of uses? Is the bureaucratic planning system the right predictive tool? Does the community know better? Would leaving the decision as to what development and where to locate it to market forces be any worse? What we know as a certainty is that regional towns that lose their economic imperative lose their heart. They become ghost towns. If the aim is to avoid that outcome then we need to measure the success of our current strategies. If the current bureaucratic planning model has not been successful in staunching the drift to the big smoke, if our regional towns are losing their best and brightest, if capital has ceased to flow into the town then maybe blind adherence to the bureaucratic planning system model is misplaced?

When creating the planning instrument such as the LEP or DCP do the grand wizard planners ask: what will it take to build that there? How much will it cost to get an approval to build that? The economic reality facing the planning legislators is that if the person with capital to invest sees that a better return can be derived by investing elsewhere then that capital will flow to that other place. Do strategic planners ever engage the development world to understand its motivation? The investment of capital entails significant risks. Every developer wants certainty. Every developer wants a return, not all who develop will get that anticipated return.

REDEFINING PARTICIPATION AS SKIN-IN-THE-GAME

The overriding aim should be to build the economy of the regional town. In very small regional towns maybe the ‘anything goes’ rule is the way to go? Australia’s lack of critical mass in terms of population and our unique cultural experience as originating from a penal colony have meant that we rely more on government to provide our public spaces. But in the regional town space not only is that public dimension curtailed, the private sector dimension is also diminished. We don’t build towns like Bendigo anymore because the rivers of gold have ceased to flow.

¹²⁵ Uhr, above n64, 75-6. Uhr suggests that under Dicey’s formulation of responsible government: ‘It is not clear what protective capacity a sovereign parliament has in the event that a people or segment of people is unable to make its own case heard about oppressive legislation or illiberal government action. ... courts are only permitted to recognise rights which parliament itself has declared.’

¹²⁶ As Westbury, above n8, 158-9, observes, we live in a ‘world that is complicated and difficult to understand, where the need for things to happen quickly is battered against processes that grind slowly, and at times, not at all.’

Will it mean the end of the world? Surely there must be limits I hear you say? But zoning blights development and therefore as an instrument of the state it must be used judiciously and innovatively. In applying zoning constraints the result should not be no development. If the intent of zoning is to direct development into 'the right places' then firstly, we must recognize that in that decision to zone to permit or prohibit particular forms of development we are picking winners and creating losers. Some people will already own land in the 'right' place, so they win. Someone else already owns land not favorably zoned, so they lose. Secondly, if all we are doing is colouring the map what evidence is there that this theory has encouraged 'the right type of development' in our regional spaces? We can have magnificent regional city development plans but if no-one builds anything what is the good of the plan? Thirdly, the layers of complexity created by the planning system can mean that the left hand (wizard planners) does not know what the right hand (capital) is doing. By adopting requirements that snip developers at every turn are we are making it certain that no development will be the result?

If the practical effect of planning laws is to inhibit the expenditure of capital in regional towns then what is the purpose of retaining this model? If a building conforming to the building code is erected in the town what does it matter if the owner wants to build a shop, an office or an apartment? If the result of the interaction between the person with hopes (and capital) and the planning system is 'nothing' what have we achieved? The lion's share of development has occurred in the capitals. All roads lead to the significant infrastructure hubs of city, port and airport. Railways have come and gone from country towns. 'No critical mass' is the cry. Cars have ended the tyranny of distance but their convenience has made some regional towns dormitory suburbs. Regional towns fight for the scraps that fall from the hot brick. The key to the future for regional towns surely lies in having committed people who want to invest their capital in the venture. Miss that point at your peril.

People who choose to live in regional towns are different. But they still aspire to many of the same things as their city cousins. With so much emphasis given to investing in the mega-city, it is time to pause and consider the worth of regional towns. Do we need them? If we do, how should we promote and foster their development?

A FUTURE FOR REGIONAL TOWNS: AVOIDING THE DOOM OF HISTORY

Our colonial pioneers did not venture forth with the vision of building grand cities. They came from over the seas because there was an opportunity to make money from land.¹²⁷ A vast interior invited the opportunity to aggregate large tracts of land to a single owner. Australia was never intended to be closely urbanized. Perhaps the early settlers had a vision of leaving a legacy for family, perhaps they intended to make their fortune and run. Regardless, there were great risks but the potential for reward was there too.¹²⁸ Similarly, the reason to invest in a regional town was also commercial. Regional towns in Australia were created to serve an agricultural purpose. So the governors planned for regional towns. They were the

¹²⁷ John Hirst, above n21, 146. 'The Governor's job was to promote the development of the economy, which would enable the colony to pay its way and bring more benefit to Britain. There was a notable harmony between what the British government wanted of the governors and what the settlers wanted of the Empire.'

¹²⁸ Richard Waterhouse, above n25, 67. Waterhouse identified three different value sets: 'one related to entrepreneurship, which involved single-minded preoccupation with accumulating wealth as quickly as possible; another to a reluctant self-sufficiency, with aspirations to entrepreneurship; and a third grounded in an opposition to authority, a resentment of squatters, and (especially from the 1890s) a commitment to mateship.'

first place makers. The governors knew that parcels of land which are not interconnected with infrastructure such as roads are useless. So from the outset the Government was part of the project. A vital part of the project.

A regional town's future is not defined solely by its built form or the confidence of private capital. As Collins and Stevenson note: 'Regional development requires the synergies of a supporting organisational infrastructure.'¹²⁹ It is here that the associational life of regional towns becomes important. If we are to avoid a future for regional towns of tourism and kitsch then we have to redefine the purpose of the regional town. John Edwards says that our future success as a nation will:

depend on the decisions young people make about training and their careers, on decisions businesses make about the products they will sell and the markets they will pursue, on inventions and production enhancement in laboratories and workshops, and from decisions businesses make about adopting product innovation.¹³⁰

Regional towns need to be the places where some of these decisions are being made. We need to create spaces where these decisions are part of the fabric of what makes the town tick. If the future lies in supplying services that the world demands, what can regional towns do to meet that demand? How integral are planning laws to that future? It is here that we would do well to remember the injunction of Abraham Lincoln:

The dogmas of the quiet past are inadequate to the stormy present. The occasion is piled high with difficulty, and we must rise with the occasion. As our case is new, so we must think anew, and act anew. We must disenthrall ourselves, and then we shall save our country.¹³¹

¹²⁹ Collins and Stevenson, 'Inspiring imagination – education and learning: the university experience in the regional development cocktail,' (2004) *Conference of Australian and New Zealand Regional Science Association International*, Wollongong, 5.

¹³⁰ John Edwards, *Beyond the Boom*, Lowey Institute, 2014, 132.

¹³¹ President A Lincoln, Annual Address to US Congress, 1 December, 1862, Washington, D.C.

Accessibility of Anbessa City Bus Service: Analysis of Stakeholders Opinions in Addis Ababa, Ethiopia

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ABSTRACT

Accessibility of transport services can be influenced by a range of factors, and it is important to understand the role and influence of each of these factors in order to plan effective transport systems in urban, peri-urban and regional settings. Addis Ababa City is one of the fastest growing cities in the world, yet is constrained by poor accessibility of city bus transport services. This creates problems relating to journeys to work, school and other travel. This paper examines the factors affecting the accessibility of Anbessa City bus service in Addis Ababa. An exploratory research approach was taken, using in-depth interviews with the city bus transport regulators as well as one operator. The study identified eight principal factors impacting on the accessibility of the bus services, these being infrastructure conditions, stakeholder engagement, law enforcement system, user accessibility, institutional frameworks, transport operations, transport planning, and comfort and safety of the transit system. Identifying these themes should assist in implementing future improvements to the accessibility of bus service, thus providing more effective transport options for the residents of Addis Ababa and its peripheral regions.

INTRODUCTION

Road transport plays a vital role in underpinning the economic growth of developing countries. City transport services are particularly important in urban areas as key nodes of economic activity. In Ethiopia, the national capital is Addis Ababa City, which is responsible for 60% of the country's industrial production and 50% of its GDP (Wondifiraw, Kibret and Wakaiga, 2015; World Bank, 2015). The limited number of buses and taxis in Addis Ababa have resulted in low quality, safety and accessibility of the service delivery across the city (Berhan, Beshah and Kitaw, 2013; Kumar and Barrett, 2008; World Bank, 2014). Some studies have claimed that institutional weaknesses have resulted in inaccessibility and in turn, ineffective service provision of the city buses (Berhan *et al*, 2013; Kumar and Barrett, 2008; World Bank, 2014). Users are hardly able to access public transport during peak hours or during bad weather conditions (Fenta, 2014). Sometimes the commuters are required to pay an extra fare or forced to board off when only mid-way through their route (Kumar and Barrett, 2008). Here, the service providers may be aware that commuters do not have other alternatives during these time, and thus press their advantage, pushing the consumer to pay above the limited fare in order to maximize their profit.

Various, the (in)accessibility of the city buses in Addis Ababa has been characterised by excessive transit times, frequent stops over short distances for loading and unloading, poor infrastructure, scarcity of vehicles, unreliability, unavailability, financial constraints on operational upgrades, an ineffective regulatory system and role confusion, and increasing accident rates throughout the city (Kumar & Barrett, 2008; Litman, 2015; Yilak, Yoshitsugu and Hirokazu, 2011; Yilma, 2014). This paper explores factors affecting the accessibility of Anbessa city bus in Addis Ababa, using a conceptual framework and qualitative research method. This paper is organised as follows: an overview of the conceptual framework for public transport and accessibility is provided in section two, followed by an outline of the methodological approach in section three. The key findings and analysis for the case study are detailed in section four, and the final section of the paper summarises the findings and presents the key conclusions.

1. CONCEPTUAL FRAMEWORK

Effective mobility means having access to transport services that are going where and when one wants to travel; being informed about the services; knowing how to use them; being able to use them; and having the means to pay for them (Suen and Mitchell, 2000). Transport infrastructure promotes spatial interaction between different activities, and ‘accessibility’ is the measure that reflects the attractiveness and ease of reaching these different destinations. Studies show that the potential of interaction between any two places increases as the cost of movement between them decreases, either in terms of money or time (Parsons *et al*, 1998). Similarly, the level of accessibility provided by a transport system is influenced by land use pattern and urban form (Dagnachew, 2007). On the other hand, Litman (2015) asserts that a range of further factors also affect the accessibility of urban public transport (Table 1). From this work, it is clear that accessibility is a layered concept with many contributing and interrelated factors.

Table 1. Factors Affecting Accessibility of Public Transport

Accessibility Factors	Elements included in the factors
<i>Motor vehicle travel conditions</i>	Automobile travel speeds, affordability, safety
<i>Quality of other modes</i>	Walking, cycling, public transit, telework, delivery services speeds, convenience, comfort, affordability and safety
<i>Transport network connectivity</i>	Density of paths and roadway connections, directness of travel between destinations, quality of connections between modes
<i>Land use proximity</i>	Development density and mix
<i>Weak regulatory system</i>	Ineffective regulation and law enforcement system

Source: Adapted from Litman (2015, p. 8).

Stanley and Smith (2013) confirm that delivery of efficient and effective public transport systems and services require proper skills, integration, funding and communication. The involvement of the private sector is an opportunity for the state, as well as bus users, to enjoy efficient and effective service delivery, introduction of innovative products, high-quality service and price reduction. Citizen participation in interactive public transport management has already been acknowledged as a means of empowerment and sharing of responsibility for common goal (Verma and Priyadarshie, 2015). Moreover, government is another important

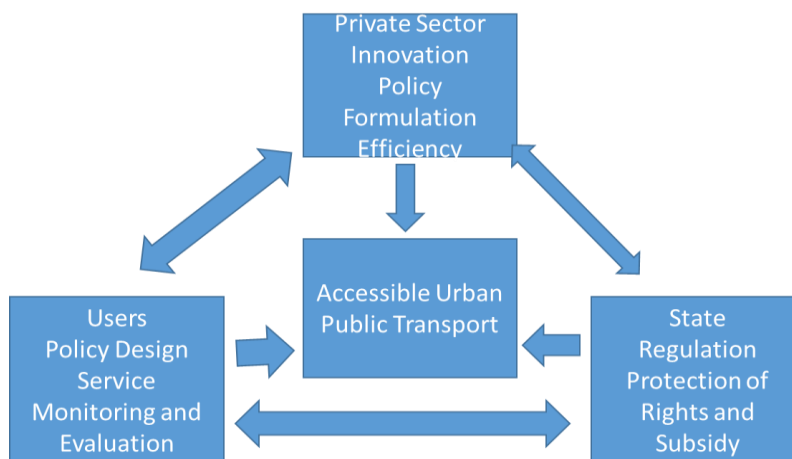
stakeholder in public transport accessibility: here, effective service delivery can be achieved when the government protects the public interest through enforcement of regulatory framework (Minnery, 2007; Sohail, Maunder and Cavill, 2006).

Public transport also requires reliable management and service delivery. Simona (2010) asserts that vehicle performance, specialization in passenger transport, coordination, availability, comfort and convenience are taken as good indicators of operational reliability and management. However, it is important to note that operations reliability and management may not be achieved through the strength of regulatory framework.

Urban public transport regulation is intended to ensure that standards are maintained through testing, monitoring and benchmarking of city transport provision (Daniel, Germà and Joan, 2012; Sohail *et al*, 2006). The role of urban transport regulators is crucial in meeting the state and users need and protect the system from unhealthy practices. Regulators need to ensure that the supply of public transport services is of sufficient quantity and quality to meet the perceived demand, and that the service is provided at an affordable price to the urban dwellers (Tsamboulas, Verma and Moraiti, 2013; Zhang, 2014). In doing so, regulators have the potential to operate to the public advantage, putting into practice the policies of government as efficiently and effectively as possible (Sohail *et al*, 2006).

The inter-relationships between the private sector, state, transport service delivery entities and users is provided in Figure 1 below. This shows the complex system of overlapping and related factors, which must come together effectively if an accessible public transport system is to exist. From this figure it is easy to identify the interaction amongst them and what role each part has to play to achieve the desired goal. However, a key information gap for developing nations, and for Addis Ababa city in particular, is to understand the experiences, roles and responsibilities of different stakeholders. The focus of this paper is to present qualitative data and analyses relating to this issue.

Figure 1: A conceptual understanding of Stakeholder Relationships in Urban Public Transport Delivery



Note: Arrows illustrate one way/two-way interaction among the stakeholders.

Source: Author.

2. METHODOLOGY

A qualitative research approach was adopted for this study, via in-depth interviews with twelve respondents from the operator and regulators stakeholders, namely Anbessa City Bus Service Enterprise (ACBSE), Addis Ababa Traffic Management Agency, Addis Ababa Transport Authority and Addis Ababa Transport Program Management Office. This allowed a fuller picture to be generated on the state of factors affecting the accessibility of Anbessa City Bus in Addis Ababa. A range of academic and grey literature has been reviewed to build the conceptual framework. Moreover, secondary data from the stakeholder institutions have been reviewed to provide a better framing of the discussions held with the stakeholders. Descriptive and thematic content analysis were used to interpret the data. This paper presents the findings from the in-depth interview, which was the exploration into the different factors that have contributed to the accessibility of the city bus in Addis Ababa. The study analysed the stakeholders' opinion by using thematic content analysis followed by narrative interpretative analysis.

Table 2. Gender Balance of Stakeholders Involved in Semi-structured, Qualitative Interviews Regarding Transport Accessibility in Addis Ababa

Institutional Category	Male	Female	Total	Remark
Operator	3	2	5	Anbessa City Bus Service Enterprise
Regulator	7	-	7	Addis Ababa Transport Authority, Addis Ababa Traffic Management Agency or Addis Ababa Transport Management Program Office
Total	10	2	12	
Percentage	83.3%	16.7%	100%	

3. FINDINGS AND ANALYSIS

Overview of Key Themes

After completing the interviews, transcribing and translating the material (from the native Amharic into English), a thematic analysis was conducted. This was prepared by considering each interviewee's material case-by-case, and allowing major and minor themes to emerge. Overall, the areas of law enforcement, infrastructure, accessibility and institutional frameworks received the dominant share of frequencies, with the items of transport operations, comfort and safety, and stakeholder engagement receiving much fewer mentions (Table 3). Some of the key themes are described in further detail in the following sections.

Participation and Institutional Arrangements

Coordination amongst stakeholders and institutional design has been acknowledged as being a key determinant of effective and accessible public transport systems. For example, Xu, Ceder, Gao, and Guan (2010) indicated that the application of systems and technologies, comparing of alternatives, careful application of policy and planning, due consideration of operations and management, and future development are areas where strong collaboration should occur between public transport agencies, the community and private firms. The public transport

service operations in Addis Ababa includes multiple stakeholders, however, it appears that the trend for the city is for a poor level of integration amongst the actors and institutional arrangements that doesn't go beyond simple dialogues and information sharing with poor commitment for action (Dagnachew, 2007). As one interviewee noted: *'the private firms are reluctant to join the public transport market in the city owing to uncertain transport market regulation and institutional arrangements.'*

Table 3. Frequency of Themes and Subthemes Regarding Accessibility of the Bus Service in Addis Ababa as Described during Stakeholder Interviews

No	Key themes	Number of Stakeholders	Subthemes	Frequency
1	Infrastructure	7	Road Conditions	4
			Dedicated Lanes and Bays	8
			Transit Stations and Bus Stops/Shelters	3
2	Stakeholders Engagement	4	Private and Public Operators Engagement	6
			Community Engagement	12
			Regulators (Government Bodies) Engagement	9
3	Law Enforcement	9	Traffic Control System	6
4	Accessibility to Users	7	Service Coverage	6
			Fare Affordability	8
			Availability of the city buses	10
			Congestions of the Roads and Delays (Impact)	5
			Passenger Access to Bus Services during peak hours	5
			Service reliability	7
5	Institutional Framework	7	Application of Policies and Strategies	6
			Restructuring of Transport Regulatory Bodies	9
			Anbessa City Bus Institutional Reform	10
			Duplication of Duties/Role Clarity	9
6	Transport Operations	3	Promotion of Mass Public Transport	7
			Road Traffic Management System	3
			Automation of the Transport Operation	7
			Traffic Congestion (Causes)	8
			Regular Bus Maintenance	6
7	Transport Planning	6	Planned Phase-out of Shared Taxis	4
			Expansion of Bus Depots and Terminals	7
			Multimodal Transport Integration Planning	2
			Planning for Rapid Transit System	3
8	User Comfort and Safety	4	Bus overcrowding	4
			Mixed Traffic System	4
			Drivers and Cash Collector's Behaviour	2
			Physical Quality of Buses	3

Definition: Frequency refers to the number of key themes and subthemes mentioned by the stakeholders. The frequency under the subtheme can exceed that of the key themes as different stakeholders can mention about a very specific issue (subtheme) frequently.

Discussions held with the stakeholders, as well as the research literature, showed that the involvement of private operators in the Addis Ababa mass transport sector is very limited, as has been previously reported (Tsegaye, 2015). Weaknesses in transport policy and coordination among the stakeholders, poor law enforcement systems, uncertain markets, and the absence of incentives from the Federal or city government to encourage mass import of transport vehicles and/or their parts (FDRE-MoT, 2011; Kassahun, 2007; Yilma, 2014) have impaired the interest of the private firms to play in the market.

Agitating for change to achieve better accessibility of the Addis Ababa bus system requires the engagement of the stakeholders through participative governance (Díaz-Cayeros, Magaloni and Ruiz-Euler, 2014). However, it has been previously reported that Anbessa City Bus Service lacks participatory management where the users and the private firms are not privileged their voice to be heard (Kumar and Barrett, 2008). Some stakeholders mentioned that, whilst the operator does approach the community through different channels, the practical aspect of Anbessa city bus operation doesn't reflect the users' needs. For example, during interviews, the stakeholders noted that Anbessa city bus inaccessibility arises from land use problems, inadequate/absence of bus stops/transit stations and poor law enforcement systems. Obviously the community raises such challenges during the public forum or any other means of communication to the concerned bodies. Tsegaye (2015) clearly stated "*complaint handling of the Enterprise has [a] negative outcome*". What is problematic is that many of the areas of complaints are items outside of ACBSE direct control, for example, land use, transit stations and law enforcement. Hence, whilst the service is trying to encourage community participation in designing a better service (through feedback), there is a disconnection because the solutions that are needed are not within ACBSE's direct control. This implies that a commitment for corrective actions towards the users' complaints or demands are not given due attention, or are outside the sphere of influence of the operator itself, thus requiring a much more integrative and collaborative approach to solution-seeking (and implementation).

Better institutional arrangements, transparency, coordination and commitment of the stakeholders are important for the effectiveness of accessible public transport service (Hrelja, Pettersson and Westerdahl, 2016). It was noted during the interviews that ACBSE works with Addis Ababa Road Transport Authority, Addis Ababa Traffic Management Agency and Addis Ababa Drivers and Vehicles Inspection and Control Authority and Addis Ababa Police Commission, either in direct or indirect fashion. However, it was also evident that the stakeholder institutions have weak coordination and commitment to realise the effective accessibility to the users. For example, the institutions lack comprehensive public transport policy and strategy framework which clearly indicates the duty and responsibility of each actor under the same hierarchy (Kumar and Barrett, 2008). In relation to this, one of the stakeholders indicated '*the absence of clear demarcation of jurisdictions among the regulators and their commitment to achieve the common goal (here enhancing accessibility) create a loophole in the enactment of the city's transport policy and strategy*'.

Transport Planning, Infrastructure and Operations

Contemporary city planning must consider the strong relationship between territory and mobility. Based on this premise, with an adequate plan, authorities can foresee and prevent problems experienced by commuters; address existing weaknesses, and where a relationship is truly solid, even create better communities (Crespo, 2012).

Currently, the accessibility of public transport in Addis Ababa is heavily influenced by inadequate/worn-out infrastructure, poor transport planning and traditional transport operations (World Bank, 2002). Abreha (2007) described the Office of Reviewing Addis

Ababa Master Plan (OAAMP), which asserted that the road network and capacity is badly constrained by poor quality standards, shortage of pedestrian walkways, misuse and encroachment of the available space. These issues were also highlighted by the stakeholders in this case study, who noted “*the basic challenges of public transport accessibility in Addis Ababa is that the infrastructure is not adequate and conveniently built*”. One of the primary challenges of public transport operations that are characterised by worn-out buses is that the cost of maintenance escalates as the fleet ages, with worsening fuel efficiency and adverse environmental outcomes (Hao, Geng, Wang and Ouyang, 2014), particularly when compared against modernised technological advances. From an accessibility point of view, the buses are unreliable as they often face breakdowns on the routes and even cause accidents due to technical faults (Fenta, 2014). A dedicated fleet replacement and maintenance program that would enable the service to improve to an acceptable level will demand not only a significant budget allocation, but also commitment of the regulators and other government bodies (city and federal government), as well as recruitment of skilled professionals and supporting technology (Dagnachew, 2007) to ensure that the fleet is sustainably and efficiently managed. In reality, however, Anbessa city bus serves the ten sub-cities of Addis Ababa and at least thirteen Oromia towns adjacent to Addis Ababa via 18 routes. Despite this large number of town administrations with a vested interest in the service, no financial support exists to the Enterprise, nor do subsidies to passengers (Tsegaye, 2015). The city bus has only four terminals propagating from the city to the sub-cities and the Oromia towns within a 40 km radius. Compared with the size of the city and surrounding Oromia towns, the number of existing bus terminals, planning and operation are inadequate (Tsegaye, 2015).

A further problem exacerbating this issue is that the installation and management of Anbessa bus terminals in the Oromia towns lack ownership. Addis Ababa is an autonomous city under the Federal Government, but geographically located in Oromia Region. The difference in administrative and political structure between the region and the city has a negative impact on the accessibility of the city bus and the infrastructure administration. One of the stakeholders confirmed this and said ‘*there is no clear installation, ownership and management of the bus stops/shelters in the routes of surrounding Oromia towns.*’

Traffic Control, Law Enforcement and Safety

Addis Ababa has suffered from an increasing rate of traffic accidents and absence of a single, fully-fledged/consolidated traffic management policy (Misganaw and Gebre-Yohannes, 2011; Yilma, 2014). Traffic congestion in Addis Ababa arises from poor lane discipline by drivers, especially at traffic junctions which deteriorates the already overcrowded junction situation. The drivers frequently disregard red lights and block the intersection, causing further traffic congestion (Tulu, Washington and King, 2013). The problems are compounded by poor enforcement practice by the responsible bodies as identified by the key informants at the transport bureau. As one of the stakeholders mentioned: ‘*the traffic law enforcement system of the city is not adequately implemented to enhance the traffic flow and accessibility of the city buses.*’ The traffic control system of the city is the purview of the traffic police, and is reasonably labour intensive. There are no street cameras, and traffic signals and marks are often inadequate. Traffic polices are stationed at some intervals on streets, highways and roundabouts to assist with traffic flow and also enforce traffic law. Nonetheless, the traffic police are not always available on these places especially during night and rainy times (Yilma, 2014).

The behavioural patterns of the drivers, pedestrians, the law enforcement and even the regulators highly determine the effectiveness of the traffic control system and public transport accessibility. Public transport drivers lack essential driving skills and customer service

behaviour, which results from a combination of weak training, low literacy, young age and abuse of the licencing procedure by the concerned regulatory bodies (Yilak *et al*, 2011). One of the stakeholders said *'the poor customer service behaviour has originated from the poor perception, commitment and expertise of the employees to show courtesy to the users'* The poor customer service behaviour of the drivers and the cashiers has negative psycho-social impact on the city bus users. In Ethiopia proper alcohol or drug test is not conducted to determine the cause of traffic accidents although the drivers often consume alcohols or Chat (an Ethiopian grown stimulant legally permitted to consume) while on driving duties (Tulu *et al*, 2013). One of the stakeholders from the operator stated *"there are ethical problems or complaints coming from the community about employees.'* In this case, the chance of an accident is very high. Similarly, the community as pedestrians have less awareness of road traffic and safety rules. The absence of pedestrians walkways and use of (technically poor) worn-out vehicles challenges to the traffic control system (Persson, 2008). An interviewee confirmed *'the city's mobility system is challenged by mixed traffic system in which pedestrians, vehicles and cattle transit on the same lane.'*

Fare Affordability

Studies indicate that 20% the of the population of Addis Ababa is still too poor to afford the fare of the bus (Dagnachew, 2007). The bus service has a system of flat fares for the route with a range varying according to distance (Kassahun, 2007). Tsegaye (2015) indicated that the Enterprise pays an incentive of 0.03 Birr to bus drivers and 0.02 Birr to fare collectors per a passenger as an incentive package in the application of business process reengineering (BPR) system to motivate the employees to load more passengers per trip. These employees obviously need to load more users at each bus stop to increase their marginal revenue per passenger. This financial incentive to the employees has a direct negative impact on the accessibility of the buses.

Solutions to Improve Anbessa City Bus Accessibility

Accessible public transport mobility is a cumulative effect of reliable, affordable, well-designed transport planning and built environment for better service coverage (Nurlaela & Curtis, 2012). In contrast, the inaccessibility of Anbessa City Bus Service is a commutative effect of poor infrastructure, i.e., worn-out and narrow routes, limited number of transit stations, absence of dedicated and comfortable shelters, poor transport planning and land use, traditional operation of the bus transport system and weak financial capability of the operator. In this regard, an all-inclusive policy and commitment of actors greatly determine the effectiveness of the mobility system across the city.

Accessibility of public transport is more reliable when adequate number of buses are engaged and the system is supported by intelligent transport system (ITS) for information sharing, time management and safety precautions (García *et al*, 2015). Though the buses have nominal schedule, the running times are not made public at all, and are characterized by delay, crowding and overloading and low frequency hence unreliability and susceptibility for fare evasion (Dagnachew, 2007). Unfortunately, Anbessa city bus lacks the application of ITS to promote its reliability and the demand for public transport service is much higher than the supply. The recruitment of information technology, skilled man power and adequate number of buses relies on the financial capacity and commitment of the operator or the city government to realise all-inclusive change. Anbessa has not been passing through a vibrant business operation system supported by modern transport management system to become more accessible to the users (Gebeyehu and Takano, 2008). The logistic parameters, including service continuity and frequency, information rate, station proximity and vehicle cleanliness, are the factors influencing passengers' satisfaction (Pavlına, 2015).

CONCLUSION

Accessible public transport is a cumulative outcome of different actors and different systems, interacting together efficiently and effectively in Addis Ababa. Anbessa city bus service enterprise has been acknowledged as a pioneer in Addis Ababa public transport service delivery, being a solely government-owned entity of long-standing in the city. Compared with private operators, ACBSE has wider service coverage, with 122 service routes throughout the city and 18 outlets to Oromia towns in 40 km of radius to Addis Ababa (Tsegaye, 2015). Despite this, the city bus hasn't grown to the required extent in the last seven decades, in order to match the growth in demand from users.

It would appear that the Anbessa service is not as fully accessible as it may be, due to combination of factors across public transport service delivery in Addis Ababa. Community engagement and the collaboration among the actors is significantly important in addressing the accessibility of the city bus. Literature reviews and discussions held with the stakeholders indicate that ACBSE accessibility is jeopardized partly by poor collaboration among the stakeholders, weak institutional arrangements and commitment to deliver their mandates and little attention for the public voice. Further, duplication of duties/absence of role clarities between the institutions is hindering the accessibility of the city bus. The effectiveness accessibility of the city bus, on the other hand, requires political commitment of the government higher bodies.

Well-structured traffic control and law enforcement system require better technology, infrastructure and trained human resource. The transport system of Addis Ababa city has shown evidence of traffic accident, congestion, inaccessibility and environmental pollution that are created partly by lack of sufficient infrastructure and traffic control system and weak regulatory framework. Adequate infrastructure, transport planning and operation play major role in enhancing the accessibility of public transport. The study identified eight principal factors impacting on the accessibility of the bus services, these being infrastructure conditions, stakeholder engagement, law enforcement system, user accessibility, institutional frameworks, transport operations, transport planning, and comfort and safety of the transit system. Identifying these themes should assist in implementing future improvements to the accessibility of bus service, thus providing more effective transport options for the residents of Addis Ababa and its peripheral regions. Future research in this area should consider how the existing factors contributing to the inaccessibility of the city bus could be mitigated.

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The Human Capital Factor: Generating, Attracting and Retaining Human Capital in Regional Australia

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ABSTRACT

In the field of labor economics, human capital refers to the stock of knowledge or characteristics of a worker that contributes to their productivity. Investment in education and training of individuals can enhance their level of human capital and this will be valued in the market because it increases firms' profits. Various researchers have looked at the intersection of migration and human capital suggesting that higher levels of human capital are found in cities and that areas with high levels of human capital act as an attractor for individuals with high levels of skills and education. This self-reinforcing process of attraction raises many questions in the context of Australia's urban primacy, as it suggests that capital cities will enjoy a cumulative gain in human capital over time, potentially at the expense of non-metropolitan areas. Net flows of young adults from regional to metropolitan Australia reinforces the concentration of economic activity and a relatively young metropolitan labour force. At the same time, it has led to a gradual ageing of the population structure and a depletion of human capital in many rural communities, placing constraints for local development, particularly through skills shortages and difficulty attracting professional workers. This paper explores whether the loss of regional capital from regional areas is inevitable. It poses a number of questions for discussion such as: Are there non-traditional ways in which regional communities can access or generate human capital? Can human capital be enhanced via mobility rather than permanent migration?

1. INTRODUCTION

This paper is the first in a series which will contribute to a PhD by portfolio. The portfolio is a series of 6 published articles which cover economic and demographic change in regional Victoria over the past two decades. In incorporating these into the PhD thesis, human capital theory will be used as an integrating theme.

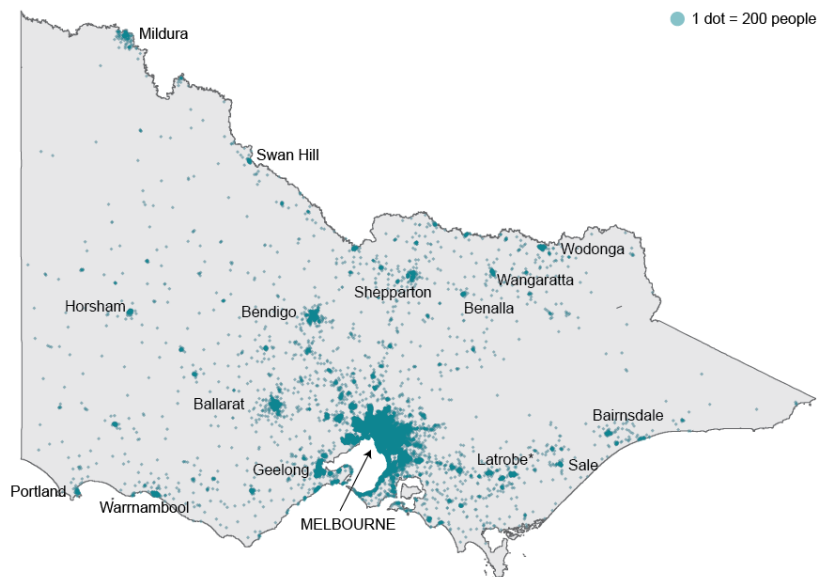
In this paper, as in the thesis, the term 'regional' is used when referring to non-metropolitan areas. The Australian settlement pattern of dominant state capitals has contributed to an Australian use of the term 'regional' which is somewhat different from international parlance where 'regional' may mean any sub-national level of analysis, urban or rural.

2. VICTORIAN CONTEXT: ECONOMIC AND DEMOGRAPHIC CHANGE

Although Victoria is the most densely settled state within Australia it has, by world standards, a low population density. Three-quarters of its population is concentrated in a single city, Melbourne. This primacy is also common to other States in Australia. Together with large land areas, the result is a very low density of population across non-metropolitan areas.

At 30th June 2015, the population of Victoria was estimated to be 5.9 million with 4.5 million people in Greater Melbourne and 1.4 million in the rest of the State (ABS cat no 3218.0). Beyond the metropolitan area, the regional cities of Geelong, Ballarat, Bendigo and Latrobe form a ring of cities within 1 to 2 hours of Melbourne (Figure 1). Beyond this, another group of regional cities are evident – these perform important service roles within large rural hinterlands. Nevertheless, even the largest of the regional cities, Geelong, has a population of around 187,400, a mere 4 per cent of Melbourne's size¹.

Figure 1: Population Density, Victoria, 2011



Source: ABS Census of Population and Housing 2011.

One of the most consistent patterns of demographic change affecting regional Victoria is that of young adult net out-migration. Research points overwhelmingly to the role of education and employment as motivators of this out-movement (McKenzie, 1994; Eversole, 2001; Eacott and Sonn, 2006; Geldens, 2007; Hillman and Rothman, 2007; Argent and Walmsley, 2008). As higher education has become more important in securing a job and career, the draw of the city has become even stronger.

While regional Victoria experiences a net loss of young adults to Melbourne, it gains in other age groups. Across all age groups, regional Victoria did have a net migration gain from Melbourne of nearly 24,000 people between 2006 and 2011. However, nearly 70 per cent of these movements were simply 'boundary-hopping' to peri-urban areas within Melbourne's immediate hinterland. It could be argued that this is a form of exurbanisation rather than migration to regional Victoria. Furthermore, Melbourne gained large numbers of interstate and

¹ This calculation uses the population of Geelong SA3 and the population of Greater Melbourne Capital City Region as at 30 June 2015. If the Greater Geelong municipality (incorporating Bellarine Peninsula) is used instead, the proportion is around 6% of Melbourne's size (ABS cat no 3218.0).

overseas migrants, which regional Victoria did not. The end result of all these demographic trends was a centralization of Victoria's population into Melbourne and, to a lesser extent, into the major regional cities.

While many authors point to the early 1970s as the point of major change in Australia's regional economies as trade barriers were removed, there were other factors at play and these had roots in changes which were already occurring. As early as the 1940s, McIntyre and McIntyre (1944, p. 11) observed:

Better roads, the motor car, and bus services between small and large centres, are all detracting from the small centre, and together make one of the reasons why the small centres, in general, are declining, and the larger ones growing. The larger towns, with their more varied and effective goods and services, are undoubtedly more attractive to the farm people. Fast transport not only enables the more distant farmer to do business in the large town which he could not have reached in the days of the horse and gig, but allows the near a farmer to live in the town and run out to his land as necessary.

Rose (1966, p. 18) made a similar observation in the 1960s:

In former times [isolated farmhouses] were normally provided with their lowest-order services by small hamlets or villages. Such centres are now moribund. They have been bypassed by the settlers in their automobiles and the children in their school buses making for the nearest substantial town...

Although the 1970s brought a reprieve in population terms for some regional locations as trends of counterurbanisation emerged, the trend mainly favoured areas close to major cities (Hugo and Smailes, 1985, Burnley, 1988; Hugo, 1989). Other, more remote, parts of the state fell into a cycle of population loss. This in turn led to business and service loss which encouraged further population decline (McKenzie, 1994). In many ways, counterurbanisation ran counter to the prevailing forces of economic geography which, by the 1980s were favouring large cities like Sydney and Melbourne (O'Leary, 2003, p. 7; Alexander and Mercer, 2007, p 234). Subsequent growth patterns bore this out.

By 1980, regional Australia was seeing the impacts of these technological, economic and social trends. Farms were, on average, larger and more productive, but fewer workers were needed as capital intensive methods superceded labour intensive farming practices (Stayner and Reeve, 1990; Garnett and Lewis, 1999, p. 1). Declining terms of trade in the agricultural sector also fuelled the trend towards consolidation, as productivity could be increased through expansion into larger farms (Barr, 2009, p. 9). Transport improvements and greater personal mobility enabled greater access to larger regional centres and this in turn reduced demand for businesses in smaller towns, many of which closed down. The concentration of businesses into larger centres was paralleled by the rationalisation of public services with the larger centres providing a central point from which government departments and health services could be run (McKenzie, 1994, p. 43-5; Tonts and Jones, 1996, p. 139; Garnett and Lewis, 1999, p. 12).

The decline of services in smaller towns made larger centres more attractive and many people moved into them from the hinterland. As population starts to decline, demand lessens and facilities and services are withdrawn which can start a downward cycle (Sorenson, 1990, p. 45; McKenzie, 1994, p. 43). As envisaged by McIntyre and McIntyre in the earlier quote, farmers also made the move into town, increasingly into larger towns, where they could more easily access services for themselves and their family. This included access to larger, better resourced schools and health services. In effect the farmer then became a commuter to their farming property or properties. Changes in the agricultural sector also led to the 'uncoupling'

of farming from the local rural economy (Stayner and Reeve, 1990). Key factors involved in this change included (idem, pp. 1-2):

- a shift from local rural processing to city-based processing;
- increased complexity of capital inputs meaning local firms less likely to carry out servicing;
- greater use of mobile contract labour leading to wage leakage from local area;
- farm debt servicing creating leakage of farming income to city-based banks;
- changes in retailing whereby larger centres offer a greater range of both farm-related and consumer goods;
- centralising tendency in many professions such as health in which access to specialist facilities favouring the largest centres; and,
- consolidation of services into larger centres increases the frequency of visits to those centres by rural residents.

As regional Australia became increasingly integrated into global economic systems, a parallel process of economic policy reform was occurring (Tonts and Jones, 1996, p. 140). In the 1980s, the Hawke and Keating governments led a period of major economic reform which effectively ended the high levels of protectionism in Australian trade and industry. Fiscal reforms such as floating the Australian dollar and allowing entry of foreign banks into the country made Australia much more open to the global economy. The subsequent coalition government undertook further economic reform from the mid-1990s. This neoliberal agenda continued through the 2000s and was characterised by: fiscal conservatism; labour market deregulation; mutual-obligation pacts; introduction of a national competition policy, and a move away from the welfare state (O'Neill and Fagan, 2006, pp. 206-207; Hogan and Young, 2015, p. 323).

The transformation of Australia's rural economy in the latter part of the 20th Century was notable as O'Neill and Fagan (2006, p. 211) point out:

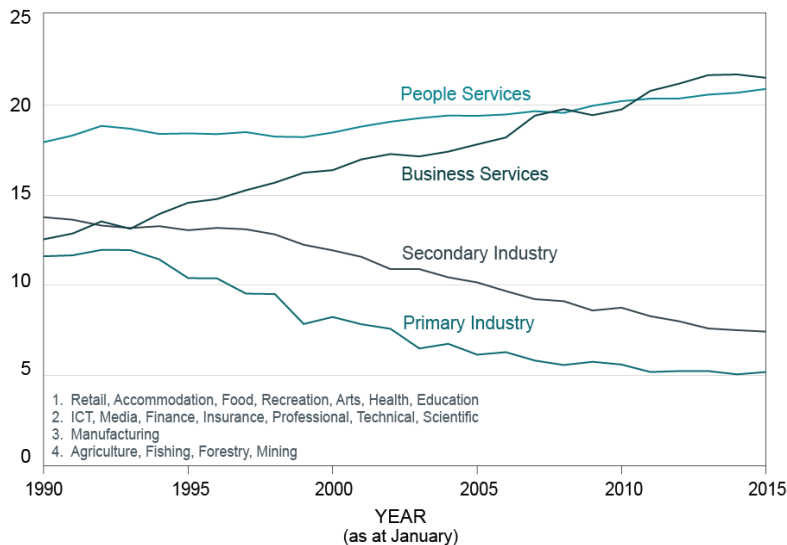
... the 1980s period of State-engineered market liberalisation produced a fundamental shift from the protectionist trade policies which had been one of the pillars of Australia's post-1950 economic policy framework.... By the end of the twentieth century, Australia was judged to have achieved the lowest overall barriers to trade and investment among OECD countries.

Regional areas were affected in many ways by the changes wrought by globalisation and deregulation. Structural changes affecting agriculture went beyond the family farm to have a major impact on many country towns which serviced the industry. In turn this had impacts on population and settlement patterns (Hogan and Young, 2013, pp. 325-6). Traditional industry sectors like agriculture accounted for a falling proportion of Gross State Product (GSP) compared to the rapidly growing business services sector (Figure 2). The critical implication of this structural economic change is that business services tend to concentrate in larger cities. Thus city-based economies increased their share of growing industry sectors. The declining importance of agriculture in relative GSP terms had a spatial outcome for rural areas as they could not easily compensate by switching to new economy sectors which favoured places like Melbourne.

These shifts in industry structure have geographic implications. Agriculture is necessarily a rural activity but, as labour requirements have fallen in the sector since the 1960s, the need for large populations across rural regions has lessened. In contrast, the business services sector

gains greater benefit from agglomeration and cities have generally formed the focus of growth in this sector.

Figure 2: Industry Share of Gross State Product (GSP), Victoria, 1990 to 2015



Source: ABS *Australian National Accounts: State Accounts*, cat. no. 5220.0.

3. HUMAN CAPITAL

Human capital is a term used by economists to refer to the stock of knowledge or characteristics of a worker that contributes to their productivity. Investments in human capital may take the form of schooling, on-the-job training, medical care, as well as migration and searching for information about employment opportunities or incomes. Investment in education and training of individuals can enhance their level of human capital and this will be valued in the market because it increases firms' profits. These investments improve peoples' skills and knowledge and in doing so, they raise productivity and contribute to economic growth (Schultz, 1961, p. 1; Becker, 1964, p. 1).

While economic theorists were interested in the role of human capital in economic production and growth, their interest also captured the significance of human capital investment for the individual. While firms may benefit from the higher productivity level of a skilled workforce, the individual also has an incentive to undertake investment in themselves (Becker, 1964, p. 61). There is an incentive for individuals to invest in their own human capital as this can lead to returns in the form of higher incomes. These returns are gained over the long-term so, in economic theory, the earlier one invests the longer the period in which to gain the returns (Schultz, 1961, p. 4).

The work of Schultz and Becker in the 1960s represented part of a growing range of economic theorists who were seeking an explanation of economic growth that accorded more with reality than did neoclassical models of the 1950s. Much academic work was initiated as a result of the lack of clarity around technological progress in the neoclassical model. Kaldor looked at the way in which new ideas and technical innovations required the existence of particular types of capital goods for them to be absorbed into an economy (Kaldor, 1957, p. 595), while Arrow began examining the role of learning in production and on the level of productivity (Arrow, 1962, p. 157). An additional perspective on human capital was provided by Nelson and Phelps who argued that education is particularly important for the functions that require adaptation to change (Nelson and Phelps, 1966, p. 70).

From this group of economists, it was the work of Schultz which had the greatest influence on later work, notably on the development of endogenous theories of economic growth in which human capital becomes a key driver of technological progress through innovation and creativity. Work by Romer (1986, 1990) and Lucas (1988) are the most often cited in this revised view of human capital. Within a neoclassical framework, human capital is still an exogenous factor – an external component which is part of the ‘technological progress’ element that had remained undefined in models from the 1950s. The development of endogenous theories of economic development placed human capital more centrally in processes of innovation which, influenced by the work of Schumpeter from the early 20th century, was part of the dynamic process of economic development, albeit with the subsequent costs of obsolescence (Schumpeter 1934, p. 217).

The work of Romer (1986) brought human capital into the discussion of economic growth and agglomeration. In Romer’s model, knowledge is itself a form of capital and it is incorporated as an endogenous element which directly influences economic growth (idem, p. 1003). The investment in, and accumulation of, knowledge provides a positive externality as knowledge spillovers benefit many firms across the economy. It displays increasing rather than decreasing returns as knowledge can grow ‘without bound’ (idem, p. 1003).

The role played by knowledge externalities associated with human capital was also shown by Lucas (1988). Like other researchers in the human capital field before him, he was seeking to explain the residual element of ‘technical progress’ in the neoclassical models of Solow (1956) and Swan (1956). Influenced by the works of Schultz (1961) and Becker (1964), he added human capital to his model of economic growth. In doing so, he noted that there were both internal and external effects of human capital investment. The individual gains from human capital investment (internal effect) but knowledge spillovers from human capital investment have economy wide (external) effects. The latter is an important contributor to economic growth and knowledge accumulation (Lucas, 1988, p. 18). The external effects of human capital are significant and, for Lucas, they helped to explain the existence of large cities, the higher costs of which would suggest that people should leave them rather than be attracted to them. However, the external effects of human capital and knowledge spillovers, makes cities highly attractive. As he notes, ‘What can people be paying Manhattan or downtown Chicago rents *for*, if not for being near other people?’ (idem, p. 39).

4. DIVERGENT GROWTH AND AGGLOMERATION PROCESSES

Economists in the neoclassical tradition had been concerned with processes of convergence and divergence and many empirical studies at international and regional levels sought to test which was more likely to occur (see Martin and Sunley, 1998, p. 203 for a review). However, neoclassical approaches had also been challenged due to their inability to explain empirical observations about the existence of, or the speed of, expected convergence trends in income, capital-labour ratios and factor prices (Bodenhofer, 1967, p. 448; Lucas, 1988, p. 17). At a more fundamental level, writers such as Myrdal (1957) actively challenged the idea of equilibrium, highlighting the tendency of economic and socio-political forces towards uneven development and perpetuation of inequality (idem, p. 26). Myrdal’s work was set within debates around international inequalities between nation states (a key concern of the new United Nations for which he worked). While he recognised that the process had a parallel at the sub-national level, his work was set more within development economics than urban agglomeration. Nevertheless, his description of circular causation processes highlighted the ways in which virtuous circles of growth and prosperity, or vicious circles of decline and disadvantage, could occur spread across the landscape (idem, p. 12). Initial events affecting a local economy can lead to vicious or virtuous cycles. In the negative case, an initial industry

closure for example may lead to a cumulative pattern of out-migration and disinvestment. In a positive example, an initial startup business, or new resource opportunity may create an increase in demand which is followed by increasing investment and subsequent development. This tendency for economies to diverge from an initial state is seen by Myrdal as a more natural tendency which can only be checked by intervention of some kind (*idem*, pp. 23-26).

The emphasis on uneven development was also evident in the work of Hirschman (1958) and Perroux (1955). The process of cumulative causation fitted well with the ideas of urban analysts seeking to explain the dynamics of urban agglomeration (Stough *et al*, 2011, p. 6). These analysts included both geographers and economists who sought to describe and explain the dynamics of urban externalities and spillovers. Among economists, the concept of localisation externalities goes as far back as Marshall in 1890 who described the advantages for firms locating close to each other (Marshall, 1890, IV: 10.3 para 1):

When an industry has thus chosen a locality for itself, it is likely to stay there long: so great are the advantages which people following the same skilled trade get from near neighbourhood to one another.

In modern parlance, these localization externalities can be described in terms of: labour market pooling; supplier specialization; and knowledge spillovers (Cortright, 2006, p. 8). These externalities, or spillovers, lower the transport and transaction costs for people, goods or ideas. Both customers and suppliers can benefit from proximity and higher levels of specialization can occur. Labour sorting is also enhanced, with better matching of jobs and positions leading to higher levels of productivity. Employees can also benefit from such specialization in terms of: acquiring new skills; having a greater choice of potential employers; and, accessing higher incomes (Marshall 1890, IV: 10.3 para 3):

... a localized industry gains a great advantage from the fact that it offers a constant market for skill. Employers are apt to resort to any place where they are likely to find a good choice of workers with the special skill which they require; while men seeking employment naturally go to places where there are many employers who need such skill as theirs and where therefore it is likely to find a good market.

Other types of benefits arise from urbanization externalities. Firms locating in large cities not only benefit from the co-location of other firms, they also benefit from having access to a diversity of urban amenities such as business services, cultural activities, and high quality infrastructure (Harris, 2011, p. 929). Jacobs (1969) outlined the ways in which cities enable economic growth through such urbanization externalities. The diverse range of producer services and local services found in large cities provide an array of support services for existing and nascent firms (Jacobs, 1969, p. 181):

In cities with many organizations supplying so many bits and pieces of work, it is possible to start a new exporting organization while depending upon others for many of the goods and services one needs.

The social and cultural amenities offered by large cities themselves act as an attractor of workers and businesses. The perspective of Jacobs is supported in the work of Lucas (1988) who recognized that cities afford significant information spillovers through the clustering of human capital.

An added attraction of large cities is the higher wage levels compared to non-urban regions. The causes of this 'urban wage premium' presented various questions: was it due to a simple level effect where those moving to the city received a wage increase straight away, or did urban wages increase over time? If the latter, was it due to the greater efficiency of a large city in terms of matching skilled workers to well-paid skilled jobs? Or did cities themselves promote learning, thus increasing the levels of human capital and hence higher wages?

Glaeser and Maré (1994) found that longer residence in cities created higher incomes and that migration out of cities did not automatically reduce wage levels. From this they concluded that cities were generators of human capital: ‘Workers are actually acquiring more skills in dense environments’ (idem, p. 4).

Discussions of human capital in cities are related to studies of innovation. Schumpeter’s work in the early 20th century highlighted the role of the entrepreneur in developing ‘new combinations’ which referred not only to new products but also new processes, markets, or sources of supply (Schumpeter, 1934, p. 132-5), in other words, innovation. The process of innovation and adjustment towards a new economic state were fundamental to the process of economic growth and development (idem, p. 245):

The stream of goods is enriched, production is partly reorganised, costs of production are diminished, and what it first appears as entrepreneurial profit finally increases the permanent real incomes of other classes.

Because large cities are seen to have high levels of human capital, dense networks and information spillovers, they are seen as being a driving force of innovation and development. Florida (2002) emphasises the role of human capital, urban amenities, social diversity, and the location of creative people in cities as an important component of innovation. These ‘creative’ locations, in, turn attract more creative people and innovative firms, particularly those in high-technology (idem, p. 754). Scott and Storper (2003, p. 581) also supported the view that agglomeration was central to innovation and economic development:

These city-regions are locomotives of the national economies within which they are situated, in that they are the sites of dense masses of interrelated economic activities that also typically have high levels of productivity by reason of their jointly-generated agglomeration economies and their innovative potentials.

While many of the ideas around innovation and cities became popular within academic and government circles, their very popularity led to a dilution of many concepts. Terms like ‘knowledge economy’ which began to be widely used in the 1990s (see for example, OECD, 1996) were compelling as a notion, but almost impossible to accurately define or measure. As Harris points out in his review of regional growth theories, this is not unlike the earlier work on growth poles which was an appealing concept but proved to be very difficult to define precisely (Harris, 2011, p. 934, citing Richardson, 1978). From the point of view of this thesis, another key problem is that this literature has moved away from an understanding of core-periphery relationships to one that not only focuses on cities but seems to exclude the possibility of non-city narratives.

Admittedly Krugman in his influential work *Geography and Trade* (1991a) was positing a core-periphery model of economic growth in which a transition from dispersed activity to a core-periphery pattern occurred when one or more of the following occurred: a fall in transport costs; an increase in economies of scale; or, an increase in the proportion of expenditure on non-agricultural goods (Krugman, 1991b, p. 487). However, writing 20 years afterwards, he noted that the New Economic Geography that his work spurred had focused less on geographical patterns of core and periphery, and more on economic clusters (Krugman, 2010, p. 10).

The growing focus on clusters and city agglomeration may be seen in the context of the significant point in human history, 2009, when urban living surpassed rural living as the most dominant human settlement pattern on the planet (UN, 2009). While the urbanisation of humanity has been a long process, the milestone of 50% was seen as significant in world history and tended to focus a lot of popular and policy attention on urbanisation and cities. This focus on cities created a narrative that excluded views from the periphery. And with the

dichotomous nature of Australian settlement systems brought about by capital city primacy, this city focus had the effect of excluding much of regional Australia. As noted by Tonts *et al.* (2012, p. 300), ‘Metropolitan Australia is mainstream Australia.’

5. HUMAN CAPITAL MIGRATION – PROCESSES AND OUTCOMES

While human capital was clearly a very important element of the urban dynamics being described by Glaeser and others, the role of mobility in determining the location of that human capital was beginning to be addressed by a number of authors. Various researchers have looked at the intersection of migration and human capital and have delivered some consistent findings:

- More educated individuals are more likely to migrate (Kodrzycki, 2001, p. 30; Ritsilä and Ovaskainen, 2001, p. 317; Faggian and McCann, 2009, p. 212).
- Peripheral regions are more likely to experience a net loss of human capital (Bodenhofer, 1967, p. 447; Stockdale, 2006, p. 360; Ritsilä and Ovaskainen, 2001, p. 317; Argent and Walmsley, 2008, p. 148; McHenry *et al.*, 2014, p. 236).
- Cities attract human capital (Glaeser and Maré, 1994, p. 318; Glaeser and Saiz, 2004, p. 27; Corcoran *et al.*, 2010).

Job search theory places migration behaviour within the context of labour markets and jobs. According to the theory, labour will consider taking a job if the wage is equal to or higher than minimum level acceptable to the individual. A job seeker will continue to look for work until this ‘reservation wage’ is met (Faggian and McCann, 2006, p. 480). For individuals who have invested in human capital, for example by obtaining higher education, the reservation wage is likely to be higher. They are likely to spend longer looking for the right job and tend to search over a greater geographical area (McCann, 2013, p. 216). Job search theory is often combined with human capital theory in order to ascertain the degree to which education levels affect the propensity to migrate (Lemistre and Magrini, 2011, pp. 3-4).

A number of researchers who were developing theories of human capital in the 1960s recognised its relationship with migration. Sjaastad (1962) looked at returns to the individual for their investment in a migration decision (*idem*, p. 83). The concept of human capital is significant in this approach because it views migration as potentially an investment made by the individual to increase their earnings in a more conducive labour market in another location (*idem*, 1962, p. 88).

Bowles (1970, p. 357) states this as one of the key hypotheses in his 1970 study of migration as a form of human capital investment:

The present value of expected future income in the ... destination is probably the best measure of the gross economic benefits of migrating. The present value of expected future income in the place of origin represents the economic benefits which are foregone by moving. Thus we can expect that the migration rate will be positively associated with the present value of the stream of income differences between the origin and destination, summed over the expected working life of the prospective immigrant.

Bodenhofer (1967) aimed to integrate labour mobility into the theoretical framework of human capital theory. In particular, he was interested in the situation of structural economic change where individuals may require new skills and relocation. In some cases, migration alone will ensure that an individual can secure the value of their human capital investments but in other cases, additional qualifications or skills will need to be gained (Bodenhofer, 1967, p. 437-8).

As with investment in formal education, the benefits of migration will be accrued over a longer period (and thus be higher) if the investment is made early. While other explanations of migration behavior explain the fact of young adults being more mobile than older age groups (for example, life stage analysis), the returns on mobility may also be subject to the same theoretical explanation – moves made early in order to enhance investment in human capital will be of greater lifelong benefit if they are made early in one's working life (Schultz 1961, p. 3; Sjaastad 1962, p. 88; Becker 1964, p. 50; Bowles 1970, p. 357).

Studies such as those cited above tend to focus on the migration of those who have already attained higher education. Another category is the migration of those seeking higher education. Authors such as Stockdale (2006) and McKenzie (2010) have looked at this type of human capital migration. The problem is that the attainment of human capital usually requires people to leave smaller rural settlements to move to a city where higher education is available. This represents a loss of human capital unless the person returns to their home location (Stockdale, 2006, p. 360).

In Australia, this process of moving in order to gain higher education is possibly more significant than subsequent migration movements. This is in contrast with work on human capital migration in the British context where graduate migration was often the key point of change (Faggian and McCann, 2009). Those who had grown up in northern parts of England were able to access tertiary education within the Northern region but subsequently tended to migrate southwards to gain employment opportunities in London, a region noted by Fielding (1992) as an 'escalator region' in terms of social and economic mobility. In the Australian context, the major move tends to be made for regional students after finishing secondary school. Some students living outside the capital cities will have access to tertiary institutions in large regional cities, however, the pattern of primacy which characterises Australia settlement system creates a large gap between the size and scope of universities outside the capital city compared to those within.

At one level it might be argued that, whether human capital is mobile before or after the acquisition of skills, there is still an outcome which favours certain regions, be it London or Melbourne. And the net outcome is potentially one of polarisation between regions experiencing net loss of human capital and those experiencing net gain. The self-reinforcing process of cities attracting human capital, and in so doing becoming more attractive, raises many questions in the context of Australia's urban primacy, as it suggests that capital cities will enjoy a cumulative gain in human capital over time, potentially at the expense of non-metropolitan areas.

Very few authors have challenged the view that large cities are the only places where innovation and human capital can congregate. Shearmur (2012, p. S9) articulates the concern which is central to my thesis:

Another question that is not usually confronted concerns the apparent absence of any constructive role that non-urban settings can play in the innovation game. The consignment of non-urban spaces (and also of non-creative classes) to the scrap-heap of economic dynamism is of some concern ...

Shearmur (2015) challenges the view that cities are the only sources of innovation. He argues that some types of information require immediate action and, in such cases, proximity between individuals or firms is advantageous. However, other types of information or knowledge lose their value slowly and therefore distance is less of a constraint. Furthermore, proximity itself may mean different things apart from physical proximity. It may include social, organisational, or cultural connections which form strong networks across a variety of distances (idem, pp. 2-3). This view of proximity appears to be borne out in the work of Fitjar

and Rodríguez-Pose (2011) who surveyed 436 managers of regional businesses in Southwest Norway – a peripheral region which has continued to remain both wealthy and innovative. Factors such as local collaboration, agglomeration and clustering were not found to be significant. Instead, it was international networks and long-distance cooperation which accounted for much of the product innovation occurring in the region (*idem*, section 2).

The education levels and attitudes of managers were also found to be important in the creation and retention of international networks, suggesting that human capital can play a significant role in bringing innovative practices to peripheral regions (Fitjar and Rodríguez-Pose 2011, p. 570):

.. managers with high levels of education would have been forced in the past—due to the absence of a local university—to go elsewhere in Norway or even abroad in order to complete their studies. This personal trajectory would have prepared more educated individuals to expand their horizons and encouraged them, on their return to southwest Norway, to continue developing collaborations that are not necessarily place-based. The general open-mindedness associated with the life experience of moving in order to improve their level of education can be considered as a fundamental factor in overcoming place-boundedness in their work relationships.

These alternative views to the mainstream narrative of city-based innovation open some interesting avenues for considering the future prospects for human capital and economic potential in regional Victoria. An initial exploration of these ideas within the context of the PhD portfolio is presented in the following section.

6. THE PORTFOLIO

Six articles form the body of the PhD dissertation (McKenzie, 2003, 2004, 2006, 2010, 2015; McKenzie *et al*, 2014). These articles highlight key aspects of demographic and economic change in regional Victoria during the 2000s.

Article 1 in the series (McKenzie, 2003) outlines a government project initiated by the author. This ‘Regional Atlas’ project aimed to identify and compile information on issues affecting the Victorian State government in the early 2000s (Victorian Government, 2002). At that time, more integrated, whole-of-government approaches to policy-making were being promoted. To support this inter-agency approach, the Atlas project aimed to provide an integrated set of information upon which interagency discussions could be held, and policy developed. The starting point for selecting information was a review of issues identified by senior government officers. This ‘issues-led’ approach differed from the more common ‘data-led’ approaches, enabling a greater focus on new and emerging challenges rather than on past issues reflected in many existing datasets.

The reason for developing a journal article on the experience of this project was that it was innovative and unique in its attempt to pull together related, policy-relevant, material upon which whole-of-government decisions could be based. Government policy approaches can benefit from interagency collaboration and coordination. Underpinning this approach is the development of an integrated knowledge base for understanding trends and issues. This article highlights both the opportunities and challenges of a whole-of-government approach using the experience of the Victorian Government Regional Atlas. The cross portfolio issue of skills shortages became apparent through this inter-agency approach, reflecting the implications of human capital deficiencies in regional areas.

The issue of skill shortages affected multiple government portfolios however there was a dearth of information on the topic at that time. Hence, the initial exploration of skills shortages undertaken for the Regional Atlas was expanded with Article 2 being the resulting

summary (McKenzie, 2004). Of particular interest was the different conceptual approaches being taken to the investigation and measurement of the issue. In terms of academic discipline, the main approach was influenced by economic understandings of skill shortages – mismatches between labour supply and demand and policy responses involving initiatives such as training schemes. However, an emerging perspective on skill shortages was geographical, with skill shortages being tied to place, rather than industry sector. Of growing concern in this regard was the non-metropolitan emergence of many skills shortages, especially for professional positions. The conceptual framework developed in the paper was subsequently used by the Australian Government by the Bureau of Transport and Regional Economics (BTRE, 2006, p. 7).

A new edition of the Regional Atlas was developed in 2005 (Victorian Government, 2006). Issues of government concern were reviewed again and, hence, it represented a new atlas rather than simply an update of the earlier edition. Key issues arising from this edition of the Atlas are outlined in Article 3 (McKenzie, 2006). Themes of population and economic change are entwined in patterns of: regional growth and decline; sectoral change in employment; internal migration, and the growing concentration of population into large urban agglomerations and their immediate hinterlands. Implications such as income polarisation were added to the issues of skills shortages explored previously.

The cumulative impacts of these changes were of concern to government. The growth pressures on Melbourne stood in stark contrast to the plight of many regional areas, the more peripheral of which had experienced population decline over many decades. The aspirations of regional policy makers to retain people in, and attract them to, regional areas were being undermined by the strength of economic and demographic centralisation being experienced in the 2000s. A particular area of concern was the loss of young adults from regional areas as this represented a key loss of human capital and demographic potential (future family formation) from regional areas. Once again, this critical, emerging issue for government was not easily informed by existing data sources: the degree of return-migration was unknown, and it was unclear from aggregated data whether regional net migration gains of older age groups were returnees or metropolitan residents seeking a new lifestyle ('treechange' and 'seachange' as it became known in popular parlance).

In order to better understand the drivers of youth migration, a qualitative research project was undertaken in 2009 using the services of Sweeney Research for the fieldwork component (focus groups and online survey). The resulting analysis and findings was presented in Article 4 (McKenzie, 2010). The target samples for this research were young adults making a mobility decision at the point of starting tertiary education. In rural Australia, the decision to undertake tertiary studies often involves making such a migration decision. Thus the accumulation of human capital is intertwined with spatial outcomes of migration. This combination of demographic change (migration) with educational decisions (where to undertake tertiary study) was timely given emerging academic interest in the topic from a human capital perspective (Faggian and McCann, 2009; Corcoran *et al.*, 2010). The study highlighted key reasons for young people to move to the metropolitan area of Melbourne: perceived status of metropolitan universities compared to regional; the excitement of moving to a large city with its social and cultural opportunities, and the potential for career opportunities following graduation. Even where regional students remained to attend a local university, there was evidence that many still sought metropolitan experience after graduation as a way to progress their careers.

While many young adults in regional areas seek educational and economic opportunities in Melbourne, older working-age groups display neither the level of mobility nor the net

movement towards the metropolitan area. While there is a generational shift towards living in larger cities, short-term locational decisions often favour remaining in a familiar location. Even where a local industry closes, commuting to access other jobs is often favoured over out-migration. While labour mobility is an assumption in much economic theory (and often seen as an desirable adaptive response), it can have negative social consequences for a town. Where commuting, rather than out-migration, is a viable alternative, social cohesion and social capital can be maintained. (McKenzie, 2012).

This preference for commuting in the face of an industry closure was highlighted in the case study of Stawell which forms the basis for Article 5 (McKenzie *et al*, 2014). The paper compares the situation between two regional towns in which long-distance commuters reside - Busselton in Western Australia and Stawell in Victoria. The desire by such regional communities to retain their local population and access jobs far afield challenges assumptions of economic theory relating to labour force migration. The opportunities presented through long distance commuting – flying in particular – are being pursued with the aim of retaining the local population even in the face of local employment losses. As such, the case studies provide an alternative picture of how communities might adapt to a changing economy while retaining cohesive communities (social capital) (DTPLI, 2003, p. 38):

... tapping into a wider range of mining jobs across the country could in fact help raise the skill levels of Stawell based mining employees bringing both higher incomes and a wider range of knowledge and skills into the community.

Just as Stawell has been seeking ways of surviving and flourishing in a rapidly changing world, other centres have been determining their own responses and pathways in the face of economic challenges. Case studies of Goulburn and Orange (NSW) form the basis of research findings presented in Article 6 (McKenzie, 2015). The research aimed to explore the factors that contribute to regional economic performance. Of interest was the way in which regional centres with many similar attributes (competitive advantages) can have different patterns and trajectories of economic and population growth. The role of non-economic factors was expected to explain some of these differences and qualitative research revealed some of the social and cultural factors likely to affect future development pathways for each city.

The body of work outlined above informs our understanding of the causes, processes, and outcomes of change. A picture emerges of communities grappling with economic change while seeking to retain some of the key values of regional life – strong communities and social cohesion. These elements are not separate from economic fortunes, in fact they may hold the key to future economic success. The competitive advantage of regional settlements lies as much with their social and human capital as with their physical and resource capital. The human dimension is one that is of central importance to the role of government and one which can sustain future economic wellbeing in regional Australia, irrespective of whether population growth is high or low.

7. DISCUSSION

Work by writers such as Glaeser (2012) highlight the economic and social success of large cities, their dynamism and complexity, and the ways in which linkages, communication, and density can create innovation and continued growth. As much as any other, this narrative created among many academic geographers a view that the city is where things are happening in the modern world. Yet this leads to a question that underpins much of my own research work – whatever happened to the periphery?

The portfolio presented in the previous section documents the pattern of migration for human capital accumulation (McKenzie 2010) and the potential impacts of human capital scarcity

evidenced through regional skills shortages (McKenzie, 2004). Yet, issues like skills shortages should not be seen as the end of the story. Such shortages themselves can lead to innovative responses, from mobile service delivery to industry-led regional training partnerships.

Where jobs are scarce in regional areas, labour has shown flexibility through mobility – commuting rather than permanent migration (McKenzie, 2012; DEPI, 2014; McKenzie *et al*, 2015). This has created an interesting interplay between human and social capital – maintaining social networks while accessing an expanded range of alternative job, and hence learning, opportunities (DTPLI 2013, p. 40):

With Australian mining becoming more mechanised it is likely that future jobs in the industry (and certainly the higher paid jobs) will be those requiring higher levels of formal education, for example engineering or electronics, rather than being based on manual labour. FIFO alone will not transform the future education levels of the Stawell work force although it will enable exposure of local workers to a more diverse range of mining opportunities. In this regard, it may influence the aspirations of local workers and their families and enable much greater engagement with a globalised mining sector, thus generating future economic opportunities and pathways.

A final theme within the portfolio relates to attitudes and perceptions and their role in regional economic success. This is relevant to human capital through attitudes to, and aspirations for, education. In Orange, many local leaders are home-grown but have had education or experience elsewhere, notably Sydney but also overseas. Several interviewees in Orange highlighted the importance of young adults leaving the town and then returning with a wider range of experience and ideas to contribute to the city (McKenzie, 2015, p. 308).

... the process of acquiring an education, usually involving moving to another location or gathering experience from a variety of circumstances, sectors or locations, is significant in understanding how the world works. ... Learning about or experiencing new ways of doing things can lead to a wider range of options and greater ability to respond to negative trends or unexpected events. (McKenzie, 2014, p. 47)

This aligns strongly with the findings from Southern Norway by Fitjar and Rodríguez-Pose which were presented in the previous section. It also shows how educational aspirations at the regional level can have long term benefits, even if it makes young people more likely to leave for a period of time. It is perhaps a point of debate as to whether such ‘leavers’ are likely to return and contribute to regional economies. Yet there is emerging evidence that many do wish to return at some point (McKenzie, 2010, p. 155; McKenzie, 2016, p. 10).

Whether moving to attain human capital or moving after the attainment of it, the draw of the city has played a central role in economic geography and spatial economics over the past three decades. The patterns of economic and demographic change in Victoria seems to fit well with these explanations. Yet, despite the primacy of cities like Melbourne, there is vibrancy in many non-metropolitan regions and this requires as much attention by academics as city growth. Innovation does occur in non-metropolitan areas and human capital may be found there. Furthermore, the deepening of ICT infrastructure and the increasing ubiquity of smart wireless technology may offer opportunities to regional areas. While Friedman may have overstated the level of ‘flatness’ in the world (2005), some of his views may have been premature rather than totally wrong. It is interesting to read Jacob’s description of an acquaintance choosing New York as a location for their business in the 1960s (Jacobs, 1969, p. 189). The inventory they required involved many different suppliers and thus the diversity of a large city proved the most efficient location. In the current age, the entire list would not only be available online, but some items may *only* be available online. This, of course does not mean the city-dweller need leave town and all its amenities, but it does mean that

someone in a location like Bendigo or Stawell now has access to goods and services that they did not have before. And, just as increasing mobility has given access to a wider range of job opportunities while allowing workers such as those in Stawell the option of living in the place where their social ties and identity are strong, so technology may provide increasing access to goods and services from across the globe. The greatest challenge for regional areas is realizing the full benefits of these opportunities through aspiration, entrepreneurship and the development of their own human capital.

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The Regional Economic Development Paradox: Policy Order and Complex Practice

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ABSTRACT

Regional economic development, in its various guises, is deployed throughout much of Australia. Whilst it remains a contested activity, conventional wisdom extols the need to embrace complexity, whilst simultaneously imbuing order and control. Insights from the literature reveal that regional economic development organisations are often the primary interface between government and regional socio-economic systems – two highly dynamic and multidimensional, yet opaque, operational landscapes, characterised by interactive network relationships across place and time. Derived from an analysis of the Regional Development Australia Northern Inland Committee, we find that regional economic strategies may tend to reflect a bias towards structured processes, transactional relationships and hierarchical decisions, which eschew practical complexities. We identify some striking future risks for regional development if extant practice continues as we seek to contribute to a richer understanding of the complexity that confronts economic development policy-makers.

DISCLAIMER

The views expressed in this paper are those of the individual authors and do not necessarily reflect the views of their respective institutions.

INTRODUCTION

Regional economic development is an evolving policy field as it responds to new social, economic and environmental opportunities and challenges (Pugalis and Gray, 2016; Stimson, Stough, & Roberts, 2006). As a highly politicised policy domain it takes different shapes and forms over time; moulded by the interests, ideologies and power dynamics between different constellations of actors interacting in, through and across particular places. In spite of a chequered history in Australia, where ‘successive governments at the federal level have shied away from committing significant resources to regional development’ (Pape, Fairbrother and Snell, 2016, p. 913), regional economic development, in its various guises, is deployed throughout the majority of the country’s diverse landscape – notably although certainly not exclusively through the Regional Development Australia (RDA) program – although a shared understanding is lacking (Regional Australia Standing Council, 2013). Even so, extant literature, such as the definition provided below by the Institute of Economic Development

www.ied.co.uk/images/uploads/A_Definition_of_Economic_Development_1.pdf, indicates that regional economic development is generally considered to refer to:

A set of policies and actions designed to improve the performance of a spatially defined economy for the benefit of all residents.

Such definitions and interpretations of regional economic development reveal the dual objectives of economic growth and social equity, which are not necessarily complimentary, and also demonstrate the interactions between attaining policy order in the face of practical complexity through seeking to 'define' spatial economies.

Whilst regional economic development remains a contested activity, conventional wisdom extols the need to embrace complexity, whilst simultaneously imbuing order and control. To embrace and *work with* complexity, those leading and practicing through regional economic development organisations (RDOs) must navigate intricate spaces and networks at the interface of two complex systems: evolving government systems and transforming regional socio-economic systems. In terms of evolving government systems, witness new modes of service delivery, fiscal tools and accountability frameworks as well as more collaborative modes of and networked-based forms of governance and partnership working, which are deemed to marshal diverse capabilities and facilitate the co-production of services.

Changes to regional socio-economic systems are also altering the performance of regional economic development, including changing industrial production, the ongoing decline of manufacturing as a share of the regional Australian economy, and entrenched patterns of uneven development. In terms of the latter, recent research suggests that the further an Australian lives from metropolitan areas the less income they will have (except in mining dominated remote areas), they will have on average worse health outcomes and suffer more from mental health issues (Commonwealth of Australia, 2015).

To confront these complex system changes the twenty-first century economic development practitioner is often expected to exhibit a wide range of skills to help navigate multifaceted processes (e.g. institutional, political, financial etc.), and to broker and facilitate sustainable regional economic development. Consequently, economic development practitioners are expected to be dexterous, nimble and resourceful; influencers, networkers, brokers and facilitators; business savvy and versed in government processes; ethical and accountable; knowledgeable (in a codified and place-based sense); boundary-spanners and collaborators; strategic and politically sensitive; and understand what works, why and where, as well as what does not. The onus is, therefore, on economic development practitioners through institutions, such as RDOs, to be agile, flexible and responsive to multifarious changes; expressed through the notion 'fleet-of-foot' (Pugalis and Townsend, 2013). Making sense of and 'managing' such complexities is a major public service challenge, but is particularly acute in regional development.

The ambit of this paper is to investigate what we refer to as the regional economic development paradox, which attempts to instil policy order in the face of complex practice. The research is intended to inform contemporary debates concerning the efficacy of RDOs and, specifically, the RDA Committees, which are in the midst of an independent review. New South Wales (NSW), which has a long history of regional economic development policy, which can be traced back to at least the 1940s, provides the setting for empirical analysis. Over more recent times the NSW Government Office of Regional Development has utilised 13 Regional Offices, staffed by Business Development Managers to help facilitate regional development (NSW Department of Industry, n.d.). Conversely, 14 RDOs, known as RDA Committees, which are administered by the Commonwealth's Department of Infrastructure and Regional Development, are intended to provide regional economic

leadership (Commonwealth of Australia, n.d.). The New England North West Region of New South Wales Australia, located inland between the state capital cities of Sydney and Brisbane, provides a case study to investigate the interface between government and the regional socio-economic systems as we examine the role of the RDA Northern Inland (RDANI) Committee.

The research approach passed through four key phases. Firstly, a review of scholarly literature about regional development in Australia and complexity was undertaken to help situate the study in a broader theoretical context. Secondly, the Regional Development Australia Northern Inland was selected as a case study for two reasons. First, the literature indicated that the 14 RDA Committees in NSWs share commonality of organisational structure and priorities. Given the aim of this article, one RDA Committee was considered sufficient to highlight the influence of the single phenomenon (Gerring, 2004) of complexity and its potential influence on organisational structure, strategic planning and performance. The case study approach was used to provide a boundary for analysis and to increase our understanding of social problems (Gomm, Hammersley and Foster, 2009), which in this instance was the future challenges faced by RDOs. Thirdly, empirical material from RDANI was analysed according to the conceptual perspectives identified in phase one. Fourthly, the complexity conceptual framework was applied to RDANI as an organisation to identify key new insights.

The generalizability of the findings are limited because of the single-case study (ibid). However, some generalisation can be made because RDANI shares common organisational design, stakeholders and operational environments with 14 other RDA Committees in NSW, and has some commonality with the 54 other RDA Committees in Australia. Our findings indicate that RDO strategies tend to reflect a bias towards structured processes, transactional relationships and hierarchical decisions, which eschew practical complexities. We identify some striking future risks for regional economic development if extant practice continues as we seek to contribute to a richer understanding of the complexity that confronts economic development policy-makers. The remainder of the paper is organised into four sections. First we consider the nature and purpose of RDOs in view of complexity theory. In section two we contextualise the case of the RDANI Committee, briefly reviewing key socio-economic, geographic and institutional features. This is followed in section three by an analysis of processes intended to navigate complex systems whilst simultaneously attempting to impose policy order. We conclude the paper in section four with some brief remarks.

CONCEPTUALISING REGIONAL DEVELOPMENT ORGANISATIONS IN AN AGE OF COMPLEXITY

The practice of regional economic development in Australia has been and remains institutionally and operationally complex, and involves a multitude of actors from different civic, economic and social spheres (Collits, 2008). Similar to trends in other States and Territories of Australia, and consistent with some international experiences (e.g. English regional development; see Pugalis and Townsend, 2012), regional development policy in NSW has ebbed and flowed as it has been found to be in (political) favour and out of (political) favour at various junctures since the twentieth century. Beer (2007, p. 131) argues ‘that regional development in Australia is hampered by the outcomes of our system of federalism, by political ideologies grounded in neo-liberalism that are wary of direct interventions in regional economies, and by an emphasis on short-term political responses, rather than longer term strategic interventions’.

RDOs can be conceptualised as institutional entities that are established, mobilised and deployed to oversee, lead and/or implement regional development strategies (NSW Department of Industry, 2015), regional action plans (Department of Premier and Cabinet,

2012) and regional growth plans (NSW Government, 2016) These institutional arrangements are continually being reconstituted (to greater or lesser degrees); shaped, for example, by (competing, complimentary and coevolving) actor interests, and changing spatial, economic and political conditions. RDOs are, therefore, constellations of diverse policy networks: ‘more or less stable patterns of social relations between mutually dependent actors which form themselves around policy problems or clusters of resources and which are formed, maintained and changed by a series of games’ (Klijn, Koppenjan and Termeer, 1995, p. 439). Whilst these are often comprised of the ‘usual suspects’, including political and economic elites, more marginal actors (i.e. those outside of the political and economic elites) can also be influential (Pape, Fairbrother, and Snell, 2016). The nature of these institutional arrangements performs a powerful role in shaping understandings of economic development (Douglas, Carson and Kerr, 2009). Thus, whilst the organisational forms of some RDOs can appear bounded, they tend to function in a relational manner as patterns of social relations are (de)stabilised.

State and federal governments have preferred ‘independent’ RDOs over multi-level governance vehicles, although these independent entities have often struggled to engender local influence and commitment (Beer *et al*, 2005). However, not all RDOs are state endorsed or sponsored, and their variegated institutional forms, include informal networks, soft spaces of governance and fleet-of-foot partnerships as well as ‘official’ government entities and statutory bodies. Based on the results of previous research, which identified over 1,000 RDOs operating throughout Australia (Beer and Maude, 2002), this quantum suggests that the RDO has been an important policy tool within the broader landscape of Australian regional development. Insights from the literature reveal that RDOs are often the primary interface between government and regional socio-economic systems¹ – two highly dynamic and multidimensional, yet opaque, operational landscapes, characterised by interactive network relationships across place and time.

The roles and interactions between each tier of government in regional development policy remains ambiguous and, thus, open to considerable contestation (Pape, Fairbrother and Snell, 2016). Historically, the relationship between the NSW State Government and local government could be characterised as being adversarial, although this fluctuates over time, space and policy area. Pape et al. (2016, p. 917) note that:

The current regional development policy process is characterized by state and federal government commitment to establishing regional agencies, who are given the task of developing – though not implementing – strategies of social and economic change. This enables governments to demonstrate a commitment to social and economic capacity building at the regional level, even though empowered institutions of regional governance are absent.

The ‘power’, autonomy and capacity to act of regional entities mirrors earlier critiques of RDOs (Wilkinson, 2003). In part, this can be explained by the complexity of the institutional environments, within which RDOs operate. In the case of RDA Committees, for example, Pugalis (2016) has recently referred to them as part of a patchwork regional institutional architecture. Such complexity negates against RDOs developing programs and interacting with stakeholders in a predictable manner (Patton, 2011). Instead, RDOs must contend with many variables, competing objectives and timescales (i.e. complex systems). This further complicates regional development activities and, may, limit the capacity of RDOs to navigate their role through the complex systems of regional economic development.

¹ See, for example, the mission statements and goals of RDOs.

Articulations of complex systems vary, although some key features include: non-linearity, feedback, spontaneous order, robustness and lack of central control, emergence, hierarchical organisations, and numerosity (Ladyman, Lambert and Wiesner, 2013). Firstly, regional systems emerge and evolve in a *non-linear manner* as people move, factories close, houses are built, and land uses change, for example. Secondly, there is *feedback* within complex systems, such as the relationship between water availability and its relationship to crop production. Thirdly, *spontaneous order* emerges within regional systems as change is absorbed by the many actors who have adjusted their behaviour. Fourthly, regional systems are deemed to be *robust* when they withstand change (e.g. floods or industry closure) with limited *central control*. Fifthly, *emergence* of new states of equilibrium and disorder engender further system changes. Sixthly, each entity is *organised hierarchical*, with its own level of interaction with the system and within the entity itself. Lastly, *numerosity* refers to the copious actors interacting in complex systems.

An alternative conceptualisation is provided by Holland (1992) who describes complex systems in terms of an ‘ensemble of many elements’, which refers to the prerequisite for the condition of interaction. Firstly, for systems to interact or communicate with one another requires an *exchange* (i.e. energy, matter, information etc.). Secondly, elements of the system require the means to interact for a ‘common cause’. The *mediating mechanism* can include forces, collision or communication. Without interaction a system merely forms a ‘soup’ of particles, which necessarily are independent and have no means of forming patterns or establishing order. Thirdly, *disorder* is a necessary condition for complexity as complex systems are those whose order emerges from disorder. Fourthly, *robust order* can be observed because the above three conditions are all necessary for a complex system to emerge but they are not sufficient. A system consisting of many similar elements, which are interacting in a disordered way has the potential of forming patterns or structures. Lastly, a complex system displays *memory*. Holland (1992) notes that ‘A system remembers through the persistence of internal structure’. In summary, the existence of complex systems poses a challenge to RDOs to develop an advanced understanding and appreciation of their role vis-à-vis government and socio-economic regional systems.

THE CASE OF RDANI COMMITTEE IN THE NEW ENGLAND NORTH WEST REGIONS OF NEW SOUTH WALES

In NSW, fourteen Regional Development Australia (RDA) Committees were established by the Commonwealth and NSW Government (Commonwealth of Australia, n.d.). The stated objective of RDA committee’s is to:

RDA Committees are strong advocates for their region and drivers of change and, as such, have a pivotal role in fostering regional economic development. The RDA network strengthens partnership across all three tiers of government, regional business and the wider community to boost the economic capability and performance of regions. RDA Committees are active in promoting Australian Government and NSW Government programmes and shepherding communities towards appropriate funding sources that will assist projects that work towards economic development.

The New England North West Region of New South Wales Australia provides a case study to investigate the interface between government and the regional socio-economic systems as we examine the role of the RDA Northern Inland (RDANI) Committee.

RDANI is a not-for-profit organisation, said to be ‘community based’, which receives joint funding from the Australian and NSW governments. It ‘is contracted by the Australian Government, through the Department of Regional Australia, and the New South Wales

Government through the Department of Trade, Industry, Regional Infrastructure and Services to act as a primary link between government, business and the community in the Northern region'. RDANI's 'core responsibilities', laid out in a charter, include:

- Regional business growth plans and strategies which will help support economic development, the creation of new jobs, skills development and business investment.
- Environmental solutions which will support ongoing sustainability and the management of climate change.
- Social inclusion strategies which will bring together and support all members of the community.

Box 1. Regional Development Australia Committees

RDA is a national initiative which seeks to grow and strengthen the regions of Australia. Comprising 55 Committees, the RDA network covers metropolitan, rural and remote regions across the country. RDA Committees are strong advocates for their region and drivers of change and, as such, have a pivotal role in fostering regional economic development.

The RDA network strengthens partnership across all three tiers of government, regional business and the wider community to boost the economic capability and performance of regions. RDA Committees are active in promoting Australian Government programs and shepherding communities towards appropriate funding sources that will assist projects that work towards economic development.

RDA Committees are responsible for achieving five key Outcomes:

Outcome 1: Regional Plan

A current three to five-year plan that focusses on economic development of our region. The plan must take into account any relevant Commonwealth, state, territory and local government plans.

Outcome 2: Critical issues

Advice to all levels of government on critical issues affecting our region.

Outcome 3: Priority activities

Advice to governments on priority activities that will drive regional economic development, on future economic opportunities and on our region's comparative advantages, based on consultation and engagement with community leaders.

Outcome 4: Project proposals

Assistance to local community stakeholders in order for them to develop project proposals; and referral of stakeholders to appropriate public and/or private funding sources - including the \$1 billion National Stronger Regions Fund.

Outcome 5: Promote Australian Government Programs

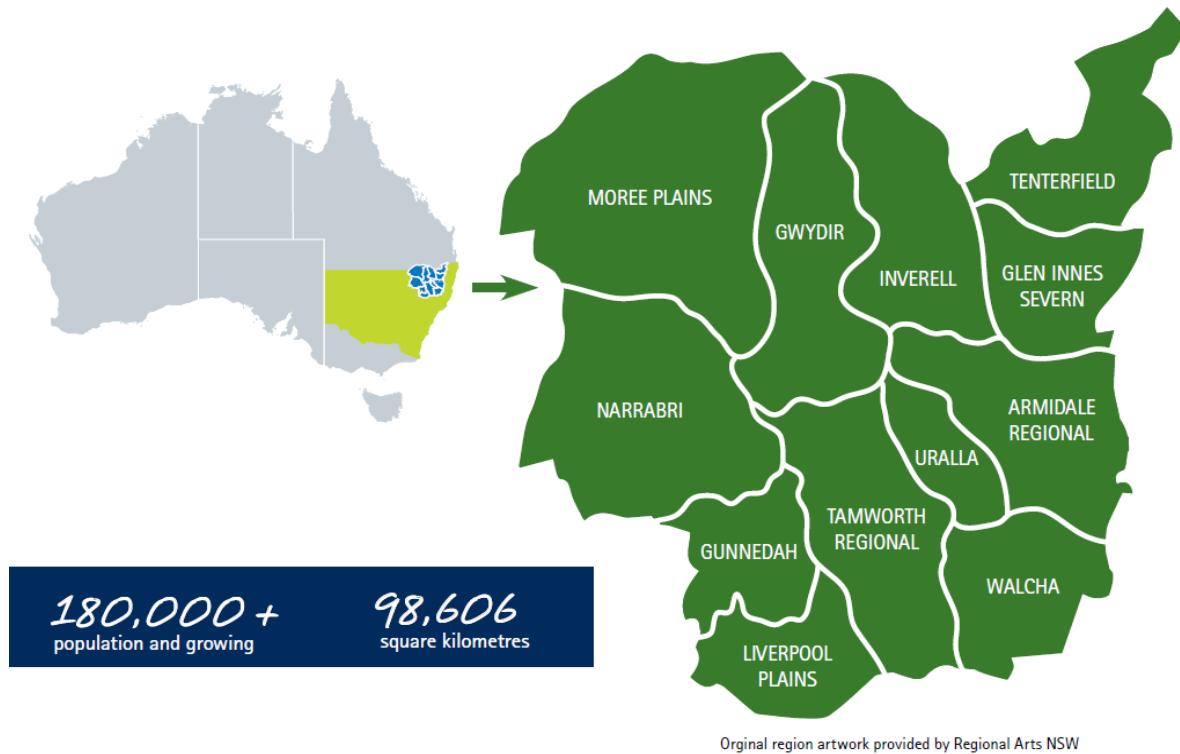
Increased awareness of Australian Government programs in our region.

Source: RDANI (2016).

In this respect, RDANI emulates many RDOs in both Australia and internationally that focus on business, environmental and people activities. The regional plan performs an important function in this respect as it is intended to 'help focus governments and communities on strengths, issues, and a work plan to achieve those priority regional development goals' (Stewart in RDANI, 2016, p. 2). Moreover, RDANI utilise 'a regional economic development framework to promote long-term regional economic growth and provide a practical focus for strengthening our region'.

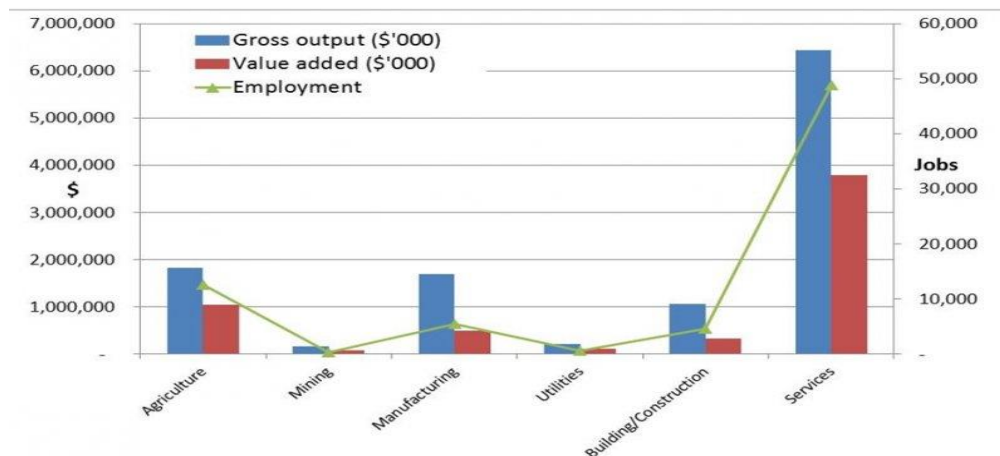
The RDANI Committee functions in an environment with many elements, with varied institutional and individual participants within a geographically diverse region of NSW. The Northern Inland region of New South Wales is located inland between the state capital cities of Sydney and Brisbane (see Figure 1). This region has an estimated population of over 180,000 people, a gross regional product exceeding \$AU10 billion, 66,233 local jobs and key sectoral strengths in manufacturing and agriculture (Regional Development Australia Northern Inland, n.d.; see Figure 2).

Figure 1. Location of RDANI and Local Government Composition



Source: RDANI (2016, p. 1).

Figure 2. Structure of the Northern Inland Economy



Source: CARE (2011).

The Northern Inland region is defined by three distinct geographic areas, the New England Tablelands and gorge country, the North West Slopes and the North West Plains, which includes the following 12 local government areas:

Armidale Regional	Inverell	Tamworth Regional
Glen Innes Severn	Liverpool Plains	Tenterfield
Gunnedah	Moree Plains	Uralla
Gwydir	Narrabri	Walcha

The RDANI has a mission ‘to ensure long-term sustainable growth and development of the region by driving and contributing to initiatives that will support economic development and jobs’ (Stewart in RDANI, 2016, p. 2). It aims ‘to be the driver of business growth, new jobs, skills development and business investment within the Northern Inland region’ and ‘to improve the economic, physical and social conditions of communities across the region’ (Regional Development Australia Northern Inland, n.d.). According to RDANI’s website (ibid.), the Committee includes a board of ‘local people’ supported by ‘a small team of dedicated staff’. In terms of skills sets, both members and officers are claimed to possess ‘extensive networks’ transecting different sectors (RDANI, 2016, p. 8):

Committee members are volunteers drawn from the region and who bring leadership, skills and experiences from the community, business, local government and not-for-profit organisations. Each RDA Committee has a broad and diverse skills base, with demonstrated networks and alliances.

According to Holland’s (1992) conceptual framework, RDANI operates within an ensemble of elements directly interacting with each other and capable of communicating and exchanging matter, and creating disorder and order (patterns or structures) as a result. To illustrate this point, Figure 3 reproduces the Northern Inland innovation network prepared by the Commonwealth’s AusIndustry (AusIndustry, 2016). This diagram is indicative of the extent of this ensemble of elements. Each of the elements has the capacity to directly interact and exchange with other elements (although the connections between the actors has not been identified), and each interaction is mediated through communication channels (e.g. information technology) or physical connections (e.g. events or infrastructure).

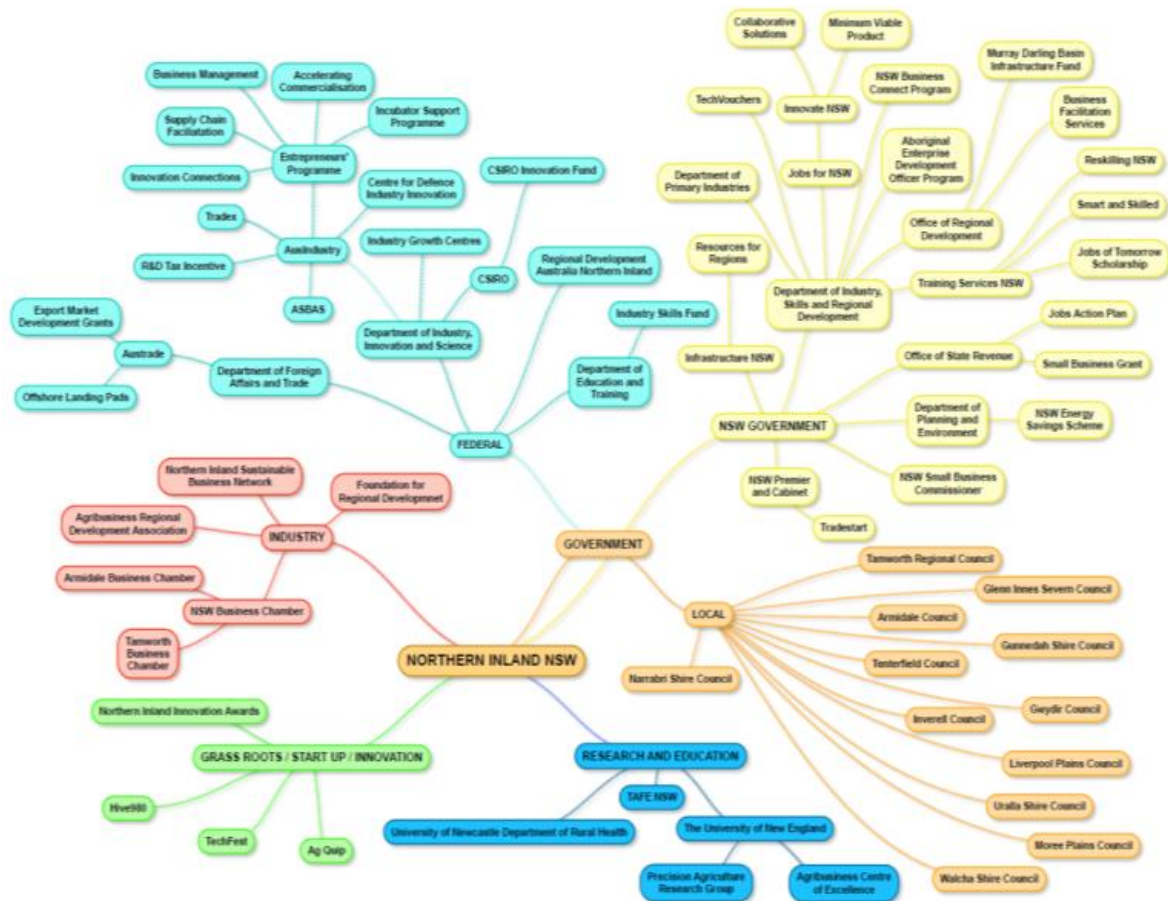
For example, the University of New England may connect to the NSW Department of Industry to create an incubator program (NSW Department of Industry, n.d.), which then creates new connections to other elements of the ensemble. Once established, the incubator program will create disorder, and then order will remerge as the elements self-organise to adapt to the influence in this system. The persistence of the incubator program within this system will then create a memory, which elements will return to or make reference to when interacting in the future. Applying Holland’s (1992) theoretical lens to the Northern Inland innovation network, the basic elements of ensemble, interaction, disorder and robust order, and memory can be observed.

POLICY ORDER AND COMPLEX PRACTICE: ANALYSING THE WORK OF RDANI

Through this section we seek to explore the tensions that RDANI is grappling with as it seeks to impose some semblance of order on the complex practice of regional economic development. In doing so, we draw upon this analysis and empirical insights to inform a broader discussion concerning the efficacy of RDOs and, specifically, the RDA Committees.

Informed by the conceptualisation of RDOs presented in section two, our analysis of RDANI focussed on six policy-relevant perspectives utilised to help navigate complex systems whilst simultaneously attempting to impose policy order (see Table 1).

Figure 3. Northern Inland Innovation Network



Source: Ausindustry (2016).

The first perspective which pervades regional economic development discourse is values. Policy order emphasises value for money assessments for projects. Given RDANI's emphasis on being 'community based', this might imply that social considerations will shape their institutional values. However, we find in practice the rich layers of public values are translated into policy order, which is a narrower articulation of regional economic development, preoccupied with quantitative economic growth outputs. For example, RDANI review their performance against a narrow set of key performance indicators, or KPIs, which are a key instrument that emerged from New Public Management thinking. This is symptomatic of what Conteh (2012) refers to as 'organizing the playing field'. In Holland's (1992) terminology, *exchange* has been focussed between economic actors and primary *mediating mechanism* has been economic growth.

While value-for-money rationales are a common feature of regional economic development practice and neoliberal policymaking, a sign of encouragement is RDANI's attempt to achieve 'net benefit'. For example, their Regional Freight Study 'identified the most worthy road upgrade projects ... utilising a benefit-cost framework. Projects were ranked in order of net benefit, and the public versus private benefits of upgrades were identified. The work has been used to advance road infrastructure projects in the region (e.g. the Mt Lindsey Highway, Thunderbolts Way)'.

The second perspective – organisational form, governance and accountabilities – highlights the tension between organisational parameters (e.g. legal, policy, budgetry etc.) and the porosity of RDOs, which are ensembles of elements. RDANI seeks structure and order

through, for example, structured review processes (RDANI, 2016, p. 7). RDANI embodies the principle of policy order in that it is an Incorporated Association in operation under the Incorporated Association ACT 2009 (NSW) where Committee members are appointed by the relevant Minister in the Commonwealth and State government, who also define the priorities and roles of RDANI (Commonwealth of Australia, n.d.). Conversely, RDOs are also viewed as key nodes in partnership networks, yet RDANI does not have a directly elected democratic mandate. Whilst some Committees include local elected members, many do not. A board of members is selected to ‘represent’ the views of diverse actors. Yet, it is not clear what *mediating mechanisms* are deployed to attempt to reconcile the views of a multitude of actors from different civic, economic and social spheres.

Table 1. Policy Order and Complexity: Summary of Analysis

Perspectives	Policy Order	Complex Practice
<i>Values</i>	Value for money assessments typically confined to specific programs and projects cloaked in broader public value discourse	Public value reflecting qualitative as well as quantitative metrics
<i>Organisational form, governance and accountabilities</i>	A not-for-profit organisation operating within certain legal parameters, a governance board and accountabilities in terms of performance management	An organisational network, multi-actor governance and multiple accountabilities to different constituents
<i>Geography</i>	A defined territory based on composite local government administrative areas	Multiple, overlapping and dynamic ‘functional’ geographies
<i>Actors and institutional relations</i>	Hierarchical relationship with formal tiers of government	Mobilise an ensemble of actors
<i>Planning, prioritisation and projects</i>	Transactional: given shape ‘from above’ by national and state policies and ‘from below’ by local policies	Relational interactions from multiple directions and dimensions
<i>Temporal</i>	Funding parameters conditions delivery timescales, which tend to be short-term – reflecting political budgetary cycles	Porous and emergent visions and strategies

The role and importance of geography in economic development is crucial to framings of regional economic development. As the third perspective, the policy order approach to defining operational territories features prominently in the work of RDANI. For example, the Regional Plan, intended to ‘describe the region’, states that ‘RDANI is confident of improving the economic wellbeing of the more than 40 towns and surrounding districts in our region’ (Stewart cited in RDANI, 2016, p. 2). However, the geography of many RDA

Committees bears little resemblance to functional regions, evidenced in some areas by competing regional structures and networks (Pugalis, 2016). In seeking to work with *disorder*, RDANI could recognise the complex geographies that it has to work with and through. In a practical sense, this might include identifying and engaging with how places interact, complement and compete with one another.

Perspective four is concerned with actors and institutional relations. RDANI is positioned for policy order as the identified primary institutional space for mobilising different partners, capabilities and resources; performing ‘a pivotal role in fostering regional economic development ... RDANI will take a *leadership role* in bringing together organisations to take advantage of government programs, policies and initiatives, and will be an effective *conduit* between governments and regional communities’ (RDANI, 2016, p. 8, emphasis added). In Holland’s (1992) terms, RDANI seeks to impose *robust order*. However, the extent to which RDA Committees are embedded within broader systems of government and governance is a moot point. For example, whilst the ‘Regional Plan is a key document for Regional Development Australia Northern Inland (RDANI)’ (RDANI, 2016, p. 9), it is less clear if the plan is a key tool for the region.

In an attempt to engage a broader range of actors, during 2010/11 RDANI held 21 meetings with ‘community’ members as part of ‘exploratory conversations’ intended to identify key strengths, assets, successes, challenges, opportunities. RDANI is also ‘looking at ways of obtaining structured feedback on both interaction and project activity during the course of each year’ (RDANI, 2016, p. 7). Yet, given the points noted above about its organisational form and governance, similar to other RDA Committees it is often a marginal voice in policy decisions impacting regional economic development. In this sense, RDA Committees might seek to utilise their *memory* to mediate between elements of the system and fostering change within the system, particularly in terms of transforming intergovernmental relationships.

The fifth perspective relates to planning, prioritisation and projects. Interventions such as those with the aim of ‘attract[ing] at least five new enterprises providing tangible employment outcomes’ (RDANI, 2016: 7), are divorced from the complex challenges that the region faces. A key issue for RDOs is that they become too focused on the needs of the provider of funds (Johnson *et al*, 2005). Too often, ‘chasing the funding’ has become an end in itself (Pugalis, 2016). The result can be a situation where spending funds becomes a priority. It could therefore be argued that much practice is ordered by the funding envelope. This suggests that the operation of RDA Committees is driven by transactional relationships predominantly with government, which is indicative of top-down regional policy.

The final perspective relates to temporal perspectives. The Regional Plan claims to be ‘comprehensive’ as well as being a ‘living document’ that ‘presents a snapshot of Northern Inland NSW’ (RDANI, 2016, p. 9). Yet, there is little evidence to suggest that it is a dynamic ‘living’ tool. As a published plan, it is intended to be finalised (albeit recognising the need for review). Indeed, the Regional Plan 2016-19 is a refreshed version of Regional Plan 2013-16 and Regional Plan 2010-13. Hence, there is sufficient *memory*, which at present appears to be underutilised. Given that the current funding models available to RDANI often reflect the short-term nature of the policy cycle and the move towards performance-based contracts, projects are unlikely to embrace all elements in the system, *disrupt* and engender new equilibriums.

CONCLUSION

Both government systems and regional socio-economic systems have been perpetually transforming. Observing a regional economic development paradox, where institutions such

as RDOs attempt to instil policy order in the face of complex practice, this paper has analysed the case of RDANI in NSW. In seeking to inform contemporary debates concerning the efficacy of RDOs and, specifically, the RDA Committees, which are in the midst of an independent review, we conclude with some broader points derived from our finding that regional economic strategies tend to reflect a bias towards structured processes, transactional relationships and hierarchical decisions, which eschew practical complexities.

At least four reasons can be put forward to help explain why there is a system bias to attempt to impose policy order in the face of complexity. The first reason is what Rubin (1988) has referred to as the ‘search for administrative certainty and task closure’, which can result in particular interests being favoured over others. The second reason is that practitioners tended to favour systems and clear identifiable outputs to overcome a perceived lack of management and stakeholder understanding of their roles (Rubin, 1988). In the case of RDANI, this is apparent through the focus on KPIs and outputs that are divorced from addressing some of the most fundamental regional economic development challenges. The third reason is that RDOs avoid undertaking complex practice for fear of failure (Ackoff, 2006). The fourth reason relates to a lack of knowledge and understanding of complexity and, thus, limits its application (ibid). Taken together, these reasons constitute tactics that seek to help to minimise mistakes arising from their operations, which is an ‘act of commission’. Embracing complexity would require a more radical shift in practice, which could result in an ‘act of omission’. Therefore the default position is to maintain current operations and seek to minimise ‘risks’ (particularly reputational risks).

Australian RDOs are at risk of being stuck-in-the-middle of two evolving complex systems. On the one hand, governmental systems are being recast, which is altering the role of government and the production of services. On the other hand, the complexity of regional socio-economic systems continues to swell. It could be argued that RDA Committees are flawed by design – they are creatures of the Australian Government, which lack democratic legitimacy, statutory powers, special purpose policy tools and goal independence (Pugalis, 2016). Compliance is rewarded over creativity. Crude output frameworks, measures of ‘success’ and KPIs insufficiently reflect transformational changes and encourage regional actors to game the system. Indeed, RDA Committees lack sufficient autonomy and credibility, as they have struggled to engender *robust order*. The implication is that RDOs face the challenge of becoming more ‘user-centred’ rather than ‘government choosing’, whereby the ‘benefactor’ becomes an ‘enabler’.

The RDA program is tangential to local, regional and national development activities and ambitions. The national network of RDA Committees, for example, is largely divorced from other Australian Government policies (and public sector policies/services more generally) that are central to stimulating growth and development. As a result, RDA Committees are ill-equipped to provide a *mediating mechanism* as they jostle for position alongside other bodies in ‘a complex and fragmented set of institutional arrangements for regional governance, intervention and decision-making processes’ (Pape *et al*, 2016, p. 913). Indeed, RDA Committees often compete with rather than cooperate with other regional structures, such as, Regional Organisations of Councils, particularly in terms of attempts at providing an authoritative voice on behalf of the region. This can diminish leadership capacity, and can result in the duplication of activities. There is a major risk that some RDOs are peripheral actors in the ‘ensemble of many elements’ contributing to regional economic development. Alternatively, the RDA program could be repurposed as a key vehicle to help improve intergovernmental relations and encourage joint-working (Pugalis, 2016).

In conclusion, one perspective suggests that if RDA Committees are unable to help regions navigate the complexity of governmental and regional socio-economic systems then they are likely to face an existential crisis. An alternative perspective suggests that the RDA Committee – including its antecedents – persists because of ‘memory’ in the complex system; changes have been absorbed and the elements have created a new equilibrium. The robustness of the regional development committee despite the disorder created by periods of popularity and unpopularity, existence and non-existence, suggests a memory or pattern has been created that maintains this organisational form. RDA Committees and similar RDOs can therefore choose to tread one of at least two paths: adapt and survive, or continue with business-as-usual and risk fatal demise.

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Metropolitan and Regional Economic Development: Competing and Contested Local Government Roles in Australia in the 21st Century

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ABSTRACT

Economic development is a priority of all levels of government; irrespective of country, constitution or system of governance. This is particularly the case in Australia, where federal, state and local tiers of government are undertaking activities intended to support economic growth. However, roles and responsibilities are not always clear, which reflects inter-organisational, intergovernmental and intra-organisational conflict, contradictions, duplications and fissures. Traditionally the role of local government in the subnational economic development policy space has been rather limited, although their remit and engagement in this sphere has increased steadily since the 1980s. Even so, the role of councils in subnational economic development – and metropolitan and regional economic development in particular – remains ambiguous and contested. Derived from findings from a project funded by the Australian Centre of Excellence for Local Government investigating the role of local government in the organisation and promotion of economic development, this paper intends to make two contributions to the literature. First, it shows how the conceptual messiness of the notion of (metropolitan and regional) economic development can both enable and constrain local government practice. Secondly, a state-level policy vacuum is apparent, which is a source of frustration amongst local practitioners. A key policy implication is the need to open-up more space for dialogue between different tiers of government to help engender a shared understanding of economic development, including the roles of different actors.

1. INTRODUCTION

Globally, nationally and sub-nationally, the goal of promoting economic growth is a ubiquitous concern (OECD, 2016) and, as a consequence, it saturates political discourse, media coverage and everyday conversations. Economic development is a priority of all levels of government; irrespective of country, constitution or system of governance. This is particularly the case in Australia, where federal, state and local tiers of government are undertaking activities intended to support economic growth. Nel and Rogerson (2016, p. 109) observe that the notion of economic development ‘has, in recent years, received growing attention internationally, largely for its assumed potential to address localised economic and social challenges and promote local development. It has been increasingly recognised as a strategy with potential to address local development backlogs’. For example, many types of

councils have adopted the strapline ‘open for business’, which is reflective of an entrepreneurial ethos that seeks to reduce regulatory burdens and encourage businesses to invest in their localities, which Harvey (1989) documented in his celebrated work, “From managerialism to entrepreneurialism: The transformation in urban governance in late capitalism.” Even so, the concept and practice of ‘economic development’ is by no means clear-cut. When one includes prefixes, such as, ‘local’, ‘metropolitan’ and/or ‘regional’, then debates about the nature and purpose of economic development are further muddled. As a result, roles and responsibilities of governmental and non-governmental actors are often blurred, which reflects inter-organisational, intergovernmental and intra-organisational conflict, contradictions, duplications and fissures.

Comparative to other countries, such as the UK and US, local governments throughout Australia have traditionally performed a more circumscribed role in metropolitan and regional economic governance, policy and interventions. Nevertheless, as far back as the early 2000s, Beer and Maude (2002) observed that the local government sector’s interface with economic development issues was maturing, and more recently there has been growing interest in the role of Australian councils in economic development (see, for example, Lennon, 2014). Traditionally the role of local government in the subnational economic development policy space has been rather limited, although their remit and engagement in this sphere has increased steadily since the 1980s. Even so, the role of councils in subnational economic development – and metropolitan and regional economic development in particular – remains ambiguous and contested. This is further complicated by the diversity of the 500 or so local government authorities throughout Australia, which differ in many dimensions, including functions, governance, leadership, budgets, geography, history and culture.

In view of the variegated nature of local government, this paper responds to ‘a need for improved conceptual models and understandings of local economic development specific to the Australian context’ (Douglas, Carson and Kerr, 2009, p. 58). We investigate the role of local government in the organisation and promotion of economic development in twenty-first century Australia. Given ongoing debates concerning regions, regionalism and regional development, we deploy the term ‘metropolitan and regional economic development’ to refer to sub-State economic development strategies across the varied urban and rural landscapes of Australia.

Through this paper we seek to inform debates surrounding local government interpretations of metropolitan and regional economic development and explore their evolving relationships with other tiers of government, and sectors of the economy and society. Empirically, the study draws on a desk-based review of practice and a series of eight semi-structured interviews. Staff from councils and from state local government associations were interviewed about their experience and interpretations of economic development. The participating officers are intended to reflect the diversity of councils noted above, which enabled the elicitation of a diversity of experiences and perspectives. The semi-structured interviews were organised around a set of themes that together sought to address the broad topic of local economic development. The interviews concentrated on the following topics: the institutional architecture; the role of local government; governance, delivery and funding models; innovative practice; emerging and future trends; areas for further research. Results of the interviews were coded and analysed in accordance with these themes.

This paper intends to make two contributions to the literature. First, it shows how the conceptual messiness of the notion of (metropolitan and regional) economic development can both enable and constrain local government practice. Secondly, a state-level policy vacuum is apparent, which is a source of frustration amongst local practitioners. A key policy

implication is the need to open-up more space for dialogue between different tiers of government to help engender a shared understanding of economic development, including the roles of different actors. The remainder of the paper is structured by four key parts. In the first part, we set out to draw attention to the conceptual confusion associated with the notion of economic development, and distinct definitions and articulations of economic development that compete for policy attention. In part two, we provide a brief overview of local government in Australia in respect of three-tiered governmental structure; drawing attention to the diversity of councils across and within states. In part three, we analyse the competing and contested roles of local government in economic development throughout Australia in the 21st Century. We conclude the paper in the final section by considering the policy implications of the findings.

THE NOTION OF ECONOMIC DEVELOPMENT: CONCEPTUAL CONFUSION AND COMPETITION

Local government involvement in local economic development, by no means universally accepted in itself, is shaped by the different ways in which local economic development is understood and defined. (Douglas *et al*, 2009, p. 58)

Through this section we seek to engage with some conceptual debates that influence the theory and practice of economic development. Whilst we do not set out to theorise or re-theorise the notion of economic development, given its broad, yet imprecise, usage in scholarly works, public policy and civic discourse, there is merit in adding some conceptual substance to this term given that a universally, or even nationally, accepted definition has not been forthcoming.

Notions of economic development are informed by different philosophical positions, epistemological concerns, ideological preferences, value frameworks, contexts and practical concerns. Consequently, economic development can mean considerably different things to different organisations, groups and individuals. It is not uncommon for geographical terms, such as, ‘area-based development’, ‘local development’, ‘local economic development’, ‘metropolitan development’, ‘regional development’, ‘regional economic development’ and ‘subnational development’ to be used interchangeably. Some scholars even refer to particular variants of economic development, such as a local government variant apparent in a South African context, which Nel and Rogerson (2016) term ‘developmental local government’. There have already been countless reports and multiple editions of books with an international focus devoted to this issue (see, for example, Blakely, 1994; Blakely and Green Leigh, 2009), so we do not intend to cover all this ground here. Nevertheless, research has demonstrated how understandings of economic development is an influential factor in shaping perceptions about the role, effectiveness and legitimacy of local government in this policy space (Douglas *et al*, 2009). Given this insight, it is alarming that there is an abundance of definitions of economic development that lack conceptual precision.

Whilst *development* tends to be the common denominator in the broad family of terms concerned with the notion of economic development, how it is understood and interpreted is important in regards to the nature, scope and design of metropolitan and regional economic development policies, programs and initiatives. In an Australian context, ‘regional’ is often prefixed to discussions of sub-State economic development. However, regional in this sense also implies Regional Australia and, thus, excludes metropolitan areas, which is distinct, for example, from European conceptualisations of regional economic development, where the ‘region’ is a primary scale in economic development policy, governance and strategy (McCann, 2015). In view of this, we invoke the term metropolitan and regional economic

development to refer to sub-State economic development practice, which can encompass towns, cities, regional and remote rural areas.

In a well-known conceptualisation of economic development, UN-Habitat state that the aim of economic development is to ‘create decent jobs and improve the quality of life for everyone, including the poor and marginalized ... Ultimately, however, LED is about sustainable development in the long-term’ (UN-Habitat, 2009, p. 1). Furthermore, they consider it to be ‘a participatory process in which local citizens from all sectors work together to stimulate local commercial activity, resulting in a resilient and sustainable economy’. This process, they add, ‘seeks to empower local participants’ to utilise and mobilise different (endogenous and exogenous) resources through the use of partnerships and collaborative working practices. As a result, they attest that the production of an economic development strategy ‘is an integrated, process-oriented and non-prescriptive endeavor’. UN-Habitat also reflect on some of the challenges of this long-term process, ‘It takes time to change local conditions, build capacity, organize participatory processes, and empower stakeholders, especially the marginalized and poor’ (ibid). In contrast to this holistic definition of economic development, the World Bank provide a more succinct definition, stating that it is ‘the process by which public, business and nongovernmental sector partners work collectively to create better conditions for economic growth and employment generation. The aim is to improve the quality of life for all’ (World Bank, 2003, p. 7). Whereas both the UN-Habitat and the World Bank distil the overall aim of economic development to improving people’s quality of life, the latter places much more emphasis on economic growth and employment generation as the primary mechanism for achieving the aim. Regardless of statutory roles and legislative powers, in view of the democratic role of local government it would appear that councils could perform key roles in mobilising partnerships and creating opportunities for citizen engagement.

Alternative conceptualisations contend that the creation of new jobs is the primary task of those engaged in economic development in reference to the ‘three-legged stool’ model, which involves attracting new businesses, retaining and expanding existing businesses, and facilitating the start-up of new business ventures (Phillips & Pittman, 2009). This model appears to have influenced the articulation provided by Rural Councils Victoria, who stress that ‘Economic development is about making the best use of available resources to drive employment growth, investment and economic activity’ (Rural Councils Victoria, 2014, p. 1). This definition shares some similarities with the above conceptualisation by UN-Habitat, although it fails to clarify what such ‘available resources’ might include (and whether these relate to council resources or community resources more broadly, for example), and neither does it attempt to consider how they could be ‘best’ utilised.

Similar to the World Bank’s perspective, Blakely conceptualises economic development as: ‘a process in which local governments or community based organizations are engaged to stimulate or maintain business activity and/or employment. The principal goal of local economic development is to stimulate employment opportunities in sectors that improve the community, using existing human, natural and institutional resources’ (Blakely, 1994, p. xv). Implicitly invoking the notion of social capital and drawing attention to both the quality and quantity of local job opportunities, Blakely’s perspective articulates that ‘economic development and community development are opposite sides of the same coin: each reinforces the other’ (South Australian Centre for Economic Studies, 2013b, p. 60).

One’s definition of economic development will influence the extent of the overlap with related, although distinct, activities such as community development and sustainable development. There is no clear-cut divide or neat separation between notions of economic and

community development; both seek to develop human, physical, financial and institutional assets. Holistic definitions of economic and community development are highly compatible with one another, although the latter is primarily concerned with ‘*produc[ing]* assets that may be used to improve the community’, whereas the former is primarily concerned with ‘*mobiliz[ing]* these assets to benefit the community’ (Phillips and Pittman, 2009, p. 11, original emphasis). Due to their synergistic relationship, some researchers apply the term ‘community economic development’, which according to Shaffer and colleagues ‘is not a rationale for maintaining the status quo but is a comprehensive concept for changing the economic situation within the community’ (Shaffer *et al.*, 2006, p. 61, emphasis added).

Community economic development occurs, note Shaffer *et al.* (ibid), ‘when people in a community analyze the economic conditions of that community, determine its economic needs and unfulfilled opportunities, decide what can be done to improve economic conditions in that community, and then move to achieve agreed-upon economic goals and objectives’. This interpretation of economic development is similar to notions derived from the place-based development paradigm, which emphasise the importance of local knowledge, expertise and capabilities (albeit within a multi-level governance framework that recognises the limitations of inward-looking, community-led strategies) (Pugalis and Gray, 2016). A feature of many definitions of economic development and its derivatives is an assumption – rarely evidenced in practice – that ‘the community’ or wide-range of ‘stakeholders’ can agree upon visions, objectives and priorities.

Different articulations of local and regional economic development emphasise distinct goals, including wealth creation, social justice, sustainability, resilience, enterprise development, attracting exogenous investment, employment creation and quality of life/quality of place. Nevertheless, economic growth tends to be an omnipresent and, often, overriding goal. Malecki (1991, p. 7) argues that ‘it is not enough to rely on the concepts of growth without an equivalent concern for the forces which commit growth to take place, or prevented it from occurring’. The mainstream concept of measuring economic development by quantitative economic growth proxies has also been challenged by Amartya Sen (1999). Growth is not automatically an improvement, particularly in qualitative terms. For instance, rapid economic growth, as has been experienced over recent years in areas of the Global South (and to a lesser extent in some Australian cities), can increase GDP, but result in overcrowding, lower wages, place stresses on infrastructure and services, and ultimately reduce general quality of life. Nevertheless, for some, such as a construction company, some of these (negative) growth externalities are viewed positively (e.g. lower wages could increase profit margins or pressures on infrastructure could result in new construction contracts).

The externalities associated with economic development and growth is a political matter and policies seek to reconcile these tensions. It is for this reason that some argue that economic development should be concerned with improving the standards of living for all (Phillips and Pittman, 2009; UN-Habitat, 2009). Sen’s capabilities approach, for example, focusses on ‘the removal of various types of unfreedoms that leave people with little choice and little opportunity of exercising their reasoned agency’ (Sen 1999, p. xii). From this view, a broader definition of economic development is required, whereby: ‘Development is a larger concept and encompasses growth, but in practice the distinction is seldom clear’ (Shaffer *et al.*, 2006, p. 61), with Stimson *et al.* (2006) arguing that economic development practitioners tend to be most concerned with growth – steered by targets and outputs.

In a move away from more traditional understandings of economic development being concerned with hard outputs, Malecki (1991, p. 7) defines it as ‘a combination of qualitative and quantitative features of a region’s economy, which the qualitative or structural [are] the

most meaningful... The qualitative attributes include the types of jobs – not only their number – and long-term and structural characteristics, such as the ability to bring about new economic activity and the capacity to maximize the benefits which remains within the region’. In an attempt to account for the multidimensional facets of economic development, Stimson *et al.* (2006, p. 6) define it as ‘the application of economic processes and resources available to a [place] that results in the sustainable development of, and desired economic outcomes for a [place] and that meet the values and expectations of business, of residents and of visitors’. Nevertheless, this does beg the question of how to go about reconciling such diverse values and competing interests?

From the above review, we identify five key strands of thinking that influence understandings of metropolitan and regional economic development. Firstly, the overriding aim of economic development is often stated as improving the quality of life of all members of society. However, the means by which this aim is achieved has a significant bearing on the character of economic development. Secondly, most conceptualisations either state or imply that economic development is not the preserve of any single actor, organisation or institution. In other words, metropolitan and regional economic development is a collaborative endeavour or co-responsibility necessitating the input of a myriad of different actors. This indicates the importance of working through partnerships, and could also explain the inclusion or exclusion of councils in economic development activities. Thirdly, economic development is multi-scalar – just as there is no preeminent actor, neither is there a primary scale for developing economic development strategies. This indicates that no single geography, such as a local government area, is likely to be sufficient, which in turn reinforces the need to work in partnerships with actors operating across different scales and tiers of government. Fourthly, economic development is contextual. It is informed by factors specific to particular places, such as, locational attributes, demographic profile, industrial structure, cultural characteristics, which are likely to influence and, in turn, be influenced by understandings of metropolitan and regional economic development. Fifthly, economic development is an ongoing process. However, whether this is understood as a short-term process or a longer-term process would appear to shape views of metropolitan and regional economic development.

A VERY BRIEF OVERVIEW OF LOCAL GOVERNMENT IN AUSTRALIA AND ITS ROLE IN ECONOMIC DEVELOPMENT

Local government does not exist as an independent level of government but is instead a creation of the state governments and thus subject to a degree of control by state legislation and powers. It has a limited capacity to raise its own revenue and as a consequence relies heavily on the other tiers of government for funding and grants to engage in a range of activities. This has traditionally restricted Australian local governments’ influence over social [and economic] policy matters. (Douglas *et al.*, 2009, p. 57)

The importance of the local government sector within the Australian governmental structure is often underestimated. This first or third tier of government – depending on one’s perspective – plays an important role providing a wide a range of services, as the level of government closest to citizens. This section sets out the context within which local government sits in relation to the federal and state level.

Total revenue for the government of Australia (Commonwealth, state and local governments combined) in 2013-14 was approximately \$540 billion. Local government revenue during this time was \$38 billion. Total government expenditure during the same financial year was \$564 billion, of which, local government expenditure was \$33 billion (ABS, 2015d). Drawing on these figures, local government expenditure makes up approximately 6% of total government expenditure. Councils obtain their revenue from four main sources: rates on property,

financial assistance grants from the Commonwealth Government, council fees and other revenue such as interest from investments (Department of Local Government NSW, 2006). In addition, local government is a significant employer in Australia. In June 2014 there were 1,908,200 public sector employees of which 246,400 were employed by the Commonwealth Government, 1,472,900 by state government and 188,900 by local government (ABS, 2014). The total local government workforce equates to 1.6 per cent of the Australian workforce. These figures are similar to the mining industry for 2013-2014, which employed 187,000 workers as at June 2014 (ABS, 2015a). Importantly, local government is a significant employer in rural and regional areas (Hastings *et al.*, 2015). For example, an analysis of the 2011 ABS Census data shows that Kowanyama Aboriginal Shire Council in Queensland employs the greatest number of working residents in its area at 54 per cent of the workforce. More broadly, in 46 local governments in regional and rural areas across Australia, 10 per cent or more of the workforce in their area are employed by council (ABS, 2011). Given that employment is often central to notions of economic development, councils can be understood as key employers and businesses, particularly in some areas.

In 2013, there were 565 councils across Australia (Department of Infrastructure and Regional Development, 2015), although this has subsequently decreased due to (on-going) amalgamations. In terms of representation, local government councillors, make up a significant proportion of elected members across all levels of government. Table 1, below, shows the number of elected members according to level of government by jurisdiction. There are 5,060 local councillors in Australia while state level representatives number 558 and Federal members of parliament only 150. It is clear from these figures that councillors form the vast majority of Australian elected representatives, which could suggest a local government role in democratising economic development interventions.

Table 1: Elected representatives

	Federal	State	Local*
NSW	48	135	1,494
VIC	37	128	631
QLD	30	89	530
WA	15	55	1,252
SA	11	69	716
TAS	5	40	280
ACT	2	17	0
NT	2	25	157
Total	150	558	5,060

* Councillor numbers by state compiled from council websites.

Sources: (ACT Legislative Assembly, 2015; Legislative Assembly of the Northern Territory, n.d.; Parliament of Australia, n.d.; Parliament of New South Wales, n.d.; Parliament of South Australia, n.d.; Parliament of Tasmania, n.d.; Parliament of Victoria, n.d.; Queensland Parliament, n.d.)

Local government organisations range from very large metropolitan councils offering a wide range of services to smaller rural local governments with more limited resources. Councils in Australia vary in size from the largest, Brisbane City Council in Queensland, which has an annual operating budget of \$2.9 billion (Quirk, 2015), serves a community of just over a million people and covers an area of 133,809 ha (ABS, 2015b) to Sandstone Shire Council in Western Australia with a population of 116 covering a land area of 3,266,650 ha (ABS, 2015e) which is comparable to the size of Belgium at 3,300,000 ha (World Bank, 2015). Sandstone’s operating budget in 2014 was \$3.4 million (Shire of Sandstone, 2014). Even within states there is great diversity. In NSW, for example, the largest local government in terms of population is Blacktown City Council which services a community of 313,057 residents, has a land area of 24,000 ha (ABS, 2015c) and an annual operating budget of approximately \$262 million (Blacktown City Council, 2014). In contrast, Urana Shire Council is the smallest local government by population with 1,251 residents, a land area of 335,600 ha (ABS, 2015c) and an annual operating budget of approximately \$7 million (Urana Shire Council, 2014). The vast majority of councils are classified as rural or regional creating a stark urban-rural divide (Aulich, 2005).

It is widely accepted that municipal governments make an important contribution to economic development (OECD, 2004), although promoting economic development is a relatively recent feature of the (official or otherwise) remit of local government in Australia. As Jones (2008) notes, prior to the 1980s economic development policy was largely the purview of Commonwealth and state governments. However, over the past 30 years – mirroring global trends towards decentralisation – roles have reversed to an extent that some consider local government to be the primary state actor in metropolitan and regional economic development (Beer and Maude, 2002). The South Australian Centre for Economic Studies suggest that this is due to ‘contemporary approaches to economic development strategies, the importance of ‘place-based’ approaches and new approaches to regional development that emphasise the development of human capital and the identification and mobilisation of local assets [which have] placed local government at the centre of economic development’ (South Australian Centre for Economic Studies, 2013a, p. 1). Moreover, they argue that ‘Partnerships with government, businesses and community leaders to develop ‘bottom-up’ strategies were necessary for local development and were identified as a core role for local government’ (ibid). Lennon (2014) puts this down to councils’ broad-ranging engagement with communities. Others have pointed out the contribution of the local government sector to local economies particularly in terms of their spending power and as an employer (South Australian Centre for Economic Studies, 2013b). In addition, the economic leadership role of local government is now increasingly acknowledged (Bentley, Pugalis and Shutt, 2016; Brooks, Vorley and Williams, 2016).

It is not our intent in this paper to contribute to augmenting the case for the active presence of local government in economic development, for this is readily accepted and has been summarised by Trousdale (2003) who highlights i) their democratic mandate, which provides legitimacy, ii) their involvement in complementary and competing processes, plans and initiatives, iii) their involvement in ‘business activity’ including regulation and infrastructure provision, and iv) the ‘global consensus’ of the need to reduce poverty. Local government clearly has an important role to play within the Australian federation. In view of the diversity of councils, which relates to the size of the population and land area as well as the range and scale of functions, budgets, physical, economic and social environmental and the varying state government legislative frameworks within which council operate (Aulich, 2005, p. 194), this poses some key policy challenges.

LOCAL GOVERNMENT IN AUSTRALIA IN THE 21ST CENTURY: ORGANISATION AND PROMOTION OF ECONOMIC DEVELOPMENT

Through this section we analyse the competing and contested roles of local government in economic development throughout Australia in the 21st Century. The organisation of economic development across federal, state and local government levels is complex – roles are opaque, overlapping, contested, assumed and/or absent. Broadly speaking, however, some of the key building blocks of governmental economic development institutional architecture can be summarised as follows.

At the federal level the Commonwealth Government is responsible for the administration of the Regional Development Australia (RDA) program which provides funding for 55 RDA Committees. These committees are intended to bring together ‘local leaders’ and work in partnership with state and local governments as well as regional stakeholders to develop economic plans for their region. At state level various state departments and agencies share responsibility for facilitating economic development within their jurisdiction. In NSW for example no single department is charged with overseeing economic development, but rather various departments, such as, the Department of Industry Skills and Regional Development, the Department of Planning and Environment and the Department of Transport undertake their respective programs and activities to promote growth in the state. This is in contrast to states, such as, Queensland and Victoria which have a Department of State Development, and a Department of Economic Development, Jobs, Transport and Resources, respectively. In Victoria this department is tasked with bringing together many of the key functions that drive economic development and job creation across the state. These include transport and ports, investment attraction and facilitation, trade, innovation, regional development and small business, together with key services to sectors such as agriculture, the creative industries, resources and tourism.

The remainder of this section is organised according to the five key strands of thinking that influence understandings of metropolitan and regional economic development discussed above, which relate to the aim of economic development, collaboration and co-responsibility, multi-scalarity, context, and process.

The Aim of Economic Development

The interpretation of LED [local economic development] can vary from council to council. (Local government officer, metropolitan council, WA).

In recognition that understandings of economic development differ across places and cultures including sectors and professions, during the interviews respondents were asked to provide their own interpretations of economic development and relate this to practical experiences. The responses varied significantly and appear to reflect diversity across the literature regarding the meaning and purpose of economic development (and similar notions). The responses ran along a continuum between a focus on supporting business and wealth creation to a broader interpretation which encompassed ideas of community development and sustainability; mirroring growth-focused and holistic definitions of economic development reviewed in part one.

Perhaps unsurprisingly, the respondents which focused on supporting businesses and wealth creation tended to occupy specific economic development roles within councils. For example, some officers whose primary role was to interface with and support local employers defined economic development in similar terms; emphasising business growth and development, and employment creation. On the other end of the continuum, respondents from local government associations or regional bodies tended to conceptualise local economic development more

broadly incorporating notions of sustainability and community development, as did community development local government officers and those officers performing a variety of roles. As one interviewee with a state-wide remit contended, “From a council’s point of view local economic development refers to anything that they can do to improve/expand their economy”. However, this same officer also observed that “Councils in particular are thinking more along sustainability rather than economic development lines. In WA it is more about population shifts and ensuring a sustainable community” (regional/peak body, WA).

In terms of the narrower growth-focussed and the broader, holistic interpretations of economic development, each can act as both enabling and constraining devices in terms of the role of local government in economic development. A growth-focussed conceptualisation of economic development can assist in prioritising this activity. A clearer remit, such as supporting business development, can act as an enabling device to secure political and financial support for undertaking a specific service. Conversely, it can also constrain the role of councils in this space i) if the council opts to focus on statutory responsibilities or ii) if other actors are of the view that growth-focussed economic development falls outside the parameters of the council. A broader, holistic conceptualisation of economic development can help to embed this within the *raison d’être* of a council, for example in terms of strategic goals and community strategic planning processes. What could be referred to as the institutionalisation of economic development by a council can, therefore, be utilised as an enabling device. Alternatively, holistic articulations can act as a constraining device if actors perceive economic development as linked to everything that a council does then it can become the responsibility of everybody and nobody, which can result in inertia.

Collaboration and Co-responsibility

Councils have to work with business themselves particularly through planning approvals processes by accompanying land use planners to meetings with businesses. We also need to provide regulatory advice for example with regard to environmental health regulations for small businesses. (Local government officer, metropolitan, WA).

The above interview extract is characteristic of the view of the role of councils from the operational perspective of local government economic development officers. What this serves to demonstrate is that the means by which economic development is pursued by many types of councils across Australia is about brokering, facilitating and information sharing. In other words, collaboration and partnership working, which features strongly in most accounts of economic development across the scholarly and applied literature (see, for example, UN-Habitat, 2009). Indeed, working with business (as the above quote identifies) and working through partnerships appears to be the *modus operandi* of the 21st Century economic development officer.

It is also apparent that collaboration with colleagues in the same organisation can be just as important as collaborating with neighbouring councils, other tiers of government, and sectors of the economy and society. For example, one interviewee argued that “Traditionally local government works in silos and this needs to be addressed for sustainable economic development to occur. Place shaping or a place based approach is much more appropriate for local economic development” (regional/peak body, TAS). Similar remarks could also be levelled at any government body or organisation more broadly. Throughout state government, for example, responsibility for economic development tends to be dispersed amongst various departments responsible for policy domains including infrastructure, transport, land use planning and industry. Notable exceptions are Victoria, Queensland and South Australia. For example, Economic Development Queensland, located in the Department of Infrastructure, Local Government and Planning, is a specialist land use planning and property development

unit that engages with state and local government, the development industry and the public to identify, plan, facilitate and deliver development and infrastructure projects. Such examples notwithstanding, responsibility for economic development at the state level tends to be shared amongst several government departments. Or as one interviewee put it:

In Western Australia responsibility for economic development is scattered across the state government apparatus – there is no department for economic development. (Local government officer, metropolitan council, WA).

This institutional architecture contributes to the fuzziness and lack of over-arching policy direction identified by interview respondents as a key factor shaping local governments' ability to undertake economic development.

Related to the above strand of thinking about the aim of economic development and how it is conceptualised, the perception that economic development is a co-responsibility involving multiple actors can act as both an enabling and constraining device. Given that in Australia councils are the level of government closest to citizens, a partnership approach to metropolitan and regional economic can position local government as key nodes of networks of partners. Nevertheless, partnership rhetoric can also be used to marginalise and constrain the role of particular partners. For example, RDA Committees are often scripted as being partnerships involving the three levels of government, yet in most cases the role of councils in these regional development organisations is peripheral.

Multi-scalarity

[economic development has to happen at a regional scale] our economy is bigger than our municipality. (Regional/peak body, TAS).

The scalar dimension of economic development would appear to also influence interpretations of economic development, particularly in terms of appropriate interventions. For example, those referring to area-based and community economic development had a completely different repertoire of policy and funding tools (e.g. use of libraries as community/economic assets) to practitioners working on regional-scale interventions (e.g. business innovation). This accords with the view of Malecki (1991, p. 7, emphasis added who observes that:

... the standard theory of economic growth and development has concentrated on quantitative changes, despite an increasing awareness that regional growth depends, often critically, on aspects that are understood only in comparison with other regions or nations. The facts of regional development suggest that it is not enough to rely on the concepts of growth without an equivalent concern for *the forces* which commit growth to take place, or prevented it from occurring. These are the concerns of regional development, whether examined at the national, sub-national or local scale.

The recognition that economic development is a multi-scalar activity involving multiple actors and institutions also led some practitioners to seek the 'perfect' scale. Of particular note, council officers tended to look towards the state-level for a clear economic development regulatory and policy framework, which in turn would inform strategy-making and implementation at regional and local scales. During the discussions many respondents pointed to the lack of a state level policy framework within which local governments could plan strategically:

The current Tasmanian government does not have an economic development strategy. Local governments feel they are working in a vacuum. (Local government officer, regional or rural council, TAS)

The lack of a state or national level policy on settlement patterns and population shifts means that councils are working in a vacuum. They end up competing against each other to attract

residents and businesses in what seems to be a zero sum game. There is no policy context within which local communities can operate and contextualise their work to build on their strategic advantages and develop their communities. (Regional/peak body, WA)

This was a clear source of frustration amongst local practitioners, although it was in tension with views that economic development is a ‘bottom-up’ and place-based exercise (see, for example, The South Australian Centre for Economic Studies, 2013a). However, such perspectives can be explained, in particular, by historical roles and contemporary capacity issues. In Tasmania, for example:

The previous Labor government took a large interest in regional economic development. Regional economic development plans were established and state government staff had responsibility for implementing these plans. The current Liberal government actively pulled out of the regional and local economic development sphere. There are no staff resourced to regional economic development nor are there plans. (Regional/peak body, TAS)

Articulations of economic development that envisage a ‘perfect’ scale can act as enabling and constraining devices. For example, viewing ‘the local’ as the most appropriate scale for economic development might warrant active local government involvement, whereas an interpretation that positions the nation as the most appropriate scale for economic development might constrain the role of councils. A multi-scalar perspective suggests that each level of government has a role to play, whereby precise roles and responsibilities are negotiated on a case-by-case basis. A multi-scalar perspective underpins the City Deals policy initiative.

Context

Many respondents also spoke of the need for flexibility in approaches to local economic development, “The approach and focus varies from location to location. Affluent and less affluent councils require different approaches” (local government officer, metropolitan council, WA). The challenge being that the organisational structure of local government can undermine their ability to be flexible. Similar to state governments, councils are often organised into smaller business units, which often become silos stifling collaboration and coordination across the organisation. This kind of organisation model may not lend itself to a flexible response to the community’s needs. Contextual factors can often politicise economic development in a particular place. For example, a severe drought in a farming region might encourage a council to undertake specific economic development activities to support the effected businesses and residents. Given the importance of context, place matters, these conditions are decisive in enabling or constraining the role of councils in economic development.

Process

Whilst there appeared to be consensus that there is no ‘quick economic fix’, conceptualisations of economic development as a longer-term process were often contradicted by short-term projects and funding/political cycles. Officers were clearly aware of and guided by longer-term strategies, but a strong view persists that the ‘challenges of the day’ continue to take precedence. Not surprisingly fiscal matters, particularly budgetary pressures and short-term, competitive funding arrangements, were frequently highlighted by interviewees. There tended to be a perception that this was the key barrier to councils performing a more active role in metropolitan and regional economic development. Nevertheless, as an important extension to the ‘three-legged stool’ model, Rural Councils Victoria suggest that the nature of the council, including its budget, should not influence whether a local authority engages in economic strategy: ‘regardless of the size and budget of the council. The scale of resources can range from a full team of dedicated officers to a conscious effort and application by

different team members across the council' (Rural Councils Victoria, 2014: 1). Such a perspective accords with the point made above about the institutionalisation of economic development.

CONCLUDING REMARKS

There has been a long held view that local government has a decisive role to play in metropolitan and regional economic development, although there is no agreed position concerning the precise functions that local government does or could perform. Since the 1980s, the role of councils in economic development has matured as they have become more active in this space as they collaborate and compete with neighbouring councils, other tiers of government, and special propose bodies, such as, regional development organisations. Through this paper we have analysed the varied roles of local government in economic development as understood by officers in local government and related bodies. By way of a review of theoretical literature and analysis of empirical material, we found local government practice mirrors the conceptual confusion associated with the notion of economic development. Such confusion in terms of the scope and nature of economic development is embedded in policy processes, where roles and responsibilities are often inchoate. This can both enable and constrain local government practice. In terms of the former, policy messiness can provide space for councils to provide a strong leadership role in economic development. In terms of the latter, policy messiness can constrain such leadership; leaving them hamstrung in terms of legislative powers, resources and, thus, the capacity to act.

Preliminary results indicate that the practitioner understanding and conceptualisation of economic development from a local government perspective is much more diverse and nuanced than present theory suggests. A particular narrative emerged from the interviewees which conveyed economic development as a distinct activity contingent on place (including institutional, political, social, economic and environmental context). It was a pragmatic recognition that councils have an important role in economic development, particularly in terms of 'greasing the wheels' as part of their broader public service remit, but that this would be conditioned by the place.

Given the complexity at metropolitan and regional economic development policy, a key policy implication is the need to open-up more space for dialogue between different tiers of government to help engender a shared understanding of economic development, including the roles of different actors. It is through such dialogue that economic development needs and opportunities as understood from multiple vantages will become clearer. Dialogue is an initial step in enhancing coordination and collaboration between the various levels of government and their respective departments and agencies, and between different sectors of the economy and society. This may help strengthen the legitimacy of local planning processes and help to fill existing policy vacuums.

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Developing a Conceptual Framework of Living Cost to Income Approach for Depicting Affordable Housing Locations: Policy Implications for Housing Affordability in Melbourne, Australia

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ABSTRACT

Affordable housing locations in metropolitan cities are usually assessed by rental cost or mortgage payment relative to income. Affordable housing locations are also influenced by locational characteristics such as distance from public transportation, service centres, city centre and employment centres. Once the costs of locational amenities such as public transport and basic services are focused in, rental price or median house price is increased, sometimes making these locations unaffordable. This paper develops a conceptual framework of living cost to income approach to examine relative changes in affordable housing locations in Melbourne. The conceptual framework is a method to identify changes in affordable housing locations but it also identifies as policy implications of living cost to income approach of analysing housing affordability in Melbourne as well as in other large metropolitan cities in Australia.

1. INTRODUCTION

Affordable housing has long been an important target of public policies in many developed countries. This is defined as an appropriate housing for the needs of low to moderate-income households so that these households are able to meet other basic needs such as food, clothing, transport, medical care and education (Akbar, Rolfe and Smith, 2015; Baker and Beer, 2007). ABS (2016, par. 44) stated that “households with relatively low income (e.g. lower income households) and housing costs greater than a certain proportion of income, often 30%, are sometimes said to be in ‘housing stress’”.

Residential housing locations are usually determined by several factors include housing cost, transportation cost and location attributes such as the distance from the central business centres (CBD), accessibility, mobility and proximity to public transportation and employment centres (Ewing and Cervero, 2001; Mattingly and Morrissey, 2014; Mulliner, Smallbone and Maliene, 2013; Steiner *et al*, 2011). Similarly, the choice of affordable housing location is usually associated with a low rental or mortgage while travel cost and other amenities are ignored (Mulliner *et al*, 2013; Seelig and Phibbs, 2006). However, cheap housing does not mean housing is affordable (Burke and Hayward, 2001; Seelig and Phibbs, 2006) because a house in a distant location from social, human and community services appreciate more costs to the household and also create a range of social and economic disadvantages (Akbar *et al*, 2015; Beer, Kearins and Pieters, 2007; Dufty-Jones and Rogers, 2016; Mulliner, Malys and

Maliene, 2016; Mulliner *et al.*, 2013). This paper develops a conceptual framework that can consider both economic and location factors affecting housing affordability that can deliver a new approach to housing affordability study i.e., the living cost to income ratio approach.

2. CHANGES IN AFFORDABLE HOUSING LOCATIONS: THEORIES AND EVIDENCE

Many studies have used economic criteria such as average rental price or median house sale value to locate affordable housing locations for the low-income city dwellers (Hulchanski, 1995; Yates *et al.*, 2005). Most of these locations have failed to provide essential human services and are also far from the employment locations, CBD, hospitals, banks, stations and bus stops, major transportation facilities (Mulliner *et al.*, 2016). For this reason, low-income renters or house owners are often changing their location because of poor amenity and services (Arafat, 2011). However, this approach of identifying affordable housing location has been criticised by several researchers such as Bogdan and Can (1997), Hulchanski (1995), Martinez (2000) and Mulliner, Malys and Maliene (2016). Bogdan and Can (1997) advocated for affordable housing location with liveable neighbourhood characteristics. According to Stone (2006) and Mulliner *et al.* (2013), housing affordability is not separable from housing standard. Mulliner, Malys and Maline (2013, 2016) and Yates (2005, 2008) stated that building more homes to meet demand often do not build liveable communities and also do not meet the demand for the low-income people. Some impoverished areas in cities have less demand for properties because of population loss which can create high vacancy rates (Flood and Baker, 2010) and low or medium income household do not like to move to those areas because poor connectivity, poor public services, crime and anti-social behaviour (Mulliner *et al.*, 2016).

Jobs, shops, social and human services and transport are essential to creating a functional urban community (Steiner *et al.*, 2011). An affordable housing location should be in a place where people like to live and work, now and in the future (Ioannides and Zabel, 2008). Seelig and Phibbs (2006) stated that housing affordability must be defined and assessed in a more meaningful way. This requires a new paradigm of thinking that goes beyond the financial implications experienced by households.

Marshall *et al.* (2003) reported that residential locational choice is influenced by several factors such as employment opportunity, neighbourhood characteristics, relocation considerations, dwelling quality, and lifestyle and place satisfaction. Access to public transport, human services, low-cost transport and lower rental or mortgage payments are the major locational factors of affordable housing (Dufty, 2007; Levin, 2012; Waxman, 2007; Wu, Zhang and Dong, 2013). Also, some other studies found some discrete social or psychological implications of affordable housing location (Seelig and Phibbs, 2006), while many of them either ignored or did not comprehend the relative changes in affordable housing locations.

Lovett *et al.* (2002) used spatial analysis and spatial statistical measures. Arafat (2011) did a similar study but added transport costs with rental or mortgage payments in affordable housing location. He also developed a model to preserve affordable housing location; however, local and global market forces in the metropolitan cities, such an urban area conservation or preservation approach does not work because both urbanisation and its forces are dynamic in nature.

In Australia, declining housing affordability, high levels of unemployment and continued centralization of jobs and services have created financial stress for individuals who relocated from inner and middle-ring areas of metropolitan Sydney, Melbourne and Brisbane to the outer suburbs (Burnley, Murphy and Jenner, 1997; Milligan *et al.*, 2009; Yates, 2008).

Segregation of income in Melbourne's residential communities is widening (Nygaard, Wood and Stoakes, 2006). The gap was widening between rich and poor push out the low-income residents to the edge of the Melbourne city (Wood *et al*, 2008). This push out phenomena is very common to other metropolitan cities in Australia (idem) and most low-income residents are always either searching for a lower rental or lower value houses. Therefore they are more vulnerable to the economic, infrastructure and service changes and they are becoming isolated from urban services and employment centres.

Moreover, affordable housing zones with some recently developed facilities are becoming unaffordable zones in many metropolitan cities (Bamford and Jacobs, 1999; Burns and Inglis, 2007; Liu and Engels, 2012; Randolph and Holloway, 2005a, 2005b; Yates *et al*, 2005), entailing trade-offs between housing accessibility and the availability of local jobs and services (Birrell and McCloskey, 2015). However, in some places, Asian ethnic people tend to live close to their community, especially in metropolitan cities in Sydney and Melbourne that makes a suburb with poor dwelling standard with higher rents. For example, Lakemba in Sydney and Footscray in Melbourne have higher rental value because not of the quality of services in the suburb but because of the ethnic concentration of the suburb (Bolt, Phillips and Van Kempen, 2010; Hugo, 2011; Poulsen and Johnston, 2000). This might be only of many reasons why there may be higher demand, which then reduces affordability. Therefore an affordable housing location is also becoming unaffordable but not only because of improved services provision but because of social reasons.

3. DETERMINANTS OF AFFORDABLE HOUSING LOCATIONS

Housing location and contextual theory given by Ioannides and Zabel (2008) and Suhaida *et al*. (2011) measure housing affordability for medium cost house among first house owner and the impact of social context on economic behaviour, often referred to as a neighbourhood. Kytä *et al*. (2013) considered contextually sensitive location-based evidence from residents concerning local experiences and behaviour patterns which recognizes the varying potentials the urban structure provides accessibility, density, diversity, connectivity and transportation services. By accounting for neighbourhood choice, the model of housing demand is, in essence, solely the demand for housing structure (idem). In this context, the social effect captures how one's demand for housing structure is affected by one's neighbours' demand for housing structure (Getz and Page, 2016) such as how one's decision to maintain, renovate, repair, and make additions to one's house is influenced by one's neighbours' decisions to do the same.

In the case of spatial models for housing location, residential location choice becomes very important (Berry, 2003; Ioannides and Zabel, 2008; Rashidi, Auld and Mohammadian, 2012; Suhaida *et al*, 2011). Affordable housing location is also influenced by the residential housing local theory (Guan, 2012). Guan (2012) described the affordable location for housing in a sense of environmental attributes as the location of houses, land values, flooding risk, and ageing of the house, the value of scenic views, property taxation and zoning in a metropolitan city in Xuchang in China. Housing location preference depends on the closeness to the service centres facilities to satisfy the affordability and suitable environment for a house owner (Ibem and Aduwo, 2013). Housing value can positively influence by easy access to the service centres location (Guan, 2012).

Ioannidas and Zabel (2008) developed a continuous demand in housing services model which was influenced by neighbourhood choices. Locations, regular income, dwelling size, neighbourhood characteristics, distance to the service centres and quiet areas were highlighted as relevant to affordable housing location in Medford, USA (Ioannides and Zabel, 2008).

Personal-Socio-economic information and neighbourhood effects were the major factors for choosing affordable housing location in major cities in China especially in Beijing (Wu *et al*, 2013). The convenient location of the local facilities in the neighbourhood, such as shops, schools, and workplace are important for the housing locations (Beer *et al*, 2007; Djebarni and Al-Abed, 2000).

The key elements of affordable housing locations are proximity to service centres facilities from the housing location especially by walking or by car or by trains (Berry, 2003). In regard to community-based basic needs theory by Peredo and Chrisman (2006), a potential strategy for local sustainable development in poor populations emerging form of entrepreneurship, which rooted in community culture, nature and social cohesions.

To investigate the affordable housing location with the help of GIS system, two following important factors will be needed to be taken into consideration. The first factor is the economic context of housing affordability in terms of household income, employment status, and employment availability. A second factor is a locational or social contexts such as locational advantages and disadvantages with accessibility to urban services, human and social services and employment opportunity (Akbar *et al*, 2015; Martínez, 2000; Shen, 2005; Yang, Wang and Wang, 2015). Locational or social determinants for this study are supermarkets or shopping malls, Banks, health care centres, Hospitals, auto service centres, restaurants, libraries, convenient stores, schools, colleges or the University, government offices or community or human services office, train stations and bus stops. Based on above information, the determinants for this research are: distance from the CBD and service centres; opportunity of living; and access to service centres.

Distance from the CBD and Service Centres

The measurement of distances from CBD identifies to relative changes in the spatial pattern of the affordable housing relative to those CBD centres in the metropolitan area where all services of urban components will be increasingly concentrated. The distance measure indicates insight into a specific question about access that affordable housing needs comfortable access to rail bus transports. Low-income households are more likely to be dependent on rail and bus transport urban services and who are likely to have relatively low or no car ownership. So bus and rail transportation can access affordable housing that is imperative to the metropolitan bus and rail network.

Accessibility to a destination e.g. service facility via a specified transportation network has been measured by physical distance (Ahmad, 2012; Guagliardo, 2004; Ingram, 1971), travel time (Hansen, 1959; Ingram, 1971; Iversen and Kopperud, 2005), or even travel cost (Ingram, 1971; Kang, 2006; Leedahl, 2013; Lovett *et al*, 2002). Satisfaction housing needs anchors many other consumption activities, such as schools, neighbourhoods and other publicly natural amenities (Beer *et al*., 2007; Stone, Burke and Ralston, 2011).

Opportunity of Living

Housing affordability locations include the opportunity of living in one dwelling over another, (Drakakis-Smith, 2012). For example, a house may be cheaper in an outer city suburb, however, there will be relative changes in access to employment, education, recreation, transport and other amenities with lower access (Haslam McKenzie and Rowley, 2013; O'Sullivan, 2012).

Access to Service Centres

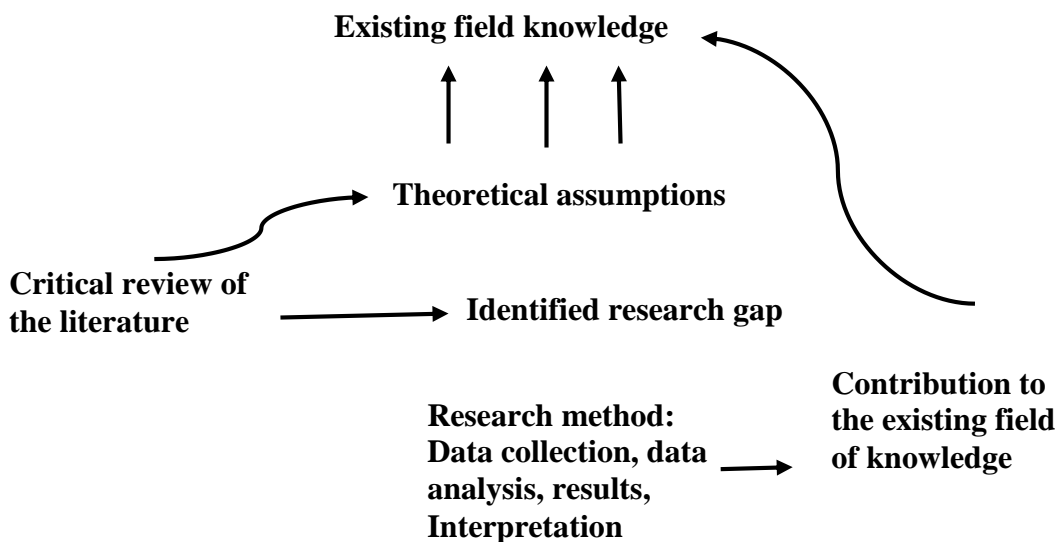
Adequate, and easy access to basic service centres is an important criteria for relative changes in affordable housing locations (Burns and Inglis, 2007; Geertman and Ritsema Van Eck,

1995; Hewko, Smoyer –Tomic and Hodgson, 2002; Pearce, Witten and Bartie, 2006; Smoyer -Tomic, Hewko and Hodgson, 2004; Talen and Anselin, 1998; Wang, 2005). To ensure adequate and easy access it is essential that service facilities and the transportation infrastructure need to be positioned around the affordable housing neighbourhoods (Powell and Exworthy, 2003).

4. CONCEPTUAL FRAMEWORK OF LIVING COST TO INCOME APPROACH OF HOUSING AFFORDABILITY

The conceptual framework of this paper is constructed based on three theories (see below description) and determinants of residential housing location. The conceptual framework will help identify the gaps in research context and finally interpret the gaps in a way that can provide contribution to the existing field of knowledge (see Figure 1).

Figure 1: Conceptual Framework for a Research



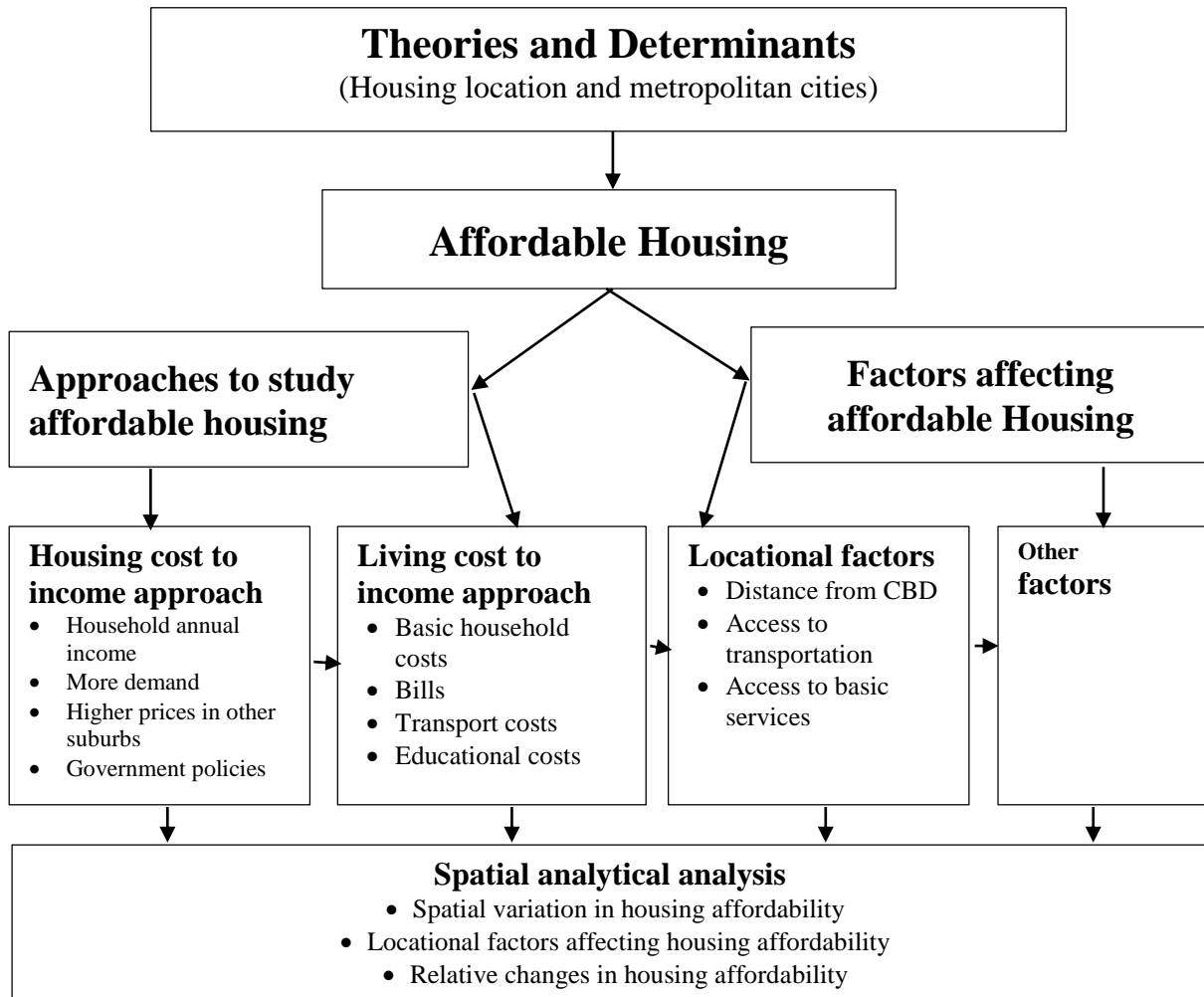
Source: Developed by Monash University, www.monash.edu.au/lls/hdr/design/2.2.1.html.

As mentioned earlier, the critical review of literatures were done in housing location and contextual theory (Suhaida *et al*, 2011), community and basic need theory (Getz and Page, 2016; Peredo and Chrisman, 2006), social and affordable housing (Milligan *et al*, 2015; Stone 2006; Beer, Bolam and Maude, 1994), and residential housing location theory (Guan, 2012; Ioannidas and Zabel, 2008) to draw the conceptual framework and identify key determinants of affordable housing location (Figure 2).

The conceptual framework includes spatial dimension (e.g. location of the service facilities of housing affordability factors) and economic dimension of the affordable housing. Economic and locational dimensions can be defined as an interaction of non-spatial factors of two different entities; for example an interaction between the characteristics of the population by the income level and characteristics of the service providers and users.

According to Figure 2, spatial accessibility of data can be conceptualized as the ease of reaching a destination location (such as convenience stores, shopping malls, health centres, bus stops, rail stations, post offices etc.) from a Collection Districts (CDs are a small geographic unit used in the census) centroids by a member of the household. The member of the household, Who is driving or walking and will be measured as a travel distance or travel time to the nearest service centre facilities via a transportation network.

Figure 2: Conceptual framework of analytical procedures for living cost and spatial locations



Sources: Based on Getz and Page (2016); Milligan *et al.* (2015); Liu and Engels (2012); Guan (2012); Suhaida *et al.* (2011); Ioannidas and Zabel (2008); Stone (2006); Peredo and Chrisman (2006); Martinez (2000); and Beer, Bolam and Maude (1994).

5. POTENTIAL METHOD TO APPLY THE CONCEPTUAL FRAMEWORK

Based on above conceptual framework, the study will collect secondary data on median house price, rental costs, household average income, access to employment centres, transport and communication networks, distance from CBD, distance from bus stops and train stations, distance from shopping malls, banks, hospitals and educational centres, employment centres, and health centres. This data will be collected from Government’s Spatial data offices, Bureau

of Statistics, Department of Human Services (DHS), Yellow pages, Roads and Highways department, Post office, and maps Australia.

The collected raw data will be processed through ArcGIS analytical tools and this data will be geocoded as Australian Statistical Geographic Standard (ASGS). The unmatched addresses data will be identified in Google earth and summarized in a kml file, which will export to shapefiles and then merged with those already geocoded addresses. During the geocoding processes, the unmatched data will be excluded outside or inside the threshold areas of the study areas. Finally, the geocoded addresses of data will be imported into a geodatabase for supporting subsequent visualization and analysis.

Processed data will be classifying as dependent and independent variable data. There will be numerous regression and correlation analysis by ArcGIS analytical tools for a conceptual framework for living cost to income ratio (LCIR) approach to study relative changes in affordable housing locations of less than 30%. The study will develop a framework from which one can calculate living cost to income ratio. This procedure will be based on the fundamental urban general equilibrium model to adjust different levels of locational amenities across the metropolitan Melbourne (Ioannides and Zabel, 2008; Rapaport, 1997; Zabel, 2004). The conceptual framework will propose living cost to income approach in locational amenities in residing in particular jurisdiction areas. Residing in particular areas would depend on the income of the marginal household in regard to better accessibility to jobs, transport, and proximity to CBD, quality life, services facilities, and security or safety.

Temporal variation in variables of relative changes in affordable housing locations will be identified by relatively affordable housing depending on better or worse than average. There would be no effect on the price distribution in the area with average accessibility when the price accessibility could close to 0 in regression analysis.

6. Likely Outputs of Living Cost to Income Approach

This conceptual framework helps to understand the relative changes in the affordable housing locations with a living cost approach compare to only housing cost approach in the city councils of Melbourne. In particular, it will explore the factors affecting the relative changes in affordable housing locations, which is important to the context of future urban policy and planning development. In particular, the outcome of this research paper may be used for policy and planning guidelines to minimise the implications of relative changes in affordable housing locations for the low-income families in Melbourne and other metropolitan cities in Australia. Finally, this research will play a significant role in providing an analytical framework to predict the future relative changes in affordable housing locations.

7. CONCLUSION AND LIKELY POLICY IMPLICATIONS

The living cost to income approach is a new approach to the study of affordable housing locations because 30 per cent spending for house price/rent obscures other important costs such as travel cost and the basic need costs for education and food. None of the studies is yet to address this issue. This basic living cost to income ratio approach will able to provide better understanding the trend and pattern of relative changes in affordable housing in Melbourne. The likely outcome of the study can be used for policy guidelines in tracking the housing affordability problems faced by low and medium income residents in Melbourne and/or similar metropolitan cities in Australia.

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Innovation in the Australian Public Service: A Qualitative Analysis

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ABSTRACT

Innovation is considered to be a sine qua non to improve efficiency and effectiveness in government and respond to citizens' increasing demand for better services. This paper draws together literature related to innovation in the public sector. A qualitative analysis was conducted to establish the key aspects related to innovation raised by senior managers within the Australian Public Service (APS). This study used content analysis of transcripts from senior manager presentations in Innovation Month seminars from 2014 to 2016. The content indicated senior managers' perceptions of innovation in the APS in terms of four aspects: drivers of innovation; barriers to innovation; innovation characteristics; and typology of innovation. Content analysis revealed that those aspects typically associated with innovation in the APS, such as ad-hoc basis and top-down approach, have been hindered by a number of barriers within the public sector context studied. These major barriers comprise risk-averse culture, hierarchy, and the silo effect. The implications of the findings are discussed to suggest directions for further research on innovation in the public sector.

1. INTRODUCTION

Severe budgetary constraints and an increasing demand for public services are major predicaments of governments around the world (Hawksworth and Jones, 2010). The recent global economic crisis and the rapidly changing and increasing demand from citizens have resulted in a continuous search for innovative initiatives aimed at maximising social welfare, improving cost efficiency, and increasing service quality (Moore and Hartley, 2008). The Organisation for Economic Cooperation and Development (2012) defines the public sector as the general government sector at the national, regional and local levels, as well as all public corporations including the central bank. According to this definition, the estimate of the public sector share of GDP is between 20 and 30 per cent in economically developed countries. In Australia, total government expenditure as a proportion of GDP is around 34 per cent (Australian Bureau of Statistics, 2009). Therefore, the public sector generates a sizable proportion of economic output and substantially more than the share of the manufacturing sector in most countries (Arundel and Huber, 2013).

In the public sector context, innovation is defined as a learning process in which governments attempt to meet specific societal challenges which can be solved by developing new services, technologies, organisational structures, management approaches, governance processes and policy concepts (Bekkers, Edelenbos and Steijn, 2011). This conceptualisation emphasises

that public sector innovation can be comprehended as a desire to create new and meaningful connections between government and society. Public sector innovation ranges from the incremental deployment of enterprise resource planning software in back-office operations, to the more radical implementation of Web 2.0 technologies to transform citizen engagement via the Internet (Varney, 2006). However, while there are a number of success stories, the introduction of innovation in the public sector has often failed (Franza and Grant, 2006). This is not essentially due to the specific innovation but rather because the public sector presents significant barriers to workplace innovation; resistance to change, risk aversion, and hierarchical structure (Borins, 2006).

Over the past decade, interest in public sector innovation has rapidly enhanced due to various causes, identified as follows. Firstly, the public sector must implement innovation in order to respond to the rising expectations of citizens as they compare public services with the improvements in service delivery accomplished by the private sector (Altshuler and Behn, 1997). Secondly, governments generally aim to achieve dramatic cost cutting in order to manage rising debt levels. Given that citizens expect greater public sector efficiency, embracing innovation is a potential solution for this demand. Thirdly, some experts contend that public trust in government organisations has been decreasing as has public sector credibility. In order to boost public confidence in the public sector, innovation should be adopted as one of the means to fulfil this objective (Altshuler and Behn, 1997; Glor, 1998). Fourthly, in the new era of globalization, innovation is a necessary tool for national economic prosperity. Global competition and information technology require governments to transform their operations and address time consuming processes (Miller, 1999). Thus, these four drivers have been the primary forces that have prompted the public sector to focus on innovation as a means of improving productivity and performance.

The rest of the paper is organised as follows. Section 2 provides a literature review of the innovation definition and innovation in the public sector. Section 3 presents our research method using content analysis. This is followed by findings in Section 4, which reports on the key aspects related to innovation in the public sector. Finally, Section 5 provides some concluding remarks, highlighting the implications for both theory and practice, and the main contributions of this paper to the APS.

2. LITERATURE

The relevant literature is reviewed in two parts. Innovation definitions were reviewed to demonstrate their diversity and press the case for the development of an integrative definition. The second part reviews innovation within the public sector context.

2.1 Innovation Definitions

Innovation has been a broad concept for discussions in the academic and practical disciplines with debates about its characteristic, scope, determinants and consequences. The literature on innovation has been studied from several contexts in different scientific fields. It is important, therefore, to clearly understand innovation definitions in order to avoid ambiguous interpretations. The most extensively cited and adopted definitions have been described by the following authors, as presented in Table 1.

Table 1 Innovation Definition Revolution

Author	Definition
Joseph Schumpeter	<p>His pioneering works play a vital role in understanding the meaning of innovation. Arising from economic theory, innovation is described as a broad set of activities that create and implement new combinations (J. Schumpeter, 1926).</p> <p>In a subsequent study, Schumpeter (1934) proposed a list of five types of innovative activities including: the introduction of a new product; the introduction of a new process innovation; the opening of a new market; the acquisition of a new source of supply of raw materials; the revolution the structure of organisations.</p>
Edvin Mansfield	By generalising Schumpeter's idea, he defined innovation as a new product, process, service, or idea that an organisation has utilised for the first time.
Victor A. Thompson	Because Mansfield's definition only determined the first introduction of these items or activities as innovations and names all subsequent usages as imitation, Thompson (1965) modifies the scope of Mansfield's concept to the first time within an organisational setting. Similar descriptions have been followed by most consequent studies. For instance, Damanpour and Evan (1992) consider an innovation as the implementation of a new idea at the time of adoption.
Everett M. Rogers	<p>Roger (1983) defines innovations as "an idea, practice, or object that is perceived as new by an individual or other unit of adoption." (p. 11) According to this definition, an innovation is recognised as being such, if it is conceived to be novel by an individual or an organisation.</p> <p>Rogers (1998) differentiates between the definitions of innovation and invention. An innovative organisation is not necessary to develop a novel product. The organisation will be innovative when it acquires the technology or idea from others and effectively implements that novel product or idea. Rogers is also considered as a leading champion of the 'theory of innovation diffusion'.</p>
Andrew H. Van de Ven	Van de Ven (1986) considered innovation as the process of generating a new idea, which may be a recombination of old ideas, translated and put into practice. In practical terms, in this definition the term 'innovation' has similar definitions to previous scholars, but with specific focus on product, process, and organisational innovation activities. Van de Ven further proposes that imitation plays a pivotal role in the innovation process.

It can be summarised that these widely accepted definitions of innovation generally comprise three basic elements: newness, implementation, and process. First, newness normally represents new to the organisation, but it is not necessarily new to mankind. It is only significant that the potential adopter realises the innovation as new which means new to the industry, new to the market, new to the organisation, and new to the customer due to their specific contexts. Second, implementation is a significant activity differentiating innovation from creativity. Implementation is widely accepted as the final step in innovation, which occurs when a new idea is finally employed (Damanpour and Evan, 1992). Sometimes, a

more restricted term, commercialisation, is adopted to explain innovation in order to affirm that innovation should be a profit-driven activity (Fagerberg, 2004). The use of the term 'commercialisation' is reasonably applicable to private sectors where an organisation's purpose is profit maximisation, whereas in public sectors all innovations are focused on effectiveness and efficiency. Third, process explains that innovation is generally a continuous and lengthy process covering both the generation and implementation stages, and one innovation normally involves many interdependent innovations (Fagerberg, 2004). A successful innovation requires consistent support and abilities in the innovation process, which could be either a sequential linear function or a complicated process with convergent, parallel, and divergent activities (Landau and Rosenberg, 1986).

2.2 *Innovation in the Public Sector*

One of the most important steps in managing public sector innovation is having an appropriate definition for it. However, the innovation definition has been the subject of debates in the literature; so, a literature review of the current definitions of innovation in the public sector gives a better understanding for the purpose of this paper. Mulgan and Albury (2003) defined innovation in the public sector as the 'creation and implementation of new processes, products, services, and methods of delivery, which result in significant improvements in outcomes efficiency, effectiveness or quality' (p.3). Currie, Humphreys, Ucbasaran, and McManus (2008) described innovativeness in a public sector context as the search for creative or novel resolutions to problems and demands, including new services, new organisational structures and improved process. Borins (2006) indicated three eminent types of innovation in the public sector: politically led responses to crises, organisational turnarounds engineered by newly appointed agency heads, and bottom-up innovations initiated by frontline public servants and middle managers. The first of these, crisis response, is relatively rare and unique to public sector innovation. Organizational turnaround-driven innovation is commonly seen when there is a performance gap. The third type of innovation is the most desirable, which is driven not by rule-breakers but rather by people showing leadership in delivering value for their stakeholders.

Competitive advantage, increased market share and improved profits are the main drivers that prompt the private sector to value innovation. Even though the drivers are considerably different, innovation in the public sector is of high policy interest because of the potential to improve the efficiency and quality of government services (Moore and Hartley, 2008). Berry and Berry (2007) postulate that governments imitate each other in regard to four factors: competition; learning; mandates; and public pressures and all these variables have a positive effect on the adoption of innovation. Bekkers *et al.* (2011) contend that innovation represents two different challenges to the public sector. First, the public sector, and subsequently public administration, is regarded as the cornerstone for an innovation-driven economy. With the purpose of making society and the economy more innovative, a public sector needs to prepare and adapt for a novel form of knowledge-based economy. Second, the public sector is required to become innovative in order to confront the challenges facing its future society. Societal threats such as climate change, crime and international economic competition force the public sector to rethink its choice of priorities, solutions and instruments. Moreover, the problems of global crises, aging societies, environmental challenges and permanently unsustainable public finances in most developed countries reveal that failure to innovate in the public sector creates not just imbalances in societies and budget constraints, but also primary challenges to the sustainable development of these countries.

3. METHOD

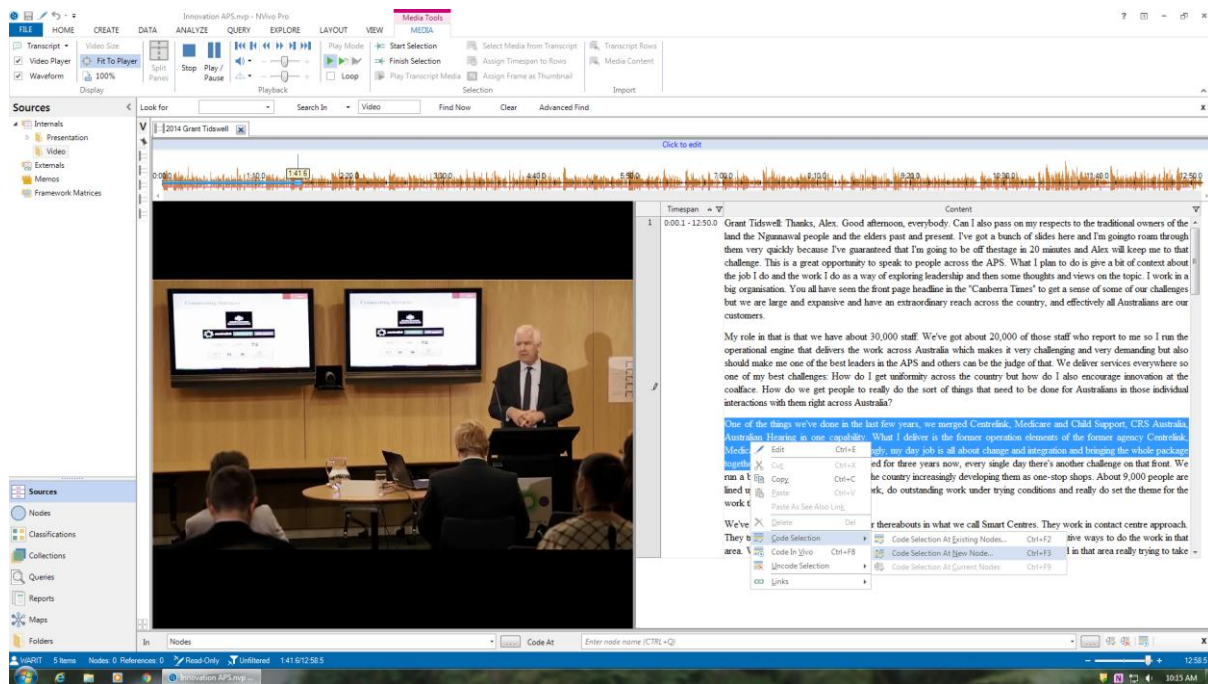
This paper considers transcripts of senior manager presentations in Innovation Month seminars from 2014 to 2016 to be an extraordinarily beneficial source to reflect the viewpoints of informants. The profiles of the presenters are shown in Table 2. These video transcripts have been categorised as a proxy primary source of data because they reflect eyewitness views of practices in the APS. They are free from researcher bias and interpretation and can be used to address the objectives and goals of this research. Additionally, there are valuable insights to be obtained from analysing publicly available data (Saunders, Lewis and Thornhill, 2003). Content analysis was used to analyse these transcripts. This method has been used as a textual data codification and synthesis technique to reveal the deeper meanings of the texts and the latent content, which enriches the interpretation (Neuman, 2005). This study conducted content analysis to systematically code and analyse the qualitative data in these transcripts. Content analysis was employed to understand the implicit and explicit meanings of the content related to government innovation policy and practices in the APS.

Table 2 Details of Presentations for Innovation Month Seminars

Year	Position	Topic
2014	Secretary, Department of Industry Deputy Secretary, Department of Human Services	Innovation Month 2014 launch Leadership or Leadersunk: are new models of leadership needed when it comes to innovation in the Australian Public Service? (Part 1)
	Director General, IP Australia	Leadership or Leadersunk: are new models of leadership needed when it comes to innovation in the Australian Public Service? (Part 2)
	Chief Technology Officer, Department of Finance	Feel the Wind: Set yourself the bolder course.
	Director of Coordination and Gov 2.0	Innovation Month Pattern Breaking Summit
2015	Secretary, Department of Industry and Science	Innovation Month Launch Secretary's address 2015
	Secretary, Department of Health Director, Digital Transformation Office	Innovation within the Department of Health The Computer Says Yes
2016	Deputy Secretary, Department of Industry, Innovation and Science	Innovation Month 2016 Launch

Available video presentations from the Department of Industry, Innovation and Science YouTube channel have been viewed and reviewed to create the transcripts. After that, these transcripts were read without analysis or coding to gain a feel for the content (Bryman and Bell, 2015). NVivo was utilised to search, sort and organise the transcripts. Coding was then performed to extract important concepts. The dominant themes that emerged were coded in nodes with annotations assigned to signify the importance of a given attribute. Coding was conducted to analyse the content from every manuscript, particularly those with similar values, intentions and meanings. A screenshot of a coding activity is shown in Figure 1.

Figure 1: Screenshot of Coding in NVivo



4. FINDINGS

4.1 Drivers of Innovation

Koch and Hauknes (2005) suggest that the public sector is regarded as risk-averse. Compared to the private sector, incentives for public servants are in general more likely to be lower and there are less performance based material benefits, making it easier to avoid condemnation by not taking risks. The willingness to take risks is reduced because the ramifications that might occur include: political damage to the government, public criticism, possible legal consequences, diminished career prospects, and damage to personal reputation. The public sector's lack of competitive pressure does not lead to incentives to control costs or improve service quality and respond to the demands of clients. Moreover, the public sector has greater interests among stakeholders, and abstract social norms and objectives like safer roads, better public welfare and improved education. Thus, the public sector must cope with several stakeholders who may have contrary needs. Balancing the needs of several stakeholders will have ramifications for their actions, outcomes, and the degree of trust in the public sector (Pärna, 2014).

Nonetheless, innovation is no longer solely the realm of the private sector; it is also being progressively adopted in the public sector (Setnikar and Petkovšek, 2013). In the private sector, achievement is conclusively evaluated with a combination of increased revenue, profits, and shareholder value therefore innovation is essential (Bason, 2010). While the public sector is not subject to this competitive pressure to innovate and it is unnecessary to earn and maximise profit, innovation has still become an area of increased importance. Given the negative rewards for risk-taking, it is obvious that innovation is generated in the public sector in response to crises or some individual champions of a specific innovation (Eggers and Singh, 2009). For example, one presenter highlighted the importance of crises as a driver for innovation:

That crisis, you know I like to think, our crisis in Health, in the last little while has been the co-payment. Very publicly and politically difficult but we now have some very, very interesting ways forward around Medicare more broadly, and Primary Health Care. And we would not, probably, have got that opportunity without a crisis of a kind that allowed us to really push the boundaries on getting some real changed thinking around Medicare and Primary Health Care.
(Secretary, Department of Health)

Bloch (2010) also maintains the conception that unlike in the private sector, where innovation is basically driven by the purpose of profit maximisation, public sector innovation focuses on maximising social welfare created through public investments. Among the drivers of public sector innovation, the most important have been:

Improve efficiency and effectiveness: Innovation must be implemented to improve efficiency and effectiveness, in order to increase public value (Langergaard and Scheuer, 2012). For instance, the Director General of IP Australia described: *“Clearly, the application of new ideas and approaches, new technologies, and new systems of management that is innovation is essential to effectively making the challenges faced by the public sector and also to promoting Australia's general competitiveness and prosperity.”* In addition, the Secretary of the Department of Industry indicated that the focus on efficiency of resources is on the agenda in public sectors. As she commented: *“I think in terms of innovation is absolutely a driver for productivity. The evidence is very clear. I think in terms of efficiencies in the public service, I think in the past, we've looked at doing the same with less [resources] in terms of efficiency”.*

Reduce the cost of public services: Due to pressures on government revenues and rising expenses in areas of government service, substantial cost cutting must be accomplished to manage rising debt levels (Bason, 2010). The Director of Coordination and Gov 2.0 stated that: *“One of the main of pressures I've noticed on government of course is around resources. Everyone has less to do more.”*

Increased complex challenges: The challenges are in contexts such as education, sustainability and climate change where the quality of problem solving and institutional innovation has a primary impact on social, economic, and environmental capabilities (Kao, 2007). As discussed by one of the participants: *“If government doesn't innovate, if we don't learn to be responsive and adaptive to what's happening in the world, then we make ourselves irrelevant. It's pretty simple, adapt or die. Without innovation without trying to do things better or in a completely different way, we are not going to move forward.”* (Director, Digital Transformation Office).

Rising demands of citizens: When comparing between service quality in the private and public sectors, citizens demand not only high quality and more user-centric services, but also services designed and often delivered in collaboration with citizens and community sector partners (Bowden, 2005). As highlighted by the Director General of IP Australia: *“Citizen expectations of public service quality have risen while at the same time there is an increasing pressure on public budgets for greater efficiency, productivity, and cost reductions. There is also increasing contestability in the provision of public services and even policy advice.”* Similarly, the Director of Coordination and Gov 2.0 argued that: *“A citizen today is able to engage and if you're not responsive to them, if government don't be agile and actually fill up a role then that void gets picked up by other people, so the internet society is a major pressure of the changing expectations of the public that we serve is a major pressure.”*

4.2 Barriers to Innovation in the Public Sector

It is significant also to highlight the barriers to innovation in the public sector which have to be addressed in order to maintain successful and systemic innovation. Most barriers appear in the context of organisational, political, economical, and social aspects. Borins (2006) divides

the barriers in public sectors into three groups: first, political barriers, arising in the political environment; second, internal barriers, arising within the organization; and third, external barriers caused by the external environment. The internal barriers include; a lack of sufficient human or financial resources, little management support, few incentives for staff, staff resistance and a risk adverse culture. The external barriers include; regulatory obligations and an ambiguous acceptance by clients. Based on content analysis of the presentation transcripts, the following factors function as significant barriers to innovation in the public sector:

Risk-averse culture

The duty to maintain continuity and provide acceptable standardised services and accountability to citizens are subject to the possibility of political and media criticism when policies or programs seem unsuccessful (Mulgan and Albury, 2003). The negative ramifications of risk-taking in the public sector can be drastic and can include “political damage to the government, public criticism, possible legal consequences, diminished career prospects, and damage to personal reputation” (Management Advisory Committee [MAC], 2010, p. 30). Therefore, these reasons often lead to a culture of risk aversion which hampers innovation and again accentuates the need to deliberately manage innovation in the public sector. A number of presenters indicated that a culture of risk aversion is a major barrier for innovation:

I think risk is one of the first things that comes to mind for many. The public service is often described as risk averse, yet risk is intrinsic part of innovation. (Secretary, Department of Industry)

Our stewardship of critical public sectors services and activities rightly attracts close scrutiny by parliament, the media, and the public. And we operate to serve ministers in a political environment. Tolerance for risk and failure is limited. (Director General, IP Australia)

The following comments made by one presenter, reflecting on conversations she has had with other civil servants, illustrate risk-aversion:

The amount of people that have said to me, just quietly, small feedback up, Hey, we'd love to do that but we don't want to get any criticism. (Director of Coordination and Gov 2.0)

Limited resources

Financial resources are essential for innovative project development, testing and implementation. Strict funding in public management is a vital issue caused by the alignment of centralisation and decentralisation doctrines and the aspects of power in regard to government level (Page, 2005). The public sector also has a duty to utilise resources effectively. Innovation is normally funded using budgetary slack or cost savings brought about by enhanced efficiency. However, the obstacle with these budgets is they are unpredictable (Borins, 2006). Thus, public servants hesitate to integrate innovation initiatives into resource planning due to concerns that such cost will be considered too risky and funds should be allotted to other items. The following quote is evidence of this view:

It is our responsibility as public servants to be as efficient as we possibly can and cutting cost is a very real reason why we should be and needing to be innovative but innovation in that process that by definition is inefficient, any new idea or experiment may not work. (Secretary, Department of Industry)

However, one presenter put forward the view that limited resources were both positive and negative for innovation:

Resources themselves can also have a positive or negative effect. Resource cuts can in fact stimulate innovation by requiring us to rethink how we can achieve the outcome with fewer

inputs. Conversely in some cases innovation will require an investment of resources and it can be strangled if there are none available. (Director General, IP Australia)

Failure of leadership

Organisational leadership plays an important role in facilitating innovation by creating a climate in which subordinates interact and operate. Top management commitment to the culture and attitudes toward innovation can be demonstrated by willingness to accept risk and advocating and rewarding innovative behaviour. Leaders must find mechanisms to encourage the generation, adoption, and implementation of innovations. For example, as noted in the following comment, the failure of leadership has been a vital barrier of innovation:

The third pressure is upper management. They don't always get what we're trying to do. Let's be honest, right? (Director of Coordination and Gov 2.0)

Nevertheless, frequent changes in organisational leaders occurring from the exchange of political forces or the end of terms of office are major barriers of innovation processes in the public sector. This phenomenon is called the 'too many hats' syndrome (Raipa and Giedraityte, 2014). Frequent leadership changes make it difficult to start innovative projects and drive change and innovation in the public sector (Hamson, 2004).

Regulatory requirements

Public sectors generally have bureaucratic structure. Bureaucracy relates to the precise separation of integrated activities regarded as responsibilities inherent in the department and hierarchical management based on supervisory relationships (Raipa and Giedraityte, 2014). Approval processes in the public sector can be embedded and burdensome which restrains innovation in organisations. Activities in such organisations are also administrated by common, abstract, and clearly defined regulations and policies which exclude requirements for an issuance of specific mandates for each unique case (Merton, 1940). In order to be successful, innovation processes require 'breaking the rules' (Mulgan and Albury, 2003). In addition, many public sectors are confronted with legal requirements and inessential bureaucratic practices. More regulations do not automatically assure better discipline. Therefore, the red tape of the past should have no place in the innovative organisation. Instead, organisations need to ensure standards are up to date and provide appropriate regulations to enable ideas to be taken to citizens. The following quotes illustrate this:

Inherit conservatism, rigid and opaque processes and structures that breed the culture of conformity and punish non-conformity. A closed internal focus which assumes all the answers must come from within. This is recognisably a description of the traditional bureaucracy. Our roles require a high degree of public accountability and thus working within a sometimes restrictive rules based framework is inevitable. (Director General, IP Australia)

Few rewards or incentives

The public sector has generally had higher punishments for failed innovation than awards for successful ones. While public servants may attempt to be creative and innovative, there is scarce feedback on ideas, innovative projects are rarely encouraged and there is a lack of recognition of innovators. In some agencies, processes or attitudes have a tendency to punish innovators by transferring the risk of failure onto them. Also departments seeking to generate innovation may have to fund the project internally. Thus, if the innovation fails or does not prove to be efficient, the innovators are responsible for all the costs. Such experiences lead public servants to the perspective that any innovative initiatives are confronted with the risk of penalties (MAC, 2010). Another presenter expressed concern about there being few rewards in public sectors, leading to a belief that innovation is not valued in their organisations:

Undertaking innovation in the APS has been described as long on risk and short on reward. There are those that say that the APS risk-reward trade off is currently low on risk and short on reward. To promote innovation, the staff need to understand that it is valued within the organisation. (Director General, IP Australia)

Hierarchy

Highly hierarchical organisations thwart innovation in the public sector and senior officers may hold the opinion that innovation can result in threats to existing hierarchies. There is a perception amongst many public servants that seniority or position generally rules whose opinions are accepted or respected. A host of internal hierarchy horizontal constraints have a tendency to inhibit the interaction necessary to generate novel ideas and vertical barriers can hamper novel ideas from bubbling up to determination (Eggers and Singh, 2009). In hierarchical structures, novel ideas have to pass through many steps of approval processes (MAC, 2010). In order to stimulate an innovative idea, flatter structures and more open, interactive processes should be established in the public sector. As one presenter from a high ranking position commented:

One of the biggest barriers to innovation was hierarchy, and I think the Secretaries' Group want to see new ideas not being put through big bureaucratic processes, but absolutely streamlined across the [Australian] Public Service, and that does, absolutely, require leadership, not just through Secretaries and SES [Senior Executive Service], but all of us, to help loosen, I guess, the bureaucracy and the shackles that seem to maintain a business as usual approach, and, if we don't keep up, then we become less relevant, too, as Agencies and the Public Sector. (Secretary, Department of Industry and Science)

However, not every presenter viewed hierarchy negatively, with one presenter who took a more longitudinal and broader perspective, commenting as follows:

Now, I know that people sometimes don't associate hierarchy with innovation, but I'm a great believer in hierarchy. I spent 22 years in the army with an appreciation that sometimes you have to do what you're told. The advantage of hierarchy is that often it comes with relatively large spans of command, spans of control. Lots of people, people with lots of direct reports. Typically, the research shows you that between five and seven is the right number of direct reports that you can get. Now, what's the advantage of having seven direct reports as opposed to one or two direct reports? Bloody hard to micromanage seven people, and if you avoid micromanagement, you avoid the innovation-crushing way of telling people how to do things. (Chief Technology Officer, Department of Finance)

Silo effect

The public sector has a tendency to operate like a silo where each department has different duties and the authority to operate the duty. Initially, these are generated as a procedure to manage human resources and structural processes. However, the issue with silos is they cause public servants to only concentrate on the definite mission involved with their agency. Generally, there is an implicit race between departments, especially where their duties overlap (MAC, 2010). These silos can be a significant barrier in terms of collaboration between each agency. The major obstacles to innovation result not from deficiencies of individual talent but from deficiencies of collaboration. As highlighted by one of the presenters:

This massive barrier to doing the work of the public service better is systemic silos. This is how government sees government, a whole map of fiefdoms, of castles to defend, of armies that are beating at your door, people trying to take your food and this is just one department. We don't have this concept of that flag has these skills that we could use. These people are doing this project; here's this fantastic thing happening over there that we could chat to. We're not doing that enough across departments, across jurisdictions. So what's the solution? The solution is we need to share. (Director of Coordination and Gov 2.0)

The public sector must disintegrate the silos that obstruct the flow of information that becomes knowledge, informed decisions and leads to results (Egger and Singh, 2009). As explained by another presenter who believed that his agency had overcome the silo problem by idea sharing:

We've committed to idea sharing by supporting a trial of a cross-agency platform. Increasingly, we are experiencing convergence of issues and the citizen's view and experience of government is not siloed, and nor will the solutions to their needs be. Silos are becoming less important, while integration and collaboration are becoming more so. (Secretary, Department of Industry and Science)

4.3 Innovation Characteristics

Innovation in the public sector is considered a legitimate means to improve efficiency and effectiveness in government and respond to citizens' increasing demand for better services. Public agencies are becoming key players in the adoption, invention and implementation of innovations (Borins, 2006). Value creation in the public sector is thus much broader in scope than for private businesses (Kelly, Mulgan and Muers, 2002). This means that innovation now plays a pivotal role in improving service quality (i.e. developing ways to address better social problems to meet the demands of citizens) and raising the productivity of the public sector (i.e. increasing the efficiency and effectiveness with which budgets are spent) (Pärna, 2014). The following quote illustrate this:

Innovation is not something you can set and forget. It's something that we need to absolutely embed in the way we work. It shouldn't be just seen as an add on to our normal processes and thinking, not just in the policy area but also in the service delivery, program management and regulatory area and you'd see in terms of, the deregulation agenda, I think the government in particular is looking at us to look at more innovative ways to solving problems rather than just coming up with regulatory responses. (Secretary, Department of Industry)

Moore and Hartley (2008) contend that there are five interdependent attributes differentiating the characteristics of public sector innovations from the private sector. Innovations in the public sector go beyond organisational frontiers to generate network-based and financial decision-making and production systems; tap new pools of resources; exploit the government's capacity to shape private rights and responsibilities; redistribute the right to define and judge value. These aspects should be evaluated in terms of the degree to which they promote justice and the development of a society as well as their efficiency and effectiveness in achieving collectively established goals.

In addition, four types of values for the public sector are proposed by Bason (2010): productivity, service experience, results and democracy. The obstacle for the public sector is that value in all four categories has to be established simultaneously, without impairing the value of another. Thus, the special role and function of the public sector is subject to a democratic, political rule, in which democracy is the governing principle.

The relation between innovation and performance is much less clear in the public sector. First, bureaucracies often restrain innovation because of their inherent proclivity toward regulation and certainty (Golembiewski and Vigoda, 2000). Even though innovative projects are progressively stimulated in public sectors, they seem to be separated from routine works. Thus, an ad-hoc basis seems to be a characteristic of innovation in public sectors. One presenter indicated that an ad-hoc innovation was on the agenda at her agency. As she commented:

Innovation in the APS is often patchy and undertaken on a somewhat ad-hoc basis. And we didn't actually take them to sit down and have a look at what we were doing in total to convince us that we were doing quite a lot of innovative things. (Director General, IP Australia)

However, another presenter was more positive about this issue, offering the following solution:

We've very much taken an approach which says innovations in our department should not be about extracurricular activity. It's not about sort of small projects off to one side, it's about our core work. (Deputy Secretary, Department of Industry, Innovation and Science)

Second, politics and the political process massively impact innovation in the public sector. The capability of the department to organise budgets to achieve innovative goals directly relies upon how the department obtains political support from parliamentary processes for scrutiny (Golembiewski and Vigoda, 2000). The political shrewdness of civil servants can encourage innovation in their agency. These viewpoints are noted in the following:

Now if you go to your boss and say, "I want to do this great, cool thing and it's going to be great and I'm going to go and work with all these other people. I'm going to spend lots of your money." Yeah, they're going to probably get a little nervous. If you say to him here's why this is going to be good for you, I want to make you look good, I want to achieve something great that's going to help our work, it's going to help our area, it's going to help our department, it's going to help our Minister. It aligns with all of these things; you're going to have a better chance of getting it through. (Director of Coordination and Gov 2.0)

Top-down approaches emphasise the leading role of top management who champion new ideas and support innovation. In addition, politicians also propose innovative ideas to spark media attention to their campaigns and to elicit the support of their constituents (Altshuler and Behn, 1997). The following two quotes illustrate the application of this top-down approach:

Each Department will clearly identify and support SES level champions, and my own Department's champion is at the deputy level. I'll be meeting with all the champions, straight after Innovation Month, to discuss how we can learn from each other, in helping to embed innovation, not just within our organisations, but across the APS. (Secretary, Department of Industry and Science)

One of my roles is to chair the APS Innovation Champions, which is a group of SES, get together once a month, to share what's going on in our respective agencies, to try and build some peer support around Innovation across the APS. And we also try to push along a few key projects. (Deputy Secretary, Department of Industry, Innovation and Science)

However, research on innovation in the public sector has shown that while elected officials and senior managers conceive and initiate many innovations (Kellough and Nigro, 2002), frontline employees are also a source of many innovative proposals because they ingest ideas from outside the organisation or generate novel ideas developed through experimentation, accidental occurrences, and other forms of experience (Borins, 2006). Altshuler and Behn (1997) asserted that most public sector innovations were based upon discovery rather than invention. These innovations are typically novel ideas learnt or borrowed from other organisations which are adopted as a solution to some long-lasting problems within the organisation. Moreover, public servants who initiate innovations were more likely to be middle or lower-level bureaucrats in direct contact with clients rather than senior managers. Similarly, Borins (2006) has also found that frequent innovators in public sectors are career civil servants at the middle manager and frontline levels. For example, the following three quotes signal the importance of bottom-up innovation:

We know, I guess as leaders in the public service that the ideas aren't going to come from old us, old, crusty folk, they're going to come from younger people and the next wave of reform is going to come from those that are down the hierarchy (Secretary, Department of Industry)

You really need to tackle innovation from the top down and then the bottom up. Innovation is not a separate activity, it's actually the way you go about your day-to-day job. (Director of Coordination and Gov 2.0)

We're also mindful that of course you've got to have bottom-up approach too and many of the good ideas that you'll have about changing the way we deliver services or new policies or new ways of doing things will come from our staff. So we're developing what we're calling an ideas pathway for our staff. And of course we'll have an ideas management platform. (Deputy Secretary, Department of Industry, Innovation and Science)

4.4 Typology of Innovation

To illustrate innovation in the public sector in Australia, a taxonomy of innovation types in public services has been examined (Arundel and Huber, 2013; Windrum, 2008):

Services innovation: The introduction of new services offered by public sectors to meet external users or market needs; an example is the new National Broadband Network, providing high-speed internet access to most of the country, and therefore enabling public sectors to improve the quality of an existing service product. The following quote illustrates:

This move is aimed at lowering the barriers to entry for RSPs [Retail Service Providers] and we expect it to promote retail competition and service innovation, leading to flow-on benefits for consumers. The rebate will give [retail] service providers a lower-cost opportunity to enter a geographic area, and build their customer base in the early days. (NBN Co, 2011, p. 1)

Service delivery innovation: A new or different way of providing a service, or collaborating with a client, for the goal of delivering specific public services. For example, the Australian Government Business.gov.au website provides a single database for companies with access to online registration for services, smart forms and various information, transactions and services; thus companies can curtail transaction and compliance costs. As noted by one presenter:

This whole of government service makes it easier for business to interact with government online and reduces government turnaround time and cost to process forms. I should give a plug to the team at business.gov.au who have developed a suite of free business-planning apps for iPad and Android to help Australian businesses, business owners develop business plans, marketing and emergency management plans. (Secretary, Department of Industry)

Organisational innovation: Special approaches for changes to organisational structures and processes by which services are provided by front office staff, and front office services are supported by back office staff. For instance, IP Australia provides a new organisational approach to do their work by teleworking, rather than working full time in the office. This is explained by the following quote:

IP Australia has been a public sector leader in introducing teleworking. Originally we do this in response to our inability to attract and retain patent examiners in key professionals. We established a work force of so-called out posted workers who live in locations all over Australia and undertake patent examination roles remotely. (Director General, IP Australia)

Conceptual innovation: The development of new ways of looking at challenging problems and assumptions that underpin existing services. For example, the National Respite for Carers Program provides support for carers further to that provided directly to those who require care. For instance, O'connell, Haskins, Ostaszkiwicz and Milllar (2012, p. 118) explained:

Respite care is available Australia-wide and is primarily funded through the National Respite for Carers Program. There is a need to extend respite services and consider more innovative, accessible and flexible models of respite care, for example, by developing holistic respite care centres that not only look after care-recipients, but also offer services such as GP clinics.

Policy innovation: A change to thinking or behavioural intentions related to a policy belief system. Shaping policy direction is the role of the public sector. Diffusion of policy innovations is encouraged by learning, public pressure or commands from executives (Berry and Berry, 2007). For instance, the Higher Education Contribution Scheme promotes entry to tertiary institutions for all students (including the disadvantaged), and also manages the revenue base for tertiary institutions. Marks (2009, p. 1) illustrated that:

Australia's Higher Education Contribution Scheme (HECS) is an income contingent loan scheme, in which university students pay back part of the costs of their tuition after their post-university income reaches a certain threshold, is an important policy innovation for the financing of higher education.

Systemic innovation: New or improved ways for parts of the public sector to operate and interact with stakeholders and knowledge bases, for example the establishment of Centrelink, which changed the means by which many government services were delivered to the public. As this presenter explained:

We merged Centrelink, Medicare and Child Support, CRS Australia, Australian Hearing in one capability. Increasingly, my day job is all about change and integration and bringing the whole package together. We run a bunch of service centres across the country increasingly developing them as one-stop shops. (Deputy Secretary, Department of Human Services)

These typologies of public sector innovation are wide and include dramatic service improvements to fully new methods to approach the way public services are delivered. Walker (2008) comments that in public sectors, the obligation to achieve multiple targets means that it is essential to be innovative across a variety of innovation types; it is implausible that aiming for just one type of innovation could result in accomplishing a number of, what are sometimes, conflicting goals. Damanpour and Schneider (2009) also support that innovation types tend to complement each other which improves organisational performances. Different types of innovations should have different effects in the public sector, for example, a service delivery innovation could raise client satisfaction or decrease the time required to deliver a service, whereas an organisational innovation could improve efficiency.

5. CONCLUSIONS

Having conducted a comprehensive content analysis, this study has identified how senior managers view innovation in the APS from different standpoints. The main context of this study is taking research on innovation into an applied public sector setting. There is a stereotypical view of the APS as being large bureaucracies which stifle innovation. Despite this perception, innovation in the APS does occur both in terms of a top-down approach and also a bottom-up approach. Content analysis reveals that the key attributes typically associated with innovation in the APS consist of drivers of innovation; barriers of innovation; innovation characteristics; and typology of innovation. These aspects have been defined, and descriptors assigned.

Innovation in the APS has rapidly enhanced due to a number of drivers: improve efficiency and effectiveness; reduce the cost of public services; increased complex challenges; and rising demands of citizens. The main barriers highlighted by presenters were a risk-averse culture, limited resources, failure of leadership, regulatory requirements, and few rewards or incentives. Additional key concerns expressed by senior managers included hierarchy and the silo effect. A consensus on the definition of innovation offers a way forward for the identification of innovation within the public sector context. For example, there is the opportunity to characterise innovation on the basis of whether civil servants bring forward

something new ideas, or improve an existing aspect of the APS. The typology of innovation, implicit in this analysis, also offers a means of classifying innovations.

According to the implications of this study, one should be very careful in applying decades-long knowledge and theories of innovation developed from private sector studies, directly to the public sector. This also justifies the need for comprehensive studies to examine innovation in the public sector. The limitation of this study is that the evidence is based on perceptions of presenters and may not reflect actual practices nor the perceptions of others.

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Going off the Beaten Track: Exploring Chinese International Students' Motivations for Selecting Regional Australian Higher Education

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ABSTRACT

Following the Australian state of Tasmania's adoption of its international education policy, *Tasmania's Place in the Asian Century White Paper* (Tasmanian Government, 2013), an increasing number of Chinese international students have enrolled at the state's sole university, the University of Tasmania (UTAS), which is a regional Australian university. This is a variation in trend from the choice of majority of Chinese international students who attend universities in Australian metropolitan contexts. This study aims to understand the motivations of Chinese international students who have made this different decision. Based on positivist and interpretivist stances and underpinned by grounded theory, this study analysed data from 456 (valid) questionnaires and 23 semi-structured interviews with UTAS Chinese international students. This research indicated that the primary motivators for the UTAS choice were: more competitive tuition fees, a larger number of scholarships, quicker and easier offers, cooperative courses, specialist courses, ease of graduation, acceptance of credit transfer, immigration prospects, and recommendations. These identified motivations were inclusive and could be interpreted in four more explicit dimensions: strategic competition with other Australian universities, attractions for students with diverse backgrounds, regional advantage, and specific promotion.

1. INTRODUCTION

1.1 Background

Australia and Chinese international students are two key elements of international higher education. On the world scene, Australia plays an increasingly significant role in international higher education. According to the latest data from the OECD's (2015) *Education at a Glance 2015*, Australia was the world's third largest host country for international higher education, following the United States and the United Kingdom. This is an increase since 2014, when Australia was only ranked at No.5 globally as an international higher education student destination country (Department of Education, 2014). Within the Australian context, international education has been the third largest export for Australia; it was worth AUD 19.4 billion to the Australian economy in 2015 (Department of Education and Training, 2016d), mainly from onshore international students (Department of Education and Training, 2016b). Compared to 2014, the number of international students in Australia grew by approximately 10 per cent in 2015 (Wells, 2016). Amongst all the international students in Australia, 52 per

cent study in the higher education sector (Department of Education and Training, 2016d). Chinese students are prominent amongst the international students in Australian higher education. Australia is one of the top three most popular education destinations for outgoing Chinese students (Department of Education and Training, 2016a).¹ Chinese international students remain the largest share (e.g. 38.66 per cent in 2015) of all international student enrolments in Australian higher education institutions, which is far head of other countries (Department of Education and Training, 2016f). In 2015, 57 per cent of all Chinese international students in Australia were in higher education (Department of Education and Training, 2016c).

In terms of location preferences, however, the majority of Chinese students tend to undertake international higher education courses in Australian metropolises, such as Melbourne, Sydney and Brisbane rather than study at regional Australian universities. The most recent statistics from the Australian Government Department of Education and Training indicated that approximately 5 per cent of the total enrolments of Chinese international students in 2015 were in regional Australian areas, and over half (54 per cent) of international students enrolments in regional Australia were in higher education sector (Department of Education and Training, 2016g).

1.2 Definition of Regional Australian University

The definition of “regional Australian university” is quite complex, with no single agreed definition and no official list of regional Australian universities, so it seems to be largely a matter of self-definition. There is an alliance of six regional Australian universities under the Regional Universities Network (RUN)², but many other regional Australian universities are not members of this Network. It is quite understandable that there is no agreed definition of “regional Australian university”: there are over 70 regional university campuses in Australia (Eversole, 2016), and 99.9 per cent of Australia’s land mass can be classified as regional (Department of Education and Training, 2016e). In this study, regional Australian university was taken to refer to a university in Australia whose main campus is located outside a major Australian metropolitan centre. According to this definition, the University of Tasmania (UTAS) may be considered as a regional Australian university, since its main campus is in Hobart which, while a capital city, is in a regional area.

1.3 Influencing Policies

International education, especially international higher education, has made a significant contribution to the Australian regions. It has provided social and economic opportunities, as well as global connections, and has created cultural and linguistic diversity in Australian regional areas. Chinese international students form the majority of international students and so their impact on the Australian regions should not be overlooked. In 2012, the Australian Government released the *Australia in the Asian Century White Paper* in which various targets for Australia to the year 2025 were set in response to the influence of Asia’s rise. This White Paper also specifically highlighted the opportunities which Chinese international students could bring to Australian international higher education.

¹ According to the statistics in 2016 from Australian Government Department of Education and Training, the USA, the UK, and Australia were the three most popular study destinations for outgoing Chinese students (Department of Education and Training, 2016a).

² The current RUN members are Central Queensland University, Federation University Australia, University of Southern Queensland, Southern Cross University, University of New England, and University of the Sunshine Coast (Regional Universities Network, 2016).

The State of Tasmania is also aware of the opportunities and challenges of the Asian century. Building on the Australian Government's White Paper, in 2013 the Tasmanian Government commissioned its own White Paper on *Tasmania's Place in the Asian Century* for establishing the policy framework to support Tasmania engagement with Asia over the next 10 years. Surprisingly, the Tasmanian Government was the only State Government to commission a State Government response to the Australian Government's paper. The policies of international education and the Chinese international student markets are identified as key sectors in the (Tasmanian) White Paper. This White Paper also highlighted that China was the top Asian country for international students coming to Tasmania, and that the Tasmanian Government also believed that international education would become increasingly significant to Tasmania. Furthermore, the White Paper indicated that the University of Tasmania had plans to double its international student intake over the next five years (Tasmanian Government, 2013).

1.4 Increase in Chinese International Students Enrolments at the University of Tasmania

Under the impetus of these proactive policies, an increasing number of Chinese international students in recent years have made the decision to "go off the beaten track" by undertaking higher education courses at the University of Tasmania, a regional Australian university, rather than follow the majority of their compatriots to universities in the larger Australian cities. This trend can be seen in the enrolment numbers of Chinese international students on the university's Tasmanian campuses: the most recent figures (to 26 September, 2016) show a steady increase from 1,056 in 2014 to 1,136 in 2015 to 1,446 in 2016 (University of Tasmania, 2016).

1.5 Literature Review

As Chinese international students are a key factor in Australian higher education, numerous studies (e.g. Ballard, 1987; Cuthbert *et al*, 2008; Robertson *et al*, 2000; Zheng *et al*, 2004) have been undertaken with the primary aim of attempting to understand Chinese and other Asian international students' experiences in Australia, the challenges they may face in the Australian education system, and the outcomes of these international education experiences. However, the main focus of these studies has been to access Chinese international students' perceptions of their Australian education experiences after they have started their overseas study journey, rather than assessing their motivations and expectations prior to departure from China. Additionally, little attention has been paid directly to the experiences of Chinese international students in a regional Australian higher education context.

Many investigations (e.g. Duan, 1997; Li and Bray, 2007; Pimpa, 2002; Wilkins *et al*. 2012) have studied the motivations which have influenced international students' choice of international study destination. Mazzarol and Soutar's (2002) push-pull theory has been widely employed to develop an analysis of the two motivational influences: "'push' factors operated within the source country and initiated a student's decision to undertake international study" and "'pull' factors operated within a host country to make that country relatively attractive to international students" (p. 82). However, the theory does not account for individual preferences and personal characteristics, and focuses largely on the forces external to the individual. It also only takes into account the push factors of the source country and pull factors of the host country; thus, ignoring the potential pull factors from the source country and the push factors from the host country.

Similarly, while the previous literature has focussed substantially on the motivations and perceptions of international students studying in metropolitan universities, much less attention has been paid to international students enrolled in regional universities. There is a need

therefore to build clearer understandings about what motivates this latter group of international students to make their different decisions.

1.6 Theoretical Framework

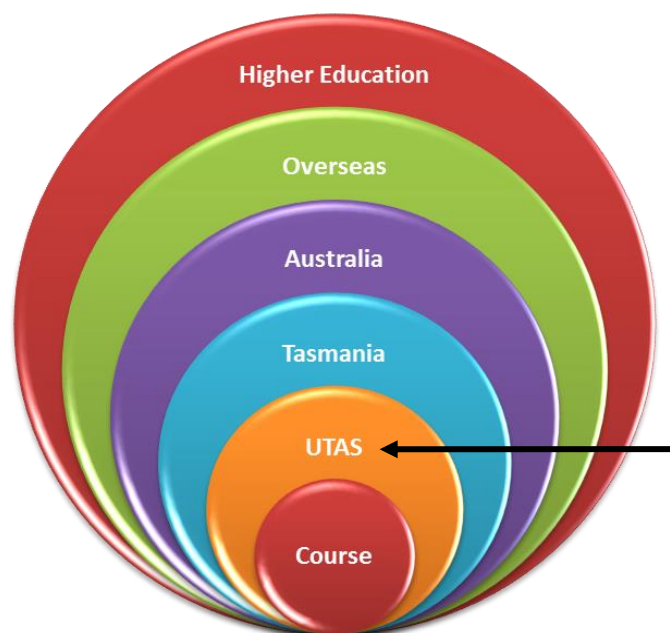
Clearly, as with much other decision-making, the decision as to whether to study at a regional Australian university is often complex and multi-faceted. It is therefore highly important to identify motivations underlying the choice. There is substantial literature (e.g. Duan, 1997; Jenkins, 2007; Lawley, 1997; Pimpa, 2002; Stafford, 2010) which demonstrates that international students' decision-making about higher education is not a one-step process, but encompasses a series of choices. From a cognitive approach, Duan (1997) and Pimpa (2002), respectively, elaborated the major choices that Asian international students made in selecting Australian higher education institutions. Both researchers found the common choices were: to study abroad, country, city, academic course, and university. However, to undertake higher education was another choice in the research of Duan (1997).

In the present study, which was based on Duan's (1997) six choice model, Chinese international students' motivations for selecting regional Australian higher education were examined from six major and distinct choices. These were (1) to choose to progress to higher education, (2) to choose to study overseas, (3) to select the country (Australia) to study, (4) to select the state (Tasmania), (5) to select the regional Australian university (UTAS), (6) to select the particular course to study (Figure 1).

These six choices are also underpinned by a logical process, from making the most general choice (to undertake higher education), to the most specific choice (to choose a particular course). It was found that there was a range of motivations of Chinese international students underlying each choice.

It should also be mentioned that, given the regional university focus, this paper will be on the motivations relating to just one of the six choices, the choice of a particular regional Australian university, UTAS (the arrow in Figure 1).

Figure 1: Theoretical Framework



1.7 Research Aim and Question

The aim of this study was to investigate Chinese international students' motivations influencing the choice of regional Australian university in the decision-making process of seeking Australian international higher education prior to departure from China. The study was conducted in an attempt to explore this motivational dimension about regional Australian higher education, and contribute to this relatively under-researched area.

Thus, the research question related to the research aim was: What motives Chinese international students to choose the University of Tasmania (UTAS), a regional Australian university, in the decision-making process of seeking to undertake Australian international higher education?

2. METHODOLOGY

2.1 Case Study

The research is a case study. UTAS was chosen as the location of this case study. The population for this study was all international students from China mainland, Hong Kong, or Macau, who were undergraduates or postgraduates in semester 1, 2015 of UTAS on UTAS Tasmanian campuses. More detailed, the population size was 835 Chinese international students.³ The population did not include any Chinese students at the Sydney campus of UTAS, offshore Chinese students, and Chinese graduates from UTAS. In light of Creswell's (2012) sampling approaches, this research employed sampling with convenient and purposive characteristics. The selection of UTAS was because UTAS is a typical regional Australian university, this project was a vital part of a current UTAS Ph.D. research, and therefore it had the convenience of access to UTAS participants. More importantly, the Chinese international student population at UTAS is smaller than those at mainland Australian universities: only 0.9 per cent of all Chinese students enrolled in Australian education study in Tasmania in 2015 (Department of Education and Training, 2016a). The small number of the group probably results in a more complete, well-organised picture of this unit (Huxley, 1995). Accordingly, this is the suitable case in Australia to provide a comprehensive and overall situation of motivations of Chinese international students at one regional Australian university.

2.2 Methods and Paradigms

This study adopted a convergent mixed methods design to concurrently gather both qualitative and quantitative data, and then to merge the data to develop a deeper understanding of the research question (Creswell, 2012). The survey employed in the quantitative stage was to offer an overview of the general situation of Chinese international students' motivations by examining a certain amount of variables across a large sample. On the other hand, the semi-structured interview was used to explore the individual factors further and deeper, through investigating a small number of interviewees across a large number of variables (Huxley, 1995). Because of their complementary and non-overlapping strengths, this mixed methods research potentially provides a more comprehensive and broader insight into Chinese international students' motivations to select regional Australian higher education than either method by itself (Creswell, 2012; Johnson and Turner, 2002).

The orientation of this study aligns with both positivism and interpretivism philosophical paradigms. Believing the nature of the reality which is out there and waited to be studied, captured, and understood (Guba, 1990), positivism centres on a scientific method built on empirical evidence and adopts a deductive approach (Sciarrà, 1999). The positivism stance in

³ This statistic was provided by the UTAS international student advisor in the beginning of 2015.

this study was embodied in survey as well as interview schedule design via analysing literature and preliminary study. Differing from the positivist statement, interpretivism focuses on “participants’ views of the situation being studied” (Creswell, 2003, p. 8). Thus, a theory can be inductively generated (Creswell, 2003). Guided by an interpretivist paradigm, instead of stemming from theories, the other part of this research underpinned by the systematic grounded theory was an inductive contributor to identify motivators on regional Australian higher education selection from different interviewees’ views. These two paradigms facilitated to tease out the influencing factors by focusing on Chinese international students’ choice making of their regional Australian university.

2.3 Data Collection

Data collection methods of this study encompassed questionnaire and semi-structured individual interview, which were conducted simultaneously in semester 1, 2015 of UTAS.

In terms of survey, the questionnaire using was designed by the researcher, based on the research question and theories reviewed from relevant literature, through three steps: initial design, pilot study, and finalizing. The final questionnaire included participants’ demographic information, and seven reasons to select to study at UTAS, as well as an open-ended section for the respondents to add more factors. A 5- point Likert Scale (Likert, 1932) was employed to explore the importance level of all seven factors. The final number of responses to the questionnaire was 501, of which 456 were valid, accounting for 54.61 per cent of the whole population size (835). Adopting Fowler’s (2009) table to determine sample size with $\pm 4\%$ confidence interval, a confidence level of 95%, and a 50/50 chance that the sample includes, the estimated sample size was 350. The actual sample size of this research, 456, bigger than 350 was thus seen as robust, considerable and reasonable. The numerical data and the textual data were collected from questionnaire.

At the same time as questionnaire data was being collected, interviews were carried out. On the basis of the six choices of theoretical framework, the interview schedule was prepared with one demographic question and six choice-related questions to investigate motivations of selecting a regional Australian university by Chinese international students. Again, this study only paid attention to the question, “Why did you choose to study at UTAS”. 23 participants voluntarily took part in the semi-structured individual interviews. Those students were expected to recall their initial orientation to choose regional Australian higher education. Those interviews were conducted face-to-face at the Hobart campus and at the Launceston campus. All interviews were recorded by digital voice devices with the permission of the participants. Mandarin was the language adopted in all interviews. Transcripts were produced from interviews as the textual data.

2.4 Data Analysis

After the data collection, data from questionnaires was analysed using the SPSS (Statistical Package for the Social Sciences) version 22 and Excel 2010. In SPSS, for the 5-point Likert scale, “very important” (VI in Table 1) was assigned the value 1, value 2 was corresponded to “important” (I in Table 1), value 3 and value 4 were separately indicated “unimportant” and “very unimportant” (UI and VUI in Table 1), and the value of “never considered” (NC in Table 1) was defined as 5. The significant motivators were identified from questionnaire data analysis.

In addition, data collected from semi-structured interviews was analysed via adopting a Systematic Grounded Theory allied with Strauss and Corbin (1990) and the NVivo 10 software as a platform. The principle of the grounded theory fits this research for the strategy engaging in this research was from an inductive and exploratory approach rather than a

theory-down research. To further discuss, compared with two other grounded theories, Emerging Grounded Theory and Constructivist Grounded Theory, the Systematic Grounded Theory was considered to be the most appropriate approach of this research, and to guide the whole process of interview data analysis on the grounds that it is an approach widely employed in educational research, and centres on procedures utilised to generate a theory that explains a process or an interaction (Creswell, 2012). This research emphasised data analysis steps of open, axial, and selective coding, and the development of a logic paradigm of the theory generated (Creswell, 2012). In the process of qualitative analysis, what to motivate interviewees to choose UTAS were found out.

A later stage of the analysis seamlessly combined qualitative data and quantitative data through finding the extent to which the two datasets yielded similarity or dissimilarity, and identifying any determinants. This stage analysis enabled the research question to be answered holistically and multi-dimensionally.

3. FINDINGS

3.1 Profiles of Respondents

Of those who completed the survey, the proportion of males to females was almost equal (51 per cent females, males 49 per cent). 98 per cent of them were born in the 1980s and 1990s. In terms of the faculty distributions, more than half (51.7 per cent) of the survey respondents were studying in the Tasmanian School of Business and Economics, followed by the second largest population in the Faculty of Science, Engineering and Technology (21.8 per cent). The third faculty was the Australian Maritime College (9.6 per cent). These three groups accounted for 83.1 per cent of Chinese international students at UTAS. Considering degree distributions, the largest questionnaire response was from those undertaking Master Degree programs (50 per cent). Next were Bachelor Degree courses (38.2 per cent).

The 23 interviewees consisted of 13 males and 10 females, all of whom were born in 1980s or 1990s. Seven of them were undertaking courses in the Tasmanian School of Business and Economics, and an equal number were studying in the Faculty of Science, Engineering and Technology. The number of participants from Australian Maritime College was five. Interviewee degree distributions were: 11 enrolled in Bachelor Degree programs, nine undertaking Master Degree courses, and three Doctoral candidates.

3.2 Motivations

Chinese international students were asked to rate a list of seven factors motivating the selection to study at UTAS, a regional Australian university. The Table 1 provides the descriptive statistics summary of survey motivation data.⁴ The reasons in the Table 1 were listed based on sequence of their mean values. The smaller mean value of a reason stood for the greater importance of this reason, while a reason with the bigger mean seemed to be less important.

Reasons in the Table 1 are the starting point to be discussed in this section supplemented with evidence and additional key factors collected via interviews.

⁴ SD = Standard Deviation; VI = Very Important; I = Important; UI = Unimportant; VUI = Very Unimportant; NC = Never Considered.

Table 1: Descriptive Statistics Summary of Questionnaire Data⁵

Reasons	Mean	SD	VI	I	UI	VUI	NC
	2.12	0.53					
Low tuition costs	1.88	0.77	31.6%	44.3%	16.2%	2.2%	5.7%
Availability of scholarships	1.99	0.81	27.4%	38.8%	20.4%	2.9%	10.5%
Easier/ faster to get an offer of enrolment compared with other Australian universities	2.08	0.80	23.2%	40.6%	24.6%	2.9%	8.8%
The qualification is recognized in China	2.23	0.84	17.1%	36.2%	26.3%	5.0%	15.4%
University reputation/ ranking	2.24	0.73	12.3%	46.7%	27.0%	3.3%	10.7%
Accept transfer credits	2.25	0.81	15.8%	31.6%	28.9%	3.3%	20.4%
Parents/ relatives/ an education agent/ friends recommended it	2.26	0.84	15.1%	33.3%	25.4%	5.0%	21.1%

a) More Competitive Tuition Fees

The motivation to pick UTAS was driven by the direct finance factor, more competitive tuition fees. Low tuition costs of UTAS were rated by students in their questionnaire responses to be the most important influencing factor (mean of 1.88) among all seven reasons. Also this motivation was highlighted by six out of 23 participants in interviews. The majority of Chinese international students coming to study overseas were self-funded, thus the cost of education was a great concern. It was consistently agreed from the responses of survey and interview that cheaper tuition fees of UTAS compared with mainland Australian universities advantaged UTAS. Some interviewees mentioned their UTAS tuition fees were almost only half of tuition costs of mainland Australian universities, and the tuition costs of member universities of the Group of Eight⁶ were much higher than UTAS. One interviewee who was undertaking a Master Degree program at UTAS indicated her concern about the cost of tuition fees for overseas study, "If I had not cared about tuition cost, I would have a Bachelor Degree in Australia first rather than gained a Bachelor Degree from a Chinese university". The cost concern may explain that the reason why 50 per cent of survey respondents were studying Master courses at UTAS rather than Bachelor programs was shorter study length. Potentially regional Australian universities can make use of the advantage of low tuition fees to compete with metropolitan Australian universities in order to attract more international students. The cost of tuition fees was also discovered to be a factor in the study of Mazzarol and Soutar's (2002) push-pull theory. However, differing from this reason discussed by Mazzarol and Soutar in the context of country destination, this study discovered it as an influencing factor for the choice of a higher education institution. More competitive tuition fees of UTAS was a big attraction for Chinese international students, thus UTAS became their affordable choice.

⁵ Please notice that values of Mean and Standard Deviation (SD) for each reason calculated and showed in Table 1 don't include participant whose answer was Never Considered (NC).

⁶ The Group of Eight (Go8) is a coalition of leading Australian universities, intensive in research and comprehensive in general and professional education.

b) A Large Number of Scholarships

A large number of scholarships were another driving force behind the UTAS choice in the financial facet. This motivation ranked the second most important (mean of 1.99) among all seven reasons by survey respondents. Also, one third of interviewees mentioned this point. Besides benefiting from lower tuition fees, interviewees pointed out that students who had good academic records could easily get 25 per cent of tuition fee discount scholarship. Even if they did not gain a scholarship when applying for UTAS, this scholarship was still available for them after they commenced their UTAS courses if their UTAS marks were over 80 per cent. Doctoral candidates paid more attention to the availability of scholarships than cheap tuition fees. Extending this point, one Ph.D. candidate interviewee indicated that for those students graduated from UTAS, it was quite easy to successfully get UTAS full scholarships if they would like to further study Ph.D. programs. In addition to those scholarships which were commonly obtained by Chinese international students, a large number of other scholarships were available when applying for UTAS, and after having enrolled at UTAS. This finding is in alignment with Andressen (1991), that is, the availability of scholarships may have a significant bearing on the choice of university destination. By and large, combining factors of low tuition fees and a large number of scholarships, if choosing to study at UTAS, a regional Australian university, Chinese international students could have fewer expenses compared to study in mainland Australia, so UTAS for them was a quite economical choice.

c) Quicker and Easier Offers

One of the most curious and interesting findings of this research was that it was easier and faster to get offers from UTAS compared with other Australian universities. A considerable number of questionnaire respondents chose this reason, and hence this factor had a relatively high mean of 2.08. In addition, within the semi-structured interviews, four Chinese international students further commented that they applied for a few Australian universities at the same time, but UTAS offer was the earliest one. Furthermore, UTAS gave offers very quickly after Chinese international students submitted their applications. They were not sure whether they would get other offers from mainland Australian universities, so they easily accepted the earliest offers from UTAS. The strategy effectively pulled Chinese international students to enrol at UTAS. There appear to be no precedents for this cause to be found in the relevant literature.

Apart from this, the lower entrance requirements made Chinese international students easier to get an offer from UTAS compared with metropolitan Australian universities. One interviewee would like to undertake a program in Master of Accounting in Australian higher education, but “if you want to be enrolled into Master of Accounting in University of XXX, a metropolitan Australian university, you need a Bachelor Degree related to accounting, but mine is not”. However, UTAS did not require a Bachelor Degree related to accounting as a prerequisite to be eligible for the offer of Master of Accounting, so Chinese international students got an offer of Master of Accounting course more easily. This may explain why many Chinese international students enrolled in the Master of Accounting at UTAS. Lower entrance requirements also were mentioned by other interviewees. Existing literature (e.g. Lee, 2013) examined the possibility to meet the entrance requirements among universities in different countries, but there is little discussion about entrance requirements distinctions between regional Australian universities and universities in metropolitan Australia. Thus, quicker and easier offers secured a place for UTAS in the competition with metropolitan Australian universities to pour Chinese international students’ attention.

d) Cooperative Courses

Cooperative courses were a significant nexus to lead Chinese international students to study at UTAS. In this context, a cooperative course refers to a cooperative academic program between a Chinese university and an Australia university in which students completed their studies first in China and then in Australia, emerging with qualifications from both institutions. There were eight interviewees out of 23 who were from cooperative courses between China and Australia. All of them spent a large amount of time in elaborating on their cooperative courses and believed this was the dominant factor for them to study at UTAS, a regional Australian university. Lots of interviewees were from “2+2” Bachelor Degrees cooperative courses which entailed two-year courses in Chinese universities and then two-year courses in UTAS. When they were in those cooperative courses in China, they had classes from UTAS lecturers and also some Chinese universities required them to adopt UTAS online learning system, so those helped Chinese international students develop a comprehensive understanding of UTAS studying before they came to UTAS, and left a very good impression on UTAS. Plus, English language training as part of those programs in China helped them meet English entrance requirements of UTAS. Thus, they eventually came to UTAS to study after completing the initial Chinese part. Additionally, some of them recognized that UTAS seemed to be the only choice for them if they attempted to obtain two degrees at the end of the cooperative program. Also, there were other forms of cooperative courses where interviewees enrolled between Tasmanian TAFE and UTAS, or between Chinese vocational tertiary education (similar features as TAFE in Australia) and UTAS. The further reasons to select cooperative courses for initial study interviewees mentioned were they had a desire to study overseas, but still would like to use the results of Chinese university entry exams to apply for higher education, and also had a financial consideration. Nevertheless, the location of UTAS, regional Australia, was never considered by them, as long as it is a part of Australia. Relevant literature (e.g. Bodycott, 2009) usually provides valuable insights into the decisive function of cooperative courses when international students chose certain higher education institutions. However, the importance of cooperative courses is a new finding contributing to the influencing factor on choosing a regional Australian university. Generally, of which had direct and effective characteristics, cooperative courses was a key official route mixed with a range of factors for Chinese international students to study at UTAS.

e) Specialist Courses

Specialist courses functioned as a powerful driving force behind the UTAS choice made by Chinese international students. Chinese international students, especially those who intended to study specialist courses, such as maritime courses, would choose UTAS, since those courses in Australia were only offered in Australian Maritime College (AMC), and AMC is a part of UTAS. Apparently, the particularity of those courses limited their choice of Australian higher education institutions. All five interviewees undertaking courses from AMC revealed that this was the main cause of selecting UTAS. Most interviewees did not mind that those courses were in a university located in the regional Australia when making the decision to study at UTAS. Also, interviewees noted they were keen to undertake those specialist courses because of personal interests. Seen from this point, specialist courses was the extrinsic motivation to the UTAS choice underlain by the intrinsic driver, interests. Specialist courses as a motivation to pull Chinese international students to study in a regional Australian university are apparently an under-studied area. In conclusion, similar as the cooperative courses, those specialist courses were a direct and effective approach to attract Chinese international students who had special interests in those course fields to choose UTAS as their study destination.

f) Ease of Graduation

The motivation of ease of graduation from UTAS greatly influenced Chinese international students to choose regional Australian higher education. Three interviewees in this study reflected that after collecting available resources and comparing relevant information concerning ease of graduation from different Australian universities, UTAS was comparatively easier to graduate. This played a vital role in the process of selecting UTAS, though this was not a dominant motivation interviewees indicated. Interviewees accessed this information from education agency, experienced acquaintances, or the internet. This motivation mainly was for the purpose of smooth graduation from Australian university, but it was attributable to two different potential reasons for two different sorts of students, poor academic records and ease of changing majors. This reflected Chinese international students' choice of regional Australian higher education through "pragmatic rationality considering their circumstances, their personal ability and the possibility of their desire and expectations" to form a strategic choice (Lee, 2013, p. 331). All in all, ease of graduation was a major motivation for Chinese international students under the pragmatic strategy.

g) Acceptance of Credit Transfer

Acceptance of credit transfer was a crucial factor from the side of UTAS to enrol more Chinese international students. A mean of accepting credit transfer, 2.25 in the analysis of questionnaire, stood for the quite high importance, although it only ranked at the sixth of all seven reasons for Chinese international students to select to study at UTAS. What's more, roughly half of interviewees (11 out of 23) chose UTAS due to the credit transfer acceptance in UTAS. Besides nine interviewees who transferred their credits of previous Chinese university programs to UTAS on the basis of the above mentioned cooperative courses, another two transferred their diploma credits to progress a Bachelor degree of UTAS. Interviewees noted that they would only chose higher education institutions which could accept their transferred credit, and UTAS had a wide inclusiveness to credit of institutions and was flexible in relation to study pathways from different countries and different education levels. This was also a reason for them not to apply for some metropolitan Australian universities since they did not accept their previous credits. Supplementing this direct motive, interviewees also preferred credit transfer as a time-saving and money-saving approach. Past research did not pay much attention to the importance of acceptance of credit transfer on investigating international students' decision-making to choose certain higher education institution, but it was a underlying motivation for some Chinese international students to choose UTAS.

h) Immigration Prospects

In terms of the regional feature of UTAS, immigration prospects were a significant motivation for Chinese international students to choose UTAS as their study destination. A number of studies (e.g. Bodycott, 2009; Li, 2007; Mazzarol and Soutar, 2002) identifies immigration prospects after graduation as the factors influencing Chinese international students' decision of an overseas study destination. Immigration prospects were fairly unique and special among all factors to motivate Chinese international students to choose UTAS, regarding the special geographic location of UTAS, regional Australia.

Five interviewees considered that this was a significant motivation for them to choose UTAS, and also further explained that for them who planned to immigrate to Australia after completing their courses, UTAS was a wise choice, because UTAS is in regional Australia. When they apply for immigration, they have potential to be nominated by the state government and receive extra five points if they have lived and studied in regional Australia

for two years. Immigration prospects were the only and central motivation to choose UTAS for two interviewees. For those Chinese international students who had a strong immigration desire, they not only picked the special location, regional Australia, but also attempted to enrol into immigration courses. Immigration courses refer to courses of which related occupations were in the Skilled Occupations List in the Australian Government Department of Immigration and Border Protection. Once they gained those course degrees when graduating from UTAS, it would be easier for them to immigrate to Australia. This also could explain why most survey participants at UTAS are from Tasmanian School of Business and Economics, and Faculty of Science, Engineering and Technology on the ground that the majority of immigration courses at UTAS were in those two faculties. Hence, the preferential immigration treatment from UTAS, a regional Australian university, was the best driver for Chinese international students who intended to immigrate to Australia after graduation.

i) Recommendations

Recommendations from education agencies, friends, relatives, and parents played a significant role in motivating Chinese international students to study at UTAS. There has been considerable investigation (e.g. Duan, 1997; Pimpa, 2002) into the referents on international students' choice of international higher education in existing researches. However, there has been little, if any, recent research into the role recommendations in the context of regional Australian higher education. Recommendation of parents/relatives/an education agent/friends scored highly, with a mean value of 2.08 in the survey. Some interviewees laid emphasis on the role of education agencies about information provision and persuasion. Having close partnerships with Australian institutions, a large number of education agencies in China assisted Australian institutions to recruit Chinese international students. Chinese international students did not need to pay agencies any counselling fee in institution selection and application making, because if Chinese international students finally enrolled at UTAS following the agency recommendation, agencies would get bonus from UTAS. In addition, interviewees also stated a preference to enrol at UTAS because of friend, relative and parents recommendations. These were not factors controlled directly by UTAS. One interviewee noted that recommendations to choose UTAS were from his friends and colleagues who had UTAS study experience, and also he came to UTAS to study with his friends together. Another interviewee stated that her relative who studied and was working at UTAS recommended UTAS as a suitable choice for her. Well-educated family members' suggestions were almost always accepted by Chinese international students. Chinese parents had a significant influence on their child's international higher education, but few interviewees pointed out that a particular Australian university, UTAS was their parents' recommendation. Conversely, Chinese parents did not make the choice of UTAS for their child. Therefore, in summary, it can be seen that the word-of-mouth referral from education agencies, friends, relatives, and parents had a great influence on Chinese international students' choice of UTAS.

j) Other Motivations

Investigation in this study also discovered other motivations, important in some individual cases, but insufficiently important when viewed against sample summaries. Interestingly, recognition of UTAS qualification in China scored a mean of 2.23 in the analysis of survey data still showed somewhat significance, but it was not mentioned by any interviewee. Although the previously-mentioned and widely used push-pull theory examined the high importance of the quality of education in a host country (Mazzarol and Soutar, 2002), it is not clear that their study is relevant to the present research: specifically (in this case) regional Australian higher education and awareness from home country, China.

Additionally, another motivation listed in the questionnaire, university reputation/ranking was important by looking at its mean, 2.24. But interviewees have incompatible opinions towards this motivation. Some interviewees provided diverse examples of UTAS reputation or ranking captured their attention, including that UTAS is a four-star university in Australia, and a state university, and that UTAS founded in 1890 with a long history must be a prestigious university. From the other point of view, however, other interviewees mentioned that they never considered or cared UTAS ranking. Interestingly, reputation and profile of institution was identified in the push-pull study of Mazzarol and Soutar (2002). However, in summary, UTAS reputation or ranking was a small motivation for some Chinese international students to choose UTAS, but not for others.

4. DISCUSSION AND OUTLOOK

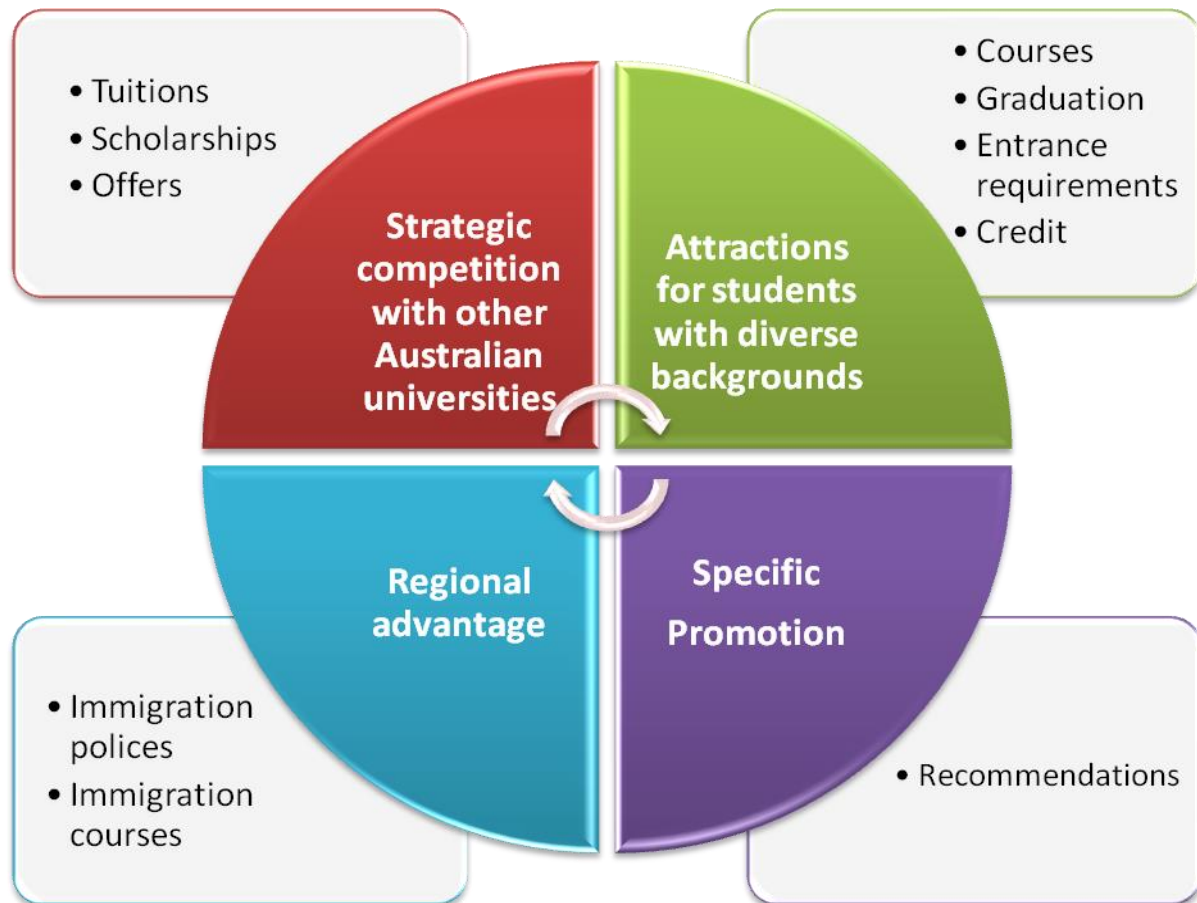
4.1 Consolidation

In order to explore why an increasing number of Chinese international students, perhaps almost certainly under the guidance of the international education policy in *Tasmania's Place in the Asian Century White Paper* (2013), “go off the beaten track” to enrol at UTAS, a regional Australian university, instead of following the majority in attending metropolitan Australian universities, this research analysed the UTAS choice of Chinese international students through identifying underlying motivations. This study has addressed the critical question of what motives Chinese international students to choose the UTAS, a regional Australian university, in the decision-making process of seeking to undertake Australian international higher education.

From the research, Chinese international students' core motivations were categorised into four dimensions (Figure 2): (1) strategic competition with other Australian universities; (2) attractions for students with diverse backgrounds; (3) regional advantage; (4) specific promotion. First, Chinese international students generally realised the strengths of UTAS in competition with other Australian universities. Thus, they were motivated in three aspects: lower tuition costs, a large number of available scholarships for future and current international students, and quicker offers of enrolments as well as lower entrance requirements. Second, diverse types of Chinese international students commonly were attracted by UTAS's universal inclusiveness. Cooperative courses were an official and core approach to bring students from Chinese universities to study at UTAS. Students who were interested in special fields were greatly driven to undertake those specialist courses at UTAS. If Chinese international students had poor previous academic records or would like to transfer to other majors to study, UTAS welcomed them by sending out the signal of ease of graduation. For those Chinese international students who had thoughts to change their majors, lower entrance requirements were also a strong attraction from UTAS. Credit transfer acceptance from UTAS was a crucial motivation for Chinese international students in cooperative courses between Chinese universities and UTAS, and those who had different study pathways from different countries or education levels. Third, when it comes to the advantage of regional Australia where UTAS was located, immigration prospects benefiting from immigration policies and immigration courses, became a very significant motivation for Chinese international students who intended to immigrate to Australia after graduation from UTAS. Four, UTAS promoted itself via two types of groups: education agencies; and friends, relatives and parents. Recommendations from those two groups motivated Chinese international students to select UTAS, although UTAS was not able to control all referents in those two types of groups. In addition, other small-scale motivations were also identified in this study, but they either lacked sufficient evidence to show their importance in making the choice of regional Australian higher education, or participants in this study held different

views on those motivations. Motivations from the above four dimensions were not mutually exclusive, instead, different types of Chinese international students enrolled at UTAS were only possibly motivated by one of those factors, or could be attracted simultaneously to a bunch of them.

Figure 2: Motivations of Chinese International Students for Selecting Regional Australian Higher Education in a Multi-dimensional Exploration



4.2 Contributions

This study makes both theoretical and practical contributions. At the theoretical level, this research identifies Chinese international students' motivations for regional Australia higher education. This will probably be the first study in this under-researched field to identify reasons underlying Chinese international students' choice to undertake regional Australian higher education. Existing literature focused primarily on the reasons why Chinese international students choose to study in Australian universities, rather than specifically in the context of the regional Australian higher education. Furthermore, this research constructs a useful model in developing understandings of motivations for other five choices (to choose to progress to higher education, to choose to study overseas, to pick Australia, to come to Tasmania to study, to study the course) in the decision-making process of seeking Australian regional higher education for Chinese international students based on the above mentioned theoretical framework. Furthermore, this research is a potential foundation in the further

formation of Chinese international students' decision-making paradigm in selecting regional Australian higher education.

In terms of the practical contributions, the findings of this research benefit different stakeholders of Chinese international students' choice of UTAS, a regional Australian higher education. For UTAS, this study facilitates developing insights of where Chinese international students' motivations came from and what they expected towards UTAS in order to understand Chinese students market better and to attract the larger number of Chinese international students to study at UTAS. Eventually, it is possible that this study will help UTAS achieve its five-year goal of doubling its international student intake. In relation to other regional Australian higher education institutions, this research could be potentially useful to help them understand their own development mechanisms in international higher education market so that get a larger share of international students in the competition with metropolitan Australian universities. As regards the Tasmanian government, this research will hopefully provide a worthwhile reference to update state international higher education policies in the future. Considering future Chinese international students, this research will hopefully offer information about current Chinese international students' motivations, and then help them make better-informed decisions in seeking overseas higher education. Concerning the Chinese government and the Australian government, the findings of the motivation understanding of Chinese students might potentially benefit the development of the Australian international higher education industry, deepen the Sino-Australian higher education rapport, and thereby realise the globalisation and the internationalisation of higher education.

4.3 Parameters and Future Research

While hopefully providing valuable understandings and insights into this topic, this research is not without parameters. Two aspects of them are worthy of exploration in future research. First, the data collected was ex post facto. In other words, participants who were studying at UTAS recollected what motivated them to select UTAS, a regional Australian university before coming to Australia, so pre-departure motivations in their memories were perhaps distorted by their UTAS experience. The point, motivations before coming to UTAS, had been underlined in the instructions of the questionnaire, and also was repeatedly emphasized in interviews, in attempts to avoid, or minimise responses being influenced by their latter UTAS experiences. A better approach will be to investigate Chinese students prior to, or immediately upon, their arrival in Australia. Second, this research is a snapshot of motivations from Chinese international students so far. However, the Australian international higher education market is changing rapidly. Offering similar specialist courses from other Australian universities, or altering Tasmanian immigration policies and so on, will almost certainly directly influence changes in Chinese international students' motivations. Thus, further research is needed to pay attention to Chinese international students' motivations and their changes towards the Australian region.

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