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THE IMPACTS OF SPECIALISATION AND DIVERSIFICATION ON AUSTRALIA'S MID-SIZED TOWNS

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PHOTOS

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EXECUTIVE SUMMARY

This Final Report examines the impacts of economic specialisation and diversification on Australia's mid-sized towns. For the purposes of this project, mid-sized towns include all settlements with a population of 5,000 to 50,000 persons. Mid-sized towns raise several questions of both local, and wider, policy significance. Including questions around the wellbeing of their populations, the quality of life they offer residents, the satisfaction of their citizens and their resilience when confronted by economic and other shocks.

This report addresses six research questions:

Question 1. What does the academic and practitioner-oriented literature say about the advantages and disadvantages of specialisation versus diversification as an economic development strategy for urban settlements with populations of 5,000 to 50,000?

Question 2. For mid-sized towns in Australia, is growth more likely to be associated with economic specialisation or diversification, or does it appear to be the case that different types of specialisation and diversification have different impacts?

Question 3. To what degree do the economic development strategies of mid-sized towns in Australia consciously seek to create either a more specialised or diversified economy? And,

Question 4. What do practitioners working in mid-sized towns understand to be 'good' or 'effective' practice with respect to industry specialisation or diversification?

Question 5. From case study analysis, can we identify instances where either economic diversification or specialisation has delivered growth, and what are the transferrable lessons for government policy and the practices of economic development professionals on the ground?

Question 6. Is it possible to determine when mid-sized towns should follow economic diversification strategies, and when they would be better advised to follow specialisation pathways?

Mason (2009) provided a helpful summary of the key features of industry specialisation and diversification strategies

An industrial specialisation strategy attempts to expand an economy through promoting specific established industries in which the region has a competitive advantage…...An industrial diversification strategy, conversely, attempts to expand an economy through growing its industry base, countering the localisation in specific regions of industries of similar and complementary types (p 1).

We used econometric analysis to examine how growth has varied across mid-sized towns over the years 2006, 2011 and 2016. Our analysis controlled for the confounding influence of several other explanatory variables, such as population density, geographic location and access to human capital. Overall, our analysis found that:

- specialisation has a positive effect on population and labour force size, but a negative effect on wages;
- unrelated variety has a negative effect on wages; and,
- related variety has a positive effect on population and labour force size.

In the second stage of our analysis, we controlled for the structure of local economies. In general, we found that:
- specialisation can benefit local economies that are dependent on manufacturing, transportation and/or education;
- unrelated variety can help insulate local economies that are dependent on sectors especially prone to volatility, such as mining and manufacturing; and
- related variety can benefit local economies that are dependent on service-based industries, such as tourism and/or education, that derive their demand from other sectors of the economy.

In the third phase of this project, 74 strategic plans from a range of regional mid-sized towns were collected and examined to better understand their economic objectives.

There was a distinct similarity in the structure and content of many of the plans. They took a multitier approach, with consultation from government and local industry and most present a long-term digital strategy including broadband and NBN. A majority of the planning bodies used their strategic documents to advertise their regions as vibrant, progressive and inclusive.
The most covered topics were:
- Place and identity/culture
- Business and industry/sustainable growth
- Environmental stewardship
- Community health
- Leadership and collaboration

Economic practitioners working in mid-sized towns volunteered to share their insights and answer questions relating to specialisation and diversification strategies. Participants took place in a webinar and a common insight from all participants was that specialisation or diversification were outcomes of increased economic growth, not a means for growth alone.

The most pressing and repeated argument amongst the participants was that a 'place-based approach' with a focus on the community and culture, is required to stimulate growth from within the region.

A survey was constructed and distributed to councils, and regional development organisations working in mid-sized towns. The questions asked practitioners their population/size, how they form strategic plans and how they understood specialisation and diversification and 39 responses were received.

The majority of respondents understood specialisation as a tool with which to focus funds and effort in to one industry. Many pointed to their region's unique, (and sometimes only) competitive advantage and that more specialisation necessitated continued investment. Agriculture and mining were the most frequent examples given.

CONTENTS

1. INTRODUCTION

This report is the final output, the culmination of a project examining the impacts of economic specialisation and diversification on Australia's mid-sized towns. The research stems from the deliberations of the RAI's Research Advisory Committee and reflects: the predominance of towns of this population range across regional Australia; their vital importance in regional economies; and, their differing histories and future trajectories.

For the purposes of this project, mid-sized towns include all settlements with a population of 5,000 to 50,000 persons. Mid-sized towns raise several questions of both local, and wider, policy significance, including questions around the wellbeing of their populations, the quality of life they offer residents, the satisfaction of their citizens and their resilience when confronted by economic and other shocks. This research fits within a broader body of work being undertaken, or sponsored, by the Regional Research Connections Program, and overall it seeks to address:

- How towns in the 10,000 to 50,000 resident range can be characterised in terms of their growth path and trajectory, function (e.g. service centre or primary resources hub), connection and roles with other towns and hinterland areas, and prospects;
- The aims that these places have – e.g. growth, stability, or maintenance of lifestyle;
- The merits of either diversification or specialisation as the more effective growth strategy for these places, and the indicators that can help make this assessment;
- The assessment of critical 'quality of life' issues and how they vary across mid-sized towns and compared with larger/smaller places. There is a need to consider which quality of life measures are realistic, the importance of social infrastructure, and the importance of cultural vitality;
- The identification of any socio-economic or cultural tipping points that may exist across that size spectrum; and,
- The available evidence around movement decisions – e.g. why do businesses and residents move in/out or stay in these centres? What do they look for when they consider relocation?

1.1 THE RESEARCH QUESTIONS

This project examines both mid-sized towns in aggregate and as a series of individual case studies and is focused on six distinct, but inter-related, questions.

First, the research asks:

> **Question 1.** What does the academic and practitioner-oriented literature say about the advantages and disadvantages of specialisation versus diversification as an economic development strategy for urban settlements with populations of 5,000 to 50,000?

In addressing this question, the research considers the ways in which mid-sized towns have become either more specialised or more diverse economically over time. This work will be informed by the results of the RAI's quantitative research being undertaken within this theme, and the typology of urban settlements they have identified for towns with populations of between 5,000 and 50,000 residents.

The second research question within this research project is:

> **Question 2.** For mid-sized towns in Australia, is growth more likely to be associated with economic specialisation or diversification, or does it appear to be the case that different types of specialisation and diversification have different impacts?

In part this question recognises that:

a. Specialisation is likely to have very different outcomes if places are moving towards fast growing industries, rather than lagging sectors; and,

b. There is a time dimension to this question, as cycles in the economy can produce different outcomes at various points in time. For example, mid-sized towns specialised in mining will grow during mining booms, and decline in other parts of the commodity cycle.

It is clear there is a need to understand and appreciate the empirical evidence on specialisation as we look to better identify the most appropriate economic development strategies for mid-sized towns. Quantitative analysis, that complements and extends the RAI's work, is needed to provide insight into this question.

Having examined both the academic literature and the available evidence on the impacts of economic diversification and specialisation, we ask:

> **Question 3.** To what degree do the economic development strategies of mid-sized towns in Australia consciously seek to create either a more specialised or diversified economy? And,

> **Question 4.** What do practitioners working in mid-sized towns understand to be 'good' or 'effective' practice with respect to industry specialisation or diversification?

And, finally, the research considers the following questions:

> **Question 5.** From case study analysis, can we identify instances where either economic diversification or specialisation has delivered growth, and what are the transferrable lessons for government policy and the practices of economic development professionals on the ground?

> **Question 6.** Is it possible to determine when mid-sized towns should follow economic diversification strategies, and when they would be better advised to follow specialisation pathways?

In combination, the investigation of these six questions will provide clear guidance to policy makers around Australia, with the various approaches set out in the table below (Table 1).

Table 1. Research questions and methods

RESEARCH QUESTION	METHOD
Question 1. What does the academic and practitioner-oriented literature say about the advantages and disadvantages of specialisation versus diversification as an economic development strategy for urban settlements with populations of 5,000 to 50,000?	Literature review
Question 2. For mid-sized towns in Australia, is growth more likely to be associated with economic specialisation or diversification, or does it appear to be the case that different types of specialisation and diversification have different impacts?	Quantitative data analysis
Question 3. To what degree do the economic development strategies of mid-sized towns in Australia consciously seek to create either a more specialised or diversified economy?	Webinar/focus groups and online survey
Question 4. What do practitioners working in mid-sized towns understand to be 'good' or 'effective' practice with respect to industry specialisation or diversification?	Webinar/focus groups and online survey
Question 5. From case study analysis, can we identify instances where either economic diversification or specialisation has delivered growth, and what are the transferrable lessons for government policy and the practices of economic development professionals on the ground?	Case study analysis, reviewing the economic development strategies of mid-sized towns using the categorisation identified by the RAI
Question 6. Is it possible to determine when mid-sized towns should follow economic diversification strategies, and when they would be better advised to follow specialisation pathways?	Synthesis and analysis based on the answers to the previous questions

1.2 IDENTIFYING MID-SIZED TOWNS

The RAI identified 182 mid-sized towns (MSTs) with populations of between 5,000 and 50,000 residents, and in aggregate these towns housed more than two million Australians, and a full list of these centres is available at Appendix A and Appendix B.

How et al (2019) observed that while there are some similarities between mid-sized towns, no two are exactly the same. Every one of these centres varies with respect to its size and location, but also in role it plays in supporting its residents and surrounding residents. This means government policies and programs need to consider the way a town functions as well as its location, population size, economic structure and social trajectory. Spatially blind policies (Rainnie et al 2019) or even those relying on single indicators such as population thresholds, carry the risk of not responding adequately to the needs of mid-sized towns.

The function and roles of towns across regional Australia has been on a long trajectory of change. In 1911, most towns in regional Australia had populations of under 1,000 people (84.3 per cent) and only a few had populations over 8,000 (2.4 per cent) (BITRE 2014). Most commonly, these centres provided goods and services to residents, as well as inputs to nearby industries (BITRE 2014). They were also the focus for social activity and even smaller towns were "thriving centres of community and social activity" (Keneley 2005). In part because a community's access to the 'outside world' was restricted because of limited transport links and the high cost of travel. In consequence, towns nurtured local businesses whose communities were something of a 'captured market'. However, it also limited them as transport options hindered trade with neighbouring regions or metropolitan areas.

In 1911, 58.2 per cent of towns had populations of under 1,000 people but 13.8 per cent had populations over 8,000. However, by 2006, the shape and role of these towns had changed. Some small towns disappeared, others were absorbed into larger centres (so called 'donut cities') or had grown into much larger centres. This reflected the steady movement of regional populations to larger towns where a greater range of services could be found, and to smaller towns located towards the coast. By 2006 there were also far fewer smaller towns and a greater number of larger ones. In 1911, there were 2,440 towns with fewer than 8,000 residents and only twenty with populations over 8,000. However, in 2006, there were 1,577 towns with fewer than 8,000 residents, but 131 towns with populations over 8,000 (BITRE 2014).

Some towns, especially those with high amenity and within reasonable travel times to larger centres have sustained their populations over the last century, and they have often done so because their primary economic functions have changed. These towns now connect their populations with the opportunities, employment and services in metropolitan areas or other, larger, centres, but still afford their residents the 'regional lifestyle' of a mid-sized regional community. Other towns where a single industry or even employer has successfully connected to national or global markets have maintained their population or grown in size.

From its analysis, the RAI (How et al 2019) concluded that mid-sized towns perform four major roles within the Australian urban system. These roles are:
- Industry towns
- Service towns
- Connected towns
- Coastal lifestyle towns.

The RAI (How et al 2019) also identified a handful of mid-sized towns that did not strongly portray the characteristics of any of these roles but rather seemed to cover most roles to some lesser degree. In many respects, this latter group of centres may more closely resemble the generalist function of most country towns in the first part of the 20th Century. The criteria used to allocate mid-sized towns to each of these groups can be found at Appendix C and Appendix D.

1.2.1 THE FIVE ROLES OF MID-SIZED TOWNS

The RAI provided the following descriptors of the mid-sized towns they identified.

INDUSTRY TOWNS

'Industry towns' include those long-standing primary producing and manufacturing towns. These towns have a strong economic and cultural focus on one or perhaps two industries. The industry will have a strong tradition in the town, sometimes through a single employer or company, and will still provide significant employment for the community.

In industry towns, the employer or industry commonly has a long history in the town and this history features in the community's memory and sense of identity. It is likely that some aspects of the town itself were designed to accommodate historical or current industry needs.

Industry towns are noted for the continued emphasis on the relationship between the industry and the town itself. This ongoing link is significant, as it distinguishes these centres from the general trends observed amongst regional centres since Australia's first census in 1911.

SERVICE TOWNS

Service towns appear across a variety of population ranges, some have closer to 5,000 residents and others closer to 50,000. Many are close to a regional city or metropolitan area, Service towns play an important role in providing key education, health and transport services for their broader region. While the number of services in the town itself might appear high on a simple per capita calculation, their broader catchments underpin the demand for these services. These towns usually have a high proportion of people employed in service industries, and may offer health, secondary-school, tertiary education and transport services to their own community and nearby residents.

CONNECTED TOWNS

These towns are located within 40 kms of a regional city or a metropolitan area. They play an important role in linking urban and regional spaces and they make attractive destinations for residents who may choose to commute to larger locations for employment. These towns are the 'winners' in the amenity stakes: they are places in which individuals and households choose to live. These towns do not necessarily need to provide specialist retail or other services to their communities, who may access these higher order goods in larger centres.

COASTAL LIFESTYLE

Coastal lifestyle towns are located near the coastline and have either (or both) a higher proportion of families and children than towns elsewhere in Australia or a higher than average proportion of residents aged over 65years. The lifestyles these towns offer attracts population, particularly older persons who have retired or semi-retired. The RAI was able to identify 45 towns that had a 'Coastal lifestyle' role, but only four of this group had populations with a higher proportion of children and families than the national average. These towns are much more likely to have an older population than mid-sized towns in other parts of Australia.

MIXED FUNCTION

These towns play a variety of roles even though a single role does appear predominant. Commonly these towns have a population of commuters attracted by amenity; offer some services to nearby residents and have a more diverse employment base than industry towns.

2. EVIDENCE FROM THE LITERATURE

This section addresses Research Question 1.

> What does the academic and practitioner-oriented literature say about the advantages and disadvantages of specialisation versus diversification as an economic development strategy for urban settlements with populations of 5,000 to 50,000?

As Kaulich (2012 p iv) observed, few ideas have been debated as strongly in academic circles as the debate on diversification versus specialisation as the most appropriate driver of economic growth. This topic has been the subject of both enduring academic interest and experimentation by governments introducing new policies. It has been a topic examined at the national scale, and within national economies. David Ricardo, the 19th Century British economist, was the first to put forward the idea that nations or regions need to specialise in the goods or services in which they have a competitive advantage in order to make the most efficient use of resources. The contrary perspective, that diversifying the economy was central to achieving growth, was developed by the Nobel laureate Simon Kuznets (1971 p 87) who argued that a 'country's economic growth may be defined as a long term rise in the capacity to supply increasingly diverse economic goods to its population'. To a degree then, the question of whether specialisation or diversification can be considered 'better' depends on how outcomes are conceptualised and measured. Mason (2009) provided a helpful summary of the key features of industry specialisation and diversification strategies

> *An industrial specialisation strategy attempts to expand an economy through promoting specific established industries in which the region has a competitive advantage…...An industrial diversification strategy, conversely, attempts to expand an economy through growing its industry base, countering the localisation in specific regions of industries of similar and complementary types (p 1).*

An overly didactic, or oppositional, approach has feature of the enduring debate on economic diversification versus economic specialisation amongst policy makers and academics. Often proponents of one policy prescription overstate the advantages of that strategy, and too quickly dismiss the merits of the alternative. The reality is that towns in Australia and elsewhere both grow and decline, and they change in the composition of their industry and workforce over time. Most towns that have survived and grown to mid-size have passed through cycles of specialisation and diversification. Mid-sized towns inevitably contain elements of specialisation and diversification, with the balance between the two inevitably reflecting the size of the settlement, the role it plays in the region, its natural advantages and where it sits currently in the cycle of specialisation and diversification. These cycles of specialisation and diversification, and the ways in which they have shaped the growth of Australian towns, are illustrated with reference to Broome, WA, in Box 1.

Box 1. Economic diversification and specialisation in Broome

Broome started as a small hamlet for the export of cattle. As a very small town it had a high level of diversification. Then along came pearling, initially just another diversified arm but soon growing to a significant industry. As the town grew it became more specialised and this deep specialisation drove and allowed for related and unrelated variety. While proportionately the town was now highly specialised, the quantum of diversified businesses had grown markedly. These diversified businesses all pressing to become the next specialisation. As pearling declined the town became more reliant on its diversified base for employment, however none of the existing industries was sufficiently advanced to act as a point of specialisation. The town stagnated but was assisted in part by government shifting its assets from Derby (which had declined even more). Eventually one of the diversified industries took off (tourism) and became the next point of specialisation. With the economic activity and jobs from this increasing specialisation, other new related and unrelated businesses were able to be set up, so again increasing the quantum of diversification (some looking to be the next big thing) even while the measures of specialisation show the town as becoming more specialised.

Source: Acres, J. pers comm. September 2019.

To a degree then, the questions of greatest policy interest are those that focus on whether current economic conditions (and regional circumstances) favour diversification or specialisation, which in turn leads to questions around whether economic development practitioners are pursuing investments in tune with the wider business landscape? While there is analytical value in seeking to consider diversification and specialisation as diametrically opposed, in reality the diversification of successful towns involves the search for new specialisations, and specialisation increases the quantum of diversified business in the town.

2.1 INSIGHTS FROM THE ANALYSIS OF NATIONAL ECONOMIES

At the scale of nations and international trade, economics has conventionally proposed that developing economies need to specialise in one set of industries (such as commodity production) in order to maximise their efficiency and their competitiveness on world markets. More recently, this perspective has been challenged with research showing that there is a 'U' relationship between the degree of economic specialisation and per capita income at the national level. That is, in nations and regions with lower incomes, the economy is highly diversified, but as income grows production systems become more

specialised as markets mature (Ims and Wacziarg 2003). This narrowing of the economy slows and then reverses, as the now-wealthy regions and nations re-specialise in higher order goods and services while also maintaining the basic components of their economic structure (see Figure 1 below).

Figure 1. The relationship between industry diversification and per capita income
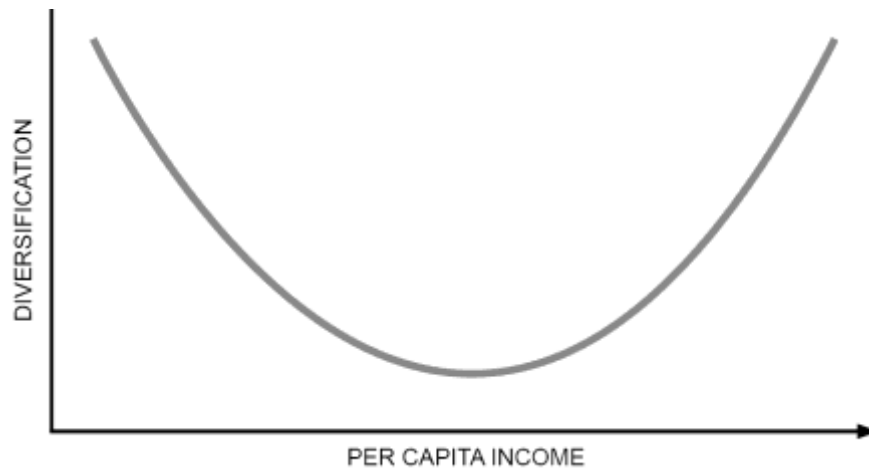
At both the national and regional scale the merits and de-merits of specialisation versus diversification have been widely debated. On the one hand, some researchers have argued that specialisation results in the more efficient allocation of resources and reduced opportunity costs, while other researchers have shown that diversified economies are able to achieve better growth in the long run, as the risks associated with a reliance on a limited number of outputs is reduced (Kaulich 2012).

Working at the national scale, Kaulich (2012) concluded it was wrong to consider specialisation and diversification as two ends of a spectrum. This perspective, he argued, was too static, and it is important to acknowledge that nations pass through a process of diversifying their economic activities as they first replicate goods and services produced in other nations, and then begin a further process of specialisation through the commercialisation of inventions. As Rodrick (2007 p 103) concluded,

> *Whatever it is that serves as a driving force of economic development….it cannot be the forces of competitive advantage as conventionally understood. The trick seems to be to acquire mastery over a broader range of activities, instead of concentrating on what one does best'.*

Rodrick's perspective, of course, leaves open the possibility of growth through diversification around already established industry strengths and competencies – a strategy at the foreground of European Union development efforts in the shape of 'smart specialisation'[1].

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[1] We are not the first authors to suggest that 'smart specialisation' could equally be referred to as 'smart diversification'.

2.2 INSIGHTS FROM THE ANALYSIS OF REGIONS AND URBAN CENTRES

The conclusions drawn from econometric analysis at the national level are suggestive, rather than definitive, when we turn to apply these insights to the experiences of mid-sized cities. Quite clearly, national economies behave very differently to subnational economies due to the impact of economic scale, regulation of competition, questions of distance and transport costs and the structure of labour markets. Through the 1990s much economic development practice was informed by Michael Porter's work (1990) on industry clusters, and cluster strategy was seen to provide a conceptual basis for favouring specialisation strategies over diversification (Desrocher and Sautet 2008). Desrocher and Sautet (2008) argued that growth pole policies, which dominated regional policies in Australia and elsewhere over the period 1950 to the mid-1970s (Beer 2012), also favoured industry specialisation. Such specialisation, however, failed to acknowledge the processes policies and initiatives favouring specialisation as an end point failed to acknowledge the processes of entrepreneurialism and technological development that gives rise to the diversification and continuing income growth as demonstrated by Ims and Wacziag (2003) and others. Major advances applying the inventions of other industries create new products and markets. Richer, more diverse, environments are more likely to foster the transfer of ideas and knowledge from one sector to the next, which in turn contributes to new industries and economic growth.

At the global scale, authors such as Markusen and Schrock (2006) examined the changing industry and occupational composition of the largest cities, and concluded that many of these 'global cities' are becoming more distinctive over time, as they shed lagging industries and further reinforce the economic performance of their leading sectors. Critically, these authors have suggested that for very large metropolitan areas there is no clear evidence that a diversification strategy is better, or worse, than one focused on economic specialisation. Instead, Markusen and Schrock (2006 p 1319) argued that

> *Distinctiveness in a metro's economic base can be both an advantage, in innovative growth stages, and a disadvantage, in more mature stages. A sophisticated response to these dynamics suggests a portfolio approach in which cities nurture sets of occupations and industries that span the developmental gamut.*

While Markusen and Schrock (2006 p 1319) imply major urban centres are likely to be better off when they develop more specialised economies, other researchers working in Australia have drawn very different conclusions for Australia's smaller urban settlements. Gralton and Vanclay (2006 p 4) argued that

> *For the small town, diversity in all these forms offers a reprieve from the eco-social degradation associated with the economies of scale of intensive farming; the negative impacts of globalization; and, the 'dynamics of decline'….Diversity is more conducive to a sustainable outcome; sheltering small towns from economic impacts, enticing new settlers; and retaining the natural base upon which all life depends.*

Critically, Gralton and Vanclay's (2006) comments relate to small towns, which raises a question around whether there is a scale effect with respect to specialisation and diversification, that is, do outcomes differ with the size of the urban settlement? Gralton and Vanclay's (2006) arguments also resonate

with the work of Tonts and Selwood (2003) who examined the reinvention of WA's sandalwood industry, and specifically linked the re-growth of that activity to the diversification of farm incomes and the development of niche products. Such strategies are consistent with the New Rural Policy advocated by the OECD (see Beer and Clower 2020 for a discussion). Tonts and Selwoood (2003) noted that the re-emergence of the sandalwood industry had resulted in the opening of new processing plants, which in turn had been marketed as tourism attractions. It is likely that small towns grow to become mid-sized towns through a variety of processes: some will do so through early and successful specialisation, while others will expand through diversification – either planned or through market forces. Critically, we need to accept this range of experiences and pathways, acknowledging that there is not one transition from small centre to mid-sized town, and therefore no single policy prescription.

Desrocher and Sautet (2008) also criticised the emphasis on specialisation evident in many regional policies. They argued that

> *…entrepreneurial activity is at the source of regional development and that theory and evidence seem to indicate that spontaneously developed industrial and economic local diversity typically provide a better substrate for entrepreneurs to innovate in (p 814).*

The authors noted the 'limits and problems inherent to a regional specialisation' (p 814) strategies that fail to acknowledge the importance of diverse local environments for the emergency of fine-grained specialisation at the local level. Desrocher and Sautet (2008) also argued that highly specialised economies may not be able to stimulate entrepreneurship at comparable rates to more diversified places. They argued that mono-industry places lack the critical mass of business opportunities needed to create an environment where start-ups and other small enterprises thrive: there are limited opportunities to transfer both formal and tacit knowledge from one sector to the next; technology transfer across knowledge domains will be limited, and there may be few cognate industries able to take the products of innovation. They also noted that such specialised economies carry elevated risks associated with the decline of their major employer or industry.

The issue of risk was taken up by Slack et al (2003) in their analysis of remote communities in Ontario. They observed that small remote communities face high levels of risk because of their:
- small size makes them vulnerable to economic shocks and changing market conditions;
- economies are overly-reliant on one or two sectors, which means a job lost in one enterprise is not easily replaced in another;
- there are few quality of life factors to attract population;
- investment capital is often in limited supply and commonly investment decisions are taken at some distance from the community; and,
- local tax base is small, making it difficult to provide the services residents require.

Many of these risks would apply to Australia's smaller and more remote mid-sized towns. Carson and Carson (2013) also examined the dynamics and risks confronting a remote urban centre, in this instance Tennant Creek in the Northern Territory. Their analysis found that over the period 2001 to 2011 the local labour market was able to adjust to changing economic opportunities, with workers acquiring the skills – and attracted into – jobs in growth sectors. Their analysis suggests that many of the risks confronting remote, specialised settlements can be, and are frequently, overcome. Lawrie et al (2011)

came to a very similar set of conclusions from their examination of resource-dependent 'boomtowns' in Western Australia. They noted that much of the literature of mining-dependent towns focused on the negative impacts of mining expansion, commenting that

> *One of the recurring themes within this literature is that, while mining dependence is often associated with high median incomes, there is also a tendency for it to be accompanied by relatively high rates of poverty, unemployment, and welfare dependence, as well as low educational attainment…. In essence, the high median income masks inequality in earnings (Lawrie et al 2011 p 141).*

Much of this literature argues that the rapid economic peaks and troughs in mining industry results in 'social disruption', resulting in social and economic dislocation and a breakdown of established community structures. Critically, the quantitative analysis undertaken by Lawrie et al (2011) found that while some individuals and groups were left behind in the process of rapid mining development, on average the community as a whole benefited through higher incomes, greater employment opportunities, reduced dependence on income support and reduced crime.

2.3 DIVERSITY, SPECIALISATION AND THE AUSTRALIAN URBAN SYSTEM

The functions of all urban centres in Australia with a population of 1,000 persons or more were examined by Freestone et al (2003). Their work sought to update the work of Smith (1965) who undertook one of the first quantitative studies of the nature of Australia's urban system. The latter study used data from the 2001 Census and found that the number of urban settlements in Australia had grown over the intervening 36 years, and that many centres had taken on more specialised roles. That is, centres that had been classified as 'generalist services' by Smith, had a much more distinctive economic profile by 2001. Freestone et al (2003) also commented on the growing importance of tourism and leisure activities as the base for an ever-growing group of towns.

Beginning in the first part of the 1990s Beer and colleagues examined industry specialisation and economic growth for Australia's regional cities, defined as urban settlements with a population of 10,000 or more (Beer et al 1994). This work built on an earlier report on Australian Urban Environmental Indicators (1983) produced by the Department of Home Affairs and the Environment.

Beer et al (1994) constructed an index of specialisation based on the Herfindahl Index, and concluded that at the 1991 Census the most specialised regional cities in Australia were associated with the highest rates of growth and decline. Six cities experienced workforce decline greater than 10 per cent between 1976 and 2001, and each exhibited industry structures dominated by mining, power generation and heavy industries. At the same time, coastal centres with a strong specialisation in recreation, tourism and leisure industries constituted the fastest growing regional cities in Australia.

A follow up study (Beer 1999) found that many of the fastest growing regional cities at the 1996 Census also had the highest unemployment rates, as job growth attracted in labour more quickly than employment could be created. The analysis found that over the period 1991-96 the highest rates of growth were concentrated in cities with a concentration of employment in tourism and recreation (77 per cent workforce growth over this period); tourism and community services (34 per cent); manufacturing and government administration (27 per cent); mining (18.9 per cent) and construction and mining (13.2 per cent). Regional centres with strong growth tendencies grew their workforce by 12.9 per cent between 1991 and 1996, but most diversified urban centres recorded modest rates of growth. The greatest losses of workforce were found in urban centres reliant on employment in financial services and utilities (16.3 per cent), government administration (7 per cent), and highly specialised mining (4.3 per cent).

Beer and Clower (2009) examined the performance of regional cities in Australia (defined as centres with a population of 10,000 or more beyond the boundaries of the capitals). They found that over the period 1996-2001, a number of relatively diversified regional cities had specialised over time, while relatively few specialised industry towns had developed more diversified economies. The research found that, on average, regional cities that had become more specialised had the greatest likelihood of population and economic growth. And while there were some exceptions, as some individual centres that substantially diversified their economies over this period were able to grow at exceptionally high rates, these were rare cases. Mason (2009) drew a similar set of conclusions from his analysis of the performance of regions in New South Wales using input-output analysis based on 2006 survey data. He found that a $20m increase in demand in regions with a specialised industrial structure would result in an additional 255 jobs and $10.36m in wages and salaries. This was some 94 jobs and $2.9m greater than the outcomes in a comparable region with a diversified industry structure. The second component of this study examined the impact of diversification and specialisation on unemployment rates in regional New South Wales (Mason and Howard 2009). It concluded that industrial diversity resulted in lower unemployment rates relative to more specialised economic structures. And when the two results are considered together the findings challenge the common assumption of a correlation between strong economic growth and employment growth.

In a similar vein, Plummer et al (2014) examined the growth and economic performance of Western Australia's regional cities over the period 2001 to 2011, with Albany, Broome, Bunbury, Geraldton-Greenhough, Kalgoorlie-Boulder, Port Hedland and Roeburne all having populations of between 10,000 and 40,000 persons. They used shift share analysis to consider both the rate and drivers of growth in these places and concluded that for the period 2001-06 all settlements except for Albany, Broome and Geraldton-Greenough grew more quickly than the state economy, principally because of their specialisation in the resources sector. However, they also found that every one of these cities, apart from Albany, had a local business environment that was not favourable for employment growth, and for most of these centres this negative influence was sufficiently large to overshadow any positive

benefits associated with being specialised in resources. Over the period 2006-11 these unfavourable local conditions for growth were sustained in virtually all places, and in places such as Albany and Geraldton economic growth was further retarded by the slow growth of their dominant industries. That is, these places were specialised in sectors that grew more slowly than the economy as a whole. Overall, the authors concluded that the mix of industries present in a regional city was a key determinant of growth rates, but some places can overcome industry structures that would predispose them for slow growth if factors such as wage competitiveness, the effective functioning on housing markets, good access to infrastructure and environmental assets are allowed to work in their favour.

McFarlane et al (2016) analysed the regional economy of the Central West of New South Wales and concluded that over the period 2001 to 2011 the region moved from a reliance on agriculture to a strongly mining region. However, this change did not constitute diversification as the region substituted one specialisation for another, with mining offering less employment and resulting in a greater leakage of expenditure from the region than agriculture. In a similar vein, Sheng (2011) considered the impact of specialisation on cities with a strong focus on tourism. Sheng (2011) noted that strong tourism growth can crowd out other businesses, place pressure on infrastructure and communities, raise social polarisation, and create a sense of cultural alienation for long term residents. Despite these problems, some cities have no choice but to embrace tourism growth as they have few, if any, alternative economic development opportunities available to them.

Yiannakis and Davies (2012) considered the potential for literary tourism to play a role in diversifying the economies of rural and regional centres in Western Australia. They found that while literary tourism can trace its origins to the 18th and 19th Centuries and Western Australia has been home to some of the nation's most famous authors, communities have not invested in the infrastructure needed to bring this sector to life. A second study by de Roest et al (2018) examined specialisation and diversification from the perspective of individual farmers, concluding that while specialisation has the capacity to deliver economies of scale, diversification both reduced risk for individual farmers and delivered economies of scope. Similar arguments could apply to businesses in mid-sized towns that risk being locked in to global supply chains that demand ever greater productivity.

Overall, the analysis of Australia's urban system and the ways in which both industry structure and local conditions shape growth leads to a number of conclusions:

- First, the performance of urban centres varies over time in line with broader economic conditions, including – in the case of the mining industry – global demand for mineral resources (Chapman et al 2015);
- Second, the available evidence suggests that mid-sized towns with a population of 5,000 to 50,000 are more likely to experience strong growth if their economy is more specialised, and is becoming more specialised over time;
- Third, diversification of the economy may be more important in smaller mid-sized towns (those with a population of fewer than 5,000 persons) as it may reduce the risks associated with a smaller population, and for already specialised towns looking to stimulate growth;
- Fourth, a more specialised economy is likely to generate stronger economic growth and higher per capita incomes in a population of 5,000 or more, but is likely to generate fewer jobs than a diversified economic base;

- Fifth, to be successful in the long term mid-sized towns need to take advantage of the economic opportunities available to them – moving towards specialisation when a particular sector is growing strongly, and diversifying at other times. In this sense, mid-sized towns need to apply a wide-ranging portfolio of growth strategies; and,
- Sixth, the industries or sectors a centre exhibits strength in has a large impact on growth rates. Put simply, places with fast growing industries grow more quickly, and those reliant on slow-growing industries are likely to experience more sluggish growth.

Finally, it is important to apply some caveats: much of the analysis discussed in the section above has analysed industry structure and performance at a very broad level – 2-digit industry codes – whereas economic development practitioners working on the ground frequently undertake more detailed disaggregation of industries. Practitioners, for example, will distinguish between types of irrigated agriculture – grapes, avocados, rice, cotton, whereas economic analysis will treat all agriculture as one data observation.

2.4 POLICY, ECONOMIC CHANGE AND DIVERSIFICATION VS SPECIALISATION

The discussion so far has largely considered diversification and specialisation as 'end states'. That is, which condition – a diversified economy or a specialised economy – is more likely to generate economic growth for midsized towns? But economies are not static, they continuously change, and governments introduce regional development policies to achieve a number of goals, including the development of specific sectors, the exploration of new technologies, overcoming the impacts of a major economic shock (Beer et al 2019), or the encouragement of new firms. This section considers how specialisation and diversification sit within the new landscape of economic policy, where questions around innovation and entrepreneurial discovery are given as much priority as the simple number of jobs created.

An important question in much economic research over recent decades has been how to understand the ability of places to recover from economic shock. And within this body of work, one of the key questions has been around what sort of industry structure makes a place better able to recover. Lazzeretti et al (2017) analysed Italy's regional economy and concluded that places are more likely to recover from major plant closures or other crises when they are able to move into new industries that make use of processes and technologies that are similar to their established economic base. This relationship, referred to as 'relatedness', was seen to be critical to a successful economic transition, and was more likely to generate positive results than diversification into unrelated industries.

On a related theme, Cai et al (2018) critically examined debates around economic specialisation and diversification and argued that it is important to also consider the direction, or strategic intent, of economic development efforts. They distinguished between the strategies of exploration and exploitation, where economic development efforts in the former group seeks to identify new opportunities and take risks in order to generate greater returns, while the latter seek to better make use 'of old certainties in the form of refinement, choice, selection, implementation etc' (Cai et al 2018 p 2410). This additional dimension to understanding economic development strategies, and the balance between diversification and specialisation, is presented graphically in Figure 2 below.

Figure 2. Distinguishing diversification and specialisation strategies by focus
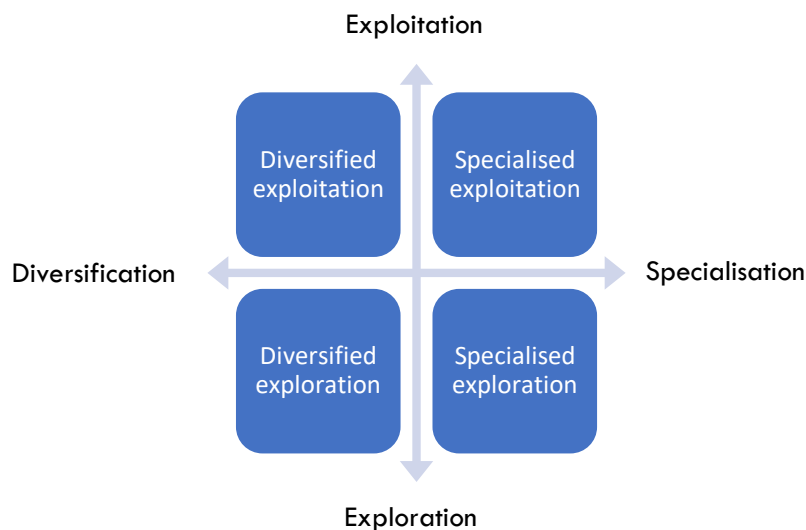
Cai et al (2018) used a number of regions Norway and Finland as their empirical case studies of innovation policy. Norway is ranked as the second most specialised economy in the OECD, while Finland is the most diversified, and the authors noted that while Finland was able to further explore opportunities in the domains of specialised exploitation, specialised exploration and diversified exploration, Norway's policy option appeared to have narrowed to ongoing specialised exploitation. Critically, we can conclude that more specialised economies may carry greater path dependency and greater risk.

In the contemporary era much of the focus on specialisation is concentrated on innovation and its capacity to develop, and commercialise, new industries. This pathway is not straightforward, a fact acknowledged by Cunningham et al (2016) who observed that Australia as a whole is relatively 'inefficient' at innovation. That is, Australia has relatively high inputs into innovation processes, but this results in much lower innovation 'outputs' or outcomes when compared with international peers.

Innovation of this type is also difficult to deliver in many regional settings, including in mid-sized towns. Cunningham et al (2016) discussed the way in which third generation thinking on innovation emerged in the second decade of the 21st century. When compared with the previous two waves of thought on innovation, third generation thinking focuses on innovation taking place through is the notion of 'bundles'. This means viewing individuals, enterprises and networks as consisting of bundles of evolving skills and capacities. The development and moblilisation of this type of innovation ecosystem can be difficult in relatively small population centres where labour markets are small and formal education qualifications are less common. However, some places have inherent specialisaitons – because of natural resource endowments or history – that makes innovation in one or two sectors both possible and beneficial.

Ballland et al (2018) provided some insights into the ways in which regions and mid-sized towns can incorporate innovation into their strategies to diversify and enhance their economies. The authors observe that businesses and urban centres can most easily innovate in industries in which they hold both codified and tacit knowledge. They also noted that the highest returns are received when they move into areas that are different to, but related, to their existing strengths. Based on econometric analysis they concluded that

We find that relatedness has a positive effect on technological diversification within regions. Diversifying into complex technologies is difficult for many regions, though it is easier when such technologies are more closely related to the existing knowledge core of the region. And regions tend to grow more if they specialise in complex technologies related to existing technologies in the region (Balland et al 2018 p 13).

This concept of relatedness is central to the literature, and major European Union (EU) programs on smart specialisation, which in essence is a set of actions that seeks to promote growth by encouraging entrepreneurs to explore the new business opportunities that arise from the application in their enterprise of new technologies from related industries. This concept of smart specialisation and relatedness is examined in more detail in the section below.

It is important to acknowledge that, from an Australian perspective, the suite of European policies known as smart specialisation would be better labelled smart diversification. At their core they seek to build on an existing industry's knowledge base, to move into new technologies and markets, and drive growth through the specialised development of that new good or service. As Ashiem et al (2017) commented:

Smart specialisation is not about 'specialisation' as known from previous regional development strategies, that is, a Porter-like cluster strategy, but about diversified specialisation (original emphasis) p 4.

2.5 REVIEWING THE LITERATURE

Overall, we can conclude that while there is a body of work on the benefits and disbenefits of both economic specialisation and diversification for urban centres in Australia. It is a relatively small body of work but it raises interesting questions for policy development for mid-sized towns. Much of the analysis has been undertaken for urban centres that are larger than some of those included in this research, and this includes such work as that by Beer et al (1994, 1999 and 2009) on regional centres with populations of 10,000 or more. Critically, the insights derived from that analysis may not apply to smaller settlements of 5,000 persons. Other analysis has been undertaken using a very different geography, and this includes the work undertaken by Mason (2009) and research by Plummer and colleagues in Western

Australia that examined data for local government areas. Thirdly, it is important to acknowledge that the benefits of specialisation versus diversification may change over time as the global and national economy goes through cycles of accelerated growth and contraction. Put simply, the trends evident amongst non-metropolitan urban centres from 1976 to 1991 were not replicated from 1996 to 2001, and this reflects the ongoing evolution of the Australian economy and urban system.

In reviewing the literature, it is important to acknowledge that the analysis of industry structures presented in academic papers is undertaken at a very broad scale: all manufacturing is treated as one industry, all agriculture is one industry and all mining is one industry et cetera. This interpretation of 'industry type' runs contrary to the lived experience of many in regional Australia, including economic development practitioners working in mid-sized towns. They will most commonly think in highly differentiated terms — irrigated stone fruit, irrigated citrus, rice production et cetera — rather than applying broad categories. It is also important to acknowledge that the most appropriate economic development strategies may depend on settlement size. The literature discussed in this section has highlighted the risks and vulnerabilities of smaller mid-sized towns, and for these centres a diversification strategy may be most appropriate. In larger places, specialisation may deliver long term upward growth that builds upon the externalities of growth associated with efficiencies of production and potentially, room for new diversification.

Finally we ask, what is the nature of the success mid-sized towns in Australia seek? The literature reviewed in this section suggests that specialisation strategies are likely to generate greater efficiencies in production and higher wages, but may result in greater vulnerability and fewer jobs. Diversification strategies, by contrast, reduce the risks associated with an economic downturn and raise employment, but do not raise wages or overall productivity to any significant extent. The next section in this report examines these questions in greater detail and provides our quantitative analysis of the relative merits of economic specialisation and diversification for mid-sized towns in regional Australia. The analysis considers the issue of relatedness, and how the type of specialisation or diversification sought can determine the success or otherwise of economic development efforts.

3. ECONOMIC ANALYSIS: IS GROWTH MORE LIKELY TO BE ASSOCIATED WITH ECONOMIC SPECIALISATION OR DIVERSIFICATION?

This section addresses Research Question 2.

For mid-sized towns in Australia, is growth more likely to be associated with economic specialisation or diversification, or does it appear to be the case that different types of specialisation and diversification have different impacts?

In setting out to answer this question we will examine how growth varies across mid-sized regional towns across Australia as a function of their industrial specialisation and variety. Our analysis will comprise two stages:

- **Stage I: Town level analysis**

  We will seek to answer the first part of Research Question 2, as identified in the brief: "For mid-sized towns in Australia, is growth more likely to be associated with economic specialisation or diversification?"

  We will examine how growth has varied across different towns, as a function of the degree of sectoral specialisation and variety, regardless of sectoral composition. Our analysis will not distinguish between mining towns, agrarian towns, etc. We will examine the effectiveness of specialisation and diversification as general strategies, regardless of the local composition.

- **Stage II: Town-industry level analysis**

  We will seek to answer the second part of Research Question 2: "Does it appear to be the case that different types of specialisation and diversification have different impacts?" As mentioned in the brief, "we need to recognize that specialisation is likely to have very different outcomes if places are moving towards fast growing industries, rather than lagging sectors. And there is a time dimension to this question, as cycles in the economy can produce different outcomes at various points in time. For example, mid-sized towns specialised in mining will grow during mining booms, and decline in other parts of the commodity cycle."

  We will examine how growth has varied across different towns, as a function of their specialisation and variety, while controlling for the sectoral composition of their local economies. Our analysis will reveal how the effects of specialisation and diversification might vary across different industries, and how growth strategies could be tailored to local contexts.

The remainder of this report is structured as follows: Sections 2 and 3 describe the datasets and econometric methods used by both stages of our analysis, respectively; Sections 4 and 5 present findings from the two stages, respectively; and Section 6 synthesizes these findings into pertinent conclusions that can inform regional growth policies in terms of their emphasis on industrial specialisation and diversification.

3.1 DATA

We will examine growth across 180 urban centres and localities (UCLs), as defined by the Australian Statistical Geography Standard (ASGS), with populations between 5,000 and 50,000, as per the 2016 Census. Unless otherwise noted, all data has been sourced from the 2006, 2011 and 2016 Censuses. Note that the geographical boundaries of UCLs have changed over time. We use the 2016 boundaries to define each UCL in our sample, and we use appropriate correspondences provided by the ASGS to ensure that the same geographic units are being compared over time.

Table 1. Description of dependent variables used in our analysis

MEASURE	DATA DESCRIPTION
Population	Populations have been used previously as a measure of growth by Beer and Clower (2006). We use place of residence data to measure population size.
Labour force	Employment has been used previously as a measure of growth by Beer and Clower (2006), Frenken et al (2006), and Glaeser et al (1992). We use Census employment data based on place of residence. While place of work data would have been ideal, such data is unfortunately not available at the UCL level.
Wages	Annual average full-time wages based on place of residence. Wages has been used previously as a measure of growth by Glaeser et al (1992).

Growth has been defined in terms of the three variables listed in Table 1. We wish to examine how growth varies across these UCLs, as a function of their local specialisation and diversification. Following the approach proposed by Frenken et al (2006), we develop three measures each that denote specialisation, related variety and unrelated variety, respectively. Over succeeding paragraphs, we describe each of these measures in greater detail. Specialisation is measured as follows:

$$s_c = \frac{\sum_i \sum_j n_{ci} n_{cj} a_{ij}}{\sum_i \sum_j n_{ci} n_{cj}} \tag{1}$$

, where s_c denotes the measure of specialisation for UCL c; n_{ci} denotes the number of jobs in industry i in UCL c; and a_{ij} denotes the technological similarity between industries i and j, which is defined using the Los index (Los, 2000):

$$a_{ij} = \frac{\sum_k d_{ik} d_{jk}}{\sqrt{\left(\sum_k d_{ik}^2\right)\left(\sum_k d_{jk}^2\right)}} \tag{2}$$

, where d_{ik} denotes the monetary value of inputs received by industry i from industry k, and this information was sourced from the 2015-16 national input-output tables (ABS, 2018). The Los-index (Los, 2000) "captures the technological relatedness between industrial sectors by computing the similarity between two sectors' input mix from input-output tables. As input mixes reflect production technologies, a high similarity in input mixes of two sectors implies a small 'technological distance' between two sectors, and a high amount of spill-overs. Conversely, two industries with very different input mixes are technologically distant, and, consequently, will hardly mutually benefit from spill-overs" (Frenken et al 2006).

Equation (1) attempts to capture the proportion of a UCL's employment that is concentrated across technologically similar sectors. For equations (1) and (2), industries are defined at the level of 2-digit ANZSIC codes. Note that our measure of specialisation differs from, among others, Glaeser et al (1992) and Van Stel and Nieuwenhuijsen (2004), who use some variation of the share of local employment of the largest sectors to capture concentration, or specialisation. Frenken et al (2006) argue against the use of this measure as it does not account for the degree of similarity or difference between different industries. For these reasons, we use the alternative measure proposed by Frenken et al (2006).

Related variety attempts to capture positive externalities between technologically similar industries, which might result from improved access to labour and supporting services, knowledge spill-overs between firms, and the creation of a local market (Duranton and Puga 2004; Quigley 1998; Jacobs 1969; Marshall 1890). Unrelated variety attempts to capture portfolio effects, where diversification across a broad range of sectors can reduce risks arising from volatility in individual sectors (Frenken et al 2006). Unrelated variety is measured as follows:

$$u_c = -\sum_i p_{ci} \ln(p_{ci}) \tag{3}$$

, where u_c denotes unrelated variety for UCL c; and p_{ci} denotes the proportion of total employment in 1-digit industry code i for UCL c. Similarly, related variety is measured as follows:

$$r_c = -\sum_i p_{ci} \left(\sum_{j \in M_i} \frac{q_{cj}}{p_{ci}} \ln\left(\frac{p_{ci}}{q_{cj}}\right) \right) \tag{4}$$

, where r_c denotes related variety for UCL c; q_{cj} denotes the proportion of total employment in 2-digit industry code j for UCL c; and M_i denotes the set of all 2-digit industry codes that fall within the 1-digit industry code i.

Given similarities between the three measures denoting specialisation, unrelated variety and related variety, it is instructive to examine the degree of collinearity between these measures. For the 180 UCLs in our sample, across the three time periods, the correlation coefficients are as follows: -0.12 between specialisation and unrelated variety, 0.08 between specialisation and related variety, and 0.45 between unrelated and related variety. In each case, the correlation coefficient is small, confirming that the three constructs measure different aspects of the local economic structure.

To further underscore differences between these three constructs, Table 2 enumerates the top ten UCLs in our sample in terms of each of the constructs, as per 2011 data. Note that only three UCLs appear on two lists (and none across all three). In general, the highly specialised UCLs tend to be smaller regional centres with agrarian economies. And the more diversified UCLs tend be larger regional centres whose local economies comprise a mix of retail, education, public administration and construction services.

In order to assess the effects of regional specialisation and diversification on growth, we also need to control for the confounding influence of other determinants. We include four control variables in the first stage of our analysis. First, we use population size and density as measures of agglomeration economies. Second, we use distance to nearest metropolitan centre (Sydney, Melbourne, Brisbane, Perth

or Adelaide) to capture spill-over effects. Third, we use a binary variable to denote whether a UCL is a coastal town or not, because coastal towns are more desirable residential locations and benefit from increased tourist activity (Beer and Clower, 2006). And fourth, we use the proportion of the local population that has some form of vocational or college education as a measure of human capital.

The second stage of our analysis includes the proportion of local employment in nine different industry groupings, defined at the level of 1-digit ANZSIC codes, as additional explanatory variables. These industries include: (1) agriculture; (2) mining; (3) manufacturing; (4) retail trade; (5) accommodation and food services; (6) transport, postal and warehousing; (7) public administration and safety; (8) education and training; and (9) health care and social assistance. The small size of our sample (180 UCLs) did not allow us to test the effect of all nineteen industries defined at the level of 1-digit ANZSIC codes. These nine industries were selected based on their ability to help differentiate local economies, and consequently, local policies for growth.

Table 2. Top ten UCLs in terms of specialisation, unrelated variety and related variety, as per 2011

SPECIALISATION		UNRELATED VARIETY		RELATED VARIETY	
UCL	Population	UCL	Population	UCL	Population
Corowa - Wahgunyah, Victoria and New South Wales	889	Narrabri, New South Wales	5,889	Wallan, Victoria	7,810
Airlie Beach – Cannonvale, Queensland	7,869	Dalby, Queensland	10,860	Lara, Victoria	11,192
Jimboomba – West, Queensland	4,632	Esperance, Western Australia	9,920	Gawler, South Australia	23,957
Byron Bay, New South Wales	8,424	Yeppoon, Queensland	15,141	Sunbury, Victoria	33,062
Gatton, Queensland	6,180	Mount Barker, South Australia	14,452	Jimboomba – West, Queensland	4,632
Wallan, Victoria	7,810	Helensburgh, New South Wales	5,769	Raymond Terrace, New South Wales	13,218
Batemans Bay, New South Wales	11,332	Gunnedah, New South Wales	7,889	Mount Cotton, Queensland	4,274
Sunbury, Victoria	33,062	Strathalbyn, South Australia	5,292	Leopold, Victoria	9,608
Cobram, Victoria	5,420	Geraldton, Western Australia	31,348	Healesville, Victoria	7,992
Merimbula, New South Wales2	6,875	Northam, Western Australia	6,579	Drysdale - Clifton Springs, Victoria	10,929

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2 In our econometric analysis, Corowa - Wahgunyah are treated as a single UCL, with a combined 2016 population of 6,357. Jimboomba was included because its population in 2016 was above 5,000 (it was 5,552), and the 2016 population is the criterion that we've used to determine our sample. However, we used 2011 when putting together Table 2, as it represented the mid-point of our time frame (i.e. 2006-2016).

3.2 ECONOMETRIC FRAMEWORK

Our analysis involved time series data for each of the three dependent variables of interest, namely population, employment and average annual full-time wages, over the years 2006, 2011 and 2016. All data is available at the UCL level. We have 180 UCLs in our sample, and these comprise our unit of analysis throughout. Note that our dependent variable comprises absolute values for each of the dependent variables at any given time point, and not percentage changes between successive time points. Due to the small sizes of the UCLs in our sample, percentage changes were found to vary very widely across the sample, and proved to be an unreliable measure of growth.

We employ the following linear-in-parameters model specification:

$$y_{ct} = \mu_t + \gamma x_{ct} + \rho \sum_{c'} w_{cc'} \left(\frac{\Delta y_{c't}}{y_{c't}} \right) + \varepsilon_{ct} \tag{5}$$

, which represents a general structure similar to specifications used by other empirical studies (e.g. Beer and Clower 2006; Frenken et al 2006; Glaeser et al 1992). Over subsequent paragraphs, we describe each component of our specification in greater detail, and how it relates to the relevant literature.

The dependent variables of interest are population, employment and average annual full-time wages, where y_{ct} denotes the value of the dependent variable for UCL c during time period t.

The parameter μ_t denotes fixed effects specific to time interval t, and captures short-term deviations specific to each of our two-time intervals: 2006-11 and 2011-16. For example, wages declined in 2009 across all regions nationwide due to the global financial crisis of the preceding year, and the commodities boom slowed down after 2013. The μ_t parameter would capture such effects specific to a particular interval, but applicable to all UCLs in the sample for that year.

The variable x_{lt} denotes explanatory variables that are hypothesized to have a significant effect on the dependent variables of interest. These include our three measures of specialisation and diversification, and our four control variables.

Given the spatial nature of our data, and the positive spill over effects frequently received by the local economies of smaller urban areas situated in close proximity to major urban areas (e.g. Bosker, 2007), we employ a spatial lag in our model specification, such that the value of the dependent variable in a particular UCL during a given time interval depends on the corresponding values of the same variable in surrounding UCLs during that same time interval. The parameter ρ captures the direction and magnitude of effect exerted by neighbouring areas, and the variable $w_{cc'}$ denotes the degree of connectivity between the UCLs c and c'. There are many different ways in which $w_{cc'}$ might be constructed (for a comprehensive review of these different methods, see, for example, Anselin, 2013). In our case, we constructed distance-based weights based on the well-known gravity model, where the degree of connectivity between two UCLs is inversely proportional to the square of the physical distance separating them. We assumed further that UCLs that are more than 1000 km apart do not exert any influence on each other (i.e. $w_{cc'} = 0$ for these areas c and c'). The weights are normalized such that $\sum_{c'} w_{cc'} = 1$ for any urban area c.

Finally, the variable ε_{ct} is the residual term that captures the average effect of all other variables not included in our regression, and can be thought of as white noise. We assume that ε_{ct} is independently and identically distributed with variance σ^2 across all UCLs and time intervals, where σ is a model parameter to be estimated. We are implicitly assuming that the noise in our data is not temporally correlated. In other words, we assume that random shocks at each time interval in our data do not propagate to future time intervals. Relatedly, we are also assuming that the noise in our data is not spatially correlated, and that any spatial correlation is captured through the spatial lag variable. Our model specification allows ε_{ct} to be correlated across different dependent variables of interest, for the same UCL and time interval, resulting in a system of seemingly unrelated regression (SUR) equations.

All models were estimated using an implementation of three-stage least squares estimation methods for a system of SUR equations with spatial lag contained in the PySal library (Rey and Anselin 2010) within Python.

3.3 TOWN LEVEL ANALYSIS

In the first instance, we will not worry about the sectoral composition per se, and will focus more on general measures of industrial specialisation and variety at the town level. Our analysis will seek to answer the first part of Research Question 2, as identified in the brief: "For mid-sized towns in Australia, is growth more likely to be associated with economic specialisation or diversification?"

The estimation results for our final specifications are reported in Table 7. The explanatory variables included in our analysis are able to explain 21, 22 and 68 per cent of the variance in population, employment and wages across the 180 UCLs in our sample over the three time periods 2006, 2011 and 2016.

We find that specialisation and related variety are positively correlated with population and labour force size, and the relationships are statistically significant in both cases. In contrast, the impacts of unrelated variety on population and labour force size is not found to be statistically significant.

Conversely, we find that specialisation and unrelated variety are negatively correlated with wages, and the relationship is statistically significant in both cases. And the impact of related variety on wages is not found to be statistically significant.

Note that our analysis in this stage only looked at overall growth across all sectors of the economy. It is possible that different sectors of the economy respond differently to specialisation and diversification. We shall examine this hypothesis in greater detail in the next section.

Table 3. Estimation results from the town-level regression analysis

Explanatory variable	Population		Labour force		Average full-time wages	
	est.	t-stat	est.	t-stat	est.	t-stat
Time-specific fixed effects						
2006	-76,383	-4.98	-35,877	-5.48	1,827	7.31
2011	-75,587	-4.93	-35,348	-5.41	1,986	7.98
2016	-73,410	-4.82	-34,698	-5.34	2,092	8.47
Specialisation and diversification						
Specialisation	42,302	2.61	19,623	2.83	-1,706	-6.37
Unrelated variety	6,765	1.27	3,156	1.39	-326	-3.71
Related variety	32,805	7.59	14,508	7.91	0.304	0.00
Control variables						
Population density (per sq. km)	4.88	4.05	1.79	3.47	-0.021	-1.09
Proportion of population that has a vocational or college education (%)	198	4.31	107	5.47	4.93	6.61
Logarithm of distance to nearest metropolitan centre	3,133	6.81	1,490	7.64	10.6	1.43
Coastal city	-1,168	-1.51	-921	-2.83	5.74	0.44
Spatial lag variable	-0.110	-0.81	-0.110	-0.80	0.298	5.99
Correlation coefficients						
Population	1.000	-	0.970	-	0.122	-
Employment	0.970	-	1.000	-	0.235	-
Average full-time wages	0.122	-	0.235	-	1.000	-
Goodness of fit measures						
R-squared	0.207	-	0.220	-	0.684	-
Adjusted R-squared	0.190	-	0.204	-	0.677	-

On average, population, employment and wages have increased steadily over time. The increase in wages was significantly larger over the period 2006-11 than the following period 2011-16. This is not unsurprising. The Australian GDP was growing at 3-4 per cent per year during the 2000s commodity boom that preceded the global financial crisis, and at 2-3 per cent in the years since.

Population density has a positive and statistically significant effect on population and labour force size. This is not surprising. Large towns tend to have greater density and concentration of mass around a definable centre.

The effect of education is positive and statistically significant across all three dependent variables, indicating the towns with more educated populations are more likely to see growth. Our finding also confirms the positive relationship between wealth and human capital.

Distance to metropolitan centres has a positive and statistically significant effect on population and labour force size, and a positive but statistically weak effect on wages. These findings indicate that regional towns that are in close proximity to major metropolitan areas, such as such as the Shoalhaven area in the case of Sydney, or Victor Harbour and Goolwa in the case of Adelaide, have received significant positive spill-over effects.

Coastal cities have a negative and statistically significant effect on the size of the labour force, likely because coastal cities are popular destinations for retirement (Gursoy et al 2010; Beer and Clower 2008). The relationship with population size and wages is not found to be statistically significant.

Finally, our analysis reveals expected patterns of correlation between population and labour force size. However, wages are found to be weakly correlated with population and labour force size, controlling for the confounding influence of other variables. In other words, large regional centres do not necessarily offer the highest wages.

3.4 TOWN-INDUSTRY LEVEL ANALYSIS

The second stage of our analysis explicitly controls for the sectoral composition of local economies, by introducing interactions between the proportion of employment across each of the nine industries of interest, with our measures of specialisation, unrelated variety and related variety, as defined previously.

The estimation results for our final specifications are reported in Table 7. The explanatory variables included in our analysis are able to explain 34, 32 and 93 per cent of the variance in population, employment and wages across the 180 UCLs in our sample over the three time periods 2006, 2011 and 2016. Controlling for the sectoral composition of local economies leads to a substantial improvement in fit over the models presented in the previous section.

Consistent with our hypothesis, we do find that the effects of specialisation and diversification tend to vary, often substantially, depending on the characteristics of the local economy of small and mid-sized towns. Over subsequent paragraphs, we summarise the most salient of these effects with regards to each of the nine industries explicitly tested by our analysis. The effect of other control variables is mostly consistent with the results reported in Section 4. For the sake of brevity, we do not restate these here.

For towns with strong industries in agriculture, retail trade, public administration and safety, a well as those with a focus on healthcare and social assistance, the effects of specialisation and variety on population, employment and incomes are statistically weak across the board. There are no significant benefits to these towns from pursuing a strategy that is focused on specialisation or diversification; the primary determinants of growth appear to be other factors.

Table4. Estimation results from the town-level regression controlling for local industry

Explanatory variable	Population		Labour force		Average full-time wages	
	est.	t-stat	est.	t-stat	est.	t-stat
Proportion of local population employed in agriculture, interacted with…						
Specialisation	2,465	0.64	808	0.48	-30.4	-0.87
Unrelated variety	365	0.41	157	0.41	-4.34	-0.54
Related variety	-1,788	-1.22	-678	-1.06	9.28	0.70
Proportion of local population employed in mining, interacted with…						
Specialisation	-1,305	-1.05	-704	-1.30	7.25	0.65
Unrelated variety	612	1.99	282	2.09	1.21	0.43
Related variety	-491	-0.78	-229	-0.84	4.05	0.71
Proportion of local population employed in manufacturing, interacted with…						
Specialisation	-76.2	-0.03	-223	-0.24	47.0	2.45
Unrelated variety	946	2.32	404	2.27	-9.24	-2.51
Related variety	-2,181	-3.21	-892	-2.99	1.83	0.30
Proportion of local population employed in retail trade, interacted with…						
Specialisation	-2,275	-0.44	-1,403	-0.61	43.2	0.90
Unrelated variety	1,101	1.10	559	1.29	-5.07	-0.55
Related variety	-736	-0.41	-501	-0.65	-22.2	-1.39
Proportion of local population employed in accommodation and food services, interacted with…						
Specialisation	-6,978	-2.14	-2,751	-1.93	-120	-4.05
Unrelated variety	-489	-0.66	-160	-0.50	3.44	0.51
Related variety	3,821	2.33	1,376	1.92	20.6	1.38
Proportion of local population employed in transport, postal and warehousing, interacted with…						
Specialisation	16,984	2.72	8,365	3.06	140	2.47
Unrelated variety	-1,815	-1.96	-942	-2.32	0.114	0.01
Related variety	-426	-0.21	-108	-0.12	-50.8	-2.74
Proportion of local population employed in public administration and safety, interacted with…						
Specialisation	1,611	0.52	1,041	0.77	-15.8	-0.52
Unrelated variety	-928	-1.09	-542	-1.45	-7.71	-0.98
Related variety	2,032	1.15	1,147	1.49	24.2	1.52
Proportion of local population employed in education and training, interacted with…						
Specialisation	8,562	1.71	3,197	1.46	4.63	0.10
Unrelated variety	-2,632	-2.95	-1,214	-3.11	-19.6	-2.43
Related variety	4,885	2.49	2,484	2.91	56.5	3.20
Proportion of local population employed in health care and social assistance, interacted with…						
Specialisation	-2,611	-0.52	-656	-0.30	-38.8	-0.87
Unrelated variety	464	0.55	141	0.38	3.73	0.49
Related variety	193	0.12	7.43	0.01	-12.5	-0.91

Table4 (continued). Estimation results from the town-level regression controlling for local industry

Explanatory variable	Population		Labour force		Average full-time wages	
	est.	t-stat	est.	t-stat	est.	t-stat
Time-specific fixed effects						
2006	-54,878	-7.13	-21,965	-6.54	1,313	17.90
2011	-54,630	-7.15	-21,690	-6.50	1,489	19.79
2016	-52,161	-6.86	-20,803	-6.26	1,642	21.16
Control variables						
Population density (per sq. km)	2.27	2.04	0.936	1.93	-0.000338	-0.03
Proportion of population that has a vocational or college education (%)	229	4.66	109	5.05	1.56	3.49
Logarithm of distance to nearest metropolitan centre	2,571	5.35	1,202	5.73	0.0463	0.01
Coastal city	-490	-0.66	-519	-1.60	26.7	3.89
Spatial lag variable	0.282	4.05	0.307	4.12	0.157	5.69
Correlation coefficients						
Population	1.000	-	0.982	-	0.178	-
Employment	0.982	-	1.000	-	0.213	-
Average full-time wages	0.178	-	0.213	-	1.000	-
Goodness of fit measures						
R-squared	0.335	-	0.317	-	0.927	-
Adjusted R-squared	0.289	-	0.270	-	0.922	-

For mining towns, unrelated variety has a positive and statistically significant effect on both population and employment. Mining towns that have diversified their local economies beyond mining and mining-related activities are less susceptible to economic cycles specific to the industry, and less likely to witness declining populations during periods of low growth in the industry. All other relationships are statistically insignificant.

For manufacturing towns, the relationships are more complicated. Unrelated variety has a positive impact on population and employment, serving as an insulator to external volatility in the sector, similar to the case of mining. Related variety has a negative impact on population and employment, indicating that manufacturing towns should specialise in specific sub-sectors, and there are no benefits to diversifying across different manufacturing activities. Consistent with this point, specialisation has a positive impact on income and unrelated variety has a negative impact, suggesting that wage rates in the manufacturing industry are on average better than other industries.

For tourist towns with strong accommodation and food service industries, specialisation has a negative effect on population, employment and incomes, and related variety has a positive effect on all three measures. The demand for local accommodation services is likely to drive demand for local food and beverage services, and vice versa, by increasing the overall attractiveness of a town for tourists and

other visitors. However, if the town is too specialised around tourism and tourism-related activities, that can hinder its growth. The effect of unrelated variety is statistically weak.

For towns that serve as regional transport hubs, specialisation has a strong positive impact on population, employment and incomes, and both related and unrelated variety have a negative effect on all three measures. In fact, the effect of specialisation across all measures is the greatest across all nine industry groupings included in our analysis.

For towns that serve as regional centres for education and training, there are significant benefits from pursuing a strategy of specialisation and related variety, in terms of their impacts on population, employment and incomes. Concurrently, unrelated variety has a significant negative effect on each of these measure.

3.5 SYNTHESIS

In the first stage of our analysis, we examined how population, employment and wage growth vary across regional towns and centres across Australia as a function of the degree of specialisation and diversification of their local economies. In particular, we limited attention to 180 UCLs with populations between 5,000 and 50,000, as per the 2016 Census. We looked at how growth has varied across these UCLs over the years 2006, 2011 and 2016. Our analysis controlled for the confounding influence of a number of other explanatory variables, such as population density, geographic location and access to human capital. Overall, our analysis found that:

- specialisation has a positive effect on population and labour force size, but a negative effect on wages;
- unrelated variety has a negative effect on wages; and,
- related variety has a positive effect on population and labour force size.

In the second stage of our analysis, we controlled for the structure of local economies. Our findings did reveal considerable heterogeneity with regards to the effects of specialisation, unrelated variety and related variety, depending on the local industrial composition. We summarise these findings in Table 5. In general, we found that:

- specialisation can benefit local economies that are dependent on manufacturing, transportation and/or education;
- unrelated variety can help insulate local economies that are dependent on sectors especially prone to volatility, such as mining and manufacturing; and
- related variety can benefit local economies that are dependent on service-based industries that derive their demand from other sectors of the economy.

Importantly, for the period under study, specialisation was more likely to deliver economic growth than diversification although moving into sector related to established industries delivered both job growth and population growth also. Moving to unrelated areas of economic activity was not a productive economic pathway for mid-sized towns in most instances.

Table 5. Summary of sector-specific regional growth strategies

Local industries	Specialisation	Unrelated variety	Related variety	Recommended growth strategy
Agriculture; Retail Trade; Public Administration and Safety; and Healthcare and Social Assistance	Neutral	Neutral	Neutral	No significant benefits from pursuing specialisation or diversification; primary determinants of growth appear to be other factors
Mining	Neutral	Positive	Neutral	Unrelated variety can insulate local economy against external volatility, have a positive impact on population and employment
Manufacturing	Positive	Positive	Negative	Specialisation can increase wages; unrelated variety can insulate the local economy against external volatility; no benefit from related variety
Accommodation and food services	Negative	Neutral	Positive	Related variety is beneficial, but do not over specialise
Transport, postal and warehousing	Positive	Negative	Negative	Pursue specialisation
Education and training	Positive	Negative	Positive	Build concentration around education and education-related activities; no benefits from unrelated variety

3.6 ANALYSIS CONTINUED

Table 6. Estimation results from the industry-level regression analysis

| Explanatory variable | Industry employment | | | | | | | | | |
| | Agriculture | | Mining | | Manufacturing | | Electricity, gas, water and waste services | | Construction | |
	est.	t-stat	est.	t-stat	est.	t-stat	est.	t-stat	est.	t-stat
Time-specific fixed effects										
2006	-1,661	-8.14	-2,053	-3.77	-3,337	-8.23	-1,249	-11.68	-1,851	-8.10
2011	-1,681	-8.21	-1,933	-3.55	-3,332	-8.24	-1,229	-11.51	-1,803	-7.89
2016	-1,643	-8.08	-1,905	-3.51	-3,395	-8.46	-1,221	-11.47	-1,799	-7.89
Specialisation and diversification										
Specialisation	1,051	8.89	4,981	19.20	4,503	16.3	3,015	17.57	1,949	16.6
Unrelated variety	487	7.15	-194	-1.06	510	4.19	133	3.99	285	3.63
Related variety	-3.80	-0.28	-28.1	-1.37	-187	-9.24	-55.2	-6.80	70.9	2.17
Control variables										
Population size (1000s)	6.70	11.70	14.0	8.95	40.3	40.17	7.23	24.98	35.4	52.39
Population density (100 per sq. km)	-0.357	-0.22	-6.56	-1.43	1.32	0.44	0.312	0.37	-4.23	-2.10
Proportion of population that has a vocational or college education (%)	-0.283	-0.43	7.86	4.43	4,503	16.3	-0.0935	-0.29	4.13	5.40
Logarithm of distance to nearest metropolitan centre	19.0	2.97	69.7	4.02	-68.1	-6.30	-6.33	-2.07	16.4	2.22
Coastal city	-8.65	-0.78	36.4	1.27	-30.2	-1.65	10.4	1.94	24.7	1.95
Spatial lag variable	-0.022	-0.18	-0.186	-3.81	0.095	2.37	0.064	1.094	0.039	1.26
Goodness of fit measures										
R-squared	0.348	-	0.470	-	0.777	-	0.645	-	0.857	-
Adjusted R-squared	0.333	-	0.458	-	0.771	-	0.637	-	0.853	-

Explanatory variable	Industry employment									
	Financial and insurance services		Rental, hiring and real estate services		Professional, scientific and technical services		Administrative and support services		Public administration and safety	
	est.	t-stat	est.	t-stat	est.	t-stat	est.	t-stat	est.	t-stat
Time-specific fixed effects										
2006	-465	-6.74	-265	-5.40	-1,287	-9.01	-72.3	-1.03	-3,164	-11.41
2011	-473	-6.82	-265	-5.40	-1,268	-8.85	-61.6	-0.87	-3,133	-11.30
2016	-492	-7.10	-271	-5.53	-1,282	-8.96	-47.5	-0.67	-3,131	-11.32
Specialisation and diversification										
Specialisation	441	7.38	321	7.33	1,931	15.50	161	2.34	5,064	18.17
Unrelated variety	91.8	3.75	0.191	0.01	46.2	0.95	-16.1	-0.67	-27.5	-0.31
Related variety	4.72	0.72	1.58	0.27	-27.7	-1.24	-39.3	-1.43	156	4.45
Control variables										
Population size (1000s)	8.73	41.6	6.48	46.61	17.2	41.45	13.4	66.56	29.2	37.95
Population density (100 per sq. km)	1.43	2.33	-0.825	-1.99	-4.24	-3.43	-0.199	-0.34	0.186	0.08
Proportion of population that has a vocational or college education (%)	1.11	4.70	1.29	8.09	3.02	6.17	0.383	1.66	0.119	0.14
Logarithm of distance to nearest metropolitan centre	-7.42	-3.26	7.73	5.23	-4.76	-1.03	2.24	1.07	42.0	5.17
Coastal city	-18.7	-4.97	12.3	4.64	-32.4	-4.23	6.04	1.65	-91.4	-6.54
Spatial lag variable	0.039	0.88	0.015	0.45	0.081	2.03	-0.021	-0.79	0.128	2.38
Goodness of fit measures										
R-squared	0.827	-	0.831	-	0.808	-	0.906	-	0.781	-
Adjusted R-squared	0.823	-	0.827	-	0.803	-	0.904	-	0.776	-

	Industry employment							
	Education and training		Health care and social assistance		Arts and recreation services		Other services	
Explanatory variable	est.	t-stat	est.	t-stat	est.	t-stat	est.	t-stat
Time-specific fixed effects								
2006	-1,550	-7.02	-678	-2.71	-187	-4.36	-714	-7.54
2011	-1,545	-6.98	-619	-2.46	-183	-4.24	-702	-7.42
2016	-1,558	-7.02	-629	-2.51	-182	-4.22	-702	-7.44
Specialisation and diversification								
Specialisation	3,089	16.42	3,490	22.51	1,017	17.83	665	7.31
Unrelated variety	-89.0	-1.13	-183	-2.16	-28.1	-1.84	137	5.27
Related variety	50.4	1.53	-127	-1.53	2.26	0.79	-165	-3.62
Control variables								
Population size (1000s)	36.9	53.9	59.4	80.19	4.39	33.27	18.0	80.01
Population density (100 per sq. km)	-7.04	-3.56	-4.28	-1.99	0.0324	0.08	-0.450	-0.67
Proportion of population that has a vocational or college education (%)	2.68	3.39	0.691	0.84	0.342	2.26	0.640	2.54
Logarithm of distance to nearest metropolitan centre	23.0	3.20	0.474	0.06	-0.111	-0.07	10.7	4.50
Coastal city	-66.9	-5.47	-60.2	-4.54	-6.51	-2.73	-35.6	-8.68
Spatial lag variable	0.064	1.76	-0.008	-0.32	0.037	0.685	0.010	0.40
Goodness of fit measures								
R-squared	0.884	-	0.942	-	0.759	-	0.932	-
Adjusted R-squared	0.882	-	0.941	-	0.753	-	0.930	-

4. REGIONAL ANALYSIS

One of the greatest challenges in responding to economic change is that impacts are often unevenly distributed. This is reflected throughout regional Australia today, with some areas performing strongly, while others continue to experience significant disadvantage. These differences can largely be attributed to a range of factors, including a region's industry base, the population's access to and participation in higher education, transport networks and infrastructure, its degree of natural amenity, population size and growth, accessibility to more dynamic labor markets and the skill level of its labor force (Departmant of Employment et al 2019).

4.1 REGIONAL PLANS

Some 74 strategic plans from a range of regional mid-sized towns were collected and examined to better understand their economic objectives. The plans were not uniform, reflecting the diversity of regional needs. They could, however, be divided into three broad groupings:

- *very small* **versus** *very large*
  The former ranged from 6 pages and tended to be outward looking, small, locality reports and are usually promotional. The latter ranged up to 180 pages or more and tend to be technical reports from large regions, focussed at state and national government.
- *old* **versus** *new*
  A minority of reports had not been updated (in some cases since 2010), but most were either very new or recent updates of pre-existing plans.
- *short term* **versus** *long term*
  Long term planning could be as future focused as 2040. Though many were focussed on the short-term, around 1-2 years out.

There was a distinct similarity in the structure and content of many of the plans. They took a multitier approach, with consultation from government and local industry and most presented a long-term digital strategy including broadband and NBN. A majority of the planning bodies used their strategic documents to advertise their regions as vibrant, progressive and inclusive.

The most covered topics were:

- Place and identity/culture
- Business and industry/sustainable growth
- Environmental stewardship
- Community health
- Leadership and collaboration

A prolific complaint was the lack of Federal Government funding, either directly or through infrastructure spending and investment. The EDO of Murweh Shire Council commented that:

> "....no matter how much money is poured into investment attraction, without basic and essential infrastructure such as power, transport corridors, high speed internet, then nothing can possibly eventuate"

Location was important in two senses; the first being proximity to conurbations. This could also result in membership of larger units such as the Hunter Regional Development Strategy. However, the Victorian Baw Baw Shire commented that distance from Melbourne did not disadvantage some small and medium sized towns distant from the city because they were located on both the Princes Highway and the fast rail route to the capital. Distance from conurbations saw some shires focusing on growing their own CBDs as regional centres or in a small number of cases regional logistic hubs.

Most plans were focused on developing industries viewed as local strengths particularly mining, resources, tourism and agriculture, and aim to build/extend on existing public and private areas. There was no obvious mention of specialisation as a strategy, but some plans remained focussed on a single dominant sector. There was an occasional mention of diversification but the term in this context means away from old industries (smelters, resources, even tourism) or; diversification within old industrial sectors such as agriculture and aquaculture. Some claimed their area had already diversified since they have moved away from obsolete industries like steel and mining.

Health/aged care services, and transport infrastructure (such as road, rail and air) were mentioned in some cases as necessary foci of future development. Other occasional foci included vocational education and higher education, energy, in particular renewables such as solar and hydrogen based, agriculture, tourism, and waste and waste management. A number of councils argued for the necessity of investment to counteract the effects drought, and that there was presently a lack of support for affected sectors such as dairy. The merits of developing a circular economy, sustainability and waste management are mentioned but considerably less frequently than broad commitment to sustainability.

COMMUNITY ENGAGEMENT

This section addresses Research Questions 3 and 4.

5.1 WEBINAR DISCUSSION

Economic practitioners working in mid-sized towns volunteered to share their insight and answer questions relating to specialisation and diversification strategies. Participants took place in a webinar and were quizzed on their region's economic strategies, how data and information are obtained and what role specialisation and diversification plays in that process. A common remark from all participants was that specialisation or diversification were outcomes of increased economic growth, not a means for growth alone.

The most pressing and repeated comment was that a 'place-based approach' with a focus on the community and culture, is required to stimulate growth from within the region. That it is not the role of local government to dictate the terms of how an economy should grow, but rather to 'de-risk' economic investment, allowing local enterprise to thrive. While keeping organisations and individuals at a distance from the planning process can only hasten economic decline. Success was not measured in monetary terms alone but in combination with community engagement. Furthermore, community owned businesses are better able to diversify and respond to new economic strategies quicker that more centralised ones.

Census data, academic research and expert opinion were all agreed to be foundational in developing an economic strategy. There is however a disconnect between academic literature and the reality of economic planning. Since smaller and focused regions that are declining it is highly unlikely to see growth in an existing industry. Thus, it is not a case of poor economic planning or academic theory, but forces beyond a region's control. Practitioners did agree that diversification was useful for protecting the community from such economic downturn. Even if diversification and specialisation were argued to less important than initially thought. For the smallest mid-sized towns, all industries are affected by decline. Diversification was agreed upon as a more stable starting point, especially for smaller regions attempting to grow economically and maintain its population.

Specialisation on the other hand was understood as taking place on a smaller scale. when industries or regions with a strong economic anchor are reaching a plateau. Thus, it usually takes place on a much smaller scale in an already diversified economy, such as highly specific animal breeding or crops. Town practitioners did not make a distinction between specialisation and diversification strategies, instead using the term, 'specialised-diversification.'

5.2 REGIONAL SURVEY

Along with a Webinar, a survey was constructed and distributed to councils, and regional development organisations working in mid-sized towns. The questions asked practitioners their population/size, how they form strategic plans and how they understood specialisation and diversification and 39 responses were received.

The majority of responders understood specialisation as a tool, with which to focus funds and effort in to one industry. Many pointed to their region's unique, (and sometimes only) competitive advantage and that more specialisation necessitated continued investment. Agriculture and mining were the most frequent examples given. Respondents understood diversification as investment and opportunities for growth, particularly in to new industries. Surprisingly, some reported definitions of specialisation resembled diversification and vice versa.

Encouragingly, 30% of responders indicated that the population of their region was increasing slowly, and 27.5% reported that population was holding steady. 80% of volunteers made specialisation and/or diversification part of their planning strategy. Interestingly however, only 8% said specialisation was a focus, with nearly half stating they try to find a balance.

When asked where their economic plans come from, 85% claimed that community input was the largest source of ideas, closely followed by key regional stakeholders. Collaboration with peers and the study of other regional documents were the next most important sources of planning. Aside from governments and consultants, one responder listed 'global trends' as their primary influence.

5.2.1 REGIONAL PRIORITIES

Responders were also asked to rank statements that aligned with their most important priorities in stimulating economic development. Responses were varied, with 'making it possible for new businesses to be established' as the largest overall response, followed by 'attracting outside business.' 'wages and income growth' was the lowest rated response, though this is likely because it would eventually be an outcome of business establishment and growth.

When asked about the ways they would encourage specialisation and diversification, responders were insightful and creative in their answers. However, when discussing barriers, a great deal of the answers laid blame at fewer, more major problems.

The most common suggestion to increase regional diversification was business support. Be it through political encouragement, inviting businesses to the region, supporting established companies or loosening restrictions. Town infrastructure, internet speed and communications in particular was frequently mentioned. Promotion and strengthening of old industries, via identifying strengths and weaknesses of the local economy was imperative. Finally, the increase of housing stock and with-it population was important for diversification.

5.2.2 BARRIERS

When asked about the barriers to regional diversification, the most insurmountable obstacle was unsurprisingly funding. All responders mentioned lack of funding as one of their answers. The second most common barrier was regional support, with many citing a lack of governmental support and a lack of regional focus. Lack of infrastructure, particularly digital was frequently mentioned, as well as roads, power and education. The largest barrier at the local level was how to engage an unsupportive community. Such as the need to overcome stakeholder apathy, collaborating with business and the retention of skills.

When asked how practitioners would increase specialisation, responses were broad and optimistic. Answers emphasised data and education, researching gaps in the market, economic report of the region, and the identification of problems. Responders highlighted their region's locational advantage.

Through investing in their existing strengths, collaboration with local industry and by emphasising sustainability in their investments. As well as support from government to facilitate business networks and provide consultation.

The surveyed barriers to specialisation were near identical to those stifling diversification. the largest again being a lack of funding, followed by governmental red tape. However, the effects of short political cycles and strained relationships with state and federal government were emphasized. Skilled workers was frequently mentioned resulting in a lack of local leadership and mentors. Finally, a lack of support from stakeholders and locals, often results in a lack of vision and hindering community engagement.

WHICH STRATEGY: DIVERSIFICATION OR SPECIALISATION FOR MID-SIZED TOWNS

This section addresses Research Question 6.

> Is it possible to determine when mid-sized towns should follow economic diversification strategies, and when would they be better advised to follow specialisation pathways?

The answer to this question is complex, and may only be able to be truly answered when the current structure of the local and national economies are considered. Nevertheless, the research clearly indicates that both specialisation and diversification are both associated with growth, and that smaller – and potentially more vulnerable – places may well benefit from an economic diversification strategy.

- Smaller mid-sized towns looking to grow should look for a specialisation to grow through, or in the absence of that, investment in diversity until a suitable specialisation is found.
- Larger mid-sized towns with existing specialisation should invest in diversity (through a related pathway) to grow incomes, better shock proof them, and potentially to find a new or next multi specialisation.
- Large mid-sized owns without specialisation should invest in unrelated diversity until a suitable specialisation is found.
- All mid-sized towns should invest in their specialisation until it is well developed and then look to diversify elsewhere.

In this regard, the findings from the second stage of our analysis provide additional localised context depending on local industrial composition.

- specialisation can benefit local economies that are dependent on manufacturing, transportation and/or education;
- unrelated variety can help insulate local economies that are dependent on sectors especially prone to volatility, such as mining and manufacturing; and
- related variety can benefit local economies that are dependent on service-based industries, such as tourism and/or education, that derive their demand from other sectors of the economy.

These are key – and actionable – conclusions from this research. To a degree, therefore, the question, 'Is a mid-sized town better off seeking to specialise or diversify its economy?' can only be answered

when we know how that economy is currently structured. The most appropriate strategy varies from place to place as their economies similarly vary.

Finally, the research sought the input of economic development practitioners working in Australia's mid-sized towns and did so in three ways:

- We conducted a webinar to directly hear their views and seek their guidance on this issue;
- We ran an on-line survey for economic development practitioners; and,
- We reviewed the economic development plans of 76 mid-sized towns (or the local governments that accommodate them) in order to assess current practice and thinking in this area.

We are able to draw three conclusions from these data: first, in discussion, economic development practitioners focus on their efforts to diversify their local economies in mid-sized towns. However, much of the diversification they discuss is in fact specialisation – a town may seek to shift from a focus on citrus to avocados, but fundamentally it remains the same industry – irrigated agriculture. Second, our on-line survey found that economic development practitioners working in mid-sized towns understood specialisation as a tool with which to focus funds and effort. Many pointed to their region's unique, (and sometimes only) competitive advantage, and that specialisation necessitated continued investment. Agriculture and mining were the most frequent examples given. Respondents understood diversification as investment and opportunities for growth, particularly in to new industries. Third, the analysis of economic development plans or strategies found that while questions of specialisation and diversification were embedded in most documents, many other considerations were more prominent.

It is important to acknowledge that regional economic development strategy/policy making is complex and there is no 'one size fits all' approach to whether a mid-sized town should seek to specialise or diversify its economy. However, the findings of this paper give clear indications of which types of strategy have been more likely to be successful in the recent past. Business cycles also exert a significant impact, and mid-sized towns need to be sufficiently nimble to take advantage of 'boom' sectors when they emerge and then adjust to other opportunities as conditions become less positive.

The findings of our quantitative analysis are of considerable significance for the practice of local economic development in Australia. Practitioners need to connect their economic development strategies to their hinterland and in more remote places, they should look to add value to local produce (value adding) or diversify around amenities (such as through tourism). Mid-sized towns close to metropolitan areas should look to integrate their economy with this much larger labour market, taking advantage of their much cheaper land costs.

There is considerable variation in the form and nature of economic development planning in Australia and other nations (see Beer and Clower 2020) and to a very large degree such goals around place, identity and culture; business and industry/sustainable growth; environmental stewardship; community health and leadership and collaboration are more relevant in the 21st Century. Economic development or specialisation may be useful tools to achieve those targets, but they do not form the core purpose of such documents and their associated processes.

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APPENDIX A. MID-SIZED TOWNS BY RAI CATEGORY

Connector towns	Service Towns (Uni, AP, Health)	Coastal Lifestyle	Industry towns	Mixed function
Bacchus Marsh	Albany	Albany	Griffith	Blue Mountains
Bargara - Innes Park	Albury - Wodonga	Ballina	Casino	Goulburn
Bowral - Mittagong	Albury - Wodonga	Bargara - Innes Park	Colac	Lismore
Canberra - Queanbeyan	Alice Springs	Batemans Bay	Castlemaine	Drouin
Castlemaine	Armidale	Bongaree - Woorim	Gladstone (Qld)	Gympie
Cessnock	Bathurst	Busselton	Tannum Sands - Boyne Island	Devonport
Crafers - Bridgewater	Burnie - Somerset	Coffs Harbour	Mudgee	Ulverstone
Drysdale - Clifton Springs	Coffs Harbour	Drysdale - Clifton Springs	Muswellbrook	
Gawler	Dubbo	Forster - Tuncurry	Singleton	
Gisborne	Mildura - Buronga	Gladstone (Qld)	Emerald	
Gracemere	Mount Gambier	Kiama	Mount Isa	
Kiama	Orange	Leopold	Kalgoorlie - Boulder	
Kurri Kurri	Port Macquarie	Nelson Bay	Karratha	
Lara	Wagga Wagga	Nowra - Bomaderry	Port Hedland	
Leopold	Whyalla	Ocean Grove - Barwon Heads	Sale	
Maryborough (Qld)	Gladstone (Qld)	Port Macquarie	Swan Hill	
Morisset - Cooranbong	Kalgoorlie - Boulder	Portland (Vic.)	Dalby	
Mount Barker (SA)	Tamworth	St Georges Basin - Sanctuary Point	Warwick	
Nambour	Batemans Bay	Tannum Sands - Boyne Island	Esperance	
Ocean Grove - Barwon Heads	Forster - Tuncurry	Torquay - Jan Juc	Port Pirie	
Raymond Terrace	Grafton	Ulladulla	Lithgow	
Sunbury	Kempsey	Victor Harbor	Parkes	
Torquay - Jan Juc	Taree	Yeppoon	Echuca - Moama	
Yeppoon	Ulladulla	Geraldton	Portland (Vic.)	
	Shepparton- Mooroopna	Warrnambool	Warragul	
	Traralgon	Broome	Kingaroy	
	Warrnambool	Port Headland	Broken Hill	
	Bairnsdale		Mildura - Buronga	
	Horsham		Whyalla	
	Moe - Newborough		Inverell	
	Morwell		Murray Bridge	
	Wangaratta			
	Port Augusta			
	Port Lincoln			
	Port Pirie			
	Geraldton			
	Broome			

APPENDIX B. SMALLER MID-SIZED TOWNS BY RAI CATEGORY

Connected Towns	Service Towns	Coastal Lifestyle	Industry towns	Mixed Function
Anna Bay - Boat Harbour	Cooma	Anna Bay - Boat Harbour	Collie	Murwillumbah
Camden Haven	Cootamundra	Camden Haven	Narrabri	Healesville
Helensburgh	Cowra	Merimbula	Biloela	Kilmore
Lennox Head	Deniliquin	Nambucca Heads	Moranbah	Atherton
Pottsville	Glen Innes	Pottsville	Leeton	Yanchep
Salamander Bay - Soldiers Point	Gunnedah	Salamander Bay - Soldiers Point	Nuriootpa	
South West Rocks	Leeton	South West Rocks	New Norfolk	
Summerland Point - Gwandalan	Moree	Summerland Point - Gwandalan	Echuca - Moama	
Portarlington - St Leonards	Narrabri	Yamba	Leongatha	
Mount Cotton	Tumut	Inverloch	Hamilton	
Sandstone Point - Ningi	Yass	Lakes Entrance	Ayr	
Dunsborough	Young	Portarlington - St Leonards	Innisfail	
Echuca - Moama	Ararat	Bowen	Roma	
Alstonville	Hamilton	Innisfail	Naracoorte	
Byron Bay	Maryborough (Vic.)	Sandstone Point - Ningi	Corowa - Wahgunyah	
Medowie	Seymour	Wynyard	Cowra	
Moss Vale	Stawell	Lennox Head	Forbes	
Nambucca Heads	Wonthaggi	Airlie Beach - Cannonvale	Glen Innes	
Wauchope	Yarrawonga - Mulwala		Gunnedah	
Benalla	Bowen		Moree	
Lakes Entrance	Charters Towers		Tumut	
Wallan	Chinchilla		Young	
Beerwah	Goondiwindi		Cobram	
Gatton	Roma		Chinchilla	
Gordonvale	Naracoorte		Gatton	
Highfields	Northam		Goondiwindi	
Jimboomba - West	Katherine		Mareeba	
Mareeba	Leongatha		Kyabram	
Tamborine Mountain	Beaudesert		Bowen	
Goolwa				
Nuriootpa				
Strathalbyn				
Margaret River				
New Norfolk				
Wynyard				

APPENDIX C. CRITERIA FOR ALLOCATING MID-SIZED TOWNS TO A CATEGORY

Role	Method
Industry town	LGA that the MST is located in has higher than the regional average proportion of people employed in mining, agriculture or manufacturing and any of these 3 industries are also within their three largest employing industry (subjected to a google search that shows identification with these industries or is well-known as a specific kind of industry town)
Service towns	Provides University (<15km), airport (<15km) Far from a major regional/metro area (>100km) Have > 2 health services OR Proportion of service jobs above national 49% Far from a major regional/metro area (>100km)
Connected towns	≤40km to a major regional (population >50,000) or metropolitan city
Coastal lifestyle	Coastal UCLs with 65+ age > 15.7%; or Coastal UCLs with 65+ age > 15.7% and identified themselves as a seachange location through a google search; or Coastal UCLs that were part of the Sea Change Taskforce; or Coastal UCLs + Children > 18.7% + Working age pop > 65.6%
Mixed function	Those towns not otherwise classified

APPENDIX D. CRITERIA FOR ALLOCATING SMALLER MID-SIZED TOWNS TO A CATEGORY

Role	Method
Service towns	Have ≥1 of health services Have ≥1 high school Have ≥1 supermarket within 10km distance ≥ 40km from a MST, metro or regional city *With the exception of Leongatha and Beaudesert
Connected towns	No health and/or no high school + less than or equal to 40km from a MST, metro or regional city
Coastal lifestyle	Coastal & 65+ age > national UCL proportion of 15.7% or; Coastal & Children > 18.7% + Working age pop > 65.6%
Industry towns	LGA that the MST is located in has higher than the regional average proportion of people employed in mining, agriculture or manufacturing and any of these 3 industries are also within their top two largest employing industry (subjected to a google search that shows identification with these industries or is well-known as a specific kind of industry town)
Mixed function	Those towns not otherwise classified.