



**Section B Rural Economic Development
in Queensland: Issues, Opportunities
and Approaches to Economic
Development related to Agriculture**

ABSTRACT

A Background Paper for consideration in the forming of the research collaboration: the Rural Economies Centre of Excellence.

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Research Ethics

Not required for this study.

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1. Introduction

The economy of Queensland is diverse. It has traditionally been based on four main “pillars” – agriculture, mining (and gas), tourism and construction. Manufacturing and services are also major sectors, with particularly high growth in the services sector in recent years. While these sectors remain the core of the economy, the state is diversifying, developing new specialised sectors and building new economic activity around innovation, technology and high value services (particularly including mining and agricultural services).

Queensland’s rural economy is crucial to the economy of the state and to employment, investment and population in regional areas. In 2015-16, regional Queensland (areas outside South East Queensland) contributed \$101 billion to gross state product (Office of the Chief Economist, 2016). Brisbane, and other areas in South East Queensland, contributed \$155 billion and \$50 billion respectively.

The rural economy is concentrated in agriculture, the resources sector, government services and small business in rural communities. The value of agricultural production in 2015-16 was \$13.2 billion (Queensland Government Statisticians Office, 2017), with \$9.1 billion of rural commodities exported largely to the US, Japan and China (Australian Bureau of Statistics, 2017). While the rural economy is important to the state, it is subject to variation, structural change and adaptation to long term pressures. Agriculture is subject to droughts, floods and cyclone damage. Export industries are open to changes in international commodity prices, variations in the value of the Australian dollar and policy decisions. The level of rural debt, and ongoing business viability in agriculture and small business, challenge business sustainability and prompt long term readjustment in areas such as in the inland rangelands. Particular resources regions– largely central Queensland (coal) and the Western Downs (coal seam gas) have experienced an economic boom and subsequent decline from boom levels. There remains strong pressure on the cost of inputs (e.g. energy and water). Environmental and agricultural conflicts continue to pressure the industry, and the development of a services economy relies on attracting and retaining professionals in rural and remote areas.

Challenges in agriculture, and in industries related to it, such as agricultural support services, transport, processing, marketing and trade, are matched by significant opportunities. A growing middle class in Asia with high living standards is creating major demand for agricultural products. The fresh, uncontaminated nature of food produced in Queensland gives it a competitive advantage in international markets. The development of Free Trade Agreements and transport infrastructure is facilitating the development of emerging markets. Consumer preferences are creating demand for pre-packaged, specialised, high value primary products. Support for entrepreneurship and innovation is stimulating business start-ups and new products and services in existing firms.

Approaches to agricultural development are also changing. Traditional approaches to economic development in primary industries have focused on increasing on-farm production, particularly through extension. This remains important and is increasingly being achieved through major advances in agricultural technology. Agriculture is also focused on developing integrated value-chains focused on sophisticated logistics, product quality assurance, the development of value-added products, and meeting community expectations of environmental sustainability and ethical production systems.

This paper explores the influences, challenges, opportunities and approaches to rural economic development in Queensland. It focuses on economic development and diversification centred on agricultural food and fibre value chain development and related regional industries. The paper describes the current situation of Queensland's rural economy and the factors that are influencing it. It outlines the characteristics of a vibrant rural economy and summarises current and emerging rural economic development issues, initiatives and policies. The paper has been developed to provide information that forms the basis for the development of research, practice and policy priorities for the Rural Economies Centre Queensland.

2. The Current Situation of Queensland's Rural Economy

The rural economy in Queensland underpins state earnings, regional employment, regional population and quality of life. Agriculture, mining and tourism are major primary sectors, but other sectors such as construction, minerals processing and manufacturing, and tourism make significant contributions in some centres. Spending from these primary and secondary sectors, as well as from the population base, generates demands for goods and services in a range of other sectors that then increase through multiplier effects to create local and regional economies.

The population base is one way of underpinning economic structures, as population underpins substantial economic activity. Population is also an indicator of where economic prospects are located. This overview focuses on regional areas within Queensland for the sake of brevity, as the same drivers also help explain the differences between rural and regional economies. Figure 2.1 shows population by region in Queensland, drawn from the ABS Census data. South east Queensland (including Brisbane, Ipswich, Gold Coast, Sunshine Coast and surrounding areas) has 68.2% of the population base, with Wide Bay, Cairns and Townsville the next largest regions.

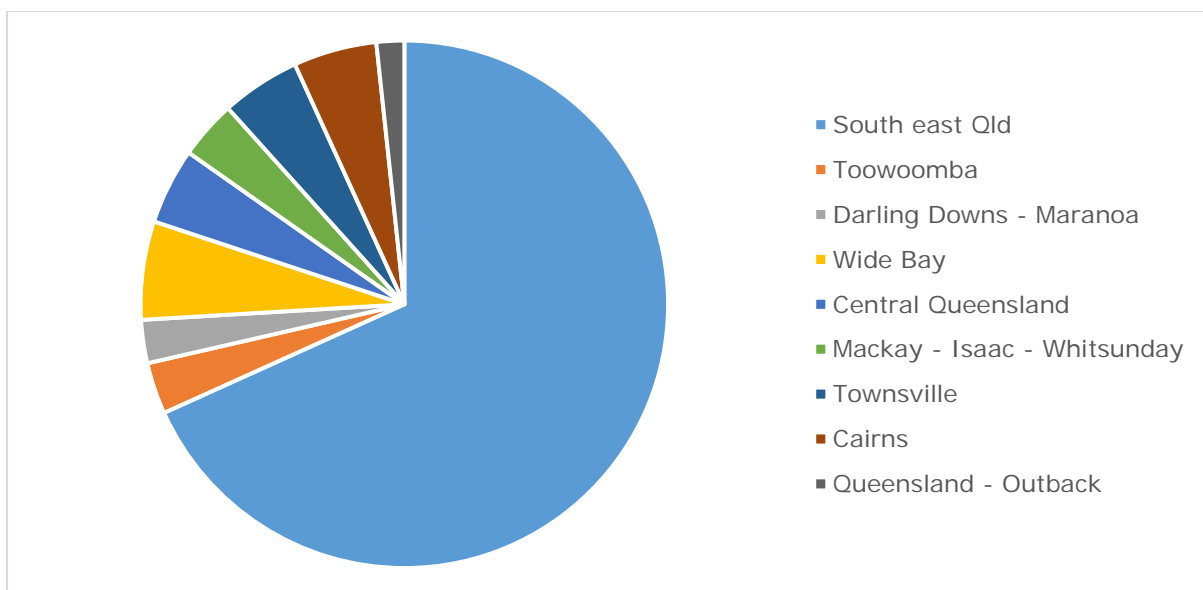


Figure 2.1 Queensland Population share by region 2016

Source: ABS 3218.0, Regional Population Growth, Australia, various editions, through the Queensland Government Statistician's Office (QGSO).

Rates of population growth over the 25 years from 1991 to 2016 are shown in Figure 2.2. This reveals that population growth has been highest in south-east Queensland (80%), followed by the Cairns (56.5%) and Wide Bay (51.7%) regions. However the regions without major regional cities (Darling Downs-Maranoa and Outback) have had low and negative population growth respectively, indicating that smaller rural areas have not increased their population base.

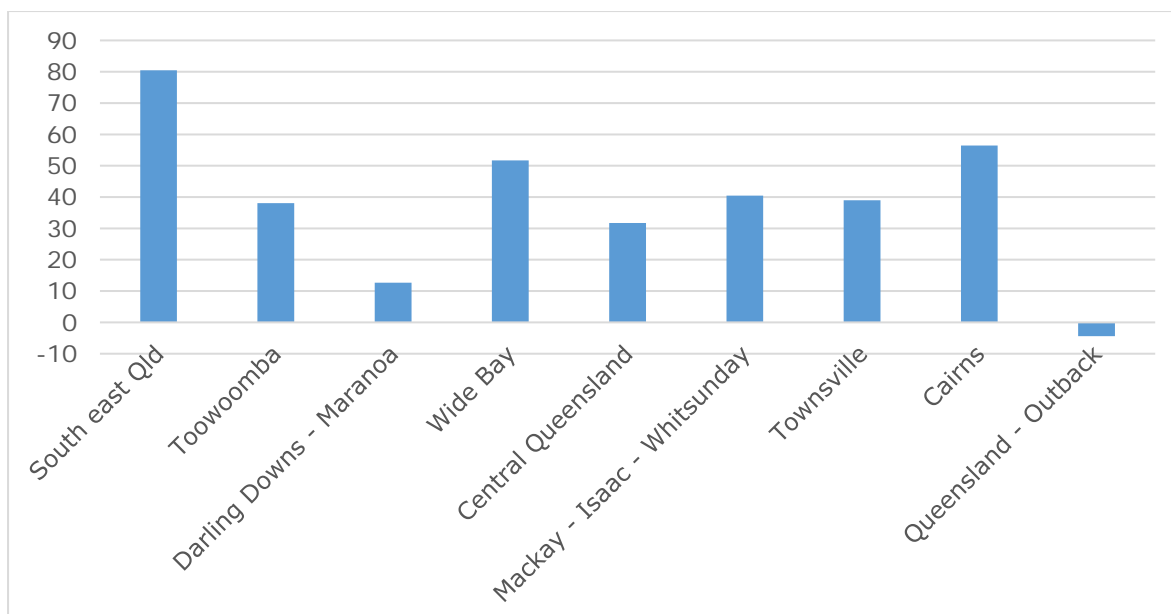


Figure 2.2. Queensland population growth 1991-2016

Source: ABS 3218.0, Regional Population Growth, Australia, various editions, through the Queensland Government Statistician's Office (QGSO)

The employment base provides one pathway to understanding the makeup of economies in regional areas. The breakup in employment between south-east Queensland and regional Queensland and Outback Queensland (south-west, central west and north-west) is shown in Figure 2.3. Outback Queensland has a very small share of overall employment in the state (1.6%), while regional Queensland has slightly more than one-quarter of employment (28.6%).

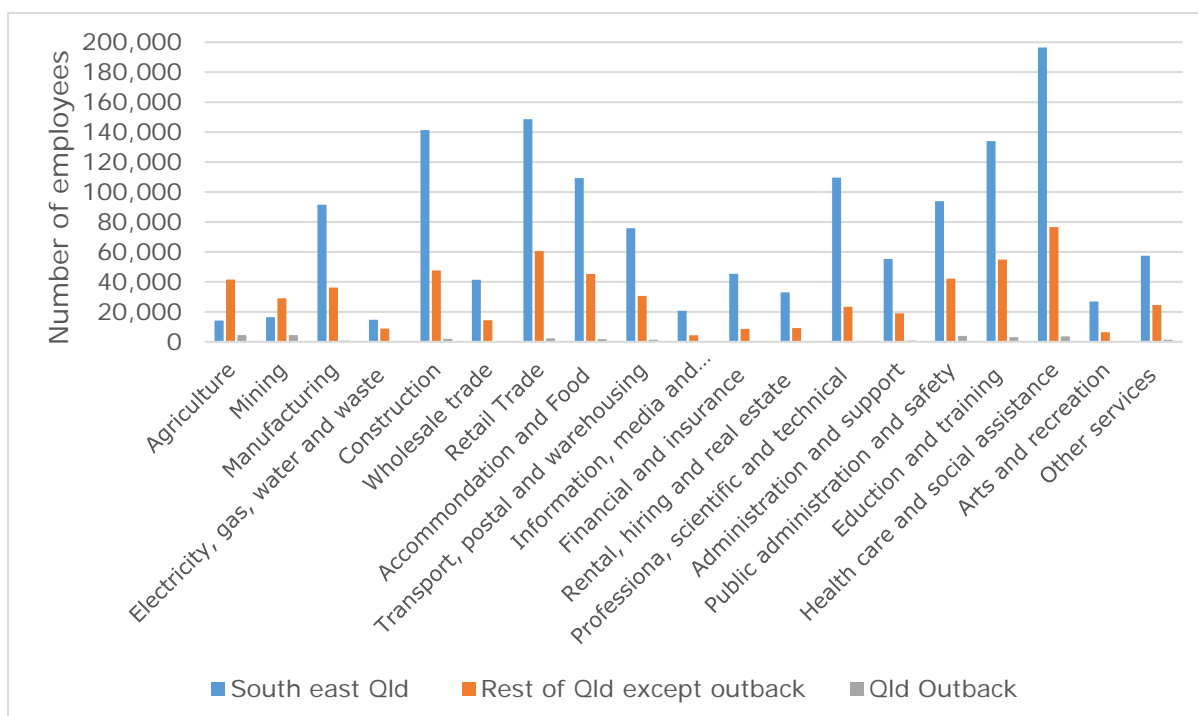


Figure 2.3. Employment by industry in Queensland 2016

Source: ABS, *Census of Population and Housing, 2016, General Community Profile - G51*.

The employment data reveals that Health care and social services and Retail trade are the largest service (and growing) sectors, while Agriculture and Construction, followed by Mining and Manufacturing, are the largest primary sectors. Agriculture and Mining are the only sectors where employment is largely located in regional and outback areas.

Some insights into the structure of the economies in south-east, regional and outback Queensland can be gained by identifying the share of employment by industry sector in each region (Figure 2.4). This shows that employment in Mining and Agriculture is largely in regional and outback areas, Outback Queensland is overweighted by employment in Agriculture, Mining and Administration, and south-east Queensland dominates employment in professional and service areas.

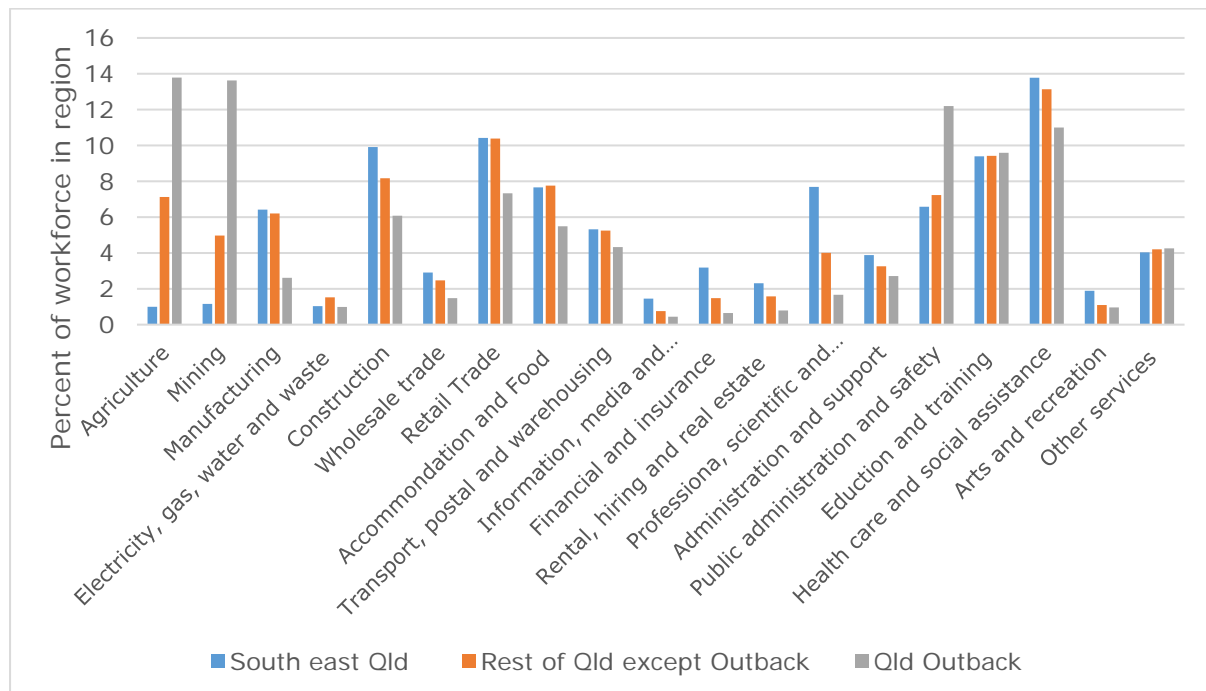


Figure 2.4. Percent share of employment by industry in Qld 2016

Source: ABS, *Census of Population and Housing, 2016, General Community Profile - G51*.

When changes in employment are mapped over the five years from 2011 to 2016 (Figure 2.5), the differences between south-east Queensland and regional and outback Queensland become more apparent. Across all sectors employment growth has been worse in regional Queensland than in south-east Queensland, even in the Agriculture and Mining sectors, and much worse in outback Queensland than the other two regions. It is likely that within regional areas, employment structure and changes in employment growth in smaller towns have been more similar to Outback Queensland (low rates of employment and growth), counterbalanced by higher growth in regional cities such as Cairns and Townsville.

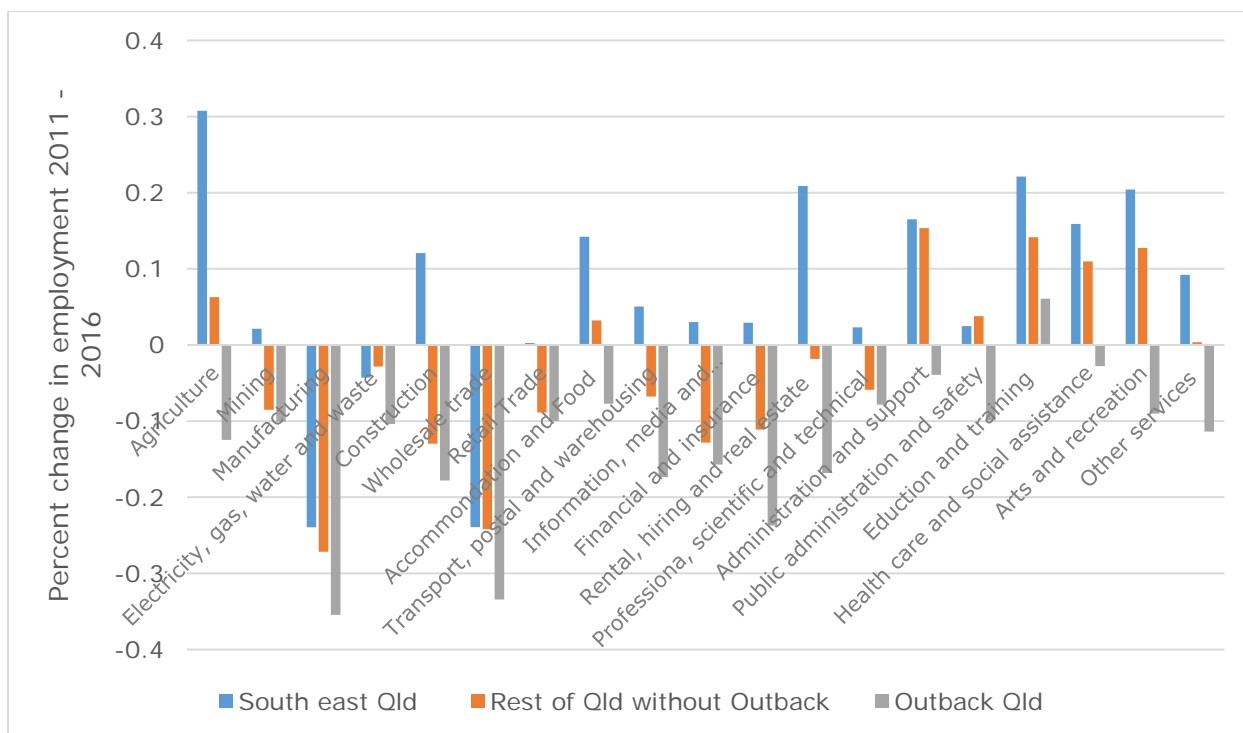


Figure 2.5. Percent change in employment by sector 2011 - 2016

Source: ABS, *Census of Population and Housing, 2016, General Community Profile - G51*.

It is notable that in many tertiary sectors there were declines in employment in regional and outback areas but growth in south-east Queensland. The only sectors that had strong employment growth in this five-year period were Administration, Education, Health and Recreation sectors. Among the issues of particular note for regional areas are:

- Employment growth was negative across all sectors for Outback Queensland, except Education.
- Employment in Agriculture grew at a much faster rate in south-east Queensland, perhaps because of greater specialisation, even though this sector is normally considered the mainstay of regional growth,
- The downturn in the mining sector after 2012 led to a decline in regional and outback employment in this sector, yet an increase in mining employment in south-east Queensland, perhaps driven by increasing mechanisation and fly-in/fly-out operations.
- There was a decline in Professional, Scientific and Technical employment in regional areas, suggesting that transformation into a 'new' information-age economy is confined to south-east Queensland.
- In the Accommodation and Food Services sector, which closely maps to the tourism sector, there has been limited growth of employment in regional areas and negative growth in outback areas, which indicates that the recovery in the tourism sector has not had a major impact on regional economies overall.

Another way of viewing the economy in rural Queensland is to identify the number of business registrations by sector and area. This is done across regions in the figures below for the most important sectors for regional areas in Queensland:

- Agriculture (Figure 2.6)
- Mining (Figure 2.7)
- Manufacturing (Figure 2.8)
- Construction (Figure 2.9)
- Accommodation and food services (Figure 2.10).

Results show that, apart from agriculture, South-east Queensland dominates where businesses are registered. When compared to employment across sectors and regions, this indicates that many businesses in regional areas are subsidiaries of firms based in south-east Queensland. It is also notable that growth in the number of businesses in regional areas is generally low or negative, apart from Accommodation and food services in Townsville and Toowoomba.

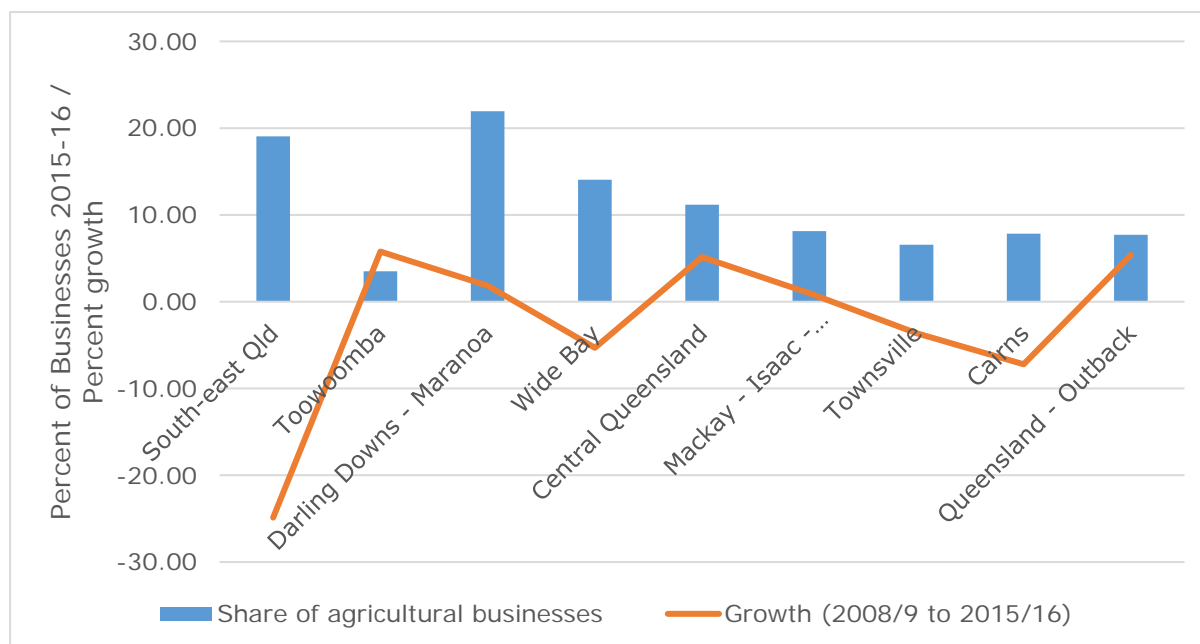


Figure 2.6. Count of Agricultural businesses by region (2015-16)

Source: ABS 8165.0, Counts of Australian Businesses, including Entries and Exits, various editions, through the Queensland Government Statistician's Office (QGSO).

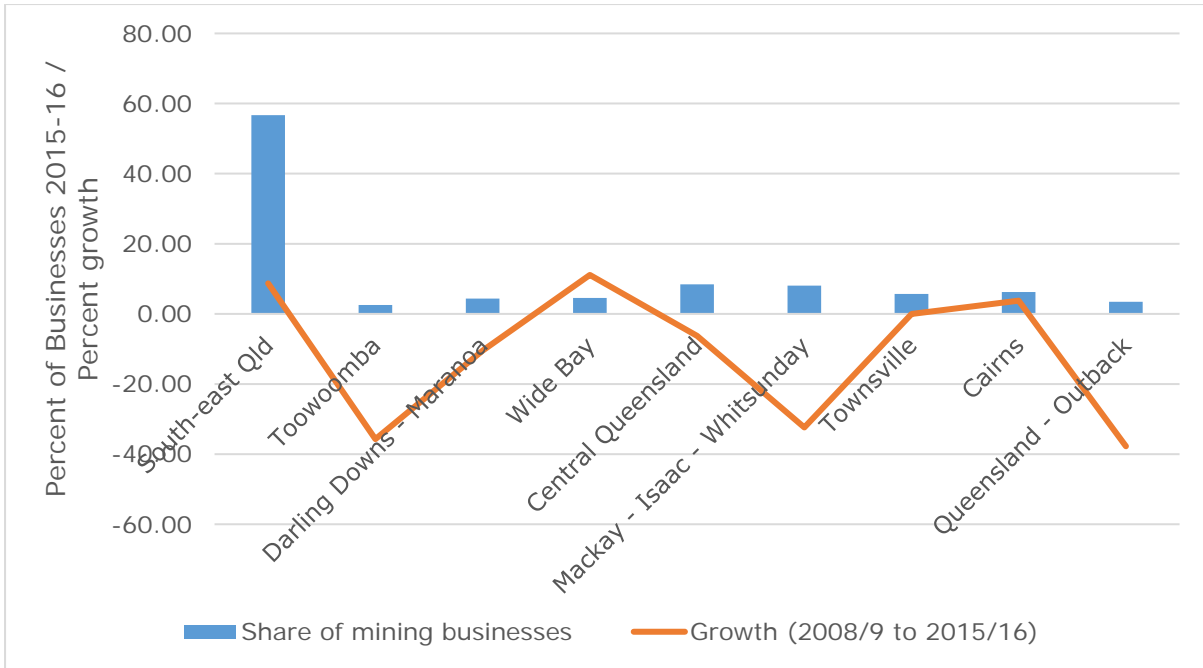


Figure 2.7. Count of Mining businesses by region (2015-16)

Source: ABS 8165.0, Counts of Australian Businesses, including Entries and Exits, various editions, through the Queensland Government Statistician's Office (QGSO).

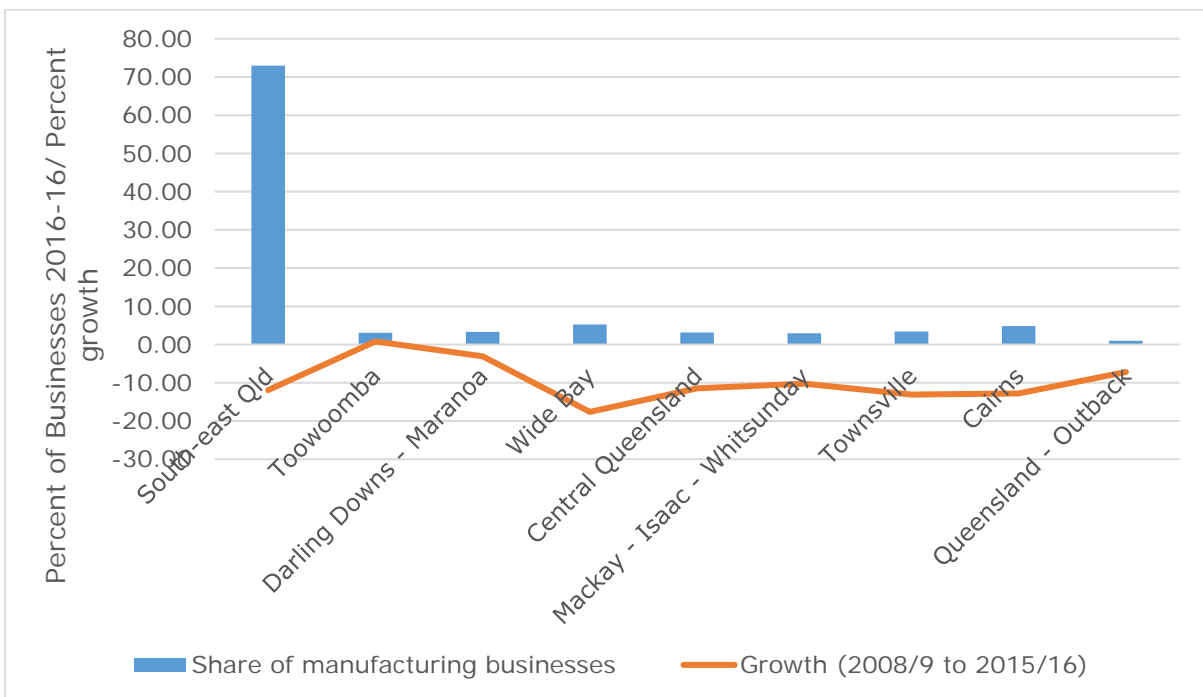


Figure 2.8. Count of Manufacturing businesses by region (2015-16)

Source: ABS 8165.0, Counts of Australian Businesses, including Entries and Exits, various editions, through the Queensland Government Statistician's Office (QGSO).

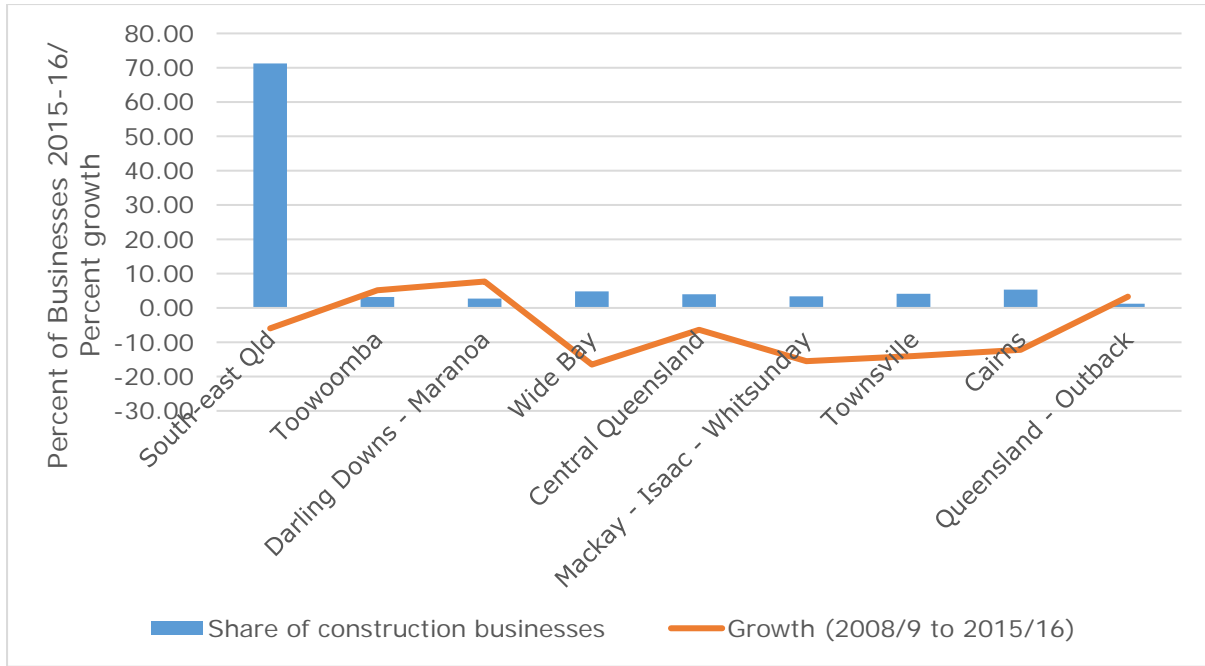


Figure 2.9. Count of Construction businesses by region (2015-16)

Source: ABS 8165.0, Counts of Australian Businesses, including Entries and Exits, various editions, through the Queensland Government Statistician’s Office (QGSO).

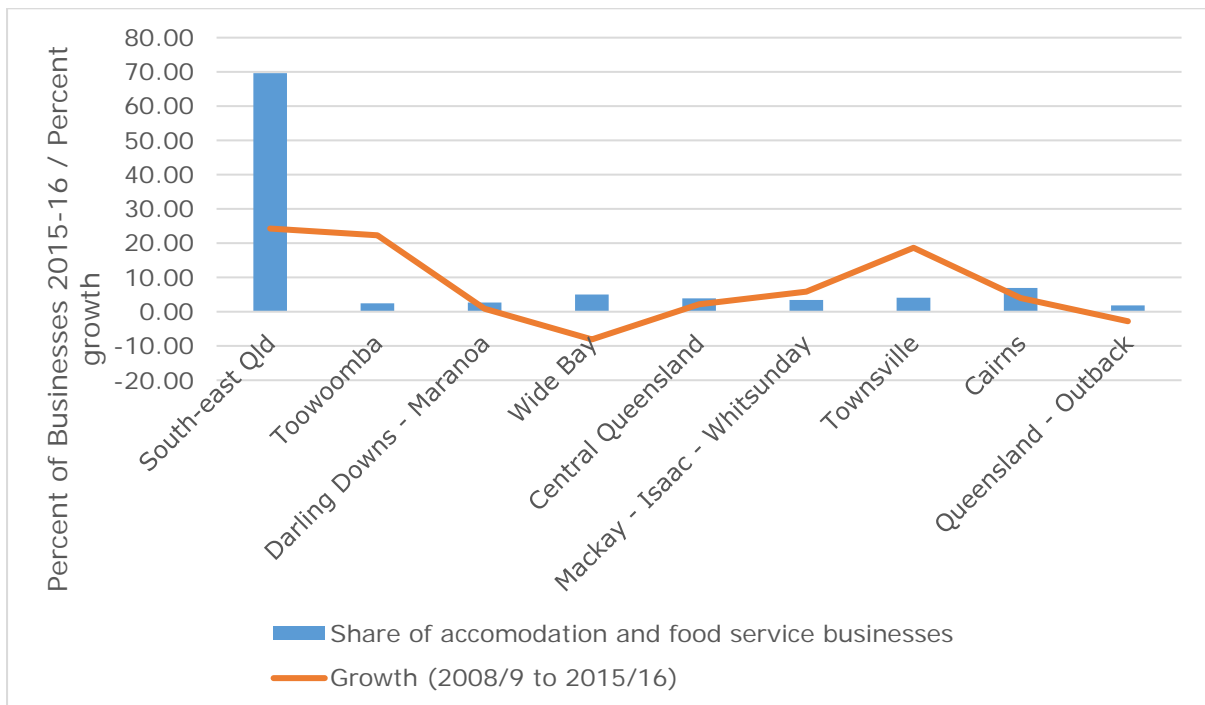


Figure 2.10. Count of Accommodation and food services businesses by region (2015-16)

Source: ABS 8165.0, Counts of Australian Businesses, including Entries and Exits, various editions, through the Queensland Government Statistician’s Office (QGSO).

Agriculture underpins the economy of many rural areas, so is worth a closer examination. The value of agriculture output by region is shown in Figure 2.11

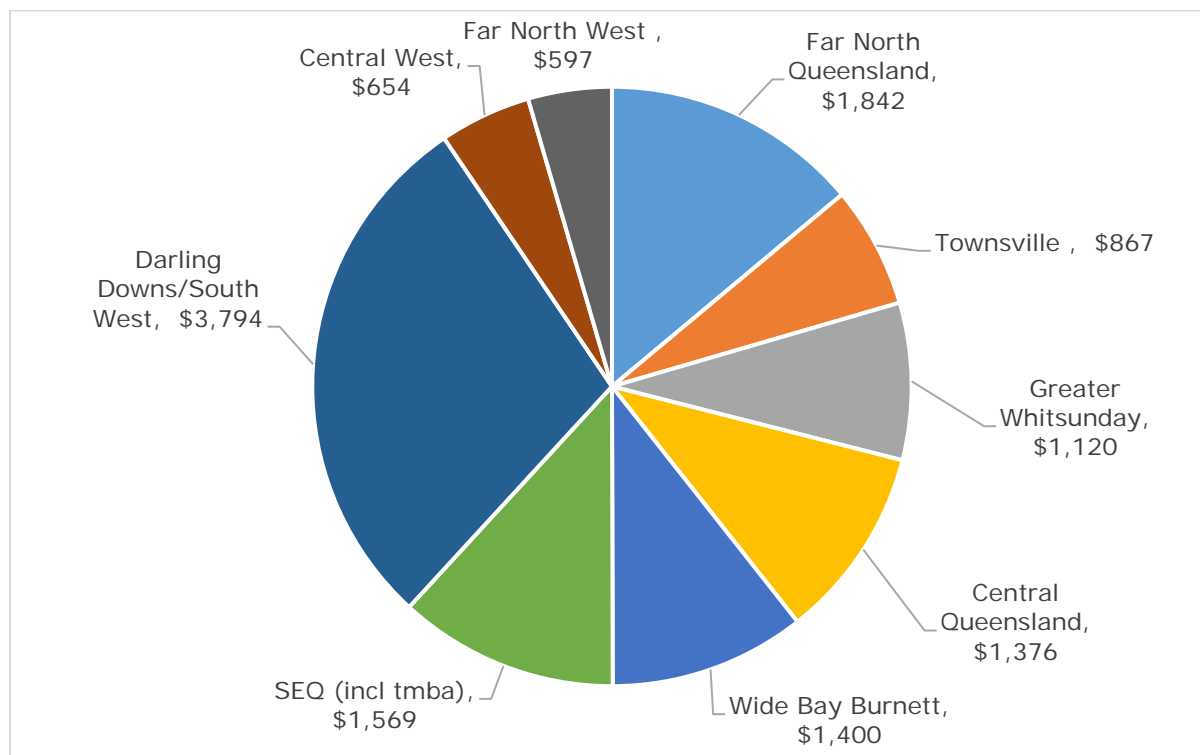


Figure 2.11. Value of Agriculture (\$m) by Region - 2016

Source: ABS 75939, Value of Agricultural Commodities Produced Australia, 2010-11 & 2016-17 editions.

One important feature of agricultural production in Queensland is that it is well dispersed across the regions; all regions have a substantial production base, even the more remote areas.

The change in the value of agricultural production over the five years from 2011 to 2016 is shown in Figure 2.12, showing that there have been increases in value of production for all regions (this may be associated with increases in commodity prices) and more efficient use of available resources. This is consistent with agriculture being a major stabilising industry underpinning the economy of rural and regional Queensland. The data reveals that while the largest value change was in the Darling Downs and Western Queensland, the largest rate of increase was in the Central Queensland region.

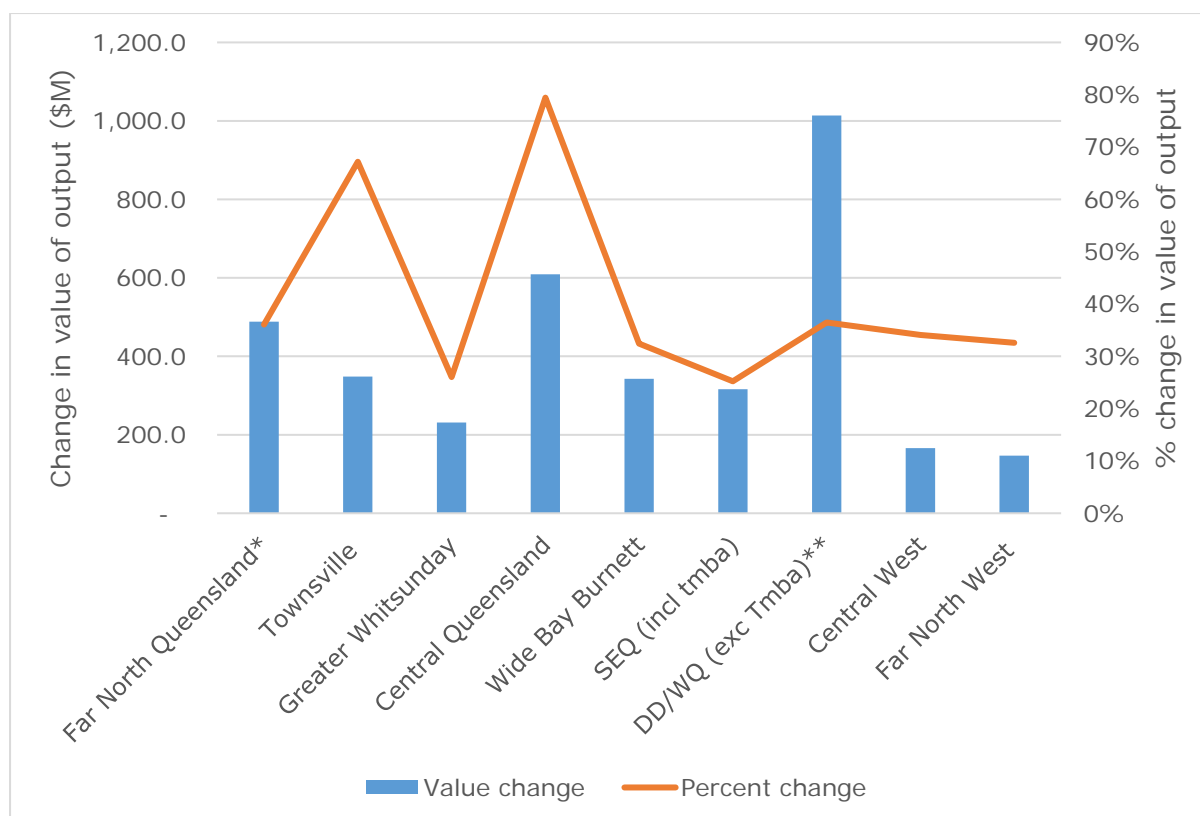


Figure 2.12. Change in the Value of Agricultural production 2011 - 2016

Source: ABS 75939, Value of Agricultural Commodities Produced Australia, 2010-11 & 2016-17 editions.

In the five years to 2017, the value of farm-gate agricultural production has increased by 12%, while the value of first-stage processing has increased by 9% (QDAF 2017). The largest increases in the value of production were in cereals and grains (31% increase) for farm-gate production, and cotton ginning (38% increase) for first-stage processing. Lowest growth occurred in vegetable production (4% growth) and sugar processing (1% decline) respectively. However, the volume of agricultural production in Queensland has only increased by 2.7% over the five years to 2017 (QDAF 2017), indicating that higher returns are largely a result of higher commodity prices.

3. Factors and Trends Influencing Queensland's Rural Economy

Many factors influence Queensland's rural economy. These include global trends in economic activity, wealth, consumer preferences and the use of technology. Some of these trends have direct impact on agriculture and value and supply chain industries such as changes in demand for agricultural products. Other trends, such as an ageing population and increasing urbanisation have an indirect effect on the rural economy. Other changes, such as increasing emphasis on personalised services have little or no impact on industries in rural Queensland. Conflicts over natural resource use (e.g. biodiversity protection, water quality and vegetation management) can both have an impact on willingness to invest in further agricultural development, but may also drive innovation in some sectors.

Not only do some key trends influence agricultural industries but how policy is formulated and implemented, in response to current and emerging issues, has its own impact on economic outcomes. For example, the Murray Darling Basin Plan is a policy response to water scarcity, and the irrigation reform involved in the plan has had a major effect on some irrigation communities.

The many trends influencing Queensland rural economy can be collated into four main changes:

- Economic change that creates (or diminishes) new demand,
- Technological change that alters regional business models,
- Environmental change that influences agricultural assets and production systems,
- Social and demographic changes that affect demand for rural products.

3.1. Economic change

Increasing global population and a growing middle class in Asia

The world's population is expected to increase from 7.3 billion in 2016 to 9 billion by 2043 (UNESA, 2012) or by 2050 (UNDF, 2016). A key feature of this increase will be the development of the middle class particularly in Asia. The world's middle class is expected to increase from 1.8 billion in 2009 to 3.2 billion by 2020 and to 4.9 billion by 2030 (Figure 3.1). By 2030, Asia will represent 66% of the global middle-class population and 59% of middle-class consumption, compared to 28% and 23%, respectively in 2009 (Kharas, 2010).

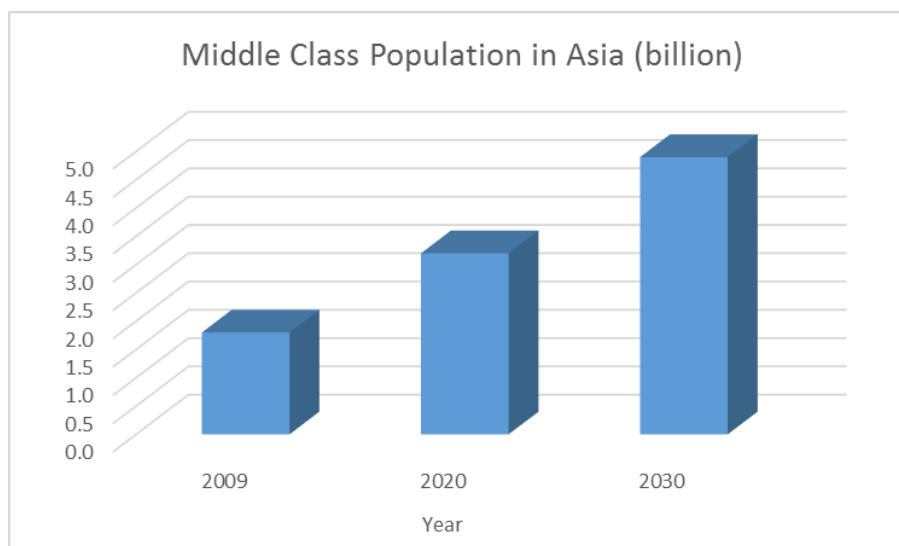


Figure 3.1. The growth of the middle in Asia (Kharas, 2010)

Increasing disposable income in Asia, Australia's proximity to Asia, opening up of traditional public sector markets in India and China, and increasing government investment in Asia, all contribute to important export opportunities for agricultural products (Deloitte, 2017; Hajkowicz et.al., 2012). Naughtin et.al. (2017) see emerging consumer demand in Asia as an opportunity to shift Queensland exports from bulk commodities into high value nutrition products. Hajkowicz et.al. (2012) argues that this is part of an overall shift in economic power from west to east. The growing disposable income of the Asian middle class also means major rural tourism opportunities.

These opportunities are reflected in Australia's priority of developing further trade links with Asia outlined in the "Australia in the Asian Century" White Paper. It also involves increasing trade opportunities in the wider pacific and in non-traditional markets (such as Russia) (Australia in the Asian Century Task Force, 2012).

The development of a global market

Markets are becoming increasing global with improvements in transport logistics, product handling and the development of global agribusiness and value chains. The ongoing development of free trade agreements between Australia and several Asian and Pacific trading partners increases access for agricultural products into these markets. However, these agreements can also increase international competition in domestic markets.

The relatively high cost of labour in Australia, and large distances and limited infrastructure in regional Australia, can limit agriculture's global competitiveness. However, the "clean green" status of Queensland's agricultural produce such as organic rangeland beef, is a considerable advantage.

The continued dominance of small business

The economy in Australia continues to be dominated by small business. 62% of the total workforce is employed in small business. 97.5 per cent of businesses in Australia (around 2.7 million) have a turnover of \$2 million or less. Of all small

businesses, 36 per cent are sole traders; 28 per cent are companies and 23 per cent are trusts. (Phillips, 2015). This is likely to continue particularly in rural businesses, including agriculture, where family partnerships and companies dominate the number of farms and production. Yet, corporate agricultural operators are gaining an increasing proportion of total production.

Despite a lot of commentary on the “casualisation” of work and greater self-employment, these aspects of the workforce have not necessarily increased. Casual employment has remained generally steady over the last 30 years. It has changed little from 21.5% in 1992, 24.5% in 2005 and 23.9% in 2013 (Kryger, 2015).

Self-employment is also little changed from 20% of the Australian workforce in 1998 to 18% in 2015 (Phillips, 2015). However, the number of self-employed people who are sole traders – often referred to as micro-businesses or freelancers - has grown from 6.7% of the workforce in 1978 to 9.0% in 2013 (Phillips, 2015).

3.2. Technological change

Expanded access to digital connectivity, and the rapid development of the digital economy, has major implications. It has three main impacts. First, the use of technology in agriculture and related industries will continue to develop, such as automated on-farm technology, RFID monitoring of products in value chains, immediate access to market intelligence and production data, and digitally managed marketing and quality assurance. This will further improve production efficiency, product quality and logistics. It’s also likely to continue to reduce labour demand in agriculture but this is likely to be in routine work, with increased demand for skilled technology-based labour. Agricultural technology itself is a major export opportunity predicted to be worth \$100billion by 2030 (Naughtin et.al., 2017).

Second, regional business models will change and some economic activity will become more independent of location. Rural business owners will need to develop services and operate their business using greater technology. Teleworking is likely to increase (Hajkowicz et.al., 2012). In addition to encouraging major rural employers (such as abattoirs and feedlots) that provide employment, increasingly, people may be attracted to rural communities and employ themselves in a digital business. Digital “disruption” will continue such as local physical businesses being bypassed by internet shopping and direct ordering.

Third, regional businesses will need to have improved digital access and competence. Internet connection and mobile phone coverage is not as good in regional Queensland than in major centres. While the coverage, speed and reliability of the service will remain key issues, access to digital technology will improve. This will mean greater access to services, such as ehealth, distance education and some business services. It also challenges the workforce to become more competent with digital technology and skilled with internet-based commerce (Naughtin et.al., 2017). Rural businesses also need to become more familiar and competent with digital technology as access improves.

In the technologies context, new approaches to infrastructure development in Queensland should also be considered as an important driver of change. Progressive sealing of the Peninsula Development Road, for example, is opening up new opportunities for agriculture, while a focus on inland and northern roads can also pay a productivity dividend in the agricultural sector.

3.3 Environmental change

Natural Resource Constraints

Natural resources – water, soils, energy, vegetation and minerals - will continue to be constrained. World population growth and annual economic growth in developing countries - estimated to be 4.1% to 4.4% between 2011 and 2017 (IMF, 2012) - will put increasing pressure on limited resources. This is increasing the need for businesses, governments and communities to innovate and adapt to resource scarcity.

These pressures will contribute to global water scarcity and major resource conflicts. Examples are water allocation in the Murray Darling Basin and vegetation management in central and north Queensland. At the same time, world food and energy demand is expected to rapidly increase with higher and more volatile food prices (Hajkowicz et.al., 2012). Biofuel development will also create competition between agricultural production for food and for energy production.

Climate Change

Continued climatic variation remains a key risk that is constantly managed by landholders particularly in the pastoral zones of Queensland. Yet, in the northern pastoral zone of Australia, which includes much of inland Queensland, climate change is expected to increase average temperatures year-round with more hot days. Climate change is expected to increase the frequency and severity of droughts and increase the intensity of rainfall events (CSIRO, 2016). Changes to annual rainfall are possible but unclear because natural variability in rainfall may mask long term climate change trends (CSIRO, 2016).

These changes will have a potentially major impact on agriculture. Increased temperatures and more severe weather events will affect agricultural production, infrastructure, cash flow and viability. Adaptation to climate change provides opportunities. For example, the emissions reductions involved in managing climate change, and an associated emphasis on renewable energy, are a major opportunity, particularly with regard to solar and wind power in rural areas.

Other environmental trends are biodiversity decline, habitat fragmentation, deforestation, sea level rise, increase in protected areas and threats to major environmental assets such as the Great Barrier Reef (Deloitte, 2017; Hajkowicz et.al., 2012).

3.4 Social and demographic change

An increasing aged population

Australia's population is becoming increasingly aged. The number of Australians aged 65 and over is expected to increase from 2.5 million in 2002 to 6.2 million in 2042. That is, from 13 per cent of the population to around 25 per cent. The most rapidly expanding proportion of the population is Australians aged 85 and over with growth expected from 300,000 in 2002 to 1.1 million in 2042 (Australian Government, 2004). Rural areas have a considerably greater proportion of aged people than the rest of the country. The workforce in agriculture is also more aged than in other industries.

This means that the rural economy needs to adapt to the products and services that older consumers want, such as tourism, age-specific housing, and health care. It also means that succession in agriculture and barriers to entry for younger producers needs to be addressed. Retirement income and aged care services will be a growth area of the economy (Deloitte, 2017). Communities in the region will need to provide increasing services and support for older residents to maintain their quality of life and retain them in smaller communities.

Preferences

Consumer preferences and community expectations are likely to have increasing influence on economic activity (Hajkowicz et.al., 2012). Consumer demand for agricultural products and food has traditionally been determined by price and product quality. However, other social factors, and moral and ethical choices, are likely to become more important. For example, animal welfare is likely to become more important for consumers in their purchasing choices for beef, lamb and other animal products (Carrington and Pereira, 2011). These considerations are also important in government decision-making such as in managing live animal export, intensive livestock production and in the expansion of the macropod industry.

Consumers are also increasingly demanding "fair trade" agricultural products (Raynolds, 2009) and food free of chemical use. Schemes have been developed to assure the environmental responsibility of production systems such as the Australian Landcare Management System (Gleeson, 2006).

In rural Queensland, there is the possibility of people being attracted to regions and creating their own employment through new micro-businesses and digital connection. Yet, Sorensen (2000) argues that increasing lifestyle preferences makes rural Queensland less desirable with people preferring to live in coastal zones.

Other social and demographic trends are greater investment in education, arts culture and entertainment, increasing demand for personal services, greater single person households, greater expenditure on tourism and experiences, and a rise in both the use of social media and face to face social interaction (Deloitte, 2017; Hajkowicz et.al., 2012).

4. What Makes a Resilient and Vibrant Rural Economy?

Many regions and communities across Queensland are highly vulnerable to economic change and other shocks leading to economic consequences. Most vulnerable rural places, however, are not unique in that consequent policy and planning interventions need to focus on supporting regional or community-scale adaptation in order to avoid or to mitigate economic, as well as social and natural resource impacts (Gooch and Rigano 2010). Community adaptation in the face of economic change, however, needs to respond to many emerging social and economic factors such as:

- Demographic instability in communities with limited experience of extreme events;
- Vulnerabilities due to low income, high unemployment and under-employment, boom-bust cycles and related issues of housing access and affordability;
- Strained disaster response systems, particularly outside major urban areas, including infrastructure (roads, hospitals and shelters) vulnerable to major events;
- Specific vulnerabilities of core economic industries (e.g. tourism and agriculture); and
- A high proportion of significant physical and mental health impacts compounded by well-defined health, justice and social disparities (Dale et al. 2011a).

In considering community resilience, it is important to remember that individual and business resilience is strongly linked to community (or regional) scale resilience. An individual's or a businesses' resilience, has been shown to be a process arising from contextual social, environmental and economic factors. Such resilience contributes to community resilience at an aggregate scale. So resilience to economic change at both scales has also repeatedly been found to rest on relationships between individual and community factors (Luthar 2006).

In this context, the concept of recovery from economic shock (or avoiding it) is important in economic development: how well do people, businesses and social institutions and structures bounce back from change (Masten 2001). Within this, the concept of human sustainability is important: the capacity to continue forward in the face of adversity (Bonanno 2004). This is an important aspect of community resilience in the face of economic change. Adaptive individuals and communities confer a capacity for resilience to their constituents and vice-verse.

In contrast to individual resilience, community-scale resilience is described differently in various studies and defined more loosely. In general, descriptions take three different forms: a) resistance, which refers to the ability of a community to absorb economic shocks (Geis 2000); b) recovery, which focuses on the speed and ability to recover from such shocks (Adger 2000); and c) creativity, which addresses the ability of a social system to maintain a constant process of creating and recreating, so that the community not only responds to economic adversity, but in doing so, reaches a higher level of functioning (Kulig and Hanson 1996).

Adger (2000) defines community-scale social resilience as the ability of communities to withstand external shocks to their social infrastructure. Like ‘individual resilience’, it must account for the economic, institutional, social and ecological dimensions of a community. Community-scale resilience is hence related to the overall population and its stability and it is integrally linked to individual resilience, with the temporal scale playing a prominent role.

Despite its importance in economic development, the literature has struggled to find ways to suitably assess and apply resilience indicators to underpin action that might improve resilience. As a way of helping to describe resilience at the community and the regional scale, Dale et al. (2011) have gathered multiple “lines-of-evidence” (both quantitative indicators and other knowledge sets) into five clusters of key resilience attributes. These attribute clusters (Table 4.1) collectively contain the basic knowledge necessary to track and measure resilience at any scale. The community and regional scales are most relevant to RECoE.

Table 4.1: Four basic clusters of attributes of community resilience.

Cluster	Resilience Attributes
Knowledge, Aspirations and Capacity	<ul style="list-style-type: none"> • Community individual, family and business awareness of change factors and natural resource sustainability • Education levels and spread across the community. • Skill levels and spread across the community. • Aspirations for sustainable natural resource management. • Individual/business leadership/ complex problem solving.
Governance	<ul style="list-style-type: none"> • Connectivity and trust within and among key decision-making institutions and sectors within the community. • Adaptive management capacity of key decision-making institutions and sectors within the community. • Use and management of integrated knowledge sets
Economic Viability	<ul style="list-style-type: none"> • Diversity and quality of growth in economic activity. • Vulnerability of natural and energy resource base. • Community inclusiveness and economic fairness/ equity. • Community workforce participation and employment.
Community Vitality	<ul style="list-style-type: none"> • Community demographic stability. • Wellbeing/ happiness within the general community. • General community health and disparities. • Community services access, and disparities. • Measures of housing, accommodation and accessibility. • Community aspects of built infrastructure vulnerability. • Community safety and risk management factors.
Cultural Factors	<ul style="list-style-type: none"> • Cultural integrity and diversity within the community. • Cultural vibrancy within the community. • The existence and management of cultural heritage. • The existence and management of natural heritage.

Table 4.1 shows that interdependence between community, cultural and economic factors in developing vibrant resilient regions. This is consistent with many established processes for supporting economic development and resilience. One of the best known sets of strategies are those of Shaffer et.al. (2004):

- Improving the efficiency of existing firms,
- Developing new local business starts,
- Recapturing money that is taxed away,
- Reducing economic leakage e leaks out of communities,
- Increasing the flow of money into communities.

Consequently, the above suggests that economic development does not depend just on managing economic levers in isolation from building community resilience. It fundamentally includes the breadth of attributes shown in Table 4.1 including elements such as:

- Building effective local ownership and engagement;
- Redefining assets and progressing regional competitive advantage;
- Lifting investment in infrastructure to support business investment and economic transition;
- Supporting innovation and entrepreneurship;
- Developing networks and collaboration between business;
- Having a supportive policy environment;
- Anticipating change and actively managing economic transition; and
- Managing traditional boom-bust cycles in regional and rural community economies.
- For these reasons, efforts to build economic development in Queensland's rural communities will need to sit within a clear regional and community development and resilience building context.

5. Issues, Opportunities and Challenges in Rural Economic Development

Rural economies related to agriculture face many issues, opportunities and challenges. Many of these arise from the long term trends and current situation of Queensland rural economy already discussed. Key issues include market development, managing variability, limited profitability, rural debt, integrated production systems, changes in employment and Indigenous rural economic development.

Market Development

Queensland agriculture is well positioned to benefit from expanding Asian markets in particular. Global population increase and an expanding middle class in China and other Asian countries (as explained earlier) is increasing demand for Australian agricultural products and the expansion of agricultural exports is a key theme in Australian agriculture (DEWS, 2013). The development of logistics, quality assurance, and marketing arrangements for Australian exporters are important to expanding exports.

The expansion of rural exports and the development of emerging markets have been key motivations behind the establishment of Free Trade Agreements with New Zealand, India, Korea, Indonesia, Japan and other countries. At the same time, market access remains an ongoing issue. Biosecurity (such as disease detection in live lamb exports, and chemical residues in beef) have been seen as a trade issue influencing market access. Animal welfare (such as in the live cattle export) has also developed arguably as a market access issue.

Limited Profitability

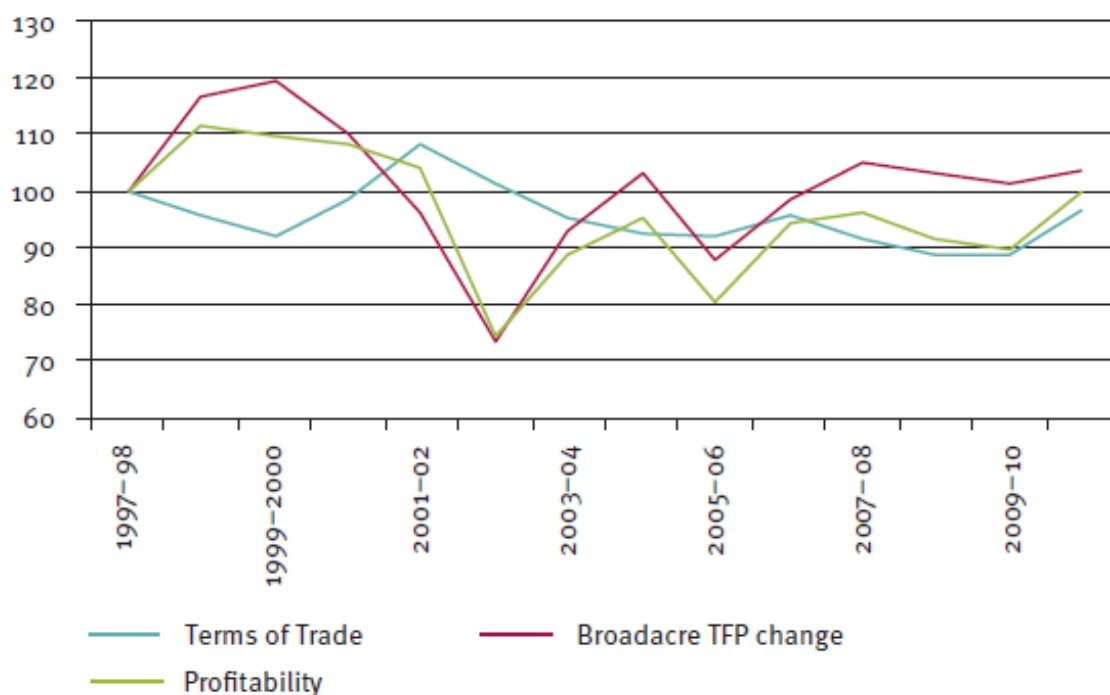
The profitability of agriculture varies across industries and regions. For example, intensively developed irrigation areas on the Darling Downs have average revenues of \$2500-3000/ha and grazing areas in the Maranoa have average revenues of less than \$100/ha (Huth et. al. 2014).

In general, a proportion of producers in all industries have a high level of profitability. Yet, there is a large "tail" of producers in most industries that have a debt structure and scale of operation that limits profitability. Overall, agriculture has limited profitability. Average farm business profit (gross income less all costs except tax) for Queensland farms for the five years up to 2011-12 is \$20,700 and 29 per cent of farms had a negative cash income (DAF, 2012) (Table 5.1). On average, farmers in Australia over the same period had a relatively high equity ratio (89%) and a quarter of farms had interest to receipts ratios greater than 15 per cent (ABARES, 2014).

Table 5.1 Farm financial performance in Queensland (ABARES, 2014)

Measure		Average for five years to 2011–12	2013–14
Income			
Farm cash income	\$	84 024	39 407
Cash operating margin	%	22	12
Farms with negative cash income	%	29	33
Farm business profit	\$	20672	-77682
Rate of return to total capital used	%	1.2	-0.7
Debt			
Farm business debt	\$	612243	586281
Equity ratio	%	89	87
Farms with interest to receipts ratio > 15%	%	25	26

Prices for agricultural products have not risen at the same rate as input costs. This has led to a narrowing margin between gross returns and costs that has set a long term trend of gradually decreasing terms of trade for agricultural producers in Australia (Figure 5.1). International and domestic food value chains have become more corporatised leading to allegations of farmers being offered unviable prices and suppliers having unreasonable contract conditions at least on some products, such as milk (Germov and Williams, 2008). However, opportunities have also developed for primary producers to participate more directly in value chains (ACC, 2015).



Total Factor Productivity: Ratio of output quantities and input quantities
 Terms of Trade: Ratio of price received for products and input prices
 Profitability: Gross income from products minus total costs of production.

Figure 5.1. Total Factor Productivity, Terms of Trade and Profitability for commercial agricultural enterprises in Australia from 1997 to 2011 (Dahl et. al. 2013)

Average returns from agriculture hide large disparities between individual enterprises. With respect to profitability, the top 25 per cent of farms in Queensland are responsible for well over half of total output and most capital investment (DAF, 2014). Their rates of return are significantly higher than average, over a long period of time. These top 25 per cent of farms are found among all farm sizes, industries, ownership structures and regions.

Rural Debt

Primary producers incur debt to invest in their businesses but some debt accumulates as “bad” debt that threatens business viability. This is compounded by interruptions to cash flow due to prolonged drought (such as the 2013-14 drought and the 2000-2010 “Millennium drought”) and serious flooding events (such as in 2011 and 2012).

Total debt owed by rural landholders in Queensland has increased 19 per cent from 2009 to 2011 to \$16.97 billion (QRAA, 2012). The average debt per borrower increased in the same time period by \$152,000 to just over \$1 million per borrower (QRAA, 2012). Since 2011, rural debt in Australia as share of agricultural output has declined to 2006 levels (RBA, 2014). While over 80 per cent of total debt was incurred by viable or potentially viable borrowers, there were also approximately 11% of producers under considerable financial stress (Carrington and Pereira, 2011; QRAA, 2012, DAF, 2014).

Rural Workforce

Regional workforce development and the attraction and retention of workers in rural areas of Queensland are major issues. The number of Queenslanders employed directly in agriculture has decreased from over 80,000 in 1985 to 60,000 in 2013. This represents an average rate of decline of 1.1 per cent per annum. This rate of decline is projected to continue in the medium term to 2018 (Department of Employment, 2014). In Australia, 18,000 people ceased employment in agriculture in the year from 2011-2012 (NFF 2012).

The cost of labour has contributed to farms reducing paid employment and many farms are being run by family labour supplemented by short term contractors. AgForce (2012) quantified the labour shortfall in Queensland's beef and sheep meat and grain industries in 2012 as 5,000 skilled full-time employees and 17,000 casual employees. The average age of Australian farmers is 52 (12 years above the national average for other occupations (NFF 2012)).

In industries with seasonally high demand for unskilled labour, such as horticulture, international backpackers and new migrants are a major source of labour.

The processes for workforce development need to meet changing industry demands and be supported by investment and vocational development policy. The attraction and retention of workers in regions remains an ongoing issue for rural economic development.

Integrated Production and Marketing Systems

Production systems are becoming more integrated. There has always been established agricultural production systems such as the breeding and then fattening of cattle. Now these systems are far more integrated such as contract grain growing for intensive animal operations, "backgrounding" of cattle for feedlotting, and vertical integration with companies under single ownership growing, packing, transporting and marketing produce.

On-farm production is also becoming more integrated with marketing. The development of logistics and global trade allows rural produce to be marketed directly in global markets. There is also detailed market specification, quality assurance and market feedback. This means that producers and wholesalers need to actively target changing market requirements closely.

Technology

Technology in agricultural and related industries is developing rapidly such as driverless tractors, "smart" weed detection and spraying, virtual fencing, RFID tracking of produce, and computer scanning in fruit grading. This contributes to a reduction in "traditional" rural labour and increases demand for labour with skills in technology such as GPS tracking, GIS in property planning, and "smart" production technology. The long term cost savings from technology are offset by up-front cost, that many producers may not be able to afford.

Digital Economy and Connectivity

The digital economy in rural Queensland is a major opportunity. Digital connection allows existing businesses across all sectors to better access information, communication, technology and markets. It allows businesses to market goods and services from rural and remote locations and creates opportunities for new internet based businesses to be established and for people to telework. It also allows rural people to better access services, such as remote health and distance education, and improves liveability in rural communities.

The development of the digital economy is limited by often poor (but improving) broadband and mobile phone connection. Major centres have high speed broadband access and the Skymuster satellite provides coverage in remote areas. Yet, internet speed, the reliability of connection, and mobile phone coverage is limited in many rural areas. Business capacity and motivation to use digital technology is also a limiting factor.

Scale, Profitability and Tenure

In most agricultural and related industries, profitability is closely associated with scale. Margins on a production unit scale (such as \$/ha) are often low in bulk commodity industries such as grain growing or cattle grazing. Hence, scale and premium quality are important to ongoing profitability. Many producers in mainstream industries have limited scale, opportunities to achieve premium produce quality, and limited capacity to make further efficiencies in production. This leaves them vulnerable to climate and market variability. There are particular regions, such as the rangelands, and particular industries that are vulnerable, such as the dairy industry (and the wool industry in the 1990s).

Agriculture and marketing are also subject to increasing corporate and overseas ownership (subject to Foreign Investment Review Board approval). This provides capitalisation that many domestic investors can't provide. It also often leads to vertical integration in production and marketing. However, there are concerns about implications for local employment and movement of profits offshore.

Managing Variability

The Queensland rural economy is subject to climatic variability, changing markets and prices, and policy decisions. Droughts, in particular, are a normal component of rural production. They mean that areas such as the rangelands are areas of often only periodic production. Yet, prolonged drought creates a severe interruption to cash flow, prolonging rural debt and leading to long recovery periods. Hence, economic development in Agriculture and other rural industries in many sectors is hampered by there being only periods of production outside drought and drought recovery. This increases the importance of economic diversification in industries that are not necessarily weather dependent.

Market variability is punctuated by major market changes that can lead to major restructuring. For example, the abolition of the wool floor price in 1996 saw many producers in Queensland move from sheep to cattle. The sheep flock dropped from over 30 million in the 1990s to less than 2 million in 2017. Dairy

Deregulation in the early 2000s, saw two thirds of producers leave the industry and only approximately 500 dairy farms now operate in the state – although many are major producers. The live cattle export ban in 2011 had major effects on the industry and cattle suppliers.

The rural economy is also subject to boom-bust cycles. Periodic high resources prices (such as global coal and iron ore prices from 2013-2016) can lead to periods of increased investment, employment and economic activity in rural areas. From 2012-2016, high resources prices coincided with the rapid development of the coal seam gas industry in southern Queensland. This led to a “boom” in central and southern Queensland. Since 2016, the economy has returned to non-boom levels. This does not represent a complete “bust”, and the minerals boom only influenced specific regions. Yet, episodic booms can create perverse approaches to economic development and long term rural development relies on consistent policy and investment approaches.

Diversification and New Industries

The diversification of rural economies is a priority. This includes diversification within sectors such as developing organic agriculture, and diversifying the industry mix such as developing rural tourism.

Specific opportunities for diversification include:

- The ecosystem services economy such as valuing vegetation , water and carbon capture,
- The development of functional foods and the health aspects of food,
- Supporting alternative energy generation such as biofuels, solar and wind energy,
- Organic agriculture,
- Emerging opportunities in stock feed export,
- Opportunities for intensification in the pastoral sector such as forage and grain cropping,
- Rural tourism.

Diversification involves economic transition which requires investment of venture capital, entrepreneurship and innovation, market investigation and development, and an enabling policy environment.

Environmental impact of agriculture

The real or perceived environmental impact of agriculture remains an issue. Rural producers argue strongly for their position as land stewards and there is strong evidence of good environmental management. Yet, the reputation of agriculture is negative in terms of habitat destruction, soil erosion and pesticide use. Community reaction to issues such as land clearing and agricultural runoff on the Great Barrier Reef mean that agriculture needs to continue to manage its environmental impact and demonstrate its environmental stewardship.

The “clean and green” reputation of Australian agriculture is a major advantage in international markets.

Land use conflicts, particularly over water and vegetation, are likely to continue. In the context of environmental disputes, however, the Queensland Government is undertaking initiatives to support agriculture such as protecting Strategic Cropping Land, vegetation management legislation, addressing pressures on energy and water pricing, and supporting agriculture in land planning frameworks (NWC, 2010; DERM, 2011; LARP, 2012; DNRM, 2013).

Indigenous Rural Economic Development

Indigenous communities are a key demographic and cultural component of rural communities and economies. At the Australian and Queensland government levels, both political parties continue to see their key ‘closing the gap’ strategy as comprising welfare or supporting the integration of Aboriginal and Torres Strait Islander people into the mainstream economy (NAILSMA 2013). In the emerging post-native title determination environment, however, there has been little focus on supporting traditional owners to build a durable and continuously improving capacity to plan for their own future use and enjoyment of country to generate wealth and resolve social problems. In many developed nations, Indigenous-led development is becoming a fast-growth economic sector in rural economies. Based on this understanding of Commonwealth policies, program agenda, and the consistent demands for support from traditional owners, several priority policy and research issues emerge based on the key issues raised by several reports (see NAILSMA (2013; COAFSOWG 2015; Cape York Institute 2014). These particularly include: (i) continuing to resolve property rights issues; (ii) supporting whole-of-country approaches to planning; and (iii) improving the governance of traditional owner institutions related to managing land and sea resources.

6. Governance for Regional Queensland

Governance in regional Queensland has long been beset by the problem that the vast majority of political power sits within the metropolitan south east corner of the State. This means that rural voices both tend to be more invisible and generally less influential in the primary policy, legislative and program priorities of State-based governance. This does not mean rural voices do not matter within this system, but it does mean special attention is required to ensure these voices are indeed heard within the governance system. To help achieve this, the State currently does have some significant mechanisms to strengthen regional and rural voices. These include:

- A strong focus on regional and rural issues within the Queensland Plan (a key component of the State's planning architecture);
- A strong approach to Community Cabinets within regional communities and supported by Regional Managers Coordination Networks;
- Relatively regionalised approaches to supporting economic development (through support for Regional Economic Development Organisations and Regional Development Australia Boards, infrastructure and primary industries (via regionalised service delivery), natural resource management (via Regional NRM Bodies) and health (via Regional Hospital Boards); and
- Through a decentralised and relatively powerful approach to Local government.

These arrangements, however, could be strengthened to improve the voice of regional and rural communities and enhance community self-reliance. Ongoing problems continue to exist in:

- The continuation of disparate responsibilities and lack of integrated decision-making with respect to regional and rural communities; and
- Planning and development approval processes that may not adequately account for the needs of rural communities, impacting on economic development.

To resolve some of these problems, Dale (2014) suggests it is important for governments to empower regions to set the direction for, manage and monitor progress towards their own economic destiny. This needs to be achieved, however, while also keeping Queensland's regions well connected with the rest of the nation and the rest of the world. He refers to strong regional determinism and decision making within a wider national and global context as "endemic regionalism". Strong endemic regionalism is essential to securing a stable future for regions, preventing them simply becoming a remotely managed natural resource providers for the major cities and metropolitan regions.

Clear national and state policies that explicitly foster endemic regionalism would be a good thing for all Australian region's; not just Queensland. While the concept needs to be demanded by, and driven from northern regions, it equally needs both national and state-based policy frameworks that foster it. It needs to

be explicitly resourced and supported by tri-lateral commitment and resourcing from the Commonwealth, State/Territory and local government sectors.

Building on past experience across northern Australian, Dale and Bellamy (1998) outlined three cornerstone elements of what could best deliver a healthy, endemic system of regional governance. These systems generally need to:

- support individuals, communities and sectors in regions to develop their own decision making capacity (*capacity*)
- build stronger institutional arrangements that facilitate negotiated decision making among these interests (*connectivity*)
- develop and facilitate better understanding of what is known about the social, economic and biophysical workings of these regions (*knowledge*).

7. Overview of Policy Relevant to Rural Economies

7.1 Regional Development Policy Supporting Agricultural Economies

There is still much that needs to be done in lifting the capacity of key north Australian institutions with responsibilities in regional and local planning, resource management and economic development. This can happen through genuine attempts to build an effective scale and capacity for the operation of regional coordinative institutions. Examples include north Australia's Regional Development Australia Boards (RDAs), regional economic development institutions (like Townsville Enterprise Limited), Natural Resource Management (NRM) boards and local governments within the regional Queensland landscape.

Shared national, state and regional dialogue should determine the most cost-effective scale of governance, while maintaining a grass-roots focus on representation and service delivery. This could also be assisted through increasing support for devolved and cooperative regionalism among local councils at appropriate scales (see Dale 2014). Stronger regional institutions and local government would create more enduring and place-focussed regional leadership, delivering local outcomes.

7.2 The Need for Strategic Land Use and Infrastructure Planning

With regional Queensland being a highly contested landscape, there is limited bilateralism and bipartisanship in regional land use planning in key parts of the landscape where more extensive rural development might be possible. With respect to regional land use planning Dale et al. (2017) suggest that:

"LNP governments tend to see it as an impediment to development, whereas Labor governments have typically used it with regulatory zeal as an environmental protection mechanism ... Planning should be about providing everyone in the community with certainty".

To restore certainty for Indigenous, environmental *and* agricultural development-oriented stakeholders and investors, all jurisdictions in regional Queensland need to revisit the purpose of strategic regional land use planning and its ability to deliver long term security to all parties (JCU and CSIRO 2014). Without effective strategic land use planning, infrastructure planning and budgeting lags, and the possibility of strong trilateral agreement about infrastructure investment fades. More importantly, the opportunities for significant public-private partnerships also diminish.

In addition to this strategic land use and infrastructure planning problem, JCU and CSIRO (2014) and Dale (2013) also suggest that major agricultural development project approval systems should be about facilitating development in the right places while also securing agreed environmental and social impact assessment standards at a landscape scale. They should not be about bolstering development at all costs, *or* becoming an impassable barrier to capital investment. Hence, Dale et al. (2017) suggest that major project approval systems in regional Queensland have become too politicized and lack a clear underlying philosophy to guide their operational culture in rural and regional

communities. Greater coordination of major project approval systems need to be well coordinated from within regional Queensland itself.

7.3 Northern Development Policy Framework

Approaches to Northern Development

With breathtaking and cyclical regularity, northern Australian landscapes and communities have in past years become the focus of visionary policy narratives (Megarrity 2011). Many would think that there is one driving policy narrative focussed on developing vast mineral, water, energy and agricultural opportunities. In reality, however, at any one point of time, there are often several fragmented and potentially conflicting national, state and territory policy agenda of major importance to northern Australians and their land landscapes. Of highest profile, of course is the natural resources development focus of the *Whitepaper on Developing Northern Australia* (DPM&C 2015).

As outlined by Dale (2014), these complex and fragmented policy agenda are often driven from a south-to-north perspective because the primary political and financial power sits with southern governments, corporate and civil society groups with an interest in the north.

It is through the longer term Commonwealth-driven and development-oriented agenda, however, that the most explicit policy focus on northern Australia and the development of its land and water resources can be found. This agenda has been in the making for some 10 years and has included at least three national phases of effort to re-vitalise northern development (see Dale et al. 2014). These landmark processes and studies and the Coalition's subsequent Green and *Whitepaper* policy efforts have drawn on an ever-growing knowledge base and wide engagement. These efforts have identified growth prospects for major industries as well as attendant impediments and enablers.

In effect, while the prospects for both development and extensive conservation are good, the focus on building the evidence base and engaging local communities remains key. From a governance viewpoint, under the processes associated with the *Whitepaper*, the aligned Northern Australian Joint Parliamentary Committee presented an additional new opportunity for wider community engagement (Joint Select Committee on Northern Australia 2014). With the exception of the north's traditional owners, these processes were both heavily engaged and bipartisan (via the Parliamentary Committee) and informed (via the *Whitepaper* process). The Australian Government's final *Whitepaper on the Development of Northern Australia* explored some of the economic opportunities available to the north. The *Whitepaper's* implementation, however, has only just begun to focus attention on the north's Indigenous development and environmental sustainability challenges.

Importantly, however, as suggested by the *Whitepaper on the Development of Northern Australia*, there are great opportunities, but also, complex governance issues to be identified, analysed and resolved. Significant trade-offs will need to be negotiated and partnerships established between development, Indigenous and conservation interests. If we do this, the genuine opportunities in targeted agriculture, tourism, mining, fishing and forestry, carbon, conservation and

ecosystem services, tropical knowledge and other human services will grow. There is, however, a need to ensure this effort is underpinned by governance systems based on robust evidence and engagement, all with a focus on inclusive growth and regional liveability (Dale et al. 2014).

Through a pan-northern cooperative arrangements, there is a possibility of creating more integrative policy framework for northern development in agricultural communities and this could potentially result in more stable, adaptive and integrative forms of problem solving. Real policy innovation, however, will only emerge if northern Queensland and northern Australian stakeholders take up the challenge of framing and promulgating strong evidence-based policy ideas into these new arrangements. Key priorities recently identified through various processes that could benefit from a pan northern approach (if not a northern Queensland specific approach) include:

- More strategic approach to regional and land use planning;
- Energy reliability and security in northern Australia;
- Communications;
- Potable Water for rural and remote communities;
- Harmonisation of and improvement in tenure systems; and
- The creation of Ecosystem Service Markets.

Implementing the Northern Development Framework

Through the northern Australian Whitepaper process, there have been some significant steps towards greater bilateral and cross jurisdictional connectivity and cooperation across the northern Australian governance system that present opportunities for agricultural communities. As a key bilateral forum, the new Strategic Partnership (including the Prime Minister, two Premiers and the NT Chief Minister) presents a real opportunity to progress some sense of (COAG-like) agreement about major priorities for these communities in northern Australia. This forum has, to date, been under-utilised as the supporting Departmental architecture (through the Office of Northern Australia), has only been formed in recent years and will take some time to drive cohesive and significant new pan-northern policy agenda.

More importantly, until the appointment of Mathew Canavan as the new Minister for Northern Australia, there was not a strong political driver seeking a more portfolio driven approach through associated Ministerial Forums. The first Ministerial Forum of Northern Development Ministers has recently met in Darwin, discussing a range of currently committed and emerging issues.

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- More strategic approach to regional and land use planning;
- Energy;
- Communications;
- Potable Water;
- Harmonisation of tenure systems; and
- The creation of Ecosystem Service Markets.

7.4 Natural Resource Management Policy Related to Agricultural Economies

The foundations of natural resource management policy affecting Queensland rural communities (and consequently economies) generally have two components. The first relates to the regulation of agriculture or land and natural resource use to achieve particular environmental or economic outcomes (e.g. water allocation planning under the Queensland *Water Act*). The second relates to Government investment and support in rural industries and communities to improve the efficient use of natural resources. While the Queensland Government generally has constitutional responsibility for natural resource management, the Federal government has in recent decades taking on more regulated and incentive-based approaches to natural resources policy.

In the last three decades, there has been a dramatic growth in regulatory activity in the rural landscape, including:

- the management of water allocation and water quality;
- vegetation management and biodiversity protections;
- soil management and the protection of high quality agricultural lands;
- biosecurity, weed and pest management; and
- the management of carbon emissions.

In nearly all cases, these regulatory developments have in part been about protecting the economic assets in the agricultural sector as much as protecting environmental values for the wider society. Big issues that have affected rural economies, however, have included:

- top down approaches to regulatory development and implementation that lead to significant impacts in the farming sector;
- increases in regulatory complexity and overlap; and
- a lack of strategic policy focus in determining where rural development and intensification can best occur and under what conditions.

In the last two decades, however, the Australian and Queensland Governments have also both taken more incentive focussed approaches to improving natural

resource asset management, and hence the protection of agricultural economies. These approaches historically first emerged under Federal and State Landcare and catchment management policy and funding programs. From 2000 onwards, however, bilateral government effort has particularly focussed on the creation of community-based regional NRM groups, and the consequent development and implementation of regional NRM plans and investment programs.

In a general sense, these policies and programs have helped contribute to wider regional development outcomes, as well as increasing regional decision making and delivery capacities. This has supported the emergence of farming as a multi-function venture. There have been general successes within this system, but more specifically, they have helped resolve key issues threatening the long term social licence of agriculture to operate (e.g. recent positive outcomes in reducing sediment and nutrient run-off to the Great Barrier Reef). Contemporary policy problems facing this system include:

- a lack of strategic and durable bilateralism between Commonwealth and State in policy design;
- limited collaboration between regional NRM and regional economic development institutions and approaches.

Co-management in Natural Resource Planning and Allocation

Dale (2014) outlines several nationally significant environmental battles concerning regional Queensland landscapes that have emerged when southern, environmentally-focussed policies and agenda conflicted with regional and local interests in the landscape.

Problems are continuing to emerge from the processes used by the Australian and Queensland governments to resolve these disputes. While government processes may have helped ease political concern on key environmental problems (e.g., by regulating certain activities) they have also often unleashed new ones (e.g., constrained economic development opportunities, reduced land stewardship, increased legal clearing to pre-empt future regulation, etc.). More importantly, the way in which these processes have been may undermine the trust that pastoral, agricultural and other rural communities have in governments (Productivity Commission, 2003) and the southern conservation sector (Dale 2014).

Dale (2014) considers governments, however, can rebuild trust with these important Queensland communities and improve relationships between these sectors. Doing so will require the south conferring some respect on the people who actually manage north Australia's vast land and seascapes. The approach to improved and more sustainable management of Queensland's vast landscapes must start with rebuilding trust and respect between northern communities and southern regulators and environmentalists. This means governments and industries sitting down together to explore what it is that both parties value and to build a common understanding of the problems at hand. There is a need to get the science on the table in a clear and structured way so that a common understanding of the problem can emerge. From here, all parties can co-design and jointly monitor implementation of the best approaches. In the past, great

successes via the application of joint management, for example, have been achieved in securing sustainability in the northern prawn fishery (Taylor & Die, 1999).

7.5 Science to Inform Rural Decision Making

Much of the science supporting rural development in Queensland remains oriented towards improving production systems. Key capabilities existing within QDAFF itself, CSIRO and within key Universities (including UQ, CQU, QUT, JCU and USQ). These traditional science arrangements have been strongly centralised over recent decades, meaning there is generally less science capacity embedded in the regions and rural communities. Another key concern within this is a general lack of research capacity in relation to agricultural development economics, sociology and supply chain analysis.

Additionally, while there have been strong place-focussed science institutions covering regional Queensland's development needs in the past (e.g. the CRC for Tropical Savannas), key science investments have also become more centrally controlled, more sectorally-specific, and more fragmented by 2010. Some key reforms and initiatives over recent years have started to improve this situation. Strong environmental research hubs led from northern Australia have re-emerged (e.g. the National Environment Sciences Program's Northern and Tropical Water Quality Hubs). A specific investment in lifting northern research capacity and collaborating has progressed through the Northern Futures Collaborative Research Network. The CRC for Developing Northern Australia has now been established, promising a more place-focussed approach in the northern parts of Queensland. Together with the new RECoE, these arrangements offer better pre-conditions for knowledge based decision making to support rural economic development. In the agricultural development context, there are particular opportunities to focus on:

- Benchmarking and growing new sectors and regional effort;
- New market development and development logistics;
- Intensification of fodder production and grain systems;
- The creation of biofuels and locally integrated energy hubs; and
- Increasing climate resilience in farming systems.

7.6 Other Relevant Policies

A range of other policies relate to agriculture and rural economies, including:

- Trade development policy,
- Biosecurity policies,
- Telecommunications policy and service frameworks for rural and remote areas include access to digital communication,
- Energy policy amid concerns about energy affordability and security.

8. Research and Development Opportunities for the Rural Economies Centre of Excellence

The current condition and strategic direction of Queensland's rural economy is crucial to employment, investment, population and the vitality of communities in the state's regions. The economy is subject to fundamental characteristics, structural issues, ongoing challenges and emerging opportunities outlined above. These give rise to several themes for economic development including:

Managing variability: The climate and markets make the rural economy inherently variable (including potential boom and bust cycles in resources regions). Anticipating and managing uncertainty is crucial, requiring capacity and expertise.

Enabling rural areas: Regional hub centres are growing and smaller more distant rural communities are in ongoing decline (Productivity Commission, 2017). Economic activity is also concentrated in the south east of the state. This increases the importance of not only local development in rural and remote areas, but also having small communities better leverage "hub" and coastal economic activity and for major centres to better enable their rural hinterlands.

Population and investment limitations: Rural areas face fundamental limitations due to low population, reduced infrastructure and services, and limited venture capital. Limited access to fast broadband and mobile phone coverage, and restricted motivation and familiarity with digital technology limits digital economy opportunities. Structural issues in agriculture such a debt and lack of scale for some producers

Diversification and integration: Agriculture, as one of the key pillars of the rural economy, faces continuing change and adaptation. This includes continued development of agricultural technology, industry rationalisation due to market changes, and changing consumer preferences.

Rural economic development related to agriculture includes four general approaches. First, diversification with new industries developing alongside agriculture and mining such as tourism and digital businesses. Second, diversification and intensification within agriculture such as value added products, organic production, the development of functional foods and new agricultural industries. Third, integration of business models including vertical integration from production through to consumers, and greater quality assurance and market feedback along value chains. Fourth, integration between industries, such as improved understanding and management of the co-existence between agriculture and other industries such as with mining, gas extraction and tourism.

Economic transition: A functional rural economy involves ongoing economic transition. This involves anticipating and managing responses to opportunities in existing industries such as developing markets in Asia and the use of technology. It also includes the development of new businesses and industries. A key example is the development of the digital economy in rural areas. This is a key

transition that is limited not just by infrastructure and technology, but also by local capacity and entrepreneurship.

These transitions have often not been smooth. The resources boom, and return to non-boom levels, has been a difficult transition. The development of new enterprises and new sectors, such as tourism, has been limited by lack of venture capital, seasonality and a “chicken and egg” situation with developing market demand.

Policy: A coherent and enabling policy framework is important for economic development. This framework has often been disjointed and has developed largely in response to particular priorities and issues rather than as a coordinated rural development framework.

Economic development in regions involves managing these themes (above) and addressing challenges and opportunities. These also requires coordination between the many stakeholders involved in rural economic development initiatives across Queensland.

Research and Development

How then might research and development best contribute to rural economic development and ongoing economic innovation and transition? The Rural Economies Centre of Excellence (RECoE) is a key research and development centre. It can support the rural economy by addressing knowledge gaps, developing an evidence-base for decision-making, supporting local capacity for economic development, facilitating collaboration between stakeholders and by formulating more coherent policy.

There are six main areas of research and development that would contribute most to the situation and direction of the rural economy. These are potential strategies for RECoE.

1. Rural Economic Analysis

Queensland researchers and long used economic analysis tools such as input-output analysis and Computable General Equilibrium (CGE) models. Local researchers have also developed and used a Nonlinear Multi-Regional Model (QNLMMR). However, there is scope for more coordinated comprehensive economic analysis of the economic situation, options and economic transition of rural areas in the state. While detailed analyses have been done of specific industries and proposals, a greater evidence base is needed of the overall economic status and pathways of rural areas.

Also, there are limited publically available economic analysis tools (apart from limited commercial products). Few economic analysis models and tools have been translated into applications that can be used by practitioners in local or state government. This would enhance evidence based decision making, and together with appropriate training and development, would enable the rural economic development workforce. These practitioners – largely in local government – can be unfamiliar with economic analysis tools and methods.

Priorities are:

- further development of economic analysis procedures,
- the conversion of these into publicly available, user-friendly tools,
- comprehensive and coordinated analysis of rural economies and economic development pathways,
- support for economic development practitioners.

2. Business model innovation and enterprise development

Business models in agriculture and related industries are quite traditional with a focus on on-farm production with limited market intelligence and value chain development. The development of new markets, global trade, integrated value chains and changing consumers demands mean that more innovative business models are needed. Priorities are:

- Increasing understanding of market opportunities, especially in Asia, in particular opportunities for the supply of high value export products,
- Enhancing the value of agricultural products – pursuing value-adding through the application of new science and technologies,
- Developing new products –the commercialisation of new ideas, technologies and practices aimed at new market entry,
- Growing export such as by using big data analysis to better match new products to high value markets,
- Business and industry model innovation – experimenting with changes to farm business models(including debt and equity financing),
- Attracting new investors through innovative new business models.

3. Entrepreneurship, networks, tools and skills development

Entrepreneurship and innovation are crucial in a modern rural economy. Yet, many business and sectors in rural Queensland have limited entrepreneurial skills and networks between entrepreneurs. Innovation is largely interpreted as internet and technology development rather than rural aspects of redefining local assets and putting local resources together in new ways. Hence, many rural businesses are not innovating and rural entrepreneurs are often isolated.

RECoE would aim to improve entrepreneurship and skills by:

- Attracting investors in new innovative business models, products and practices;
- Establishing and coordinating networks of rural entrepreneurs in regions;
- Delivering business skills development;
- Conducting economic analysis of prospective new products and practices and conducting commercialisation assessments and skills development;
- Creating enterprise development hubs,

- Supporting specific innovation projects.

4. Agricultural production and value chain innovation

The development of agriculture and value chains is a major component to rural economies. Major opportunities lie in the development of integrated value chains where agricultural products better meet market specification, logistics enable access to diverse markets, and quality can be assured with detailed market feedback and intelligence. This allows greater value to be derived from agricultural products, new markets to be developed and higher proportion of

This is particularly important as consumer demand and expectations change, global market access expands and production becomes more vertically integrated.

Priorities for RECoE are:

- Supporting innovation in agricultural production systems and value chains and establishing links with transformed manufacturers,
- Developing market innovation and identifying new markets and matching new products to high value markets,
- Promoting food and fibre product development,
- Understanding investment attraction to scale-up opportunities and progress innovative business models. Supporting the commercialisation of new ideas, products and technologies,
- Researching and identifying “new economy” economic opportunities including enabling agricultural climate adaptation and transition,
- Diffusing inventions and innovations developed by producers and by researchers.

5. New thinking and capacity building

Economic development relies not just on investment, infrastructure and employment. A key component is people’s capacity to establish and manage businesses that form local economies, and to collectively provide leadership in managing regional economies. This includes the ability to anticipate change, manage economic transition, make evidence-based decisions, to work collaboratively and to

Priorities for RECoE are:

- Develop and maintain relationships with stakeholders across rural Queensland,
- Transfer research findings and support local capacity leading to enhanced economic outcomes,
- Advise and support economic development stakeholders such as state and local government,
- Conduct a coordinated program of outreach and extension including training, leadership building and skill development.

6. Policy development

Policy provides an enabling framework for rural economies. Policy decisions and macro changes have had major impacts on Queensland's rural economy. Yet, much of the current policy environment is disjointed and a more comprehensive and integrated rural policy framework is needed. Key roles for RECoE are to "take stock" of current policy, assess the impact of policy with a consistent and rigorous methodology, identify improved policy options and provide an evidence base for more coordinated and enabling policy.

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