

REPORT TO
INFRASTRUCTURE VICTORIA

22 JULY 2019

OVENS MURRAY



INDUSTRY PROFILE
FINAL





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EXECUTIVE SUMMARY

Overview of region

The Ovens Murray region is situated in the northeast of Victoria. The region is bounded by Goulburn region to the west; Murray River and New South Wales to the north, and Lake Eildon and its surrounds to the south. Wodonga and its twin New South Wales town of Albury (commonly referred to as Albury-Wodonga) is the main regional centre in the far north of the region.

The Ovens Murray region does not border metropolitan Melbourne and has higher self-containment than other regions due to this distance. The region's towns are generally well-connected, being within 100 kilometres from each other. Major road and rail infrastructure keep the region well connected to metropolitan Melbourne and to Sydney via the Hume Freeway and via the Wodonga to Sydney rail link. The region has several small airports and has access to Albury Airport. The region also provides services to, and gains services from New South Wales and draws considerable freight movement between the two states, most notably through Albury-Wodonga.

The region is abundant in natural resources, especially in the supply and storage of water. Ovens Murray is home to significant water storages of the Murray Darling Basin such as the Dartmouth Dam and Lake Hume.

Ovens Murray has a relatively diverse economy that includes manufacturing, agriculture and the services sector. The continual strong growth in Wodonga is a major regional strength, allowing for high youth engagement and a rather smooth transition towards a service-focused economy. Tourism is also strong within the region with the Alpine areas offering a range of outdoor activities during both summer and winter periods.

Revealed comparative advantage (RCA) index methodology

Using the theories and approaches of revealed comparative advantage (RCA) outlined in the accompanying assessment framework report, an analysis of the comparative advantage of Ovens Murray is provided below.

A revealed comparative advantage index (CAI) assumes that the historical economic performance of a region can serve as a good indicator of the industries which have a comparative advantage in that region. The revealed CAI measures the concentration of industry's in a particular region compared to the Victorian or Australian economy (that is, it compares the proportion of an industry contribution to the region's gross value added (GVA), relative to the proportion at the State and National level). Specifically, industries with a CAI above 1 have a higher proportion of GVA in that region compared to the state or national economy and can indicate a potential strength and comparative advantage within the region.

Additional explanation about the RCA and CAI approach used in this profile (including the limitations of the approach) are provided in the body of the report at Chapter 2.

Top 20 highest RCA industries

Table ES1 summarises the highest revealed comparative advantage industries (Level 2 ANZSIC¹) for Ovens Murray using the Victorian CAI comparison. The region has a diverse mix of industries such as agricultural production, food and beverage processing, wood product manufacturing and a nationally significant alpine tourism industry.

Agriculture demonstrates strong comparative advantages across Towong (15.9 Victorian CAI, 41 per cent growth and 50 per cent GVA), Mansfield (6.3 Victorian CAI, 67 per cent growth and 20 per cent GVA) and Indigo (6.1 Victorian CAI, 52 per cent growth and 19 per cent GVA). The performance of Agriculture has been driven by strong beef export demand and record high cattle prices as well as strong lamb and wool prices in recent years. Dairy milk production is also important to the region.

The region's manufacturing industries have experienced growth over the past decade and represent between 2 to 25 per cent of its GVA. This highlights the importance of industries such as:

- Wood Product Manufacturing in Alpine (15.5 Victorian CAI, 15 per cent growth and 6 per cent GVA), Benalla (10.4 Victorian CAI, 35 per cent growth and 4 per cent GVA) and Wangaratta (7 Victorian CAI, 89 per cent growth and 3 per cent GVA)
- Pulp, Paper and Converted Paper Product Manufacturing in Wodonga (6.6 CAI Vic comparison, 64 per cent growth and 2 per cent GVA)
- Food Product Manufacturing in Indigo (11.3 Victorian CAI, 2 per cent growth and 25 per cent GVA) to the region.

However, an important challenge for the region is the decline of the Beverage and Tobacco Product Manufacturing in Indigo (9.8 Victorian CAI, negative 64 per cent growth and 3 per cent GVA), Wangaratta (7 Victorian CAI, negative 59 per cent growth and 2 per cent GVA) and Alpine (5.4 Victorian CAI, negative 64 per cent growth and 2 per cent GVA). This industry has declined by 60 per cent over the past decade, reflecting the cessation of the tobacco growing industry in 2009 due to the Australian Government's tobacco license buy-back and industry transition program as well as compensation from tobacco manufacturers. However, the Ovens Valley region is now a nationally significant producer of hops which is used for craft brewery operations.

Two other industries that have declined over the past decade, which are not specifically aligned with manufacturing local produce, are the Fabricated Metal Product Manufacturing in Benalla (7.2 Victorian CAI, negative 22 per cent growth and 6 per cent GVA) and Textile, Leather and Clothing and Footwear Manufacturing in Wangaratta (5 Victorian CAI, negative 52 per cent growth and 1 per cent GVA). Both industries are highly exposed to international competition with low-cost producers.

The Alpine and Mansfield LGAs are at the heart of Victoria's alpine tourism industry. The industries that drive tourism performance (from an ANZSIC code classification perspective) and demonstrate strong comparative advantages and growth in the past decade include Accommodation in Alpine (9.8 Victorian CAI, 9 per cent growth and 5 per cent GVA) and Mansfield (7.2 Victorian CAI, 19 per cent growth and 3 per cent GVA).

In addition to these industries, other service industries that are clustered in these areas have demonstrated comparative advantages of a smaller magnitude, such as Food and Beverage Services, Property Operators and Real Estate Services and Food Retailing. Future economic development of the Alpine and Mansfield LGAs is dependent on provision of reliable and safe connecting infrastructure.

¹ Australia and New Zealand Standard Industrial Classification

Table ES 1 TOP 20 Highest Revealed Comparative Advantage by LGA, Ovens Murray

Industry (Level 2 ANZSIC)	LGA	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
1. Agriculture (appears: 3 times)	Towong (S)**	15.9	20.1	41%	50%	Top right
14. Wood Product Manufacturing (appears: 3 times)*	Alpine (S)	15.5	16.7	15%	6%	Top right
11. Food Product Manufacturing	Indigo (S)	11.3	14.5	2%	25%	Top right
9. Non-Metallic Mineral Mining and Quarrying	Mansfield (S)	11.0	2.7	572%	1%	Top right
14. Wood Product Manufacturing (appears: 3 times)	Benalla (RC)	10.4	11.1	35%	4%	Top right
12. Beverage and Tobacco Product Manufacturing (appears: 3 times)	Indigo (S)	9.8	7.7	-64%	3%	Top left
44. Accommodation (appears: 2 times)	Alpine (S)	9.8	6.6	9%	5%	Top right
22. Fabricated Metal Product Manufacturing	Benalla (RC)	7.2	7.4	-22%	6%	Top left
44. Accommodation (appears: 2 times)	Mansfield (S)	7.2	4.9	19%	3%	Top right
4. Fishing, Hunting and Trapping (appears: 2 times)	Wangaratta (RC)	7.1	3.2	1425%	0%	Top right
12. Beverage and Tobacco Product Manufacturing (appears: 3 times)	Wangaratta (RC)	7.0	5.7	-59%	2%	Top left
14. Wood Product Manufacturing (appears: 3 times)	Wangaratta (RC)	7.0	7.6	89%	3%	Top right
15. Pulp, Paper and Converted Paper Product Manufacturing	Wodonga (C)	6.6	7.3	64%	2%	Top right
1. Agriculture (appears: 3 times)	Mansfield (S)	6.3	8.1	67%	20%	Top right
4. Fishing, Hunting and Trapping (appears: 2 times)	Mansfield (S)	6.2	2.8	4327%	0%	Top right
1. Agriculture (appears: 3 times)	Indigo (S)	6.1	7.6	52%	19%	Top right
3. Forestry and Logging	Alpine (S)	5.5	3.1	-77%	1%	Top left
12. Beverage and Tobacco Product Manufacturing (appears: 3 times)	Alpine (S)	5.4	4.3	-64%	2%	Top left
60. Library and Other Information Services	Towong (S)	5.2	27.9	-42%	0%	Top left
13. Textile, Leather, Clothing and Footwear Manufacturing	Wangaratta (RC)	5.0	5.8	-52%	1%	Top left

Note: *Revealed industries that appear in more than one LGA are identified "appears: x times." ** LGAs are classified as follows: (C) Cities, (S) Shires and (RC) Rural Cities.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

SWOT and needs analysis

To help understand what the infrastructure investment opportunities and constraints look like for the Ovens Murray, ACIL Allen undertook a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis, as well as a needs analysis. The information underpinning the SWOT and needs analysis was derived from a desktop research process which examined publicly available data and information. Table ES2 provides the results of this analysis for the industries identified in Table ES1. That is, Table ES2 provides the results of the SWOT and needs analysis for those industries identified in Table ES1 that are deemed to have a high CAI and high share of GVA for the LGA they operate in. It identifies the potential investment opportunities and constraints that are important considerations for

meeting the future infrastructure requirements of revealed sectors and other sectors important to the region's economy.

Revealed industries identified in **Table ES1** are assessed for their RCA comparison to Victoria, the contribution to LGA GVA and consideration of the industries' performance over the past decade. This approach identifies the most important industries to the Ovens Murray region. This guides the initial SWOT analysis process. However, due to some of the limitations of the RCA (see Section 2.1), it is important to review available industry, sector and regional development literature as well as consult with relevant regional stakeholders to identify industries that the region considers as important for future economic development. In Ovens Murray's case, opportunities have been identified in Manufacturing (Wood Product, Food Product), Mining and Energy and Tourism (Accommodation).

Due to the categorisation of industries in the ANZSIC codes, tourism does not have a demonstrated RCA. The data simply will not allow for this calculation to be undertaken. However, this sector demonstrates many economic development opportunities for Ovens Murray.

A further assessment of the priority industries considers service industries that may contribute to the performance of a primary or secondary industry – for Tourism, this may include Food and Beverage Services or Property Operators and Real Estate Services.

In order to include industries that could be considered emerging or have demonstrated growth but are starting from a low base, it is necessary to cross-check the opportunities identified in the literature with the emerging industries presented in **Table ES1**. Outside of Agriculture, Manufacturing and Tourism (Accommodation), there are no industries in the top 20 that are identified in the literature that either align with the small industries (<1% GVA) demonstrating high RCA or have demonstrated strong growth over the past decade. This may reflect the limitations of the revealed industry categorisation at the ANZSIC code 2-digit level, which presents a high-level industry descriptor.

The SWOT analysis is then used to identify actionable or practical issues which are compared against the documented infrastructure needs of the region/industries. This comparison is then used to identify potential opportunities and constraints facing industries which could be addressed through future infrastructure investments.

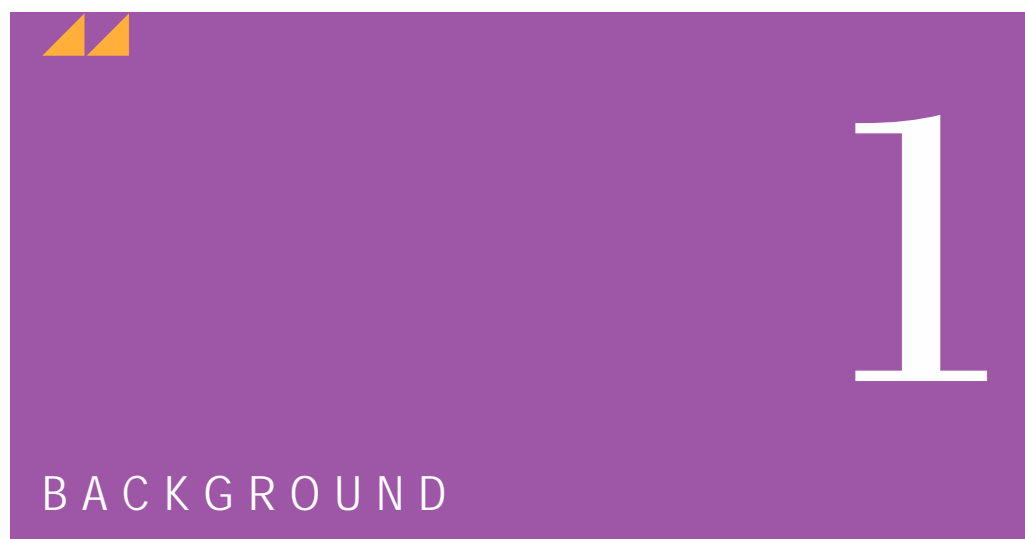
TABLE ES 2 WHAT ARE THE INFRASTRUCTURE INVESTMENT OPPORTUNITIES AND CONSTRAINTS FOR OVENS MURRAY?

Industry	Revealed sectors	Relevant LGAs / areas	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
Agriculture, Forestry and Fisheries	Agriculture (beef, lamb, wool and dairy)	Benalla Alpine Mansfield Wangaratta Indigo Towong	All agricultural industries need efficient road infrastructure to link production with key processing centres including Wodonga, Wangaratta, Wahgunyah and Benalla	Development and maintenance of road infrastructure that links the production regions with processing towns	Inadequate road infrastructure limits the efficient functioning of the local primary production supply chain
		Benalla Alpine Mansfield Wangaratta Indigo Towong	The agriculture industry needs enhanced NBN connectivity to enable market expansion	Development of telecommunication, mobile broadband and NBN infrastructure in priority regional black spots	Inadequate mobile phone reception and digital connectivity impacts the ability of local producers to use smart farming technologies and embrace digital farming solutions

Industry	Revealed sectors	Relevant LGAs / areas	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
Manufacturing	Wood product and food product manufacturing	Indigo Alpine Benalla Wangaratta Wodonga	The food product, wood product and beverage manufacturing industries would benefit from enhanced road and rail connections between primary producers, processor/manufacturers and markets (Melbourne and Sydney)	Enhancement of road and rail connections between producers, manufacturers and Melbourne and Sydney markets	Inadequate supply chain connections between primary producers, processors and domestic markets inhibits growth potential for the sector or efficient supply chain operation
		Indigo Alpine Benalla Wangaratta Wodonga	Access to reliable energy, water and waste services in industrial areas of regional centres is essential for economic development	Provision of essential utility services in industrial and commercial areas is important to encourage additional investment in these areas	Inadequate or poorly maintained utility infrastructure discourages additional business investment in industrial and commercial areas
		Indigo Alpine Benalla Wangaratta Wodonga	Access to telecommunication and NBN services will be increasingly important for application of remote sensing or automated technologies in the manufacturing process	Improving access and reliability of internet and telecommunication enabling technologies is essential to attracting new investment to the region	Without access to modern and fast digital and telecommunication technologies the regions manufacturers will be at a competitive disadvantage to other regions
Mining and Energy	(Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have an RCA as such)	Wodonga Benalla	Enabling infrastructure for solar power generation including distribution network connections	Development of enabling energy infrastructure will encourage investment in renewable power generation in the region	Without basic enabling infrastructure such as electricity grid connections the renewable industry will be unable to expand
Tourism	(Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have an RCA as such)	All	The tourism and supporting service sectors need public amenities, road signage and road infrastructure to enable development of tourism in the region	Development of public amenities, road signage, foot and bicycle paths are essential to enabling development of local tourism experiences	Without basic enabling infrastructure within and connecting towns, the region's tourism sector will be unable to expand
			Develop town trails (foot and bicycle) paths to link tracks through towns, which are only accessible by cars	Improve digital connectivity to the region	Improving access and reliability of internet and telecommunication enabling technologies is essential for tourism in the region

Industry	Revealed sectors	Relevant LGAs / areas	Identified needs	Opportunities to address needs	Constraints to economic development of the sector to destinations
		Benalla	Upgrade and maintenance of the regional aerodrome at Benalla	Development of the Benalla aerodrome could enable increased tourist demand for the region	Inadequate aerodrome infrastructure reduces the capacity of the aerodrome to receive commercial and private traffic
		Wangaratta	Develop enabling infrastructure along the King Valley Rail Trail	Development of enabling infrastructure along the King Valley Rail Trail will improve tourist experiences	Without the necessary infrastructure, the King Valley Rail Trail is less desirable to visitors
		Towong	Improve signage, public facilities and rest areas along the Great River Road of the Upper Murray Region (Towong)	Development of signage, public facilities and rest areas along the Great River Road of the Upper Murray Region could increase domestic tourist demand for the region	Without access or enabling infrastructure along the Murray River Road, tourists are unable to experience the regions nature-based tourism opportunities
		Alpine resorts	Improve infrastructure in Alpine resorts	Invest in priority infrastructure initiatives across Alpine resorts in the regions (note that there are a number of projects for Alpine resorts for consideration such as Mt Hotham redevelopment, Falls to Hotham crossing etc.	Potential for Alpine resorts to attract more visitation will be compromised by lack of infrastructure improvements

SOURCE: ACIL ALLEN



1.1 Overview of the Ovens Murray region

The Ovens Murray region is situated in the northeast of Victoria. The region is bounded by Goulburn Partnership Region to the west; Murray River and New South Wales to the north, and Lake Eildon and its surrounds to the south. Wodonga and its twin New South Wales town of Albury (commonly referred to as Albury-Wodonga) is the main regional centre in the far north of the region.

The Ovens Murray region accounts for 10 per cent of Victoria's land area at 32,764 km². As at 2018, the Ovens Murray region had an ERP of 128,793 or 2.0 per cent of Victoria's population. The region's population and areas by LGA are shown in **Table 1.1** below.

TABLE 1.1 POPULATION AND AREA BY LGA, OVENS MURRAY REGION, 2018

Local Government Areas	Population	Share of region ERP	Area (km ²)	Share of region area
Alpine Shire (Alpine and amenity areas)	12,730	10%	4,788	20%
Benalla Rural City (Smaller regional centres)	14,024	11%	2,353	10%
Indigo Shire (Wodonga regional hub)	16,490	13%	2,040	9%
Mansfield Shire (Alpine and amenity areas)	8,979	7%	3,844	16%
Towong Shire (Rural areas)	6,054	5%	6,675	28%
Wangaratta Rural City (Smaller regional centres)	29,087	23%	3,645	15%
Wodonga City (Wodonga regional hub)	41,429	32%	433	2%
Ovens Murray region⁽¹⁾	128,793	100%	23,777	100%

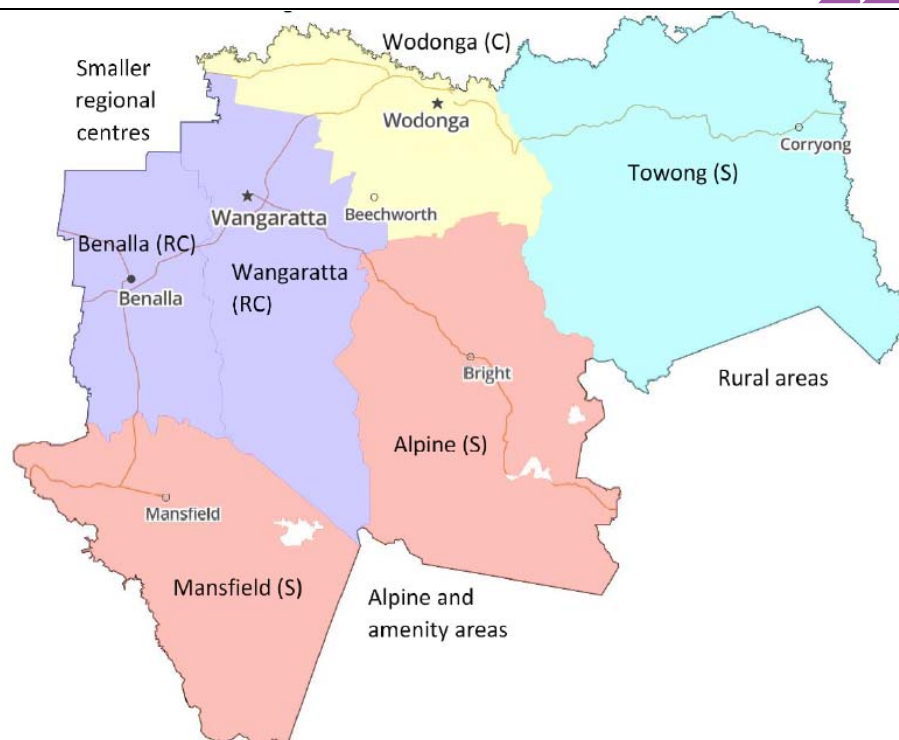
Notes: (1) Totals may not sum to 100 per cent due to rounding.

SOURCE: ABS CAT NO. 3218.0, REGIONAL POPULATION GROWTH, AUSTRALIA.

The LGAs of Ovens Murray are further aggregated into sub-regions based on economic and environmental characteristics shown below (see **Figure 1.1** for a map of sub-regions).

- the Wodonga regional hub (yellow)
- smaller regional centres (purple)
- Alpine and amenity areas (red)
- Rural areas (light blue).

FIGURE 1.1 SUB-REGION MAP, OVENS MURRAY REGION, 2019



SOURCE: OVENS MURRAY REGIONAL PROFILE 2018

The Ovens Murray region does not border metropolitan Melbourne and has higher self-containment than other regions due to this distance. The region's towns are generally well-connected, being within 100 kilometres from each other.

The region is abundant in natural resources, especially in the supply and storage of water.

Further details of the key natural and environmental attributes, infrastructure and sub-regions are provided in the following sections.

1.1.1 Key natural and environmental attributes

Key attributes of Ovens Murray in terms of natural resources and environmental features are described below.

Natural resources include:

- timber
- mining
- renewable energy
- soil
- substantial water storages.

Key environmental assets include:

- native forests
- Alpine National Park
- woodlands and grasslands in the park and reserves, supporting many types of flora and fauna.

1.1.2 Key infrastructure

Major road and rail infrastructure keep the region well-connected to metropolitan Melbourne and Sydney through the Hume Highway and the Wodonga to Melbourne and Sydney via Wangaratta passenger and freight rail link. The region also has several small regional airports and has access to Albury Airport. The region provides services to, and gains services from New South Wales and draws considerable freight movement between the two states, most notably through Albury-Wodonga.

The Ovens Murray region is also home to significant water storages of the Murray Darling Basin such as the Dartmouth Dam and Lake Hume.

A summary of the key infrastructure in Ovens Murray is in **Box 1.1**.

BOX 1.1 KEY INFRASTRUCTURE, OVENS MURRAY REGION, 2019

Roads

- Hume Freeway connecting Melbourne to Wangaratta, Wodonga and Canberra.
- Midland Highway connecting the region to as far as Geelong.
- Maroondah Highway connecting Mansfield to Melbourne.
- Great Alpine Road connecting Wangaratta to Bairnsdale.
- Murray Valley Highway.

Rail

- Wodonga to Melbourne and Sydney via Wangaratta: freight and direct passenger routes.
- Oaklands to Yarrawonga joining Benalla: direct freight route.
- The Inland Railway (expected to be operational by 2025).

Water

- Dartmouth Dam and Lake Hume.
- Lake Buffalo.
- Lake William Hovell.
- Lake Eildon which is the primary storage for the neighbouring Goulburn region.

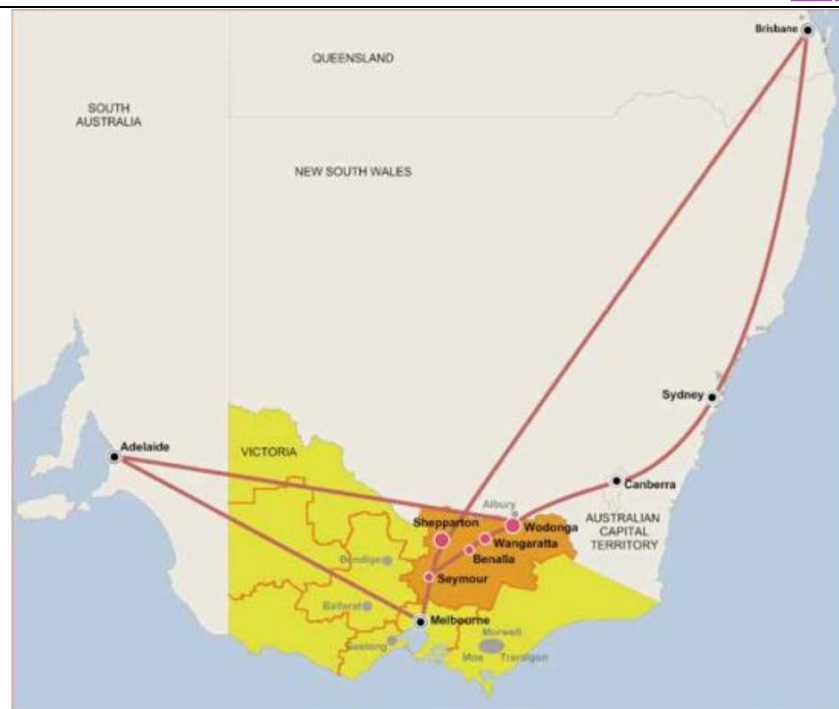
Other significant infrastructure

- Several regional airports.
- Proximity to Albury Airport.
- Access to Port of Melbourne via the Hume Highway.
- Hospitals in Albury-Wodonga, Wangaratta and Benalla in the north.
- Education services via Latrobe University campus, TAFE institutes and Charles Sturt University campus (Albury-Wodonga).

SOURCE: OVENS MURRAY REGIONAL PROFILE 2018

The locations of major transport routes for the region are shown in **Figure 1.2**.

FIGURE 1.2 TRANSPORT INFRASTRUCTURE, OVENS MURRAY REGION, 2019



SOURCE: OVENS MURRAY REGIONAL PROFILE 2018

1.1.3 Other regional attributes

Ovens Murray is a relatively diverse economy that includes the manufacturing, agriculture and the services sectors. The continual strong growth in Wodonga is a major regional strength, allowing for high youth engagement and a rather smooth transition towards a service focused economy. Tourism is also strong within the region with the Alpine regions offering a range of outdoor activities during both summer and winter periods.

A summary of these other attributes is provided in **Box 1.2**.

BOX 1.2 OTHER REGIONAL ATTRIBUTES, OVENS MURRAY REGIONS, 2019

The other key attributes of the Ovens Murray region include:

- Fairly diverse economic services ranging from manufacturing, agriculture and services, especially in Wodonga. Strong employment growth in healthcare with increasing number of people with higher education qualifications.
- Increasing service sector growth and population growth will continue to help Wodonga grow, with potential impacts felt for the rest of the regions.
- Strong youth engagement, with a slight bias towards entering the workforce rather than education
- Tourism drawn in summer through mountain biking, camping and hiking; as well as in winter for skiing, snowboarding and other winter sport. Tourism assets are expected to drive an increase in population and the economy in surrounding rural areas and towns.

SOURCE: OVENS MURRAY REGIONAL PROFILE 2018

1.2 Subregions of Ovens Murray

There are differences across the Ovens Murray region relating to key attributes, and infrastructure. A large share of the population lives in several major regional centres while agricultural activity is spread across rural communities. These sub-regional differences are discussed for Ovens Murray's sub-regions below.

Wodonga regional hub

Comprising the Wodonga and Indigo LGAs, the Wodonga regional hub shares the following characteristics:

- The region will experience continual service sector growth as Wodonga continues to reposition itself as a service-oriented economy.
- Close connection to Albury in New South Wales, particularly for Wodonga.
- Strong youth engagement will positively benefit employment into the future.
- Marginally higher crime rates for Wodonga/ low crime rates in Indigo.
- Wodonga 16th most disadvantaged LGA / Indigo is 50th most disadvantaged LGA.

Smaller regional centres

Comprising the Benalla and Wangaratta LGAs, the smaller regional centres share the following characteristics:

- The regional centres are closely connected to each other with diverse economies in manufacturing, agriculture and healthcare.
- Early childhood outcomes are below state-wide averages.
- Bushfires and floods will continue to present challenges, especially in the face of climate change.

Rural areas

The north east of the Ovens Murray (covered by Towong LGA) has the following characteristics:

- Greater concentration of agriculture than the rest of the region.
- Faces lower labour productivity and lower participation rates.
- Economic indicators are below state average.
- Low housing stress, low crime and high self-reported wellbeing.

Alpine and amenity areas

Comprising the Mansfield and Alpine LGAs, the Alpine and amenity areas share the following characteristics:

- These areas house many national parks and ski resorts which will continue to provide strong tourism to the region throughout the summer and winter seasons.
- Generally positive early childhood outcomes, low levels of homelessness and low crime.

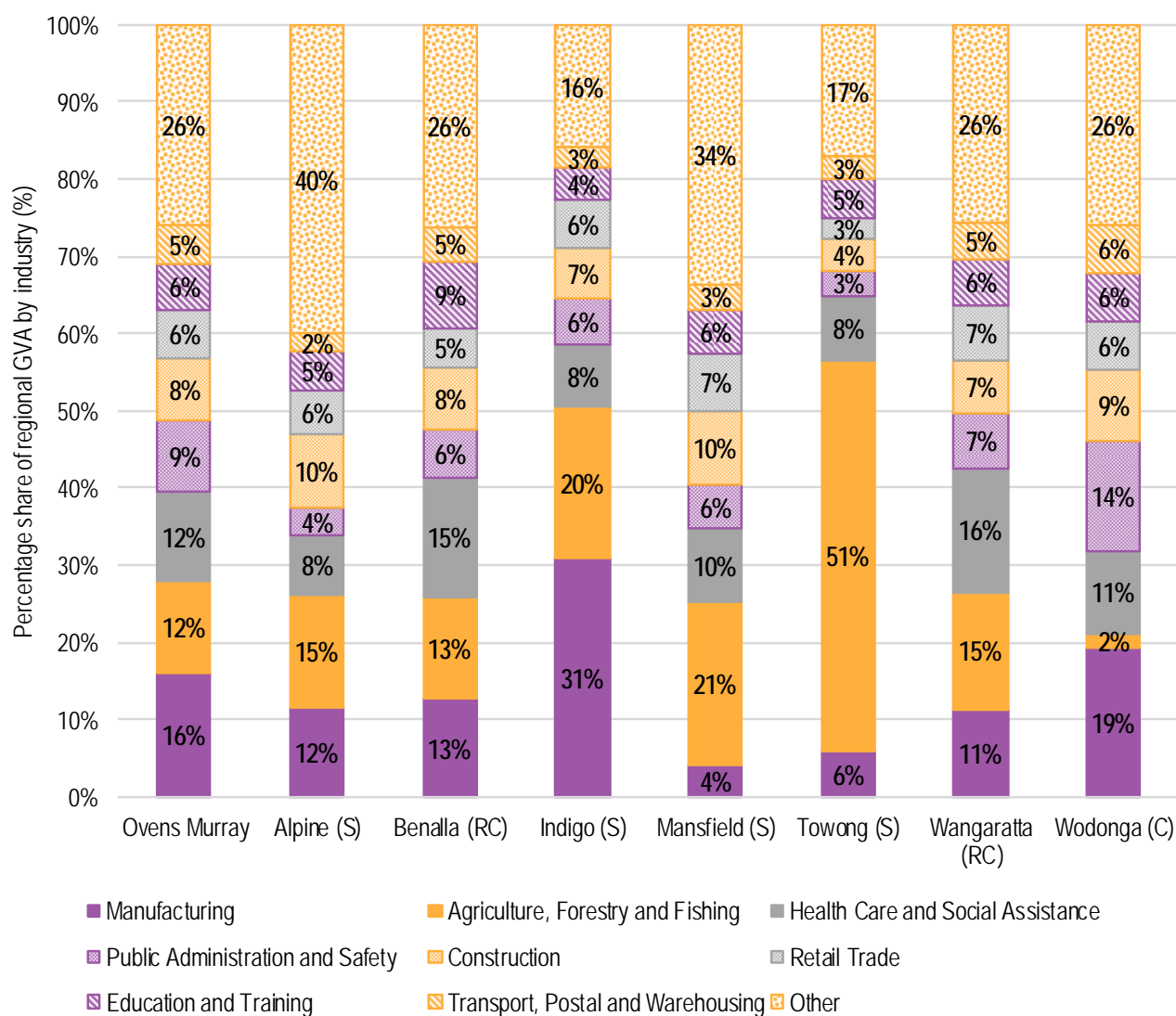
1.3 Industry composition

The Gross Regional Product (GRP) of the Ovens Murray region is approximately the sum of industrial Gross Value Add (GVA).² Figure 1.3 shows the 2017-18 distribution of GVA across the largest industries for the Ovens Murray and its seven LGAs. The biggest industries by GVA in the Ovens Murray are: Manufacturing (16.0 per cent), Agriculture, Forestry and Fishing (11.8 per cent), Health Care and Social Assistance (11.6 per cent), Public Administration and Safety (9.2 per cent) and Construction (8.2 per cent). These five industries comprise more than half of Ovens Murray's GVA.

There is noticeable variation in the composition of Ovens Murray LGAs' economies. Some noticeable differences include the Towong LGA having a larger Agriculture, Forestry and Fishing industry (51 per cent) relative to Ovens Murray as a whole and the Wodonga LGA having a large Public Administration and Safety industry. Similarly, both Indigo and Wodonga have larger Manufacturing industries compared to other LGAs in the region at 31 and 19 per cent respectively.

² GRP is the sum of GVA at basic prices plus taxes less subsidies on products.

FIGURE 1.3 GVA SHARE OF KEY INDUSTRIES IN THE OVENS MURRAY, 2017-18



Note: Other includes: Wholesale Trade; Administrative and Support Services; Accommodation and Food Services; Professional, Scientific and Technical Services; Financial and Insurance Services; Electricity, Gas, Water and Waste Services; Rental, Hiring and Real Estate Services; Other Services; Arts and Recreation Services; Information Media and Telecommunications; and Mining.

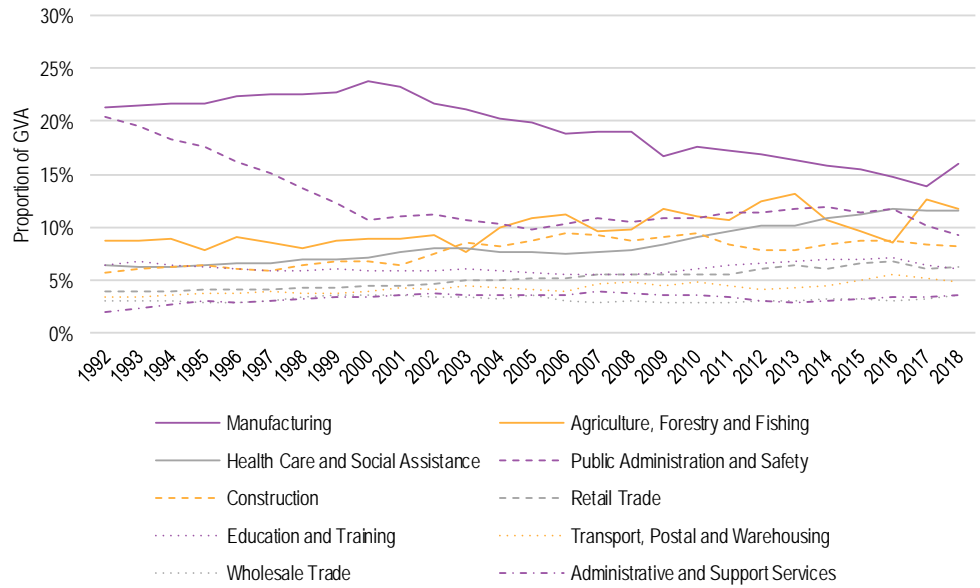
SOURCE: IV DATA 2019

Between 2007-08 and 2017-18, there was a sizable decline in the share of GVA from Manufacturing, decreasing from 19.0 per cent to 16.0 per cent (a 16 per cent reduction), and Public Administration and Safety declined from 10.5 per cent to 9.2 per cent (a 12 per cent reduction).

Since 2007-08, there has been an increase in the share of GVA from Health Care and Social Assistance from 7.8 per cent to 11.6 per cent (a 49 per cent increase). Similarly, Agriculture, Forestry and Fishing's percentage share of the regional GVA has increased from 9.9 per cent to 11.8 per cent (a 20 per cent increase).

This is somewhat consistent with trends occurring across Victoria, such as a general decline in the manufacturing sectors and an increase in service-based industries, particularly health-related services associated with ageing populations.

FIGURE 1.4 GVA SHARE OF KEY INDUSTRIES IN THE OVENS MURRAY REGION 1991-92 TO 2017-18



SOURCE: IV DATA 2019



2.1 Revealed comparative advantage index

Using the theories and approaches of revealed comparative advantage (RCA) outlined in the accompanying assessment framework report, an analysis of Ovens Murray's comparative advantage is provided below.

A revealed comparative advantage index (CAI) assumes that the historical economic performance of a region can serve as a good indicator of the industries which have a comparative advantage in that region. The strength of an RCA approach is that it enables the identification of significant industries in each region while using a relatively simple and consistent methodology. In other words, with RCA, the results are truly comparative across regions because, for each region, the results are derived in a consistent way. Specifically, industries with a CAI above 1 have a higher proportion of GVA in that region compared to the state or national economy and can indicate a potential strength of a region.

The revealed CAI measures the concentration of industries in a particular region compared to the Victorian or Australian economy (that is, it compares the proportion of an industry contribution to the regions GVA, relative to the proportion at the State and National level). The reasons why both comparators are important are outlined in **Box 2.1** below.

While both comparisons have been used for this analysis and reported in the sections below, the analysis of the top revealed industries focuses on industries assessed against the Victorian CAI. This has been done for two reasons. First, it is consistent with the focus of this study, which is on Victoria's regions. Second, there were some minor gaps in the Level 2 ANZSIC data used to undertake the LGA-level analysis which would have impacted the consistency in which national CAI comparisons can be reported.

Furthermore, the analysis in this chapter reports on rates of industry growth as it provides insight into industries that have grown rapidly over the past decade and hence could be expected to continue to grow in the future. It also identifies industries that have declined over the past decade.

BOX 2.1 EXPLANATION UNDERPINNING ACIL ALLEN'S USE OF VICTORIAN AND NATIONAL CAI COMPARISONS

The RCA approach was developed initially to calculate relative advantage or disadvantage of a country in certain goods and services as evidenced by trade flows. In recent years, the concept has been adopted to assess the comparative advantage of industries in a region.

When assessing regional RCA, there was a question of which denominator to use in the index.

A key reason for using a national denominator (in addition to a Victorian denominator) to calculate the CAI for various industries is that while a particular industry may be significant compared to the Victorian average, it may not be significant compared to the broader Australian economy. When the CAI for a particular industry, within a particular region, shows a similar strength compared to both the Victorian and the national averages, this is likely to indicate a stronger comparative advantage than one in which the two CAI's conflict.

Therefore, under this framework, two comparisons (Victorian and national) have been provided to assist in understanding a region's/industry's comparative advantage from multiple perspectives.

For example, the CAI of a mining commodity may be very strong in a particular region compared to Victoria because there happens to be an economic deposit within that region that is not available elsewhere in Victoria. When compared to Australia as a whole, however, a low CAI would indicate that there are more competitive mining provinces elsewhere in Australia. In contrast, a high CAI using both the Victorian and national denominators is likely to indicate that not only is there an economic deposit present, but that it is potentially a world class deposit.

SOURCE: ACIL ALLEN

Limitations of CAI

The RCA approach tells us how regions compare to that of the broader economy in terms of size. Where there is variation in size relative to the broader economy, RCA can be an indicator of an industry's strength and 'importance' to the future of the regional economy. However, it is only one indicator and further analysis is needed to determine if the industry warrants future investment and attention by government. Furthermore, the RCA approach does not tell us if a high CAI industry is a driver or a consequence of growth. This is important because an industry may only exist as a consequence of government funding (as is the case for correctional facilities/prisons) and not because of the private market's demand for its goods and services. There may be policy or other reasons to support these industries, but these reasons may not be overtly economic in nature.

2.2 Ovens Murray (Level 1 ANZSIC analysis)

Figure 2.1 shows the CAI index and industry growth for Level 1 ANZSIC industries in Ovens Murray. The size of the bubbles indicates the relative size of the industries. As noted above, the CAI can be used as an indicator of possible regional strength, particularly when combined with a growing share of regional GVA. The quadrant framework can assist in mapping the growth potential of an industry with a RCA.

Top right, comparative advantage and growth: These are the industry sectors that should be looked upon as most likely to drive regional growth and development. These are sectors which a region most likely has comparative advantage and which have experienced growth over the past decade. Government policy should seek to *facilitate* growth in these sectors and attempt to leverage them by focussing on the economic linkages these sectors have to the region and the Victorian economy. Industries in Ovens Murray which appear to have comparative advantage and potential growth characteristics include Agriculture, Forestry and Fishing; Health Care and Social Assistance; and Accommodation and Food Service.

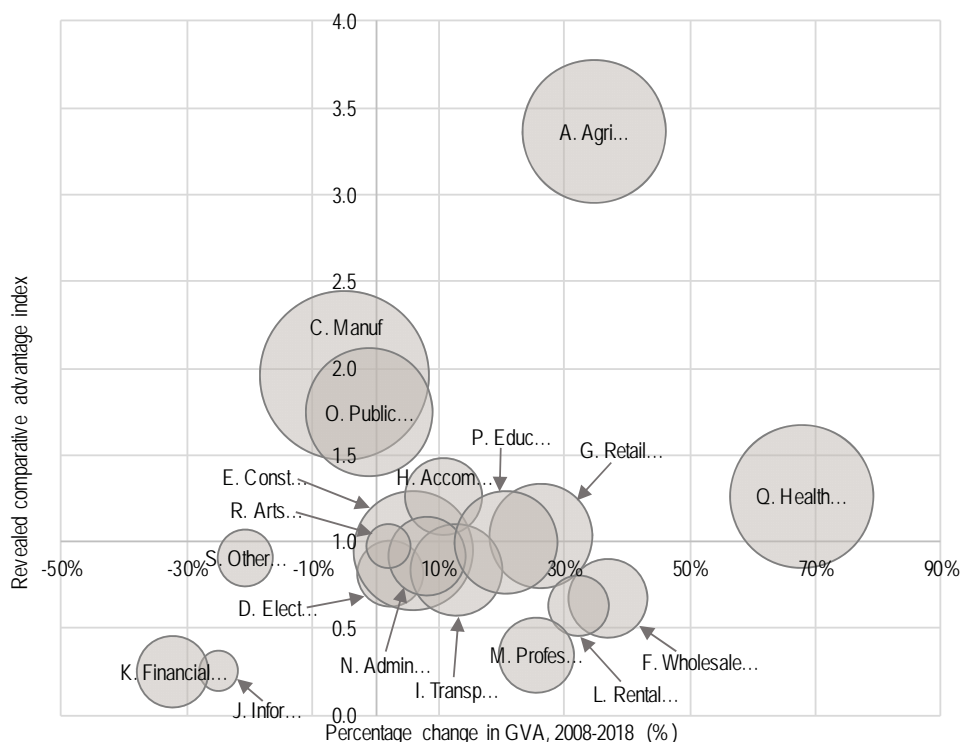
Top Left, comparative advantage with no growth: These are the industry sectors which have a comparative advantage, but which have been in decline over the past decade. For the Ovens Murray region, this refers to the Manufacturing and Public Administration and Safety industries. Government

policy should seek to *identify and overcome constraints* to the growth of these industries caused by infrastructure provision.

Bottom right, growth but not yet comparative advantage: These are the industry sectors that have experienced growth over the past decade but do not have comparative advantage. Our analysis shows that for Ovens Murray, these include the Wholesale Trade; Rental, Hiring and Real Estate Services; Professional, Scientific and Technical Services; and Transport, Postal and Warehousing industries. Government policy should look at this quadrant as identifying *potential emerging industries*.

Bottom left, no growth and no comparative advantage: These are the industry sectors for which there is no comparative advantage or growth – namely, the Information Media and Telecommunications; and Financial and Insurance Services industries. Government policy might be warranted here to *manage decline* or assist regions to transition out of these industries. Government support for these industries may have less to do with infrastructure provision and other forms (i.e. welfare) of industry support or structural adjustment.

FIGURE 2.1 REVEALED COMPARATIVE ADVANTAGE INDEX – OVENS MURRAY 2017-18, LEVEL 1 ANZSIC



Note: This includes the revealed comparative advantage index of Ovens Murray relative to the Victorian economy. The chart excludes Mining to focus the chart on the key industries.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.1 summarises the highest revealed comparative advantage industries (Level 1 ANZSIC) for Ovens Murray. The revealed industries in the table relate to those which have the highest CAI using the Victorian comparison, not the national comparison. The Victorian comparisons have been selected because they are consistent with the regional focus of this study, and because there were some limitations in the ANZSIC data which meant there would have been gaps in the presentation of high-ranking national CAI industries in some LGAs.

TABLE 2.1 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR OVENS MURRAY, LEVEL 1 ANZSIC

Industry (Level 1 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
A. Agriculture, Forestry and Fishing	3.4	4.0	35%	11.8%	Top right
C. Manufacturing	2.0	2.3	-5%	16.0%	Top left
O. Public Administration and Safety	1.7	1.5	-1%	9.2%	Top left
Q. Health Care and Social Assistance	1.3	1.4	68%	11.6%	Top right
H. Accommodation and Food Services	1.3	1.2	11%	3.4%	Top right
G. Retail Trade	1.0	1.2	26%	6.2%	Top right
P. Education and Training	1.0	1.1	21%	6.0%	Bottom right
R. Arts and Recreation Services	1.0	1.3	2%	1.2%	Bottom right
E. Construction	1.0	0.9	6%	8.2%	Bottom right
N. Administrative and Support Services	0.9	0.9	8%	3.6%	Bottom right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3 Ovens Murray LGA analysis (Level 2 ANZSIC analysis)

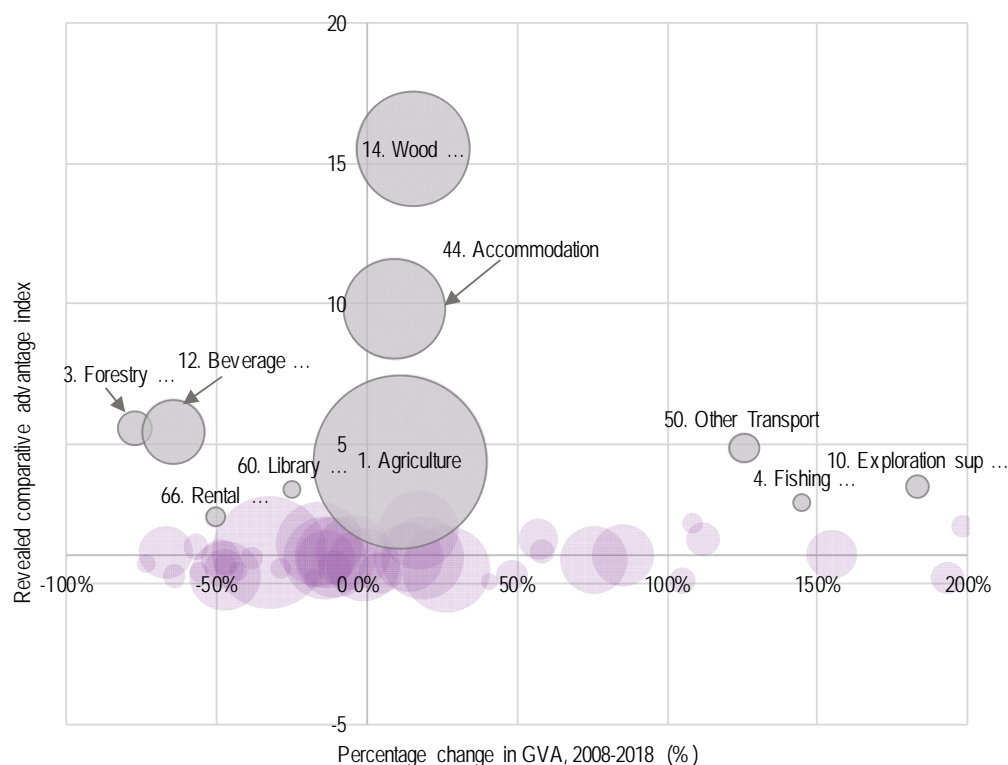
The following section includes revealed comparative advantage analysis by Level 2 ANZSIC industries for Ovens Murray's LGAs: Alpine, Benalla, Indigo, Mansfield, Towong, Wangaratta and Wodonga.

The analysis focuses on identifying the key Level 2 ANZSIC industries which fall in the 'top right' and are found to have a likely comparative advantage and growth.

2.3.1 Alpine

Figure 2.2 shows RCA analysis by ANZSIC Level 2 industries for the Alpine LGA. Key industries of interest with a high CAI in the Alpine LGA include Wood Product Manufacturing; Accommodation; Forestry and Logging; and Beverage and Tobacco Product Manufacturing (see Figure 2.2).

FIGURE 2.2 COMPARATIVE ADVANTAGE INDEX FOR ALPINE, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.2 summarises the highest comparative advantage industries (Level 2 ANZSIC) for the Alpine LGA using the Victorian CAI comparison. Important industries include Wood Product Manufacturing; Accommodation and Agriculture which each have large CAI, undergone notable growth over the past 10 years and constitute a relatively large proportion of the LGA's GVA.

Various other industries have high CAI and growth but remain a small proportion of GVA such as Other Transport; Exploration and Other Mining Support Services; and Fishing, Hunting and Trapping.

TABLE 2.2 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR ALPINE

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
14. Wood Product Manufacturing	15.5	16.7	15%	5.9%	Top right
44. Accommodation	9.8	6.6	9%	4.7%	Top right
3. Forestry and Logging	5.5	3.1	-77%	0.6%	Top left
12. Beverage and Tobacco Product Manufacturing	5.4	4.3	-64%	1.9%	Top left
50. Other Transport	4.8	1.4	125%	0.5%	Top right
1. Agriculture	4.4	5.6	11%	13.7%	Top right
10. Exploration and Other Mining Support Services	3.5	0.6	183%	0.2%	Top right
60. Library and Other Information Services	3.4	18.3	-25%	0.1%	Top left

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
4. Fishing, Hunting and Trapping	2.9	1.3	145%	0.1%	Top right
66. Rental and Hiring Services (except Real Estate)	2.4	0.2	-50%	0.2%	Top left

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.3 summarises the largest industries (Level 2 ANZSIC) for the Alpine LGA.

TABLE 2.3 TOP 10 LARGEST INDUSTRIES FOR ALPINE

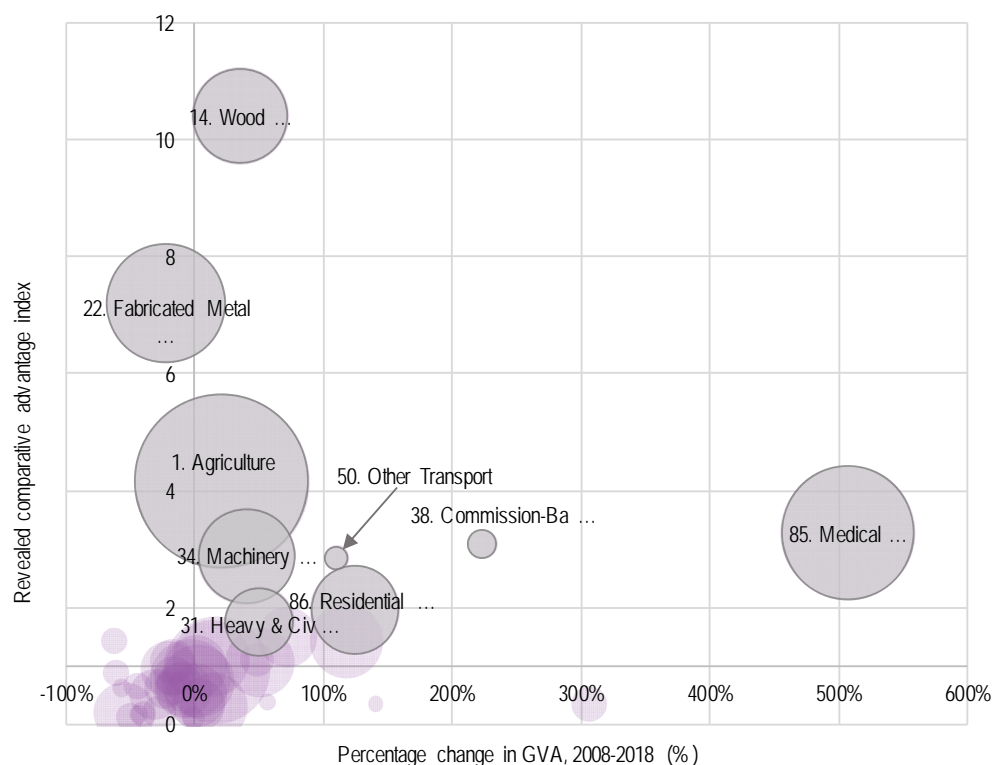
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
1. Agriculture	4.4	5.6	11%	13.7%	Top right
14. Wood Product Manufacturing	15.5	16.7	15%	5.9%	Top right
32. Construction Services	1.1	1.0	-32%	5.8%	Top left
44. Accommodation	9.8	6.6	9%	4.7%	Top right
69. Professional, Scientific and Technical Services	0.5	0.4	27%	3.4%	Bottom right
45. Food and Beverage Services	1.4	1.2	-16%	3.2%	Top left
72. Administrative Services	0.9	0.8	-14%	3.1%	Bottom left
67. Property Operators and Real Estate Services	0.9	0.5	19%	3.1%	Bottom right
84. Hospitals	1.0	3.2	-10%	2.9%	Bottom left
41. Food Retailing	1.9	1.4	17%	2.7%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.2 Benalla

Figure 2.3 shows RCA analysis by ANZSIC Level 2 industries for the Benalla LGA. Key industries of interest with a high CAI in the Benalla LGA include Wood Product Manufacturing; Fabricated Metal Product Manufacturing; Agriculture; Medical and Other Health Care Services and Commission-Based Wholesaling (see Table 2.4).

FIGURE 2.3 COMPARATIVE ADVANTAGE INDEX FOR BENALLA, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy. The chart excludes 'Non-Store Retailing and Retail Commission Based Buying' to focus the chart on the key industries.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.4 summarises the highest comparative advantage industries (Level 2 ANZSIC) for the Benalla LGA, using the Victorian CAI comparison. Important industries include Wood Product Manufacturing; Agriculture; Medical and Other Health Care Services; Machinery and Equipment Wholesaling; Residential Care Services; and Heavy and Civil Engineering Construction which each have a large CAI, undergone notable growth over the past 10 years and constitute a relatively large proportion of Benalla's GVA.

Various other industries have high CAI and growth but remain a small proportion of Benalla's GVA such as Commission-Based Wholesaling; Other Transport; and Non-Store Retailing and Retail Commission Based Buying. While Fabricated Metal Product Manufacturing has a high CAI and is a significant proportion of Benalla's GVA, the industry has experienced negative growth over the past decade.

TABLE 2.4 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR BENALLA

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
14. Wood Product Manufacturing	10.4	11.1	35%	4.0%	Top right
22. Fabricated Metal Product Manufacturing	7.2	7.4	-22%	6.1%	Top left
1. Agriculture	4.2	5.2	21%	13.0%	Top right
85. Medical and Other Health Care Services	3.3	2.2	506%	7.7%	Top right
38. Commission-Based Wholesaling	3.1	1.7	223%	0.4%	Top right

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
34. Machinery and Equipment Wholesaling	2.9	2.0	40%	4.0%	Top right
50. Other Transport	2.8	0.8	110%	0.3%	Top right
86. Residential Care Services	2.0	2.4	124%	3.4%	Top right
31. Heavy and Civil Engineering Construction	1.8	1.2	50%	2.0%	Top right
43. Non-Store Retailing and Retail Commission Based Buying	1.7	0.6	718%	0.1%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.5 summarises the largest industries (Level 2 ANZSIC) for the Benalla LGA.

TABLE 2.5 TOP 10 LARGEST INDUSTRIES FOR BENALLA

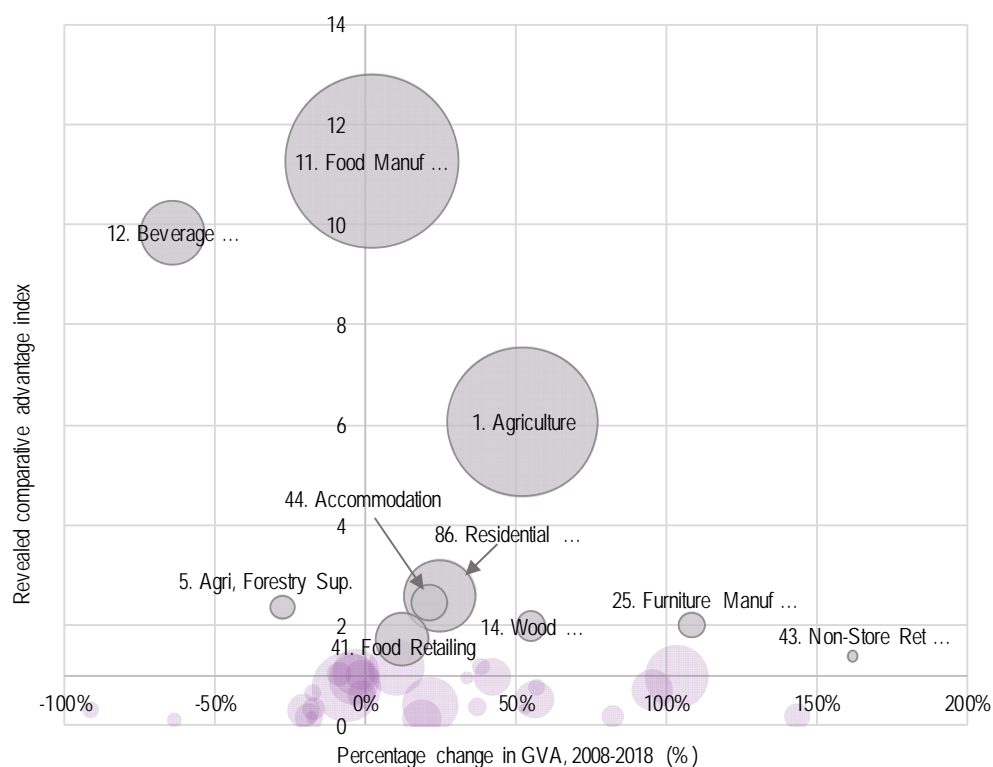
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
1. Agriculture	4.2	5.2	21%	13.0%	Top right
85. Medical and Other Health Care Services	3.3	2.2	506%	7.7%	Top right
22. Fabricated Metal Product Manufacturing	7.2	7.4	-22%	6.1%	Top left
32. Construction Services	0.9	0.8	17%	4.8%	Bottom right
34. Machinery and Equipment Wholesaling	2.9	2.0	40%	4.0%	Top right
14. Wood Product Manufacturing	10.4	11.1	35%	4.0%	Top right
86. Residential Care Services	2.0	2.4	124%	3.4%	Top right
42. Other Store-Based Retailing	0.8	0.9	-4%	2.8%	Bottom left
45. Food and Beverage Services	1.1	0.9	13%	2.5%	Top right
52. Transport Support Services	1.4	1.3	118%	2.3%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.3 Indigo

Figure 2.4 shows revealed comparative advantage analysis by Level 2 ANZSIC industries for the Indigo LGA. Key industries of interest with a high CAI in the Indigo LGA include Food Product Manufacturing; Beverage and Tobacco Product Manufacturing; Agriculture; and Residential Care Services (See Table 2.6).

FIGURE 2.4 COMPARATIVE ADVANTAGE INDEX FOR INDIGO, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.6 summarises the highest comparative advantage industries (Level 2 ANZSIC) for Indigo LGA, using the Victorian CAI comparison. Important industries include Food Product Manufacturing; Agriculture; Residential Care Services; Accommodation; and Food Retailing which each have a large CAI, have undergone notable growth over the past 10 years and constitute a relatively large proportion of the LGA's GVA.

While the Beverage and Tobacco Product Manufacturing industry has a high CAI and form a reasonable part of Indigo's GVA, the industry has had negative growth over the past decade. Various other industries have high CAI and growth but remain a small proportion of Indigo's GVA such as Furniture and Other Manufacturing; Wood Product Manufacturing; and Non-Store Retailing and Retail Commission Based Buying.

TABLE 2.6 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR INDIGO

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
11. Food Product Manufacturing	11.3	14.5	2%	25.0%	Top right
12. Beverage and Tobacco Product Manufacturing	9.8	7.7	-64%	3.4%	Top left
1. Agriculture	6.1	7.6	52%	19.0%	Top right
86. Residential Care Services	2.6	3.1	25%	4.5%	Top right
44. Accommodation	2.4	1.6	21%	1.2%	Top right
5. Agriculture, Forestry and Fishing Support Services	2.4	2.1	-28%	0.5%	Top left

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
25. Furniture and Other Manufacturing	2.0	2.4	108%	0.6%	Top right
14. Wood Product Manufacturing	2.0	2.1	55%	0.8%	Top right
41. Food Retailing	1.7	1.2	12%	2.5%	Top right
43. Non-Store Retailing and Retail Commission Based Buying	1.4	0.5	162%	0.1%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.7 summarises the largest industries (Level 2 ANZSIC) for the Indigo LGA.

TABLE 2.7 TOP 10 LARGEST INDUSTRIES FOR INDIGO

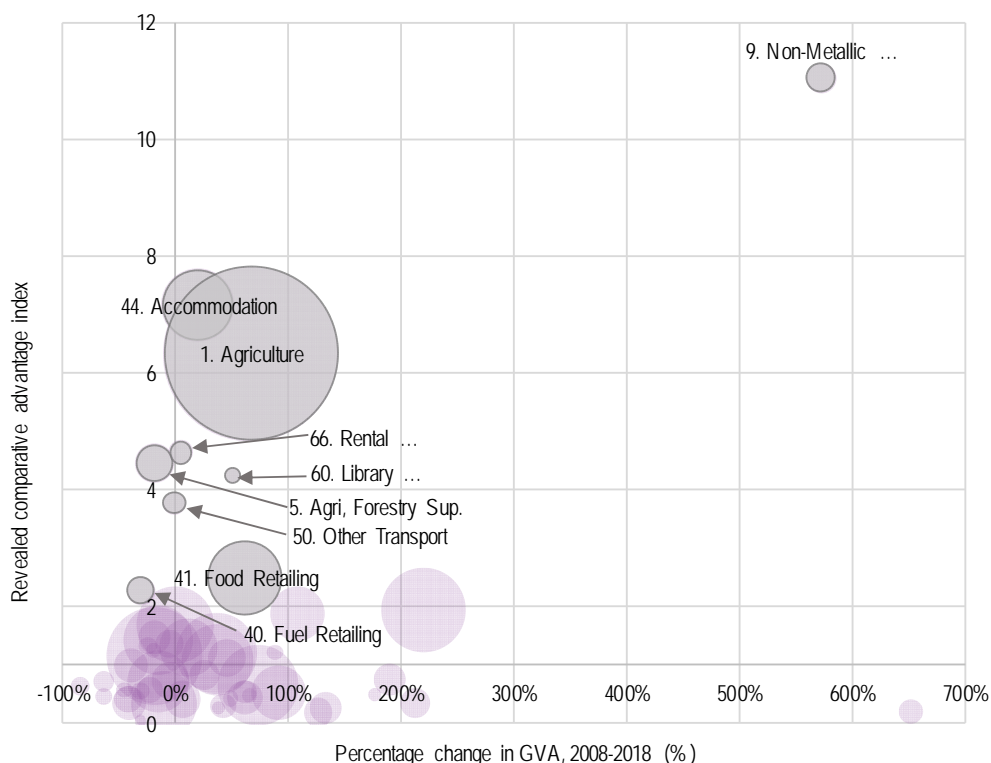
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
11. Food Product Manufacturing	11.3	14.5	2%	25.0%	Top right
1. Agriculture	6.1	7.6	52%	19.0%	Top right
86. Residential Care Services	2.6	3.1	25%	4.5%	Top right
32. Construction Services	0.8	0.7	-7%	4.0%	Bottom left
12. Beverage and Tobacco Product Manufacturing	9.8	7.7	-64%	3.4%	Top left
42. Other Store-Based Retailing	1.0	1.1	103%	3.4%	Bottom right
69. Professional, Scientific and Technical Services	0.4	0.3	21%	2.6%	Bottom right
45. Food and Beverage Services	1.2	0.9	10%	2.6%	Top right
41. Food Retailing	1.7	1.2	12%	2.5%	Top right
72. Administrative Services	0.6	0.5	246%	2.2%	Bottom right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.4 Mansfield

Figure 2.5 shows revealed comparative advantage analysis by Level 2 ANZSIC industries for the Mansfield LGA. Key industries of interest with a high CAI in the Mansfield LGA include Non-Metallic Mineral Mining and Quarrying; Accommodation; Agriculture; and Fishing, Hunting and Trapping (see Table 2.8).

FIGURE 2.5 COMPARATIVE ADVANTAGE INDEX FOR MANSFIELD, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy. The chart excludes '4. Fishing, Hunting and Trapping' to focus the chart on the key industries.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.8 summarises the highest comparative advantage industries (Level 2 ANZSIC) for the Mansfield LGA using the Victorian CAI comparison. Important industries include Accommodation; Agriculture; and Food Retailing which each have a large CAI, undergone notable growth over the past 10 years and constitute a relatively large proportion of the LGA's GVA.

Various other industries have high CAI and growth but remain a small proportion of Mansfield's GVA, such as Non-Metallic Mineral Mining and Quarrying; Fishing, Hunting and Trapping; and Library and Other Information Services.

TABLE 2.8 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR MANSFIELD

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
9. Non-Metallic Mineral Mining and Quarrying	11.0	2.7	572%	0.6%	Top right
44. Accommodation	7.2	4.9	19%	3.5%	Top right
1. Agriculture	6.3	8.1	67%	19.8%	Top right
4. Fishing, Hunting and Trapping	6.2	2.8	4327%	0.3%	Top right
66. Rental and Hiring Services (except Real Estate)	4.6	0.3	5%	0.4%	Top right
5. Agriculture, Forestry and Fishing Support Services	4.5	4.0	-19%	1.0%	Top left
60. Library and Other Information Services	4.3	23.2	50%	0.2%	Top right

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
50. Other Transport	3.8	1.1	-1%	0.4%	Top left
41. Food Retailing	2.5	1.8	62%	3.6%	Top right
40. Fuel Retailing	2.3	2.1	-31%	0.5%	Top left

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.9 summarises the largest industries (Level 2 ANZSIC) for the Mansfield LGA.

TABLE 2.9 TOP 10 LARGEST INDUSTRIES FOR MANSFIELD

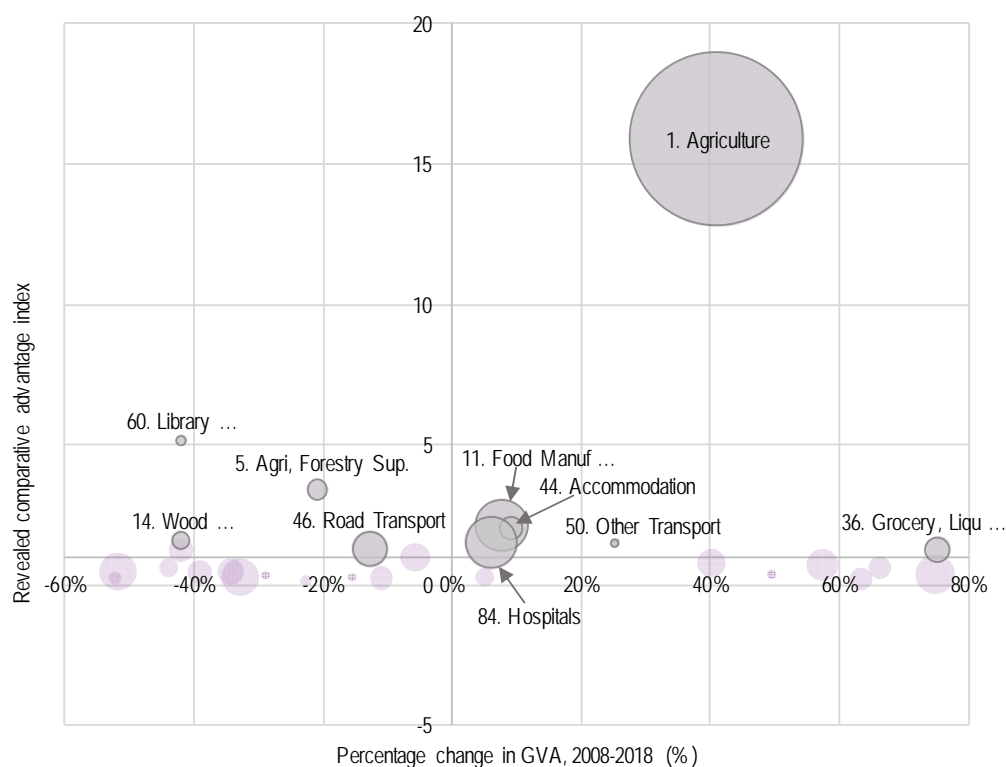
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
1. Agriculture	6.3	8.1	67%	19.8%	Top right
32. Construction Services	1.2	1.0	-19%	6.0%	Top left
85. Medical and Other Health Care Services	1.9	1.3	220%	4.6%	Top right
69. Professional, Scientific and Technical Services	0.7	0.6	74%	4.2%	Bottom right
67. Property Operators and Real Estate Services	1.2	0.7	37%	4.2%	Top right
45. Food and Beverage Services	1.7	1.4	-1%	3.8%	Top left
41. Food Retailing	2.5	1.8	62%	3.6%	Top right
44. Accommodation	7.2	4.9	19%	3.5%	Top right
84. Hospitals	1.1	3.7	37%	3.4%	Top right
30. Building Construction	1.4	1.3	-15%	3.2%	Top left

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.5 Towong

Figure 2.6 shows revealed comparative advantage analysis by Level 2 ANZSIC industries for the Towong LGA. Key industries of interest with a high CAI in the Towong LGA include Agriculture; Agriculture, Forestry and Fishing Support Services; and Food Product Manufacturing (see Table 2.10).

FIGURE 2.6 COMPARATIVE ADVANTAGE INDEX FOR TOWONG, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.10 summarises the highest comparative advantage industries (Level 2 ANZSIC) for the Towong LGA using the Victorian CAI comparison. Important industries include Agriculture; Food Product Manufacturing; Accommodation; and Hospitals which each have a large CAI, undergone notable growth over the past 10 years and constitute a relatively large proportion of the LGA's GVA.

TABLE 2.10 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR TOWONG

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
1. Agriculture	15.9	20.1	41%	49.7%	Top right
60. Library and Other Information Services	5.2	27.9	-42%	0.2%	Top left
5. Agriculture, Forestry and Fishing Support Services	3.4	3.0	-21%	0.8%	Top left
11. Food Product Manufacturing	2.1	2.8	8%	4.7%	Top right
44. Accommodation	2.0	1.4	9%	1.0%	Top right
14. Wood Product Manufacturing	1.6	1.7	-42%	0.6%	Top left
84. Hospitals	1.5	5.1	6%	4.7%	Top right
50. Other Transport	1.5	0.4	25%	0.1%	Top right
36. Grocery, Liquor and Tobacco Product Wholesaling	1.3	1.4	75%	1.1%	Top right
46. Road Transport	1.3	1.1	-13%	2.2%	Top left

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
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SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.11 summarises the largest industries (Level 2 ANZSIC) for the Towong LGA.

TABLE 2.11 TOP 10 LARGEST INDUSTRIES FOR TOWONG

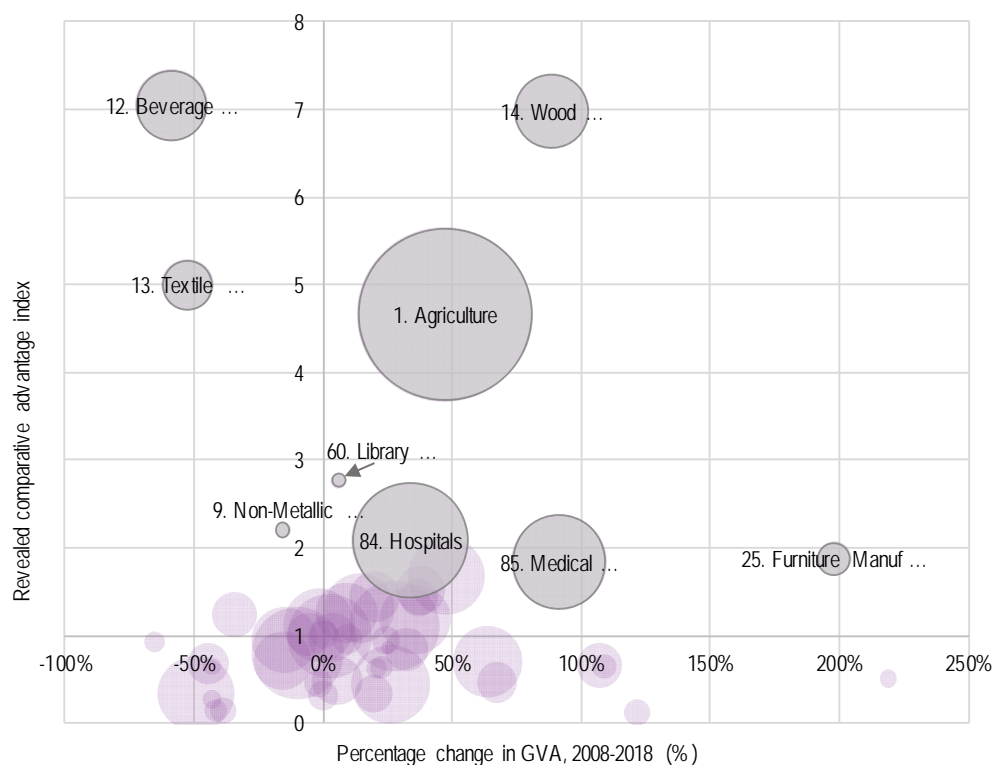
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
1. Agriculture	15.9	20.1	41%	49.7%	Top right
11. Food Product Manufacturing	2.1	2.8	8%	4.7%	Top right
84. Hospitals	1.5	5.1	6%	4.7%	Top right
69. Professional, Scientific and Technical Services (Except Computer System Design and Related Services)	0.4	0.3	75%	2.5%	Bottom right
32. Construction Services	0.5	0.4	-52%	2.4%	Bottom left
62. Finance	0.3	-	-33%	2.3%	Bottom left
46. Road Transport	1.3	1.1	-13%	2.2%	Top left
85. Medical and Other Health Care Services	0.7	0.5	57%	1.6%	Bottom right
41. Food Retailing	1.0	0.7	-6%	1.4%	Bottom left
86. Residential Care Services	0.8	0.9	40%	1.3%	Bottom right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.6 Wangaratta

Figure 2.7 shows revealed comparative advantage analysis by ANZSIC level 2 industries for the Wangaratta LGA. Key industries of interest with a high CAI in the Wangaratta LGA include Fishing, Hunting and Trapping; Beverage and Tobacco Product Manufacturing; Wood Product Manufacturing; and Textile, Leather, Clothing and Footwear Manufacturing (see Table 2.12).

FIGURE 2.7 COMPARATIVE ADVANTAGE INDEX FOR WANGARATTA, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy. The chart excludes '4. Fishing, Hunting and Trapping' to focus the chart on the key industries.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.12 summarises the highest comparative advantage industries (Level 2 ANZSIC) for the Wangaratta LGA using the Victorian CAI comparison. Important industries include Wood Product Manufacturing; Agriculture; Hospitals; and Medical and Other Health Care Services which each have a large CAI, undergone notable growth over the past 10 years and constitute a relatively large proportion of the LGA's GVA.

The Furniture and Other Manufacturing industry has a high CAI and growth but remain a small proportion of Wangaratta's GVA.

TABLE 2.12 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR WANGARATTA

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
4. Fishing, Hunting and Trapping	7.1	3.2	1,425%	0.3%	Top right
12. Beverage and Tobacco Product Manufacturing	7.0	5.7	-59%	2.5%	Top left
14. Wood Product Manufacturing	7.0	7.6	89%	2.7%	Top right
13. Textile, Leather, Clothing and Footwear Manufacturing	5.0	5.8	-52%	1.3%	Top left
1. Agriculture	4.7	6.0	47%	14.6%	Top right
60. Library and Other Information Services	2.8	15.2	6%	0.1%	Top right
9. Non-Metallic Mineral Mining and Quarrying	2.2	0.5	-16%	0.1%	Top left

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
84. Hospitals	2.1	7.1	34%	6.4%	Top right
25. Furniture and Other Manufacturing	1.9	2.3	198%	0.5%	Top right
85. Medical and Other Health Care Services	1.8	1.3	91%	4.3%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.13 summarises the largest industries (Level 2 ANZSIC) for the Wangaratta LGA.

TABLE 2.13 TOP 10 LARGEST INDUSTRIES FOR WANGARATTA

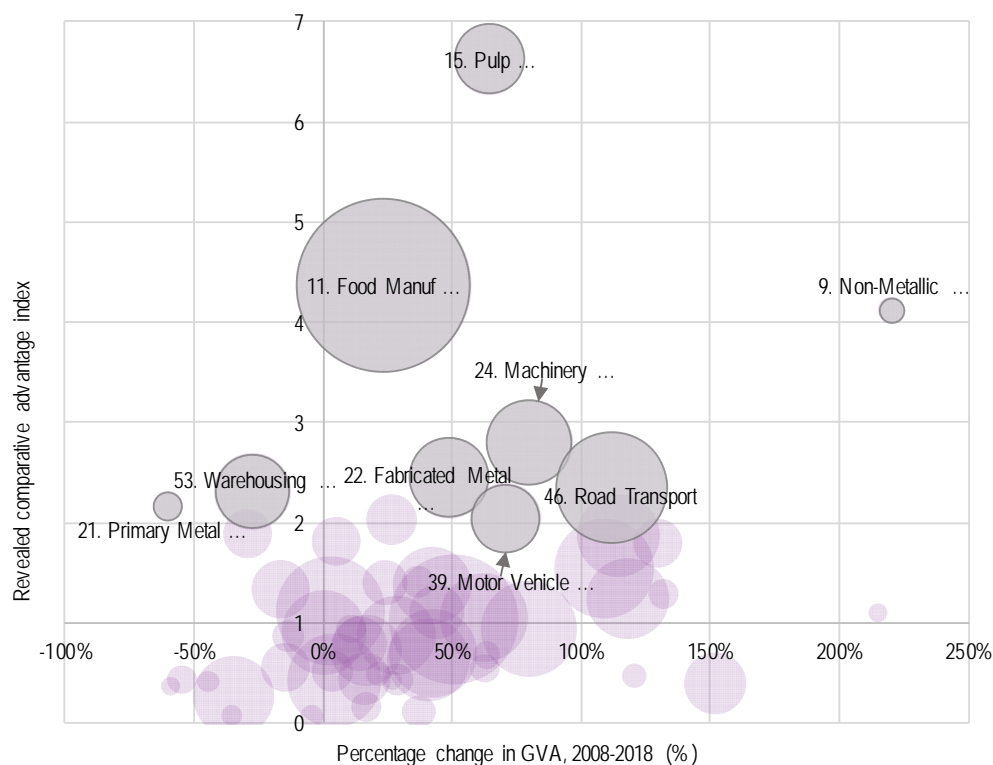
Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
1. Agriculture	4.7	6.0	47%	14.6%	Top right
84. Hospitals	2.1	7.1	34%	6.4%	Top right
85. Medical and Other Health Care Services	1.8	1.3	91%	4.3%	Top right
32. Construction Services	0.8	0.7	-10%	4.1%	Bottom left
42. Other Store-Based Retailing	1.1	1.2	28%	3.9%	Top right
72. Administrative Services	1.0	0.8	3%	3.4%	Bottom right
69. Professional, Scientific and Technical Services (Except Computer System Design and Related Services)	0.4	0.4	26%	2.9%	Bottom right
86. Residential Care Services	1.7	2.0	48%	2.9%	Top right
62. Finance	0.3	-	-49%	2.7%	Bottom left
14. Wood Product Manufacturing	7.0	7.6	89%	2.7%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.3.7 Wodonga

Figure 2.7 shows revealed comparative advantage analysis by ANZSIC level 2 industries for the Wodonga LGA. Key industries of interest with a high CAI in the Wodonga LGA include Pulp, Paper and Converted Paper Product Manufacturing; Food Product Manufacturing; and Non-Metallic Mineral Mining and Quarrying (see Table 2.12).

FIGURE 2.8 COMPARATIVE ADVANTAGE INDEX FOR WODONGA, 2017-18, LEVEL 2 ANZSIC



Note: This includes the revealed comparative advantage relative to the Victorian economy. The chart excludes '4. Fishing, Hunting and Trapping' to focus the chart on the key industries.

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.12 summarises the highest comparative advantage industries (Level 2 ANZSIC) for the Wodonga LGA using the Victorian CAI comparison. Important industries include Pulp, Paper and Converted Paper Product Manufacturing; Food Product Manufacturing; Machinery and Equipment Manufacturing; Fabricated Metal Product Manufacturing; Road Transport; and Motor Vehicle and Motor Vehicle Parts Retailing which each have a large CAI, undergone notable growth over the past 10 years and constitute a relatively large proportion of the LGA's GVA.

Various other industries have high CAI and growth but remain a small proportion of Wodonga's GVA, such as Fishing, Hunting and Trapping and Non-Metallic Mineral Mining and Quarrying.

TABLE 2.14 TOP 10 REVEALED COMPARATIVE ADVANTAGE INDUSTRIES FOR WODONGA

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
15. Pulp, Paper and Converted Paper Product Manufacturing	6.6	7.3	64%	1.6%	Top right
4. Fishing, Hunting and Trapping	4.9	2.2	719872 %*	0.2%	Top right
11. Food Product Manufacturing	4.4	5.7	24%	9.7%	Top right
9. Non-Metallic Mineral Mining and Quarrying	4.1	1.0	220%	0.2%	Top right
24. Machinery and Equipment Manufacturing	2.8	2.3	80%	2.4%	Top right

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
22. Fabricated Metal Product Manufacturing	2.5	2.5	49%	2.1%	Top right
46. Road Transport	2.4	2.0	112%	4.0%	Top right
53. Warehousing and Storage Services	2.3	6.2	-27%	1.8%	Top left
21. Primary Metal and Metal Product Manufacturing	2.2	0.4	-60%	0.3%	Top left
39. Motor Vehicle and Motor Vehicle Parts Retailing	2.0	1.8	71%	1.6%	Top right

** The high growth percentage is a result of an initially very small industry.*
 SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

Table 2.13 summarises the largest industries (Level 2 ANZSIC) for the Wodonga LGA.

TABLE 2.15 TOP 10 LARGEST INDUSTRIES FOR WODONGA

Industry (Level 2 ANZSIC)	CAI (Victorian comparison)	CAI (National comparison)	10-year growth	% of LGA GVA	Quadrant
11. Food Product Manufacturing	4.4	5.7	24%	9.7%	Top right
32. Construction Services	1.0	0.9	51%	5.4%	Top right
46. Road Transport	2.4	2.0	112%	4.0%	Top right
72. Administrative Services	1.1	0.9	3%	3.8%	Top right
87. Social Assistance Services	1.6	2.3	109%	3.2%	Top right
84. Hospitals	0.9	3.2	80%	2.9%	Bottom right
69. Professional, Scientific and Technical Services	0.4	0.4	4%	2.8%	Bottom right
85. Medical and Other Health Care Services	1.1	0.7	62%	2.5%	Top right
42. Other Store-Based Retailing	0.7	0.8	42%	2.5%	Bottom right
24. Machinery and Equipment Manufacturing	2.8	2.3	80%	2.4%	Top right

SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.4 Summary (Level 2 ANZSIC analysis)

Table 2.16 summarises the highest revealed comparative advantage industries (Level 2 ANZSIC) for Ovens Murray, using the Victorian CAI comparison. The region has a diverse mix of industries such as agricultural production, food and beverage processing, wood product manufacturing and a nationally significant alpine tourism industry.

Agriculture demonstrates strong comparative advantages across Towong (15.9 CAI Vic comparison, 41 per cent growth and 50 per cent GVA), Mansfield (6.3 CAI Vic comparison, 67 per cent growth and 20 per cent GVA) and Indigo (6.1 CAI Vic comparison, 52 per cent growth and 19 per cent GVA). Agriculture's growth has been driven by strong beef export demand and record high cattle prices, strong lamb and wool prices in recent years. Dairy milk production is also important to the region.

Interestingly, the region has a much greater diversity of manufacturing industries that have comparative advantage, experienced growth and represent between 2 – 25 per cent GVA. This highlights the importance of the region's manufacturing industries. This includes:

- Wood Product Manufacturing in Alpine (15.5 Victorian CAI, 15 per cent growth and 6 per cent GVA), Benalla (10.4 Victorian CAI, 35 per cent growth and 4 per cent GVA), Wangaratta (7 Victorian CAI, 89 per cent growth and 3 per cent GVA).
- Pulp, Paper and Converted Paper Product Manufacturing in Wodonga (6.6 Victorian CAI, 64 per cent growth and 2 per cent GVA)
- Food Product Manufacturing in Indigo (11.3 CAI Vic comparison, 2 per cent growth and 25 per cent GVA).

However, an important challenge for the region is the decline of the Beverage and Tobacco Product Manufacturing in Indigo (9.8 Victorian CAI, negative 64 per cent growth and 3 per cent GVA), Wangaratta (7 Victorian CAI, negative 59 per cent growth and 2 per cent GVA) and Alpine (5.4 Victorian CAI, negative 64 per cent growth and 2 per cent GVA). This industry has declined by 60 per cent over the past decade, reflecting the cessation of the tobacco growing industry in 2009 due to the Australian Government's tobacco license buy-back and industry transition program as well as compensation from tobacco manufacturers. However, the Ovens Valley region is now a nationally significant producer of hops which is used for craft brewery operations.

Two other industries that have declined over the past decade, which are not specifically aligned with manufacturing local produce are the Fabricated Metal Product Manufacturing in Benalla (7.2 Victorian CAI, negative 22 per cent growth and 6 per cent GVA) and Textile, Leather and Clothing and Footwear Manufacturing in Wangaratta (5 Victorian CAI, negative 52 per cent growth and 1 per cent GVA). Both industries are highly exposed to international competition with low-cost producers.

The Alpine and Mansfield LGAs are at the heart of Victoria's alpine tourism industry. The industries that drive tourism performance (from an ANZSIC code classification perspective) and demonstrate strong comparative advantages and growth in the past decade include Accommodation in Alpine (9.8 Victorian CAI, 9 per cent growth and 5 per cent GVA) and Mansfield (7.2 Victorian CAI, 19 per cent growth and 3 per cent GVA).

In addition to these industries, other service industries that are clustered in these areas have demonstrated comparative advantages of a smaller magnitude, such as Food and Beverage Services, Property Operators and Real Estate Services and Food Retailing. Future economic development of the Alpine and Mansfield LGAs is dependent on provision of reliable and safe connecting infrastructure.

Table 2.16 Top 20 highest revealed comparative advantage by LGA, OVENS MURRAY

Industry (Level 2 ANZSIC)	LGA	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
1. Agriculture (appears: 3 times)*	Towong (S)**	15.9	20.1	41%	50%	Top right
14. Wood Product Manufacturing (appears: 3 times)	Alpine (S)	15.5	16.7	15%	6%	Top right
11. Food Product Manufacturing	Indigo (S)	11.3	14.5	2%	25%	Top right
9. Non-Metallic Mineral Mining and Quarrying	Mansfield (S)	11.0	2.7	572%	1%	Top right
14. Wood Product Manufacturing (appears: 3 times)	Benalla (RC)	10.4	11.1	35%	4%	Top right
12. Beverage and Tobacco Product Manufacturing (appears: 3 times)	Indigo (S)	9.8	7.7	-64%	3%	Top left
44. Accommodation (appears: 2 times)	Alpine (S)	9.8	6.6	9%	5%	Top right
22. Fabricated Metal Product Manufacturing	Benalla (RC)	7.2	7.4	-22%	6%	Top left
44. Accommodation (appears: 2 times)	Mansfield (S)	7.2	4.9	19%	3%	Top right
4. Fishing, Hunting and Trapping (appears: 2 times)	Wangaratta (RC)	7.1	3.2	1425%	0.3%	Top right
12. Beverage and Tobacco Product Manufacturing (appears: 3 times)	Wangaratta (RC)	7.0	5.7	-59%	2%	Top left
14. Wood Product Manufacturing (appears: 3 times)	Wangaratta (RC)	7.0	7.6	89%	3%	Top right

Industry (Level 2 ANZSIC)	LGA	CAI (Victorian comparison)	CAI (National comparison)	10 year growth	% of LGA GVA	Quadrant
15. Pulp, Paper and Converted Paper Product Manufacturing	Wodonga (C)	6.6	7.3	64%	2%	Top right
1. Agriculture (appears: 3 times)	Mansfield (S)	6.3	8.1	67%	20%	Top right
4. Fishing, Hunting and Trapping (appears: 2 times)	Mansfield (S)	6.2	2.8	4327%	0.3%	Top right
1. Agriculture (appears: 3 times)	Indigo (S)	6.1	7.6	52%	19%	Top right
3. Forestry and Logging	Alpine (S)	5.5	3.1	-77%	1%	Top left
12. Beverage and Tobacco Product Manufacturing (appears: 3 times)	Alpine (S)	5.4	4.3	-64%	2%	Top left
60. Library and Other Information Services	Towong (S)	5.2	27.9	-42%	0%	Top left
13. Textile, Leather, Clothing and Footwear Manufacturing	Wangaratta (RC)	5.0	5.8	-52%	1%	Top left

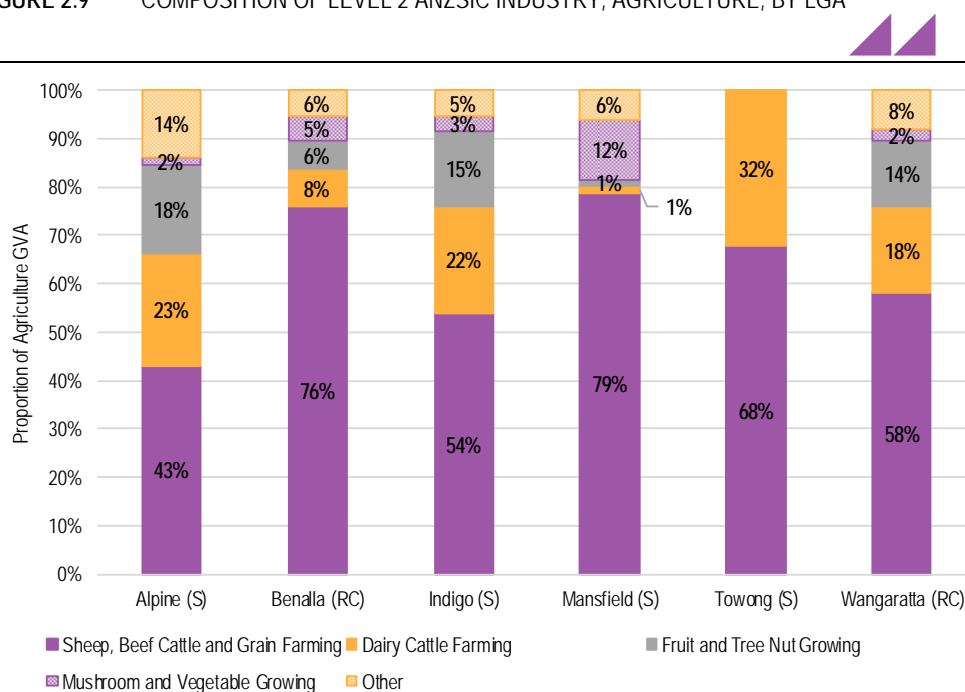
Note: *Revealed industries that appear in more than one LGA are identified *appears: x times. **LGAs are classified as follows: (C) Cities, (S) Shires and (RC) Rural Cities.
SOURCE: ACIL ALLEN ESTIMATES BASED ON IV DATA

2.4.1 Agricultural production by sector

The Level 2 ANZSIC industry, Agriculture, forms a large component of GVA for the majority of in Ovens Murray. **Figure 2.9** shows the estimated GVA of the Agriculture sub industries for each LGA with a significant agricultural industry.

Across Ovens Murray, Agriculture is primarily made up of Sheep, Beef Cattle and Grain Farming; with selected having a sizable Dairy Cattle Farming; or Fruit and Tree Nut Growing industry.

FIGURE 2.9 COMPOSITION OF LEVEL 2 ANZSIC INDUSTRY, AGRICULTURE, BY LGA



Note: Other includes: Nursery and Floriculture Production; Poultry Farming; Deer Farming; Other Livestock Farming; and Other Crop Growing.
SOURCE: ACIL ALLEN CONSULTING SHARES OF EMPLOYMENT BY INDUSTRY



3

ANALYSIS OF REVEALED INDUSTRIES

This section outlines the SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis and need assessment processes undertaken by ACIL Allen for Ovens Murray. The analysis follows the process outlined in the assessment framework report which accompanies this profile. A SWOT examines the RCA industries identified in Chapter 2. The justification for inclusion of specific revealed industries in the SWOT is based on assessment of several factors.

Firstly, revealed industries identified in **Table 2.16** are assessed for their RCA comparison to Victoria, the contribution to an LGA's GVA and consideration of the past decade's performance. This approach identifies the most important industries to the Ovens Murray region. This guides the initial SWOT analysis process. However, due to some of the limitations of the RCA (see Section 2.1), it is important to review available industry, sector and regional development literature as well as consult with relevant regional stakeholders to identify industries that the region considers as important for future economic development. In Ovens Murray's case, opportunities have been identified in Wood Product Manufacturing, Mining and Energy, Agriculture and Tourism (Accommodation).

Due to the categorisation of industries in the ANZSIC codes tourism does not have a demonstrated RCA. The data simply will not allow for this calculation to be undertaken. However, this sector demonstrates many economic development opportunities for Ovens Murray. A further assessment of the priority industries considers service industries that may contribute to the performance of a primary or secondary industry, for Tourism this may include Food and Beverage Services or Property Operators and Real Estate Services.

In order to include industries that could be considered emerging or have demonstrated growth but are starting from a low base, it is necessary to cross-check the opportunities identified in the literature with the emerging industries presented in **Table 2.16**. Outside of Wood and Product Manufacturing, Agriculture, Mining and Energy and Tourism (Accommodation), there are no industries in the top 20 that are identified in the literature that either align with the small industries (<1% GVA) demonstrating high RCA or have demonstrated strong growth over the past decade. This may reflect the limitations of the revealed industry categorisation at the ANZSIC code 2-digit level, which presents a high-level industry descriptor. The SWOT analysis is then used to identify actionable or practical issues which are compared against the documented infrastructure needs of the region/industries. This comparison is then used to identify potential opportunities and constraints facing industries which could be addressed through future infrastructure investments.

3.1 SWOT analysis of the region and revealed industries

A summary of the SWOT for the revealed industries of Ovens Murray is provided in **Table 3.1** below. Information for the SWOT has been derived from multiple sources (which are largely publicly available) including data held by IV, regional plans, stakeholder consultations and industry and sectoral strategies.

TABLE 3.1 SWOT ANALYSIS FOR THE REVEALED INDUSTRIES OF OVENS MURRAY

Category	Strengths	Weaknesses	Opportunities	Threats
Cross sector	<ul style="list-style-type: none"> Supply chain connectivity between primary production, processors and Melbourne and Sydney markets Albury – Wodonga economic region Proximity to Albury Proximity to Albury Airport Logic Industrial Estate in Wodonga 	<ul style="list-style-type: none"> Limited access to mobile telecommunication infrastructure in rural areas The population of older groups (those aged 60 and above) continues to rise, especially in Mansfield, Wangaratta and Wodonga. This continues the Australia-wide ageing trend stemming from lower birth rates and longer life expectancy across the country Traditional use of the land for mining and agriculture means areas may be contaminated or have high levels of chemical residues (i.e. making this land less desirable for residential or future agricultural use) Ovens Murray is home to some of the most disadvantaged in Victoria Irregular and unreliable passenger train services 	<ul style="list-style-type: none"> Opportunities exist to leverage Hume Freeway and Melbourne Sydney rail link for increased freight and logistics business activity Improve digital connectivity through the Connecting Regional Communities Program and Mobile Blackspots Program Opportunities to leverage and benefit from Albury – Wodonga Regional Deal Victoria’s Climate Change Act 2017 establishes a long-term target of net zero greenhouse gas emissions by 2050, creating opportunities for low/zero emission sectors across the economy Inland Rail will complete the spine of the national freight rail network, offering less than 24 hours transit time between Melbourne to Brisbane with 98% reliability. Scheduled to be completed by 2025, the Inland Rail includes Tottenham Victoria to Albury New South Wales project which will feature enhancement works along the rail corridor in Mitchell and through North East Victoria. 	<ul style="list-style-type: none"> Structural adjustment in primary and secondary industries away from high labour intensive work practices to technology intensive modes of production, reducing demand for the region’s workers in existing industries (such as manufacturing) Climate change impacting on built environment, natural environment, health and human services, transport and availability of water Energy costs impacting on business performance
Agriculture, Forestry and Fisheries	<ul style="list-style-type: none"> Availability of rainfall, water, pastures and fodder <ul style="list-style-type: none"> Murray River/lakes and weirs Strong livestock grazing region <ul style="list-style-type: none"> 73% of agricultural value from beef, dairy and sheep Agritourism advantages due to diverse landscapes, access to agricultural production and developed tourism infrastructure <ul style="list-style-type: none"> Cropping region of Murray River Valley Selection of wineries, boutique cheese producers, breweries and distilleries Wineries across Rutherglen, King Valley, Milawa, Gapsted and Myrtleford King Valley diverse wineries, cheese and cold meat production. Market access to Sydney and Melbourne due to Wodonga logistics hub. Access to Sydney, Melbourne and Brisbane from Albury Airport Highly skilled farmers, 40 per cent tertiary educated <p>Forestry and logging</p> <ul style="list-style-type: none"> Soft wood plantation and commercial timber production industry. Plantations in the Towong inc. Granya, Berrigama and Jingellic <p>Indigo</p> <ul style="list-style-type: none"> Main commodities produced inc. dairy, beef, grain and horticultural crops (grapes, apples, berries, nuts, olives and green tea) Niche production of oil, pumpkin seeds, saffron and capers Abattoirs at Wodonga, Wangaratta, Tallangatta and Ovens 	<ul style="list-style-type: none"> Predominantly smaller holder farms, less productive and viable. Families require off-farm income Climate change impact: irrigation infrastructure vulnerable to extreme weather or disasters 	<p>Agritourism</p> <ul style="list-style-type: none"> Opportunities exist to develop agritourism experiences linking farm, meal or winery experiences. This can leverage the access to alpine resorts, major waterways, and popular historic towns. Expansion of food markets or microbreweries could increase economic activity <p>Dairy</p> <ul style="list-style-type: none"> Opportunities exist to further develop the local dairy sector based on strong long-term growth potential and access to R&D capability <p>Emerging industries - hops</p> <ul style="list-style-type: none"> Strong market fundamentals exist, with growing demand for specialty hops for craft beer production. Ovens Murray is a nationally significant producer of hops which could be expanded further. This could also be linked with agri-tourism opportunities <p>Mansfield</p> <ul style="list-style-type: none"> Traditionally a broadacre grazing area, recent growth in horticulture production indicates further growth opportunities for Mansfield Growth potential in King Valley due to premium food products and emerging prosecco grape variety planting and wine production Hydroponic tomato growing 	<ul style="list-style-type: none"> Climate change may impact <ul style="list-style-type: none"> farming and related agricultural output the frequency and severity of natural hazards such as bush fires, droughts and floods Biosecurity risks associated with climate change: changed distribution of pests and diseases Increased bushfire risk from climate change to impact farm businesses Reduction in water security as a potential climate change impact

Category	Strengths	Weaknesses	Opportunities	Threats
			Towong <ul style="list-style-type: none"> Opportunities exist to develop branded and paddock to plate style initiatives inc. locally produced meat and vegetables. This would require assessment of local supply chain capability Opportunities exist to develop Corryong Livestock Saleyards, which would give local producers better marketing opportunities and reduce transport costs 	
Manufacturing	Food product manufacturing <ul style="list-style-type: none"> Food processing industry at Wodonga, Wangaratta, Wahgunyah and Benalla. Wodonga has expanding commercial area and global product packing Sonoco. Wangaratta home to Nestles Uncle Toby's brand. Other companies including Mars Corporation, Vitasoy, Visy and Orora Dairy milk production: sale of Murray Goulburn to Saputo (Indigo LGA Tangambalanga / Kiewa) Indigo <ul style="list-style-type: none"> Developed food product manufacturing industry (33 per cent LGA GVA value) Wangaratta <ul style="list-style-type: none"> Highly concentrated Beverage and Tobacco product manufacturing industry, which is primarily for wine production. Wodonga <ul style="list-style-type: none"> High security water access from Lake Hume makes attractive for manufacturing investment Access to vacant industrial land supports new manufacturers Proximity to Sydney and Melbourne Access to efficient transport networks, air, road and rail freight Access to large workforce (83 000 in region) 	Indigo <ul style="list-style-type: none"> Indigo over reliance on food processing (dairy) is exposed to market down-turn, such as recent dairy crisis 	Wangaratta <ul style="list-style-type: none"> Opportunities exist to support transition of local manufacturing businesses to adopt automation technologies, develop export markets or produce niche products 	<ul style="list-style-type: none"> Structural adjustments in the manufacturing sectors cost competitiveness
Energy and mining	Renewable energy <ul style="list-style-type: none"> Hydroelectric power produced at Lake Dartmouth Availability of solar, agricultural produce waste and water resources 	<ul style="list-style-type: none"> Current cost competitiveness of renewable energy compared to traditional energy sources 	<ul style="list-style-type: none"> Gas expansion to industry hubs Renewable energy <ul style="list-style-type: none"> Victoria's Climate Change Act 2017 establishes a long-term target of net zero greenhouse gas emissions by 2050. This increases viability of renewable energy investments into the future. Release of new planning guidelines for large-scale solar farms Renewable energy increasingly becoming cost competitive compared to traditional energy sources Potential opportunities for solar energy, bioenergy, waste from timber to link with local electricity distribution network Indigo <ul style="list-style-type: none"> Renewable energies identified as area of specialisation for the LGA. Opportunities exist to develop solar power generation (Wahgunyah / Yackandandah) Expansion of gas line to Rutherglen Industrial Estate 	

Category	Strengths	Weaknesses	Opportunities	Threats
Tourism	<p>Region has four of Victoria's alpine resorts</p> <ul style="list-style-type: none"> - Mt Hotham - Falls Creek - Mount Buller - Mount Stirling <p>Indigo</p> <ul style="list-style-type: none"> - Cycling tourism <p>Benalla</p> <ul style="list-style-type: none"> - Benalla Art Gallery and Benalla Performing Arts and Convention Centre, Botanical Gardens, Winton Motor Raceway, Winton Wetlands <p>Mansfield</p> <ul style="list-style-type: none"> - Cycle tourism - Growth in visitation between 2010-11 and 2016-17 - Surge in cyclist tourism due to investment in Mt Buller bike trails and investment in the Great Victorian Rail Trail - Commercial horse riding - Camping, fishing and hunting in Alpine National Park 	<p>Towong</p> <ul style="list-style-type: none"> - Less desirable tourism destination due to further distance from Melbourne than competition (Alpine areas) - Declining employment opportunities due to threat of climate change 	<ul style="list-style-type: none"> - Opportunities exist to strengthen Mt Hotham, Falls Creek, Mt Buller and Lake Mountain regions tourism accessibility beyond summer and winter peaks. This may be achieved with more walking and bicycle trails. - Notable opportunities include North East Victoria Cycling Optimisation Project, Mount Buffalo Activation Plan and Falls to Hotham Alpine Crossing <p>Benalla</p> <ul style="list-style-type: none"> - Opportunities exist to increase accessibility to the region by increasing the capacity of the local aerodrome by increasing the length of the runway - Opportunities exist for increasing accommodation options to cater for visitors coming to Benalla for major events, such as at Winton Motor Raceway <p>Indigo</p> <ul style="list-style-type: none"> - Opportunities exist to create tourism experiences linking the cultural heritage, events, cycling, food / wine / craft beer and nature by investing in accommodation and retail services (Beechworth / Rutherglen) - Opportunities to further develop cycle tourism and enhance visitors experience into other areas. (Yackandandah) - Opportunity to develop craft/artisanal produce sector due to domestic and international demand for niche products inc. beer, gin and whisky, bread etc. <p>Wangaratta</p> <ul style="list-style-type: none"> - Opportunities exist to develop a strong food and beverage industry that leverages the local agricultural production, food and beverage tourism - Opportunities exist to develop King Valley Rail Trail <p>Towong</p> <ul style="list-style-type: none"> - Opportunities to develop Great River Road tourist experience. There are inadequate facilities and stopping points along the route. Lack of signage directing tourists to Upper Murray Region from Hume Highway - Opportunities to develop town trails which would develop walking tracks through towns. Currently only accessible by car 	<p>Climate change</p> <ul style="list-style-type: none"> - Impact to natural tourism assets in the region such as reduced snow depths and shorter season and increased threats to tourism infrastructure

Category	Strengths	Weaknesses	Opportunities	Threats
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SOURCE: VARIOUS SOURCES

VICTORIAN GOVERNMENT (2018) INVEST IN VICTORIAN AGRICULTURE AND FOOD: OVENS-MURRAY. ACCESSED 11 JUNE 2019 ([HTTP://WWW.INVEST.VIC.GOV.AU/_DATA/ASSETS/PDF_FILE/0003/325614/3-OVENS-MURRAY_V18F.PDF](http://www.invest.vic.gov.au/_data/assets/pdf_file/0003/325614/3-OVENS-MURRAY_V18F.PDF))

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URBAN ENTERPRISE (2018) MANSFIELD SHIRE ECONOMIC PROFILE. ACCESSED 11 JUNE 2019 ([HTTPS://WWW.MANSFIELD.VIC.GOV.AU/BUSINESS/ECONOMIC-DEVELOPMENT-STRATEGY](https://www.mansfield.vic.gov.au/business/economic-development-strategy))

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OTHER VICTORIAN GOVERNMENT SOURCES: ([HTTPS://WWW.REGIONAL.VIC.GOV.AU/REGIONAL/DEALS/ALBURY-WODONGA.ASPX](https://www.regional.vic.gov.au/regional/deals/albury-wodonga.aspx)); (REGIONAL ADAPTATION SNAPSHOT HUME [HTTPS://WWW.CLIMATECHANGE.VIC.GOV.AU/_DATA/ASSETS/PDF_FILE/0030/392925/D18-001.REGCCASNAPSHOTREPORTS_HUME_FALR.PDF](https://www.climatechange.vic.gov.au/_data/assets/pdf_file/0030/392925/D18-001.REGCCASNAPSHOTREPORTS_HUME_FALR.PDF)); ([HTTPS://INLANDRAIL.ARTC.COM.AU/BENEFITS](https://inlandrail.artc.com.au/benefits)); ([HTTPS://INLANDRAIL.ARTC.COM.AU/MITCHELL](https://inlandrail.artc.com.au/mitchell)); ([HTTPS://INLANDRAIL.ARTC.COM.AU/NORTH-EAST-VICTORIA](https://inlandrail.artc.com.au/north-east-victoria)); ([HTTPS://WWW.CLIMATECHANGE.VIC.GOV.AU/REDUCING-EMISSIONS/EMISSIONS-TARGETS](https://www.climatechange.vic.gov.au/reducing-emissions/emissions-targets)); ([HTTPS://WWW.PREMIER.VIC.GOV.AU/NEW-LARGE-SCALE-SOLAR-GUIDELINES-BOOST-SECTOR-CONFIDENCE/](https://www.premier.vic.gov.au/new-large-scale-solar-guidelines-boost-sector-confidence/)) AND (CLIMATE-READY HUME: [HTTPS://WWW.CLIMATECHANGE.VIC.GOV.AU/_DATA/ASSETS/PDF_FILE/0022/60745/HUME.PDF](https://www.climatechange.vic.gov.au/_data/assets/pdf_file/0022/60745/HUME.PDF))

To ensure the SWOT can be translated into actionable strategies, ACIL Allen has used a technique which applies four fundamental questions to the information provided above. These questions are derived from combining elements of the SWOT. They help to identify the region's 'opportunities' and 'constraints' that could be progressed/addressed through future infrastructure investment.

3.1.1 Strengths – Opportunities assessment

This part of the SWOT considers: Which of the region's/sector's strengths can be used to maximise the opportunities identified?

Agriculture (Beef, dairy, lamb, wool and horticulture)

Agricultural production is an important driver of the region's economy. Beef, lamb, wool and milk production are well suited to the region due to the mild climate, access to water from the Murray River and suitable grazing country. Opportunities exist to further expand the local dairy industry based on the strong long-term growth potential of the sector and access to R&D capability in the region. Farmers in the region are highly educated, with around 40 per cent having tertiary qualifications. Higher education attainment improves the capacity to adopt novel technologies and practices. The region has a developed supply chain, with abattoirs, milk and food processors in Wangaratta, Tallangatta, Ovens, Wodonga, Wahgunyah and Benalla. Also, the access to Melbourne and Sydney markets via the Hume Freeway and rail is essential. The Inland Rail project, once completed, will enhance supply chains and improve the region's connection to the national freight network between Melbourne and Brisbane.

In Mansfield, traditionally a livestock grazing area, recent growth in horticulture production could present growth opportunities for the future. Similarly, further growth in emerging wines and niche products could develop in the King Valley, with the production of premium food products and cultivation of prosecco grapes.

Horticultural crops are produced at a much smaller scale. In Indigo, this includes grapes, apples, berries, nuts, olives and green tea. There is also production of niche crops such as oil, pumpkin seeds, saffron and capers. Hop production in the region is a growing sector and one of national significance. Further growth opportunities exist from the growing market demand for craft beer.

The local characteristics of small scale, niche and boutique food production make the region well-suited to agritourism. There are also opportunities to improve visitors' access to the region's alpine resorts, major waterways, popular historic towns, food markets and emerging number of microbreweries (as discussed below).

Manufacturing (Wood and Food Product Manufacturing)

The region has a well-established food processing industry clustered around Wodonga, Wangaratta, Wahgunyah and Benalla. Opportunities exist to further develop food processing in the region. Access to secure water supplies from Lake Hume, proximity to Sydney and Melbourne markets via road, rail and air freight make Wodonga desirable for business development. Commercial land in Wodonga is expanding, with the development of Sonoco, a global product packaging business of significant scale. Other major processors include Nestles Uncle Toby's brand at Wangaratta and Mars Corporation, Vitasoy, Visy and Orora.

Wood Product Manufacturing has demonstrated strong comparative advantages and growth across Alpine, Benalla and Wangaratta. However, future opportunities for the sector is unclear, other than targeting incremental improvements in supply chain efficiency, reducing cost of production to remain competitive and utilising the region's access to markets and skilled labour for further growth.

Mining and energy

Through the *Climate Change Act 2017*, the Victorian Government has set a long-term target of net zero emissions by 2050. This is a key opportunity for the renewable energy sector across the state.³

Ovens Murray has a mix of renewable energy sources available. Hydroelectric power is produced at Lake Dartmouth. The region has significant solar, wind and agricultural waste resources (timber)

³ <https://www.climatechange.vic.gov.au/reducing-emissions/emissions-targets>

available in the region. There are opportunities to develop renewable energy power generation in the region. Solar power generation in Wahgunyah and Yackandandah in Indigo has been identified as an opportunity for industry development and specialisation for Indigo.

Tourism

The tourism industry in Ovens Murray is focused around the alpine regions of Mount Buller and Mount Stirling (Mansfield) and Mount Hotham (Alpine). Historically, the region has been focused on the winter ski season, with strong visitation from local and Melbourne visitors. In recent years, the focus has been on developing the region into a destination for four seasons, through experiences and events particularly focused on cycling. This is in response to investment in Mount Buller bike trails and investment in the Great Victorian Rail Trail for example. But camping, fishing and hunting are also popular pursuits in the Alpine National Park. The main waterway activities are centred on Lake Eildon and the Murray River where recreational boating, fishing and camping is growing.

The main opportunities for growing tourism in the alpine regions focus on improving visitor access beyond summer and winter peaks in Mount Hotham, Falls Creek and Mount Buller through the development of walking and bicycle trails. Outside of the mountain regions, opportunities exist to leverage local nature-based and cultural experience assets. Development of the local visitor accommodation infrastructure could increase visitors attending Benalla's major events such as at Winton Motor Raceway.

In Wangaratta, opportunities exist to develop a strong food and beverage industry anchored on agritourism. Development of the King Valley Rail Trail and encouraging investment in the King Valley could enhance agritourism, based around the providence of local food produced, boutique offerings and emerging sectors such as prosecco wine production. These opportunities would require supporting enabling infrastructure, specifically road and public amenities that support the experience, connect destinations and extend information.

Towong is an area of agricultural production less accessible to the Melbourne market. However, the region has unique natural beauty. Provision of road access, prominent rest areas and road signage along the Great River Road could allow the area to be a much more accessible and popular destination.

3.1.2 Strengths – Threats assessment

This part of the SWOT considers: How can the region's/sector's strengths be used to minimise the threats identified?

Climate change will have demonstrable impacts on primary production in Ovens Murray. Climate change is expected to impact air temperature, rainfall and water availability and occurrence of extreme weather events. Fortunately, Ovens Murray's beef, lamb, wool and dairy sectors are highly developed industries which rely on and respond to changing future predictions of the changing climates impacts on their sector. The key strength Ovens Murray's primary industries possess is the availability and access to the latest research, development and extension. Commodity sector aligned Commonwealth Research and Development Corporations in particular, invest in innovation and practices which support beef, lamb, wool and dairy adapt to climate change.

Secondly, the ongoing structural changes occurring in manufacturing (due to increased cost competitiveness from low cost producers domestically and overseas) threatens the long-term viability of the region's food, wood and beverage processing industries. The best opportunities to mitigate these risks involve leveraging the region's supply chain strengths to gain greater access to domestic and international markets and access to significant pools of skilled labour in the region's larger centres, particularly Wodonga.

3.1.3 Weaknesses – Opportunities assessment

This part of the SWOT considers: How can the region's/sector's weaknesses be minimised by using the opportunities identified?

A significant proportion of the region's farms are owned by small land holders which are particularly vulnerable to seasonal and market fluctuations. This means a significant number of farmers require

off-farm income to stay viable. There are significant opportunities across the region to develop a network of agritourism type businesses that could leverage the qualities of the small-holder farmers and create demand for local produce as well as Ovens Murray branded produce.

The Indigo region is highly exposed to the dairy processing industry. Market down-turns such as the recent dairy crisis can create significant instability and risks the sector's long-term viability. Opportunities that improve the supply chain's efficiency, increases the value of products sold through new marketing channels or product offerings are important. This region needs to consider encouraging investment by other complimentary processors or value-adding businesses not directly linked to the dairy price cycle dynamic.

3.1.4 Weaknesses – Threats assessment

This part of the SWOT considers: How can a region's/sector's weaknesses be minimised to avoid the threats it/they are facing?

The primary weakness for Ovens Murray is its access to enabling infrastructure such as digital connectivity on-farm (whole region) and accessibility of regions for increased visitation (Towong) and supply chain efficiencies for manufacturing industries. Improvements in these areas will support the agriculture, manufacturing and tourism industries adaptation to the projected impacts of climate change.

3.2 Needs analysis of the region and relevant industries

This section identifies the needs for industry sectors and at a two-digit ANZSIC level for the Ovens Murray and within the Alpine, Benalla, Indigo, Mansfield, Towong, Wangaratta and Wodonga LGAs. These needs have been developed based on the SWOT analytical processes.

3.2.1 What is important to the region?

Agriculture, Forestry and Fisheries

The agriculture, forestry and fisheries industries are the largest source of GVA, demonstrate strong CAI and source of growth for the region in the last decade (Towong LGA, Mansfield LGA and Indigo LGA). Beef, dairy, lamb and wool production are the main production sectors for the region. Future growth of these sectors can depend on productivity gains on-farm and developing existing or new markets to capture greater value.

What needs could be addressed by government?

- All agricultural industries need efficient road infrastructure to link production with key processing centres including Wodonga, Wangaratta, Wahgunyah and Benalla.
- The agriculture industry needs enhanced NBN connectivity to enable market expansion.

Manufacturing

Wood and Food Product Manufacturing have demonstrated strong comparative advantages and moderate growth in Ovens Murray over the past decade. Beverage and Tobacco Product Manufacturing is a significant industry which has experienced decline in the past decade. Further development of these industries is dependent on improvements in supply chains and improvements in productivity through technology adoption and automating previously manual processes.

What needs could be addressed by government?

- The food product, wood product and beverage manufacturing industries would benefit from enhanced road and rail connections between primary producers, processor/manufacturers and markets (Melbourne and Sydney).
- Access to reliable energy, water and waste services in industrial areas of regional centres is essential for economic development.

- Access to telecommunication and NBN services will be increasingly important for application of remote sensing or automated technologies in the manufacturing process.

Mining and energy

Ovens Murray is not traditionally a significant mining or energy producing region. This is reflected in the limited economic activity of the industries identified with relatively high comparative advantages (Non-Metallic Mineral Mining and Quarrying in Mansfield).

However, the future potential of renewable energy production is significant, with opportunities identified for solar power generation at Wahgunyah and Yackandandah. Through the *Climate Change Act 2017*, the Victorian Government has set a long-term target of net zero emissions by 2050. This is a key opportunity for the renewable energy sector across the state.⁴

What needs could be addressed by government?

- Enabling infrastructure for solar power generation including distribution network connections.

Tourism

The Tourism industry is integral to the economic performance of the region. Strong comparative advantage and economic growth in the Accommodation industry indicates tourism industries importance to the Alpine regions. Encouraging growth beyond the ski fields and outside the winter and summer peak periods is important. The development of agritourism and place based experiences will be critical to increasing visitation in the region.

What needs could be addressed by government?

- The tourism and supporting service sectors need public amenities, road signage and road infrastructure to enable development of tourism in the region.
- Improve infrastructure in the region's Alpine resorts.
- Improved access between tourist accommodation and natural and cultural tourist experiences such as walking and bicycle trails.
- Upgrade and maintenance of the regional aerodrome at Benalla.
- Develop enabling infrastructure along the King Valley Rail Trail.
- Improve signage, public facilities and rest areas along the Great River Road of the Upper Murray Region (Towong).
- Develop town trails (foot and bicycle) paths to link tracks through towns, which are only accessible by cars.

3.2.2 What opportunities and constraints does Government face in addressing these needs?

Table 3.2 summarises the opportunities and constraints government could consider in addressing the infrastructure needs of the revealed industries of Ovens Murray which have a high comparative advantage.

⁴ <https://www.climatechange.vic.gov.au/reducing-emissions/emissions-targets>

TABLE 3.2 WHAT ARE THE INFRASTRUCTURE INVESTMENT OPPORTUNITIES AND CONSTRAINTS FOR OVENS MURRAY?

Industry	Revealed sectors	Relevant LGAs/areas	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
Agriculture, Forestry and Fisheries	Agriculture (beef, lamb, wool and dairy)	Benalla Alpine Mansfield Wangaratta Indigo Towong	All agricultural industries need efficient road infrastructure to link production with key processing centres including Wodonga, Wangaratta, Wahgunyah and Benalla	Development and maintenance of road infrastructure that links the production regions with processing towns	Inadequate road infrastructure limits the efficient functioning of the local primary production supply chain
		Benalla Alpine Mansfield Wangaratta Indigo Towong	The agriculture industry needs enhanced NBN connectivity to enable market expansion	Development of telecommunication, mobile broadband and NBN infrastructure in priority regional black spots	Inadequate mobile phone reception and digital connectivity impacts the ability of local producers to use smart farming technologies and embrace digital farming solutions
Manufacturing	Wood product and food product manufacturing	Indigo Alpine Benalla Wangaratta Wodonga	The food product, wood product and beverage manufacturing industries would benefit from enhanced road and rail connections between primary producers, processor/manufacturers and markets (Melbourne and Sydney)	Enhancement of road and rail connections between producers, manufacturers and Melbourne and Sydney markets	Inadequate supply chain connections between primary producers, processors and domestic markets inhibits growth potential for the sector or efficient supply chain operation
		Indigo Alpine Benalla Wangaratta Wodonga	Access to reliable energy, water and waste services in industrial areas of regional centres is essential for economic development	Provision of essential utility services in industrial and commercial areas is important to encourage additional investment in these areas	Inadequate or poorly maintained utility infrastructure discourages additional business investment in industrial and commercial areas
		Indigo Alpine Benalla Wangaratta Wodonga	Access to telecommunication and NBN services will be increasingly important for application of remote sensing or automated technologies in the manufacturing process	Improving access and reliability of internet and telecommunication enabling technologies is essential to attracting new investment to the region	Without access to modern and fast digital and telecommunication technologies the regions manufacturers will be at a competitive disadvantage to other regions
Mining and Energy	(Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have an RCA as such)	Wodonga Benalla	Enabling infrastructure for solar power generation including distribution network connections	Development of enabling energy infrastructure will encourage investment in renewable power generation in the region	Without basic enabling infrastructure such as electricity grid connections the renewable industry will be unable to expand

Industry	Revealed sectors	Relevant LGAs/areas	Identified needs	Opportunities to address needs	Constraints to economic development of the sector
Tourism	(Identified as emerging industry, based on the future opportunities identified in the SWOT however, it does not have an RCA as such)	All	The tourism and supporting service sectors need public amenities, road signage and road infrastructure to enable development of tourism in the region	Development of public amenities, road signage, foot and bicycle paths are essential to enabling development of local tourism experiences	Without basic enabling infrastructure within and connecting towns, the region's tourism sector will be unable to expand
			Develop town trails (foot and bicycle) paths to link tracks through towns, which are only accessible by cars		
			Improve digital connectivity to the region	Improving access and reliability of internet and telecommunication enabling technologies is essential for tourism in the region	Poor mobile phone reception impacts local business ability to use EFTPOS technology and tourists to navigate to destinations
		Benalla	Upgrade and maintenance of the regional aerodrome at Benalla	Development of the Benalla aerodrome could enable increased tourist demand for the region	Inadequate aerodrome infrastructure reduces the capacity of the aerodrome to receive commercial and private traffic
		Wangaratta	Develop enabling infrastructure along the King Valley Rail Trail	Development of enabling infrastructure along the King Valley Rail Trail will improve tourist experiences	Without the necessary infrastructure, the King Valley Rail Trail is less desirable to visitors
	Towong	Improve signage, public facilities and rest areas along the Great River Road of the Upper Murray Region (Towong)	Development of signage, public facilities and rest areas along the Great River Road of the Upper Murray Region could increase domestic tourist demand for the region	Without access or enabling infrastructure along the Murray River Road, tourists are unable to experience the regions nature-based tourism opportunities	
	Alpine resorts	Improve infrastructure in Alpine resorts	Invest in priority infrastructure initiatives across Alpine resorts in the regions (note that there are a number of projects for Alpine resorts for consideration such as Mt Hotham redevelopment, Falls to Hotham crossing etc.	Potential for Alpine resorts to attract more visitation will be compromised by lack of infrastructure improvements	

SOURCE: ACIL ALLEN

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