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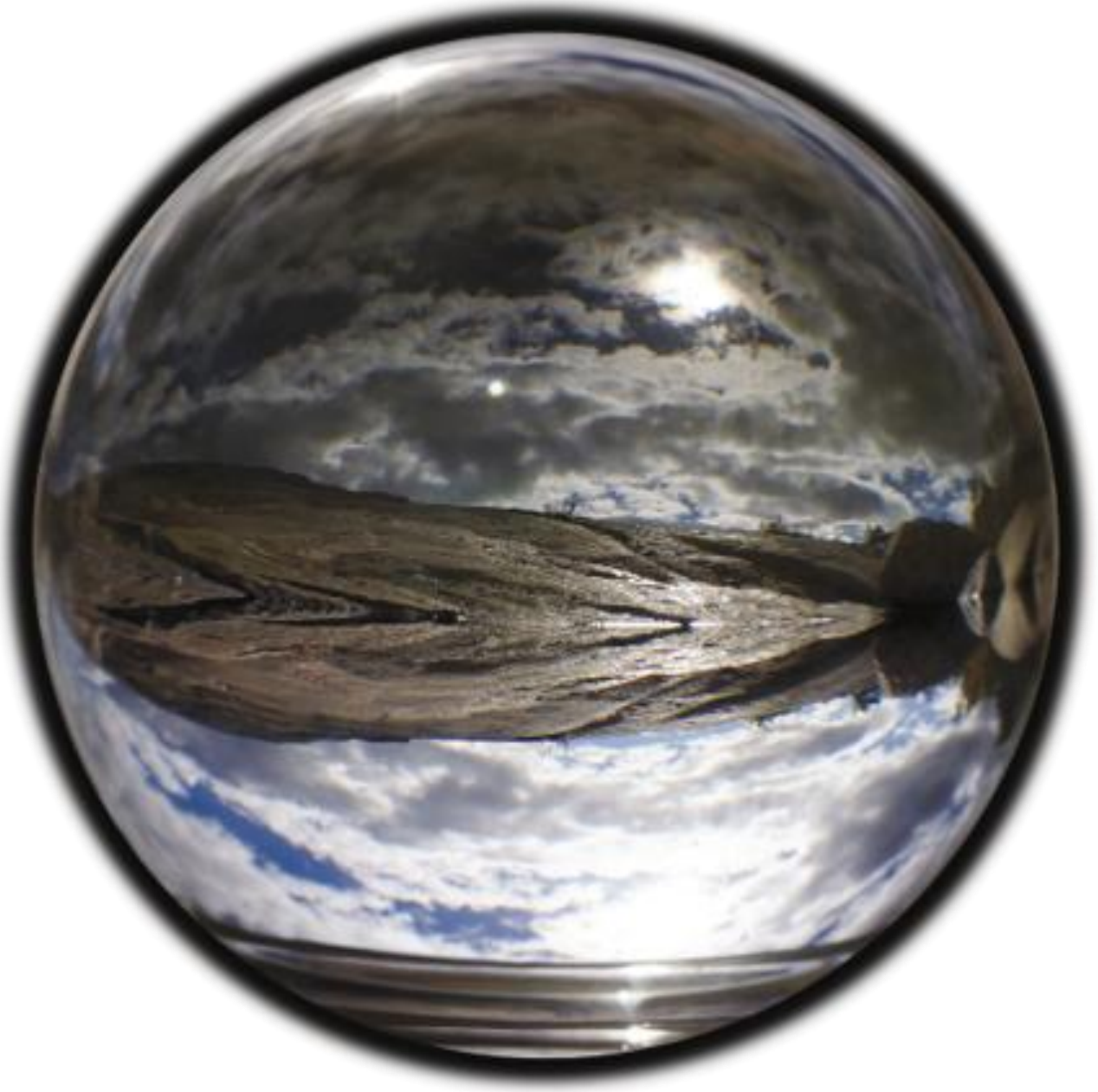

Northern Rivers Economic Profile and Natural Hazard Impacts

An input into the Northern Rivers Disaster Adaptation Plan

October 2025

Deloitte Access Economics

Deloitte.

Acknowledgement of Country

Deloitte Access Economics and the NSW Reconstruction Authority acknowledge the Traditional Custodians of the lands where we work and live. We celebrate the diversity of Aboriginal peoples and their ongoing cultures and connections to the lands and waters of NSW.

We pay our respects to Elders past, present and emerging and acknowledge the contributions of the Aboriginal people living on Bundjalung, Yaegl and northern parts of Gumbaynggirr Lands, that contributed to the development of this report.

We advise this resource may contain images, or names of deceased persons in photographs or historical content.

Acknowledgements

This report has been prepared by Deloitte Access Economics for the NSW Reconstruction Authority. The findings, analysis, and recommendations contained herein are those of Deloitte Access Economics and do not necessarily reflect the views or positions of the NSW Reconstruction Authority.

Australian Government

NSW GOVERNMENT

This Disaster Ready Fund project is funded by the Australian Government and NSW Government.

Disclaimer

The information contained in this publication is based on knowledge and understanding at the time of writing, October 2025, and is subject to change.

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Acronym	Meaning
ABS	Australian Bureau of Statistics
AGRN	Australian Government reference number that is issued for disaster declarations by the NSW Government
Bn	Billions
CAT	Numbering system used by the ICA for insurance catastrophes (e.g. the 2022 SEQ and NSW floods are referred to as CAT221)
GRP	Gross Regional Product
GVA	Gross Value Added
ICA	Insurance Council of Australia
LGA	Local Government Area
LHS	Left hand side
NBN	National Broadband Network
NR DAP	Northern Rivers Disaster Adaptation Plan
NSW	New South Wales
NSW RA	NSW Reconstruction Authority
Ppt	Percentage point
Regional NSW	Regional New South Wales (excluding Greater Sydney and the Northern Rivers)
RHS	Right hand side
SEQ	South East Queensland

Executive summary

The Northern Rivers region of northern New South Wales (NSW) is known for its vibrant communities, diverse economy, and rich natural landscapes. The region has one of the highest natural hazard risk profiles in NSW, with recent years seeing a series of catastrophic events impact the region. Natural hazard events can have lasting economic and social consequences for the communities impacted, highlighting the need for improved risk management and strengthened disaster resilience.

To this end, the NSW Reconstruction Authority (RA) has engaged Deloitte Access Economics to undertake a study into the Northern Rivers economy, as well as the economic impacts of three historical natural hazard events on the region – the 2019-20 bushfires, the 2022 floods and Ex-Tropical Cyclone Alfred in 2025. This report will inform risk reduction options and potential adaptation pathways in preparation of the first ever Northern Rivers Disaster Adaption Plan (NR DAP).

The report is an input into the NR DAP and draws upon both quantitative data drawn from a mix of public and proprietary sources, and qualitative findings from a series of consultations with local stakeholders. This included seven roundtable events as well as a targeted survey of local businesses, both of which support the report findings to reflect the lived experience of the local community impacted by recent natural hazard events.

The Northern Rivers boasts a diverse and growing economy, yet it faces short-term and long-term risk from natural hazard events.

The Northern Rivers boasts a diverse economy, with strengths in key industries underpinned by the region's unique geography. In 2024, the region was estimated to generate $22.8 billion in Gross Regional Product (GRP). This is up 17.9% in real terms since 2019 and represents 2.9% of NSW Gross State Product. Compared to the rest of Regional NSW, the Northern Rivers has strengths in a diverse set of industries including health and education, visitor economy industries such as retail, accommodation and food, and arts and recreation services, construction, food manufacturing and service sectors such as IT and professional services. In particular, the region's food manufacturing supply chain, based around producers like Norco and Casino Food Coop alongside many smaller producers, is large and interlinked. It has upstream dependencies on the agriculture sector and downstream linkages to retail and accommodation and food services.

The region's economic strengths are driven by its geography which supports a large resident population, strong tourism sector including popular destinations for national and international travellers like Byron Bay, prosperous agricultural production with world-leading produce like macadamias, avocados and sugar cane, and easy access to key population and transport hubs such as Gold Coast and Brisbane.

While the region's geography provides economic opportunity, it also creates short-term vulnerabilities to natural hazard events. On the supply-side, agriculture is highly exposed to crop and livestock losses which not only cost the farmers impacted, but also the downstream industries that rely on their produce. Meanwhile, the region's key infrastructure such as power, telecommunications and the road network are vulnerable to disruption during natural hazard events with limited alternatives available. On the demand-side the important role of tourism for many industries means that cancellations in the event of natural hazards can have a substantial impact on revenue for many businesses. These shared vulnerabilities highlight the importance of building resilience across sectors - not just within them.

Table i: Headline economic indicators, Northern Rivers vs Regional NSW

Region	GRP, 2024 (Change vs 2019 in real terms)	Population, 2023 (Change vs 2018)	Participation Rate, 2023 (Change vs 2018)	Unemployment Rate, 2023 (Change vs 2018)	Top 3 industries by Gross Value Added (GVA), 2024
Northern Rivers	$22.8bn (+17.9%)	316,000 (+4.1%)	54.1% (+3.2ppt)	3.5% (-2.7ppt)	1. Health Care & Social Assistance 2. Education & Training 3. Agriculture, Forestry & Fishing
Regional NSW	$209.6bn (+18.0%)	2,575,000 (+4.7%)	55.9% (+2.4ppt)	3.2% (-2.4ppt)	1. Health Care & Social Assistance 2. Mining 3. Agriculture, Forestry & Fishing

Source: Deloitte Access Economics (2025). Australian Bureau of Statistics, Regional Population by Age and Sex, Australia, 2023 (Catalogue No. 3235.0, 30 August 2023). Jobs and Skills Australia, (2024), Small Area Labour Markets. Australian Bureau of Statistics, Labour Force, Australia, Detailed, May 2025 (Catalogue No. 6291.0.55.001, 26 June 2025).

An important longer-term risk from natural hazards is the impact on the resident population. The population of the Northern Rivers was approximately 316,000 in 2023, reflecting average annual growth of 0.8% since 2018 - lower than that of Regional NSW. Population growth was particularly weak in 2022-23, likely in part due to residents either choosing or being forced to leave the region following the 2022 floods. During consultation the cost and availability of housing was consistently highlighted as a key constraint on the regional economy which has worsened in recent years due to the impact of natural hazard events on the housing stock. This is borne out in the above inflation increases in rental prices seen across the Northern Rivers since 2020 and housing cost stress levels that are well above the rate seen in Regional NSW.

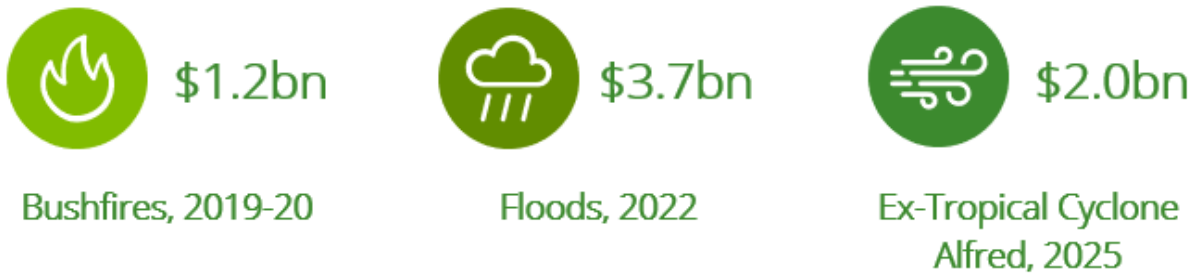
In part due to weak population growth, the Northern Rivers labour market has tightened in recent years. The unemployment rate has decreased from 6.2% in 2018 to 3.5% in 2023. While some of this is likely due to increased labour demand from key labour-intensive industries like health and social assistance, weak population growth is also contributing. While this has supported increases in wages and labour market participation, many businesses cited the availability of skilled labour as a key constraint on the economy.

The economic impacts of past natural hazard events have varied by region, industry and event, with the total socio-economic costs being largest for the 2022 floods at $3.7 billion.[1]

To investigate the impacts of past natural hazard events on the region in more detail, three case studies were examined: the 2019-20 bushfires, the 2022 floods and Ex-Tropical Cyclone Alfred in 2025. The case studies highlight how the impacts of natural hazard events vary by industry, location and event type. Of the events considered, the 2022 floods had the largest total socio-economic cost on the region due to the geographic spread and scale of the devastation. The estimated total socio-economic cost from the 2022 floods on the Northern Rivers was $3.7 billion, well above the estimated socio-economic cost of Ex-Tropical Cyclone Alfred ($2.0 billion) and the 2019-20 bushfires ($1.2 billion). Total socio-economic cost estimates reflect the cost of asset losses from each event due to damage to residential and commercial property, alongside flow-on economic and social costs, such as mental health effects, associated with these damages based on cost multipliers developed by Deloitte Access Economics.

[1] The total socio-economic cost of a disaster refers to the full range of direct and indirect losses caused by the event, including damage to property and infrastructure, lost economic activity, and social impacts such as injury and loss of life. The estimates are inflation adjusted and provide a consistent, evidence-based estimate of the total socio-economic cost of natural hazard events over time. Further can be found in Appendix B: Technical details.

Figure i: Estimated total socio-economic costs of the case study events to the Northern Rivers, 2025 prices



Source: Deloitte Access Economics (2025).

2019-20 bushfires (AGRN 871)

The 2019-20 bushfire season was one of the worst fire seasons in Australian history. In the Northern NSW region over 1.13 million hectares burned, with the worst of the impacts between October 2019 and February 2020 in the South and West of the region in areas like Clarence Valley and Richmond Valley.

The bushfires had catastrophic impacts on the Northern Rivers. There were two deaths in the Long Gully Road fire, while some 703 homes were destroyed in Northern NSW. Many businesses temporarily closed due to evacuations or direct fire threats, while the agriculture and forestry sectors were heavily impacted by lost livestock and infrastructure. The smoke from the fires caused widespread health impacts and was reported by local businesses to have contributed to a "lost year" of tourism for the local economy.

The fires also caused some localised disruption to regional infrastructure. In Rappville, over 350 power poles were destroyed, leaving communities without power for extended periods. Telecommunication networks were also impacted, with damaged phone lines and broadcast towers disrupting services. Meanwhile, there were temporary closures to key transport links including the Pacific Highway, and Bruxner Highway due to active fires or debris, isolating some communities.

In total Northern Rivers GRP is estimated to have fallen to a low of 9.8% below pre-bushfire levels in January 2020 before recovering, although some of this fall may be attributable to heavy rainfall and flooding in the parts of the region that month. Merchant receipts in the region also fell to 1% below pre-bushfire levels in the quarter to December 2019, and further to 4% below pre-event levels in the first quarter of 2020.

2022 floods (AGRN 1012)

Extreme rainfall between 22 February and 9 March 2022 led to extensive flooding in Northern NSW and Queensland, including the Northern Rivers. Low lying communities across the region were evacuated and there was extensive flooding in many districts. A second major flood struck around four weeks later on 29 March 2022, re-flooding parts of the region before the waters receded in April.

The 2022 floods had widespread community impacts. Six people lost their lives in the Northern Rivers with thousands of residents left homeless. Many businesses experienced disruption with premises inundated with water in low-lying commercial and industrial areas causing closures and losses of inventory and equipment. Agriculture was particularly hard hit with significant crop and livestock losses. Meanwhile other sectors like health and social assistance and construction had to surge capacity to support the recovery and manage increased demand for their services.

The flooding disrupted supply chains, compounding the direct damage to businesses. Key transport routes were cut off, preventing the movement of goods into and out of affected areas. This led to temporary shortages of fuel, food, and other essential items in some communities. With trucks unable to deliver supplies or collect products, many businesses experienced extended periods of inactivity.

In total Northern Rivers GRP is estimated to have fallen to a low of 4.8% below pre-flood levels in May 2022 before a slow recovery through the rest of 2022. Analysis of transactions spending data also shows a drop in

spending activity in the region following the floods. In the quarter to March 2022 total merchant transaction receipts in the Northern Rivers declined by 10%, remaining subdued until the December 2022 quarter.

2025 Ex-Tropical Cyclone Alfred (AGRN 1198)

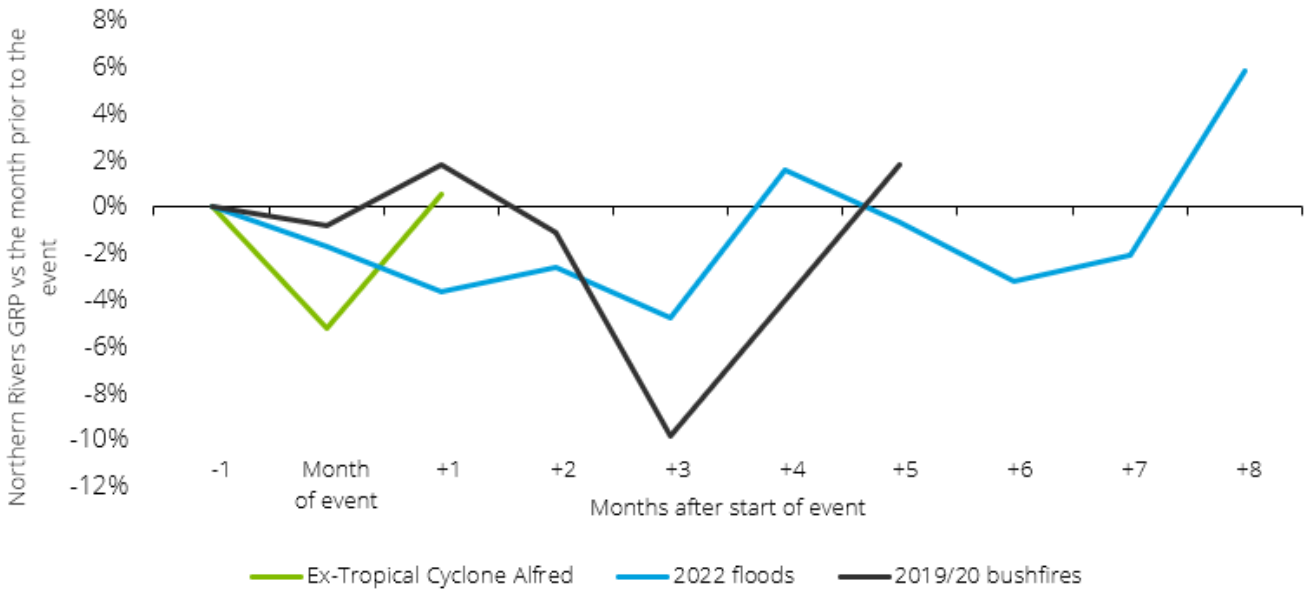
Ex-Tropical Cyclone Alfred was a former category-2 cyclone that was downgraded to a tropical low before making landfall on 8 March 2025. The event brought torrential rain, high winds and storm surges, with parts of the Northern Rivers receiving 640mm of rain over five days. This caused moderate to major flooding in the Tweed, Richmond, Wilsons and Clarence River systems. Winds of up to 120km/h toppled trees and power lines, while there was significant erosion along the Northern Rivers coastline.

Despite effective warning and preparation, the event had widespread impacts. One death was recorded in the Northern Rivers due to a person crossing floodwaters, while 644 properties sustained flood damage, including 112 with severe damage. Authorities issued 18 evacuation orders, requesting 19,000 people to leave flood-prone areas. This led to temporary but notable disruption for businesses. Many businesses closed and evacuated leading to a loss of trade and disruptions to local supply chains, although most reported that they were able to reopen within a week.

There were notable infrastructure impacts. Loss of power and telecommunication was a key issue for the community, with spoiled food supplies one of the most common insurance claims reflecting the extent of lost refrigeration during extended blackouts. In addition, floodwaters and fallen trees impacted many roads, with sections of the Pacific Highway shut down impacting a key transport corridor in the region.

In total Northern Rivers GRP is estimated to have fallen 5.2% in March 2025 before recovering quickly in April. Analysis of transactions spending data shows that merchant receipts in the Northern Rivers fell by 9.5% in the March quarter of 2025 and remained subdued through the Easter trading period in April as the visitor economy was impacted by trip cancellations.

Chart i: Estimated total socio-economic costs of the case study events to the Northern Rivers, 2025 prices



Source: Deloitte Access Economics (2025).

Natural hazard events are estimated to have taken a cumulative $4.0 billion off of Northern Rivers GRP since 2019.

In aggregate, over the period from the onset of the bushfires in 2019 until the recovery following Ex-Tropical Cyclone Alfred in May 2025, the Northern Rivers region experienced a cumulative loss of approximately $4.0

billion in GRP due to natural hazard events. This estimate reflects the shortfall between actual monthly GRP and a counterfactual scenario in which no major natural hazard events occurred. The total loss represents 2.9% of the economic activity that would have otherwise been expected over the period.

Beyond the headline economic impacts, businesses in the region have had to grapple with a range of short-term and long-term challenges associated with the natural hazard risk profile of the region.

The increasing frequency and intensity of natural hazard events has led to rising insurance costs for many businesses. Average business insurance premiums in the Northern Rivers increased by 94% between 2021 and 2024. In turn, the Business NSW quarterly business conditions survey highlights that insurance costs are the top concern for businesses in the state.

As a result, many businesses are investing in their own resilience building measures which are seen as an essential cost of doing business in the Northern Rivers. The most commonly cited measures taken include weatherproofing premises, implementing disaster recovery plans and increased workforce training and support. While many stakeholders noted how these measures have improved disaster readiness, it presents an ongoing cost to local businesses.

Overall while natural hazard events clearly pose a significant risk to the region's economy, many stakeholders consulted in the development of this report spoke positively about the economic fundamentals of the region and pointed to opportunities that recent events have presented. A summary of the top risks and opportunities highlighted is presented below.

The findings of this report demonstrate the significant costs that natural hazard events have had on the Northern Rivers community in recent years. Events have brought significant short-term impacts to business operations, consumer spending and GRP, alongside longer-term scarring via impacts to the capital stock, local labour market and business productivity. While the region is likely to remain exposed to natural hazard events into the future, this report has highlighted key risks and vulnerabilities to the economy which, if appropriately mitigated, provide opportunities to increase resilience and reduce the costs of disasters to the Northern Rivers community in the future.

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1 Background

Summary

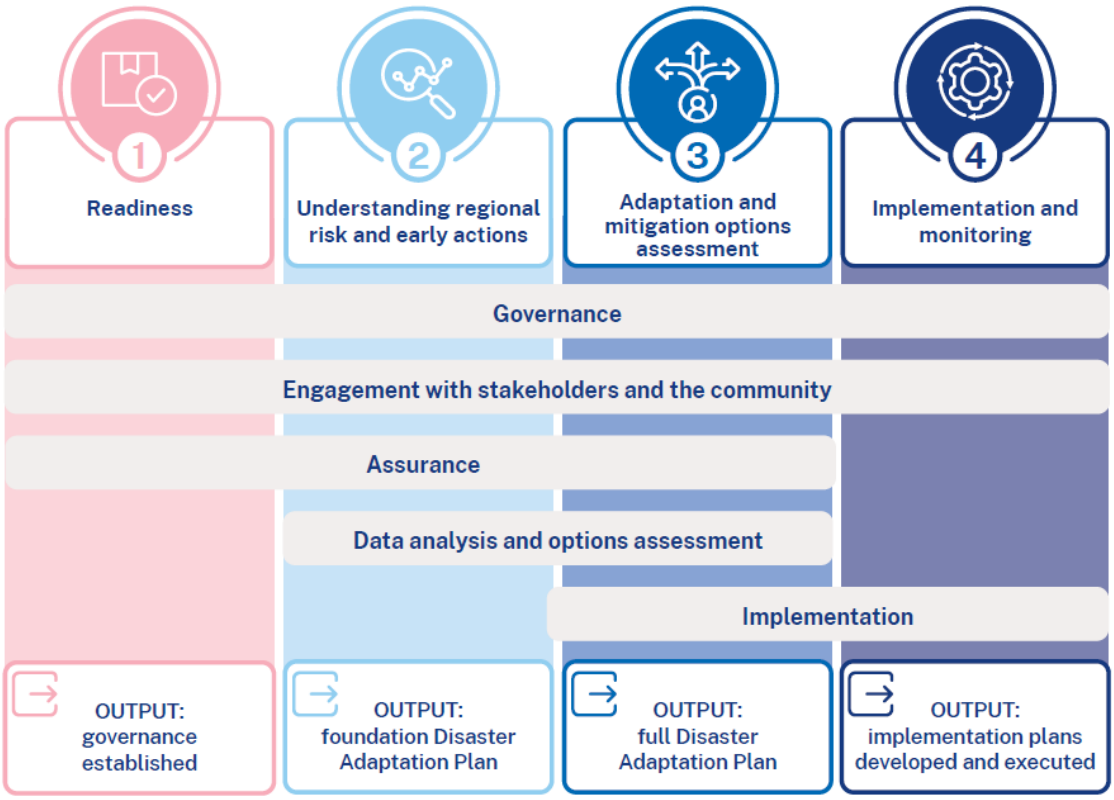
The Northern Rivers region of northern New South Wales (NSW) is known for its vibrant communities, diverse economy, and rich natural landscapes. Home to a growing population and a diverse economy driven by industries such as healthcare, tourism and agriculture, the region plays a vital role in the state's economic and cultural fabric. The region also faces one of the highest natural hazard risk profiles in NSW. With the increasing impacts of anthropogenic climate change, natural hazard events are projected to become more frequent and severe. These events can have lasting economic and social consequences, particularly for vulnerable sectors, underscoring the need for improved risk management and disaster resilience.

1.1 Purpose of the report

The NSW Reconstruction Authority (RA) has engaged Deloitte Access Economics to undertake this study into the Northern Rivers economy, as well as the economic impacts of three historical natural hazard events on the region – the 2019-20 bushfires, the 2022 floods and Ex-Tropical Cyclone Alfred in 2025

This report will inform the state's first multi-hazard regional Disaster Adaptation Plan in the Northern Rivers region to identify what actions are needed to reduce the risk posed by natural hazards. The plan aims to reduce risk where possible and adapt where the change or impact is unavoidable.

Figure 1.1: Stages and tasks for preparing, making and implementing a Disaster Adaptation Plan



Source: NSW Government (2025).

The Northern Rivers Disaster Adaptation Plan (NR DAP) will cover the economic, social, natural and built domains. This report focuses on the former and provides an overview of the Northern Rivers economy,

including its supply chains and critical infrastructure, as well as an analysis of the economic impacts of three historical natural hazard events on the region – the 2019-20 bushfires, the 2022 floods and Ex-Tropical Cyclone Alfred in 2025.

The information compiled provides a foundation for assessing risk reduction options to be considered in preparation of the NR DAP.

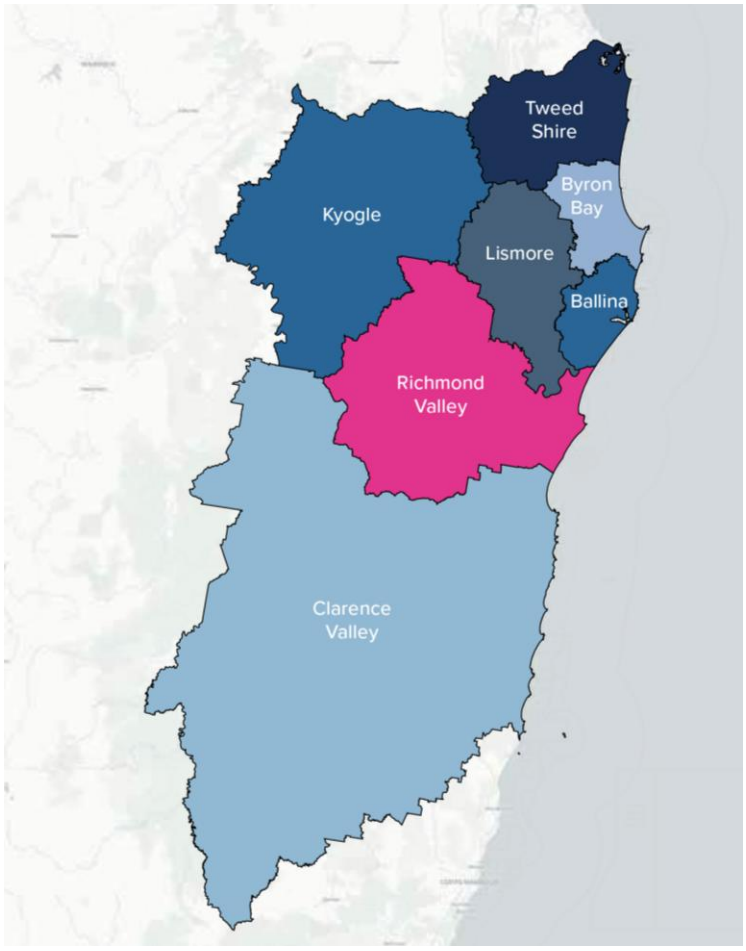
1.2 The Northern Rivers

The Northern Rivers region is located on the NSW North Coast, covering an area of over 20,000 square kilometres. Its area encompasses seven Local Government Areas (LGAs) of Ballina, Byron, Clarence Valley, Kyogle, Lismore, Richmond Valley and Tweed, as per Figure 1.2.

The region has one of the highest natural hazard risk profiles in NSW, and regularly experiences floods, storms, bushfires and coastal erosion. In recent times, significant floods and bushfire events have impacted the region, including the 2022 floods and 2019-20 summer bushfires, while earlier in 2025 Ex-Tropical Cyclone Alfred caused further disruption to the region.

Simultaneously, the Northern Rivers' geography is a key driver of its local economy. Its warm climate and coastal location have given rise to the region's prominent tourism and hospitality industries, whilst a large and growing residential population has driven growth in retail, building and construction, health, education and community services industries. Further, the region's hinterland has fertile soil that supports agriculture and downstream manufacturing, which are also prominent industries in the region.

Figure 1.2: Northern Rivers Region



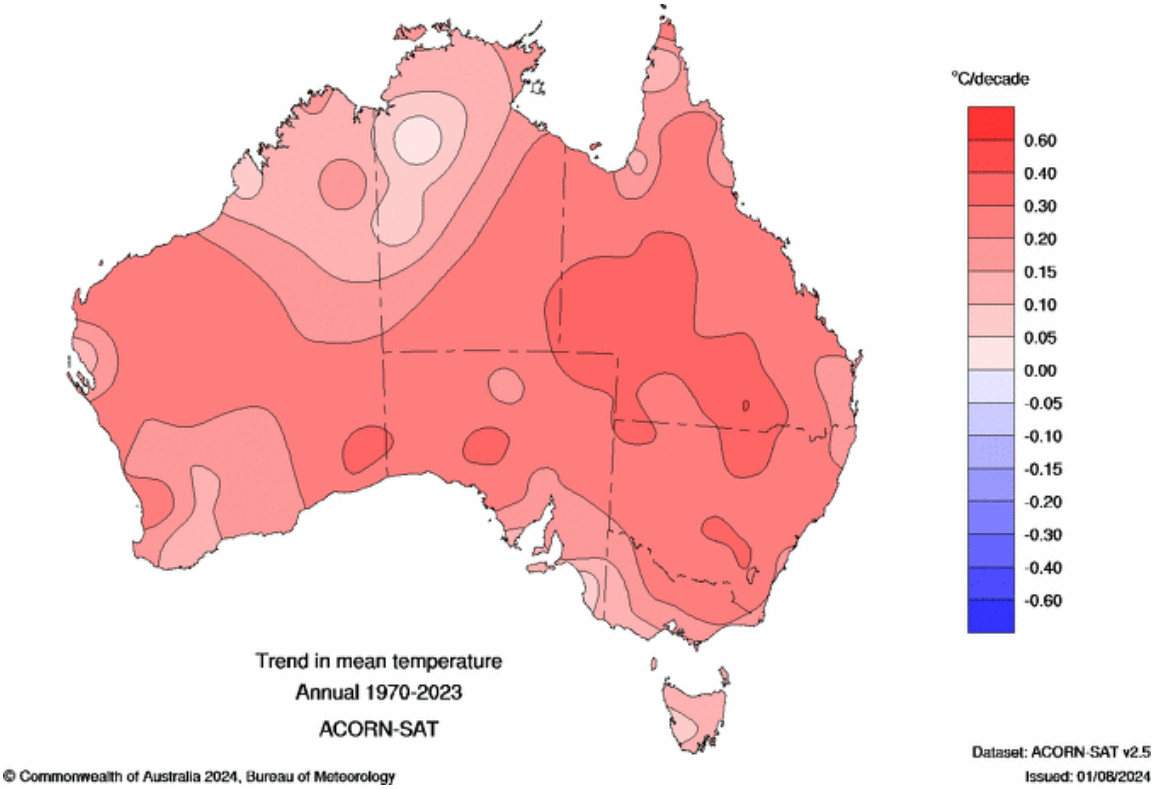
Source: NSW Reconstruction Authority (2021).

1.3 The economic impact of natural hazards

With worsening effects of anthropogenic climate change, natural hazard events are estimated to increase in frequency and severity in the future. Australia has experienced an increase in its mean temperature over the past 50 years.[2] The continued increase in air temperatures is anticipated to lead to increased instances of extreme heat, prolonged periods of drought and increased occurrence of short-duration high-intensity rainfall events.[3]

Further, climate change is continuing to increase sea levels. Projections indicate an increase in sea levels off the central NSW coast of between 0.21m and 1.06m by 2100.[4] This increases the risk of coastal inundation and erosion, as well as the potential reach of storm surges associated with cyclone events.

Figure 1.3: Change in mean temperature across Australia (1970-2023)



Source: Bureau of Meteorology, Australian climate variability & change - Trend maps (2024).

The economic impacts of natural hazard events can be severe, and long-lasting. As defined by NSW Treasury,[5] these include:

- direct costs such as damage to property and infrastructure
- indirect costs including business disruption, service and earnings losses and emergency response costs

[2] Bureau of Meteorology. *State of the Climate 2024: Future climate* (2025, Commonwealth of Australia). <https://www.bom.gov.au/state-of-the-climate/future-climate.shtml>
[3] Ibid.
[4] NSW Government. *Climate change impacts on sea level rise* (2025). https://www.climatechange.environment.nsw.gov.au/impacts-climate-change/weather-and-oceans/sea-level-rise
[5] NSW Treasury, *Disaster Cost-Benefit Framework* (October 2023) <https://www.nsw.gov.au/sites/default/files/noindex/2025-03/tpg23-17-disaster-cost-benefit-framework.pdf>

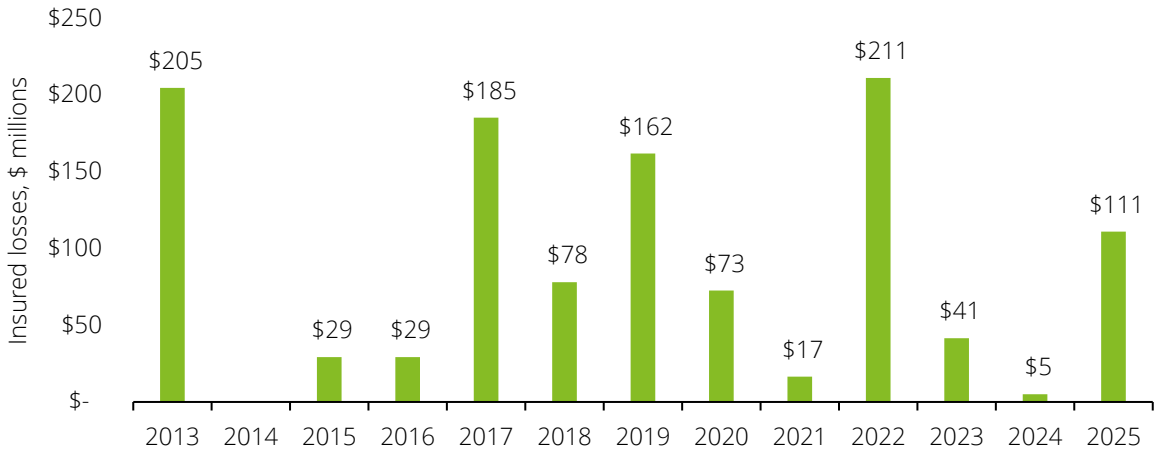
- **intangible (social) costs** such as the long-term trauma and mental stress they place on the population.

All these factors can impact economic activity and the productive potential of an area.

In 2021, Deloitte estimated that natural disasters cost the Australian economy $38 billion per year on average, considering not just insured losses, but the total socio-economic costs of natural disasters. This cost is expected to increase to at least $73 billion per year by 2060.[6] South East Queensland (SEQ) and NSW North Coast (including the Northern Rivers region) are expected to face the greatest increase in costs from natural hazards as the frequency and severity of such events increases. These regions would benefit the most from greater action to address climate change and investments to improve natural disaster resilience.

Natural hazard events have become a regular occurrence in the Northern Rivers in recent years. Chart 1.1 shows estimated insured losses seen in the Northern Rivers region each year since 2013 based on the Insurance Council of Australia (ICA) database – a public record of major natural hazard events and the associated insurance claims across Australia. The most significant losses in the Northern Rivers were recorded in 2013 and 2022, with estimated insured losses of $205 million and $211 million respectively.

Chart 1.1: Estimated normalised insured losses for the Northern Rivers captured in the ICA database, $ millions, 2025 prices



Note: The Northern Rivers share of costs was estimated from Australia wide costs using the populations of affected postcodes. Results should be interpreted with caution as actual insurance costs may differ across postcodes for reasons other than population shares. The data above reflects insurance claims as of June 2025 for events up to and including March 2025.
Source: Insurance Council of Australia, 2025.

Table 1.1 lists the insured disaster events contributing to the costs captured in Chart 1.1 above. The recurrence of severe events highlights the region's vulnerability to both cyclonic and non-cyclonic weather systems.

[6] Deloitte Access Economics, *Special report: Update to the economic costs of natural disasters in Australia* (2021, report commissioned by Australian Business Roundtable for Disaster Resilience & Safer Communities) <https://www.deloitte.com/au/en/services/economics/perspectives/building-australias-natural-disaster-resilience.html>

Table 1.1: Estimated insured losses from natural hazard events that affected the Northern Rivers region, 2013-2025, 2025 prices

CAT name	Event name	Event start	Event finish	Type	Year	Estimated Northern Rivers insured losses $m, 2025 prices	Estimated per capita insured losses ($)
CAT252	Ex-Tropical Cyclone Alfred	28/02/2025	11/03/2025	Flooding	2025	111	352
SE242	Severe Weather NSW & QLD	3/04/2024	8/04/2024	Flooding	2024	5	16
CAT233	Christmas Storms	23/12/2023	3/01/2024	Flooding	2023	41	131
CAT221	SE Queensland and NSW Floods	21/02/2022	9/03/2022	Flooding	2022	211	669
CAT212	Extreme Weather Event	16/03/2021	24/03/2021	Flooding	2021	17	52
CAT202	South East Coast Storms & Flooding	4/02/2020	10/02/2020	Flooding	2020	29	92
CAT201	January Hailstorms	18/01/2020	20/01/2020	Hailstorm	2020	43	138
CAT195	2019-20 Bushfires (NSW,QLD, SA,VIC)	8/11/2019	13/02/2020	Bushfire	2019	162	513
CAT185	NSW Hailstorm	20/12/2018	20/12/2018	Hailstorm	2018	78	247
CAT173	Cyclone Debbie	28/03/2017	10/04/2017	Cyclone	2017	185	587
CAT162	East Coast Low	3/06/2016	7/06/2016	Flooding	2016	29	93
CAT153	East Coast Low	22/04/2015	22/04/2015	Storm	2015	29	93
CAT134	NSW Flooding Ex Cyclone Oswald	22/01/2013	29/01/2013	Cyclone	2013	205	649

Note: The Northern Rivers share of costs was estimated from Australia wide costs using the populations of affected postcodes. Results should be interpreted with caution as actual insurance costs may differ across postcodes for reasons other than population shares. The data above reflects insurance claims as of June 2025 for events up to and including March 2025.
Source: Insurance Council of Australia, 2025.

1.4 Report structure

This report provides a detailed analysis of the Northern Rivers economy, with a focus on its industry and economic structure, key socioeconomic trends, and the economic impact of recent natural hazard events. The scope of the report has been defined to support the development of the NR DAP, as well as to inform future policy development and investment decisions, by offering a detailed understanding of the economic conditions, opportunities, and risk in the region.

The rest of the report is structured as follows:

- The Northern Rivers economy: this section presents a high-level profile of the Northern Rivers economy. It examines the industry composition of the region, its population and housing dynamics, labour market conditions, and broader socioeconomic trends. Additionally, it provides insights into the state of regional infrastructure.

- Key sectoral deep dives: this section includes an in-depth analysis of five key sectors in the region that account for a large share of economic activity and have experienced relatively large impacts from natural hazard events in recent years: health care and social assistance, manufacturing and logistics, agriculture, forestry and fishing, the visitor economy, and construction.
- Natural hazard case studies: this section assesses the economic and social consequences of three previous major natural hazard events that have affected the Northern Rivers—the 2019-20 bushfires, the 2022 floods and Ex-Tropical Cyclone Alfred in 2025. It details the physical impacts of the event, the impacts on infrastructure, businesses, and communities, as well as an analysis of the economic impacts of the events.
- Natural hazard risk and opportunities: building on previous sections, this section synthesises key findings from across the case studies and identifies potential risks and opportunities for the region from natural hazard events in relation to the economic domain of the NR DAP.

1.4.1 Methodology

The report draws upon a combination of qualitative and quantitative data sources summarised below:

Quantitative methods

- Public data sources including from the Australian Bureau of Statistics (ABS) (Census and other specific regional economic indicators) and other reputable industry and/or regional data sources such as Tourism Research Australia, NSW Government, the Digital Atlas of Australia and the Insurance Council of Australia.
- Proprietary Deloitte Access Economics modelling tracking small area economic activity including monthly estimates of Gross Regional Product (GRP) and Input-Output modelling.
- Third party data covering card spending and business insurance payments by ANZ customers in the Northern Rivers from DataCo.

Qualitative methods

- An online business survey completed by 30 organisations in the Northern Rivers, gathering structured information about business customer catchments, supply chains and disruption from natural hazard events. The survey was targeted to gain structured insights from businesses across the region whilst avoiding unnecessary business fatigue.
- Industry roundtables held with seven sector-groupings of local stakeholders. These interviews focused on specific insights into how the regional economy is structured, the supply chains of businesses, and how natural hazard events have disrupted local businesses and the economy. The interviews focused on stakeholders' own experiences, challenges, and strategies for coping with and mitigating the effects of past natural hazard events.

Further information on stakeholder engagement as part of the project is available in Appendix A: Summary of stakeholder engagement.

2 The Northern Rivers economy

Summary

This chapter presents a high-level economic profile of the Northern Rivers. It examines the industry composition of the region, its population and housing dynamics, labour market conditions, and broader socioeconomic trends. Additionally, it provides insights into the state of regional infrastructure.

In 2024, the Northern Rivers economy was estimated to generate $22.8 billion in GRP. This is up 17.9% in real terms since 2019 and represents 2.9% of NSW Gross State Product.

Compared to the rest of Regional NSW the region has relative strengths in a diverse set of industries including health and education, visitor economy industries such as retail, accommodation and food, and arts and recreation services, construction, food manufacturing and service sectors such as IT and professional services. These are driven by the region's large population base and tourism sector.

Over recent years the region has seen its labour market tighten, bringing it closer to the Regional NSW average. The unemployment rate has decreased from 6.2% in 2018 to 3.5% in 2023. This is due to a variety of factors, including increased labour demand due to the strength of key labour intensive industries like health care and social assistance, as well as supply-side limitations such as relatively weak population growth and high housing costs, factors that have been exacerbated by recent natural hazard events. While these factors have helped support wage increases in the region and greater labour market participation, many businesses cited the availability of suitably skilled labour as a key constraint on the economy.

Table 2.1: Summary table of headline economic indicators by Northern Rivers LGA

Region	GRP, 2024 (Change since 2019, real terms)	Population, 2023 (Change since 2018)	Participation Rate, 2023 (change since 2018)	Unemployment Rate, 2023 (change since 2018)	Top 3 industries by GVA, 2024
Ballina	$3.4bn (+16.9%)	47,200 (+1.3%)	56.3% (+2.1ppt)	1.9% (-1.6ppt)	1. Health care and social assistance 2. Construction 3. Education and training
Byron	$3.4bn (+17.5%)	36,900 (+1.5%)	61.3% (+1.4ppt)	2.7% (-2.3ppt)	1. Accommodation and food services 2. Professional services 3. Health care and social assistance
Clarence Valley	$3.8bn (+26.3%)	55,300 (+1.1%)	44.7% (-3.9ppt)	4.7% (-5.6ppt)	1. Health care and social assistance 2. Public administration and safety 3. Agriculture, forestry and fishing
Kyogle	$0.6bn (+45.5%)	9,400 (+0.5%)	51.3% (+1.6ppt)	4.6% (-2.6ppt)	1. Agriculture, forestry and fishing 2. Education and training 3. Construction

Region	GRP, 2024 (Change since 2019, real terms)	Population, 2023 (Change since 2018)	Participation Rate, 2023 (change since 2018)	Unemployment Rate, 2023 (change since 2018)	Top 3 industries by GVA, 2024
Lismore	$4.0bn (+13.2%)	44,200 (-0.1%)	59.6% (+2.3ppt)	3.8% (-2.3ppt)	1. Health care and social assistance 2. Education and training 3. Agriculture, forestry and fishing
Richmond Valley	$1.4bn (+26.5%)	23,800 (+0.3%)	52.0% (+2.8ppt)	4.2% (-2.8ppt)	1. Manufacturing 2. Agriculture, forestry and fishing 3. Education and training
Tweed	$6.3bn (+13.3%)	99,000 (+0.7%)	54.0% (+16.4ppt)	2.5% (-2.1ppt)	1. Health care and social assistance 2. Education and training 3. Construction
Northern Rivers	**$22.8bn (+17.9%)**	**316,000 (+4.1%)**	**54.1% (+3.2ppt)**	**3.5% (-2.7ppt)**	**1. Health care and social assistance 2. Education and training 3. Agriculture, forestry and fishing**

Source: Deloitte Access Economics (2025)

While the Northern Rivers economy shows strong diversity, it is a net importing economy that relies on its internal and external supply chains and infrastructure. Much of the supply chain in the region is connected to key population centres and transport nodes in South East Queensland such as Brisbane and Gold Coast, with the M1 Pacific Highway being a key artery for labour and materials to flow into and out of the region.

While the geography of the region supports many of the region's key strengths it also brings challenges around the provision of supporting infrastructure. The climate and topography of the region support key industries like agriculture and make the region an attractive destination to live and visit. Yet businesses in the region reported challenges around telecommunications signal, power supply and the availability of appropriate industrial lands to support business growth. The provision of this infrastructure is often costly in regional areas, while the frequency of natural hazard events in the region has added to short-term and long-term infrastructure pressures.

2.1 Economic overview

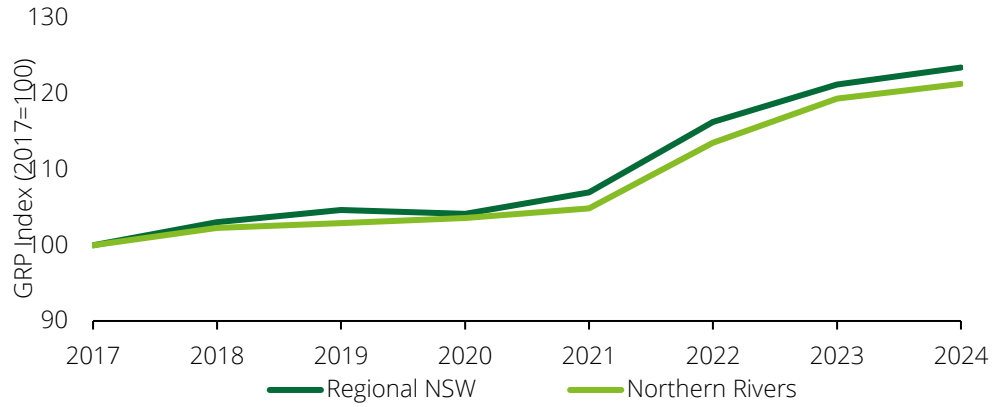
The Northern Rivers encompasses a mix of urban centres, coastal communities, and rural hinterlands. Its economy is shaped by its natural endowments, industry composition, and demographic characteristics, contributing to a distinctive economic profile. This section examines key dimensions of the Northern Rivers economy and supports an understanding of the region's current position and long-term economic potential.

In 2024, Northern Rivers generated an estimated $22.8 billion in GRP. Since 2019, GRP in the region has risen by 17.9% in real terms, compared with a 18.0% rise across Regional NSW over the same period. Northern Rivers' share of total NSW Gross State Product has risen slightly between 2019 and 2024 from 2.7% to 2.9%.[7]

[7] Deloitte Access Economics, *Small Area Modelling* (2025)

GRP growth in Northern Rivers has been uninterrupted since 2017, with an average real compound annual growth rate of around 2.8%. Growth has been particularly strong since 2021, with annual increases of 8.2% in 2022 and 5.1% in 2023, before moderating to 1.6% in 2024. Much of this growth is likely to have been supported by recovery-driven activity following COVID-19 and natural hazard events that have impacted the region. After the initial negative shock following such events, economic output often rises in the short-term as reconstruction and recovery spending, particularly in sectors like construction and public services, flow into an area, often supported by increased government spending.[8]

Chart 2.1: Real Gross Regional Product, Northern Rivers and Regional NSW, 2017-24 (Index, 2017 = 100)

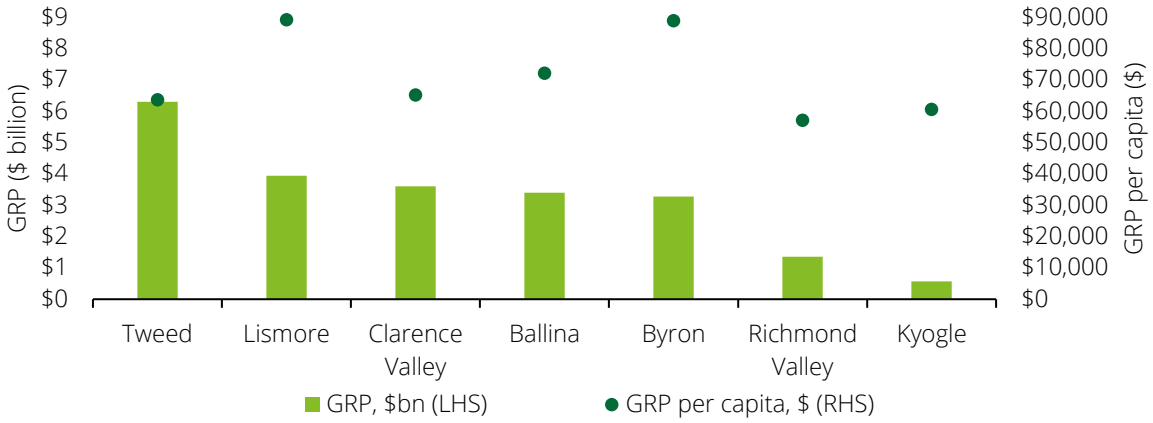


Source: Deloitte Access Economics (2025).

In particular, the sharp uplift in GRP in 2022 reflects this as economic activity was supported by the post-COVID reopening, including the return of international tourism and large-scale rebuilding after the 2022 floods, with reconstruction costs estimated at nearly $6.5 billion and more than 3,900 reconstruction and business as usual projects underway.

Economic output is concentrated in a handful of LGAs. In 2023, Tweed led with $6.3 billion in GRP, followed by Lismore at $3.9 billion and Clarence Valley at $3.6 billion. Ballina generated $3.4 billion and Byron $3.3 billion, while Richmond Valley and Kyogle contributed $1.4 billion and $0.6 billion respectively. These patterns reflect variations in population size and industry mix, with coastal LGAs supporting a broader range of higher-value activities such as tourism, professional services and health care.

Chart 2.2: Estimated Gross Regional Product and GRP per capita, Northern Rivers LGAs, 2023



Source: Deloitte Access Economics (2025).

[8] Australian Bureau of Statistics, *Measuring natural disasters in the Australian economy* (3 March 2020) <https://www.abs.gov.au/statistics/research/measuring-natural-disasters-australian-economy>

2.2 Industry structure and composition

The Northern Rivers economy has a stronger focus on services than Regional NSW and a much lower reliance on resources. In 2024, health care and social assistance was the largest sector in Northern Rivers, accounting for 14% of Gross Value Added (GVA) versus 11% in Regional NSW. Education and training contributed 9% (8% in Regional NSW), agriculture, forestry and fishing (8% each) and construction 8% (7% in Regional NSW). Accommodation and food services also played a larger role in the Northern Rivers, at 6% compared with 4% across Regional NSW. In contrast, mining represented only 1% of Northern Rivers GVA, versus 11% in Regional NSW, underscoring a much lower dependence on extraction industries. Other sectors such as retail trade (7% versus 6%), professional, scientific and technical services (6% versus 5%) and administrative and support services (5% each) further illustrate the region's diverse service-led base.

Table 2.2: Industries contribution to GVA in Northern Rivers region, 2024

Industry Sector	Northern Rivers GVA $'000 2024	Northern Rivers % GVA	Regional NSW % GVA
Health care and social assistance	2,724	14%	11%
Education and training	1,787	9%	8%
Agriculture, forestry and fishing	1,519	8%	8%
Construction	1,502	8%	7%
Retail trade	1,424	7%	6%
Manufacturing	1,216	6%	7%
Accommodation and food services	1,115	6%	4%
Professional, scientific and technical services	1,098	6%	5%
Public administration and safety	1,081	6%	6%
Administrative and support services	988	5%	5%
Rental, hiring and real estate services	881	5%	3%
Transport, postal and warehousing	758	4%	4%
Financial and insurance services	665	3%	4%
Wholesale trade	599	3%	3%
Information media and telecommunications	445	2%	1%
Electricity, gas, water and waste services	444	2%	3%
Other services	424	2%	2%
Mining	206	1%	11%
Arts and recreation services	158	1%	1%

Source: Deloitte Access Economics (2025).

2.2.2 Market concentration/industry diversity

The region exhibits low market concentration, suggesting a diverse industry structure and healthy competition. The Herfindahl-Hirschman Index (HHI), [9] a widely used measure of economic diversity,[10] assigns a score of zero to represent maximum economic diversity and high market competition and a score of 10,000 to indicate no economic diversity and less competition. The HHI for the Northern Rivers region stands at 720, close to the Regional NSW score of 691, indicating good economic diversity and competitiveness.[11] Note the HHI is calculated at the 1-digit ANZSIC level and so will capture the spread of economic activity across industries rather than the concentration of activity within an industry or interdependencies between industries. For more details on the method of calculation see Appendix B: Technical details.

[9] The Herfindahl-Hirschman Index (HHI) measures the concentration of economic activity across 1-digit ANZSIC industries within a region. A lower score indicates a more diverse economy, while a higher score suggests reliance on fewer industries. See Appendix B for methodology and interpretation.

[10] Department for Infrastructure, Transport, Regional Development, Communications and the Arts, *Understanding regional data: Industry* (March 2023) <https://www.infrastructure.gov.au/sites/default/files/documents/bcarr-understanding-regional-data-industry-march2023.pdf>

[11] Deloitte Access Economics, *Small area modelling* (2025)

At LGA level, Kyogle (1,147) and Richmond Valley (937) record the highest HHI scores, reflecting their reliance on a narrow set of industries, primarily primary production and processing, supported by extensive land resources. For instance, Richmond Valley has a strong food processing sector, with manufacturing accounting for 71.4% of its total exports in 2023-24.[12] Lismore (919) also shows above-average market concentration. In contrast, Byron (684) and Ballina (716) have the lowest HHI scores, signalling more balanced economic activity across tourism, health, education and light manufacturing.

Table 2.3: Industry concentration across Northern Rivers LGAs and Regional NSW, 2024

LGA	Herfindahl-Hirschman (Diversity) Index
Kyogle	1,147
Richmond Valley	937
Lismore	919
Tweed	763
Clarence Valley	752
Ballina	716
Byron	684
Regional NSW (Aggregate)	**691**
Northern Rivers region (Aggregate)	**720**

Source: Deloitte Access Economics (2025).

2.2.3 Relative strengths

A location quotient (LQ)[13] and GVA growth comparison assesses the industry structure of the Northern Rivers in 2024. The LQ metric reflects the concentration of GVA in each industry relative to the broader Regional NSW benchmark, while GVA growth is measured against the average industry GVA growth rate in the Northern Rivers. The analysis segments industries into quadrants based on whether they are above or below average in both relative size (LQ) and recent GVA growth performance.

2.2.3.1 Expanding sectors of relative strength

Several industries combine above average regional specialisation with strong growth, marking them as emerging drivers of local output. [14] For instance:

- Accommodation and food services (LQ 1.39) and growth 1.7% above the Northern Rivers average
- Retail trade (LQ 1.26) and growth 0.1% above the regional average
- Other services (LQ 1.13) and growth 1.4% above the regional average
- Administrative and support services (LQ 1.11) by 2.0%.

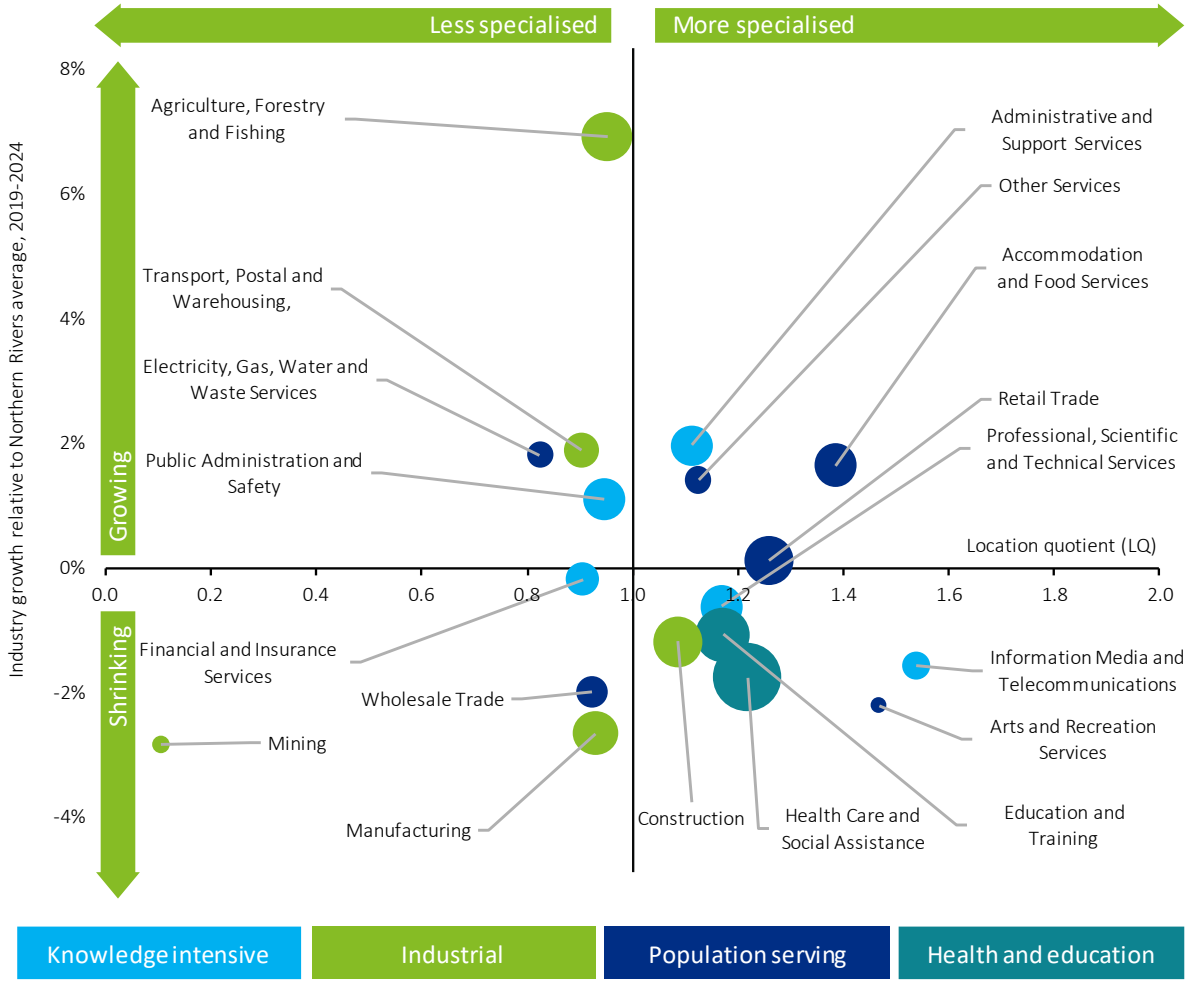
Each of these sectors leverages established local concentrations to support investment and job creation, reinforcing supply chains and service networks across the region.

[12] National Economics (NIEIR), *Exports by Industry – Richmond Valley Council* (2025) <https://economy.id.com.au/richmond-valley/exports-by-industry>

[13] The Location Quotient (LQ) compares the relative size of an industry in one region to a broader benchmark (e.g. Northern Rivers vs Regional NSW). An LQ above 1.0 indicates higher regional specialisation. See Appendix B for methodology and interpretation.

[14] Deloitte Access Economics, *Small area modelling* (2025)

Chart 2.3: Location Quotient (LQ) Analysis by GVA, 2024



Source: Deloitte Access Economics (2025).

Note: Bubble size reflects each industry's share of total Gross Regional Product (GRP) in the Northern Rivers region in 2024.

Colours represent broad industry types based on function within the economy:

Population serving: Industries that primarily meet local consumption needs, such as retail, food services, utilities, and arts.

Knowledge intensive: Sectors characterised by higher human capital requirements and service exports, such as professional services and ICT.

Health and education: Social infrastructure sectors that provide essential public services and contribute to human capital development.

Industrial: Industries linked to goods production, resource extraction, infrastructure and logistics, which typically have strong export or supply chain linkages.

2.2.3.2 Specialised sectors with below-average growth

A number of highly specialised sectors have lagged behind regional growth or contracted in real terms. These include:

- Arts and recreation services (LQ 1.47) grew 2.2% below the regional average
- Information media and telecommunications (LQ 1.54) grew 1.6% below the regional average
- Health care and social assistance (LQ 1.22) grew 1.7% below the regional average
- Education and training (LQ 1.17) grew 1.1% below the regional average
- Construction (LQ 1.09) grew 1.2% below the regional average
- Professional, scientific and technical services (LQ 1.17) grew 0.6% below the regional average.

These industries continue to be areas of regional strength, yet below average growth in these sectors may reflect demand-side adjustments or capacity constraints within these industries.

2.2.3.3 Underrepresented but fast-growing industries

Some industries with below-average local concentration are expanding rapidly and could provide diversification opportunities. For instance:

- Agriculture, forestry and fishing (LQ 0.95) outgrew the regional average by 6.9%
- Transport, postal and warehousing (LQ 0.90) outgrew the regional average 1.9%
- Electricity, gas, water and waste services (LQ 0.82) outgrew the regional average 1.8%.

These sectors are expanding despite smaller initial footprints, indicating potential to strengthen local supply chains and support export or interregional linkages.

2.2.3.4 Underrepresented and slower-growing sectors

A set of industries combines low regional concentration with below-average growth or contraction.

- Mining (LQ 0.11) grew by 2.8% below the regional average
- Manufacturing (LQ 0.93) grew by 2.6% below the regional average
- Wholesale trade (LQ 0.92) grew by 2.0% below the regional average
- Financial and insurance services (LQ 0.91) grew by 0.2% below the regional average.

In aggregate, these are areas of relative weakness for the Northern Rivers with these industries having relatively small regional footprints and showing limited signs of growth. Although despite this the region still has some within sector strengths in areas like food manufacturing.

2.2.4 Business counts and size

The Northern Rivers is home to a large number of small businesses. In 2023, approximately 27,700 businesses in the region employed less than five people (including sole traders), making up 88% of the total business population. Within the region, Kyogle (94%) and Richmond Valley (90%) have a particularly high small business share.[15]

While a vibrant small business community is vital to support innovation and competition, compared to larger firms, small businesses tend to be more vulnerable to shocks, including from natural hazards, with fewer cash-flow buffers and limited access to capital. In turn, most businesses in the Northern Rivers have annual turnover of less than $2 million.

Table 2.4: Share of businesses by employment across Northern Rivers LGAs, 2023

LGA	Share of businesses non-employing	Share of businesses with 1-4 employees	Share of businesses with 5-19 employees	Share of businesses with 20 or more employees	Total number of businesses
Ballina	60%	28%	10%	2%	5,052
Byron	60%	27%	10%	3%	5,888
Clarence Valley	61%	27%	10%	2%	4,282
Kyogle	74%	20%	4%	1%	1,239
Lismore	64%	25%	9%	2%	4,362
Richmond Valley	68%	22%	8%	2%	1,896
Tweed	60%	29%	10%	2%	8,632
Northern Rivers	**62%**	**27%**	**9%**	**2%**	**31,351**
Regional NSW	**58%**	**29%**	**11%**	**2%**	**223,457**

Source: Australian Bureau of Statistics, Economy and Industry by Region (2011, 2016-2024)

[15] Australian Bureau of Statistics, *Counts of Australian Businesses, including Entries and Exits, July 2019 – June 2023* (Cat. No. 8165.0, 2024), <https://www.abs.gov.au/statistics/economy/business-indicators/counts-australian-businesses-including-entries-and-exits/latest-release>

Table 2.5: Share of businesses by turnover across Northern Rivers LGAs, 2023

LGA	Share of businesses with turnover of zero to less than $50k	Share of businesses with turnover of $50k to less than $200k	Share of businesses with turnover of $200k to less than $2m	Share of businesses with turnover of $2m to less than $5m	Share of businesses with turnover of $5m to less than $10m	Share of businesses with turnover of $10m or more	Total number of businesses
Ballina	23%	36%	36%	4%	1%	1%	5,052
Byron	20%	36%	38%	4%	1%	1%	5,888
Clarence Valley	24%	35%	36%	3%	1%	1%	4,282
Kyogle	32%	36%	28%	3%	1%	1%	1,239
Lismore	27%	36%	32%	3%	1%	1%	4,362
Richmond Valley	27%	35%	32%	3%	1%	1%	1,896
Tweed	21%	36%	37%	4%	1%	1%	8,632
Northern Rivers	**23%**	**36%**	**35%**	**4%**	**1%**	**1%**	**31,351**
Regional NSW	**22%**	**32%**	**38%**	**5%**	**2%**	**1%**	**223,456**

Source: Australian Bureau of Statistics, Economy and Industry by Region (2011, 2016-2024)

Total business counts by industry reflect the average business size by industry. The top industries by number of businesses in the Northern Rivers are construction (5,842) and agriculture, forestry and fishing (4,823), both of which are characterised by large numbers of sole traders and small businesses. Meanwhile, sectors like public administration and support, mining, and electricity, gas, water and waste services, which are characterised by fewer and larger businesses, have a very low business presence in the region.

Table 2.6: Business counts by industry and LGA, 2023

Industry	Ballina	Byron	Clarence Valley	Kyogle	Lismore	Richmond Valley	Tweed	Northern Rivers
Agriculture, forestry and fishing	582	359	1,094	619	968	632	569	4,823
Mining	10	6	17	5	10	3	13	64
Manufacturing	196	245	191	44	165	69	381	1,291
Electricity, gas, water and waste services	24	18	16	-	11	6	34	109
Construction	1,036	914	767	165	672	303	1,985	5,842
Wholesale trade	150	219	88	26	112	34	241	870
Retail trade	297	543	265	51	305	104	601	2,166
Accommodation and food services	208	399	233	34	165	67	410	1,516
Transport, postal and warehousing	204	163	177	29	180	95	364	1,212
Information media and telecommunications	42	139	19	4	38	11	97	350
Financial and insurance services	159	164	63	13	91	19	258	767
Rental, hiring and real estate services	507	584	336	58	338	128	855	2,806
Professional, scientific and technical services	565	850	285	68	392	91	1,052	3,303
Administrative and support services	202	267	138	20	180	71	362	1,240
Public administration and safety	8	5	9	3	15	3	15	58
Education and training	64	136	46	14	72	27	175	534
Health care and social assistance	450	454	242	40	373	102	613	2,274
Arts and recreation services	101	199	67	14	57	29	159	626
Other services	246	212	228	32	214	100	447	1,479

Source: Australian Bureau of Statistics, Economy and Industry by Region (2011, 2016-2024).

2.3 Population and housing trends

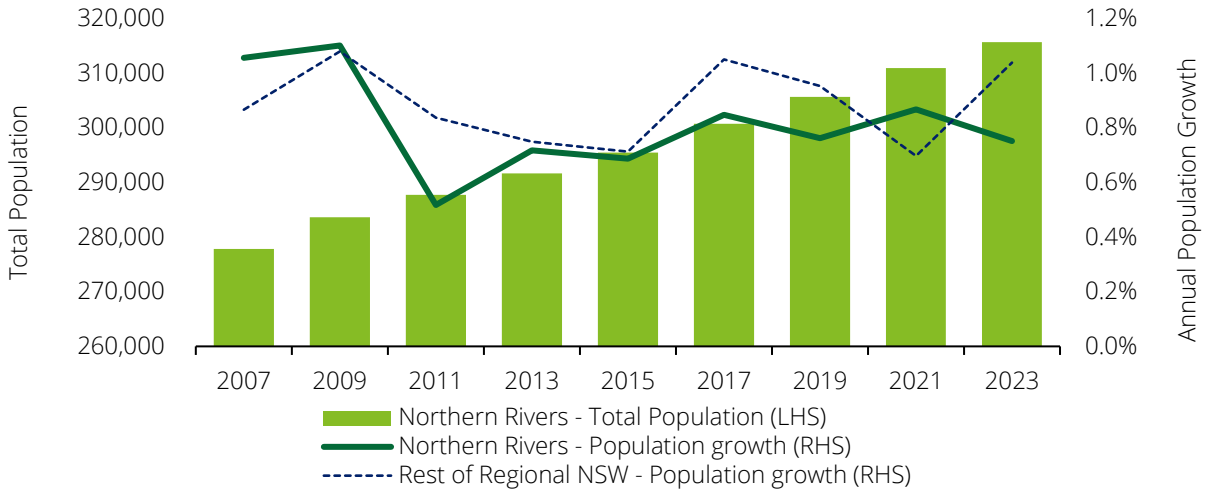
The population of the Northern Rivers was approximately 315,700 as of June 2023, reflecting an average annual growth rate of about 0.8% over the five years to 2023. While this growth is consistent, it is slightly lower than the average rate observed in the rest of Regional NSW during the same period.

Population growth was particularly weak relative to Regional NSW over 2022 and 2023, potentially in part due to residents either choosing or being forced to leave the region following the 2022 floods. Notably, between 2022 and 2023, Lismore experienced a population decline of approximately 1.3%, potentially attributable to this reason.[16] Population trends also reflect a temporary slowdown across the rest of NSW during 2021, when the

[16] Australian Bureau of Statistics, *Regional Population, 2022-23,* (Cat. No. 3218.0, 2024) <https://www.abs.gov.au /statistics/people/population/regional-population/2022-23

state recorded its first annual population decline in over a century, largely due to reduced migration under COVID-19 restrictions.[17]

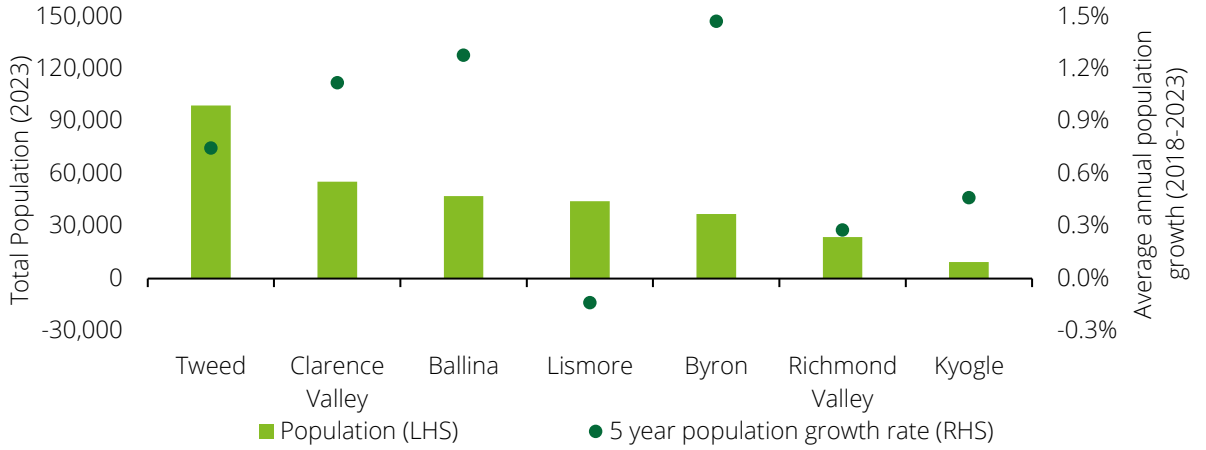
Chart 2.4: Estimated resident population of the Northern Rivers vs Regional NSW



Source: Australian Bureau of Statistics, Regional Population by Age and Sex, Australia (Catalogue No. 3235.0, 30 August 2023).

Within the Northern Rivers region the largest LGA by population in 2023 was Tweed (98,967). Yet, average annual population growth over the last five years to 2023 was faster in Byron (1.5%), Ballina (1.3%) and Clarence Valley (1.1%). All LGAs saw population growth over this period except Lismore, where the population has declined by 0.7%.

Chart 2.5: Estimated resident population by LGA, 2023



Source: Australian Bureau of Statistics, Regional Population by Age and Sex, Australia (Catalogue No. 3235.0, 30 August 2023).

The population of the Northern Rivers region is skewed towards older age groups. The median age in the region is 45-49, above the 35-39 age cohort for the rest of Regional NSW. The largest age group in the Northern Rivers is 60-64 years which matches that of Regional NSW, reflecting the concentration of aged care and retirement lifestyle facilities in the region. Females slightly outnumber males in both Northern Rivers and Regional NSW, particularly in the older age brackets. In the Northern Rivers, 20–24-year-olds are the smallest age group under 80 years old, suggesting many young people leave the region after finishing school.

[17] NSW Department of Planning, Housing and Infrastructure, *Population growth begins to climb again*, (2022) <https://www.planningportal.nsw.gov.au/nsw-population-insights/population-growth-begins-climb-again>

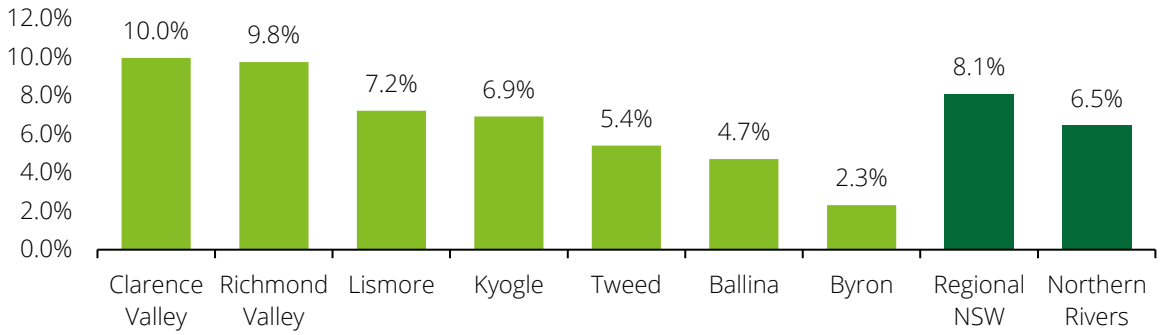
Chart 2.6: Population age and sex structure Northern Rivers region, 2023

Source: Australian Bureau of Statistics, Regional Population by Age and Sex, Australia (Catalogue No. 3235.0, 30 August 2023).

2.3.2 Aboriginal and Torres Strait Islander communities

In 2021, Aboriginal and Torres Strait Islander peoples accounted for 6.5% of the Northern Rivers population, compared to a higher portion of 8.1% across Regional NSW.[18] However, certain LGAs recorded a relatively larger Aboriginal and Torres Strait Islander population. Clarence Valley and Richmond Valley recorded the highest Aboriginal and Torres Strait Islander population shares in the Northern Rivers at 10.0% and 9.8% respectively, both well above Northern Rivers and Regional NSW average. Lismore (7.2%) and Kyogle (6.9%) also exceeded the Northern Rivers average, albeit to a lesser extent. Meanwhile, Tweed (5.4%), Ballina (4.7%) and Byron (2.3%) all have a lower share of Aboriginal and Torres Strait Islander peoples than the Regional NSW average.

Chart 2.7: Estimated Aboriginal and Torres Strait Islander population share by Northern Rivers LGA, 2021



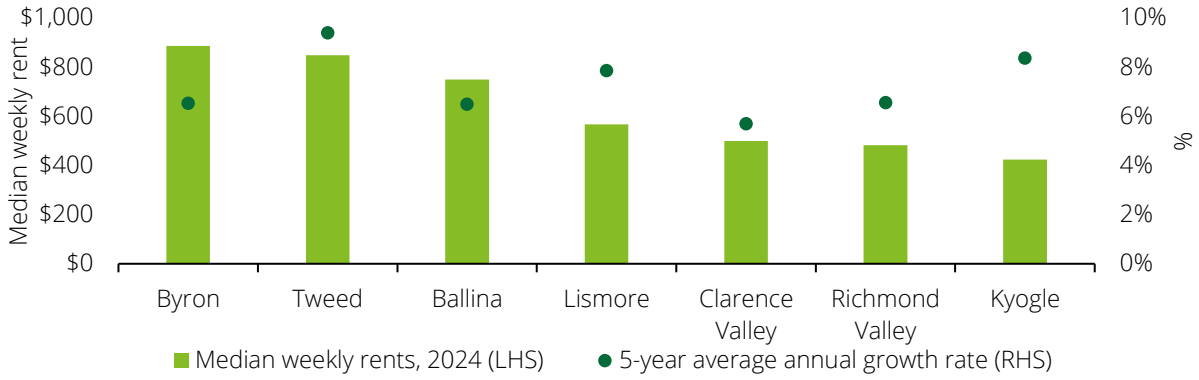
Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022). Note: Many Aboriginal and Torres Strait Islander people choose not to participate in the census statistics due to implications of previous Governmental policies, therefore these numbers are indicative only and not fully representative of Aboriginal and Torres Strait Islander people residing in the Northern Rivers.

[18] Australian Bureau of Statistics, *Census of Population and Housing* (Catalogue No. 2901.0, 28 June 2022), https://www.abs.gov.au/methodologies/data-region-methodology/2011-24#data-downloads.

2.3.3 Housing affordability and rent

Much like other parts of NSW, housing supply and affordability is a key challenge in the Northern Rivers. Between 2019 and 2024, median weekly rents for houses increased across all LGAs in the region, with Clarence Valley recording the lowest average annual growth rate (5.7%) and Tweed the highest (9.4%). Rent levels are highest in the coastal LGAs, with average weekly rents reaching $888 in Byron, $850 in Tweed and $750 in Ballina. Natural hazard events have further constrained the availability of housing stock, amplifying rental pressures across the region.[19] As a result, many households are experiencing rental affordability stress and are unable to secure suitable accommodation.[20]

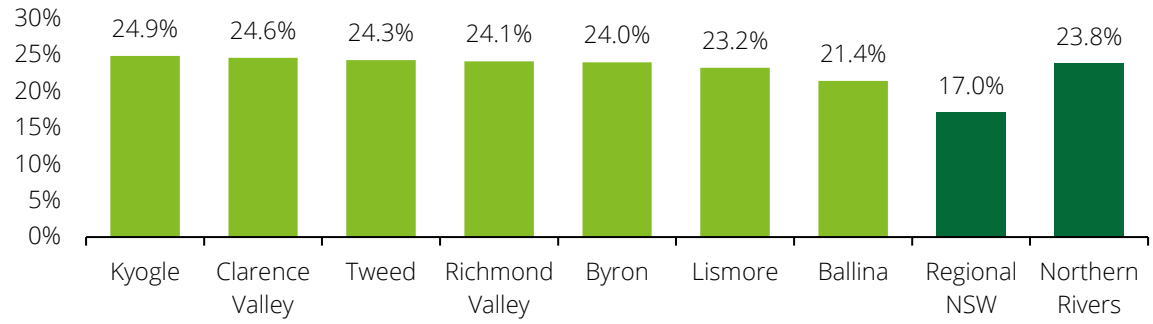
Chart 2.8: Median weekly rents for houses by LGA, 2024



Source: NSW Government (2025), Rental bond data.

In 2021 levels of housing cost stress in the Northern Rivers were 23.8%, compared to 17.0% across Regional NSW, this equates to a 40% higher rate of housing cost stress in the Northern Rivers.[21] Housing cost stress in the region is broad based, with every LGA seeing a higher level of housing cost stress than the Regional NSW average. Kyogle recorded the highest share of households in housing stress at 24.9%, followed closely by Clarence Valley (24.6%) and Tweed (24.3%). Ballina recorded the lowest housing cost stress rate in the region at 21.4%.[22]

Chart 2.9: Housing cost stress by LGA, 2021



Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022).

[19] UNSW City Futures Research Centre, *Housing needs following the 2022 Northern River floods* (2022) <https://cityfutures.ada.unsw.edu.au/housing-needs-following-the-2022-northern-river-floods/>

[20] City Futures Research Centre (UNSW), *The impact of housing vulnerability on climate disaster recovery: The 2022 Northern Rivers Floods* (2022) <https://socialfutures.org.au/wp-content/uploads/2022/11/Northern-Rivers-Post-Flood-Housing-Report-November-2022.pdf>

[21] Housing cost stress is defined as the share of residents facing mortgage or rent costs that are at least 30% of household income.

[22] Australian Bureau of Statistics, *Census of Population and Housing* (Catalogue No. 2901.0, 28 June 2022) <https://www.abs.gov.au/methodologies/data-region-methodology/2011-24#data-downloads>

These rates of housing cost stress reflect acute affordability pressures driven by steady population growth, a tourism-based economy, and the aftermath of natural hazards. Although natural hazard events increased demand for rebuilding, construction activity has been limited by labour and material shortages, regulatory issues, damaged infrastructure and in some cases, delayed release of insurance and government funding. These constraints have contributed to ongoing housing shortages and upward pressure on rents.[23]

Another emerging consideration is whether disaster risk is starting to be priced into regional housing markets. In areas prone to flooding or bushfire, studies indicate property values often experience a temporary drop post-disaster and typically recover within 1–2 years. For instance, parts of NSW affected by bushfires or flooding saw initial declines of 6–24%, but values subsequently rebounded.[24] However, research shows that flood risk is increasingly influencing property costs within regions. Homes in high-risk zones (AEP 100 flood zones) are sold at roughly 10% discount, yet this may still not compensate for significantly higher flood insurance premiums, which can exceed several thousand dollars annually.[25] Furthermore, in the Northern Rivers, recent reports show that some flood-affected properties, originally acquired through government-supported buybacks, were later sold at heavily discounted rates through auctions with no reserve price.[26]

These patterns suggest growing market awareness of disaster exposure. Reduced demand for higher risk properties likely leads to greater demand for properties away from the flood plain causing divergences in local housing markets. Meanwhile in the long run, increased risk perception, especially when combined with insurance stress, building costs, and housing shortages, could influence investment decisions and valuation practices.

2.4 Labour market trends

2.4.1 Participation and employment

Historically the Northern Rivers labour market has been weak relative to Regional NSW, with lower levels of participation and higher unemployment. However, this gap has narrowed since the mid-2010s with stronger employment growth in the Northern Rivers.

Between 2011 and 2023, the Northern Rivers region consistently recorded lower labour force participation rates compared to Regional NSW. This disparity was most pronounced between 2014 and 2017, when participation in the Northern Rivers fell below 50%. Since 2017, the gap has narrowed, with the difference reducing to one percentage point by 2022. However, in 2023, participation in the Northern Rivers declined to 54%, while Regional NSW maintained a steady rate of 56%.[27]

[23] Commonwealth of Australia, Parliamentary Committees, *Chapter 4 - Factors underlying the current rental crisis* (2023) <https://www.aph.gov.au/Parliamentary_Business/Committees/Senate/Community_Affairs/Worseningrentalcrisis/Interim_Report/Chapter_4_-_Factors_underlying_the_current_rental_crisis>

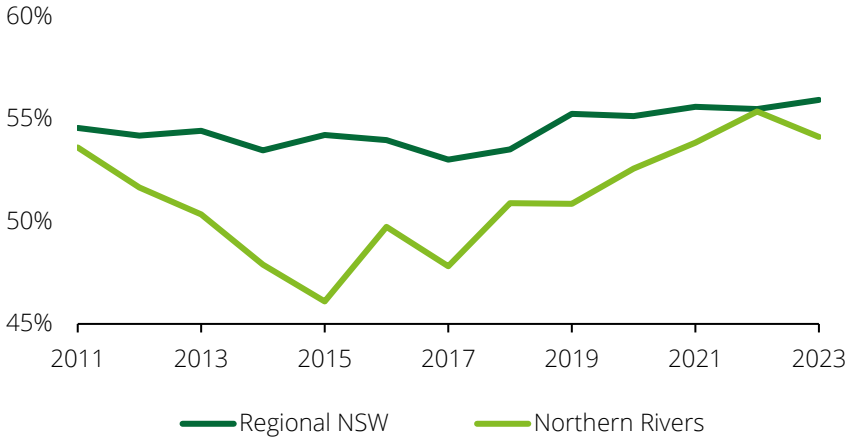
[24] Ray White, *What is the impact of natural disasters on property markets?* (2025) < https://raywhitefrankston.com.au/news/what-is-the-impact-of-natural-disasters-on-property-markets#:~:text=The%20study%20found%20that%20properties%20in%20bushfire%2Dprone,with%20most%20markets%20recovering%20within%2012%2D24%20months.>

[25] University of Technology Sydney (ITS), *How flood risk affects home values* (19 November 2024) <https://www.uts.edu.au/news/2024/11/how-flood-risk-affects-home-values#:~:text=Tempted%20by%20lower%20prices%20and%20a%20nice,can%20burden%20buyers%20with%20long%2Dterm%20insurance%20costs.>

[26] realestate.com, *Wild way Aussie scored home for just $4000* (13 August 2025) <https://www.realestate.com.au/news/floodhit-properties-set-for-auction-without-reserve/>

[27] Jobs and Skills Australia, *Small Area Labour Markets, September Quarter 2024* (2024) <https://www.dewr.gov.au/employment-research/small-area-labour-markets>

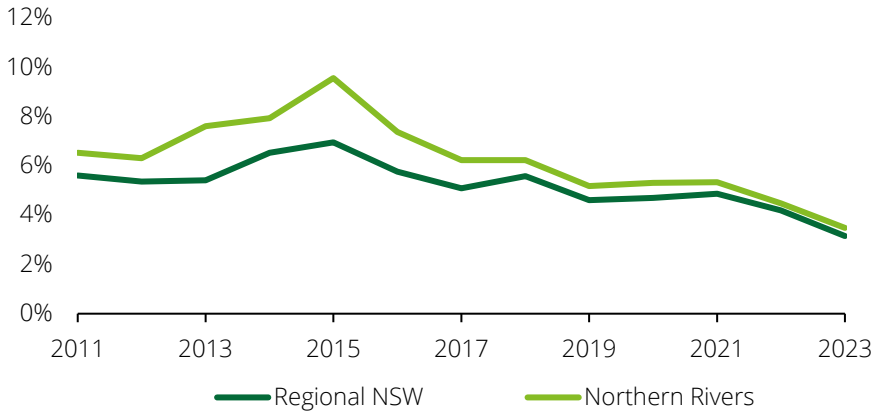
Chart 2.10: Participation rate, Northern Rivers vs Regional NSW, 2011-23



Source: Jobs and Skills Australia, Small Area Labour Markets (2024).

The initial decline in participation between 2014 and 2017 may be attributable to structural shifts in the regional economy, including increased automation in traditional industries such as manufacturing and agriculture. Subsequent recovery was supported by growth in sectors like health care, education, and tourism, which expanded employment opportunities. The COVID-19 pandemic further influenced labour dynamics, with increased migration into the region potentially bolstering the labour force.[28] However, the 2022 floods had a significant impact, disrupting local economies and infrastructure, which likely contributed to the decline in participation observed in 2023.[29]

Chart 2.11: Unemployment rate trends, Northern Rivers vs Regional NSW, 2011-23

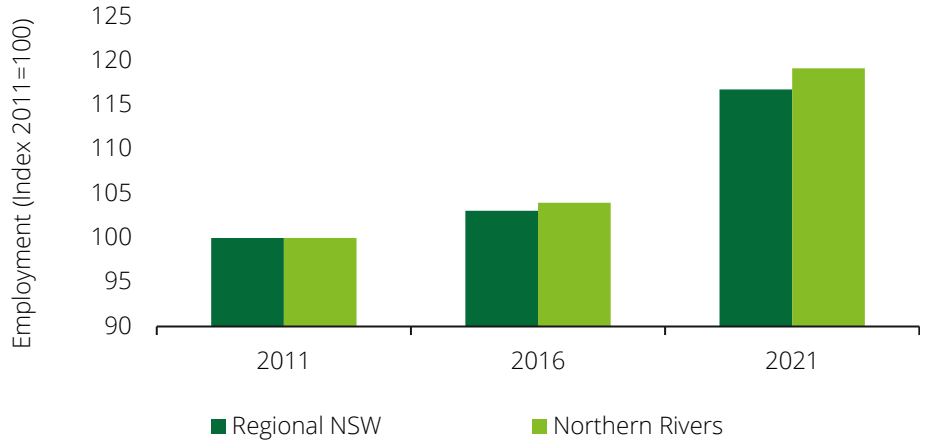


Source: Australian Bureau of Statistics, Labour Force, Australia, Detailed (Catalogue No. 6291.0.55.001, 26 June 2025).

Since 2011, the Northern Rivers labour market has shown improvement, with employment increasing by 19.1% compared to 16.8% across Regional NSW. This growth has been driven predominantly by population-serving industries such as health care and social assistance, construction, and retail trade.[30] These employment gains have been supported by rising participation and economic activity in these sectors.

[28] NSW Government, *Northern Rivers Regional Economic Development Strategy 2023 Update* (2023) <https://www.nsw.gov.au/sites/default/files/2023-03/Northern-Rivers-REDS-2023-Update.pdf.>
[29] Northern Rivers Community Foundation, *Thematic Analysis of Needs in the Northern Rivers Post-2022 Disaster: A Tapestry of Resilience and Vulnerability* (2024) <https://nrcf.org.au/thematic-analysis-of-needs-in-the-northern-rivers-post-2022-disaster-a-tapestry-of-resilience-and-vulnerability/>
[30] Australian Bureau of Statistics, *Census of Population and Housing* (Catalogue No. 2901.0, 28 June 2022)

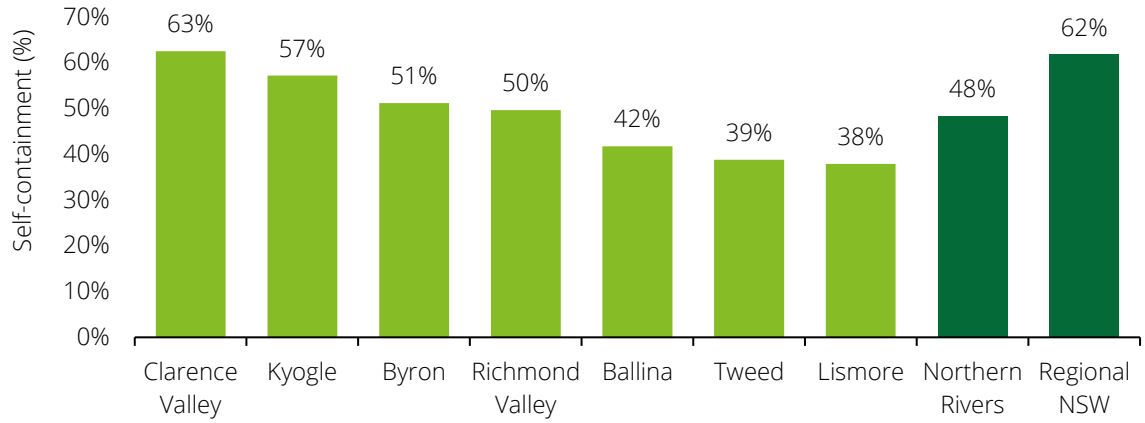
Chart 2.12: Employment growth, Northern Rivers and Regional NSW



Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022).

The Northern Rivers labour market is also characterised by a relatively low degree of self-containment.[31] In 2021, an average of 48% of employees within the Northern Rivers region lived in the LGA of their place of work. This is well below the Regional NSW average of 62%.

Chart 2.13: Self-containment by LGA, 2021

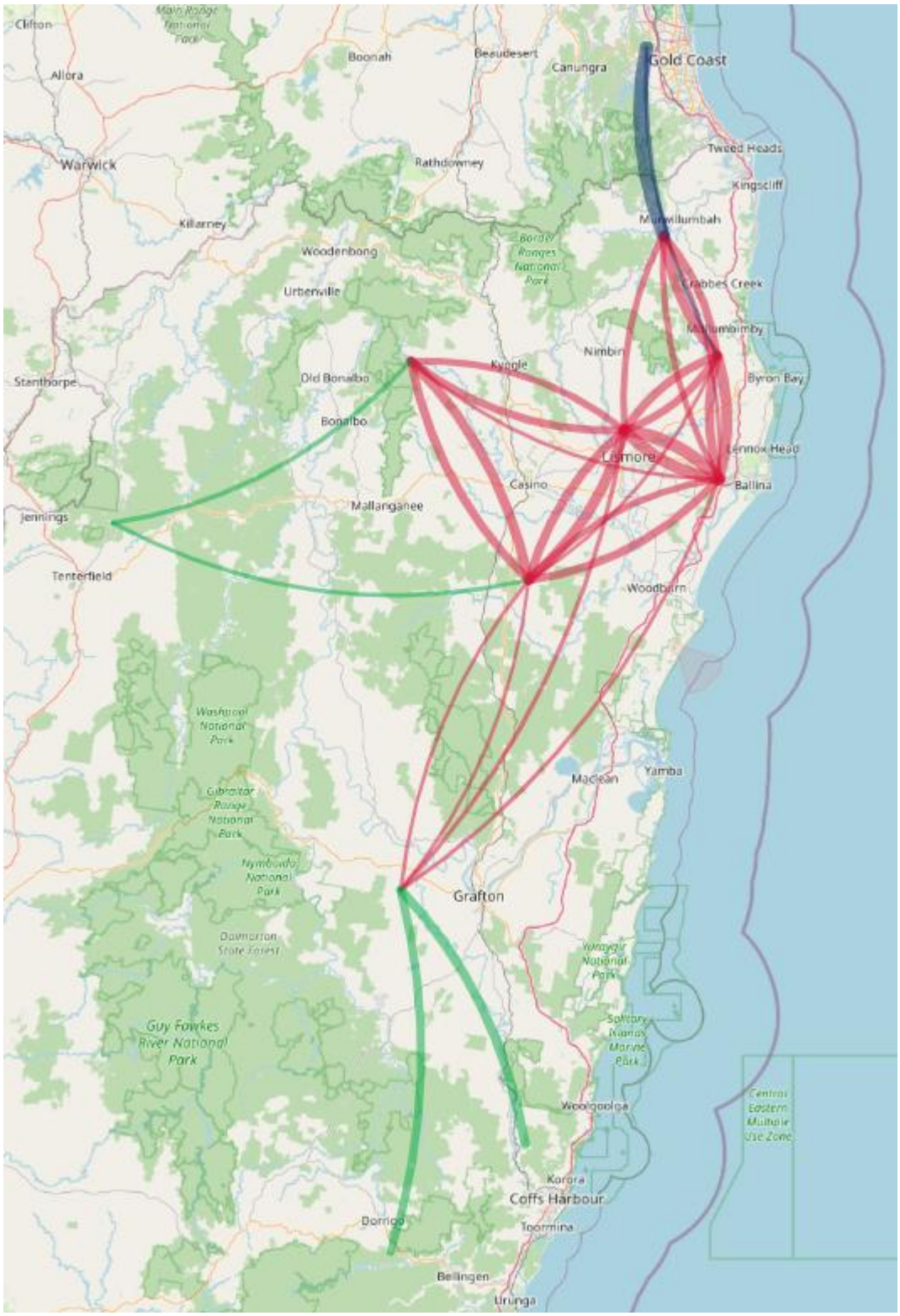


Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022).

This trend reflects the mobility of labour across the region. Not only is there a large amount of within region commuting between Northern Rivers LGAs, particularly to and from the centrally located population hub of Lismore. Notable numbers also travel into or out of the Northern Rivers for work purposes. For example, in the northern LGA of Tweed, notable numbers of workers commute from large population centres in SEQ like Gold Coast. Meanwhile to the south, there are substantive commuting patterns between Clarence Valley and neighbouring regions including Coffs Harbour and Bellingen.

[31] The share of employed residents in an area that work within their area of residence.

Figure 2.1: Commuting patterns into and within the Northern Rivers, 2021



Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022).

Legend:
Red – within the Northern Rivers
Blue – between the Northern Rivers and Queensland
Green – Between the Northern Rivers and Regional NSW

2.4.2 Wage trends

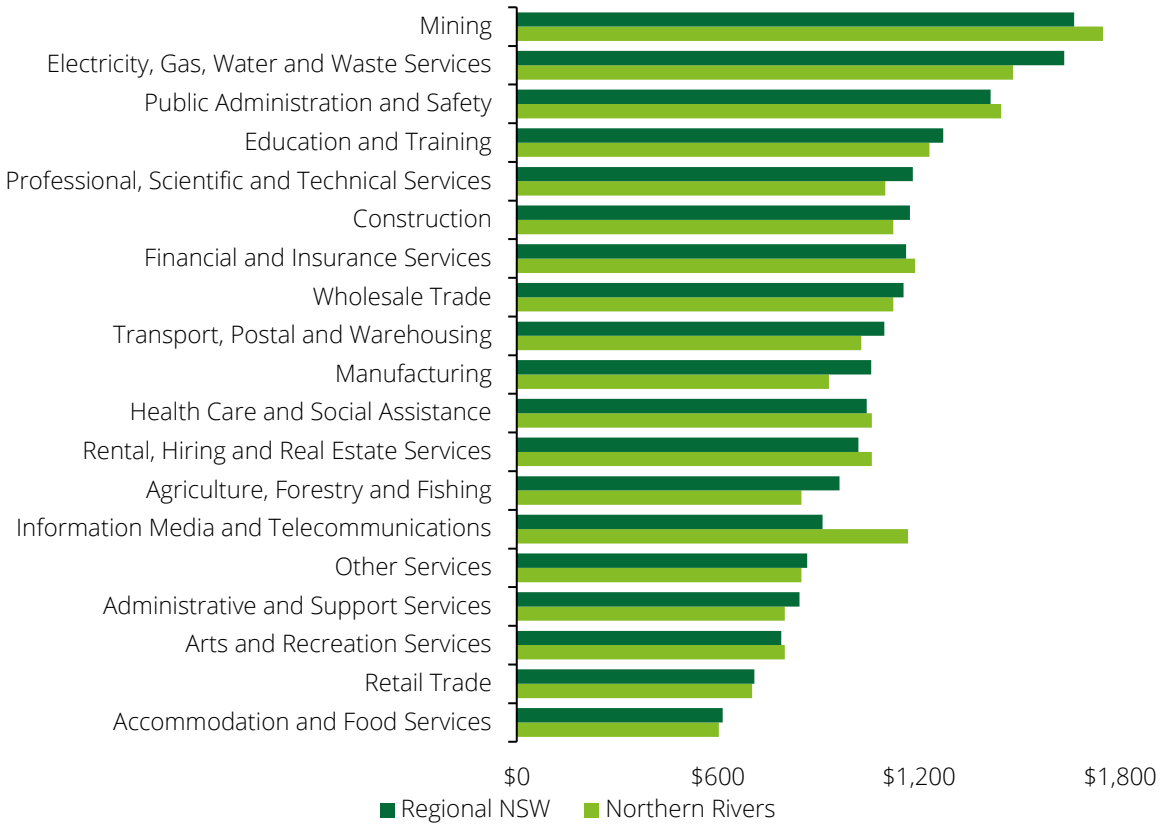
Median weekly wages in the Northern Rivers are slightly below those in Regional NSW. In 2021, the median weekly wage across all LGAs in the Northern Rivers was $932, compared with the Regional NSW average of $1,072. This gap is largely explained by the relatively larger scale of the mining sector in other parts of Regional NSW, which lifts overall wages.

Despite this trend, median wages in the information media and telecommunications sector were approximately 28% higher in the Northern Rivers than in Regional NSW.[32] Higher wages likely reflect a concentration of specialised digital and creative roles in this industry that attract skilled professionals and command elevated pay.

Median weekly wages in the Northern Rivers have increased by 33% in nominal terms since 2011, less than the 41% growth in Regional NSW. Within the Northern Rivers, median weekly wages in 2021 were highest in Lismore at $1,124.

Sector-specific wage variations were notable across the Northern Rivers. Several sectors recorded consistent wages across all Northern Rivers LGAs in 2021, for example, construction and education and training at approximately $1,125 and $1,375 respectively. Yet the accommodation and food services sector displayed sharper differences, with average median wages ranging from $450 in Kyogle to $900 in Byron, likely reflecting varying levels of tourism activity and workforce arrangements across LGAs.

Chart 2.14: Median weekly wages by industry, Regional NSW vs Northern Rivers, 2021



Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022).

[32] National Institute of Economic and Industry Research (NIEIR),(2023), *Worker productivity by industry (Information Media & Telecommunications),* <https://economy.id.com.au/northern-rivers/worker-productivity-by-industry>.

Roles classified as low-skill (ANSZCO Skill Levels 4 and 5) remain prevalent in the Northern Rivers labour market.[33] In 2021, 43% of employment comprised low-skill roles, 1.8 percentage points higher than the Regional NSW average. This long-term persistence of low-skill employment suggests structural limitations in upskilling opportunities and industry composition. Within the Northern Rivers, Richmond Valley recorded the highest low-skill share of employment at 51%, while Byron was lowest at 35%.

Economic inequality in the Northern Rivers is in line with Regional NSW and has remained relatively stable since 2011. Both the Northern Rivers and Regional NSW recorded a Gini Coefficient of 0.34 in 2011 and 2021.[34] This stability suggests relatively consistent income distribution patterns over the decade, with some differences between households in the regions.

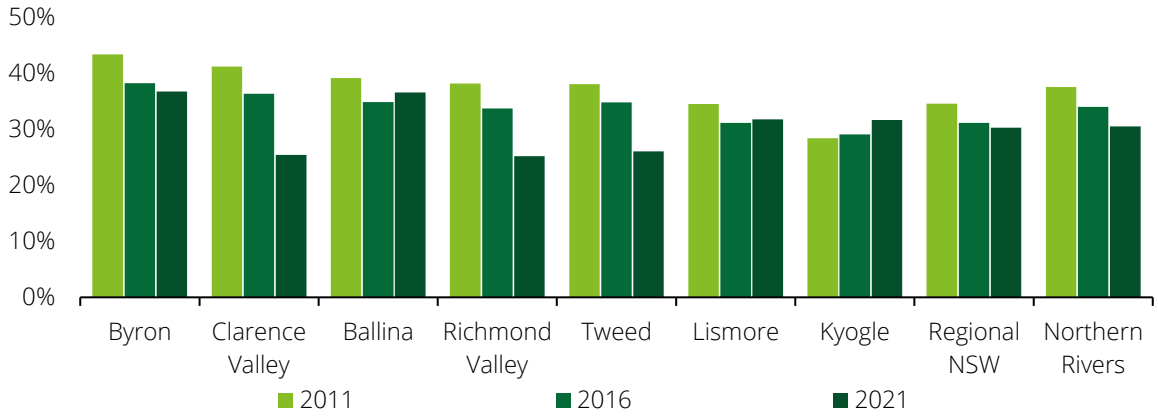
2.5 Other socioeconomic trends

2.5.1 The prevalence of low-income and single-parent households

Northern Rivers' share of low-income earners (those in the bottom 25th percentile of wage earners) was 30.5% in 2021, similar to Regional NSW at 30.3%. This overall alignment conceals substantial LGA-level variation: Byron (36.8%) and Ballina (36.6%) recorded the highest shares of low-income earners, while Clarence Valley (25.4%) and Tweed (26.1%) had the lowest.[35]

This variation suggests uneven income dynamics across the region, likely influenced by differences in employment structures and demographic composition. Elevated rates in Byron appear linked to the dominance of tourism-driven, part-time and seasonal employment. Some 76% of the tourism workforce in Byron worked part-time in 2021 with participation in part-time roles well above the regional average.[36]

Chart 2.15: Estimated share of low-income earners by Northern Rivers LGAs, 2011–2021



Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022).

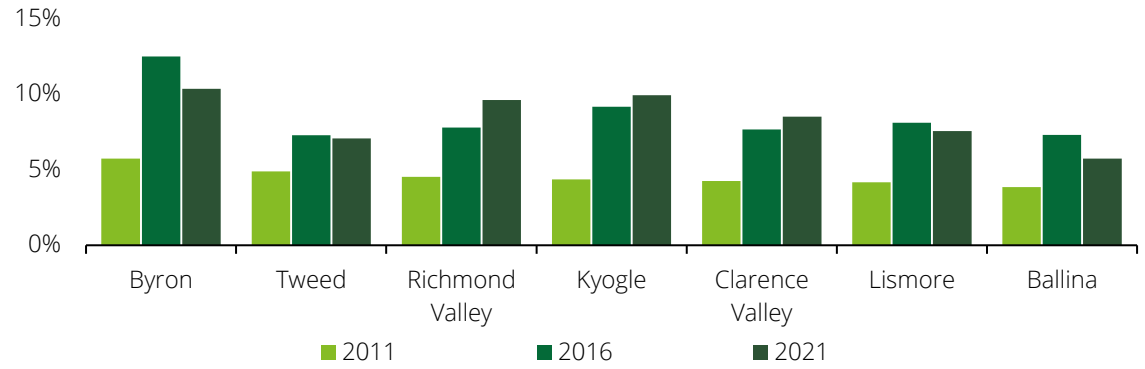
Between 2011 and 2021, the share of single-parent households in Northern Rivers declined from 6.9% to 5.5%, converging with the Regional NSW average (5.3%). Lismore consistently recorded the highest share of single-parent households in the region, peaking at 7.7% in 2011 and remaining elevated at 6.3% in 2021. By contrast, Tweed recorded the lowest rate at 5.0% in 2021.[37]

[33] Low-skill occupations are defined using ANZSCO Skill Levels 4 and 5. Generally roles requiring a Certificate II qualification or less or equivalent work experience. This category represents the number of employees in these skill levels as a proportion of total employment within each LGA.
[34]The Gini Coefficient is a measures of wages inequality within an area. The coefficient takes a value between 0 and 1 where higher values represent a more unequal distribution of wages.
[35] Low wage earners captures the share of workers earning wages in the bottom 25th percentile of all wage earners.
[36] Shelter NSW, *The Northern Rivers housing crisis* (2021) <https://shelternsw.org.au/wp-content/uploads/2021/10/Eleanor-Bradshaw-The-Northern-Rivers-Housing-Crisis-1.pdf>
[37] Australian Bureau of Statistics, *Census of Population and Housing* (Catalogue No. 2901.0, 28 June 2022)

2.5.2 English proficiency

The share of residents with low English proficiency in Northern Rivers has increased from 4.5% in 2011 to 8.4% in 2021.[38] While this remains below the Regional NSW average of 9.3%, the gap has narrowed over the decade. Byron recorded the highest rate of low English proficiency within Northern Rivers in 2021 (10.4%), followed by Kyogle (9.9%) and Richmond Valley (9.6%). These trends may reflect demographic changes, including internal migration, the role of tourism and visitor economy, and cultural diversity linked to country-of-birth factors.

Chart 2.16: Estimated share of residents with low English proficiency by Northern Rivers LGAs (2011–2021)

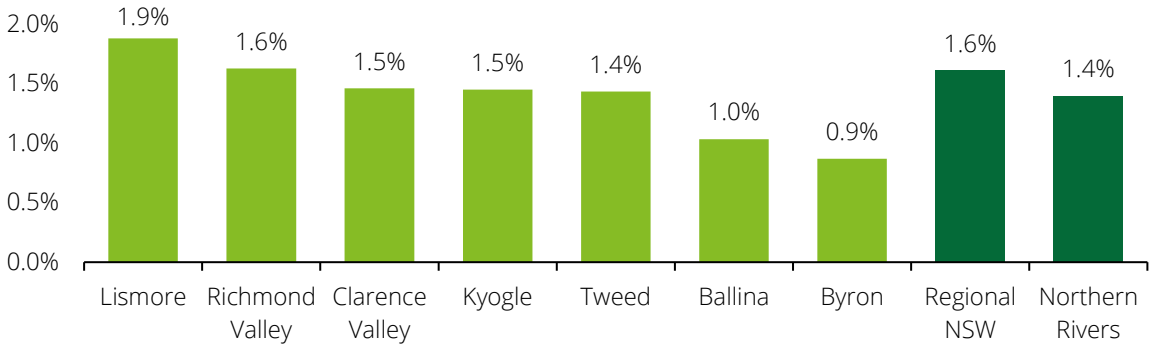


Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022).

2.5.3 Health and disability

The Northern Rivers reported a slightly lower rate of adverse health outcomes (1.4%) than Regional NSW (1.6%) in 2023.[39] Within the region, Lismore (1.9%) and Richmond Valley (1.6%) recorded the highest rates of adverse health outcomes, while Byron and Ballina were lowest at 0.9% and 1.0%, respectively. These differences stem from interrelated demographic, economic, and service-access factors. Higher rates in inland LGAs such as Lismore and Richmond Valley align with older populations, lower weekly incomes, and greater socioeconomic disadvantage.[40] Conversely, coastal LGAs such as Byron benefits from younger demographics, higher incomes, and proximity to urban health infrastructure.[41]

Chart 2.17: Estimated share of residents with adverse health outcomes by Northern Rivers LGA, 2023



Source: Public Health information Development Unit, Torrens University of Australia, (2024), Social Health Atlases of Australia.

[38] Low English proficiency refers to residents born in predominately non–English speaking countries (excluding Australia, New Zealand, Canada, the United Kingdom, Ireland, and the United States) who report speaking English "not well" or "not at all" in the Census question on proficiency in spoken English (ENGLP). Responses are self-reported and subjective, intended to support planning for multilingual services in accordance with ABS guidelines.

[39] The rate of adverse health outcomes reflects the share of residents aged 0-64 admitted to a public hospital with a preventable disease

[40] Richmond Valley Council, *Accessibility* (2023) <https://richmondvalley.nsw.gov.au/community-services/our-communities/accessibility/.>

[41] Public Health Information Development Unit, Torrens University of Australia, *Social Health Atlas of Australia: Local Government Areas – NSW/ACT data workbook* (2024) <https://phidu.torrens.edu.au/current/data/sha-aust/lga/phidu_data_lga_nsw_act.xls.>

In 2021, 7.0% of residents in Northern Rivers reported living with a disability, above the Regional NSW average of 6.4%. Clarence Valley (8.5%) and Richmond Valley (8.1%) recorded the highest rates, consistent with previous years. Byron remained well below the regional average at 4.1%. This points to elevated support needs in select LGAs, especially those with older populations and limited access to health and social care infrastructure. These trends are relevant for long-term planning of accessible services and community support programs.

2.5.4 Educational attainment

The Northern Rivers outperforms the Regional NSW average on the educational attainment of its adult population. In 2021, the proportion of residents aged 20 and over without Year 12 or post-school qualifications in the Northern Rivers was 52%, four percentage points below the Regional NSW average of 56%. Between 2011 and 2021, all seven LGAs in the Northern Rivers region reduced the proportion of residents aged 20 and over without Year 12 or post-school qualifications. Byron recorded the largest improvement, dropping from 44% to 30%, over the decade. While Richmond Valley and Clarence Valley showed improvement, they continue to report higher rates of low educational attainment.

Table 2.7: Share of residents aged 20 and over without Year 12 or post-school qualifications by LGA

LGA name	2011	2016	2021
Ballina	57%	52%	47%
Byron	44%	39%	30%
Clarence Valley	69%	65%	61%
Kyogle	67%	65%	59%
Lismore	56%	53%	48%
Richmond Valley	73%	70%	65%
Tweed	61%	56%	50%
Northern Rivers	**61%**	**57%**	**52%**
Regional NSW	**65%**	**61%**	**56%**

Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022).

Overall, the education, employment and wage outcomes in the Northern Rivers are closely connected, with skill levels shaping both participation and earnings across industries.

The region's comparatively stronger educational attainment, where 52% of adults lacked Year 12 or post-school qualifications in 2021 compared with 56% in Regional NSW, has supported growth in sectors requiring mid to high skill labour such as health care, education and digital industries. These sectors contributed to rising employment since 2015, offsetting structural declines in agriculture and manufacturing. However, the region maintains a relatively high share of low-skill jobs which remains a constraint on median earnings.

LGAs such as Byron, where educational attainment is higher, display more diverse labour markets and higher average wages than other LGAs where both attainment and skill levels are lower. This interplay suggests that future labour force resilience will depend on aligning education and training investment with industries that are both expanding due to demographic change and responding to recovery needs following natural hazards.

Industry dynamics also shape how education and labour market outcomes respond to external shocks. The expansion of health care and social assistance which displays stable and growing demand helped the regional labour market remain resilient following the 2022 floods. In contrast in sectors such as accommodation and food services where demand is more exposed to fluctuations flowing natural hazard events the impacts of external shocks can be more significant.

2.6 Regional supply chains and key infrastructure

While the Northern Rivers economy shows strong diversity, it is a net importing region that relies on its supply chains and infrastructure to enable its businesses to operate both regionally and internationally. Much of the supply chain in the region is connected to key population centres and transport hubs in SEQ given the accessibility of the region.

The following section provides an overview of the Northern Rivers' key supply chains and infrastructure based on Deloitte Access Economics small area Input-Output modelling (for model details see Appendix B: Technical details), supplemented by findings from the stakeholder consultations done as a part of the development of this report, including a local business survey and roundtable interviews.

2.6.1 Distribution of inputs

Industries in the Northern Rivers use a range of labour inputs as well as inputs from other industries domestically (from within the region, the rest of NSW, and Australia), as well as from overseas that reach the region through global gateways like the Port of Brisbane.

In aggregate, Northern Rivers industries derive approximately 31% of total production value from local labour inputs, with an additional 57% sourced from domestic intermediate inputs, of which the vast majority is likely drawn from within the region, and 12% from intermediate inputs from overseas.

Labour-intensive industries, such as education and training and health care and social assistance, exhibit higher labour input shares (above 65%), reflecting their reliance on human capital rather than imported goods or machinery.

Industries like agriculture, forestry and fishing, and construction register high domestic intermediate input shares (>80%), consistent with supply chains that draw heavily on locally sourced raw materials, feedstock and machinery. Similarly rental, hiring and real estate services has a high share of domestic inputs to production from domestic finance and construction services. While arts and recreation services also consume a relatively high share of domestic inputs including from professional services such as market research, advertising, and architecture, as well as administrative services like travel agencies and tour operators.

Table 2.8: Northern Rivers input share by industry, 2021-22

Industry	Local labour inputs to production	Inputs to production (domestic)	Inputs to production (overseas imports)
Agriculture, forestry and fishing	14.6%	84.3%	1.1%
Mining	7.9%	27.8%	64.3%
Manufacturing	9.3%	41.1%	49.6%
Electricity, gas, water and waste services	16.7%	83.3%	0.0%
Construction	17.9%	81.9%	0.2%
Wholesale trade	39.0%	60.8%	0.2%
Retail trade	45.5%	54.5%	0.0%
Accommodation and food services	38.8%	59.4%	1.8%
Transport, postal and warehousing	28.3%	68.2%	3.5%
Information media and telecommunications	24.1%	60.8%	15.1%
Financial and insurance services	32.7%	61.5%	5.8%
Rental, hiring and real estate services	19.2%	79.2%	1.6%
Professional, scientific and technical services	40.7%	53.5%	5.8%
Administrative and support services	51.1%	45.4%	3.5%
Public administration and safety	51.7%	48.2%	0.1%
Education and training	68.1%	31.8%	0.2%
Health care and social assistance	65.6%	34.3%	0.0%
Arts and recreation services	28.0%	70.1%	1.9%
Other services	38.6%	61.4%	0.1%
Total	**30.9%**	**57.2%**	**11.9%**

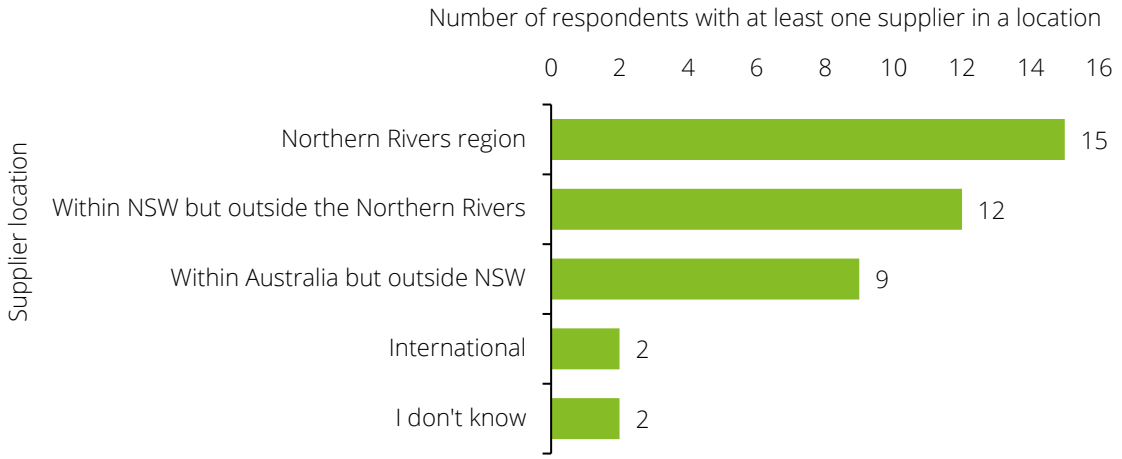
Source: Deloitte Access Economics (2025).

Manufacturing, information media, and financial services recorded higher international input shares (up to 64% in mining and nearly 50% in manufacturing). This reflects greater reliance on overseas imports in these sectors which utilise global value chains for equipment and technology.

A targeted survey of selected businesses in the region demonstrated that while most businesses have suppliers within the Northern Rivers, some also source inputs from outside the region and internationally – in line with the supply chain analysis findings. [42]

Most businesses surveyed had more than eleven suppliers, with deliveries being made on a daily basis. This highlights the complexity and frequency of modern 'just-in-time' supply chains and the importance of regular deliveries in maintaining business operations. Of the 17 respondents, 15 had at least one supplier in the Northern Rivers, with slightly fewer sourcing inputs from the rest of NSW and Australia. Only 2 respondents reported international sourcing of inputs.

Chart 2.18: Number of responding businesses with at least one supplier in each location



Question: Where are your main suppliers located? (n=17).
Source: Deloitte Access Economics (2025).

2.6.2 Distribution of outputs

The region's outputs are split between contributions to the production activities of other domestic industries (intermediate inputs to domestic production), final consumption (direct to end customer), and overseas exports.

The majority of industry outputs are used domestically, with a large majority concentrated within the region and the rest of NSW. Some 51% of industry outputs are used by other industries domestically to produce their goods and services, while 43% of industry outputs go toward final demand from consumers. Meanwhile the remaining 6% of outputs are exported internationally.

International exports play a larger role in certain industries though, with 21% of agriculture, forestry and fishing output exported internationally, alongside 16% of mining output and 14% of manufacturing output. For example, Northern Rivers based food manufacturer Norco exported around 20,000 tonnes of dairy products to Japan from its Lismore facility in 2024.[43]

[42] A targeted survey was conducted to complement available data; however, it was limited to a small cross-section of businesses across the region to minimise stakeholder burden and avoid duplication with other concurrent survey efforts.
[43] Australian Government, *Norco exports full steam ahead after floods* (27 March 2024) <https://minister.agriculture.gov.au/watt/media-releases/norco-exports-full-steam-ahead>

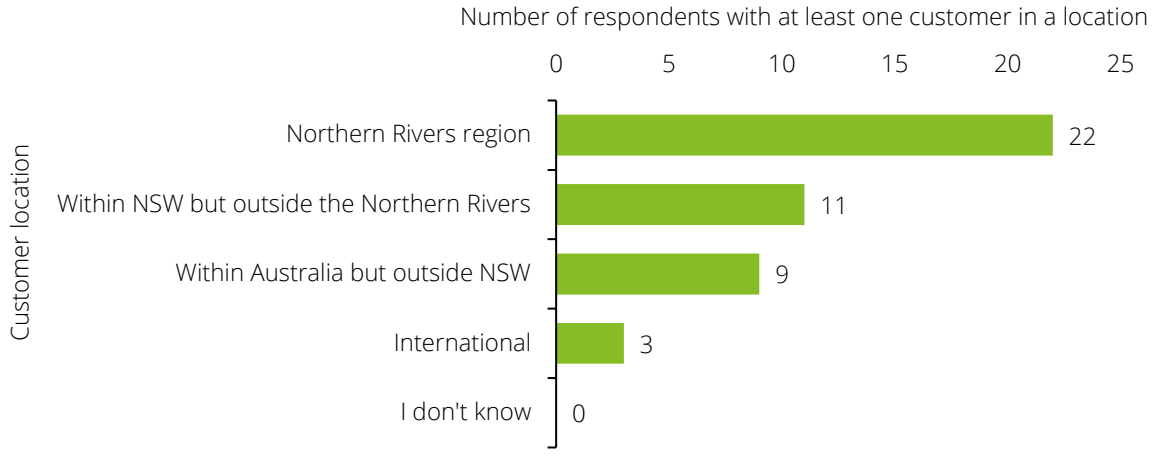
Table 2.9: Use of outputs from Northern Rivers industries, 2021/22

Industry	Contribution to domestic industries	Contribution to final consumption	Contribution to international exports
Agriculture, forestry and fishing	71.7%	7.1%	21.2%
Mining	71.8%	12.3%	15.9%
Manufacturing	53.0%	32.7%	14.3%
Electricity, gas, water and waste services	71.4%	28.4%	0.2%
Construction	99.6%	0.2%	0.1%
Wholesale trade	56.4%	34.4%	9.2%
Retail trade	6.6%	92.8%	0.6%
Accommodation and food services	16.5%	75.1%	8.4%
Transport, postal and warehousing	60.8%	30.1%	9.1%
Information media and telecommunications	61.6%	33.6%	4.7%
Financial and insurance services	62.7%	36.5%	0.8%
Rental, hiring and real estate services	40.9%	58.7%	0.4%
Professional, scientific and technical services	90.2%	6.5%	3.3%
Administrative and support services	88.9%	8.9%	2.2%
Public administration and safety	12.2%	87.8%	0.0%
Education and training	2.8%	89.9%	7.3%
Health care and social assistance	2.2%	97.7%	0.1%
Arts and recreation services	23.7%	74.7%	1.7%
Other services	52.0%	47.7%	0.3%
Total	**50.7%**	**43.2%**	**6.1%**

Source: Deloitte Access Economics (2025).

In line with these trends, all 22 responding businesses surveyed in the Northern Rivers indicated that they had customers within the region, while fewer businesses reported exporting outside the region, either domestically or internationally.

Chart 2.19: Number of responding businesses with at least one customer in each location



Question: Where are your largest customer groups located? (n=22).

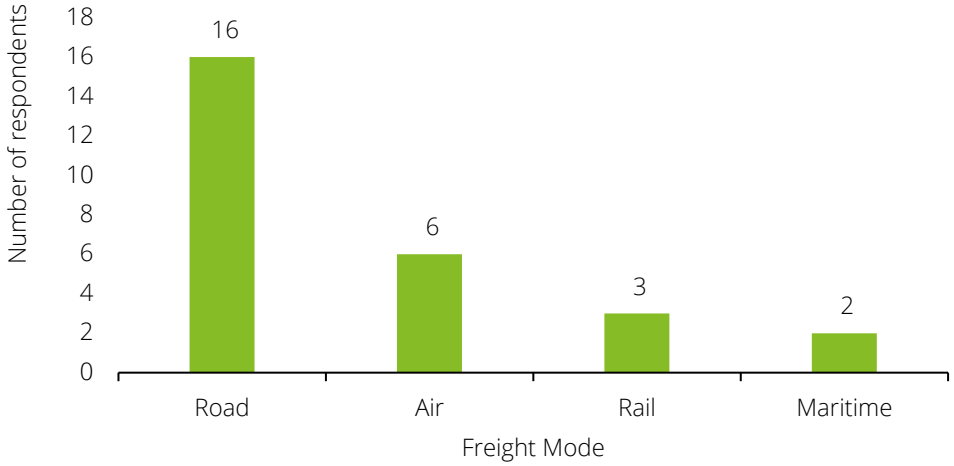
Source: Deloitte Access Economics (2025).

2.6.3 Supporting assets and infrastructure

To support supply chains in the region businesses rely on a range of key supporting assets and infrastructure.

Road remains the only intra-regional transport network available in Northern Rivers and underpins the majority of regional freight movement.[44] Survey data supports this, with 16 out of 17 responding businesses relying on roads to transport goods, with key routes such as the M1 Pacific Highway and Bruxner Highway critical connectors between Ballina, Lismore and SEQ. In the absence of intra-regional rail, road also forms the backbone of labour and tourism flows, enabling people to move efficiently around the region.[45]

Chart 2.20: Number of responding businesses that use each freight mode



Question: What transportation modes do you use for inbound and outbound freight? (n=17).
Source: Deloitte Access Economics (2025).

While the road network is the primary way for goods and services to move around the region, other transport modes are used to enable products to reach the Northern Rivers:

- During consultations, businesses that reported using international imports highlighted the role of the **Port of Brisbane** as the initial arrival port for goods that would then be trucked down the Pacific Highway into the region.
- While **air** transport is used relatively little to deliver inputs, hub airports like Gold Coast and Brisbane, as well as regional airports like Byron-Ballina Gateway Airport were highlighted fo their important role in supporting the visitor economy.
- **Rail** transportation in the region is limited with just one intermodal rail terminal located in Casino. Despite this the business survey highlighted a small number of businesses that utilised rail freight for a small proportion of their freight inputs including in Casino and Lismore. The "last mile" transportation of this freight would still depend on the local road network though.

In addition to the transport network, consultation highlighted a range of other types of infrastructure and assets important for maintaining business operations. The four most important were: telecommunications, workforce availability, energy infrastructure and the availability of industrial land.

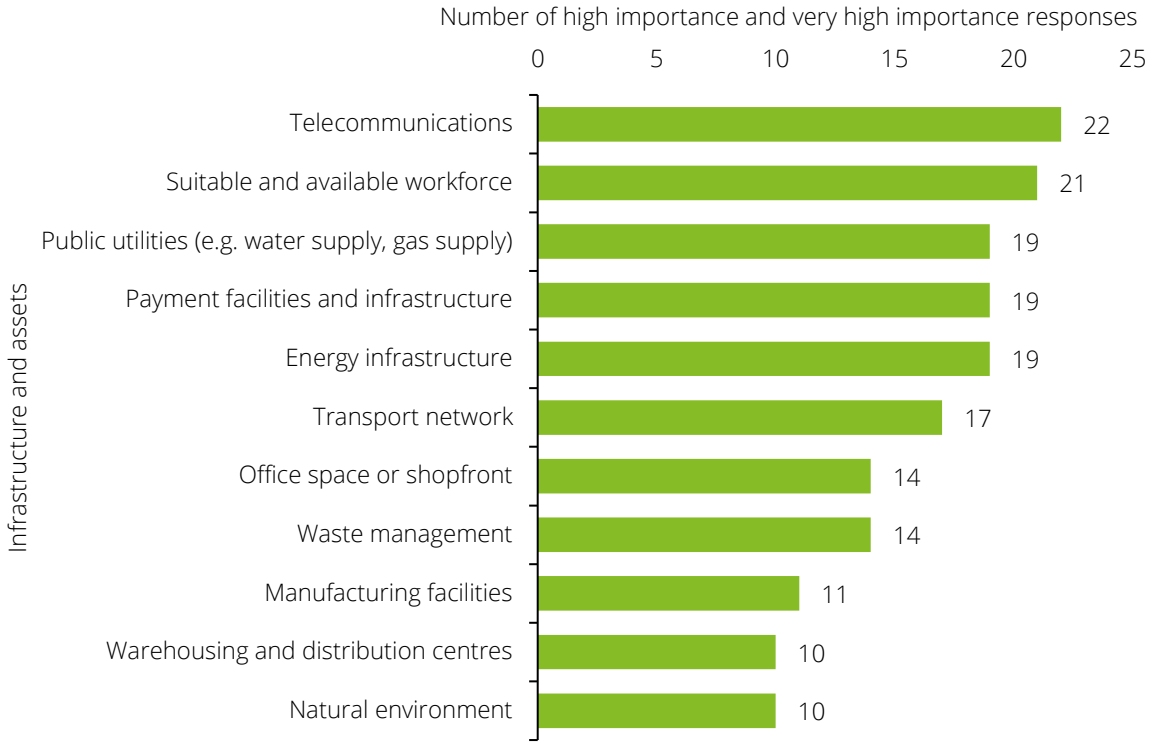
Several businesses highlighted poor **telecommunications** connectivity as a key challenge. One stakeholder noted that it is rare to get fibre to the node in the region, with wireless connectivity via the National Broadband Network (NBN) being weak and unreliable. This is supported by the NSW Digital Connectivity Index data.[46] While coastal LGAs including Byron (71), Ballina (64) and Tweed (59) score above the Regional NSW average of 52, the inland LGAs of Clarence Valley (48), Richmond Valley (44) and Kyogle (42) score worse. Furthermore, all Northern

[44] Regional Development Australia, *From roots to routes: An innovative vision of freight for the Northern Rivers NSW* (28 August 2019) <https://www.rdanorthernrivers.org.au/freight-transport/from-roots-to-routes>
[45] Ibid.
[46] NSW Government, *NSW Digital Connectivity Index* (July 2024) < https://www.nsw.gov.au/departments-and-agencies/nsw-telco-authority/connectivity-leadership/nsw-digital-connectivity-index>

Rivers LGAs other than Byron and Ballina have scores indicating that these communities are less likely to be able to meaningfully conduct digital activities such as working, video conferencing and accessing telehealth.

The **availability of suitable labour** was highlighted as a key risk by many businesses in delivering their outputs. The Northern Rivers labour market has tightened notably since the mid-2010s (see 2.4), with many putting this down to relatively weak population growth and, in turn, the lack of housing supply. Between 2018 and 2023, residential building approvals in Northern Rivers LGAs fell by 12%, compared with a 5% increase in Regional NSW overall, while the region has been experiencing above inflation increases in rental prices and high levels of housing cost stress (see 2.3.3).[47] These trends can impede growth in labour-intensive industries such as health care and social assistance by creating higher living costs for residents and workers, and also create pressures for tourism-related industries, which rely on local staff and visitor accommodation.

Chart 2.21: Importance of infrastructure and assets to business operations

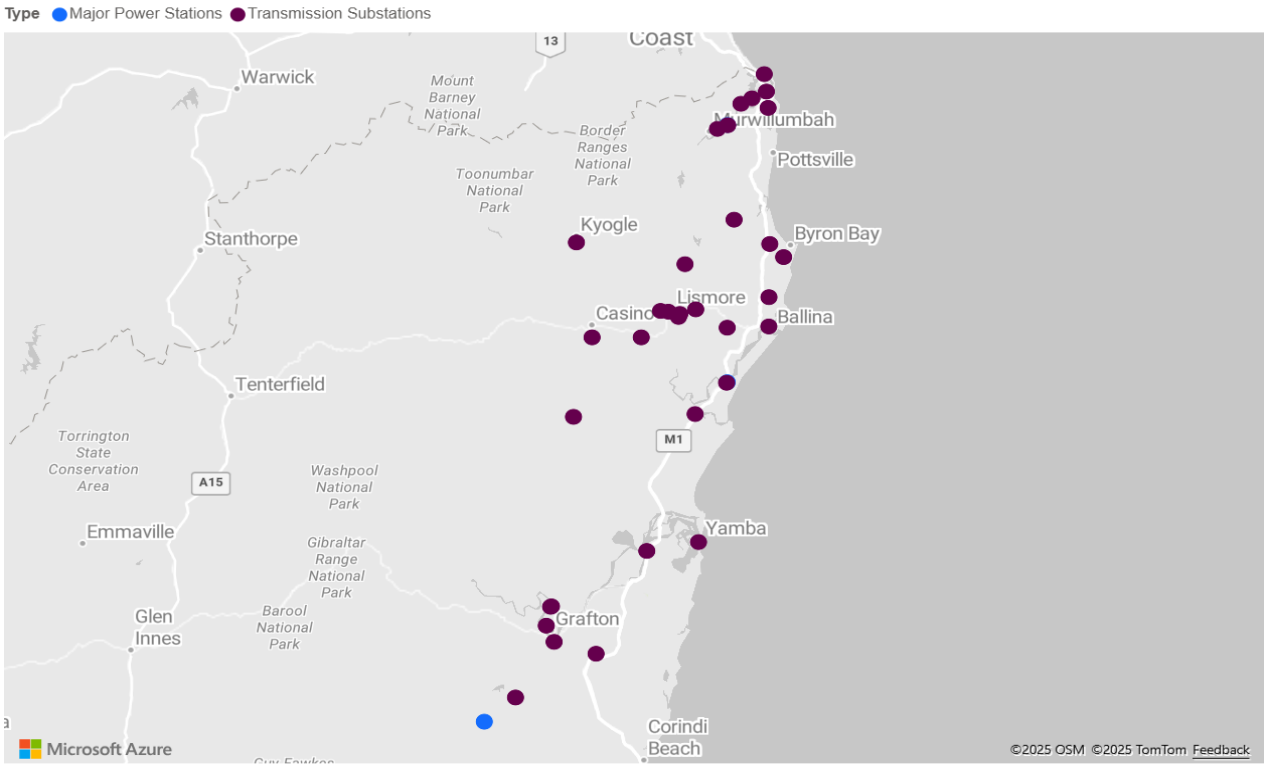


Question: How important are the following in allowing your business to operate? (n=23).
Source: Deloitte Access Economics (2025).

Energy and power were also highlighted as an important infrastructure vulnerability. The region has many transmission substations; however, the distribution of power is challenging due to the region's topography. Overhead power lines are particularly vulnerable to high winds with frequent disruptions reported during extreme weather events. This impacts business operations and can lead to sizeable inventory losses, for example if cold stored goods are impacted. As a result, many businesses reported investing in private generators to increase energy resilience.

[47] Australian Bureau of Statistics, *Building Approvals, Australia, June 2018 – June 2023* (Catalogue No. 8731.0, 2024) <https://www.abs.gov.au/statistics/industry/building-and-construction/building-approvals-australia/latest-release>

Figure 2.2: Locations of major power stations and transmission substations in the Northern Rivers



Source: Digital Atlas of Australia (2025).

Finally, the availability of suitable industrial land was also noted as a barrier to business growth. A recent study into industrial lands in the Northern Rivers highlighted that Ballina, Byron, Lismore and Tweed have a significant deficit of well-located, serviced land and require additional zoning and infrastructure to meet future needs.[48] However, the region's geography limits development options and often means substantial investment is required in supporting roads, utilities and other services. This points to the value of a coordinated regional land-release and servicing strategy, to help deliver infrastructure where it is needed most.

[48] HillPDA, *Northern Rivers Employment Land Study* (2023) <https://www.rdanorthernrivers.org.au/employment-land-study-for-the-northern-rivers/>

3 Key sectoral deep dives

Summary

This section presents analysis into five key industries that underpin the Northern Rivers economy: health care and social assistance, manufacturing and logistics, agriculture, forestry and fishing, the visitor economy, and construction and major projects. These sectors were selected based on their economic significance, role in community wellbeing, and exposure to natural hazards.

While each industry is analysed in its own section, the analyses highlight important interdependencies between industries in the region. In particular, agriculture, food manufacturing, logistics and the visitor economy form a tightly linked system. The region's agricultural producers and food manufacturers not only drive export activity but also enhance the visitor experience by supplying fresh, local food and drink - a major drawcard for tourists. In turn, tourism supports regional branding and demand for local produce. The distribution of food produce around the region and dispersal of visitors is also highly dependent on the transport and logistics sector.

While the linkages are indirect, the health and social assistance and construction sectors are also critical enablers for the local economy. The former is a large employer that supports employment and in turn consumer spending in the region and has a critical role in providing a healthy and productive workforce. The latter supports the provision of key infrastructure to enable business activity. Both have experienced heightened demand following the stresses that recent natural hazard events have placed on the region's population and infrastructure.

In relation to natural hazard and climate risk, floods, bushfires and other natural disasters have disrupted production, damaged infrastructure, and reduced visitor numbers in recent years. These impacts rarely occur in isolation: shocks to one industry can cascade into others. For example, recent floods have affected food production, interrupted supply chains, and reduced tourism demand simultaneously. These shared vulnerabilities highlight the importance of building resilience across sectors - not just within them.

For many indicators considered as a part of this analysis, the impacts of COVID-19 and natural disasters cannot be cleanly separated, particularly during the 2019–20 bushfire season, the end of which overlapped with the onset of the pandemic, and the 2022 floods which hit as the broader economic recovery, including the return of international travel, following the pandemic was taking hold.

Both the pandemic and these natural hazard events disrupted regional supply chains, labour markets, and demand patterns, often amplifying or counteracting each other's effects. As a result, observed changes in economic activity, visitation, and sector performance during this period should be interpreted as the combined outcome of these concurrent shocks, rather than the result of a single cause. This overlap highlights the compounding nature of multiple crises and the challenge of isolating their individual effects in regional economic data.

3.1 Health care and social assistance

The health care and social assistance sector includes organisations that focus on looking after people's health and wellbeing. This includes hospitals, medical and other healthcare services, residential care services and social assistance services (including but not limited to childcare and disability assistance services). These services rely heavily on skilled workers such as doctors, nurses, child care workers, carers and other trained professionals whose expertise is central to the care and support they provide.

The sector is highly reliant on its workforce, but many organisations in the Northern Rivers face shortages in key roles and often need to bring in workers from outside the region. Services are primarily delivered to local residents, often those who are more vulnerable, such as the elderly, people living with disability or individuals experiencing hardship. Demand for care can increase rapidly following natural hazard events. To function

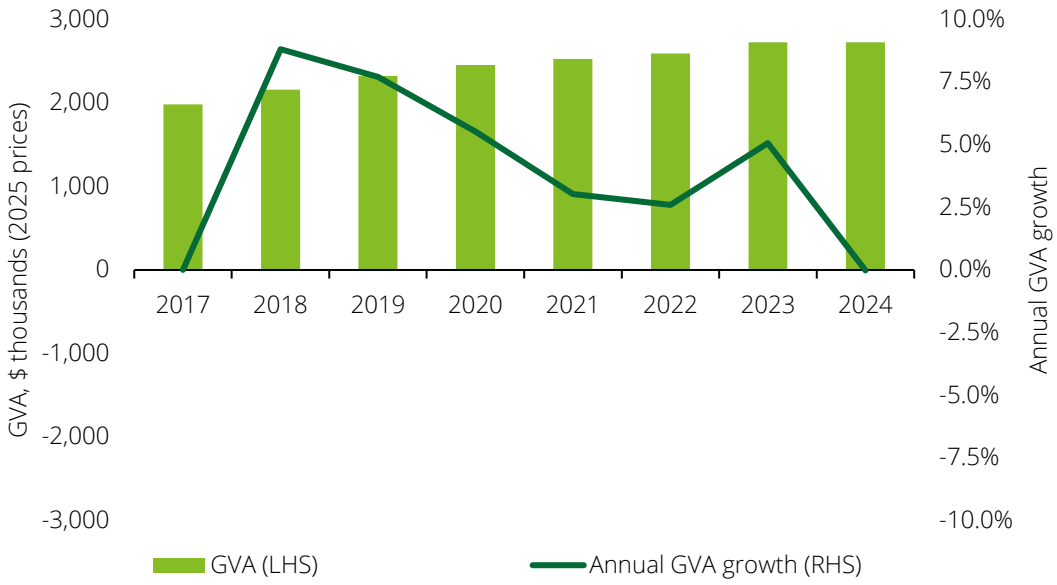
effectively, the sector also depends on a wide range of essential inputs, including food, power, medicine, vaccines, transportation and even accommodation.

While the sector is less directly dependent on environmental conditions than industries such as agriculture, it remains highly exposed to the effects of climate-related events. Flooding, bushfires and extreme weather can disrupt service delivery, displace vulnerable clients, damage infrastructure and place additional strain on the health and aged care system. Ensuring continuity of care during emergencies requires resilient facilities, workforce flexibility, and strong coordination across transport, energy and emergency services.

The health care and social assistance industry in the Northern Rivers has demonstrated consistent growth over the past decade, recording average annual GVA growth of 5% between 2017 and 2024. The industry saw strong gains from 2018 to 2020 supported by the redevelopment of Lismore Base Hospital, including the $180million stage 3b construction of South Tower, completed in 2020.[49]

The pace of expansion has moderated since 2021, but despite the significant flooding events in 2022 the sector has maintained a modest growth, suggesting a degree of resilience in service provision and demand. In 2024, GVA remained unchanged from the previous year, following a 5% increase in 2023, indicating that the industry may be entering a period of consolidation as it responds to evolving community health needs, workforce constraints and the longer-term impacts of natural disasters.

Chart 3.1: Health care and social assistance real GVA trends in the Northern Rivers, 2017-24

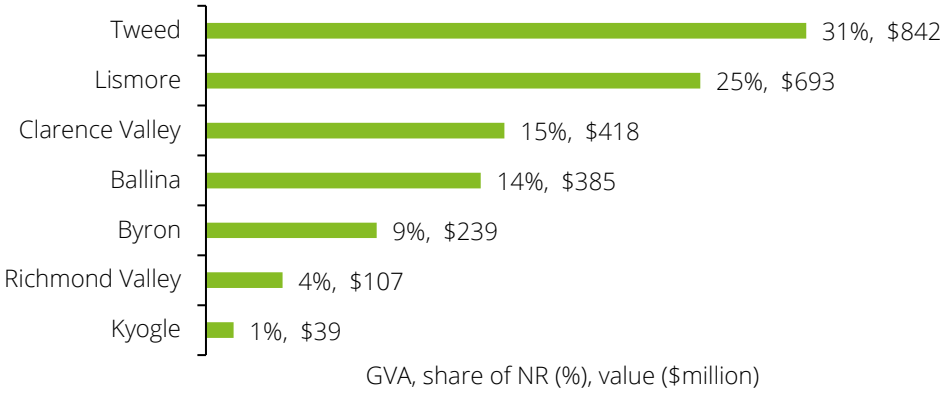


Source: Deloitte Access Economics (2025).

The industry is focussed on major population centres, and in particular the hospitals that serve them. For example, Tweed and Lismore accounted for 56% of industry GVA in the Northern Rivers in 2024. Both these areas have hospitals that serve as regional hubs. Lismore Base Hospital serves as a major referral and teaching centre, while Tweed Hospital is a regional referral centre.

[49] Northern NSW Local Health District, *Lismore Base Hospital Redevelopment* (2022) <https://nnswlhd.health.nsw.gov.au/LBH-redevelopment>

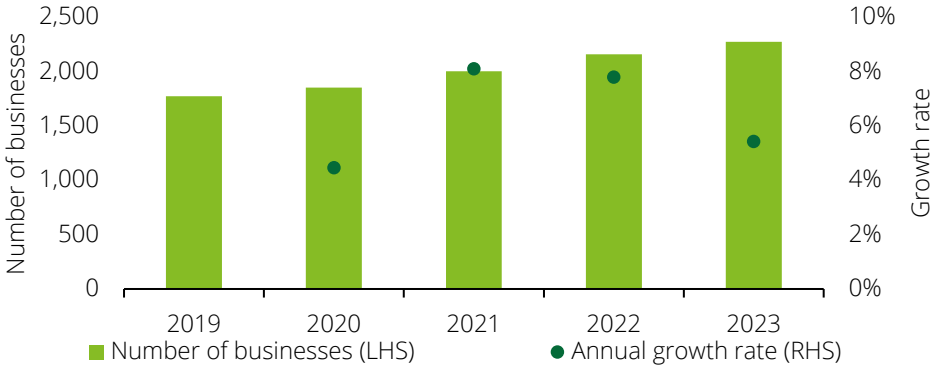
Chart 3.2: Health care and social assistance contribution to GVA by LGA, 2024



Source: Deloitte Access Economics (2025).

The number of health care and social assistance businesses in the Northern Rivers has increased following COVID-19. There were over 500 more businesses in the industry in 2023 compared to 2019, which equates to average growth in business numbers of 6% per year.

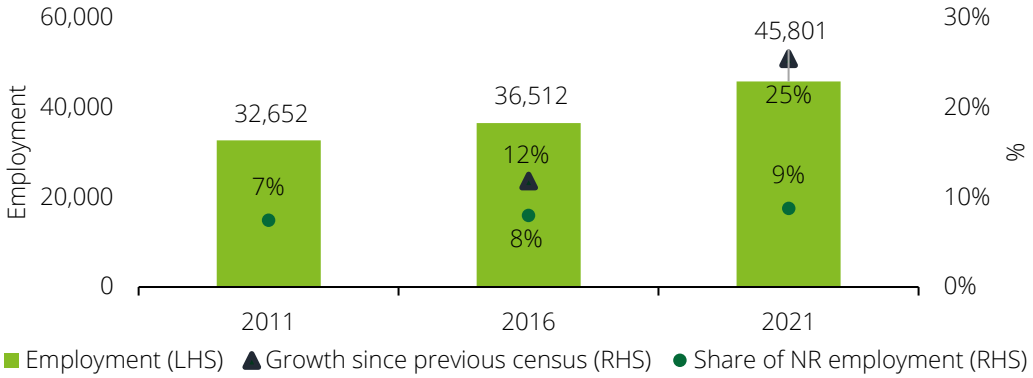
Chart 3.3: Northern Rivers businesses in the health care and social assistance industry



Source: Australian Bureau of Statistics, Data by Region (Catalogue No. 1410.0, 28 June 2025).

Employment in health care and social assistance has also grown, rising from 32,652 in 2011 to 45,801 in 2021, an average annual growth rate of 3%. Employment growth accelerated between 2016 and 2021, reflecting both an ageing population, rising demand for community-based care and investment in key employment hubs in the region. The sector accounted for 9% of employment in the Northern Rivers in 2021.

Chart 3.4: Northern Rivers employment in the health care and social assistance industry



Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022).

The health care and social assistance sector draws heavily on a range of service and manufacturing inputs, with the largest from administrative services (11.2% of industry inputs), basic material wholesaling (11.0%), and machinery and equipment manufacturing (9.5%), highlighting its operational and supply chain intensity.

Table 3.1: Top input industries for health care and social assistance, 2021-22

Input industry	Share of inputs (%)
Administrative services	11.2%
Basic material wholesaling	11.0%
Machinery and equipment manufacturing	9.5%
Food product manufacturing	6.1%
Building cleaning, pest control and other support services	4.4%
Auxiliary finance and insurance services	4.3%
Property operators and real estate services	4.1%
Finance	3.8%
Waste collection, treatment and disposal services	3.1%
Textile, leather, clothing and footwear manufacturing	3.1%

Source: Deloitte Access Economics (2025).

On the output side, a large share of industry outputs go direct to consumers in final demand (98%). Of the industries that rely on the sector for inputs, hospitals (57.9%) and residential care services (11.5%) are the largest, reflecting the sector's core function of supporting institutional care and related services.

Table 3.2: Top output industries for health care and social assistance, 2021-22

Output industry	Share of outputs (%)
Hospitals and other healthcare[1]	57.9%
Care services [2]	11.5%
Insurance and superannuation funds	10.3%
Public administration	3.3%
Preschool and school education	2.7%
Basic chemical and chemical product manufacturing	2.5%
Tertiary education	2.0%
Building cleaning, pest control and other support services	1.2%
Auxiliary finance and insurance services	0.9%
Wood product manufacturing	0.8%

[1]Hospitals (Except Psychiatric Hospitals), Psychiatric Hospitals, General Practice Medical Services, Specialist Medical Services, Pathology and Diagnostic Imaging Services, Dental Services, Optometry and Optical Dispensing, Physiotherapy Services, Chiropractic and Osteopathic Services, Other Allied Health Services, Ambulance Services, Other Health Care Services n.e.c.

[2]Aged Care Residential Services, Other Residential Care Services, Child Care Services, Other Social Assistance Services.

Source: Deloitte Access Economics (2025).

3.2 Manufacturing and logistics

The manufacturing and logistics industry is a combination of manufacturing (62% of industry activity) and transport, postal and warehousing (38% of activity).

The manufacturing industry includes organisations mainly engaged in physically or chemically transforming raw materials, substances or components into new products. In the Northern Rivers, major manufacturing activity includes food manufacturing and processing (particularly meat products), timber and wood products, motor vehicle parts, and professional, scientific and electronic equipment. Key manufacturers in the region include the Casino Food Coop, a significant employer and exporter; Norco, a long-established dairy co-operative headquartered in Lismore; and a range of smaller specialised manufacturers located in industrial hubs across Tweed, Lismore, Richmond Valley and Byron.

The transport, postal and warehousing industry includes organisations primarily involved in moving passengers and freight, largely by road. It also includes postal services, pipeline transport, and scenic or sightseeing transport activities.

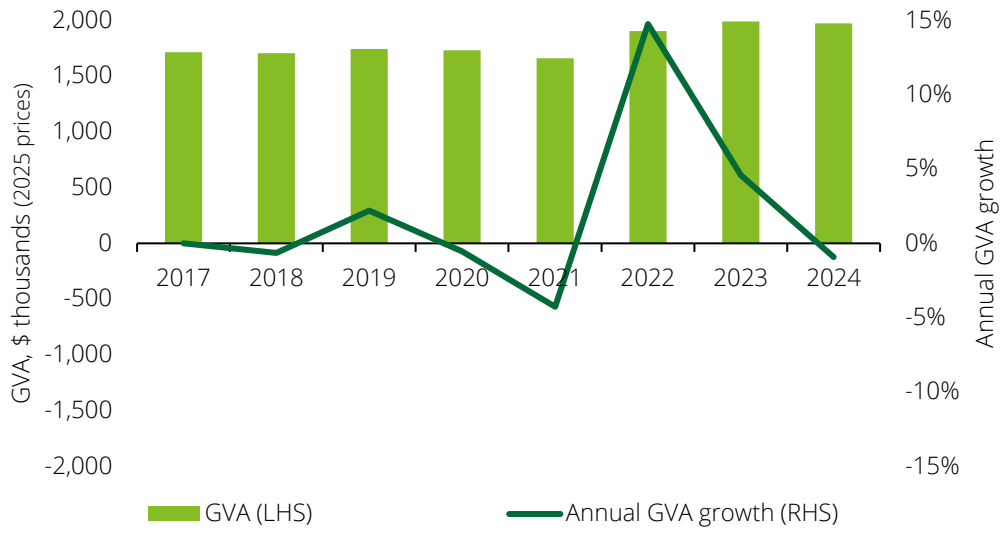
Consultations with businesses in the Northern Rivers region revealed that while the sector serves primarily local customers, it also plays a critical role in import and export activities, both nationally and internationally. Efficient supply chains are essential, with many businesses reliant on "just-in-time" models to maximise efficiency and reduce inventories. Businesses requiring large volumes and frequent shipments rely heavily on transport networks and key infrastructure nodes such as the M1 Pacific Highway and the Port of Brisbane. This interconnection between manufacturing and logistics underpins a significant proportion of the region's economic activity.

The sector's reliance on efficient transport and infrastructure makes it particularly vulnerable to disruptions caused by natural hazards. Floods, bushfires and extreme weather events can damage physical infrastructure, sever key supply routes, delay production, and increase the cost of freight. As seen during recent disasters, even short-term disruptions can have cascading effects through the supply chain.

For manufacturers dealing with perishable goods or time-sensitive exports, these risks are amplified. As such, building climate resilience into logistics planning and infrastructure investment is increasingly critical for the region's economic stability. Discussions with businesses also highlighted a potential need for improved coordination around community facilities to support resilience. This can be done at local level within communities (e.g., cold storage, local generators etc).

The manufacturing and logistics industry in the Northern Rivers has recorded modest growth over the past eight years, with average annual GVA growth of 2% between 2017 and 2024. The sector was relatively stable from 2017-21, but saw a notable expansion in 2022, with GVA rising by 15% as demand increased following COVID-19. Local activity was also elevated due to reconstruction demand and short-term logistics surges following the floods. Growth continued in 2023, albeit at a slower rate of 5%, before softening slightly in 2024.

Chart 3.5: Manufacturing and logistics real GVA trends in the Northern Rivers

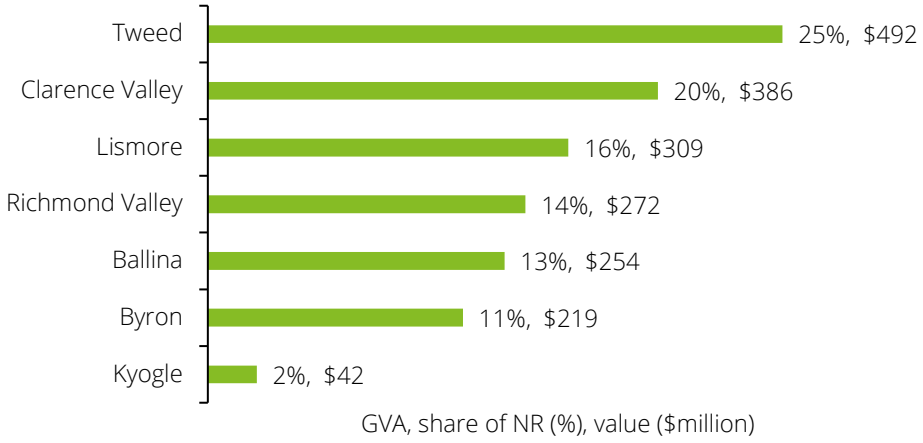


Note manufacturing and logistics includes the 1-digit ANZSIC groups of manufacturing and transport, postal and warehousing. Source: Deloitte Access Economics (2025).

The manufacturing and logistics industry generated $1.97 billion in GVA for the Northern Rivers in 2024. The top three contributing regions were Tweed (25%), Clarence Valley (20%), and Lismore (16%). Clarence Valley's strong contribution to manufacturing and logistics GVA in 2024 likely reflects its role as a regional freight hub, with established transport infrastructure supporting recovery-related activity and supply chain consolidation

following recent natural hazards. Lismore and Tweed also benefit from a mix of warehousing, transport, and small -to -medium scale manufacturing hubs, including producers of wood products, beverages, and niche food goods, supporting both local and regional supply chains.

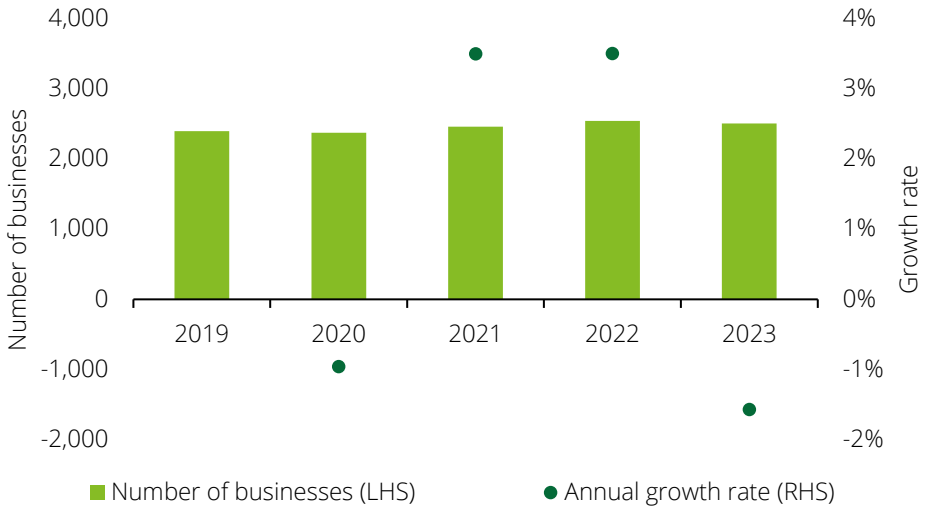
Chart 3.6: Manufacturing and logistics contribution to GVA by LGA, 2024



Source: Deloitte Access Economics (2025).

Within Northern Rivers, the manufacturing and logistics industry showed relative stability in business numbers with 2,503 businesses in 2023, with average annual growth in the number of businesses of 1% since 2019.

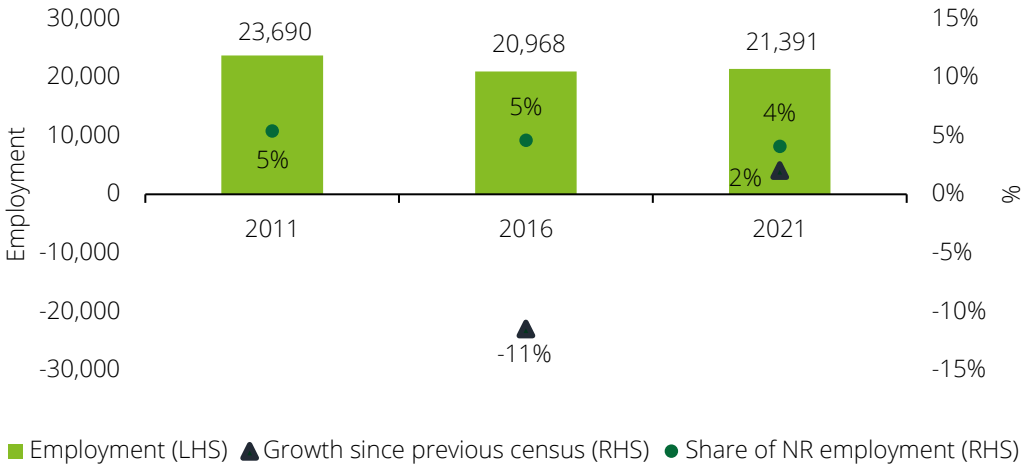
Chart 3.7: Northern Rivers businesses in the manufacturing and logistics industry



Source: Australian Bureau of Statistics, Data by Region (Catalogue No. 1410.0, 28 June 2025).

Despite modest growth in the industry, manufacturing and logistics employment in the Northern Rivers has declined from 23,690 in 2011 to 21,391 in 2021. The largest fall occurred between 2011 and 2016, with a small rebound in the following five years. This likely reflects broader structural trends towards automation of certain manufacturing processes in recent years, particularly in light of workforce pressures in the sector. Some businesses raised this point specifically in the consultations, stating they were looking at options to increase scale to support automation and efficiency given the current labour shortages.

Chart 3.8: Northern Rivers employment in the manufacturing and logistics industry



Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022).

Manufacturing and logistics in the Northern Rivers is closely integrated with both primary production and downstream service industries playing a central role in supporting both the production and consumption sides of the Northern Rivers economy, and its close interconnected links with SEQ.

The largest input industry to the sector is agriculture (23.7% of industry inputs), reflecting strong linkages to the region's natural assets and the prevalence of local food processing and manufacturing businesses. Other significant inputs include food product manufacturing (9.1%), road transport (7.7%), and basic material wholesaling (5.0%).

Table 3.3: Manufacturing and logistics: Top input industries, 2021-22

Input industry	Share of inputs (%)
Agriculture	23.7%
Food product manufacturing	9.1%
Road transport	7.7%
Basic material wholesaling	5.0%
Metal ore mining	4.9%
Forestry and logging	4.1%
Repair and maintenance	3.6%
Transport support services	3.2%
Petroleum and coal product manufacturing	3.1%
Administrative services	2.4%

Source: Deloitte Access Economics (2025).

Construction services are the largest recipient of outputs (14.0%), followed by food product manufacturing (9.9%) and building construction (9.2%). The industry also supplies key sectors such as agriculture, food and beverage services, and road transport, highlighting its role in enabling regional supply chains. Among these, food product manufacturing is a key export-oriented sub-sector. While specific data on domestic versus international exports is limited at the regional level, around 70% of agricultural production and one-third of food manufacturing output is exported, suggesting a sizeable portion of this output is destined for markets outside the Northern Rivers, including overseas.

Table 3.4: Manufacturing and logistics: Top output industries, 2021-22

Output industry	Share of outputs (%)
Construction services	14.0%
Food product manufacturing	9.9%
Building construction	9.2%
Agriculture	7.6%
Food and beverage services	5.8%
Road transport	4.5%
Repair and maintenance	4.1%
Basic material wholesaling	3.9%
Hospitals	3.3%
Motor vehicle and motor vehicle parts retailing	3.1%

Source: Deloitte Access Economics (2025).

3.3 Agriculture, forestry and fishing

The agriculture, forestry and fishing industry includes businesses and organisations involved in growing crops, raising animals, harvesting timber, and collecting fish and other animals from farms or natural environments. It covers both production activities such as horticulture, livestock farming, aquaculture, forestry, and fishing, as well as support services that enable these activities. The industry plays a foundational role in the region being highly interlinked with the rest of the economy, supporting both processing industries and service sectors tied to regional tourism and consumption, and playing a key role in driving economic activity at the local scale.

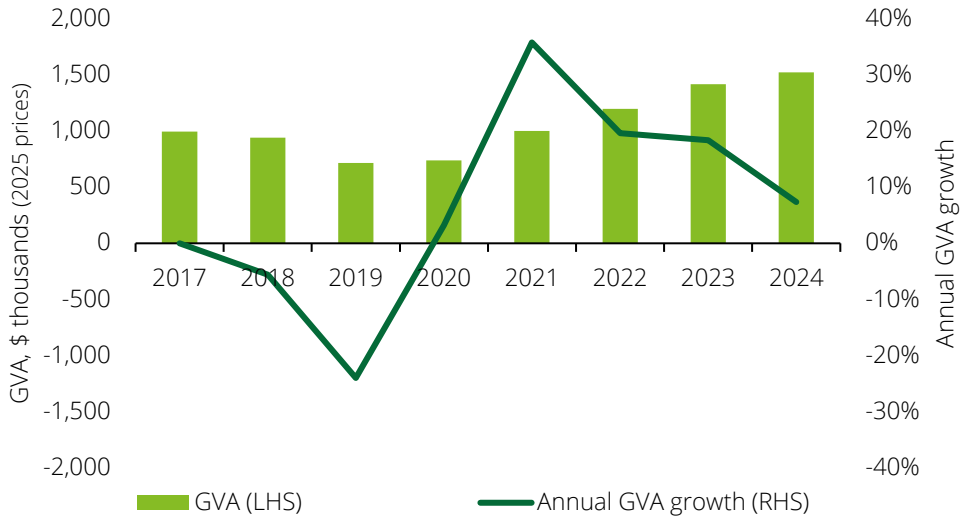
Consultations in the Northern Rivers region highlighted the diversity of the sector, with land use changing quickly and many producers managing mixed farming operations across crops and livestock. The industry is closely tied to the natural environment, with water availability identified as a critical input for many producers and climate change bringing new opportunities or challenges for the sector.

Due to the perishable nature of many agricultural goods, efficient supply chains are essential to move products to market quickly – both domestically and internationally. This reliance on both environmental conditions and logistical infrastructure makes the sector particularly sensitive to climate and transport disruptions. Flooding and drought are recurring risks, while changes in temperature, water reliability and biosecurity threats are increasing concerns for producers. Many farms and forestry areas are also located in high-exposure zones such as floodplains or bushfire-prone areas, highlighting the need for continued investment in resilience and adaptation strategies across the industry.

The agriculture, forestry and fishing industry in the Northern Rivers has experienced considerable volatility over the past eight years, with average annual GVA growth of 8%. After declining by 6% in 2018 and a further 24% in 2019 - coinciding with the widespread impacts of the 2019-20 bushfires and accompanying drought - the sector entered a strong recovery phase. GVA rose by 36% in 2021, followed by consecutive double-digit growth years through to 2023, and a further 7% increase in 2024.

This sustained upswing, despite the severe flooding in 2022, points to the sector's resilience, alongside favourable global commodity prices increasing cattle prices and boosting crop returns. However, the sharp fluctuations over time highlight the industry's ongoing exposure to climatic risk and environmental shocks.

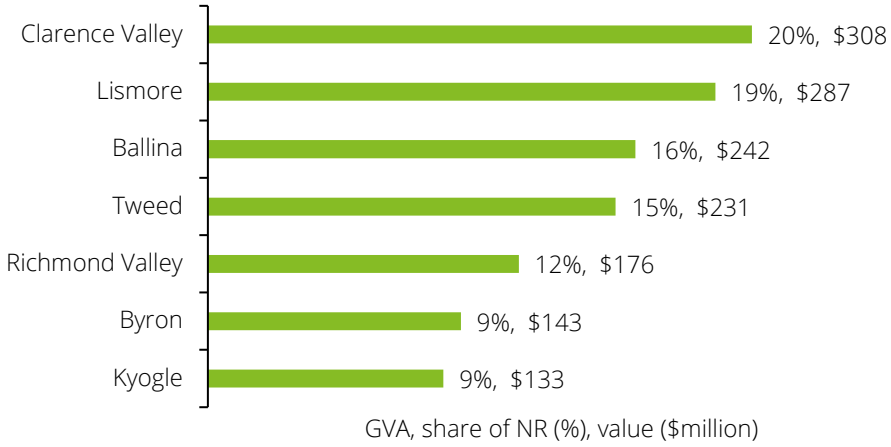
Chart 3.9: Agriculture, forestry and fishing real GVA trends in the Northern Rivers



Source: Deloitte Access Economics (2025).

Agriculture, fisheries and forestry contributed $1.52 billion in GVA to the Northern Rivers economy in 2024. The top contributors were Clarence Valley (20%), Lismore (19%), and Ballina (16%). Clarence Valley and Lismore both have extensive rural land used for a mix of crops, livestock and forestry, while the macadamia industry forms a large part of Ballina's agricultural GVA, as well as other horticulture and livestock. The strength in these LGAs reflects both the scale and diversity of their agricultural bases.

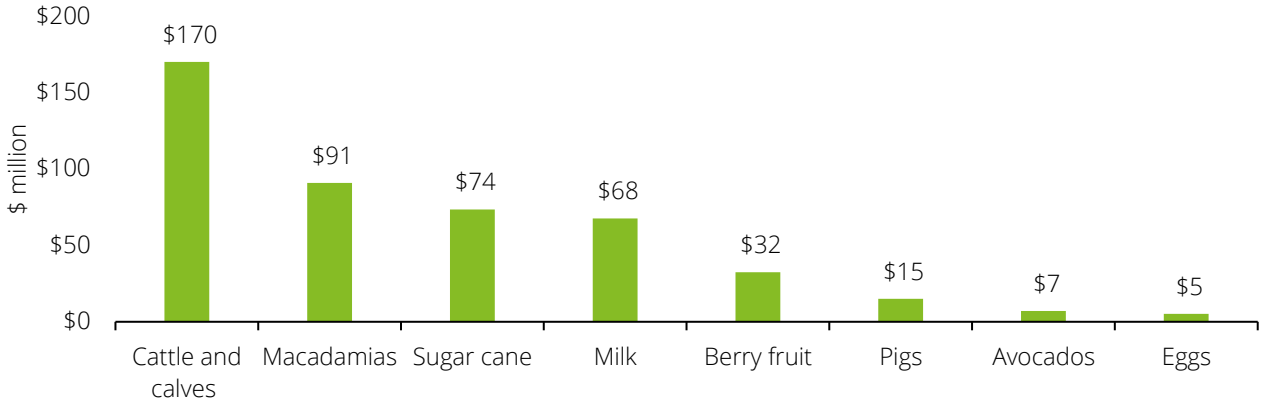
Chart 3.10: Agriculture, forestry and fishing contribution to GVA by LGA, 2024



Source: Deloitte Access Economics (2025).

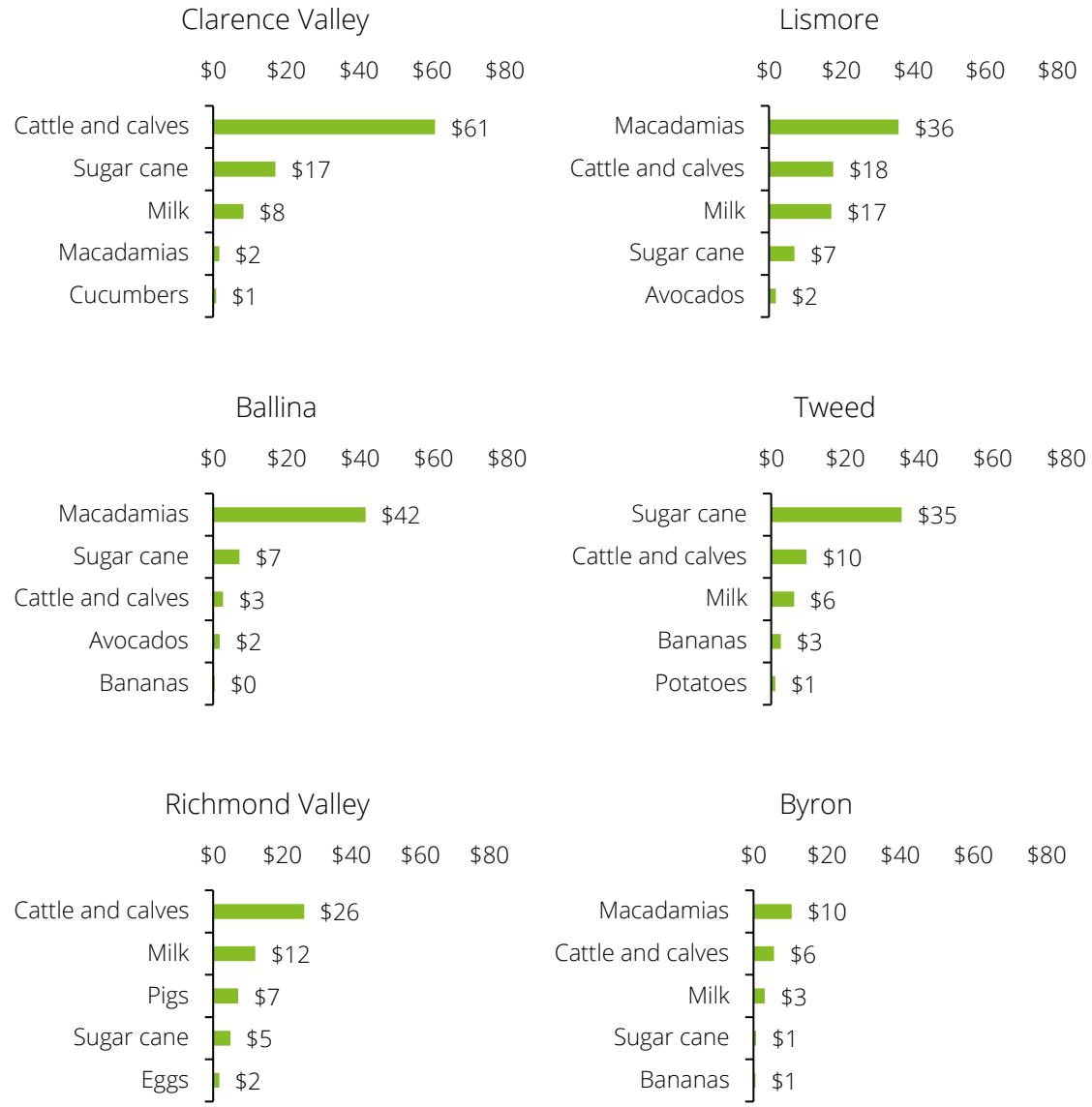
The top agricultural outputs in the region include cattle and calves, macadamias, sugar cane and milk. Cattle output is concentrated on the inland regions of Clarence Valley, Kyogle and Richmond Valley which account for 79% of regional production. Meanwhile, Lismore and Ballina are dominant in macadamias accounting for 85% of regional output. Tweed and Clarence Valley account for the majority of the region's sugar cane output. Berry fruit is also key product with the North Coast (including the NR) producing 87% of Australia's blueberries thanks in part to an extended growing season compared to other areas.

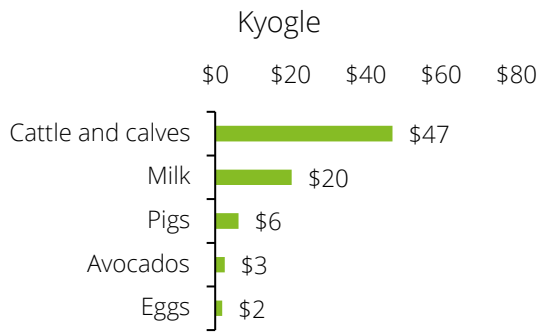
Chart 3.11: Northern Rivers top agricultural commodities produced, 2020-21



Source: Australian Bureau of Statistics, Value of Agricultural Commodities Produced, Australia (Catalogue No. 7503.0 26 July 2022).

Chart 3.12: Top Agriculture Products by LGA, 2020-21, $ million

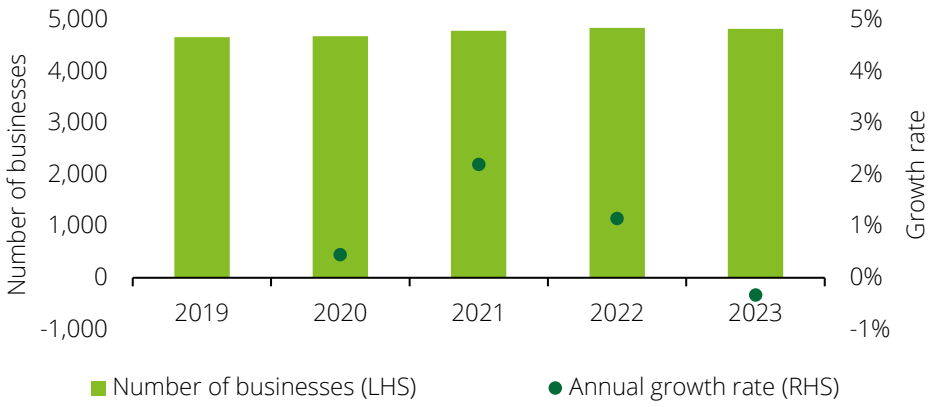




Source: Australian Bureau of Statistics, Value of Agricultural Commodities Produced, Australia (Catalogue No. 7503.0 26 July 2022).

The agriculture, forestry and fishing sector includes a large number of small farms and businesses. There were 4,823 businesses the sector in 2023. The sector has experienced minimal change in business numbers since 2019, with average annual growth of 1%, indicative of its established and steady role in the region. The slightly higher 2% growth rate in 2021 may reflect a recovery from less favourable seasonal conditions, stronger commodity prices and government assistance during the COVID-19 period.

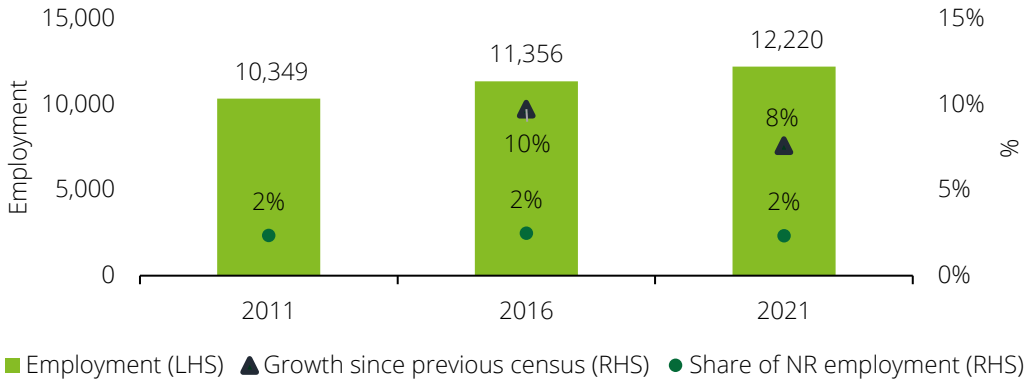
Chart 3.13: Northern Rivers businesses in the agriculture, forestry and fishing industry



Source: Australian Bureau of Statistics, Data by Region (Catalogue No. 1410.0, 28 June 2025).

The sector employed 12,220 people in 2021, up from 10,349 in 2011. Employment grew steadily over the decade and the sector has consistently made up around 2% of employment in the Northern Rivers.

Chart 3.14: Northern Rivers employment in the agriculture, forestry and fishing industry



Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022)

Agriculture, forestry and fishing is a key industry in the Northern Rivers, with its produce a direct input to many downstream industries. Food product manufacturing (48.6% of industry outputs) is the most significant destination for outputs, highlighting the value-add role of regional processing facilities. Other major output industries include sales to other agricultural producers (22.9%) and wood product manufacturing (8.4%), the latter likely reflecting outputs from forestry activities. The sector also supplies consumer facing parts of the economy including food and beverage services.

Table 3.5: Top output industries for agriculture, forestry and fishing, FY 2021-22

Output industry	Share of outputs (%)
Food product manufacturing	48.6%
Agriculture	22.9%
Wood product manufacturing	8.4%
Agriculture, forestry and fishing support services	7.6%
Motor vehicle and motor vehicle parts retailing	2.3%
Food and beverage services	1.7%
Forestry and logging	1.7%
Beverage and tobacco product manufacturing	1.2%
Accommodation	0.7%
Basic material wholesaling	0.6%

Source: Deloitte Access Economics (2025).

On the input side, the largest contributors include support services specific to agriculture, forestry and fishing (19.1%), followed by intra-industry inputs from agriculture itself (18.2%) such as grain. Chemical manufacturing, fuel, and wholesale trade also play important supporting roles, reflecting the sector's reliance on inputs like fertiliser, fuel, and equipment. These linkages reflect the foundational role of primary industries in the region's economy, supporting both processing industries and service sectors tied to regional tourism and consumption.

Table 3.6: Top input industries for agriculture, forestry and fishing, FY 2021-22

Input industry	Share of inputs (%)
Agriculture, forestry and fishing support services	19.1%
Agriculture	18.2%
Basic chemical and chemical product manufacturing	10.7%
Petroleum and coal product manufacturing	7.3%
Basic material wholesaling	6.0%
Finance	5.1%
Auxiliary finance and insurance services	4.2%
Construction services	3.6%
Road transport	3.2%
Transport support services	2.6%

Source: Deloitte Access Economics (2025).

3.4 Visitor economy: retail, hospitality, and creative industries

The visitor economy industry brings together three interconnected industries: retail trade (53% of industry activity), accommodation and food services (41%), and arts and recreation services (6%). These industries collectively support local residents and a significant visitor population, forming a key part of the Northern Rivers economy.

- The **retail trade** industry includes businesses and organisations that purchase and resell finished goods to the general public, including through physical stores and online platforms.
- The **accommodation and food services** industry covers businesses providing short-term accommodation, as well as meals, snacks and beverages for on-site or takeaway consumption.

- The arts and recreation services industry includes businesses involved in creative production, live performance, exhibitions, and enabling participation in sports, leisure, and cultural activities.

While being the smallest of the three sub-sectors in terms of economic size, the arts and recreation industry is notable for its relative strength.

With 2,109 active businesses in 2021, a 27% rise since 2016, the creative industry in the Northern Rivers has the largest concentration of cultural workers in rural Australia, representing 1.5% of the local population compared to 1.1% across Regional NSW.[50] This concentration generates significant economic value, with sector turnover reaching $887 million in 2021.[51] Key local assets in the sector range from production companies such as mememe productions (creator of *Dirtgirlworld*) to signature creative festivals like Byron Writers Festival and Bluesfest, although these events have been disrupted by natural hazard events in recent years. The sector is highly place-based, with many businesses reliant on foot traffic, tourism flows, and seasonal peaks in visitation to drive demand.

Sports facilities and events also play a major role in attracting visitors and fostering community connection, including the Northern Rivers Rail Trail (now open in multiple sections), Legends of Cricket events, the Aboriginal Rugby League Knockout Carnival at Lismore Oakes Oval, and the Lake Ainsworth Sport and Recreation Centre in Lennox Head. These assets have proven particularly valuable in the aftermath of disasters, helping to re-activate affected areas, draw visitors back, and provide spaces for social connection and wellbeing.

The visitor economy is tightly linked to the natural domain in the Northern Rivers. Flood related fish kills and water quality issues can depress coastal and river tourism, while access to World Heritage rainforest areas can be restricted after storms, bushfires or landslips. The sector has strong ties to agriculture and food manufacturing, with paddock to plate experiences, local breweries and distilleries, and markets drawing visitors and lifting both retail and hospitality spend. These connections both amplify the region's appeal and underscore its exposure to environmental shocks, reinforcing the need to manage access, recovery and communications when hazards disrupt natural attractions.

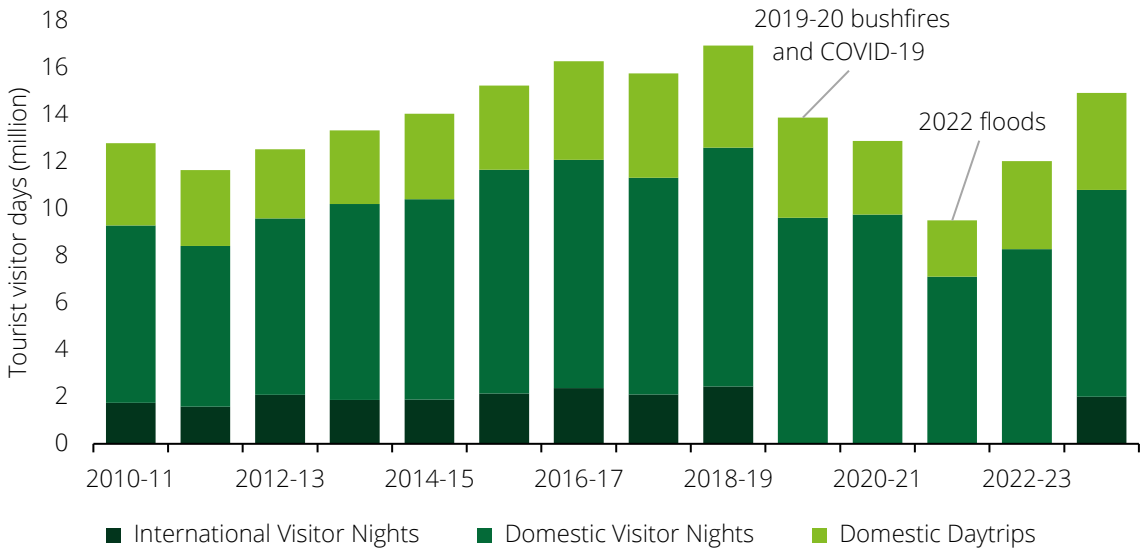
Tourist visitation data from Tourism Research Australia shows that natural hazards, alongside the COVID-19 pandemic, have had a notable impact on tourist numbers in the Northern Rivers in recent years. Total tourist visitor days grew steadily from 2011-12 until 2016-17, before a modest decline in 2017-18 shortly after the 2017 floods. Following a recovery in 2018-19 a combination of the bushfires and the subsequent onset of the COVID-19 pandemic led to declining visitor days in 2019-20. The pandemic meant visitor days remained subdued in 2020-21, before the 2022 floods contributed to a further decline in 2021-22.

The impact of the 2022 floods is best shown through the domestic visitor numbers which showed a notable decrease in 2021-22, having remained at a relatively steady level through to 2020-21. This was driven by the combination of reduced demand and the fact that the 2022 floods also removed a significant portion of accommodation stock from the market in some locations. This included the complete loss of available accommodation in the Lismore CBD and extensive damage to coastal caravan parks. The resulting capacity constraints limited the ability of some areas to capture returning visitor demand, slowing the recovery despite broader regional rebounds.

Since 2021-22 visitor numbers have started to recover; however, total visitor days remain 12% below pre-pandemic levels. Local businesses have also indicated that visitor behaviour has shifted, with "just-in-time" bookings and short-notice cancellations more common as travellers base their decisions on short-term weather forecasts. This change may make the sector more vulnerable to fluctuations in visitor numbers during periods of adverse weather in the future.

[50] Arts Northern Rivers, *Who We Are – A Profile of the Northern Rivers Creative Sector* (2025) <https://www.artsnorthernrivers.com.au/projects/who-we-are>
[51] Ibid.

Chart 3.15: Tourist visitor days to the Northern Rivers region, millions.



Note: The total number of tourism visitor days is taken as the sum of domestic visitor nights, international visitor nights and domestic day trips. Data is survey based and the sample size affects data reliability and confidentiality. For this reason, any data items based on a sample size of less than 40 respondents is supressed. International visitor nights data was suppressed for the financial years during and following the COVID-19 pandemic (2019–20 to 2022–23) due to the impact of border closures on sample sizes.
Source: Tourism Research Australia, National Visitor Survey and International Visitor Survey (2024).

Within the region, Byron recorded the highest number of visitor days (domestic and international visitor nights plus day trips) in 2023-24 at 4.3 million (29% of the regional total), followed by Tweed (22%), underlying the importance of the coastal corridor in the region's visitor economy.

Table 3.7: Tourist visitor data by LGA, type of visitor, 2023-24

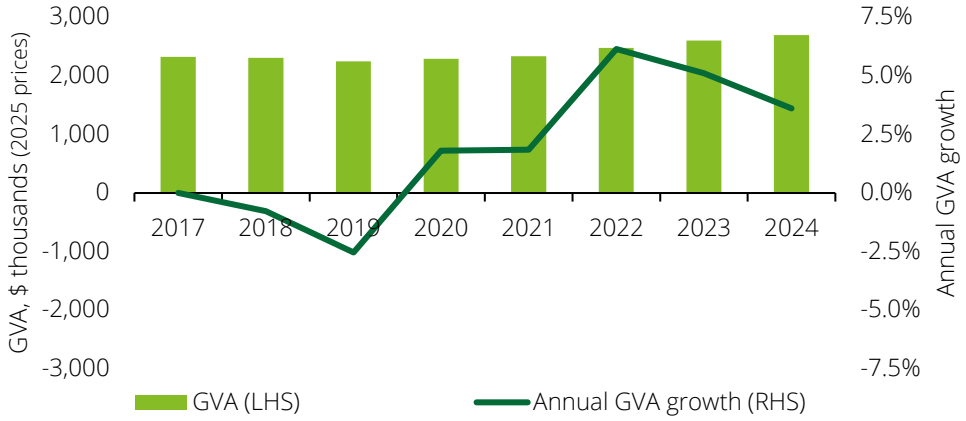
Location	International Visitor Nights	Domestic Visitor Nights	Domestic Daytrips
Ballina	153,806	1,257,409	-
Byron	1,121,520	2,390,761	785,127
Clarence Valley	133,317	1,883,602	-
Tweed	211,042	2,031,176	1,010,393
Northern Rivers	**1,999,384**	**8,809,157**	**4,122,104**

Note: Richmond Valley, Kyogle and Lismore omitted due to lack of data for all three visitor types.
Source: Tourism Research Australia, National Visitor Survey and International Visitor Survey (2024).

Interestingly visitor economy GVA trends have not always followed trends in visitor days. Minor contractions were seen in 2018 and 2019 following the 2017 floods. Yet the sector has showed resilience following the bushfires and COVID-19 pandemic with growth of 1.8% per annum in 2020 and 2021, largely driven by strength in the retail trade sector. This was driven by strong local demand for food, household goods and home-related products during the pandemic.

Growth accelerated further in 2022 and 2023, despite the floods and subdued visitor numbers. This growth was largely driven by a strong rebound in demand for accommodation and food and arts and recreation services as domestic lockdowns eased. It is also possible that despite disruptions to operations and visitor traffic following the floods the accommodation sector may have seen increased demand from non-traditional income sources to provide short-term housing for displaced residents following the floods.

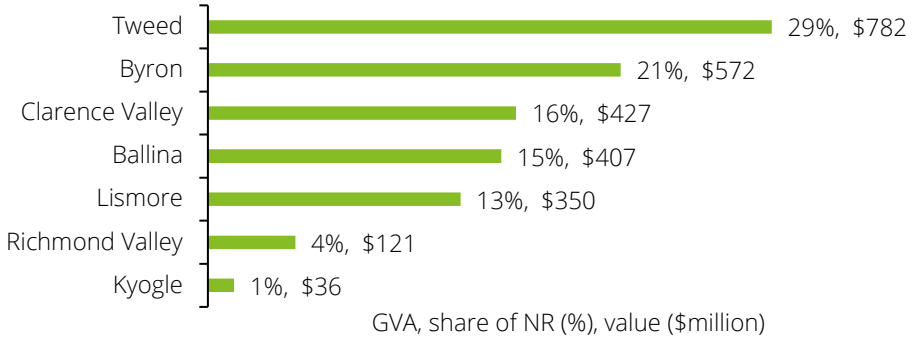
Chart 3.16: Visitor economy real GVA trends in the Northern Rivers



Source: Deloitte Access Economics (2025).

The visitor economy accounted for $3 billion in GVA in 2024. The top three contributors were Tweed (29%), Byron (21%), and Clarence Valley (16%). Tweed and Byron are well-known tourist destinations, attracting both interstate and international visitors. Clarence Valley's diverse natural attractions and tourism experiences with the Clarence River support it's visitor economy.

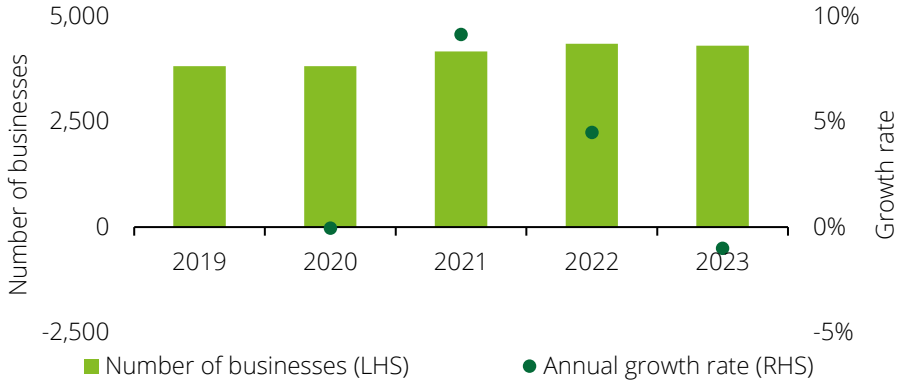
Chart 3.17: Visitor economy contribution to GVA by LGA, 2024



Source: Deloitte Access Economics (2025).

In line with industry GVA trends, businesses numbers in the industry rebounded strongly after early COVID-19 disruptions, increasing from 3,818 in 2019 to 4,308 in 2023, an average annual growth rate of 3%. Growth peaked in 2021, reflecting renewed interest in the region's tourism and hospitality offerings.

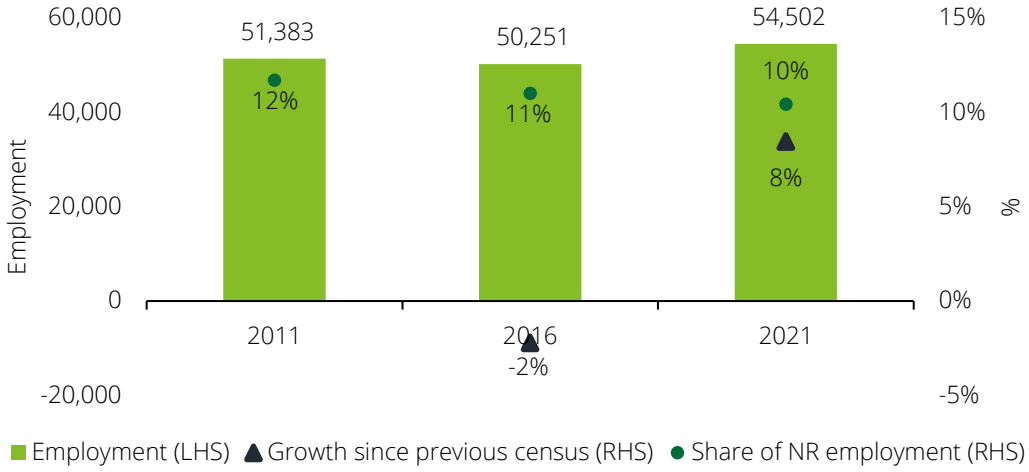
Chart 3.18: Northern Rivers businesses in the visitor economy



Source: Australian Bureau of Statistics, Data by Region (Catalogue No. 1410.0, 28 June 2025).

Employment in the visitor economy grew modestly from 51,383 in 2011 to 54,502 in 2021, an average annual growth rate of 1%. After a slight dip in 2016, employment recovered by 2021 despite COVID-19 disruptions. The sector accounted for 10% of Northern Rivers employment in 2021.

Chart 3.19: Northern Rivers employment in the visitor economy



Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022).

The visitor economy in the Northern Rivers is a large downstream sector that draws on a wide range of upstream industries for its operations. Key inputs include property and real estate services (16.7% of inputs) and food product manufacturing (16.4%). These reflect the sector's dependence on accommodation and food supply chains. Wholesaling, agriculture, and transport also feature prominently, underscoring the complexity of services required to support visitor experiences.

Table 3.8: Top input industries for the visitor economy, 2021-22

Input industry	Share of inputs (%)
Property operators and real estate services	16.7%
Food product manufacturing	16.4%
Administrative services	6.9%
Basic material wholesaling	6.2%
Agriculture	3.6%
Auxiliary finance and insurance services	3.5%
Road transport	3.4%
Electricity supply	2.9%
Internet publishing and broadcasting	2.9%
Construction services	2.7%

Source: Deloitte Access Economics (2025).

On the output side, a large share of industry outputs go direct to consumers in final demand (84%). Other industries that rely on the visitor economy include construction services (11.5%) and motor vehicle retailing (8.9%), likely linked to the accommodation needs of these industries. Residential care services (7.1%) also have a reliance on the visitor economy, possibly due to the significant presence of aged care tourism and retirement lifestyle economy in the region.

Table 3.9: Top output industries for the visitor economy, 2021-22

Output industry	Share of outputs (%)
Construction services	11.5%
Motor vehicle and motor vehicle parts retailing	8.9%
Residential care services	7.1%
Sports and recreation activities	5.5%
Basic material wholesaling	4.7%
Preschool and school education	4.6%
Administrative services	4.0%
Agriculture	3.8%
Public administration	3.8%
Heritage activities	3.6%

Source: Deloitte Access Economics (2025).

3.5 Construction and major projects

Construction and major projects includes businesses and organisations primarily engaged in building and infrastructure works, including new construction, additions, alterations, reconstruction, installation, and maintenance or repairs.

The Northern Rivers region is home to several major public and private projects, driving demand across the construction sector. The Regional Economic Development Strategies covering the Northern Rivers region[52,53,54] document an extensive pipeline of projects, spanning healthcare, transport, education, tourism, and commercial developments and indicate a high level of construction activity and significant investment in the region's infrastructure and economy. Public sector investments include the $313 million Lismore Base Hospital redevelopment, the $63.5 million Fixing Country Bridges program, and the $23 million Ballina Byron Gateway Airport expansion. Private sector contributions have also been considerable, with projects such as the $42 million North Byron Parklands festival site upgrade, the $20 million Epiq Marketplace in Lennox Head, and the $12 million Kyogle Residential Aged Care Facility expansion.

Labour supply is a key constraint in the sector though, with rising construction costs also placing pressure on project delivery and business sustainability. Labour shortages are being exacerbated by competition from SEQ, where more attractive employment conditions are drawing skilled workers north. Major infrastructure projects in SEQ offer superior site conditions under the Queensland Government's Best Practice Industry Conditions (BPIC) policy, including double-time in rain, heat stoppages, and generous site allowances—benefits not available under standard NSW awards.[55] These advantages, along with more streamlined approvals and stronger job security, are making it increasingly difficult to retain construction workers in the Northern Rivers.

Labour shortages are compounded by housing availability in the Northern Rivers. As outlined in 2.3.3, natural disasters and growing demand have constrained affordable housing supply and driven up rents in the region, making it difficult for incoming construction workers to secure accommodation and undermining workforce attraction.

The construction sector also faces exposure to natural hazard risk. In the short-term, extreme weather events can disrupt site access, damage supply chains, delay timelines, and increase insurance costs. While in the longer-term demand can increase in response to reconstruction activity following natural hazard events.

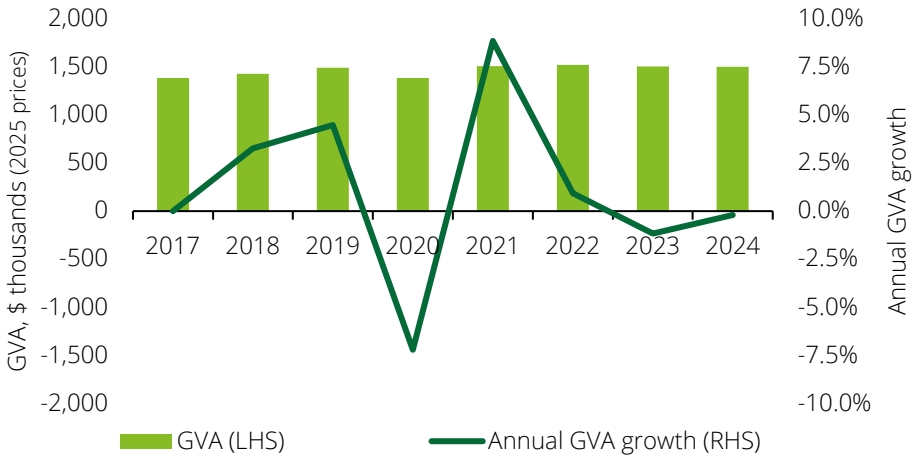
[52] Department of Regional NSW, *Northern Rivers Regional Economic Development Strategy – 2023 Update* (2023) <https://www.nsw.gov.au/sites/default/files/2023-03/Northern-Rivers-REDS-2023-Update.pdf>
[53] Department of Regional NSW, *Clarence Valley Regional Economic Development Strategy – 2023 Update* (2023) <https://www.nsw.gov.au/sites/default/files/2023-02/Clarence-Valley-REDS-2023-Update.pdf>
[54] Department of Regional NSW, *Tweed Regional Economic Development Strategy – 2023 Update* (2023) <https://www.nsw.gov.au/sites/default/files/2023-03/Tweed-REDS-2023-Update.pdf>
[55] Queensland Government, *Standard Best Practice Industry Conditions – Building Construction Projects 2023–2027*. (25 November 2024) <https://www.hpw.qld.gov.au/__data/assets/pdf_file/0014/20435/best-practice-industry-conditions.pdf>

However, stricter planning requirements related to flood or fire risk can also add complexity to development approvals.

Initially the multi-billion dollar program of flood reconstruction capital projects identified road, bridges and transport infrastructure as the primary focus of the capital project reconstruction effort. By 2025 RA estimated the reconstruction pipeline at $2.86 billion, and had expanded to include land and housing development. Modelling estimates indicate the workforce demand required to deliver the program of infrastructure, land and housing development works will peak in 2026-27, with an estimate of an additional 2,800 construction workers (almost six times the annual workforce growth for this sector).

The construction industry in the Northern Rivers has experienced moderate and uneven growth over the past eight years, with average annual GVA growth of 1% between 2017 and 2024. After steady gains in 2018 and 2019, the sector contracted by 7% in 2020, likely reflecting the disruption to building work and supply chains caused by the pandemic as well as the impact that border closures had on interstate and international labour movements. A sharp rebound followed in 2021 with GVA rising by 9%, but despite the reported impact of the 2022 floods on demand, GVA growth has stagnated since with the sector facing challenges from labour shortages, elevated construction costs and ongoing delays in infrastructure recovery efforts.

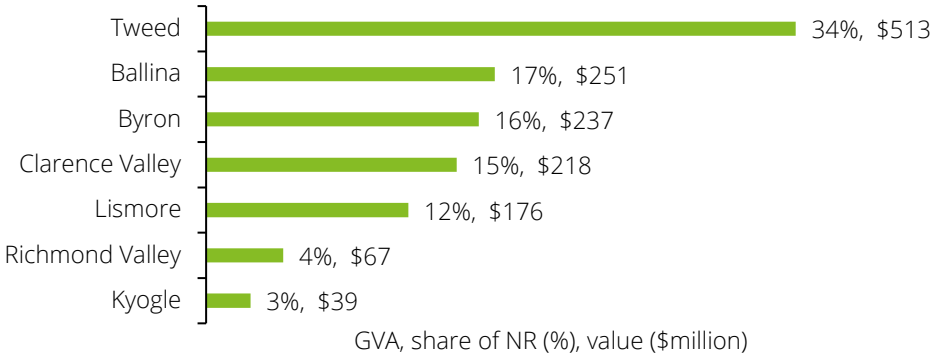
Chart 3.20: Construction and major projects real GVA trends in the Northern Rivers, 2017-24



Source: Deloitte Access Economics (2025).

In 2024, the construction industry generated $1.50 billion in GVA across the region. The top contributors were Tweed (34%), Ballina (17%), and Byron (16%). These areas have experienced strong population growth and housing demand, which is reflected in both public and private construction activity. Tweed, in particular, has experienced a high level of residential development in recent years.

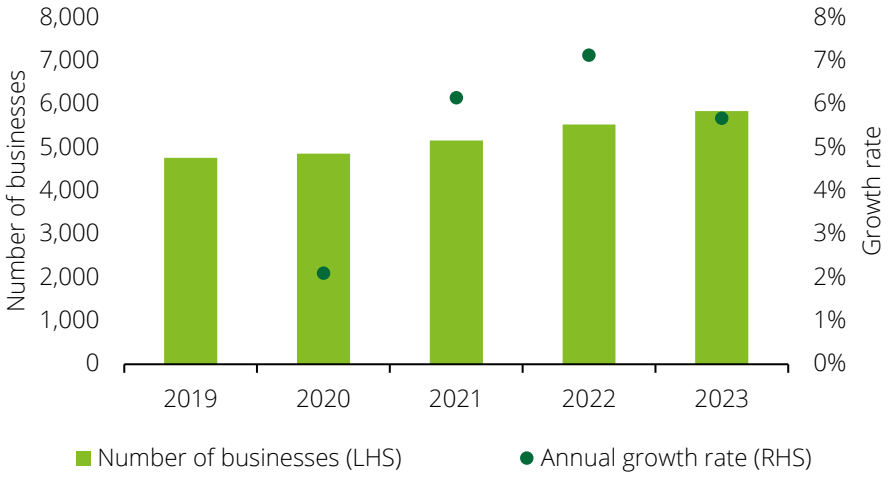
Chart 3.21: Construction contribution to GVA by LGA, 2024



Source: Deloitte Access Economics (2025).

The number of construction businesses in the Northern Rivers has expanded significantly, from 4,761 in 2019 to 5,842 in 2023. This reflects ongoing demand driven by population growth, housing development, and infrastructure projects within the region.

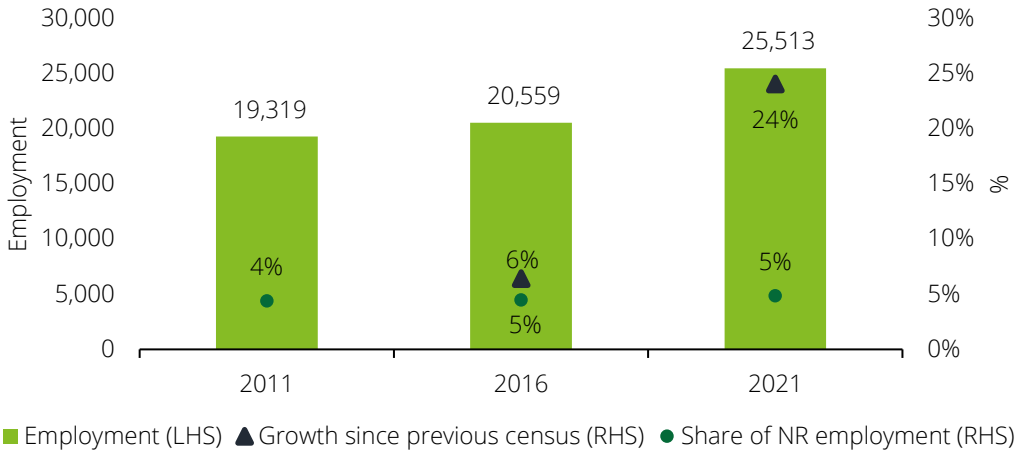
Chart 3.22: Northern Rivers businesses in the construction and major projects



Source: Australian Bureau of Statistics, Data by Region (Catalogue No. 1410.0, 28 June 2025).

Construction employment has also increased from 19,319 in 2011 to 25,513 in 2021, an average annual growth rate of 3%. The most significant growth occurred between 2016 and 2021, in line with heightened housing and infrastructure activity. The sector's share of total regional employment has remained steady across the period.

Chart 3.23: Northern Rivers employment in the construction and major projects



Source: Australian Bureau of Statistics, Census of Population and Housing (Catalogue No. 2901.0, 28 June 2022).

The construction sector in the Northern Rivers is deeply interconnected with other parts of the regional economy. Consultations with local businesses revealed that while many small firms engage local suppliers and contractors, most building materials are ultimately imported into the region. On the input side, construction services dominate (43.3% of industry inputs), highlighting that many small construction businesses work directly with other firms in the industry when delivering complex projects. Substantial support also comes from fabricated metal products (5.3%), non-metallic mineral products (5.3%), and wood product manufacturing (4.9%). This reflects the materials demand associated with building and infrastructure projects.

Table 3.10: Top input industries for construction and major projects, 2021-22

Input industry	Share of inputs (%)
Construction services	43.3%
Fabricated metal product manufacturing	5.3%
Non-metallic mineral product manufacturing	5.3%
Wood product manufacturing	4.9%
Basic material wholesaling	4.7%
Machinery and equipment manufacturing	3.4%
Primary metal and metal product manufacturing	3.3%
Polymer product and rubber product manufacturing	2.7%
Rental and hiring services (except real estate)	2.2%
Property operators and real estate services	2.2%

Source: Deloitte Access Economics (2025).

Downstream, the sector's outputs flow into both related industries and broader sectors. Again, construction services (37.2%) alongside building construction (24.8%) account for a large share of outputs as well as real estate services (12.6%) and heavy and civil engineering (7.9%). There are also flow-on effects to public administration, agriculture, and utilities, showing how construction activity supports both economic and community infrastructure.

Table 3.11: Top output industries for construction and major projects, 2021-22

Output industry	Share of outputs (%)
Construction services	37.2%
Building construction	24.8%
Property operators and real estate services	12.6%
Heavy and civil engineering construction	7.9%
Public administration	2.9%
Agriculture	2.5%
Wood product manufacturing	1.3%
Basic material wholesaling	1.2%
Road transport	1.1%
Electricity supply	1.0%

Source: Deloitte Access Economics (2025).

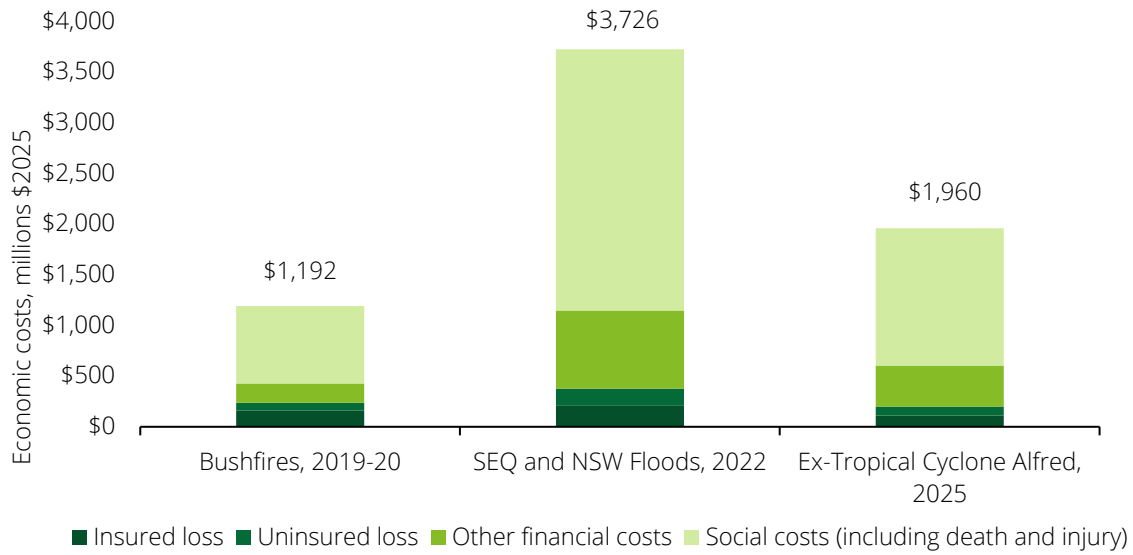
4 Natural hazard case studies

Summary

This chapter assesses the economic and social consequences of three major natural hazard events on the Northern Rivers; the 2019-20 bushfires, the 2022 floods, and Ex-Tropical Cyclone Alfred in 2025. It details the physical impacts of the event, the impacts on infrastructure, businesses, and communities, as well as analysis of the economic impacts of each event. The impacts of each event are reported individually in this chapter with the cumulative implications to the regional economy explained further in chapter 5.

The analysis of individual case study events highlights how the impacts of past natural hazard events in the Northern Rivers have varied by industry, location and event type. Of the three case studies considered, businesses reported that the 2022 floods had the largest economic impacts on the region due to the geographic spread and scale of the devastation caused. Estimates of the total socio-economic costs of each case study event on the Northern Rivers reflect this, with the estimated costs from the 2022 floods of $3.7 billion well above Ex-Tropical Cyclone Alfred ($2.0 billion) and the 2019-20 bushfires ($1.2 billion).

Chart 4.1: Estimated total socio-economic costs of each case study event to the Northern Rivers, 2025 prices



Source: Deloitte Access Economics (2025).

Top industries impacted

- Agriculture, forestry and fishing experienced a loss of crops, pasture, infrastructure and livestock which can take several years to develop and therefore recover. The forestry and timber sector was also acutely exposed to the 2019-20 bushfires.
- The visitor economy was impacted by all events. Stakeholders reported a "lost summer" of tourism in Richmond Valley during the 2019-20 bushfires, while significant cancellations were also reported in early 2025 due to Ex-Tropical Cyclone Alfred.
- The health and social assistance sector had to respond with surge capacity in the immediate aftermath of the natural hazard events at the same time that critical supply chains were negatively impacted. Health care providers also reported permanently higher demand for their services due to the long-term health and trauma impacts of natural hazard events on local residents.
- The construction sector has also experienced increased demand following the events as it supports the rebuild. However, the industry response is hindered by labour shortages and uncertainty about the future work pipeline.

Summary of key metrics by region and event

To gain quantitative insights into how economic activity was impacted following each event three key metrics have been considered: the changes in monthly GRP, changes in quarterly merchant receipts and changes in quarterly escape spending (the difference between spending by local residents minus local merchant receipts in a region and thus a proxy for displaced economic activity).

The 2019-20 bushfires are estimated to have had widespread impacts on economic activity in the Northern Rivers. Based on satellite data[56] it is estimated that regional GRP declined by 9.8% between September 2019 and January 2020, with negative impacts seen in every region, although these estimates may have been impacted by the effect of smoke on the satellite imagery during this period. Analysis of transaction activity also points to notable negative impacts on local spending. Across the region merchant receipts fell by 6.8% in the first quarter of 2020

Following the 2022 floods it is estimated that GRP declined by 3.7% in the Northern Rivers between January 2022 and March 2022, before remaining subdued for most of 2022. Local spending activity was also impacted. In the first quarter of 2022 merchant receipts declined by 9.6% across the region. Across the region there was also a notable increase in escape spending as many local businesses saw operations disrupted, visitor numbers fell, and some local residents were displaced by the impacts of the floods.

Ex-Tropical Cyclone Alfred also caused notable impacts on economic activity with Northern Rivers GRP estimated to have declined by 5.2% on the month in March 2025. GRP is estimated to have fallen in every region, although the impacts were temporary with GRP recovering the lost ground in April 2025. A similar trend is observed when considering transaction spending. The first quarter of 2025 saw merchant receipts across the Northern Rivers fall by 9.5%. Interestingly though escape spending declined rather than increased, indicating that relative to pre-event levels residents spent less outside the region and/or visitors spent more within it, resulting in more expenditure being retained locally. This may be because residents remained in/returned to the region to prepare for the event.

Table 4.1: Percentage change in economic variables following key disaster events, per cent change in during the quarter the event took place compared to the quarter before the event took place

Region	GRP (% change on previous quarter)	Merchant receipts (% change on previous quarter)	Escape spending (% change on previous quarter)
2019-20 Bushfires	-9.8%	-6.8%	-1.8%
2022 floods	-3.7%	-9.6%	10.0%
Ex-Tropical Cyclone Alfred	-5.2%	-9.5%	-9.6%

Note: Escape spending is calculated as local resident transactions minus local merchant receipts, where "local" refers to the relevant geographical area, resident transactions captures spending by residents, while merchant receipts are payments received by local merchants.
Source: Deloitte Access Economics (2025), DataCo (2025).

4.1 2019-20 bushfires (AGRN 871)

4.1.1 Overview of event and physical impacts

The 2019-20 bushfire season across Eastern Australia (AGRN 871) was one of the worst fire seasons in Australian history. The bushfire devastated the region for eight months starting on 1 July 2019 and ending on 31 March 2020 after 240 days of burning.[57] In the Northern Rivers region, bushfires began early due to severe

[56] Deloitte has developed a satellite night lights-based economic model to measure economic activity at the Statistical Area 2 level, as there is a strong body of literature on satellite data-driven night lights as a highly robust measure of economic activity and to address gaps in publicly available data on economic activity at a small area level. Data can be tracked monthly and enable a comparison of economic activity at a small area level pre and post major natural disaster events.
[57] NSW Government, *Final Report of the NSW Bushfire Inquiry* (2020) <https://www.nsw.gov.au/sites/default/files/noindex/2023-06/Final-Report-of-the-NSW-Bushfire-Inquiry.pdf>

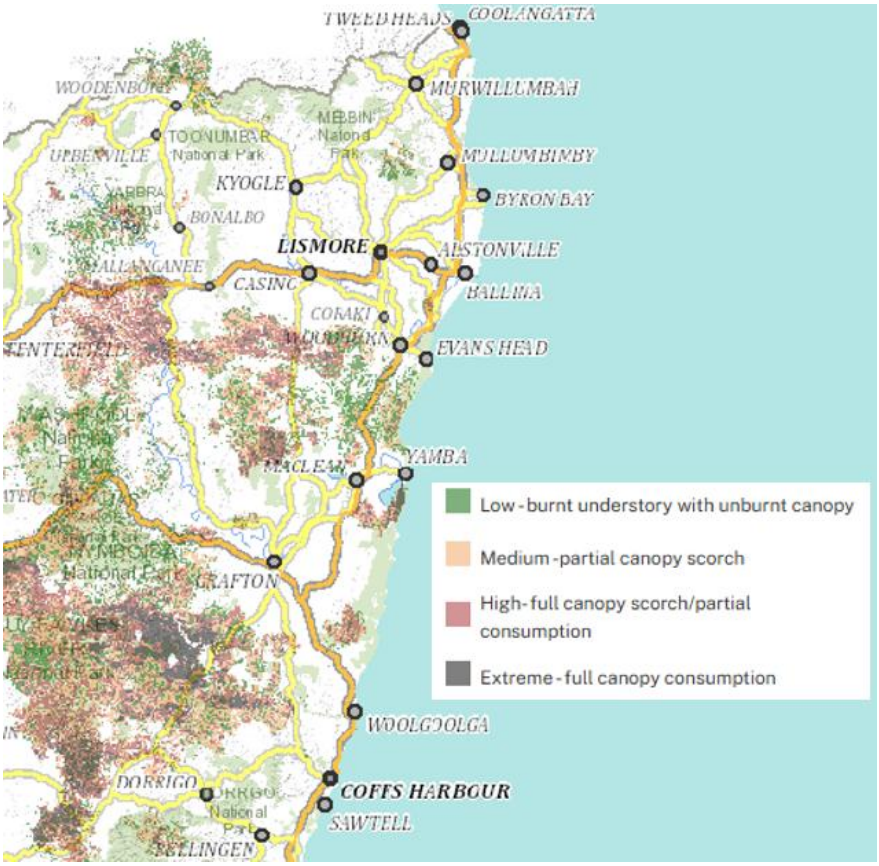
drought and heat creating a large fuel base for the bushfires. By the end of the season, over 1.13 million hectares had burned in Northern NSW.[58]

The worst of the bushfires in the Northern Rivers were in the South and West of the region in areas like Clarence Valley and Richmond Valley. Key fire events in the region included:

- In early October 2019, the Busbys Flat Road fire (in Richmond Valley) and the Long Gully Road fire (on the Clarence Valley/Tenterfield border) tore through rural communities. These fires merged on 8 October and created a blaze of roughly 92,000 hectares.[59]
- Further north, in November 2019, the Mt Nardi fire in the Nightcap Range (Lismore/Byron area) burned through 5,500+ hectares of forest, including parts of the Gondwana World Heritage rainforests.[60]
- Throughout December 2019 and January 2020, the region experienced ongoing fire activity. Several large fires persisted – for example, the Myall Creek Road fire (in Richmond Valley and Clarence areas) burned for over a month, at times spanning 121,000 hectares before containment in early February.[61]

A summary of the major fires in the Northern Rivers region is below in Table 4.2. Meanwhile, Figure 4.1 shows the extent and severity of fires across the region during the 2019-20 bushfire season.

Figure 4.1: Fire impacted area within Northern Rivers during the 2019-20 bushfire season



Source: NSW Government, Fire Extent and Severity Mapping (FESM) 2019/20 (2025)

[58] National Emergency Management Agency, *Australian Disaster Resilience Knowledge Hub*, *New South Wales, July 2019 – March 2020, Bushfires – Black Summer* (2020) <https://knowledge.aidr.org.au/resources/black-summer-bushfires-nsw-2019-20/>
[59] Australian Associated Press, *Bushfire in northern NSW may have destroyed up to 30 homes* (October 2019) <https://www.theguardian.com/australia-news/2019/oct/09/bushfires-in-northern-new-south-wales-destroy-up-to-20-homes>
[60] Rainforest Rangers, *Introducing the Bushfire Recovery Project* (June 2021) <https://www.rainforestrangers.org/introducing-the-bushfire-recovery-project>
[61] NSW Government, *Final Report of the NSW Bushfire Inquiry* (2020) <https://www.nsw.gov.au/sites/default/files/noindex/2023-06/Final-Report-of-the-NSW-Bushfire-Inquiry.pdf>

Table 4.2: Major fires within the Northern Rivers Region

Location (LGA)	Fire	Ignition Cause	Tenure	Total Area Burnt (Ha)	Private Land Burnt (Ha)	State Forest Burnt (Ha)	National Park Burnt (Ha)	Other Burnt (Ha)	Start Date	End Date
Clarence Valley	Bees Nest	Lightning	National Park	113,705	27,641	18,060	30,943	317	31/8/19	13/11/19
Clarence Valley	Liberation Trail	Lightning	National Park	183,652	63,877	72,039	46,7353	983	4/11/19	24/12/19
Glen Innes	Kangawalla	Lightning	Private Property	22,008	8,731	4,089	9,129	57	27/10/19	4/11/19
Richmond Valley	Busbys Flat Road, Busbys Flat	Shredded Tyre	Private Property	51,826	36,446	13,692	898	789	4/10/19	4/12/19
Richmond Valley	Myall Creek Road, Bora Ridge	Debris burning	National Park	121,323	50,087	34,137	36,135	965	8/11/19	10/2/20

Source: NSW Rural Fire Service (2020).

The NSW 2019-20 bushfire season had catastrophic impacts across the State, including the Northern Rivers. There were two deaths in the Long Gully Road fire in the Northern Rivers, while some 703 homes were destroyed in Northern NSW.[62] Meanwhile, bushfire smoke was responsible for more than 400 deaths and 2,000 respiratory hospitalisations across the country.[63] The smoke was reported by Northern Rivers businesses to have contributed to reduced visitor numbers and a "lost year" of tourism for the local economy.

Beyond the direct injuries and smoke, the fires also took a social toll. Residents of fire-ravaged localities (e.g., Rappville, Ewingar, Nymboida) lost not only homes, but key community in their townships. Hundreds of people were left homeless or displaced, often relying on friends, family, or relief centres for shelter.[64] The Clarence Valley was the fifth most impacted LGA in NSW losing 168 houses in the bushfires.[65]

The fires also had an impact on the region's biodiversity. Large swathes of national park and state forest were burned, including habitats of threatened species. Across NSW an estimated 800 million native animals perished in the fires.[66] In Busby's Flat and Wardell, key areas impacted by the bushfires in Richmond Valley and Ballina respectively, a 47-72% decline in koala numbers was observed.[67]

Infrastructure in the Northern Rivers impacted in the bushfires included:

- Power and communications: The bushfires caused widespread destruction to electricity and communication infrastructure. In Rappville, over 350 power poles were destroyed, leaving communities without power for extended periods.[68]
- Transport: Major transport routes were severely impacted. Roads such as the Pacific Highway, Bruxner Highway, and various local hinterland roads (Summerland Way, Mt Lindesay Road) were closed due to active

[62] National Emergency Management Agency, *Australian Disaster Resilience Knowledge Hub*, *New South Wales, July 2019 – March 2020, Bushfires – Black Summer* (2020) <https://knowledge.aidr.org.au/resources/black-summer-bushfires-nsw-2019-20/>
[63] Bui D, Davis S, Flynn A, Bell R, Dharmage S., *Impact of recent catastrophic bushfires on people with asthma in Australia: Health, social and financial burdens.* Respirology. 2021; 26: 296–297
[64] NSW Government, *Final Report of the NSW Bushfire Inquiry* (2020) <https://www.nsw.gov.au/sites/default/files/noindex/2023-06/Final-Report-of-the-NSW-Bushfire-Inquiry.pdf>
[65] Ibid.
[66] University of Sydney, *More than one billion animals kill in Australian bushfires* (8 January 2020) <https://www.sydney.edu.au/news-opinion/news/2020/01/08/australian-bushfires-more-than-one-billion-animals-impacted.html>
[67] ABC News, *WWF report finds 71pc decline in koala numbers across northern NSW bushfire-affected areas* (6 September 2020) <https://www.abc.net.au/news/2020-09-06/wwf-koala-loss-report-finds-71pc-decline-after-fires/12624938>
[68] NSW RFS, *Bush fire bulletin: Early Fires Hit Hard* (Volume 41 No.2/2019) <https://www.rfs.nsw.gov.au/__data/assets/pdf_file/0007/131479/Bush-Fire-Bulletin-Vol41-No2.pdf>

fires or debris, isolating some communities.[69] Many rural roads remained dangerous well into 2020 due to unstable terrain and burnt vegetation. The North Coast railway line suffered heat damage and structural loss near Rappville, forcing a temporary closure.[70]

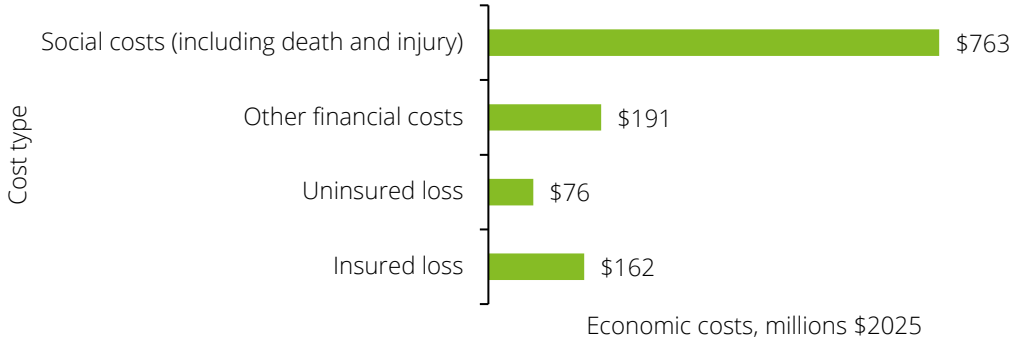
- **Public facilities:** Numerous public and community facilities were destroyed or damaged. In Rappville, the community hall and rural fire brigade sheds were lost, while the historic Timber Mill, vital to the local forestry industry, was completely destroyed.[71] National parks, including Nightcap and Border Ranges, suffered damage to visitor amenities like campgrounds and walking track assets. Smoke from the fires affected operations in urban areas, temporarily closing schools and hospitals.[72] Five facilities were destroyed in the Clarence Valley, including a timber mill, stockyard and Telstra shed. [73]

4.1.2 Estimated total socio-economic cost

The 2019–20 bushfires resulted in an estimated $1.2 billion in total socio-economic costs for the Northern Rivers based on Deloitte Access Economics modelling. For more details on the approach to modelling the total socio-economic costs of the case study events see Appendix B: Technical details.

Insured losses stood at $162 million, and uninsured losses added an estimated $76 million, showing the financial exposure of affected households and businesses. Other financial costs reached $191 million, covering damage to property, natural assets, and economic disruption. Social costs were the most significant at $763 million, underscoring the human toll from loss of life, physical and mental injury, and community trauma.

Chart 4.2: Estimated total socio-economic cost of the 2019-20 bushfires for the Northern Rivers, 2025 prices



Note: The total socio-economic costs of each disaster was estimated based on insured loss values using the multiplier methodology used in the *Update to the economic cost of natural disasters in Australia* report (Deloitte, 2021). The Northern Rivers share of costs was estimated using the populations of affected postcodes.
Source: Deloitte Access Economics (2025), Insurance Council of Australia (2025).

4.1.3 Overview of business impacts

Business disruption

Sector level business research reveals local businesses in fire-affected communities faced multiple challenges. Two industries particularly impacted included agriculture, forestry and fishing and the visitor economy.

[69] The Guardian, *I spent weeks reporting on the bushfires. This is the truth about regional Australia* (16 February 2020) < https://www.theguardian.com/australia-news/2020/feb/14/i-spent-weeks-reporting-on-the-bushfires-this-is-the-truth-about-regional-australia>
[70] NSW RFS, *Bush fire bulletin: Early Fires Hit Hard* (Volume 41 No.2/2019) <https://www.rfs.nsw.gov.au/__data/assets/pdf_file/0007/131479/Bush-Fire-Bulletin-Vol41-No2.pdf>
[71] ABC News, *Rappville 'shattered' and left with very little after bushfires, but community spirit shines through.* (12 October 2019) <https://www.abc.net.au/news/2019-10-12/nsw-bushfires-leave-rappville-shattered-but-spirits-still-high/11594812>
[72] NSW Government, *Final Report of the NSW Bushfire Inquiry* (2020) <https://www.nsw.gov.au/sites/default/files/noindex/2023-06/Final-Report-of-the-NSW-Bushfire-Inquiry.pdf>
[73] Parliament of New South Wales. *Legislative Assembly Hansard – 05 February 2020: Bushfires* (5 February 2020) < https://www.parliament.nsw.gov.au/Hansard/Pages/HansardResult.aspx#/docid/HANSARD-1323879322-109514>

The agriculture sector was particularly exposed to the impacts of the bushfires. The Busbys Flat Road fire caused severe losses with an estimated 1,784 livestock, including cattle and sheep, killed or euthanised due to burns.[74] Farmers also lost thousands of kilometres of fencing, water infrastructure, feed stores, and farm machinery.

The economic impact extended beyond the immediate loss of animals, with long-term productivity declines as surviving stock had reduced pasture, many breeding programs were set back, and some farmers having reported heavy losses of pasture and feed.[75] Farmers also reported losses of orchards or plantations which take several seasons to mature and generate revenue.[76] This was particularly observed in the Clarence Valley Functional Economic Region (FER), with over 6,000 square km (59%) of its area burnt.[77]

The forestry sector also observed significant losses, with large areas of commercial plantation forest burned, while the destruction of the Rappville timber mill meant a critical processing facility was lost. This resulted in large job losses in the timber industry. Up to 10% of the Northern Rivers' long term forestry supply was destroyed during the fires.[78]

The fires also resulted in a severe drop in tourism. During the event, visitors were evacuated from national parks and regional accommodation. However, even after the peak of the fires, Northern Rivers businesses still reported significant tourist cancellations due to smoke and fear of fires. Through December 2019 and January 2020, many domestic and international tourists avoided travel to fire-affected regions entirely.

Lost economic activity

Analysis of estimated aggregate level economic activity data around the time of the 2019-20 bushfires shows volatility in key areas impacted. Using satellite and other data,[79] insights can be drawn into how the event impacted GRP at a local level.

Monthly GRP estimates show that the 2019–20 bushfires had a marked impact on economic activity in the Northern Rivers region. After remaining relatively stable in late 2019, GRP fell by 10% in the month to January 2020 during the peak of the fire season. This fall aligns with the timing of widespread fire activity and evacuations, particularly in the south of the region, although the estimates may have been impacted by the effect of smoke on the satellite imagery during this period. A strong and quick rebound followed as the fires subsided, with GRP returning to pre-event levels in March 2020 as conditions stabilised and activity resumed. The fast resumption of economic activity reflects the temporary disruption caused by evacuation numbers and lost visitors during the fires, with any longer-term scarring due to lost infrastructure limited to specific localities and industries.

In total, across the period from the onset of the bushfires in September 2019 to the recovery in March 2020 it is estimated that the cumulative loss of GRP for the Northern Rivers economy (when compared with a no hazard counterfactual scenario) was $0.4bn (around 2% of annual GRP). This compares to other public estimates that the average impact of the fires was around 1.8% of GDP for areas affected.[80]

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[74] NSW RFS, *Bush fire bulletin: Early Fires Hit Hard* (Volume 41 No.2/2019) <https://www.rfs.nsw.gov.au/__data/assets/pdf_file/0007/131479/Bush-Fire-Bulletin-Vol41-No2.pdf>

[75] World Wildlife Fund. *Fire on the farm: Assessing the impacts of the 2019-2020 bushfires on food and agriculture in Australia* (2021) <https://assets.wwf.org.au/image/upload/v1/website-media/resources/WWF_Report-Fire_on_the_Farm_converted>

[76] Ibid.

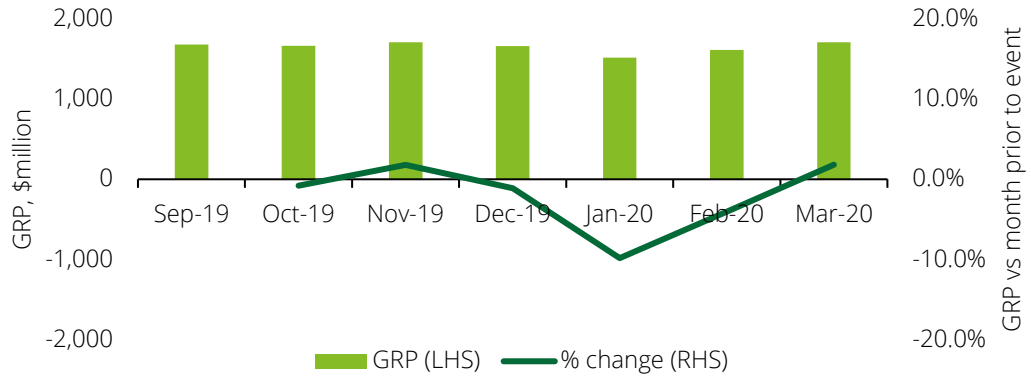
[77] Department of Regional NSW, *Clarence Valley Regional Economic Development Strategy – 2023 Update* (2023) <https://www.nsw.gov.au/sites/default/files/2023-02/Clarence-Valley-REDS-2023-Update.pdf>

[78] Regional NSW, *REDS Impact Review: Northern Rivers REDS fire impact addendum. (*May 2020) <https://www.nsw.gov.au/sites/default/files/2020-05/Northern%20Rivers%20REDS%20fire%20impact%20addendum%C2%A0.pdf>

[79] International Monetary Fund, *Illuminating economic growth*, April 2019 <https://www.imf.org/en/Publications/WP/Issues/2019/04/09/Illuminating-Economic-Growth-46670>

[80] SGS Economics and Planning, *Economic recovery after disaster strikes* (2020) <https://treasury.gov.au/sites/default/files/2021-05/171663_suncorp_group_ltd_supporting_documents_1.pdf>

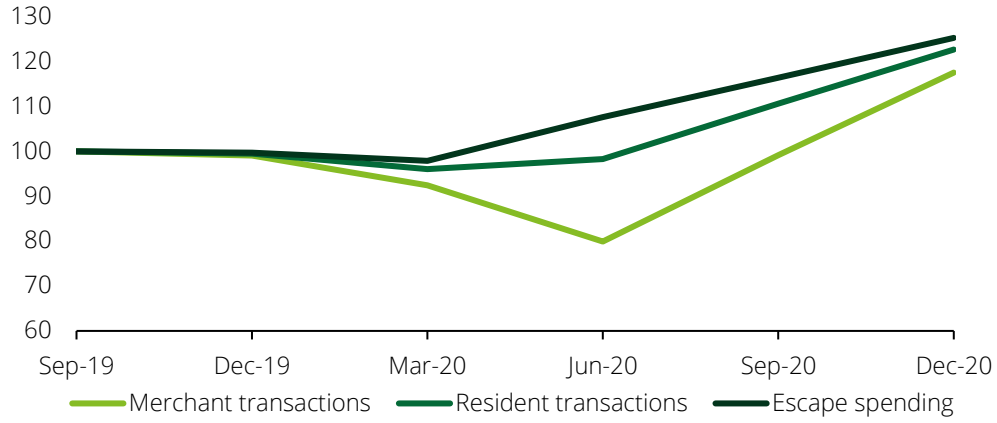
Chart 4.3: Modelled real GRP estimates following the 2019-20 bushfires, 2025 prices



Source: Deloitte Access Economics (2025).

Analysis of ANZ transactions data from DataCo shows that the economic effects of the 2019-20 bushfires were modest at the aggregate level. Merchant transactions declined to 1% below pre-event levels in the quarter to December 2019 and further to 8% below pre-event levels in the quarter to March 2020. Meanwhile resident transactions fell to 1% and 4% respectively. While notable, these drops were relatively small compared to those seen in the quarter to June 2020, when merchant transactions dropped more sharply and escape spending rose, due to broader behavioural and economic shifts driven by the onset of the COVID-19 pandemic.

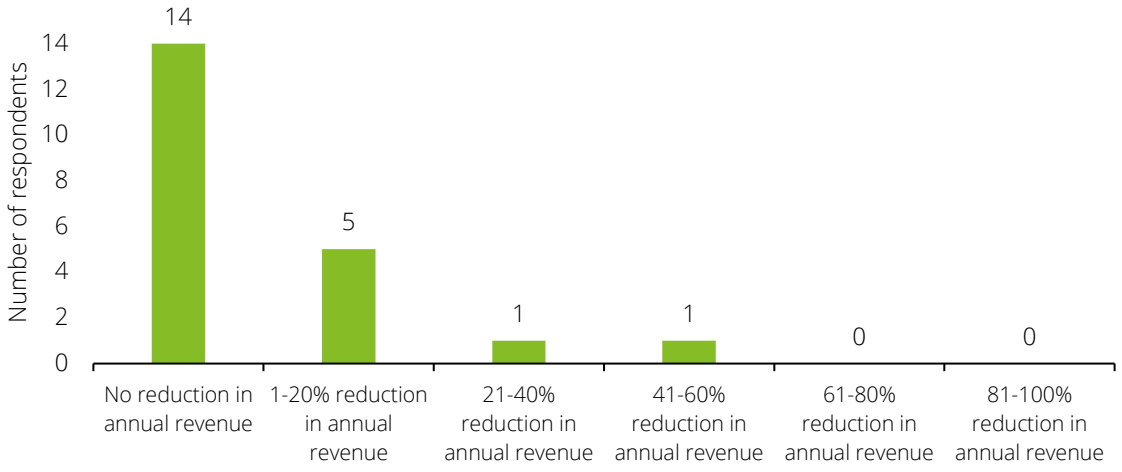
Chart 4.4: Index of DataCo spending metrics during the 2019-20 Bushfires



Note: Escape spending is calculated as local resident transactions minus local merchant receipts, where "local" refers to the relevant geographical area, resident transactions captures spending by residents, while merchant receipts are payments received by local merchants. Index definition: The index is standardised to 100 in the baseline quarter. All subsequent values reflect percentage changes relative to this baseline. For example, an index value of 90 indicates a 10% decrease compared to the baseline quarter.
Source: DataCo (2025).

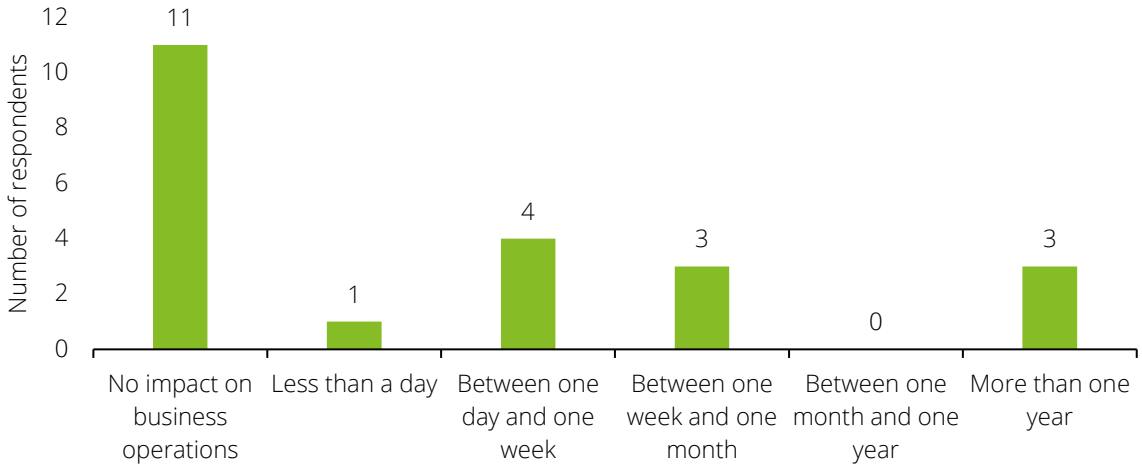
The business survey completed as part of this report highlighted that while most businesses avoided substantive impacts following the bushfires, a small number of respondents were severely impacted. Most businesses (14) reported no impact on business revenues. However, five reported a 1-20% reduction in annual revenue, while one respondent reported a 21-40% reduction in revenue, and a further one reported a 41-60% reduction in revenue. A similar trend was seen in the time to resume operations, with half of businesses not seeing any operational impacts, but three respondents reported it took more than a year to recover.

Chart 4.5: Reported impacts on business revenues from the 2019-20 bushfires



Question: What was the scale of impact on your business' revenue from the 2019-20 bushfires? (n=21).
Source: Deloitte Access Economics (2025).

Chart 4.6: Reported time for businesses to resume full operations after the 2019-20 bushfires



Question: How long did it take for your business to resume full operations following the 2019-20 bushfires? (n=21).
Source: Deloitte Access Economics (2025).

4.2 2022 floods (AGRN 1012)

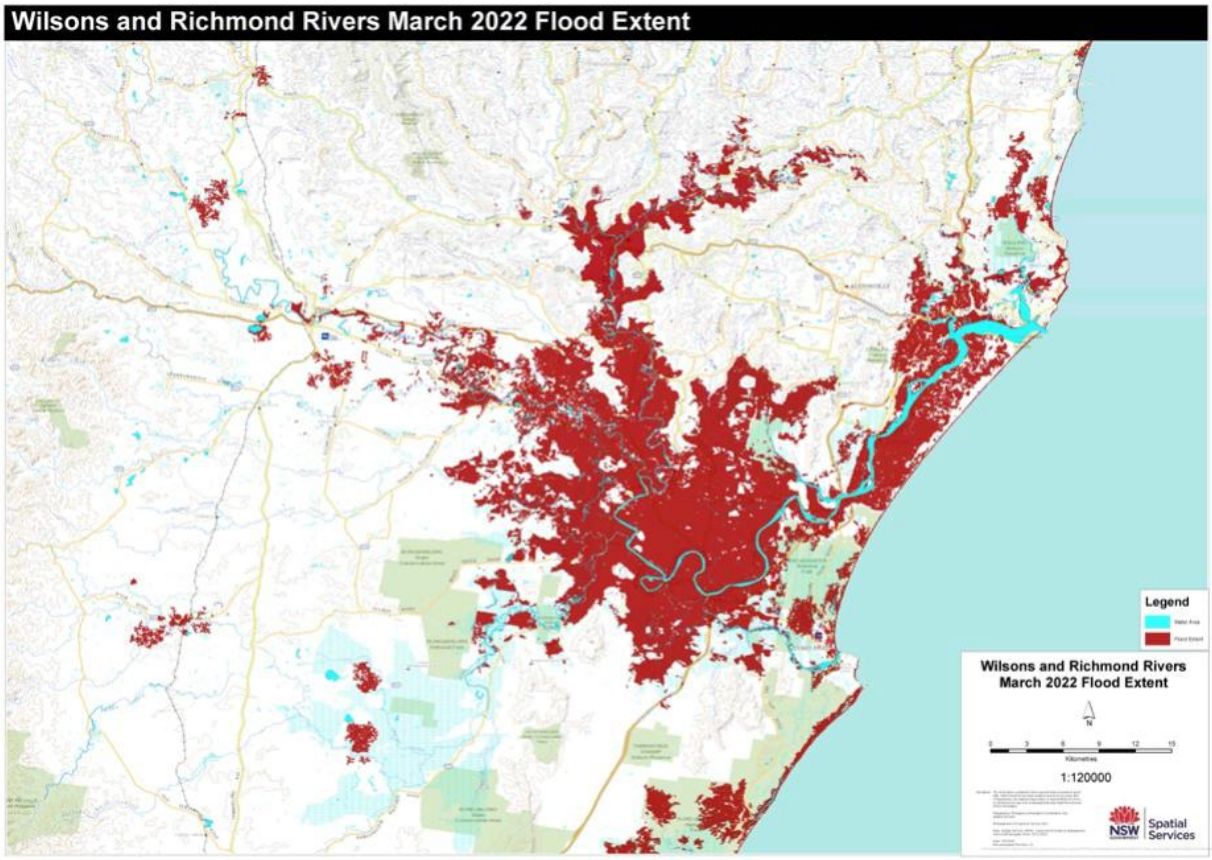
4.2.1 Overview of event and physical impacts

Extreme rainfall over two weeks between 22 February and 9 March 2022 led to extensive river and overland flow flooding in Northern NSW and Queensland, including the Northern Rivers.[81] This event (AGRN 1012), was caused by three climate drivers – the La Nina weather pattern, a positive Southern Annular Mode and a negative Indian Ocean Dipole, with Northern Rivers catchments receiving seven day rainfall that eclipsed previous records by 37-61%.[82]

[81] Bureau of Meteorology, *Special Climate Statement 76 - Extreme rainfall and flooding in south-eastern Queensland and eastern New South Wales* (25 May 2022) <https://www.bom.gov.au/climate/current/statements/scs76.pdf>
[82] Ibid.

The event was centred on the mid-Richmond and Wilsons River catchment around Lismore, which received 557mm of rainfall between 22 February to 9 March.[83] Rivers including the Richmond, its tributary the Wilsons, and the Tweed, Brunswick and Clarence all exhibited flooding, with the Wilson River water level peaking at 14.4m, 2.12m above the previous record and 1.5m below the height for the probable maximum flood– the largest flooding that could theoretically occur at the location.[84]

Figure 4.2: Wilsons and Richmond Rivers March 2022 flood extent



Source: CSIRO, Rapid Project Prioritisation for Flood Resilience in the Northern Rivers region (2022).

Notably the Lismore levee, 10.6m high, was overtopped, leading to flooding of the Lismore central business district and residential areas, as well as surrounding areas including lower Richmond River, Murwillumbah, Mullumbimby, Grafton, Byron Bay and Ballina being heavily affected.[85] The 5.9m levee at Ulmarra also overtopped, with a peak river level of 6.03m Australian Height Datum (AHD), and levees at Grafton and Maclean coming within 98% and 93% of overtopping respectively. Low lying communities in all seven LGAs of the Northern Rivers were directed to evacuate.[86] It should be noted however that in some cases the warnings came too late for residents to effectively respond and evacuate the region safely.[87]

[83] Deloitte, *The new benchmark for catastrophe preparedness in Australia: A review of the insurance industry's response to the 2022 floods in South East Queensland and New South Wales (CAT221) (*October 2023) <https://insurancecouncil.com.au/wp-content/uploads/2023/10/The-new-benchmark-for-catastrophe-preparedness-in-Australia_Oct-2023.pdf>
[84] Ibid.
[85] Regional Development Australia, *Northern Rivers NSW: Regional Economic Recovery Plan 2025 (2023)* <https://www.rdanorthernrivers.org.au/recovery2025/wp-content/uploads/2023/04/RDA-Regional-Recovery-Plan-Northern-Rivers-2023.pdf>
[86] Ibid.
[87] NSW Government. *2022 Flood Inquiry Volume Two: Full Report* (29 July 2022) <https://www.nsw.gov.au/sites/default/files/noindex/2022-08/VOLUME_TWO_Full%20report.pdf>

A second major flood struck approximately four weeks later on 29 March 2022, when another intense rainfall event re-flooded parts of the Northern Rivers (again overtopping Lismore's levee) before the waters receded in April.[88]

Although AGRN 1012 flooding extended to Brisbane and Gympie, the Northern Rivers experienced the most intense impacts with Lismore, Richmond Valley, Tweed and Byron observing the highest average insurance losses per household observed across all LGAs impacted by the event.[89]

The flood event had widespread community impacts across NSW and Queensland. It resulted in the loss of 26 lives, including six in the Northern Rivers region, and displaced approximately 14,000 people from their homes across NSW and Queensland.[90] In Lismore alone, 2,000 residents were rendered homeless from the event.[91]

A total of 21,170 properties were affected by the flooding in the Northern Rivers. Among these, 8,108 were inundated, 10,849 sustained some form of damage, and 4,055 were assessed as uninhabitable.[92] In Lismore, more than 1,500 homes suffered moderate to severe damages or destruction.[93] Meanwhile, in Richmond Valley, 400 homes were uninhabitable, rendering 1,000 local people homeless, and 838 homes were assessed as having flood damage.[94]

The scale of the event led to a surge in insurance activity, with 242,351 claims lodged across the country, around six times the average for natural disasters since 2016. These claims amounted to approximately $6.3 billion in payouts, with the average claim costing $25,857.[95] As of May 2024, there was $16 million in outstanding claims in South East Queensland and Northern NSW related to the floods.[96]

AGRN 1012 had extensive impacts on infrastructure in the Northern Rivers:

- Transport infrastructure: Flooding severely damaged key transport networks, meaning freight routes were cut off, isolating communities and delaying the delivery of food, fuel, and medical supplies. Due to long supply chains, supermarket shelves in Lismore had limited stock for months.[97] In Lismore alone, 90% of the city's 1,200-kilometre road network was extensively damaged, with repair costs estimated at $150-200 million.[98] Tweed reported over 3,700 instances of road damage, with an estimated road repair cost

[88] CSIRO, *Characterisation of the 2022 floods in the Northern Rivers region*. (Report prepared for National Emergency Management Agency, 30 November 2022) <https://www.nema.gov.au/sites/default/files/2024-08/Characterisation%20of%20the%202022%20floods%20in%20the%20Northern%20Rivers%20region.pdf>
[89] Deloitte, *The new benchmark for catastrophe preparedness in Australia: A review of the insurance industry's response to the 2022 floods in South East Queensland and New South Wales (CAT221) (*October 2023) <https://insurancecouncil.com.au/wp-content/uploads/2023/10/The-new-benchmark-for-catastrophe-preparedness-in-Australia_Oct-2023.pdf>
[90] National Emergency Management Agency, Au*stralian Disaster Resilience, Knowledge Hub, New South Wales, 22 February onwards: Flooding* (2022) <https://knowledge.aidr.org.au/resources/flood-flooding-new-south-wales-2022>
[91] Sea & Star Advisory, *Lismore Flooding Impacts & Recovery Statement: Final Report* (Report prepared for Lismore City Council, July 2022) < https://www.lismore.nsw.gov.au/files/assets/public/v/1/2.-community/8.-natural-hazards-and-emergencies/lismore-flooding-impacts-and-recovery-statement.pdf>
[92] SBS News, *Homeless with a mortgage: Lismore's vulnerable look for a post-flood future* (19 May 2022) <https://www.sbs.com.au/news/insight/article/homeless-with-a-mortgage-lismores-vulnerable-look-for-a-post-flood-future/tpq0rfxil>
[93] Sea & Star Advisory, *Lismore Flooding Impacts & Recovery Statement: Final Report* (Report prepared for Lismore City Council, July 2022) < https://www.lismore.nsw.gov.au/files/assets/public/v/1/2.-community/8.-natural-hazards-and-emergencies/lismore-flooding-impacts-and-recovery-statement.pdf>
[94] Richmond Valley Council. *Richmond Valley Flood 2022: Response* (5 April 2022) <https://richmondvalley.nsw.gov.au/wp-content/uploads/2022/04/FINAL_Richmond-Valley-Flood-2022_LOWRES.pdf>
[95] Deloitte, *The new benchmark for catastrophe preparedness in Australia: A review of the insurance industry's response to the 2022 floods in South East Queensland and New South Wales (CAT221) (*October 2023) <https://insurancecouncil.com.au/wp-content/uploads/2023/10/The-new-benchmark-for-catastrophe-preparedness-in-Australia_Oct-2023.pdf>
[96] Ibid.
[97] Berry, F, Renouf, J Keegan, S & Koohestani S. *Is the Northern Rivers food system resilient?* (June 2023) <https://static1.squarespace.com/static/637d5f435146a61b37226062/t/648fb6cb6270652daf12b86c/1687140082169/Plan+C+-+NR+Food+Security+and+Resilience+Scoping+Study_Final+Report.pdf>
[98] Lismore City Council, *Flood Response* (June 2022) <https://www.lismore.nsw.gov.au/files/assets/public/v/1/2.-community/8.-natural-hazards-and-emergencies/flood-response-report.pdf>

exceeding $90 million.[99] Due to damage to transport infrastructure, several townships were temporarily isolated, and small businesses faced operational challenges as a result.

- Power and telecommunications: The AGRN 1012 flood event caused widespread disruptions to power and telecommunications services across the region. All flooded communities experienced outages, with some lasting several days.[100] These outages impacted access to information, hindered emergency response efforts, and in some cases, prevented the delivery of flood warnings. The lack of telecommunications service in places like Mullumbimby notably worsened the situation, limiting the ability of residents and authorities to respond effectively to rising floodwaters.[101]
- Water: Floodwaters had a significant impact on water infrastructure. Lismore City Council reported approximately $108 million in damage to these systems,[102] whereas Richmond Valley reported costs of $50 million to repair its water and sewer infrastructure.[103] In some areas, residents were left without access to clean drinking water, and flood damage compromised the functionality of local water treatment facilities.[104]
- Waste and resource recovery: The 2022 floods generated a large waste management challenge in the areas affected. The event saw 324,921 tonnes of waste removed from NSW, 250,381 of which was generated in the Northern Rivers, with $350 million of flood clean-up assistance funding provided to support this operation across NSW.[105] Damage to waste management infrastructure further hampered the cleanup and recovery efforts. In Lismore, the cost of repairing waste and resource recovery facilities was estimated at between $10 and $20 million.[106] While in Richmond Valley, $8 million was required for urgent repairs, including $1.5 million for essential sewerage services.[107]
- Public facilities and community infrastructure: Across the Northern Rivers, a number of schools and childcare centres were forced to close temporarily with some requiring long-term closure and reconstruction efforts. Local councils reported extensive damage to schools, sports fields, community halls, and other civic assets. These closures, combined with the loss of community spaces and services, had a social impact, particularly on families and vulnerable groups, by limiting access to support, education, and safe shelter during and after the event.[108] Council-owned public facilities in Lismore had an estimated $20

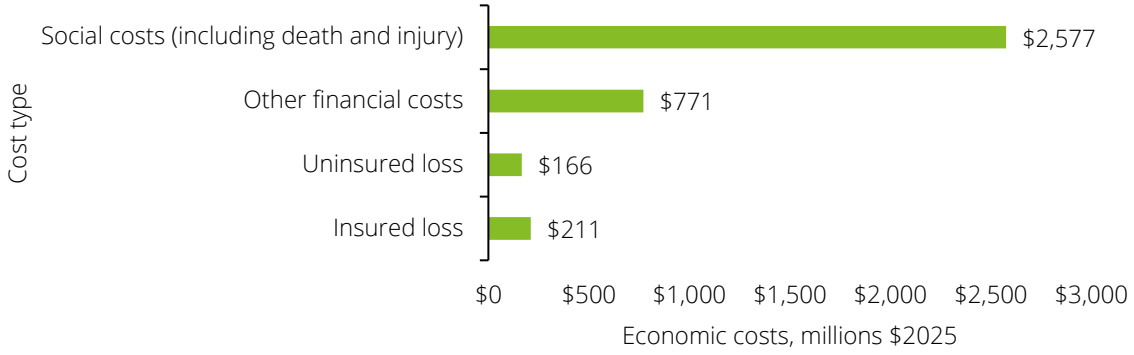
[99] Tweed Shire Council, *Measuring the cost of the 2022 flood: the long path to recovery continues into the new year* (23 December 2022) <https://www.tweed.nsw.gov.au/council/news-updates/latest-news/media-releases/1380234-measuring-the-cost-of-the-2022-flood>
[100] National Emergency Management Agency, Au*stralian Disaster Resilience, Knowledge Hub, New South Wales, 22 February onwards: Flooding* (2022) <https://knowledge.aidr.org.au/resources/flood-flooding-new-south-wales-2022>
[101] Tamara Smith MP, Member for Ballina, *Inquiry into the response to major flooding across New South Wales in 2022* (Submission No 56, 30 May 2022) <https://www.parliament.nsw.gov.au/lcdocs/submissions/78921/056%20Tamara%20Smith%20MP,%20Member%20for%20Ballina.pdf>
[102] Sea & Star Advisory, *Lismore Flooding Impacts & Recovery Statement: Final Report* (Report prepared for Lismore City Council, July 2022) < https://www.lismore.nsw.gov.au/files/assets/public/v/1/2.-community/8.-natural-hazards-and-emergencies/lismore-flooding-impacts-and-recovery-statement.pdf>
[103] Richmond Valley Council. *Richmond Valley Flood 2022: Response* (5 April 2022) <https://richmondvalley.nsw.gov.au/wp-content/uploads/2022/04/FINAL_Richmond-Valley-Flood-2022_LOWRES.pdf>
[104] Sea & Star Advisory, *Lismore Flooding Impacts & Recovery Statement: Final Report* (Report prepared for Lismore City Council, July 2022) < https://www.lismore.nsw.gov.au/files/assets/public/v/1/2.-community/8.-natural-hazards-and-emergencies/lismore-flooding-impacts-and-recovery-statement.pdf>
[105] NSW RA. *One year on from the February-March 2022 severe weather and floods* (February 2023) <https://www.nsw.gov.au/sites/default/files/noindex/2023-02/NSW_Govt_One_Year_on_report_February_March_2022_floods_Web.pdf>
[106] Sea & Star Advisory, *Lismore Flooding Impacts & Recovery Statement: Final Report* (Report prepared for Lismore City Council, July 2022) < https://www.lismore.nsw.gov.au/files/assets/public/v/1/2.-community/8.-natural-hazards-and-emergencies/lismore-flooding-impacts-and-recovery-statement.pdf>
[107] Richmond Valley Council. *Richmond Valley Flood 2022: Response* (5 April 2022) <https://richmondvalley.nsw.gov.au/wp-content/uploads/2022/04/FINAL_Richmond-Valley-Flood-2022_LOWRES.pdf>
[108] Parliament of Australia, *Flood failure to fairness: Report on the inquiry into insurers' responses to 2022 major floods claims* (October 2024) <https://www.aph.gov.au/Parliamentary_Business/Committees/House/Economics/FloodInsuranceInquiry/Report>

million in damage reported.[109] Meanwhile, Tweed Council reported costs including $850,000 for repair to community assets and parks, $600,000 for council depot repairs and $300,000 for repair of flood mitigation assets.[110]

4.2.2 Estimated total socio-economic cost

The AGRN 1012 floods were by far the most damaging of the three case study events analysed in this report based on Deloitte Access Economics modelling, with a total estimated socio-economic cost of $3.7 billion in the Northern Rivers alone.

Chart 4.7: Estimated total socio-economic costs of the 2022 floods for the Northern Rivers, 2025 prices



Note: The total socio-economic costs of each disaster was estimated based on insured loss values using the Deloitte's multiplier methodology used in the Australian Business Roundtable report (2021). The Northern Rivers share of costs was estimated using the populations of affected postcodes.
Source: Deloitte Access Economics (2025), Insurance Council of Australia (2025).

Social costs made up the largest share at $2.6 billion, indicating widespread displacement, trauma, and health impacts. This scale of social impact is unprecedented in the region and reflects the deep disruption to lives, livelihoods, and community functioning. Insured losses reached $211 million, while uninsured losses nearly matched at an estimated $166 million. Other financial costs, such as infrastructure repair and business interruption, contributed a further $771 million. The scale of this disaster has had enduring consequences for regional recovery, resilience planning, and insurance affordability.

4.2.3 Overview of business impacts

Business Disruption

The AGRN 1012 floods caused widespread damage to businesses of all sizes, from small local shops to large industrial operations. Of businesses in the Northern Rivers, survey responses for the Regional NSW Flood Impact Analysis report indicated 97% (1,694 of a total 1,745 respondents) had been impacted.[111] Notably, at 62% the share of respondents reporting both direct and indirect impacts in Northern Rivers LGAs was 15 percentage points higher than across LGAs in the rest of Regional NSW.[112]

In Lismore's central business district, nearly every storefront was inundated, often above head height, resulting in extensive damage to stock, equipment, and infrastructure. Many businesses had to clear their premises entirely, and some were unable to reopen. Industrial areas, such as South Lismore and Murwillumbah, were also heavily affected, with many factories and warehouses in low-lying zones suffering major losses to

[109] Sea & Star Advisory, *Lismore Flooding Impacts & Recovery Statement: Final Report* (Report prepared for Lismore City Council, July 2022) < https://www.lismore.nsw.gov.au/files/assets/public/v/1/2.-community/8.-natural-hazards-and-emergencies/lismore-flooding-impacts-and-recovery-statement.pdf>
[110] Tweed Shire Council, *Measuring the cost of the 2022 flood: the long path to recovery continues into the new year* (23 December 2022) <https://www.tweed.nsw.gov.au/council/news-updates/latest-news/media-releases/1380234-measuring-the-cost-of-the-2022-flood>
[111] PWC. *Regional NSW Flood Impact Analysis – Business Survey Outcomes Addendum Report. Detailed Survey Outcomes.* (June 2022)
[112] Ibid.

machinery and inventory. One notable example is Sunshine Sugar in the Clarence Valley, which reported losses totalling $47 million.[113]

Agriculture was hit particularly hard, with farms across the Northern Rivers experiencing significant crop and infrastructure loss and livestock deaths due to flooding. The impacts of this are often long-term with crops and livestock the product of several years of development, representing significant loss of income over several years, plus injection of investment to re-establish operations. These agricultural impacts had broader national consequences. The damage contributed to a 5.8% increase in the Consumer Price Index (CPI) for fruit and vegetables in the June 2022 quarter, leading to higher grocery bills for households across Australia.[114]

AGRN 1012 also disrupted supply chains, compounding the direct damage to businesses. Key transport routes were cut off, preventing the movement of goods into and out of affected areas. This led to temporary shortages of fuel, food, and other essential items in some communities. With trucks unable to deliver supplies or collect products, many businesses experienced extended periods of inactivity, further delaying recovery.[115]

Amidst these supply chain challenges, other sectors had to deal with increased demand for their services in the aftermath of the floods. The health and social assistance sector surged capacity due to increased demand for their services with longer waitlists and backlogs. In the quarter to September 2022, 1,580 patients were overdue for elective surgery in Northern NSW, almost three times the 579 patients overdue prior to the floods.[116] Meanwhile over 200 residents reported experiencing flood related post-traumatic stress disorder.[117] Through the consultations, stakeholders noted that record high levels of support for not-for-profits in the sector had provided welcome relief in the aftermath of the event.

The construction sector also saw increased demand following the floods to support the rebuild, however the industry reported that its response has been hindered by labour shortages and uncertainty about the reconstruction works pipeline.

Lost economic activity

Analysis of estimated economic activity data around the time of the floods shows volatility in key areas impacted. Northern Rivers estimated GRP fell by 2% in February 2022 at the onset of the floods, and a further 2% in March 2022 following the second flood event. While activity recovered slightly in April, GRP dipped again in May, falling another 2% compared to April. The region saw another uptick in June, but economic activity remained subdued through mid-2022 before signs of a more sustained recovery emerged from October onwards. The profile of these impacts reflects the long-lasting damage to regional infrastructure and displacement of people and visitors caused by the floods.

In total, across the period from the first flood in February 2022 to the sustained recovery in October 2022 it is estimated that the cumulative loss of GRP to the Northern Rivers economy (when compared to a no hazard counterfactual scenario) was $1.1bn (around 5.2% of annual GRP). For comparison, this is around one fifth of the Commonwealth Treasury's estimate of the total lost economic activity due to the 2022 floods across the whole of Australia.[118]

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[113] Parliament of Australia, *Flood failure to fairness: Report on the inquiry into insurers' responses to 2022 major floods claims* (October 2024) <https://www.aph.gov.au/Parliamentary_Business/Committees/House/Economics/FloodInsuranceInquiry/Report>

[114] Australian Bureau of Statistics, *Consumer Price Index, Australia* (Catalogue No. 6401.0, 27 July 2022) <https://www.abs.gov.au/statistics/economy/price-indexes-and-inflation/consumer-price-index-australia/jun-2022>

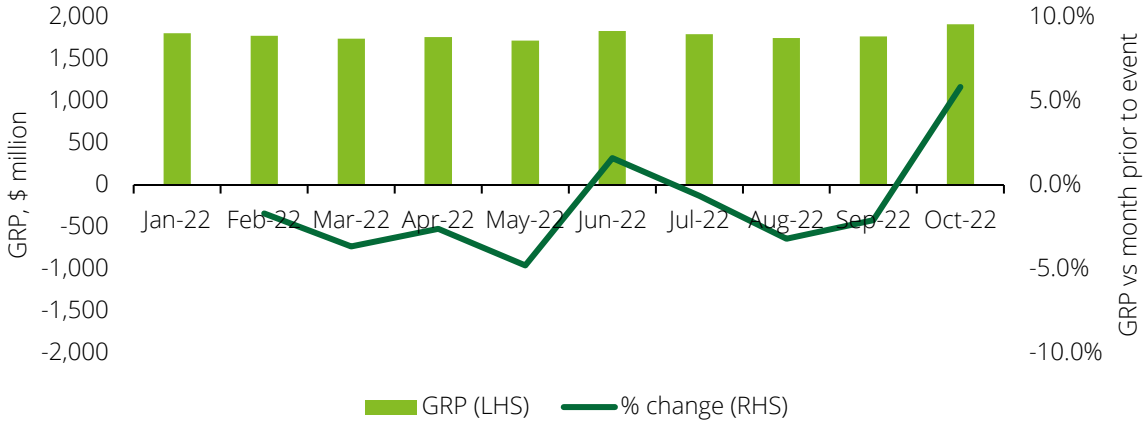
[115] Southern Cross University, *Supermarket shelves were empty for months after the Lismore floods. Here's how to make supply chains more resilient* (14 June 2023) <https://www.scu.edu.au/news/2023/supermarket-shelves-were-empty-for-months-after-the-lismore-floods/>

[116] The Sydney Morning Herald, *Nine months on, Lismore's health services still unable to rebuild* (18 December 2022) <https://www.smh.com.au/national/nsw/nine-months-on-lismore-s-health-services-still-unable-to-rebuild-20221209-p5c50b.html>

[117] Department for Health, Disability and Aging, *Helping the Northern Rivers community to heal after the 2022 floods* (7 May 2024) <https://www.health.gov.au/news/mrff-helping-the-northern-rivers-community-to-heal-after-the-2022-floods>

[118] The Hon Dr Jim Chalmers MP, *Joint doorstop interview, Lismore, NSW* (13 January 2023) <https://ministers.treasury.gov.au/ministers/jim-chalmers-2022/transcripts/joint-doorstop-interview-lismore-nsw>

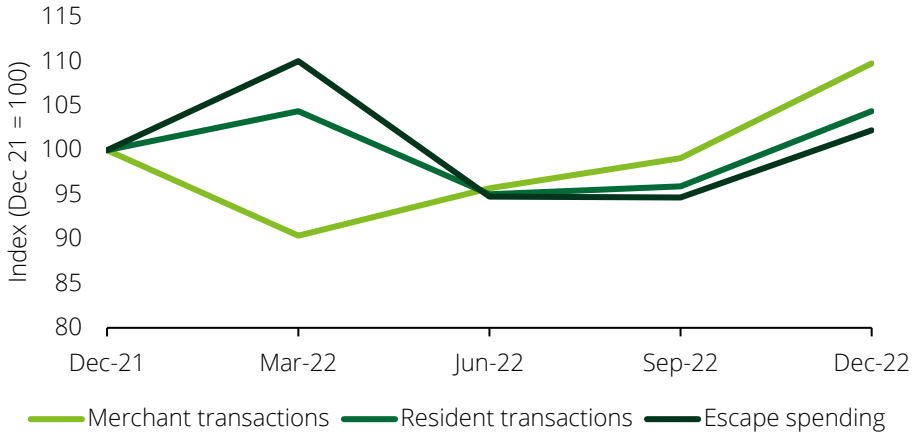
Chart 4.8: Modelled real GRP estimates following the 2022 floods, 2025 prices



Source: Deloitte Access Economics (2025).

Analysis of ANZ card transactions data from DataCo indicates that escape spending increased in the quarter to March 2022 (the quarter of the floods) to 10% as merchant transactions fell due to reduced visitor numbers and displacement of local residents. Spending patterns started to recover in the June 2022 quarter though, as merchant transactions rebounded due to workers coming into the region to support the recovery effort. This trend continued in the September quarter before spending patterns fully recovered at the end of 2022.

Chart 4.9: Index of DataCo spending metrics during the 2022 floods

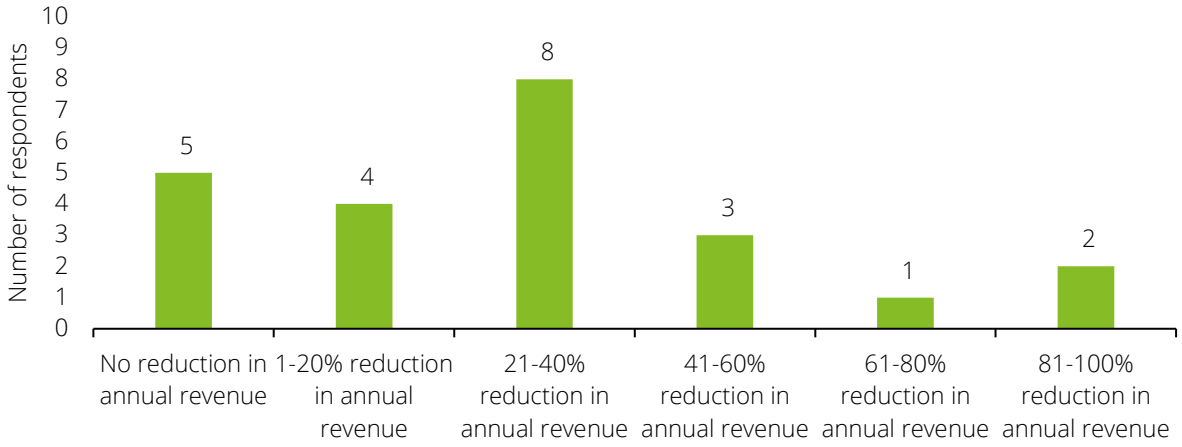


Note: Escape spending is calculated as local resident transactions minus local merchant receipts, where "local" refers to the relevant geographical area, resident transactions captures spending by residents, while merchant receipts are payments received by local merchants. Index definition: The index is standardised to 100 in the baseline quarter. All subsequent values reflect percentage changes relative to this baseline. For example, an index value of 90 indicates a 10% decrease compared to the baseline quarter.
Source: DataCo (2025).

The survey of Northern Rivers businesses undertaken for this report also highlighted the scale and duration of the operational impacts on many businesses following AGRN 1012. Businesses reported a wide range of revenue impacts from no impact on annual revenue (5) to 81-100% reduction in annual revenue (2). The most common response was a 21-40% impact on annual revenues (8).

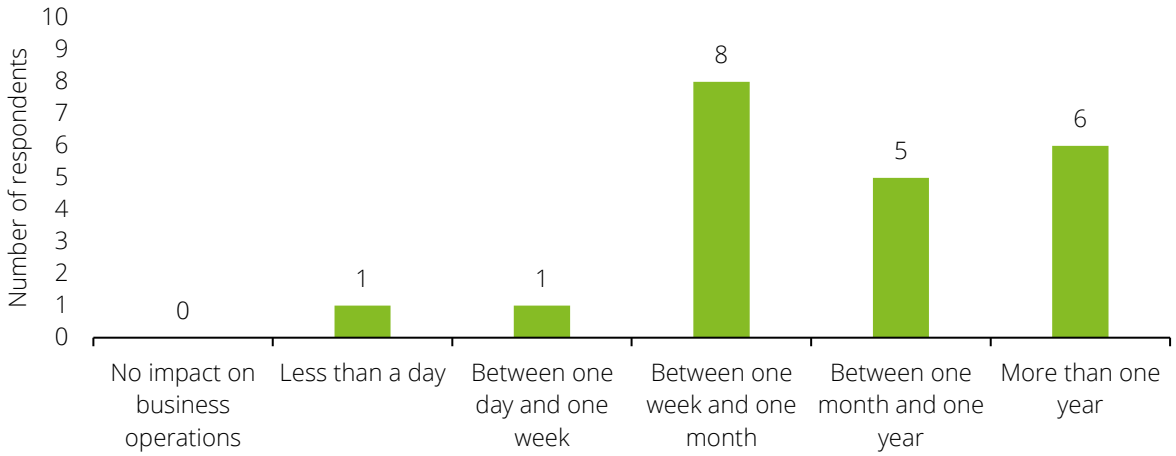
Businesses also reported long recovery times following the floods. Eight businesses reported that it took between a week and a month to resume full operations following the event; however, for many businesses it took longer, with five reporting it took between a month and a year, and six reporting operations were impacted for more than a year.

Chart 4.10: Reported impacts on business revenues from the 2022 floods



Question: What was the scale of impact on your business' revenue from the 2022 floods? (n=21).
Source: Deloitte Access Economics (2025).

Chart 4.11 Reported time for businesses to resume full operations after the 2022 floods



Question: How long did it take for your business to resume full operations following the 2022 floods? (n=21).
Source: Deloitte Access Economics (2025).

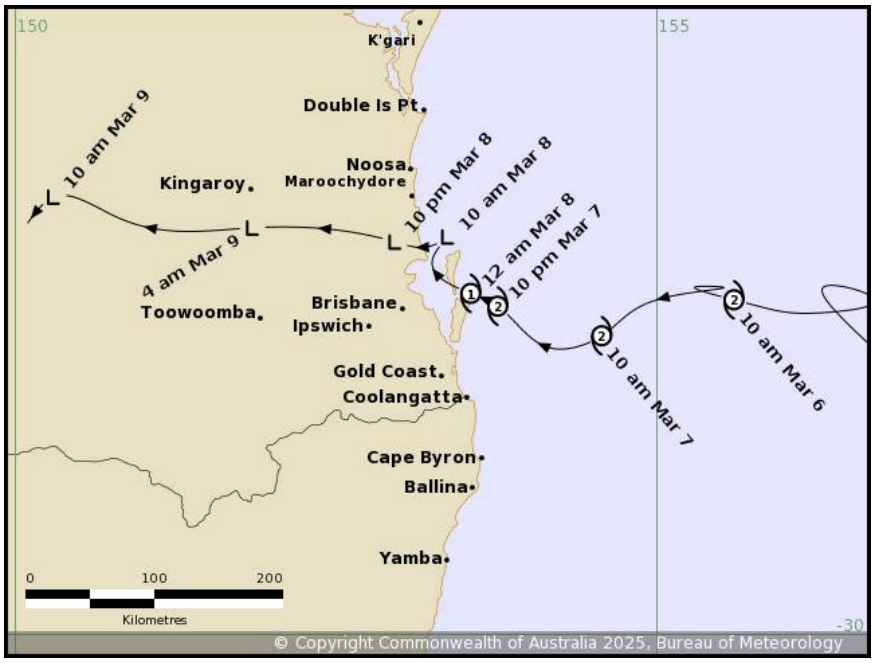
4.3 2025 Ex-Tropical Cyclone Alfred (AGRN 1198)

4.3.1 Overview of event and physical impacts

Ex-Tropical Cyclone Alfred was a former category-2 cyclone that developed in the Coral Sea to the east of Queensland. By landfall, the cyclone had been downgraded to a sub-tropical cyclone, however still delivered extreme rainfall, strong winds and flooding.[119] The weather system made landfall north of Brisbane on 8 March 2025, resulting in torrential rain, high winds and storm surges. In the Northern Rivers, parts of the region received rainfall of 640mm over the five-day period.[120]

[119] Bureau of Meteorology, *Severe Tropical Cyclone Alfred* (2025) <https://www.bom.gov.au/cyclone/history/Alfred2025.shtml>
[120] ABC News. *Ex-Tropical Cyclone Alfred brought NSW towns close to major flooding, data shows.* (24 March 2025) <https://www.abc.net.au/news/2025-03-24/nsw-ex-tropical-cyclone-alfred-river-data-flooding/105074596>

Figure 4.3: Ex-Tropical Cyclone Alfred Trajectory



Source: Bureau of Meteorology (2025).

Heavy rainfall led to river flooding throughout the region. Moderate to major flooding was observed in Tweed, Richmond, Wilsons and Clarence River systems.

- The Clarence River at Grafton reached 5.74m, exceeding the major flood threshold.[121]
- The Wilsons River rose to 9.31m, 40cm below the major flood threshold. Compared to 2022 when the river reached 14.36m, Lismore's central levee prevented repeat inundation of the town. However, neighbourhoods in Lismore's north and outskirts observed flooding.[122]
- The Tweed River almost exceeded major flood levels near surrounding towns including Tumbulgum and Chinderah.[123]

High winds and storm tides also affected the Northern Rivers region, reaching wind speeds of up to 120km/h.[124] Coastal inundation also led to significant erosion along the Northern Rivers coastline.[125]

Ex-Tropical Cyclone Alfred's trajectory meant a large number of residents and workers were impacted. In the Northern Rivers, authorities issued 18 flood evacuation orders, requesting 19,000 people to leave flood-prone

[121] ABC News, *Major Flood Warning for Clarence River, Clarence River at Grafton (Prince St), Clarence River at Ulmarra and Clarence River at Maclean* (10 March 2025) <https://www.abc.net.au/emergency/warning/AUREMER-f557e2e7fd0ab922aad3a3ddf9554432>
[122] Lismore City Council, *Lismore past floods history* (2025) <https://www.lismore.nsw.gov.au/Community/Natural-hazards-and-emergency-information/Flood-information-for-Lismore/Lismore-past-floods-history>
[123] ABC News, *Major Flood Warning for Tweed River, Tweed River at North Murwillumbah, Tweed River at Tumbulgum and Tweed River at Chinderah (Barneys Point).* (10 March 2025) <https://www.abc.net.au/emergency/warning/AUREMER-b2d75706229acaf983c48270f2c0f575>
[124] The Echo, *Tropical Cyclone Alfred 120km/h winds* (7 March 2025) <https://www.echo.net.au/2025/03/tropical-cyclone-alfred-120km-h-winds/>
[125] Bureau of Meteorology, *Severe Tropical Cyclone Alfred* (2025) <https://www.bom.gov.au/cyclone/history/Alfred2025.shtml>

areas.[126] Up to 160 people stayed at the Lismore evacuation hub on the Southern Cross University campus at the peak of the tropical low.[127]

Despite effective emergency response, one death was recorded due to a person crossing floodwaters during the event. In total, 644 properties in the Northern Rivers sustained some level of flood damage, including 112 with severe damage.[128]

Power and communications

Power and telecommunications infrastructure suffered widespread damage across the impacted regions. High winds toppled trees and destroyed power lines, with an estimated 43,000 customers losing electricity in the Northern Rivers.[129] Some residents in the region were left without power for up to a week.[130] Spoiled food supplies was one of the most common insurance claims following the event, reflecting the extent of lost refrigeration during extended blackouts.[131] Telecommunications networks were also affected, with network towers downed and nodes submerged leaving more than 250,000 households without access to the NBN network across SEQ and Northern NSW, leading to advocacy to harden power and telecommunications.[132]

Transport

Floodwaters, and fallen trees impacted a large number of local roads and highways. Sections of the Pacific Motorway were closed, including between Bangalow and Tweed Heads, impacting the transport corridor between Sydney and Brisbane.[133] Secondary roads including the Bruxner Highway were also closed due to floodwaters or landslides, isolating residents in areas including Woodburn, Coraki and sections of the Tweed Valley.[134]

Public facilities

More than 260 schools across Northern NSW were closed for two days during the cyclone.[135] Some schools incurred damages including broken roofs or flooded classrooms, with repair teams and generators dispatched to operate as soon as possible.

Environmental infrastructure

Northern Rivers coastal environments observed large amounts of erosion. For example, dunes and coastal walkways were damaged at Byron Bay due to storm surges.[136]

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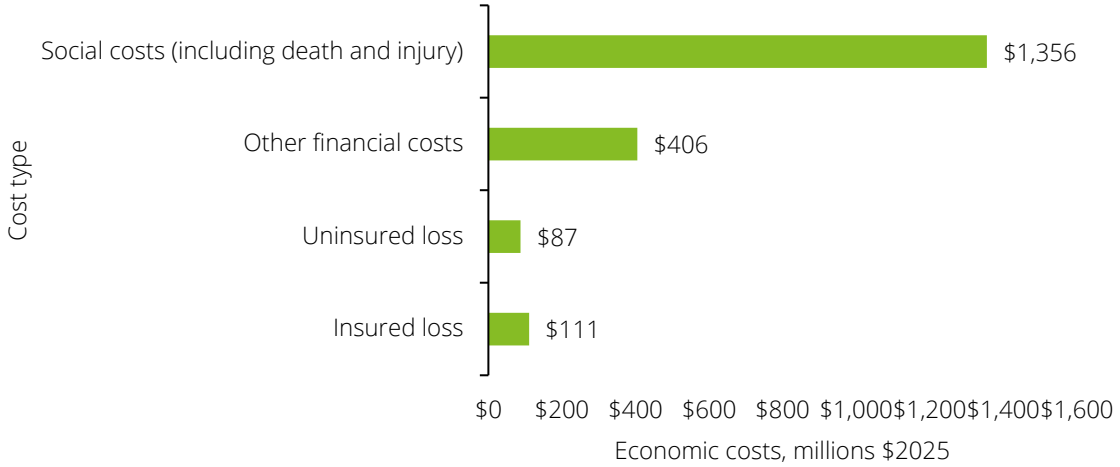
[126] ABC News, *Man missing in floodwaters as Tropical Cyclone Alfred approaches northern NSW* (7 March 2025) <https://www.abc.net.au/news/2025-03-07/evacuation-notices-northern-nsw-flood-risk-cyclone-alfred/105018676>
[127] ABC News, *Byron mayor disappointed with Tropical Cyclone Alfred evacuation centres* (7 March 2025) <https://www.abc.net.au/news/2025-03-07/evacuation-centres-short-supplies-byron-mayor-cyclone-alfred/105022690>
[128] ABC News. *Ex-Tropical Cyclone Alfred brought NSW towns close to major flooding, data shows.* (24 March 2025) <https://www.abc.net.au/news/2025-03-24/nsw-ex-tropical-cyclone-alfred-river-data-flooding/105074596>
[129] ABC News, *Ex-Cyclone Tropical Alfred turns NSW Northern Rivers properties into islands* (11 March 2025) <https://www.abc.net.au/news/2025-03-11/northern-rivers-locals-apply-2022-flood-learning-cyclone-alfred/105032662>
[130] ABC News, *Ex-Cyclone Tropical Alfred turns NSW Northern Rivers properties into islands* (11 March 2025) <https://www.abc.net.au/news/2025-03-11/northern-rivers-locals-apply-2022-flood-learning-cyclone-alfred/105032662>
[131] Insurance Council of Australia, *Insurer update on ex-TC Alfred*. (17 March 2025) <https://insurancecouncil.com.au/resource/insurer-update-on-ex-tc-alfred/>
[132] ABC News. *Calls for disaster resilient mobile network as Tropical Cyclone Alfred leaves 250,000 cut off (*17 March 2025) <https://www.abc.net.au/news/2025-03-17/calls-for-mobile-network-to-be-more-resillient-cyclone-floods/105053254>
[133] IndyNR, *ROAD CLOSURES: M1 closes, fallen trees close section of Summerland Way* (7 March 2025) <https://indynr.com/m1-closes-fallen-trees-close-section-of-summerland-way/>
[134] NSW State Emergency Services. *Damage assessments commence in Northern Rivers resupply underway for isolated communities.* (11 March 2025) <https://www.ses.nsw.gov.au/news/damage-assessments-commence-northern-rivers-resupply-underway-isolated-communities>
[135] NSW Government. *Precautionary school closures in Northern NSW as Tropical Cyclone Alfred approaches (*5 March 2025) <https://www.nsw.gov.au/ministerial-releases/precautionary-school-closures-northern-nsw-as-tropical-cyclone-alfred-approaches>
[136] Byron Shire Council, *Coastal erosion caused by Tropical Cyclone Alfred* (2025) <https://www.byron.nsw.gov.au/Environment-Resilience/Environmental-Hazards/Storms-Coastal-Management/Dune-Recovery-Coastal-Erosion-Projects/Coastal-erosion-caused-by-Tropical-Cyclone-Alfred>

4.3.2 Estimated total socio-economic cost

Ex-Tropical Cyclone Alfred caused an estimated $2.0 billion in total socio-economic costs across the Northern Rivers according to Deloitte Access Economics modelling. Insured losses were $111 million, while uninsured losses added a further $87 million. Other financial costs, including damage to infrastructure and emergency response, reached $406 million. However, the largest burden came from social costs such as death, injury, and mental health impacts, estimated at $1.4 billion - more than half of the total. While not as extreme as the 2022 floods, the event had a substantial effect on the region's wellbeing and economy.

Chart 4.12: Estimated total socio-economic cost of Ex-Tropical Cyclone Alfred for the Northern Rivers, 2025 prices



Note: The total socio-economic costs of each disaster was estimated based on insured loss values using the Deloitte's multiplier methodology used in the Australian Business Roundtable report (2021). The Northern Rivers share of costs was estimated using the populations of affected postcodes. Data reflects claims made as of June 2025.
Source: Deloitte Access Economics (2025), Insurance Council of Australia (2025).

4.3.3 Overview of business impacts

Impacts to Northern Rivers businesses due to Ex-Tropical Cyclone Alfred were severe but temporary, with many stakeholders highlighting it as an example of how businesses are now better prepared for flood events.

Business disruption

The immediate event led to a loss of trade in the short term. Businesses initially closed as the tropical low brought unsafe winds and flooding. In Lismore, the central business district largely avoided inundation due to the levee, but shops in low-lying parts of North and South Lismore experienced flooding.[137] The evacuation of residents, and avoidance of travel to the region due to significant cancellations, resulted in heavy decline in customer foot traffic reducing business revenues. This was combined with disrupted supply chains due to road closures, leading to loss of perishable goods or inability to restock inventory.[138]

Where workers could not work from home, businesses in the region reported productivity losses due to workplace closures. Large employers including food processing plants, universities, and local shops and restaurants reported ceasing operations for several days, resulting in thousands of workdays lost.

The minor damage to vital central business areas meant customer-facing businesses such as retail and service businesses could resume operations relatively quickly once utilities were restored. Effective emergency

[137] Australian Financial Review, *In flood-prone Lismore, an all-too familiar grind* (9 March 2025) <https://www.afr.com/politics/federal/in-flood-prone-lismore-an-all-too-familiar-grind-20250309-p5li5r>
[138] ABC News. *Ex-Cyclone Alfred costs NSW farmers millions in stock loss and damage.* 17 March 2025. ABC News. <https://www.abc.net.au/news/2025-03-17/cyclone-alfred-cost-to-nsw-agriculture-17-million-and-rising/105059484>.

preparation also meant businesses had safely moved stock, equipment and information and communication technology systems prior to the event to minimise losses.[139]

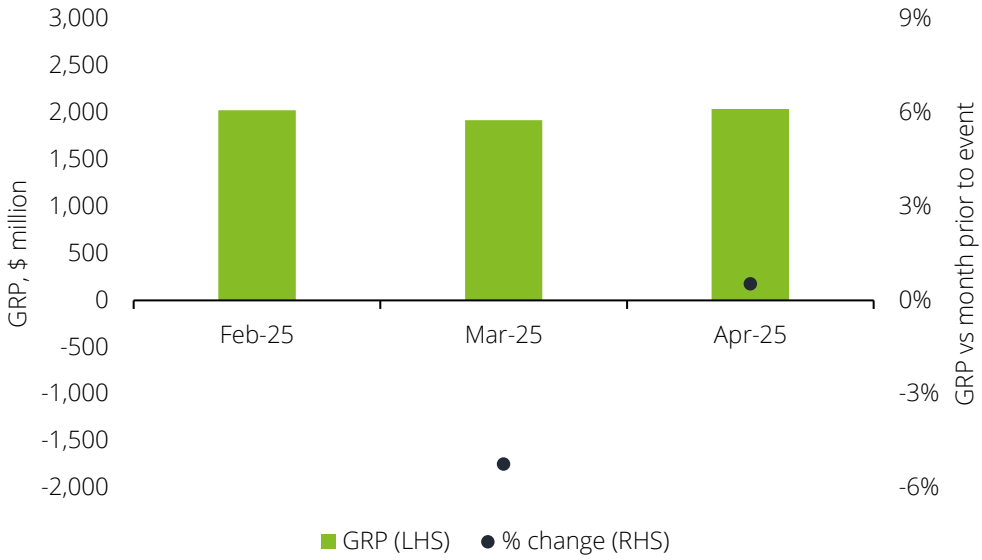
In the Roundtables, Ex-TC Alfred was highlighted as an example of the improved disaster readiness in the region, particularly in Lismore, with businesses preparing and moving out of the city quickly to minimise the risk to inventory and equipment. This still carried costs though, with many businesses losing 1-2 weeks of trade alongside the emotional stress of the event.

Lost economic activity

Estimated GRP data shows that Ex-Tropical Cyclone Alfred caused sharp but temporary disruption to economic activity in the Northern Rivers region. GRP fell by 5% in March 2025 following the event, before rebounding strongly in April with GRP returning to pre-event levels. The pattern suggests an initial shock, followed by a rapid clean-up and return phase – highlighting the increased preparedness of the community and greater awareness of the potential adverse impact of the weather system.

In total, across the period from the onset of Ex-Tropical Cyclone Alfred in March 2025 to the recovery in April, it is estimated that the cumulative loss of GRP for the Northern Rivers economy (compared with a no hazard counterfactual scenario) was $0.2bn (around 1.1% of annual GRP). This compares to Commonwealth Treasury estimates that Ex-Tropical Cyclone Alfred took around $1.2 billion off GDP at a national level.[140]

Chart 4.13: Modelled real GRP estimates following Ex-Tropical Cyclone Alfred, 2025 prices

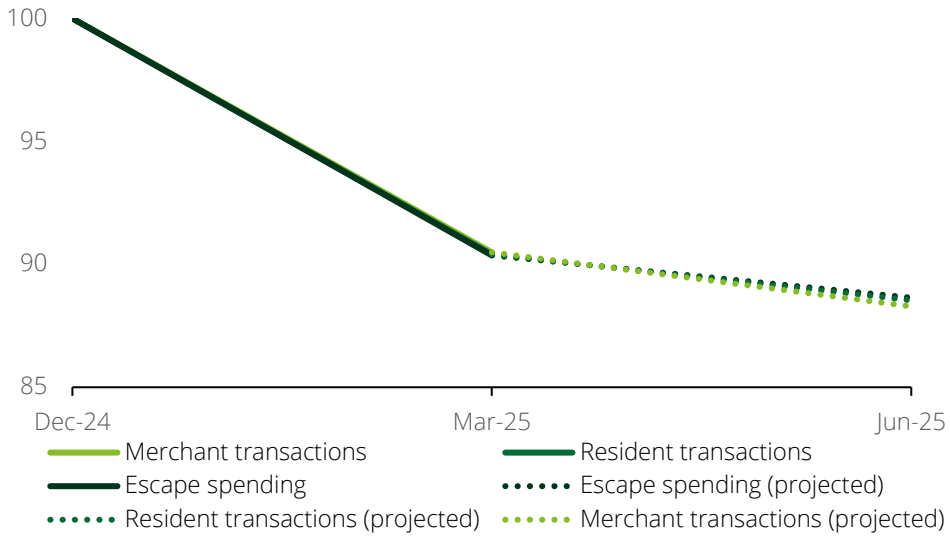


Source: Deloitte Access Economics (2025).

Analysis of ANZ transactions data from DataCo suggests a significant decline in local economic activity following Ex-Tropical Cyclone Alfred, although seasonal effects may also have contributed. Compared to the December 2024 quarter, both local merchant transactions and resident transactions declined by 10% in the quarter to March 2025. Meanwhile, data for April 2025 suggests a prolonged impact on spending through the Easter holiday period with both merchant and resident transactions remaining subdued.

[139] ABC News, *Ex-Cyclone Tropical Alfred turns NSW Northern Rivers properties into islands* (11 March 2025) <https://www.abc.net.au/news/2025-03-11/northern-rivers-locals-apply-2022-flood-learning-cyclone-alfred/105032662>
[140] SBS News, *Cyclone impacts and 'global turbulence': What we can expect from next week's budget* (17 March 2025) <https://www.sbs.com.au/news/article/what-we-can-expect-from-next-weeks-budget/pm6okfb74>

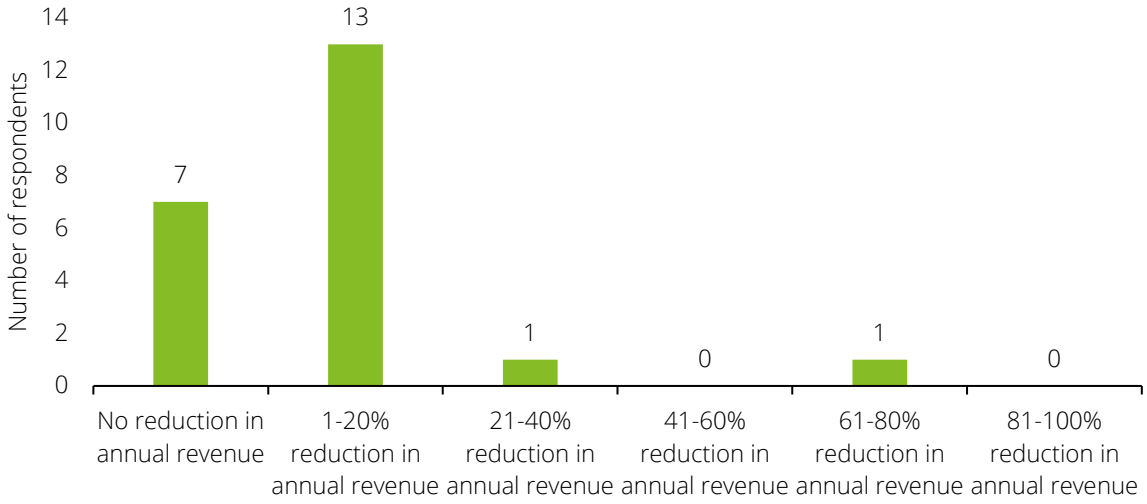
Chart 4.14: Index of DataCo spending metrics during the Ex-Tropical Cyclone Alfred



Note: Escape spending is calculated as local resident transactions minus local merchant receipts, where "local" refers to the relevant geographical area, resident transactions captures spending by residents, while merchant receipts are payments received by local merchants. Jun 2025 data is projected based on April 2025 and is therefore shown as a broken line.
Index definition: The index is standardised to 100 in the baseline quarter. All subsequent values reflect percentage changes relative to this baseline. For example, an index value of 90 indicates a 10% decrease compared to the baseline quarter.
Source: DataCo (2025).

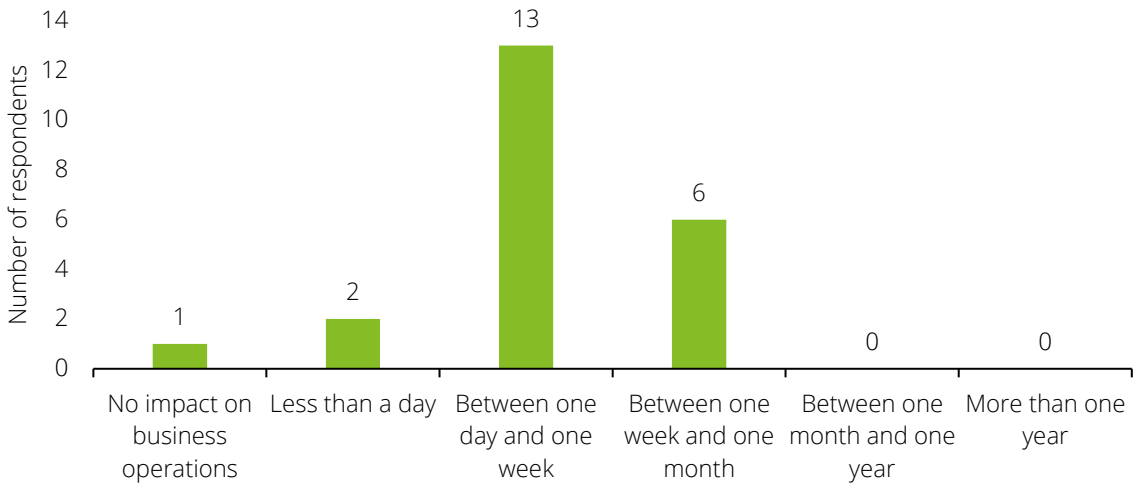
The survey of Northern Rivers businesses for this report highlighted widespread, but generally short-term impacts from Ex-Tropical Cyclone Alfred. Businesses most commonly reported 1-20% reduction in annual revenue (13) or no reduction in annual revenue (7), reflecting limited impact on bottom line. However, businesses typically reported disruptions to operations of between one day and one month, showing the burden of preparing for the event as well as post-event business impacts.

Chart 4.15: Reported impacts on business revenues from Ex-Tropical Cyclone Alfred



Question: What was the scale of impact on your business' revenue from Ex-tropical Cyclone Alfred? (n=21).
Source: Deloitte Access Economics (2025).

Chart 4.16: Reported time for businesses to resume full operations after Ex-Tropical Cyclone Alfred



Question: How long did it take for your business to resume full operations following Ex-Tropical Cyclone Alfred? (n=21).
Source: Deloitte Access Economics (2025).

5 Natural hazard risk and opportunities

Summary

This chapter explores some of the emerging themes regarding the overall impact that natural hazard events have had on the Northern Rivers economy in recent years.

In aggregate, over the period from the onset of the bushfires in 2019 until the recovery following Ex-Tropical Cyclone Alfred in May 2025, the Northern Rivers region experienced an estimated cumulative loss of approximately $4.0 billion in GRP due to natural hazard events. This estimate reflects the shortfall between actual monthly GRP and a counterfactual scenario in which no major natural hazard events occurred. The total loss represents 2.9% of the economic activity in the region that would have otherwise been expected over the period.

Businesses in the region have had to grapple with a range of both short-term and long-term challenges associated with the natural hazard risk profile of the region.

The increasing frequency and intensity of natural hazard events has led to rising insurance costs for many businesses in the region. Average business insurance premiums in the Northern Rivers increased by 94% between 2021 and 2024. Business NSW quarterly business conditions survey also highlights that insurance costs are the top concern for businesses in the state.

Natural hazard events have also led to critical challenges around regional infrastructure. Short-term disruptions in the immediate aftermath of natural hazard events included infrastructure failures such as power and telecommunications outages and closures to key transport links. Longer-term challenges were also highlighted around the price and availability of suitable housing and well-serviced industrial land away from the flood plain or bushfire prone areas. This was raised as a key barrier to both local population and business growth in the region.

Many businesses are investing in their own resilience building measures which are seen by many as an essential cost of doing business in the Northern Rivers. The most commonly cited measures taken include weatherproofing premises, implementing disaster recovery plans and increased workforce training and support. While many stakeholders noted the effectiveness of these measures in improving disaster readiness, such investments present an ongoing cost to local businesses.

Overall, while natural hazard events have clearly posed a significant risk to the region's economy, many businesses consulted reported a positive outlook for the economic future of the region, and pointed to opportunities that recent events have presented.

A summary of the top risks and opportunities highlighted is presented below.

Key risks

- Many key industries in the Northern Rivers are particularly exposed to natural hazard events. The agriculture and visitor economy sectors in particular have experienced substantial losses during recent natural hazard events.
- Economic impacts can be long lasting. Several stakeholders in the agriculture sector reported losing crops that take several years to mature, while the impacts on housing stock have caused long-term impacts on the labour market.

- **Natural hazard risk adds to the cost of doing business in region.** High insurance premiums and the cost of investment in resilience measures contribute to the financial burden on local businesses.
- **The cumulative impacts of recent events have left many businesses in a precarious position.** Consecutive natural hazard events, alongside COVID-19 have left many businesses with limited financial buffers to cope with further shocks.
- **Fatigue may drive some businesses out of the region.** Though businesses are prepared to incorporate some of the additional financial and investment risk, the economic and emotional fatigue caused by repeated natural hazard events may force some businesses to leave the region.

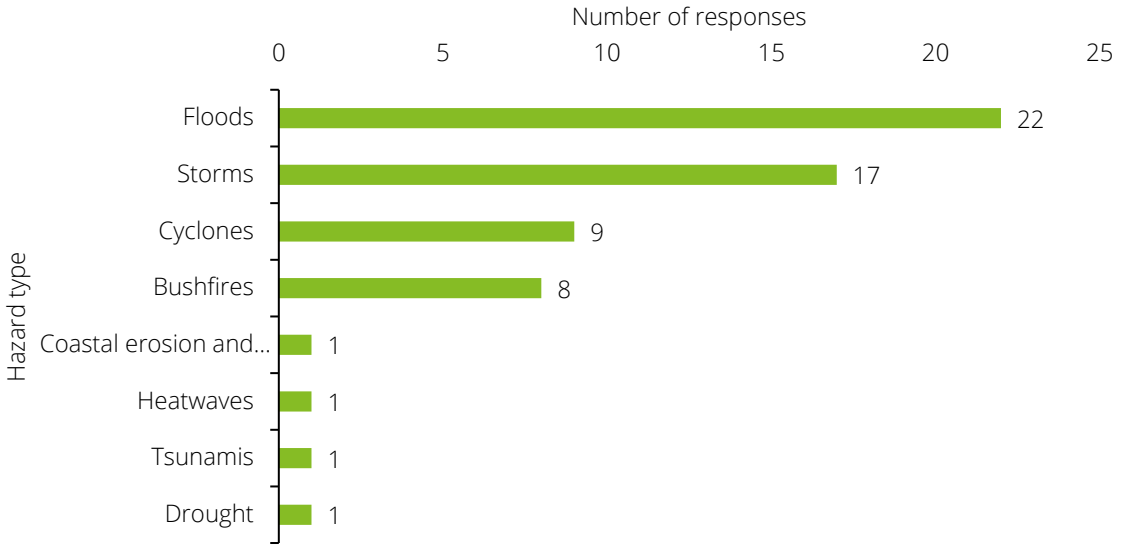
Key opportunities

- **Natural hazard events bring costs, but also benefits, to certain industries.** Recent events have resulted in increased demand in the construction sector, while longer-term climate impacts are creating new opportunities in the agriculture and manufacturing sectors.
- **Increased support for not-for-profits.** The health and community service sector noted record high funding for not-for-profits, and strong community support in the aftermath of recent natural hazard events.
- **Recovery initiatives bring an opportunity to invest in regional infrastructure and resilience.** Businesses noted this provided a chance to improve and transform the regional economy with more resilient infrastructure, better transport links to aid tourism dispersal, and more investment in green infrastructure.
- **Communities are coming together to build resilience efficiently.** Businesses consulted in the development of this report noted they were working together with other local businesses to improve supply chain resilience to natural hazards.
- **The economic potential of the region remains large.** Many businesses consulted also reported that they wanted to stay and grow their business in the region, noting opportunities from the region's natural endowments and geography.

5.1 Economic risk by event type

Recent catastrophic events have placed a focus on natural hazard risk for businesses in the Northern Rivers. Some 22 out of 24 businesses businesses responding to the targeted survey identified floods as the greatest natural hazard risk to their business, reflecting the high impact of recent flood events such as the 2022 floods and Ex-Tropical Cyclone Alfred on regional economic activity noted in these case studies. Storms, cyclones and bushfires also resonated, with 17, 9 and 8 of businesses surveyed highlighting the risk of these natural hazard types respectively.

Chart 5.1: Business views on the greatest natural hazard risk to their operations



Question: What natural hazard presents the greatest risk to your business? (n=24).

Source: Deloitte Access Economics (2025).

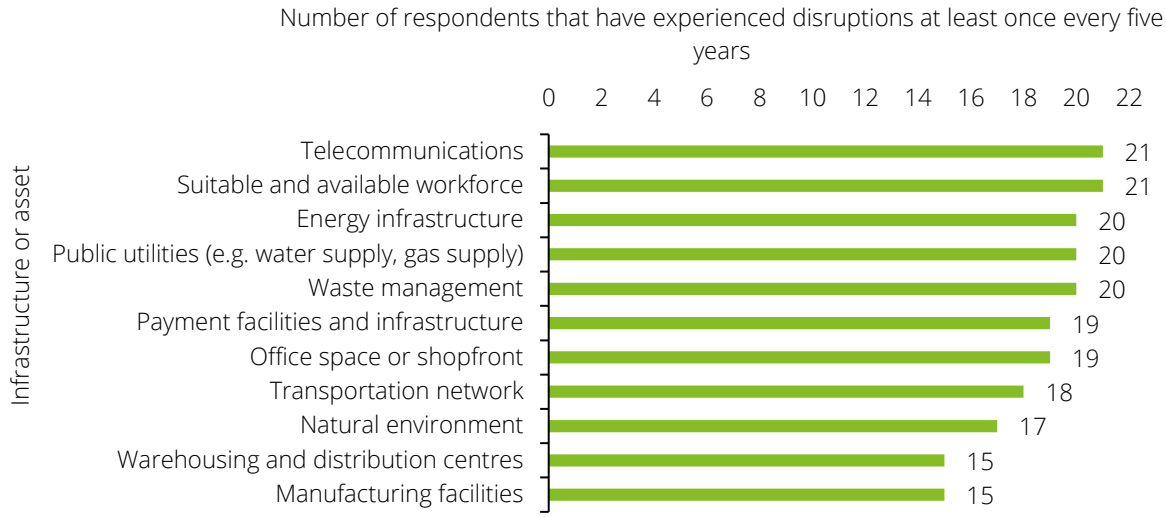
While some businesses noted that the risk posed by natural hazards in the Northern Rivers could drive them to exit the region, others did note that climate change also brings long-term opportunities, for example in opening up new agricultural opportunities through producing new crops, or new technological solutions (such as solar panels) to support manufacturing and logistics activities.

5.2 Key infrastructure risk and opportunities

A key theme highlighted throughout consultations was the impact that natural hazard events have on fundamental business infrastructure and inputs, and the knock-on disruption this can cause across the supply chain.

Over the last five years, all 21 responding businesses reported some disruption to their telecommunications, workforce availability, and 20 reported disruption to energy infrastructure, utility supply and waste management due to natural hazard events. This highlights vulnerabilities to such events amongst the region's key supporting infrastructure.

Chart 5.2: Infrastructure disruption experienced by Northern Rivers businesses due to natural hazard events



Question: How frequently do you experience disruptions to the following due to natural disasters? (n=21).
Source: Deloitte Access Economics (2025).

A point that was further emphasised in interviews with local businesses were the reliability of the telecommunications, power and transport networks. This included:

- Poor regional NBN coverage is exacerbated during natural hazard events when there is increased demand on the network and high winds can impact signal. As a result, many stakeholders reported regular network disruptions following natural hazard events that hamper communications vital to business operating decisions. Some businesses stated that they pay more to access private networks which they felt offered greater reliability, although the cost of this is prohibitive for many.
- Power outages are also common and highlighted as a factor impacting recovery times and economic losses. For example, one stakeholder in the food and beverage services sector noted they suffered over $5,000 in inventory losses due to power losses to their cold storage during Ex-Tropical Cyclone Alfred. The prevalence of overhead power lines that are vulnerable to high winds was highlighted as a key infrastructure risk. Power infrastructure is also a barrier to business expansion with the cost of upgrading the network being pushed onto businesses. With the topography of region being challenging, businesses also spoke about investing in alternative power generation options at the local level.
- The importance of the Pacific Highway for the region's supply chains was evident. While natural hazards were only seen to have caused short-term disruption to access of the highway, this is enough to have significant impacts in industries reliant on just-in-time supply chains like food manufacturing. Creating more

resilience in the supply chains, and requiring businesses to hold more stock, in turn increases operating costs.

Housing supply was highlighted as a key issue impacting the regional economy, exacerbated by natural hazard events. Businesses noted the impact to housing affordability, with knock-on implications for residents and the labour market in labour intensive industries such as health and social assistance. It also inhibits the visitor economy as there is less accommodation available for tourists and prices are higher. This highlights a trade-off between different parts of the local economy around the use of the limited available housing stock.

The availability of suitable industrial land to support business growth is also a barrier. Many of those consulted during this study highlighted this as an indication of the challenges local councils face in adapting and responding to recent events, reflecting the complexity and scale of issues at hand. Many businesses are seeking to relocate or expand to areas above the flood plain, but the availability of suitable developed and serviced land in these areas is a key constraint. There are underlying challenges around the time required to provide infrastructure, such as electricity, water, and sewerage to activate newly zoned industrial lands.

While many infrastructure risks were raised, businesses also noted the opportunity to use investment in resilience measures to support the regional economy. For example, an improved local transport network could support accessibility and help tourists to explore new areas in the region. Furthermore, it was noted that investment in infrastructure could support the transition of the economy towards greener and more efficient supply chains, facilitating the state's net zero aspirations.

5.3 Unaffordable and limited insurance

With many businesses still constrained to the flood plain or areas exposed to bushfire risk, alongside shifting risk perceptions around natural hazard events, many businesses are grappling with increased insurance costs. Business transaction data indicates that average business insurance premiums in the Northern Rivers have increased by 94% between 2021 and 2024 from $14,500 to $28,200.[141] In particular, there was a sharp jump of 53% between 2022 and 2023 following the 2022 floods likely due to changing insurer risk perceptions as well as rising costs for heavily claimed assets like temporary accommodation, building works and automobiles. The Business NSW quarterly business conditions survey similarly highlights that insurance costs have been the top concern for businesses in the state since the second quarter of 2023.[142]

Chart 5.3: Average insurance premiums for Northern Rivers businesses

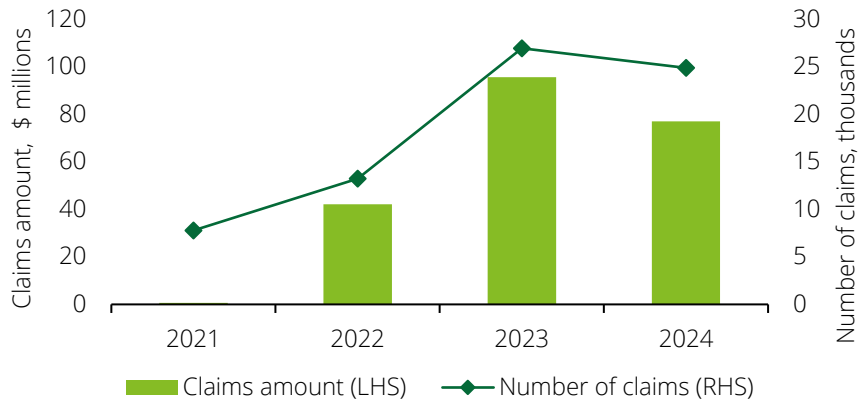
Source: DataCo (2025).

Rising premiums are in part reflective of rising claims being paid to businesses in the region. The total value of claims, and the number of claims made have both been on the rise since 2021, which appear to be largely

[141] DataCo business insurance premiums data (2025). Note that this data reflect insurance premiums paid by businesses to ANZ insurers. This data will not capture changes to business insurance coverage or terms in response to rising premium levels.
[142] Business NSW, *NSW Business Conditions*, (18 June 2025) <https://www.businessnsw.com/advocacy/surveys/business-conditions-surveys/2025-june>

influenced by the 2022 floods. It is important to note this data is based on a sample that covers payments by insurers with ANZ business accounts (approximately 8-10% of the insurance market), making the data indicative of broad trends rather than absolute values. The increased number of claims in 2023 and 2024 is largely due to the backlog caused by the 2022 floods, as many insurers were unable to process the sheer amount of claims promptly in 2022. A previous Deloitte study into the aftermath of the 2022 floods found that the event led to unprecedented levels of insurance claims with the number of claims more than six times higher than the average for catastrophic events since 2016.[143]

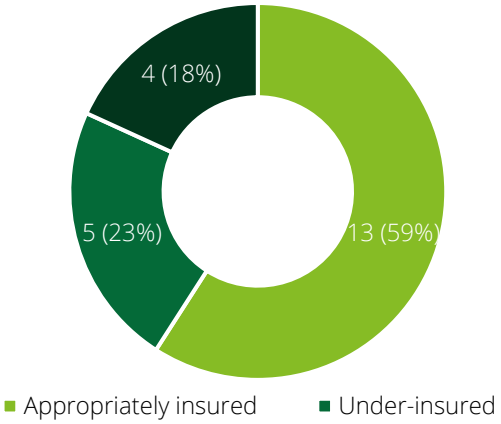
Chart 5.4: Insurance claims amount and number paid for Northern Rivers businesses



Source: DataCo (2025).

With insurance costs on the rise, some businesses are choosing to reduce their coverage or go without insurance against natural hazards altogether. Five out of 22 responding businesses in the Northern Rivers feel that they are under-insured against natural hazard risk, while a further four have no insurance against natural hazards. When asked about the reason for this, the most common response cited was premium costs being too high. Meanwhile during consultations some businesses noted that they were unable to get flood insurance in their area due to ongoing embargoes on flood insurance, which limits business investment and expansion in the region.

Chart 5.5: Northern Rivers business insurance coverage



Question: What level of insurance does your business have against natural disasters? (n=22).

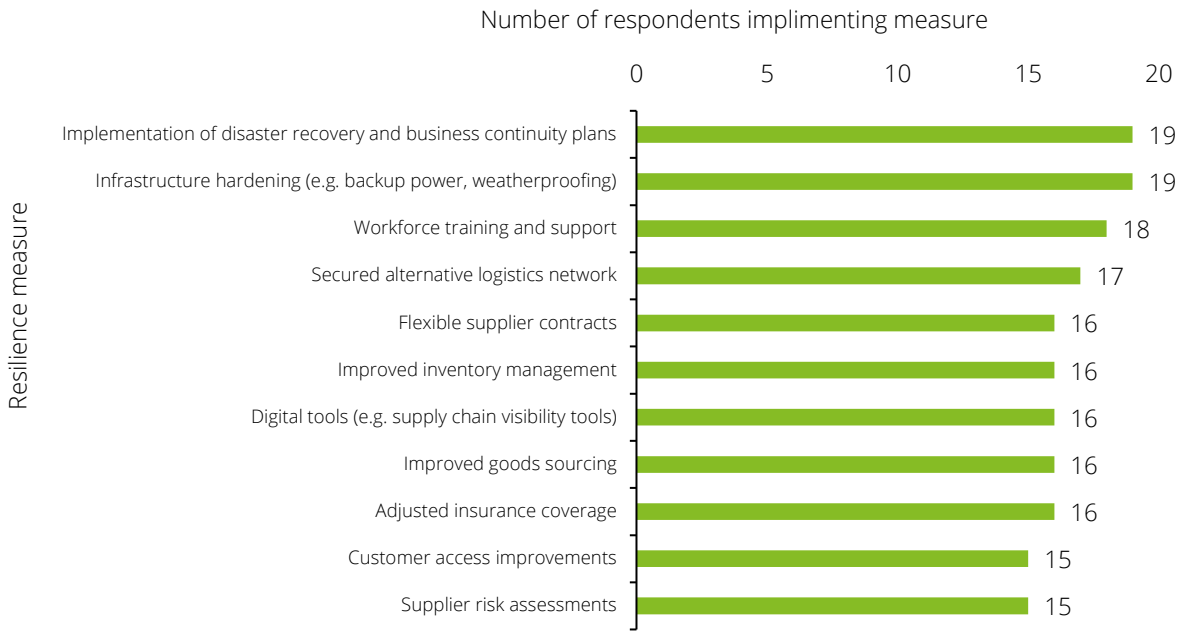
Source: Deloitte Access Economics (2025).

[143] Deloitte, *The new benchmark for catastrophe preparedness in Australia: A review of the insurance industry's response to the 2022 floods in South East Queensland and New South Wales (CAT221)* (October 2023) <https://insurancecouncil.com.au/wp-content/uploads/2023/10/The-new-benchmark-for-catastrophe-preparedness-in-Australia_Oct-2023.pdf>

5.4 Investing in resilience

As a result of high insurance costs, many businesses are investing in their own resilience measures, which are seen by many businesses as an essential cost of doing business in the Northern Rivers. Based on responses to a targeted business survey undertaken during the development of this report, the most common resilience measures being taken are implementing disaster recovery plans, weatherproofing premises and increased workforce training and support.

Chart 5.6: Business resilience measures against natural hazard events



Question: What measures have you taken to improve natural disaster resilience and how have they performed? (n=21).
Source: Deloitte Access Economics (2025).

While many businesses noted the effectiveness of these measures during Ex-Tropical Cyclone Alfred, such investments carry a cost to businesses, both in the upfront cost of investment and reduced productivity. Several businesses indicated a willingness to assume a degree of additional financial and investment risk, noting that collaborative efforts within their communities are helping to distribute the costs associated with taking action. For example, by sharing generators and cold storage facilities.

Local businesses who participated in the roundtables acknowledged that government policy support helped ease some of the financial pressures caused by natural hazard events and the costs of building resilience. However, they also raised several considerations regarding the design and delivery of future policy support for businesses impacted by natural hazards.

5.5 Cumulative impacts across the region

A consistent theme heard through business consultations was that the cumulative impact of recent natural hazard events, coupled with the COVID-19 pandemic, has led to business fatigue, including both emotional and financial stress. Many businesses highlighted they have limited financial buffers remaining, raising the prospect that they could be forced to leave the region in the occurrence of another natural hazard event. Nonetheless, there is a strong desire among businesses to remain in the region and expand operations, citing the enduring strengths of the regional economy, which are largely attributed to its natural endowments and geography.

5.5.1 Long term economic impacts

To estimate the cumulative impacts of recent natural hazard events on the Northern Rivers region counterfactual analysis was undertaken to consider how the trajectory of GRP in the region may have been different in the absence of the 2019-20 bushfires, the 2022 floods and Ex-Tropical Cyclone Alfred in 2025. The counterfactual was based on a historical trend analysis of GRP in the region which was used as a predictor of the counterfactual path of GRP in a world where the natural hazard events had not occurred.

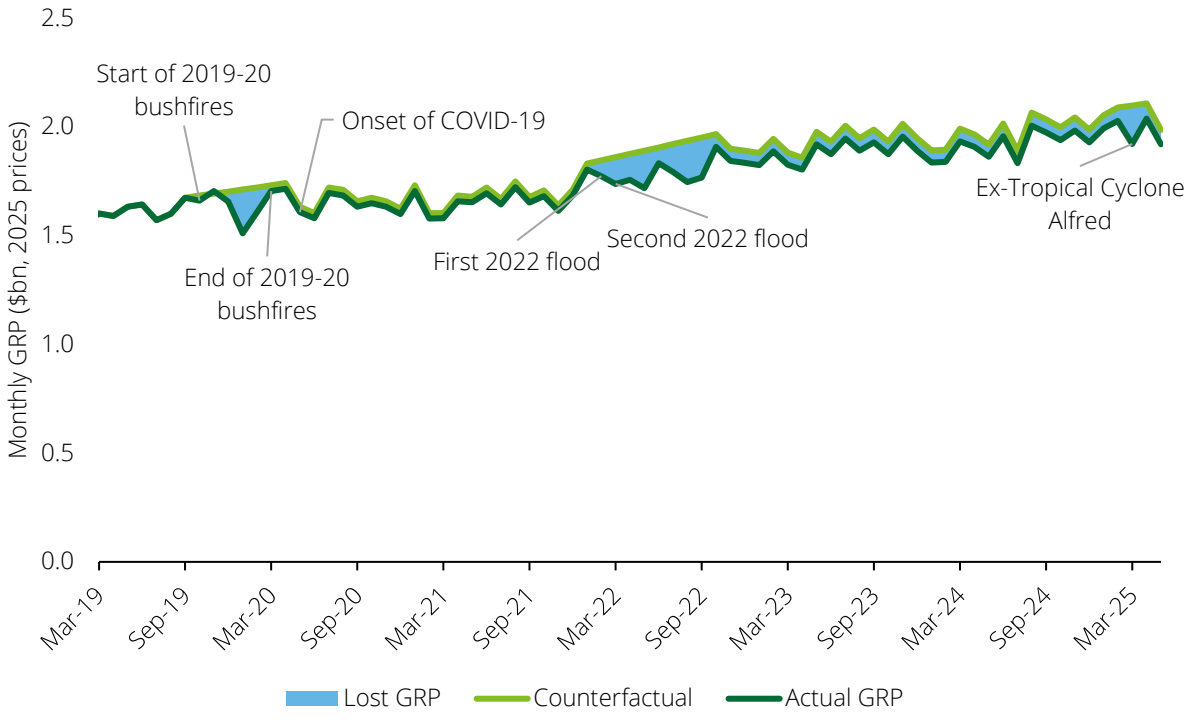
The analysis should be considered indicative given the range of factors that drive economic activity at a local level and the volatility of GRP during this period for other reasons. For example, broader macroeconomic factors including COVID-19, high levels of inflation and rising interest rates all impacted the economy at different points over this period. While these factors were largely unrelated to the natural hazard events in question, they did have a compounding effect on businesses in the region.

The analysis indicates that in aggregate over the period from the onset of the bushfires in September 2019 until the recovery following Ex-Tropical Cyclone Alfred in May 2025, the Northern Rivers region experienced a cumulative loss of approximately $4 billion in GRP due to natural hazard events. This estimate reflects the cumulative shortfall between actual monthly GRP and the counterfactual scenario. The total loss represents 2.9% of the economic activity that would have otherwise been expected over the period.

This estimate captures both the lost GRP during and in the immediate aftermath of these events as well as more persistent impacts caused as a result of this lost growth over time. Importantly though this estimate does not account for or explore the possible long-term economic scarring or adaptation impacts as a result of the natural hazard events. For example, any permanent reductions (or redistributions out of the region) in productivity due to the impact of natural hazard events on the capital stock and local labour market. Such analysis was not within the scope of this report but could be explored in the future using an alternative modelling framework.

The pattern of lost GRP observed illustrates how economic impacts accumulate during natural hazard events, followed by a surge in activity related to clean-up and reconstruction efforts, which helps to partially recover the initial losses.

Chart 5.7: Counterfactual analysis of the impacts of natural hazard events on Northern Rivers real GRP



Source: Deloitte Access Economics (2025).

5.6 Conclusions

The findings of this report demonstrate the significant costs that natural hazard events have had on the Northern Rivers community in recent years. Natural hazard events have not only brought significant short-term impacts to business operations, consumer spending and GRP, but also risk long-term economic scarring via the impacts they have on the capital stock, local labour market and productivity.

The Northern Rivers is likely to remain exposed to natural hazard events in the future due to the ongoing effects of climate change. This report has highlighted several risks and vulnerabilities in the regional economy that can exacerbate the economic costs of such events. Yet, with appropriate resilience and mitigation measures, there is an opportunity to increase economic resilience and reduce the costs of disasters to the Northern Rivers community in the future.

The information compiled will inform assessment of risk reduction options in preparation of the NR DAP. The NR DAP will identify current and future natural hazard risk in the region across the economic, social, natural and built domains, setting out a package of actions to reduce these risks into the future.

Appendix A: Summary of stakeholder engagement

Engaging stakeholders provides direct insights into local economic conditions, validating and addressing data gaps on local supply chains and critical infrastructure. It also helps to understanding the lived experiences of the Northern Rivers community during natural hazard events.

As such, Deloitte Access Economics undertook targeted stakeholder engagement in two stages to gain insights from businesses across the region whilst avoiding unnecessary business fatigue:

- An online business survey issued to targeted businesses in key local industries. The survey aimed to collect simple and broad-based information on economic activity in an efficient manner. The survey scope included the breadth and scale of business supply chains, to help identify the different types of critical local infrastructure and provide firsthand data on how natural hazard events have affected operations.
- Stakeholder engagement interviews with key local stakeholder groups. These interviews focused on specific insights into the regional economy and the impacts of natural hazard events. The interviews focused on stakeholders own experiences, challenges, and strategies for coping with and mitigating the effects of past natural hazard events.

A.1. Business survey

The business survey was issued in April 2025 to 159 organisations across a range of industry sectors and was open for approximately four weeks. A total of 30 businesses completed the survey of 26 questions, however not all questions required an answer.

Due to small sample size it is not possible to detail survey respondent characteristics, other than to note:

- There was a mix of responses from the following industry sectors:
  - accommodation and food services
  - agriculture, forestry and fishing
  - construction
  - education and training
  - electricity, gas, water and waste services
  - financial and insurance services
  - manufacturing
  - professional, scientific and technical services
  - other services
  - public administration and safety
  - retail trade
  - transport, postal and warehousing
  - wholesale trade.
- There was a range of micro, small, medum and large businesses who responded (based on number of FTE (full time equivalent staff)), with higher response rates for businesses with over 200 FTE or less than 5 FTE.
- Annual revenue of respondents tends to be greater than $200,000, with most responses for over $10 million.
- There were responses from businesses in all seven LGAs in the Northern Rivers.

A summary of the questions and number of respondents per question is provided in Table A.1 below.

Table A.1: Survey questions and responses

Survey Question	Received Responses
1. What is the name of your business?	19
2. What is the postcode of the primary location of your business?	30
3. Which of the below options best describes the primary industry of your business? You may select one answer only. Further information on the industry classifications presented below may be found using the ABS ANZSIC search function here.	30
4. Approximately how many full-time equivalent (FTE) employees does your business currently have? You may select one answer only.	27
5. What is the average annual revenue of your business? You may select one answer only.	26
6. How many years has your business been operating in the Northern Rivers region? You may select one answer only.	28
7. What are the largest customer groups of your business? For each, please provide the approximate percentage of your total business revenue generated from that customer group. Further information on the industry classifications presented below may be found using the ABS ANZSIC search function here.	25
8. Where are your largest customer groups located? Please select all that apply.	25
9. Roughly what share of your business's revenue is generated online?	25
10. What industries are your main suppliers in? Please provide the approximate percentage of your total cost of goods/services from each type of supplier group. Further information on the industry classifications presented may be found using the ABS ANZSIC search function here.	25
11. Where are your main suppliers located?	19
12. In total how many suppliers do you have? You may select one answer only.	24
13. How frequently do you receive deliveries from your suppliers? Please select one answer only.	22
14. How important are the following in allowing your business to operate?	22
15. What transportation modes do you use for inbound and outbound freight? Please provide the approximate percentage of freight value transported by each transport mode.	22
16. What are the top three natural hazards that present the greatest risk to your business? Select up to three answers only.	22
17. For each of the three main types of natural hazards that present the greatest risk to your business, please describe any policies or plans your business has in place that have been used in the event of natural disaster scenarios.	22
18. What types of impacts has your business experienced from natural hazards?	22
19. How easily can you switch to alternative suppliers in the event of natural disasters? Please select one answer only.	23
20. How frequently do you experience disruptions to the following due to natural disasters?	21
21. Consider the three natural hazard events outlined below. What was the scale of impact on your business' revenue that year from the event? A free text option has been included should you wish to provide a response on a different disaster that has impacted your business.	23

Survey Question	Received Responses
22. Consider the three natural hazard events outlined below. How long did it take for your business to resume full operations?	23
23. What measures have you taken to improve natural disaster resilience and how have they performed?	21
24. What level of insurance does your business have against natural disasters?	22
25. What is the primary reason for your level of insurance? Select all that apply.	8
26. Do you have any other observations to make about the impacts of natural hazard events on your business?	7

A.2. Business roundtables

Complementary to the business survey, NSW RA and Deloitte Access Economics hosted seven roundtable discussions. The purpose of these sessions was to collect qualitative data on the impact of natural hazards to business operations, and understand disaster preparedness, response and mitigation efforts. It was also an opportunity to discuss the strengths and weaknesses of existing infrastructure in the region.

Groups were formed to aid discussions, leading to valuable insights into the distinct challenges and strategies to infrastructure resilience and recovery, tailored to the specific contexts of each group. Stakeholder groups, date of consultation and number of stakeholders at each consultation is provided in Table A.2 below.

Table A.2: Business roundtable discussion

Stakeholder Group	Date of consultation	Number of stakeholders
Northern Rivers Economic Development Stakeholders	Friday 28 February, 9am – 10:30am	9
Construction and resources	Monday 14 April, 2:30pm – 4:30pm	5
Agriculture, aquaculture, forestry and food production	Tuesday 15 April, 8:30am – 10:30am	6
Tourism, hospitality, retail and professional services	Tuesday 15 April, 2pm-4pm	8
Manufacturing and logistics	Wednesday 16 April, 10am-12pm	5
Local Government	Wednesday 16 April, 2pm-4pm	11
Health care and social assistance	Wednesday 14 May, 1:30pm-3pm	10

Appendix B: Technical details

B.1. Market concentration/industry diversity (Herfindahl-Hirschman Index (HHI))

B.1.1. Definition and purpose

The Herfindahl-Hirschman Index (HHI) is a common method of measuring the market concentration/diversity and market competitiveness of an industry or economy.[144] It is defined as the sum of the squares of the market shares (here, GVA shares) of each constituent unit (in this case 1-digit ANZSIC industries). Higher values indicate greater concentration.

B.1.2. Calculation steps

1. Compute each industry's share of Northern Rivers GVA
2. Square the industry share for each industry
3. Sum the squared shares across all industries

By convention, HHI is expressed on a 0–1 scale. To convert to the 0–10,000 scale used in competition policy, multiply by 10,000.

- HHI < 1,000 (on 0–10,000 scale): Low concentration (indicates a market with many firms of similar size suggesting a competitive market)
- HHI 1,000–1,800: Moderate concentration
- HHI > 1,800: High concentration (few industries dominate, less competition).

This range provides a standard benchmark for assessing the degree of market concentration, industrial diversification or reliance on a limited number of industries.

Note the index is calculated at the 1-digit ANZSIC level and so will capture the spread of economic activity across industries rather than the concentration of activity within an industry. The measure also does not capture interdependencies between industries.

B.2. Location quotient (LQ) calculation

B.2.1. Definition and purpose

The location quotient (LQ) is a ratio that measures the relative concentration of economic activity in a target region (in this case, Northern Rivers) compared to a reference region (Regional NSW). An LQ greater than 1 indicates that the industry in Northern Rivers contributes a larger share of regional GVA than it does in Regional NSW as a whole, implying local specialisation.

B.2.2 Calculation steps

Compute each industry's share of Northern Rivers GVA

1. Compute each industry's share of Regional NSW GVA
2. Compute location quotient as the industry share of Northern Rivers GVA divided by the same industry's share of Regional NSW GVA.

B.2.3. Interpretation guide

- LQ > 1.0: an industry is more concentrated in Northern Rivers than in Regional NSW, indicating a regional specialisation
- LQ ≈ 1.0: Similar concentration in both regions

[144] Department of Infrastructure, Transport, Regional Development, Communications and the Arts, *Understanding regional data: Industry* (March 2023) <https://www.infrastructure.gov.au/sites/default/files/documents/bcarr-understanding-regional-data-industry-march2023.pdf>

- LQ < 1.0: an industry is under-represented in Northern Rivers relative to Regional NSW.

B.2.4. Rationale for use

LQ offers a simple yet powerful indicator of regional specialisation, supporting comparisons across industries and regions. It helps identify industry clusters and potential targets for economic development interventions.

B.2.5. Caveats

- The analysis is static and reflects a specific point in time. It does not account for changes in industry dynamics, competitive shifts, or emerging sectors beyond the selected period.
- Industry-level aggregation may obscure variation at the sub-industry level. More granular classifications could reveal niche specialisations that broader groupings mask.
- Location quotient (LQ) values do not differentiate between structural, policy-driven, or historical reasons for industry concentration. As such, LQ should not be interpreted as a definitive measure of competitive advantage.

B.3. DataCo data

This appendix outlines the economic and insurance data inputs provided by DataCo, used to support analysis of disaster impacts and economic recovery in the Northern Rivers region. The data utilises ANZ transactions data and includes both insurance and card transaction activity. The variables described below help measure business exposure, consumer behaviour, and regional economic resilience before and after major disaster events.

B.3.1 Definition and purpose of variables

Premium payments – 2021-2024

Premium payments reflect spending on insurance premiums by businesses located in the Northern Rivers. The data includes all payments from accounts registered in the Northern Rivers region paid to ANZ insurers (around 8-10% of the market). The payment types cover card payments, bank transfers and BPAY, ensuring comprehensive coverage across ANZ's business customers in the region. This variable helps quantify the financial burden of insurance on local businesses and identify sectors or areas where coverage may have become more expensive or unaffordable. The data has not been scaled to represent the total Northern Rivers population.

Insurance payouts – 2021-2024

Insurance payouts capture the total value of insurance claims paid to businesses in the Northern Rivers by ANZ insurers. Payout data is used to understand the flow of recovery funding, the scale of financial losses incurred, and potential gaps in coverage across different sectors. When compared with premiums, this data can also provide insight into changes in insurance value and risk exposure over time. The data has not been scaled to represent the total Northern Rivers population.

Merchant transactions – quarterly 2019 - 2025

Merchant transactions represent receipts received by businesses located within the Northern Rivers, based on ANZ cardholder activity (approximately 20% of the market). The data is scaled up to represent the total Northern Rivers population. This data is used to understand patterns in local economic activity, including changes in visitor spending, recovery trajectories by industry or location, and the performance of the regional visitor economy.

Resident transactions – quarterly 2019 - 2025

Resident transactions record spending by Northern Rivers residents with ANZ registered accounts (approximately 20% of the market), regardless of where they spend their money. The data is scaled up to represent the total Northern Rivers population. This helps identify changes in local consumption, mobility, and escape spending.

Escape spending - quarterly 2019 - 2025

Escape spending is defined as local resident transactions minus local merchant receipts, where "local" refers to the relevant geographical area, resident transactions captures spending by residents, while merchant receipts are payments received by local merchants. It is particularly useful for assessing consumer responses to disasters, such as whether residents shift their spending outside the region when local businesses are disrupted or unavailable, as well as the degree to which visitor spending patterns change following natural hazard events.

B.3.2. Rationale for use

These datasets offer unique insights into regional business resilience, economic activity, and insurance dynamics in the Northern Rivers. They provide a time-sensitive evidence base that supports post-disaster evaluation and long-term planning for economic recovery. Their use enables a more granular understanding of where and how communities are financially impacted — and how they respond — in the face of natural disasters.

B.3.3. Data procurement

The ANZ transactions and insurance datasets were procured from DataCo under a commercial agreement as part of this project. DataCo sourced the underlying ANZ data and Deloitte Access Economics implemented minor data cleaning steps to format it for the report and dashboard.

B.3.4. Caveats

- The data excludes businesses that bank with financial institutions other than ANZ.
- Some merchant categories (e.g. health services) are excluded due to privacy or data availability restrictions.
- Coverage is stronger in some sectors and postcodes than others due to ANZ's customer base, although the transactions data has been scaled where possible to reflect this.
- For transactions data, no data was available for the merchant categories: insurance services, personal services, utilities.

B.4. Methodology for estimating the total socio-economic costs of disaster events

B.4.1. Definition and purpose

The total socio-economic cost of a disaster refers to the full range of direct and indirect losses caused by the event, including damage to property and infrastructure, lost economic activity, and social impacts such as injury and loss of life. The purpose of this methodology is to provide a consistent, evidence-based estimate of the total cost of natural disasters affecting the Northern Rivers region. The estimates are normalised to 2025 prices to enable direct comparison between natural hazard events.

B.4.2. Calculation steps

1. Insured Loss Estimates:
   a) Baseline insured loss values were sourced from the ICA database, which records total insured losses by disaster event for Australia.
2. Application of Multipliers:
   a) Insured losses were scaled by a set of multipliers to estimate:
      i) Uninsured losses
      ii) Other financial costs (e.g. business disruption, public infrastructure damage)
      iii) Social costs (e.g. death, injury, mental health impacts).

   b) The multipliers are those used in Deloitte Access Economics' *Special Report: Update to the Economic Costs of Natural Disasters in Australia* (2021), prepared for the Australian Business Roundtable for Disaster Resilience and Safer Communities.[145] To move from asset losses to wider economic costs, Deloitte Access Economics applied evidence based ratios derived from academic literature to estimate the flow-on financial costs and social costs. These ratios are multipliers that scale up the

[145] Deloitte, *The new benchmark for catastrophe preparedness in Australia: A review of the insurance industry's response to the 2022 floods in South East Queensland and New South Wales (CAT221) (*October 2023) <https://insurancecouncil.com.au/wp-content/uploads/2023/10/The-new-benchmark-for-catastrophe-preparedness-in-Australia_Oct-2023.pdf>

insured/uninsured damage costs to include fatalities, injuries, mental health impacts, family violence, etc. Further detail on the methodology for the multipliers can be found in the Special Report.

3. Regional Allocation (Northern Rivers Share):
   a) Since ICA data is national, the Northern Rivers share of each disaster's cost was disaggregated based on population shares by postcode across all regions impacted by each event. Therefore, the estimate should be taken as approximate, as it does not fully account for the distinct risk profile of the region.
   b) The population of all Northern Rivers postcodes affected by the event was divided by the total population of all postcodes affected by the event, producing a proportional share.
   c) This share was applied to the total estimated cost of the disaster to generate a Northern Rivers-specific estimate.

B.4.3. Interpretation guide

- Values represent estimates of total socio-economic cost at the regional level, not precise measured damages. The breakdown includes:
  - Insured losses: Claims paid by insurers
  - Uninsured losses: Damage or disruption not covered by insurance
  - Other financial costs: Broader economic impacts such as emergency response, evacuation and clean up costs, reduced economic activity due to business disruption and productivity losses, damage to public infrastructure and temporary housing costs.
  - Social costs: Human impacts including death, injury, and mental health consequences, monetised using standard economic valuation approaches.

B.4.4. Rationale for use

This methodology allows for the consistent, scalable, and evidence-based estimation of economic disaster costs in the absence of detailed bottom-up data for each event. It draws on best practice methods, makes use of the best available data, and provides a robust basis for comparison across disasters.

B.4.5. Assumptions

- The relative scale of impact (insured and total) in the Northern Rivers is proportional to its share of the population of regions affected by an event.
- The multipliers used nationally apply reasonably to events affecting the Northern Rivers, given similar types of damage and economic structure.
- Populations of affected postcodes are a reasonable proxy for exposure to the disaster event.

B.4.6. Caveats

- Population estimates are static and do not account for population shifts or visitor presence at the time of the event.
- Event-specific variation in insurance coverage, infrastructure exposure, and vulnerability are not explicitly modelled.
- The use of multipliers provides broad estimates, not event-specific valuations based on detailed local data.
- Postcode-level allocation may misrepresent actual exposure, especially in events with uneven impacts across regions.
- Some social costs, particularly long-term health or community disruption, are difficult to quantify and may be understated.
- Costs may overlap with other impacts measured elsewhere (e.g. lost tourism, economic output changes), requiring caution to avoid double-counting in broader analyses.

B.5. Overview of Deloitte Access Economics Input-Output Modelling

B.5.1. Overview of modelling approach

Aligned with ABS National Accounts, DAE Regional Input-Output modelling describes the extent of production and consumption, and supply chain links between industry groups in Northern Regions. For instance, agricultural industries in the region will require inputs from other locations to its production.

The data informing the modelling comes from Deloitte's small area Input-Output database and is based on the current spatial distribution of employment and industries based on Census data overlayed with National and

State level data from more recent ABS publications. This database maps out the supply chain linkages at a small-area (SA2) level.

The industry coverage includes 115 Input-Output Industry Groups in line with the ABS National Accounts Input-Output Tables. These groups are based around standard Australian and New Zealand Standard Industrial Classification definitions.

B.5.2. Strengths and limitations of Input-Output modelling

The Input-Output analysis presented is useful for exploring existing linkages between industries in the Northern Rivers economy as well as the relative labour and trade intensity of different industries. However, the Input-Output framework has several limitations.

- Robust first order linkages: For this report analysis is kept to the first level linkages between industries. This helps provide insights into the immediate upstream and downstream dependencies of industries within the Northern Rivers. This helps identify which industries have a relatively large role in the supply chain, either as providers of intermediate inputs to other sectors, or as consumers of intermediate outputs from upstream sectors. It also demonstrates which industries in the region have the largest immediate supply chain interdependencies. This level of linkages is most robust.
- Lack of detailed supply chain stages: A more detailed multiple level analysis of second and third order dependencies and full mapping of industry level supply chain dependencies is not captured, as data is not available.
- No resource constraints: While useful for mapping purposes, an Input-Output framework also has limitations in terms of modelling the impact and response of regional supply chains to shocks such as natural hazard events, as the framework does not have labour, capital, and resource constraints.
- Limited ability to assess supply chain responses: Implicitly Input-Output modelling reflects observed linkages between industries but doesn't not provide insight around how economies and supply chains may respond and shift in response to economic shocks that inhibit capacity in certain parts of the economy. Such insights on the dynamic response of an economy to shocks would require alternative modelling approaches146 which may be an area for further analysis by the RA.

To better understand supply chain resilience, and how supply chains might respond to natural hazard shocks, it is recommended that RA investigate applying CGE modelling to undertake detailed analysis that captures tangible constraints in the Northern Rivers economy. For instance, the competition for labour (particularly with SEQ) could mean that businesses find it harder to 'bounce back' from an event – this would only be apparent from CGE modelling and not IO modelling.

There are also significant data gaps on freight movements by origin-destination by commodity and by model (road and rail). These are typically estimated, using gravity models and input-output tables. This is an active area of research which TfNSW has been pursuing, with its Strategic Freight Model (SFM).

[146] For example Computable General Equilibrum modelling (CGE), noting this is not appropriate at a small area level and the *NSW Government Guide to Cost-Benefit Analysis: TPG23-08* (2023) recommends caution should be exercised at the regional level due to limited quality data and a range of considerations that decision makers should be aware of when considering CGE results.

Limitation of our work

General use restriction

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