



**We Ride Australia
The Australian
Cycling and E-Scooter
Economy in 2022**



**2023
Report**

weride.org.au



10 November 2023

Economic, social and environmental benefits of cycling and e-scooters in Australia.

We Ride Australia ('WeRide') is the national independent voice for cycling in Australia. WeRide's mission is to build a healthy, sustainable future through advocacy, program development and research around the bicycle's role in environment, health, infrastructure and safety.

WeRide has engaged Ernst & Young ("EY") to conduct an assessment of the economic, social and environmental contribution of cycling and an assessment of the economic contribution of e-scooters in Australia in 2022 (the "Study"). This continues from EY's 2021 study – "The WeRide Australian Cycling Economy Report".

The Study was funded with support from the following Program and Supporting Partners of WeRide:

Program Partners:



Government Partners:



Proudly funded by



Bicycle Industry Partners:



Bicycle Organisation Partners:



E-scooter Partner:



Yours faithfully



Peter Bourke

Executive Officer
We Ride Australia
weride.org.au



The Australian Cycling and e-Scooter Economy in 2022

We Ride Australia

10 November 2023

EY

Building a better
working world



**Building a better
working world**

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Peter Bourke
Executive Officer
We Ride Australia
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10 November 2023

The economic, social and environmental benefits of cycling and e-scooters in Australia in 2022

Dear Peter,

In accordance with our Engagement Agreement dated 3 May 2023 ("Agreement"), Ernst & Young ("we" or "EY") has been engaged by We Ride Australia ("you", "WeRide" or the "Client") to conduct an assessment of the potential economic, social and environmental benefits of cycling and e-scooters in Australia in 2022 (the "Services" or "Project"). The enclosed report (the "Report") sets out the outcomes of our work. You should read the Report in its entirety. A reference to the report includes any part of the Report.

Purpose of our Report and restrictions on its use

Please refer to a copy of the Agreement for the restrictions relating to the use of our Report. We understand that the deliverable by EY will be used for the purpose understanding the estimated economic, social and environmental benefits of cycling and the economic benefits of e-scooters (the "Purpose"). This Report was prepared on the specific instructions of WeRide solely for the Purpose and should not be used or relied upon for any other purpose. Please refer to the following page for the Report use.

Nature and scope of our work

The scope of our work, including the basis and limitations, are detailed in our Agreement and in this Report. Our work commenced on 3 May 2023 and was completed on 10 November 2023. Therefore, our Report does not take account of events or circumstances arising after 10 November 2023 and we have no responsibility to update the Report for such events or circumstances.

In preparing this Report we have considered and relied upon information from a range of sources believed after due enquiry to be reliable and accurate. We have no reason to believe that any information supplied to us, or obtained from public sources, was false or that any material information has been withheld from us.

We do not imply and it should not be construed that we have verified any of the information provided to us, or that our enquiries could have identified any matter that a more extensive examination might disclose. However, we have evaluated the information provided to us by the Client as well as other parties through enquiry, analysis and review and nothing has come to our attention to indicate the information provided was materially mis-stated or would not afford reasonable grounds upon which to base our Report.

The work performed as part of our scope considers information provided to us and a number of combinations of input assumptions relating to future conditions, which may not necessarily represent actual or most likely future conditions. Additionally, modelling work performed as part of our scope inherently requires assumptions about future behaviours and market interactions, which may result in forecasts that deviate from future conditions. There will usually be differences between estimated and actual results, because events and circumstances frequently do not occur as expected, and those differences may be material. We take no responsibility that the projected outcomes will be achieved, if any.

We highlight that our analysis and Report do not constitute investment advice or a recommendation to you on a future course of action. We provide no assurance that the scenarios we have modelled will be accepted by any relevant authority or third party. Our conclusions are based, in part, on the assumptions stated and on information provided by WeRide and other information sources used during the course of the engagement. The modelled outcomes are contingent on the collection of assumptions as agreed with WeRide and no consideration of other market events, announcements or other changing circumstances are reflected in this Report. Neither Ernst & Young nor any member or employee thereof undertakes responsibility in any way whatsoever to any person in respect of errors in this Report arising from incorrect information provided by WeRide or other information sources used.

This letter should be read in conjunction with our Report, which is attached.

Thank you for the opportunity to work on this project with you again and for the support and assistance you and Stephen provided during the process.

Yours sincerely,

Matt Colston
Associate Partner, EY
Asia Pacific Leader – EY Sports, Events and Venues Advisory





NOTICE

Ernst & Young was engaged on the instructions of We Ride Australia ("Client" or "We Ride") to estimate the economic, social and environmental benefits of cycling and e-scooters in Australia in 2022 ("Project"), in accordance with the engagement agreement dated 3 May 2023.

The results of Ernst & Young's work, including the assumptions and qualifications made in preparing the report, are set out in Ernst & Young's report dated 10 November 2023 ("Report"). The Report should be read in its entirety including the transmittal letter, the applicable scope of the work and any limitations. A reference to the Report includes any part of the Report. No further work has been undertaken by Ernst & Young since the date of the Report to update it.

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Ernst & Young does not imply and it should not be construed that it has verified any of the information provided to it, or that its enquiries could have identified any matter that a more extensive examination might disclose.

The analysis and Report do not constitute a recommendation on a future course of action.

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Note: The images throughout this Report were provided by We Ride Australia and this Study's Corporate and Supporting Partners.



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Matt Colston
Associate Partner, EY
Asia Pacific Leader – EY Sports, Events and Venues Advisory



Megan Paybody
Associate Director, EY
EY Sports, Events and Venues Advisory

In Australia in 2022 ...

Cycling and e-scooters contributed an estimated **\$18.6bn** in economic and social benefits to the economy. This included an estimated...

\$17.6bn in direct and indirect output from cycling e-scooter expenditure and **\$954m** in health and social benefits from cycling.



Cycling generated an estimated **\$954m** in health and social benefits. Including...

\$101m in value of life years gained

\$540m productivity benefits

\$313m in net avoided financial health system costs

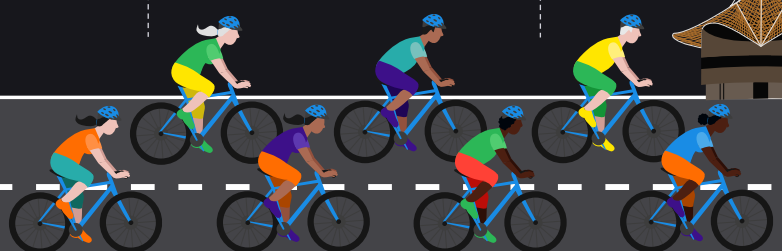


In addition it is estimated that cycling resulted in the following **environmental benefits...**

3.9bn kms of driving replaced by bicycles over the year

514,096 tonnes of carbon dioxide equivalent (tCO₂e) avoided over the year

2.2m kg of air pollutants avoided over the year



Introduction



Assessing the economic and social benefits of cycling and e-scooters to Australia in 2022

Overview

The Australian cycling and e-scooter economy ("Economy" or "Industry") generates significant economic and social benefits across Australian communities. The industry is large and diverse, with over an estimated 6.5m Australian adults cycling and over 3.6m Australian adults using an e-scooter in 2022. This equates to 33% and 18% of the adult population (respectively). These participants were motivated by a variety of factors including fitness, social connection, recreation, transport and environmental.

An estimated 4.9m people spent money on cycling (24% of the adult population) and an approximate 3.6m adults spent money on e-scooters (an equal portion of those who used an e-scooter).

In 2022, the cycling and e-scooter economy generated an estimated \$18.6bn in economic (direct and indirect output) and social benefits. This included:

- ▶ \$16.9bn in total economic contribution from cycling
- ▶ \$728m in total economic contribution of e-scooters
- ▶ \$954m in health and social benefits, including:
 - \$540m in productivity benefits
 - \$313m in avoided net health costs (i.e. net of injury related costs)
 - \$101m in value of life years gained.

In addition to generating economic and social benefits, cycling results in environmental benefits through avoiding greenhouse gas (GHG) emissions, curtailing air pollution and conserving finite natural resources. In 2022, by replacing motorised forms of transport, cycling avoided an estimated:

- ▶ 514,096 tonnes in CO2-e GHG emissions
- ▶ 2.2m kg of pollutants.

This report

In 2023, WeRide engaged EY to assess the economic and social benefits of cycling and e-scooters to Australia in 2022 ("2022 Study").

This included an assessment of the environmental benefits of cycling. This report presents the findings of the 2022 Study. Specifically, it includes the following findings:

- ▶ The economic contribution of cycling (as assessed in EY's previous Study in 2021)
- ▶ The economic contribution of e-scooters
- ▶ The avoided net health costs from cycling (includes adults and children)
- ▶ The productivity benefits from cycling
- ▶ Value of life years gained from cycling (includes adults and children)
- ▶ The environmental benefits of cycling
- ▶ Australian cycling and e-scooter participant behaviours.

This study builds on the 2021 Report ("The Australian Cycling Economy - 2021 Report") which estimated the economic contribution of cycling to Australia in 2020.

Key exclusions

The study excludes the following components due to data limitations:

- ▶ An assessment of the environmental benefits of e-scooters (given scope limitations)
- ▶ An assessment of health costs due to injuries while using e-scooters
- ▶ The expenditure of those under the age of 18.¹

Note that while the expenditure by people under the age of 18 is excluded from this study, this study includes the expenditure of adults on other individuals (e.g. where an adult purchases a child's bike).

Report structure

This report is presented as follows:

- ▶ Section 1: Introduction
- ▶ Section 2: Results
- ▶ Section 3: Regional breakdown
- ▶ Section 4: The cycling and e-scooter participant

Key findings

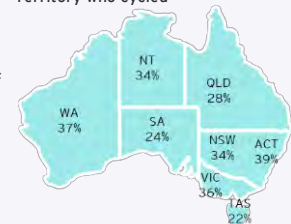
In Australia in 2022 it is estimated that...

33% of adults cycled ... with fitness being the primary motivating factor.

Approximately 24% of adults spent money on cycling with ACT and WA containing the highest number of cycling consumers per capita.

Those aged 18-34 have the highest proportion of people who cycle (43%).

Proportion of adults in each State & Territory who cycled



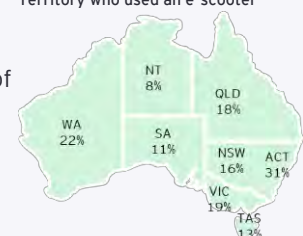
Approximately 60% of bike riders are male and 40% are female.

18% of adults used an e-scooter ... with fun and enjoyment being the primary motivating factor.

ACT had the highest number of e-scooter consumers per capita.

Those aged 18-34 have the highest proportion of people who used an e-scooter (35%).

Proportion of adults in each State & Territory who used an e-scooter



¹Note: The spend of adults on children related cycling expenditure is included (e.g. where a parent buys their child a bike).

1. Introduction - Methodology and Limitations

Methodology

EY has taken the following approach to estimate the economic contribution of the Australian Cycling and E-scooter Economy:

1. Defining the boundaries of the cycling economy:

The Australian cycling and e-scooter economy was defined by EY through consultations with We Ride Australia (WeRide) and key stakeholders. The inflows and outflows of expenditure and revenue of each element of the sector were mapped in order to capture all aspects of the industry, whilst avoiding double counting. Purchases via international online platforms were excluded from estimates. Further details of how the industry was defined are provided in the diagram over the page.

2. Data gathering

EY collected a combination of primary and secondary data from the following sources to estimate the economic contribution of the industry:

Cycling and e-scooter consumer

To accurately establish the proportion of adults in Australia who cycled, spent money on cycling products, used an E-scooter, or spent money on E-scooter products in 2022, EY conducted a 15-minute online survey among a representative sample of the Australian population (by age, gender, and state) ("EY Survey").

Overall, 13,130 adults in Australia started the survey and answered the initial qualifying criteria. Of these, 4,300 qualified for the survey with 2,630 going on to complete it. Further sample cleaning was conducted to remove data outliers during the analysis process.

Qualification was restricted to adults aged 18 years or older who had either spent money on cycling products/services or spent money on E-scooter products/services in 2022.

The data collected in the screener section of the survey, among a representative sample of the Australian population, was used to establish the incidence rate by state, age and gender. The final sample of survey data was weighted to be representative of the Australian adult population who have either cycled or spent money on cycling products/services or used an E-scooter or spent money on E-scooter products/services in 2022.

Part of the survey was also distributed to the AusCycling (national federation for cycling in Australia) member base, to gather additional information on overnight cycling trips.

Governments, public sector and private organisations

EY and WeRide identified a range of cycling industry stakeholders (government, private sector and not for profit organisations) who were approached to provide expenditure and revenue data related to cycling. Consultations were held following the receipt of data to provide further clarity on the information provided.

Where primary data was not available, desktop research was undertaken to inform assumptions.

3. Economic modelling

Direct impact:

The direct impact was estimated based on the expenditures of the components of the cycling economy captured in the data gathering stage. The inflows and outflows of expenditure and revenue of each element of the sector was mapped to ensure all possible elements were captured as well as to avoid double counting (i.e., where an expenditure item for one cycling participant is recorded as a revenue item for another participant).

Indirect impact:

To estimate the indirect expenditure (output), value-add (direct and indirect) and employment (direct and indirect) impact, EY conducted an Input-Output (IO) multiplier analysis. IO multipliers were supplied by REMPLAN.

4. Other benefit modelling - Avoided health costs, productivity benefits, and value of life years gained

The other benefits assessed as part of this study were estimated through the findings of the cycling consumer survey and desktop research.

5. Environmental benefits

EY's Climate Change and Sustainability Service Team (CCaSS) quantified the environmental benefits of cycling. The team worked with WeRide to determine the benefits that should be quantified for the purpose of this study.

To quantify the uplift in benefits, the extent to which the environmental benefits would occur in the absence of cycling was assessed. This data was obtained through the EY Survey.

Limitations

The following limitations should be considered:

- ▶ While every effort has been made to include all areas of the cycling and e-scooter economy in estimating the potential economic contribution, there are areas of the economy that have not been included in this analysis due to an inability to access sufficient data at this time. Where data gaps occurred, where possible, data was extrapolated against relevant population assumptions.
- ▶ A key consideration in the analysis and extrapolation of data is the interconnected nature of industry elements in the supply chain. While effort has been made to avoid the double counting of revenue/expenditure, there may be instances where this cannot be fully achieved.
- ▶ Consultation with certain data providers were held to determine the factual accuracy of data provided for this Study. However, EY did not validate the accuracy and completeness of all data provided through the data gathering process.
- ▶ In instances where data was not provided or could not be obtained, assumptions were developed, in conjunction with WeRide, based on data obtained in the previous, equivalent EY study in 2021 ("The WeRide Australian Cycling Economy Report" by EY released in October 2021).
- ▶ This Study includes both non-electric bicycles, electric bicycles, bike rentals, indoor/stationary cycling and e-scooters. It does not include skateboards or other micro-mobility devices.
- ▶ We have provided an indicative breakdown of potential estimated benefits by state and territory using a top down cycling and e-scooter population approach as an indication only i.e. the allocation of overall participant contributions to state and territories is based on the relevant cycling population in each state and territory.

1. Introduction - Defining the cycling and e-scooter economy

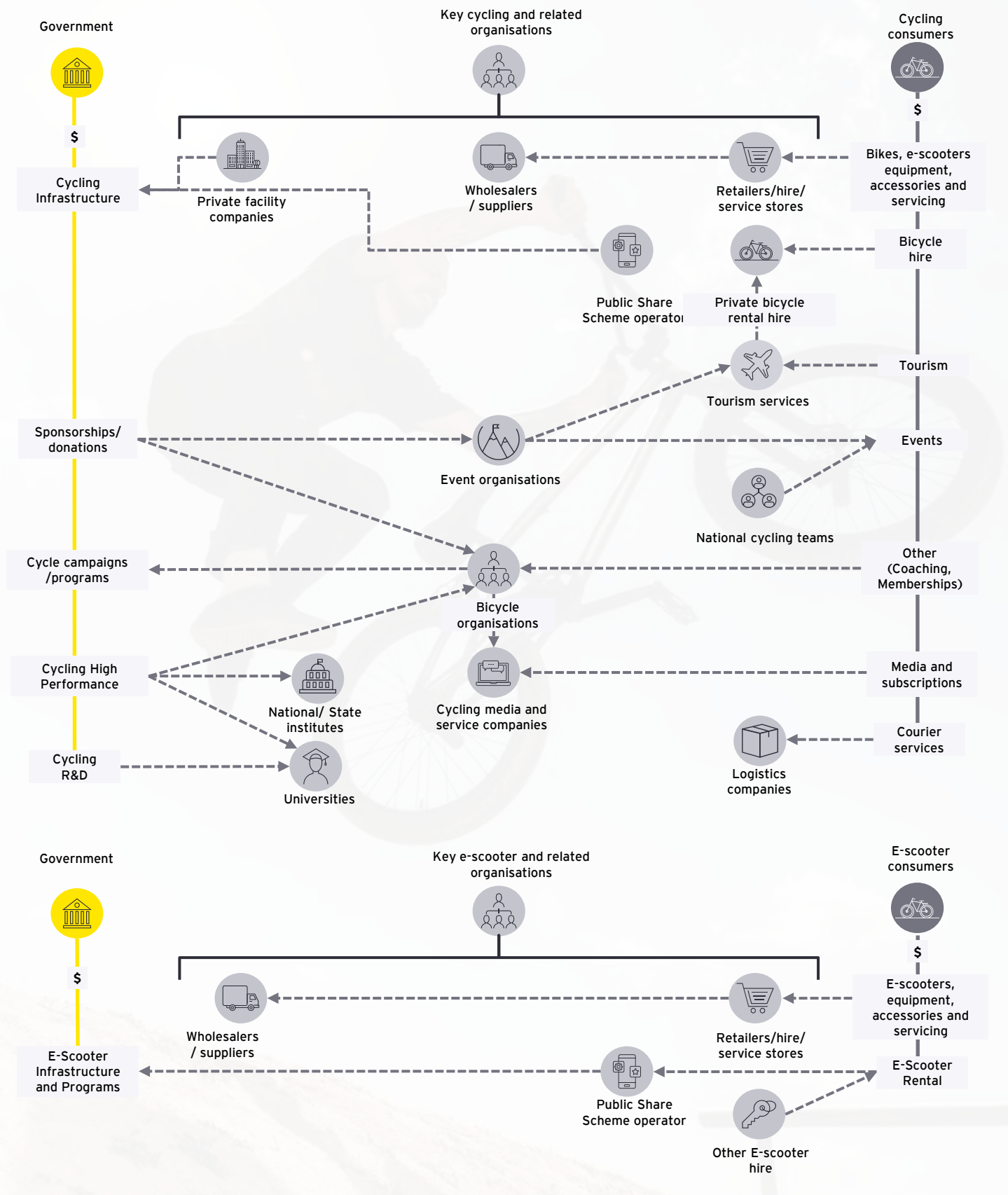
Defining the cycling and e-scooter economy

The Australian cycling and e-scooter economy has a number of interrelated components that flow through the economy including expenditure of cycling and e-scooter consumers, Governments, the public sector and the private sector.

To assess the benefits of the cycling and e-scooter economy in Australia, this Study first defined the boundaries of the industry. This was achieved through mapping the high level revenue and expenditure flows of each component of the industry. This was conducted in consultation with We Ride Australia and other key stakeholders.

The components of the industry that have been assessed as part of this Study are outlined in the diagram below.

Figure: High Level Cycling and E-Scooter Expenditure Map



Results

The Australian cycling and e-scooter economy is estimated to have contributed \$18.6bn in economic and social benefits in 2022. It is also estimated that cycling avoided the release of 514,096 tonnes of carbon dioxide equivalent (tCO₂-e) and 2.2 million kilograms of air pollutants into the atmosphere.

The Australian cycling and e-scooter economy generated an estimated \$18.6bn in economic (Direct and Indirect Output) and social benefits in 2022. This included \$16.9bn in Total Economic Contribution from cycling and \$728m in Total Economic Contribution of e-scooters, and \$954m in Avoided Financial Health System Costs and Social Benefits.

Cycling also avoided the release of an estimated 514,096 tonnes of carbon dioxide equivalent (tCO₂-e) and 2.2 million kg of air pollutants into the atmosphere.

The following Section provides a breakdown of each benefit assessed. The benefits include:

- ▶ **Direct and Indirect Contribution of Cycling and E-scooters** - This benefit estimates the direct and indirect economic activity generated by all elements of the cycling and e-scooter industry, including activity generated by participants, organisations, events, national cycling teams and local & state governments.
- ▶ **Avoided Net Financial Costs to Australia's Healthcare System** - Adults may generate costs to the Australian health care system as a result of being physically inactive. This benefit estimates the prevented direct financial health system costs from adults who become "physically active" as a result of cycling.¹ This is the net avoided cost and includes the additional costs incurred for accidents relating to cycling.
- ▶ **Productivity Benefits** - Adults who are physically inactive may generate productivity costs from being absent from work, or being less productive at work due to illnesses that are caused

from being physically inactive. This benefit measures the productivity benefits from adults who become "physically active" as a result of cycling.

- ▶ **Value of Life Years Gained** - In addition to avoided health care costs and productivity benefits, adults that become physically active also improve the quality of their life and increase their life expectancy. This applies to children also. This benefit estimates the value of this improved quality of life as well and reduced mortality rates as a result of being physically active through cycling.

This report also assessed the environmental benefits of cycling. This included an assessment of:

- ▶ **Green House Gas (GHG) Emissions Avoided** - This benefit assesses the GHG emissions avoided by adults replacing motorised forms of transport with cycling.
- ▶ **Pollutants Avoided** - This benefit assesses the air pollutant emissions avoided by adults replacing motorised forms of transport with cycling. This includes pollutants such as Carbon Monoxide (CO), Oxides of Nitrogen (NO_x) and Total Volatile Organic Compounds (TVOC).

Note, this report did not assess the environmental impacts of e-scooters.

Estimated Benefits	Value (2022)
Economic Benefits from Direct Expenditure:	
Total Economic Contribution of Cycling (Direct and Indirect Output), Including:	\$16.9bn
Direct Output (Cycling)	\$6.7bn
Indirect Output (Cycling)	\$10.2bn
Economic Contribution of E-scooters (Direct and Indirect Output), including:	\$728m
Direct Output (E-scooters)	\$295m
Indirect Output (E-scooters)	\$433m
Health and Social Benefits of Cycling:	
Avoided Net Financial Costs to Australia's Healthcare System	\$313.3m
Productivity Benefits	\$540.4m
Value Of Life Years Gained	\$100.7m
Total Economic, Social and Health Benefits	\$18.6bn
Additional Environmental Benefits of Cycling:	
GHG Emissions Avoided	514,096 tCO ₂ -e
Air Pollutants Avoided	2.2m kg

\$954.4m

¹ "Physically active" is defined as at least 150 minutes a week of physical activity for adults and at least 60 minutes a day for children aged between 5 and 17.

Breakdown of Outputs - Australian cycling and e-scooter economy in 2022

\$18.6bn

Estimated Total Economic, Health and Social Benefits of Cycling and E-scooters

Estimated Environmental Benefits of Cycling

~514,096
tCO2-e
Emissions Avoided

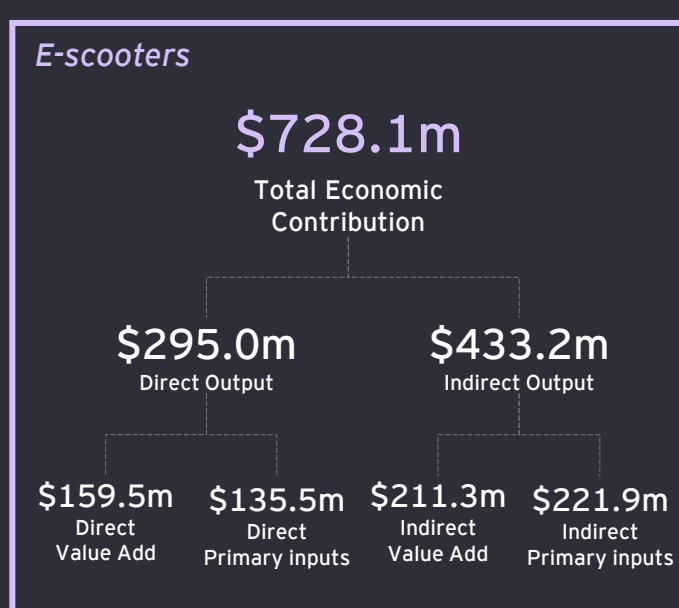
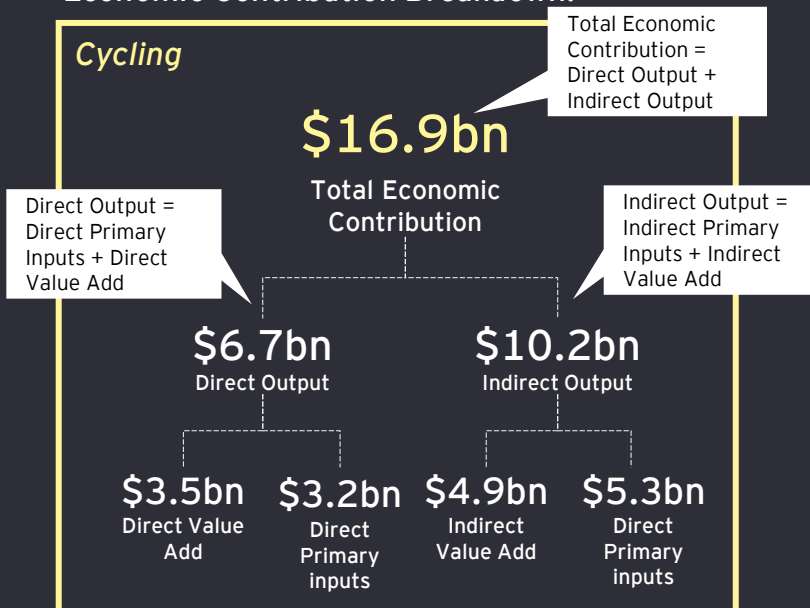
~2.2m kg
Air Pollutants
Avoided

\$16.9bn
Economic Contribution Of Cycling

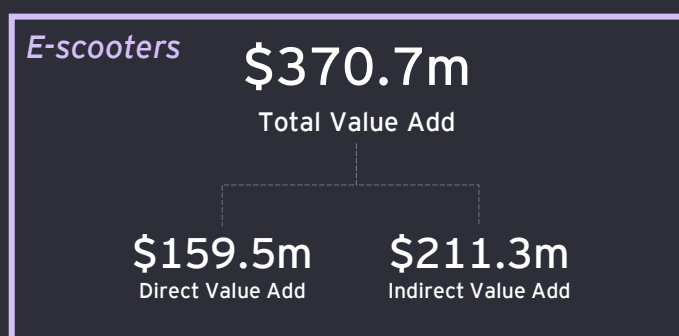
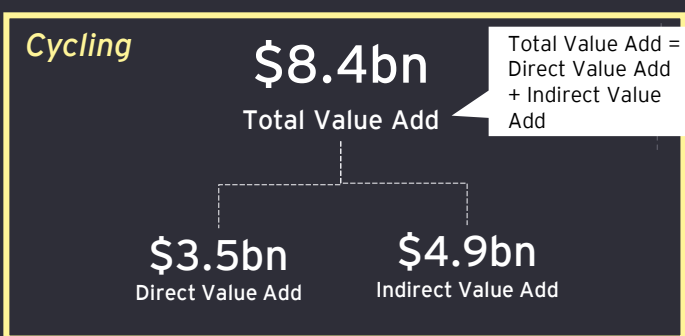
\$728m
Economic Contribution of E-scooters

\$954m
Health and Social Benefits of Cycling

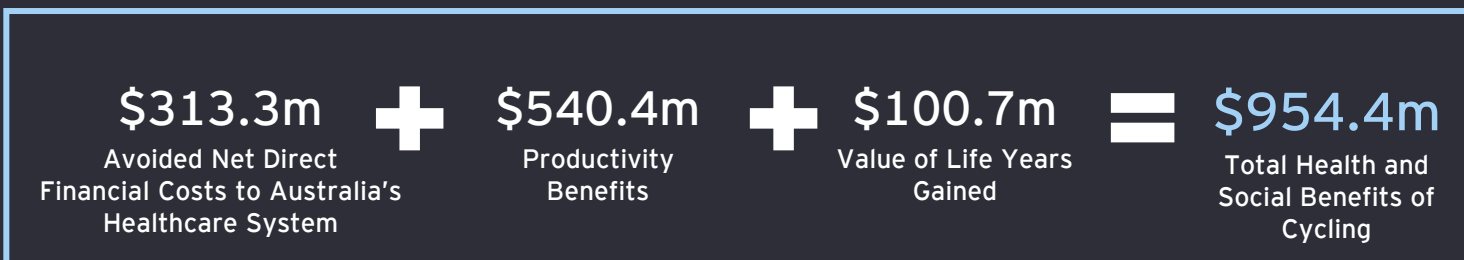
Economic Contribution Breakdown:



Value Add Breakdown:



Breakdown of the Health and Social Benefits of Cycling:



2. Results – Economic Contribution (Cycling and E-Scooters combined)

Approximately 24% of the Australian population spent money on cycling and 18% of the population spent money on e-scooters in 2022. This is in addition to the spend of organisations, teams, governments and private operators on cycling / e-scooter related services, infrastructure, programs, events or travel. This expenditure generates benefits to the Australian economy in the form of direct and indirect economic contribution.

Direct contribution

The direct contribution of the Australian cycling and e-scooter economy reflects the economic activity directly generated by all elements of the industry, including activity generated by participants, organisations, events, universities, national cycling teams and local & state governments.

In 2022, the Australian cycling and e-scooter economy is estimated to have directly generated **\$6.9bn in Direct Output** and **\$3.7bn in Direct Value Add**.

- ▶ **Direct Contribution** (“direct output” or “gross output”) is the market value of goods and services (i.e. gross revenue) produced by each segment of the cycling industry, after accounting for intra-industry sales (to avoid double counting).
- ▶ **Direct Value Add** is the market value of goods and services produced by the industry, after deducting the cost of goods and services used. That is, Value Add is a subset of gross output and represents the marginal/additional economic value generated by the cycling industry. As such, direct value add is commonly put forward as the most appropriate measure of the relative contribution of an industry to the economy.

Total contribution (direct and indirect)

The direct economic contribution of the industry also generates ‘flow on’ effects to other industries, including supplier demand for intermediate goods and services and additional consumption by people employed in the cycling economy. This is referred to as the indirect contribution.

For example, money spent at bike retailers by consumers is allocated between material inputs (such as bike parts), wages and profits of the retailers. Employee wages spent by employees of a bike retailer (for example, on household items) circulates money

through the broader economy creating indirect benefits. This includes flow on expenditure on cycling and non-cycling related items.

After estimating the indirect contribution using input-output multipliers, the cycling industry generated a total economic contribution (direct and indirect) in 2022 of:

- ▶ **\$17.6bn Total Gross Output**
- ▶ **\$8.8bn Total Value add.**

Employment (Direct and Indirect)

The Industry also supports a broad range of employment opportunities across the Australian economy.

In 2022, it is estimated that expenditure from the Industry generated **60,671 jobs** (full time equivalent, “FTE”), including:

- ▶ 33,938 direct jobs (FTE)

This represents the people employed as a direct result of the \$6.9bn direct output generated by the industry in 2022

- ▶ 26,732 indirect jobs (FTE)

This represents employment from the ‘flow on’ effects to other industries, including employment supported by expenditure relating to supplier demand for intermediate good and services and additional consumption by people employed in the industry.

Graph: Direct Value Add Industry Comparison (\$bn)^{1,2}

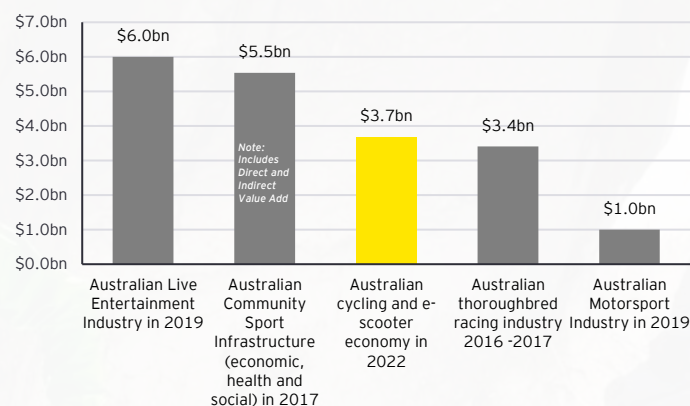


Table: Breakdown of economic contribution – Australia 2022

Component	Direct	Indirect	Total
Economic Contribution of Cycling:			
Gross Output	\$6,652m	\$10,204m	\$16,856m
Value Add	\$3,525m	\$4,875m	\$8,399m
Jobs (FTE)	32,634	25,638	58,272
Economic Contribution of E-Scooters:			
Output	\$295m	\$433m	\$728m
Value Add	\$159m	\$211m	\$371m
Jobs (FTE)	1,304	1,095	2,398
Economic Contribution of Cycling and E-Scooters:			
Output	\$6,947m	\$10,637m	\$17,584m
Value Add	\$3,684m	\$5,086m	\$8,770m
Jobs (FTE)	33,938	26,732	60,671

2. Results - Economic Contribution of Cycling in 2022

In 2022, the Australian Cycling Economy is estimated to have directly contributed \$6.7bn in direct industry output, including \$3.5bn in direct value added.

An estimated 24% of the adult Australian population spent money on cycling in 2022, this equates to approximately 4.9 million individuals. This spending, combined with the spend of organisations, governments and other services resulted in cycling directly contributing \$6.7bn in direct output in 2022.

Overall, in 2022 the cycling industry contributed:

- ▶ \$16.9bn in Total Gross Output including \$6.7bn in direct and \$10.2bn in indirect output
- ▶ \$8.4bn Total Value add including \$3.5bn in direct Value Add and \$4.9bn in Indirect Value Add

Further, this expenditure generated an estimated 58,272 jobs (FTE) including:

- ▶ 32,634 direct jobs (FTE)
- ▶ 25,638 indirect jobs (FTE).

Direct expenditure breakdown

The breakdown of total estimated direct expenditure (\$6.7bn) across the cycling economy in 2022 is presented adjacent.

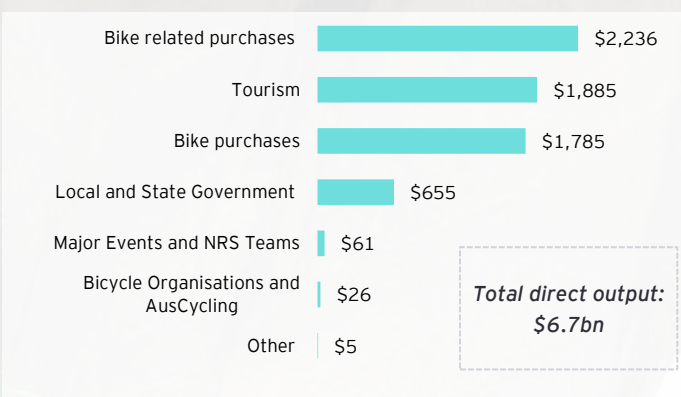
Bicycle related purchases were the largest component of expenditure in the industry in 2022 estimated at \$2.24bn in direct expenditure (e.g. bicycle accessories and equipment). Accessories and clothes worn by the rider (including merchandise) made up the largest component of bike related expenditure (excluding bike purchase).

Bicycle related tourism and services was the second highest component of direct expenditure at \$1.9bn. Over 2.4 million cycling trips around Australia in 2022. Further analysis on trips is provided in Section 3.

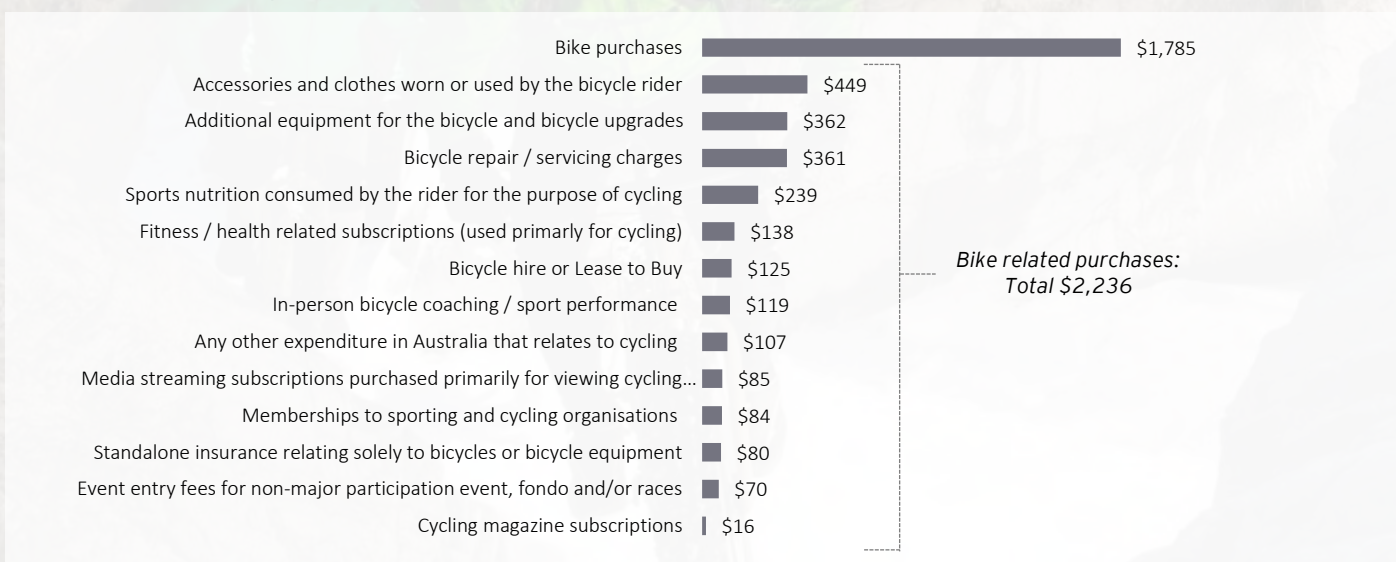
Bikes purchased made up 26% of industry expenditure at \$1.79bn in direct expenditure. This equates to approximately 1.56m bikes purchased in 2022. The average cost of bike in Australia was \$1,148, with the most popular bike purchased being a children's bike. A breakdown of bicycles purchased by bike type is provided on the following page.



Graph: In-scope Cycling direct expenditure per component – 2022 (\$m)



Graph: In-scope personal cycling direct expenditure per component (excluding tourism) – 2022 (\$m)



Component	Direct	Indirect	Total
Economic Contribution of Cycling (2022)			
Output	\$6,652m	\$10,204m	\$16,856m
Value Add	\$3,525m	\$4,875m	\$8,399m
Jobs (FTE)	32,634	25,638	58,272

2. Results - Economic Contribution of Cycling - Comparison of 2020 to 2022

Total direct output from cycling increased by 5% from 2020 to 2022, from an estimated \$6.3bn to \$6.7bn.

An estimated 4.9 million adult Australians spent money on cycling in 2022, compared to 5.8 million adult Australians in 2020 (16% reduction).

This fall was anticipated given the unprecedented demand for cycling products in 2020 as a result of COVID-19 lockdowns. Whilst many retailers and service providers were negatively impacted by social restrictions, bike sales rose significantly during 2020 due to the ability of individuals to exercise outside. Between FY19 and FY21, the total number of bicycle imports increased 46% from approximately 1.2 million to 1.7 million.

The key trends between 2020 and 2022 are as follows:

- ▶ The number of bikes sold decreased by approximately 8%, largely attributable to the removal of COVID-19 restrictions
- ▶ The number of electric powered bikes ("e-bikes") sold increased by over 250% (from an estimated 54k bikes to 193k bikes). The price of e-bikes also fell by 16%. This is reflective of the increase in number and variety of e-bikes available and e-bike suppliers in Australia
- ▶ All other bike categories experienced a decrease in sales
- ▶ While the number of bikes purchased fell, the total direct expenditure from bike sales increased by an estimated \$219 million
- ▶ The increase in direct expenditure is due to an estimated 24% increase in the average retail cost of a bike in Australia (from an estimated \$923 to \$1,148)
- ▶ This increase is reflective of the changing consumer segment, with 2020 including more

consumers with a lower propensity to spend

- ▶ Expenditure on cycling related goods and services (e.g. bike accessories, equipment) decreased by an estimated \$875 million
- ▶ While the average cost of related goods and services increased across most items, the decrease in total direct expenditure is attributable to the decrease in the number of people spending money on cycling in Australia (fall of over 930k people).
- ▶ The direct expenditure of major events and National Road Series (NRS) teams fell by \$40m, primarily as a result of the cancellation of a number of significant events including the Herald Sun Tour, Santos Tour Down Under and Cadel Events Great Ocean Road Race.

Future outlook

Industry data suggests that there is an oversupply of bikes in the market in 2023. This oversupply suggests there may be a reduction in spend on bicycles in 2023 and 2024.

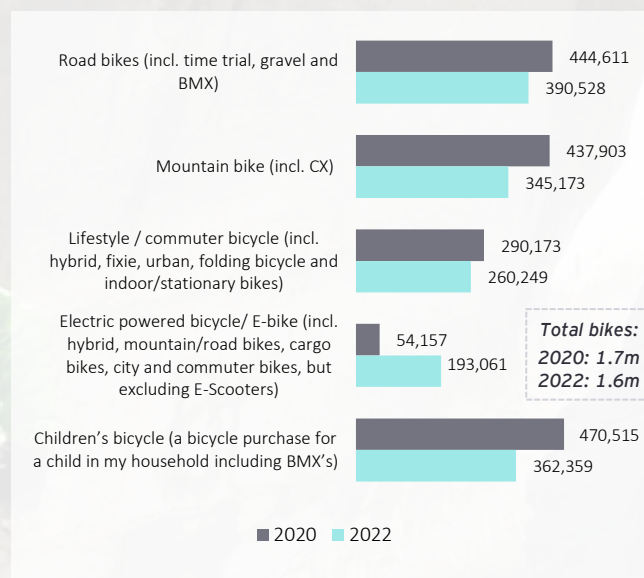
With an increasing focus on physical and mental wellbeing and the benefits of outdoor recreational activity, it is expected that cycling will continue to grow.

Further, a key driver of cycling during COVID-19 was an increase in safety on the roads given a reduction in traffic. In the 2022 survey, 73% of respondents noted that they would cycle more if there was more safe and connected infrastructure.

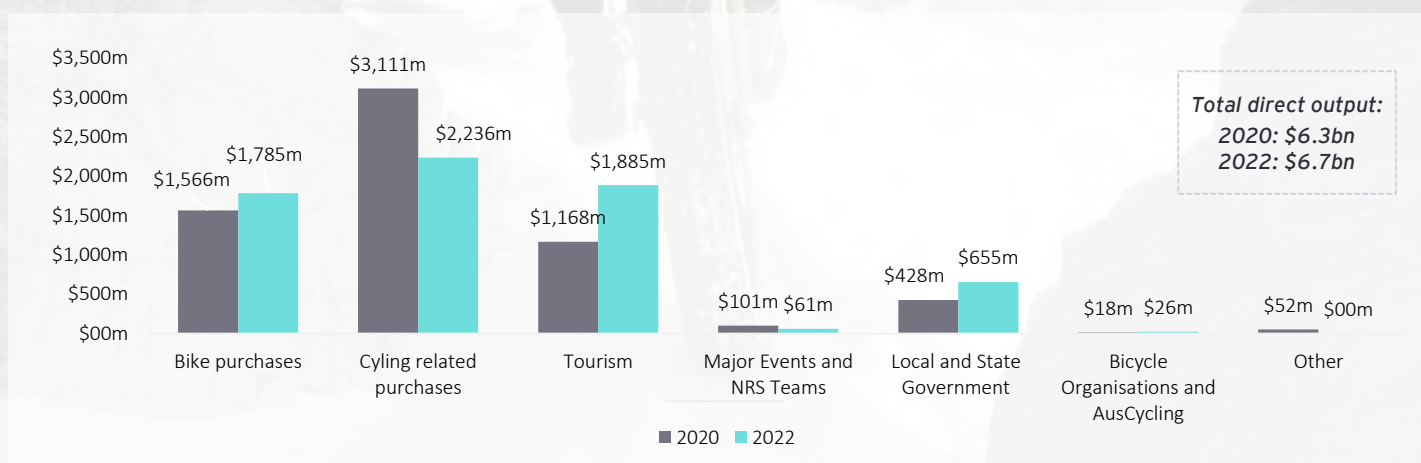
With an increase in local and state government expenditure on safe cycling infrastructure, it is expected that more Australians will take up cycling and also cycle more often.

Key indicator	2020	2022
Estimated % of adult Australians who spent money on cycling related goods or services (18 - 89)	29%	24%
Estimated number of adult Australians who spent money on cycling related goods or services (18 - 89)	5.8m	4.9m 16% reduction
Estimated number of bikes purchased in the year	1.70m	1.56m
Average retail cost of bikes purchased in Australia	\$923	\$1,148
Percentage of bikes purchased that were electric bikes	3%	12%
Average annual spending on cycling related goods and services (excluding overnight trips where cycling was the main purpose)	\$790	\$895

Graph: Number of bikes bought in 2020 versus 2022



Graph: Direct output - Cycling, 2020 versus 2022



2. Results - Health and Social Benefits

In 2022 in Australia, cycling is estimated to have resulted in \$945.4m in health and social benefits.

The physical activity benefits of cycling participation also supports broader health and wellbeing, social and productivity benefits to the Australian economy. This study estimated that cycling contributed over **\$945.4m** in health and social benefits.

Individuals included

These benefits were assessed for people that became physically active in 2022 as a direct result of cycling. For the purposes of this report, this was defined as completing 150 minutes of exercise each week for adults aged above 18, and this includes only those people who would **not do** other forms of physical activity in the absence of cycling.

That is, this benefit **excludes**:

- ▶ Individuals that already met the threshold for physical activity using other forms of exercise (e.g. running, swimming)
- ▶ Individuals that did not participate in physical activity for the required number of minutes per week / day to meet the definition of being physically active (i.e. adults who exercised for less than 150 minutes per week or children who exercised for less than 60 minutes a day)
- ▶ Individuals that would replace cycling with another form of physical activity in its absence. For example, this excludes adults who would run in the absence of cycling to meet the threshold.

Note: This only attributes benefit to the proportion of physical activity that was related to cycling. For example, if an individual met the physical activity threshold of 150 minutes as a result of cycling 50 minutes a week (and running 100 minutes a week), 33% of the total benefit would be attributed to cycling (i.e. 50 minutes / 150 minutes).

This cohort was determined through the EY Survey, which asked people to determine their level of weekly physical activity and the role of cycling in physical activity. As this survey was only distributed to the adult population, respondents with children were asked to provide a response on behalf of the children in their household.

Physical activity thresholds

When adults who were previously inactive engage in physical activity of at least 150 minutes a week, there is assumed to be an associated improvement in health outcomes (such as reduced risk of type 2 diabetes, cardiovascular disease etc.).

When children aged 5 - 17 who were previously inactive engage in physical activity of at least 60 minutes a day, there is assumed to be an associated improvement in health outcomes such as lower anxiety, healthy growth and development and lower risk of disease.

1. Avoided Net Financial Costs to Australia's Healthcare System (adults and children)

It is estimated that cycling resulted in a net \$313.3m in Avoided Net Financial Costs to Australia's Healthcare System. This net cost is calculated as follows:

- ▶ There was an estimated \$330.4m in Avoided Direct Financial Costs to Australia's Healthcare System in 2022. This includes the avoided cost of running hospitals, nursing homes, GP and specialist service, cost of pharmaceuticals, allied health services, research and other direct costs.

- ▶ However, cycling is also associated with injuries, which incur costs to Australia's healthcare system, which is estimated to be \$17.1m. This cost is offset against the \$330.4m in avoided direct financial costs, to estimate a net benefit of \$313.3m.

2. Productivity Benefits (adults)

It is estimated that cycling resulted in \$540.4m in productivity benefits to Australia in 2022. This includes improvements in productivity as employers experience lower presenteeism and absenteeism from a higher proportion of the population being physically active.

3. Value of Life Years Gained (adults and children)

This study estimated that cycling resulted in **\$100.7m** in mental and physical health benefits. This is the result of an increase in life years as a result of individuals becoming physically active due to cycling. In other words, this can be understood as the monetised value associated with the cost society is willing to pay to prevent and/or improve wellbeing and prevent premature death. This includes:

- ▶ **\$63.3m** in avoided physical health impacts
- ▶ **\$37.4m** in avoided mental health impacts.

This estimate considers the burden of disease in the form of a Disability Adjusted Life Year (DALY) and an estimated Value of a Statistical Life Year (VSLY), including:

- ▶ Average DALY caused by physical inactivity per inactive person
- ▶ Average prevented mental health related DALY per inactive person.

A DALY is a time-based measure that combines years of life lost due to premature mortality (YLLs) and years of life lost due to time lived in states of less than full health, or years of healthy life lost due to disability (YLDs). One DALY represents the loss of the equivalent of one year of full health.

A VSLY is an estimate of the value society places on a year of life. The value of a statistical life is most appropriately measured by estimating how much society is willing to pay to reduce the risk of death.



Approximately 718,000 adults became physically active due to cycling in Australia in 2022

Table: Key Findings - Australia 2022

Benefit	Value (2022)
Avoided Net Financial Costs to Australia's Healthcare System	\$313.3m
Productivity Benefits	\$540.4m
Value of Life Years Gained	\$100.7m
Total Health and Social Benefits of Cycling	\$954.4m

2. Results - Economic Contribution of E-scooters 2022

In 2022 the Australian E-scooter Economy is estimated to have directly contributed \$728m in total industry output, including \$371m in total Value Add.

In recent years, e-scooter use has been on the rise in Australia with an estimated 18% of the population spending money on e-scooters in 2022.

The regulations on the use of e-scooters has been changing across States & Territories over the past 3 years, with Governments introducing various laws on ownership and operation. The changing regulations and roll out of ride share schemes combined with a introduction of more affordable e-scooters has resulted in 3.6m Australians spending money on e-scooter related activities in 2022.

Overall, in 2022 the e-scooter industry contributed:

- ▶ \$728m in Total Gross Output including \$295m in Direct Output and \$433m in Indirect Output
- ▶ \$371m in Total Value Add including \$159m in Direct Value Add and \$211m in Indirect Value Add

Further, this expenditure generated an estimated 2,398 jobs (FTE) including:

- ▶ 1,304 direct jobs (FTE)
- ▶ 1,095 indirect jobs (FTE)

Direct expenditure breakdown

The breakdown of total estimated direct expenditure (\$728m) across the e-scooter economy in 2022 is

presented below.

Future outlooks

In 2022, all States & Territories offered e-scooter rental/ride share schemes (such as Beam). Further e-scooter behavioural findings are presented in Section 4.

Key indicator	2022
Estimated % of adult Australians who spent money on e-scooters related goods or services (aged 18 - 89)	18%
Estimated number of adult Australians who spent money on e-scooter related goods or services (18 - 89)	3.6m
Estimated number of e-scooters purchased in 2022	61.5k
Average retail cost of e-scooters purchased in Australia	\$1,050
Average annual spending on e-scooter related goods and services (per person who spent money on e-scooters)	\$80

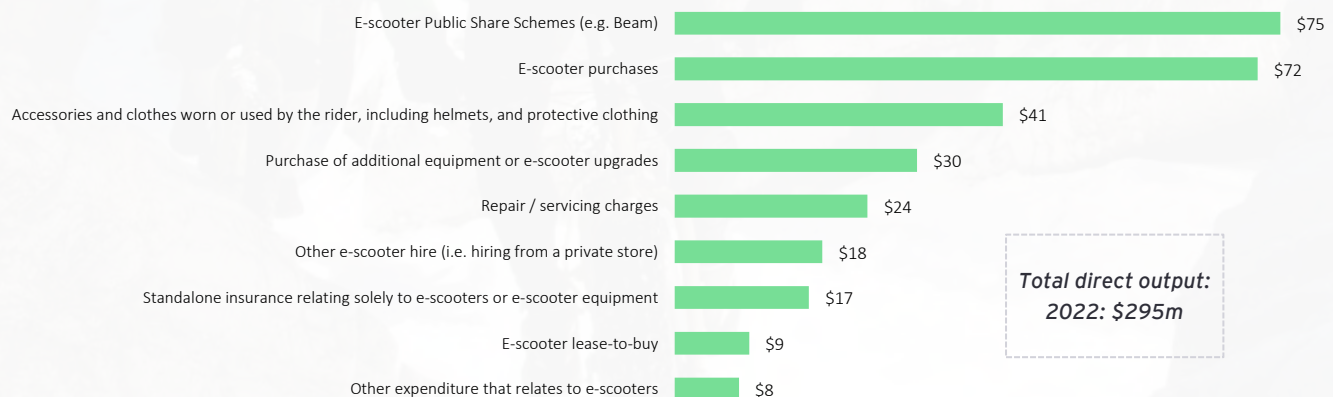


Over 90% of Australians who spent money on e-scooters stated they are a *convenient mode of transport*



Over 81% of Australians who spent money on e-scooters are motivated to use e-scooters due to the *environmental benefits*

Graph: In-scope personal e-scooter direct expenditure per component – 2022 (\$m)



Component	Direct	Indirect	Total
Economic Contribution of E-scooters (2022)			
Output	\$295m	\$433m	\$728m
Value Add	\$159m	\$211m	\$371m
Jobs (FTE)	1,304	1,095	2,398

2. Results - Environmental benefits

In 2022, cycling in Australia is estimated to have avoided the release of 514,096 tonnes of carbon dioxide equivalent (tCO₂-e) and 2.2 million kg of air pollutants into the atmosphere.

In addition to the economic benefits, cycling delivers compelling benefits from an environmental perspective also. By serving as a non-motorised alternative to traditional vehicular transport, cycling provides environmental benefits such as avoided and reduced greenhouse gas (GHG) emissions, curtailing air pollution and conserving finite natural resources. Cycling can play an instrumental role in fostering a greener and more sustainable future particularly in urban and metropolitan areas.

Greenhouse gas emissions

The driving of passenger cars accounts for 6% of global GHG emissions⁽¹⁾⁽²⁾ and 3% of Australia's GHG emissions⁽³⁾. Avoiding transportation and commuting emissions through non-emissions intensive transport means that cycling represents an opportunity for decarbonisation of road transport in Australia.

Cycling is estimated to have avoided approximately 514,096 tonnes of tCO₂-e in 2022 through replacing alternative transport methods such as private car use, taxis, and bus rides (emission producing) with cycling.

Air pollutants

The most significant impact of poor air quality is on human health⁽¹⁾. An expanding population and more cars on the road means that air pollutants will continue to increase with tyre and brake dust a major source of air pollution.

Cycling can contribute to the management of pollutants as an 'avoidant' measure through substituting motor vehicle travel. This supports 'reduction' measures which aim to lessen pollutants from motor vehicles, such as vehicle and fuel quality standards and policies, minimising pollutants without replacing the transportation methods used.

Cycling is estimated to have avoided an estimated 2,200,311 kg of pollutants in 2022.

Traffic and noise mitigation

Cycling as a method of transport is responsible for a reduction in car use, mitigating traffic congestion and associated noise pollution.

- ▶ An estimated one third of cycling occurs during peak hours, replacing an estimated 1.1bn kms per year of driving during the hours of 6am to 9am and 4pm to 6pm (5 hours of peak time per weekday).

Cycling replaces alternative transport methods such as private car use, taxis, and bus rides. Approximately 37% of kms would have been travelled by car if cycling was not available.

- ▶ Approximately 2.8bn fewer kms travelled by car during off-peak times every year, minimising noise pollution.

As noise pollution is logarithmic in nature (with additional cars having negligible impact when traffic flow is already high), noise pollution mitigation through cycling is particularly effective during off-peak times, where the noise impact of one additional car is greater.

Table: Environmental benefits - Australia 2022

Benefit	Estimated Value (2022)
GHG emissions avoided	514,096 tCO ₂ -e
Air Pollutants avoided	2.2 million kg

Traffic and noise mitigation - Australia 2022

32%

of cycling for transport purposes occurs during peak hours

1.1bn km

estimated number of driving kms replaced by bicycles (per year during peak hours - 6am to 9am and 4pm to 6pm)

2.8bn km

estimated number of driving kms replaced by bicycles (per year during off-peak hours, weekends and public holidays)

Passenger cars contribute⁴

~6%

of global GHG emissions

Motor vehicle impact on air quality⁽¹⁾:



¹2023 Cars and Vans - Energy System, The International Energy Agency (IEA) <https://www.iea.org/energy-system/transport/cars-and-vans>

²2020 Greenhouse gas emissions, Our World In Data <https://ourworldindata.org/greenhouse-gas-emissions>

³2021 National inventory by economic sector, Australia's National Greenhouse Accounts, Department of Climate Change, Energy, the Environment and Water. This number includes road freight transport and road passenger transport.

⁴2021 State of the Environment Report, Department of Climate Change, Energy, the Environment and Water (DCCEEW)

2. Results - Environmental benefits by State & Territory

NSW leads in absolute carbon emissions avoided, with ACT leading the way on a per capita basis.

An estimated 514,096 tCO₂-e are estimated to have been avoided in Australia due to cycling being used as a mode of transport, with 79% of this being across NSW, VIC, and QLD.

On a per capita basis, it is estimated that the average Australian emits 28 fewer kgCO₂-e per year and 0.12 kg of air pollutants than they would have had they not cycled. ACT represents the largest emissions-avoider on a per capita basis at 44 kgCO₂-e and 0.21 kg of air pollutants.

GHG and air pollutants avoided in Australia due to cycling by State and Territory, 2022

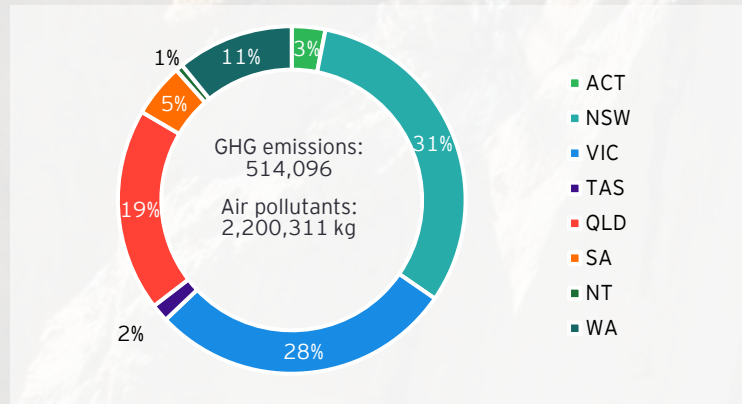
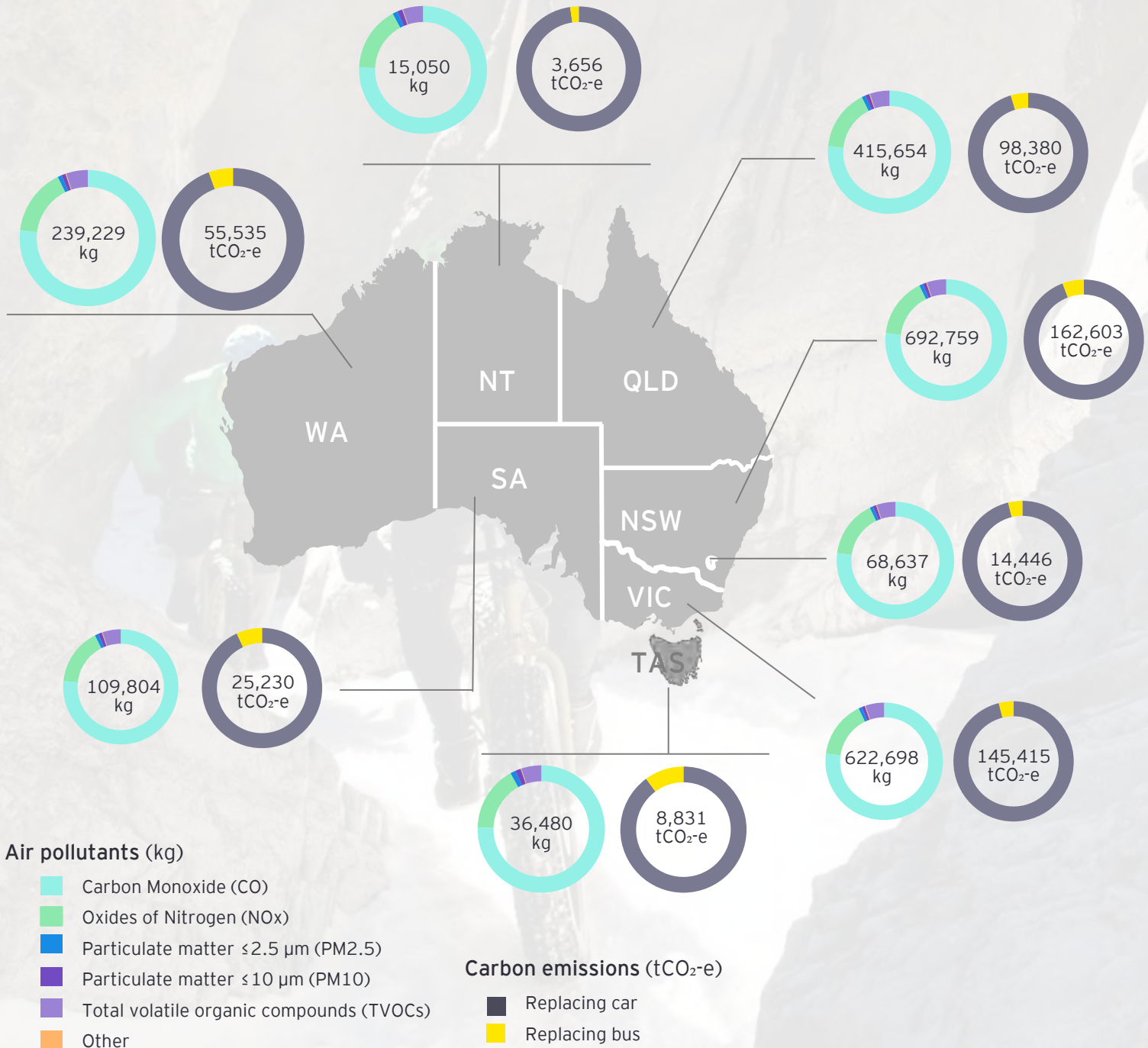


Figure: Air pollutants avoided per State & Territory in 2022



Air pollutants (kg)

- Carbon Monoxide (CO)
- Oxides of Nitrogen (NOx)
- Particulate matter $\leq 2.5 \mu\text{m}$ (PM2.5)
- Particulate matter $\leq 10 \mu\text{m}$ (PM10)
- Total volatile organic compounds (TVOCs)
- Other

Carbon emissions (tCO₂-e)

- Replacing car
- Replacing bus

Regional breakdown

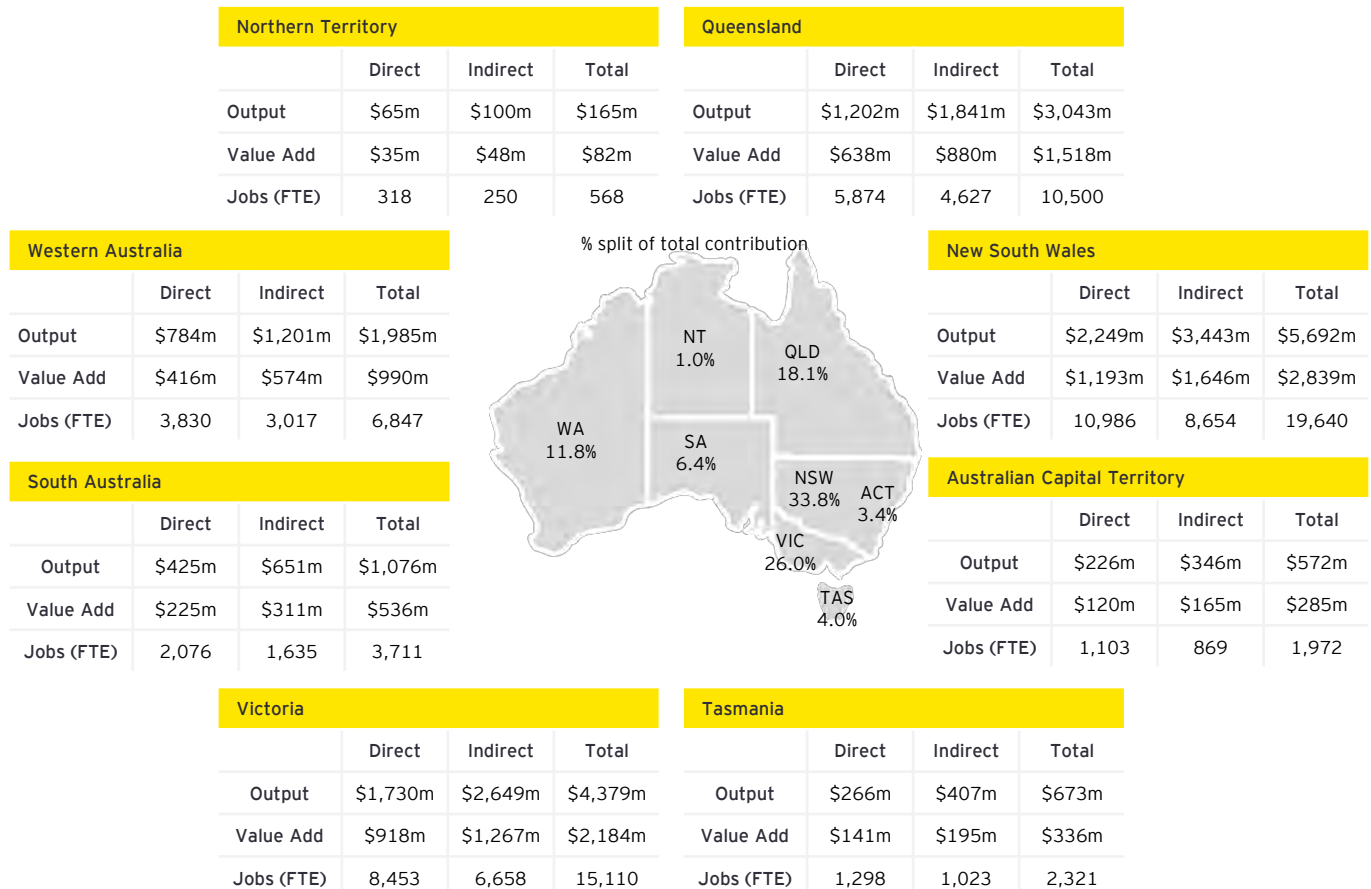
Both NSW and the ACT populations engage in cycling and e-scooters at a greater rate when compared to other states and territories.

An estimated 27% of New South Wales residents and 28% of ACT residents spent money on cycling and e-scooters in 2022.

New South Wales and Victoria are estimated to account for the highest proportion of economic contribution, with New South Wales contributing \$2.25b in direct output (equivalent to \$357 per capita) and Victoria contributing an estimated \$1.73b in direct output (equivalent to \$336 per capita).¹ It is also worth noting that ACT has a high per capita spend of \$634 reflecting a high level of engagement in the cycling and e-scooter economy.

Note, the breakdown of State & Territory expenditure relates to the spending of the people that reside in each region (e.g. if a resident of New South Wales rented an e-scooter in Victoria, the spend of this resident is captured as New South Wales spend). The exception being the cycle tourism component of direct expenditure, whereby spend is allocated based on the region where the individual travelled to.

Figure: Economic contribution (Cycling and E-scooters) per State – 2022 (\$m)³



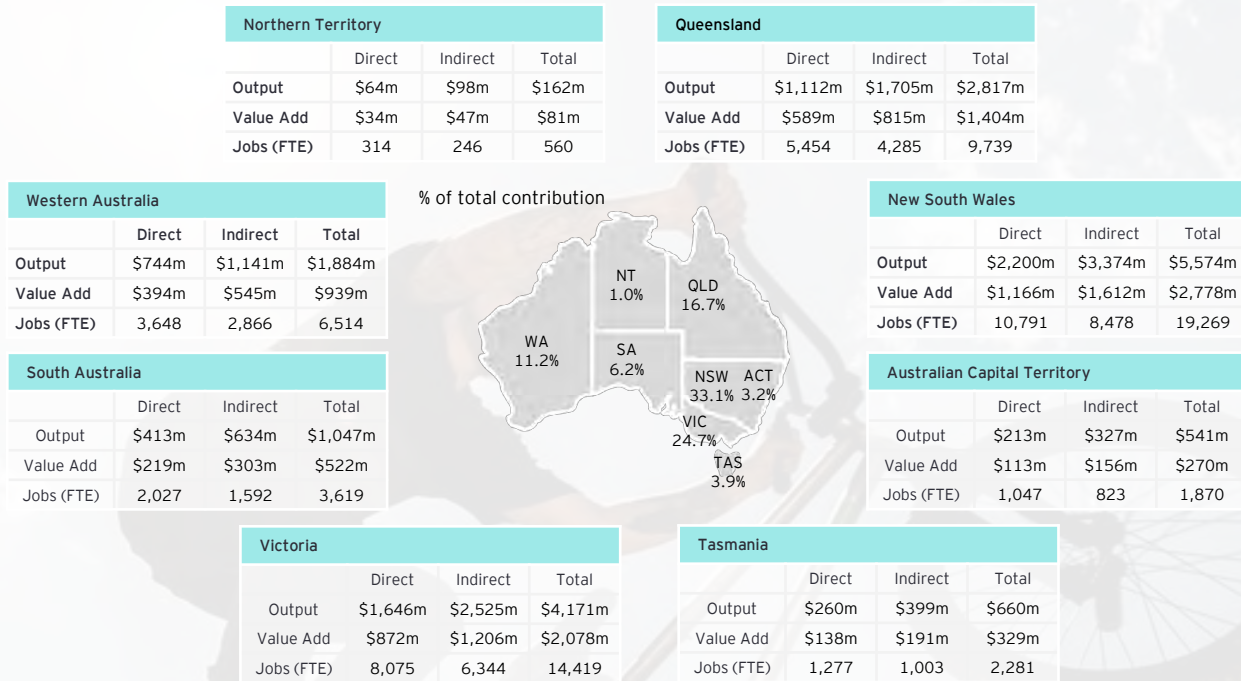
3. Regional breakdown

WA, NSW and ACT engage in cycling at a greater rate when compared to the national average. NT and ACT use e-scooters at a greater rate when compared to the national average.

Cycling engagement

An estimated, 28% of ACT, 27% of New South Wales and 26% of Victorian residents spent money on cycling in 2022, compared to the national average of 24%. Victoria and New South Wales accounted for the highest proportion of economic contribution. Victoria contributed an estimated \$1.6b in direct output (equivalent to \$320 per capita) and New South Wales contributing \$2.2b in direct output (equivalent to \$349 per capita). It is also worth noting that ACT has a high per capita spend of \$599 reflecting a high level of engagement in the cycling economy.¹

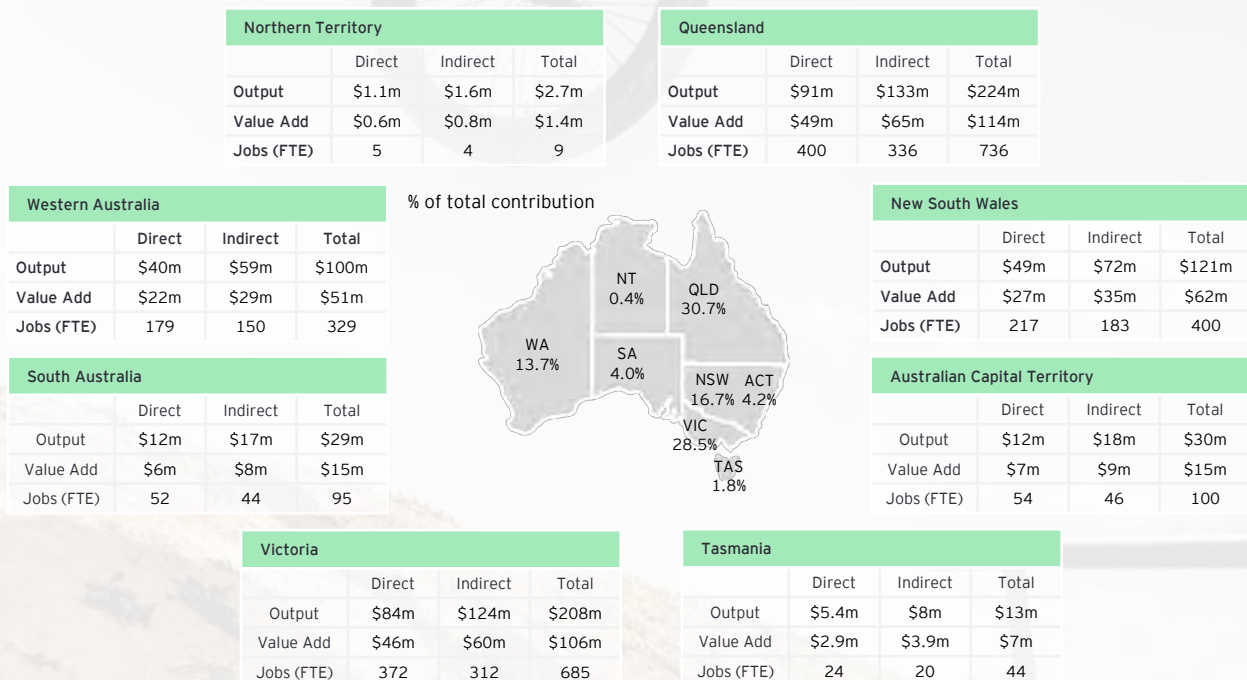
Figure: Economic contribution (Cycling and E-Scooters) per State – 2022 (\$m)³



E-scooter engagement

Queensland and Victoria accounted for the highest proportion of economic contribution related to e-scooters. Queensland contributed an estimated \$91m in direct output and Victoria contributing \$84m in direct output. Note, the breakdown of State & Territory e-scooter expenditure relates to the spending of the people that reside in each region (e.g. if a resident of New South Wales rented an e-scooter in Victoria, the spend of this resident is captured as New South Wales spend).

Figure: Economic contribution (Cycling and E-Scooters) per State – 2022 (\$m)³



¹Spend per capita is estimated based on the population aged between 18-89

3. Regional breakdown - Cycle tourism

Cycling-related tourism resulted in \$1.88bn in direct output across Australian States and Territories.

As outlined on page 11, cycle tourism contributed an estimated \$1.88bn in direct output. This equates to 28% of total direct output from cycling related expenditure. A breakdown of this expenditure component is provided below.

The EY Survey conducted as part of this study assessed cycling expenditure on domestic Australian holidays including:

1. Overnight trips taken for the primary purpose of cycling
2. Overnight trips taken that were not primary for cycling, however cycling was undertaken on the trip
3. Expenditure on day trips where cycling was undertaken.

1. For overnight trips undertaken where cycling was the main purpose, the key findings are as follows:

- ▶ Approximately 2.4 million trips where cycling was the main purpose were undertaken in 2022, where the average spend per trip was \$550
- ▶ This resulted in approximately \$1.3bn in direct expenditure within the Australian economy in 2022
- ▶ The destination regions with the highest expenditure were NSW

Regional (\$212.8m), followed by Queensland Regional (\$181.6m) and Victoria Regional (\$172.7m)

- ▶ Tasmania was the region with the highest average spend per trip, at approximately \$1,290 spend per trip, reflecting the investment made in cycling tourism infrastructure within the State.

2. For overnight trips where cycling occurred but was not the main purpose:

- ▶ Approximately 2.6 million overnight trips were undertaken where cycling occurred, but was not the main purpose of the trip
- ▶ Expenditure related to cycling component on these trips resulted in approximately \$229.8m in direct expenditure in 2022.

3. For day trips where cycling occurred:

- ▶ Expenditure related to cycling on day trips resulted in approximately \$346.2m in direct expenditure within the Australian economy in 2022
- ▶ Over the year of 2022, the average spend on cycling-related items during day trips was \$160.

Key component	Total direct output in 2022
1. Overnight trips taken for the primary purpose of cycling	\$1.3bn
2. Cycling component of overnight trips where cycling occurred but was not the main purpose	\$229.8m
3. For day trips where cycling occurred	\$346.2m
Total tourism spend	\$1.88bn

Graph: In-scope Cycling direct expenditure per component – 2022 (\$m)

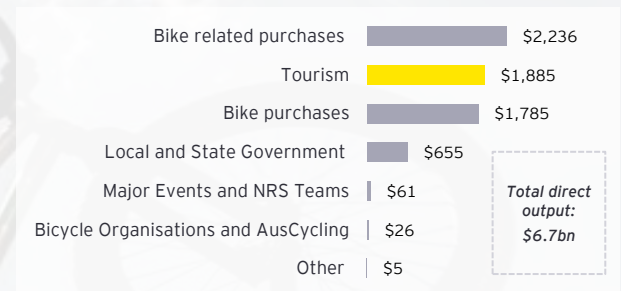
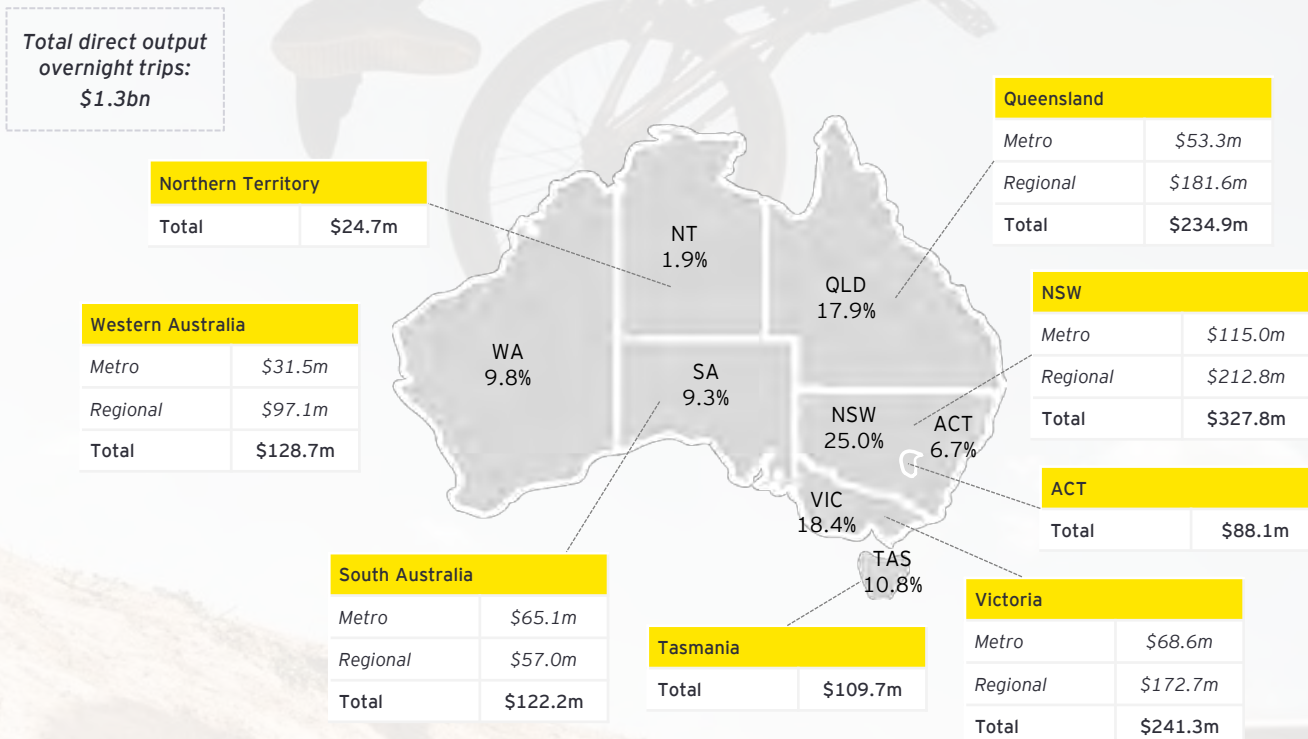


Figure: Distribution of cycle tourism spend in 2022 on overnight trips where cycling was the main purpose (Total = \$1.3bn)





The cycling and e-scooter participant

In Australia in 2022, approximately 6.5 million adults cycled and 3.6 million adults used an e-scooter. ACT has the highest population incidence of engaging in cycling and e-scooter usage.

This study profiled adult cycling and e-scooter participants in Australia to understand their cycling and e-scooter behaviours and preferences. The key findings are presented on the following pages.

<p>6.5m</p> <p>Estimated number of Australian adults who cycled in 2022. This equates to 33% of adults aged between 18 and 89.</p>	<p>3.6m</p> <p>Estimated number of Australian adults who used an e-scooter in 2022. This equates to 18% of adults aged between 18 and 89.</p>	<p>18-34 year olds</p> <p>Cohort with the highest cycling and e-scooter use. Approximately 43% cycled and 35% used an e-scooter.¹</p>
<p>ACT</p> <p>The region with the highest cycling and e-scooter use per capita.</p>	<p>Fitness</p> <p>The primary motivating factor for cycling.</p>	<p>37%</p> <p>Percentage of adults aged between 45 - 54 who cycled.</p>
<p>Fun and enjoyment</p> <p>The primary motivating factor for riding e-scooters</p>	<p>Children's bikes</p> <p>The most popular bike purchased in 2022.</p>	<p>E-bikes</p> <p>The bike type with the highest sales growth from 2020 to 2022.</p>
<p>40%</p> <p>Percentage of adults that cycled in 2022 were female, verses 60% male</p>	<p>Weekly</p> <p>The frequency of cycling for most adults in Australia.</p>	<p>82%</p> <p>Are motivated to cycle due to the environment.</p>
<p>64%</p> <p>Percentage of adults who do not feel safe on the roads cycling around motor traffic.</p>	<p>TAS</p> <p>The State with the highest average spend per tourism trip</p>	<p>30%</p> <p>Anticipated increase in e-scooter public share scheme use amongst current e-scooter users</p>

¹Note that this report only collected data from adults (over 18) and therefore only assesses the economic impact of e-scooter riders between the ages of 18-89 only. The legal age to use e-scooters or e-scooter services can be as low as 16 in some circumstances.

4. Cycling and e-scooter behaviour

Approximately 59% of adults ride a bike cycle once a week with dedicated bike paths the most popular riding location.

This study profiled adult cycling consumers to understand their cycling behaviours and preferences. The key findings are outlined below.

Profile of an adult bike rider in Australia

- ▶ ACT and WA have the highest cycling use per capita, reflecting investment into cycling infrastructure in the States
- ▶ The most popular form of cycling is recreational road cycling followed by lifestyle / commuting with a dedicated bike path being the most popular location for cycling
- ▶ Approximately 59% of those who ride a bike cycle at least once a week and a further 17% cycle monthly.

Profile of an adult e-scooter user

- ▶ ACT and WA have the highest e-scooter use per capita.
- ▶ ACT is also the state with the highest proportion of its population having used an e-scooter share scheme
- ▶ Adults between 18-34 have the highest proportion of e-scooter users (35%). Note that this report only collected data from adults (over 18) and therefore only assesses the economic impact of e-scooter riders between the ages of 18-89 only. The legal age to use e-scooters or e-scooter services can be as low as 16 in some circumstances.

Figure: Proportion of the adult population in each State & Territory who cycled and spent money on cycling in 2022

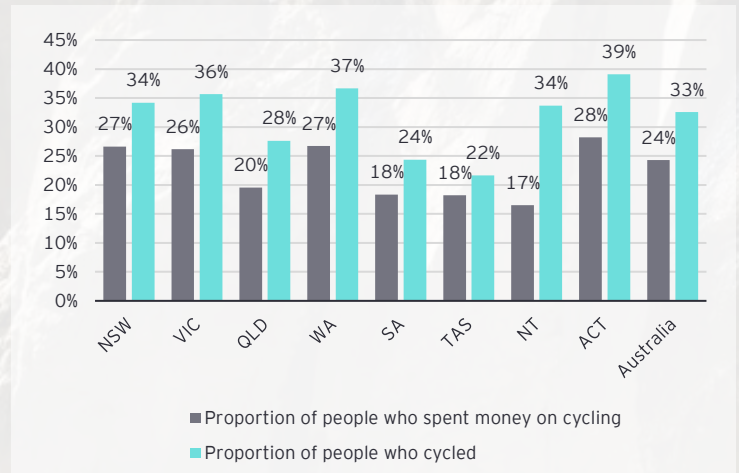


Figure: Proportion of the adult population in each State & Territory who used an e-scooter in 2022

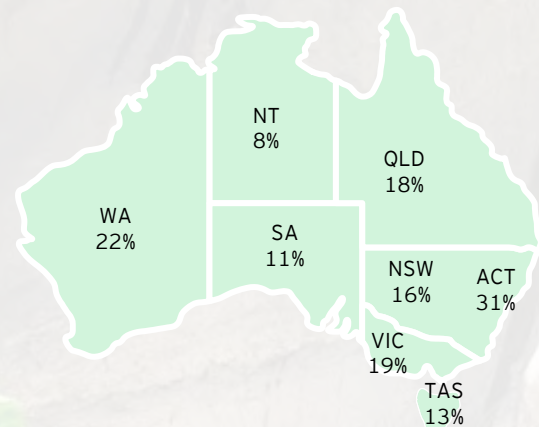


Figure: Location where cycling by adults predominately takes place

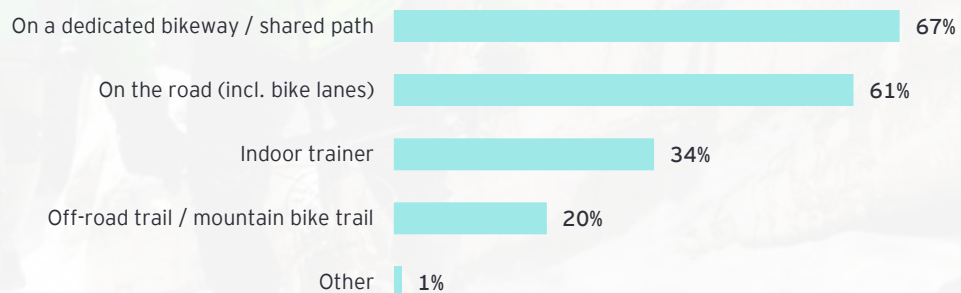


Figure: Proportion of the adult population by age that ...

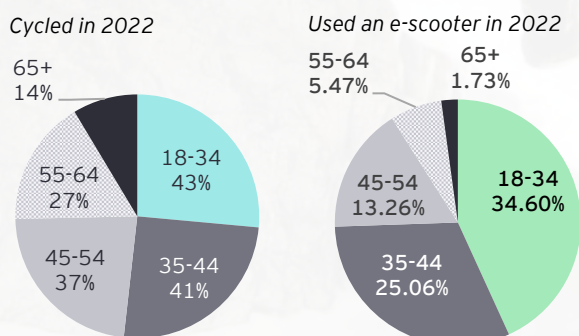
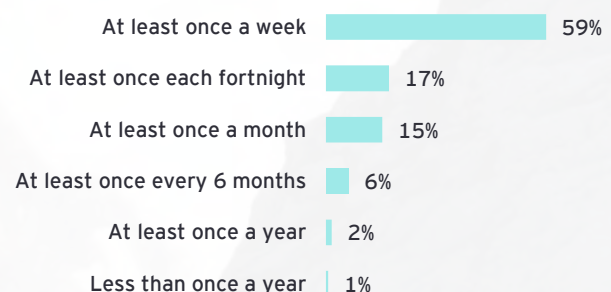


Figure: Frequency of adult cycling



4. Cycling motivating factors

Exercise and fitness was the most popular reason for riding a bike followed by the impact of cycling on mental wellbeing.

This study profiled adult preferences for cycling in 2022. The key findings are as follows:

- ▶ Exercise and fitness was the most popular reason for riding a bike with 96% of Australians stating that they are motivated to ride a bike for fitness. Cycling for mental wellbeing is the second most popular motivator for cycling, with 93% of respondents noting they cycle as it is "great for their mental wellbeing"
- ▶ Reducing transportation costs is also a popular reason for riding a bike with 72% of adults motivated to ride a bike as a means to save money
- ▶ Maintaining connection remains a popular reason for riding a bike with 58% of adults motivated to ride a bike as a way to socially connect with their friends
- ▶ The majority of respondents (64%) either agreed or strongly agreed that that don't feel safe riding bikes on the road with traffic around them and that there is not enough safe and connected road bicycle infrastructure.

Figure: Q - Cycling motivators - To what extent do you agree or disagree that the following factors motivate, or make you want to ride a bicycle?

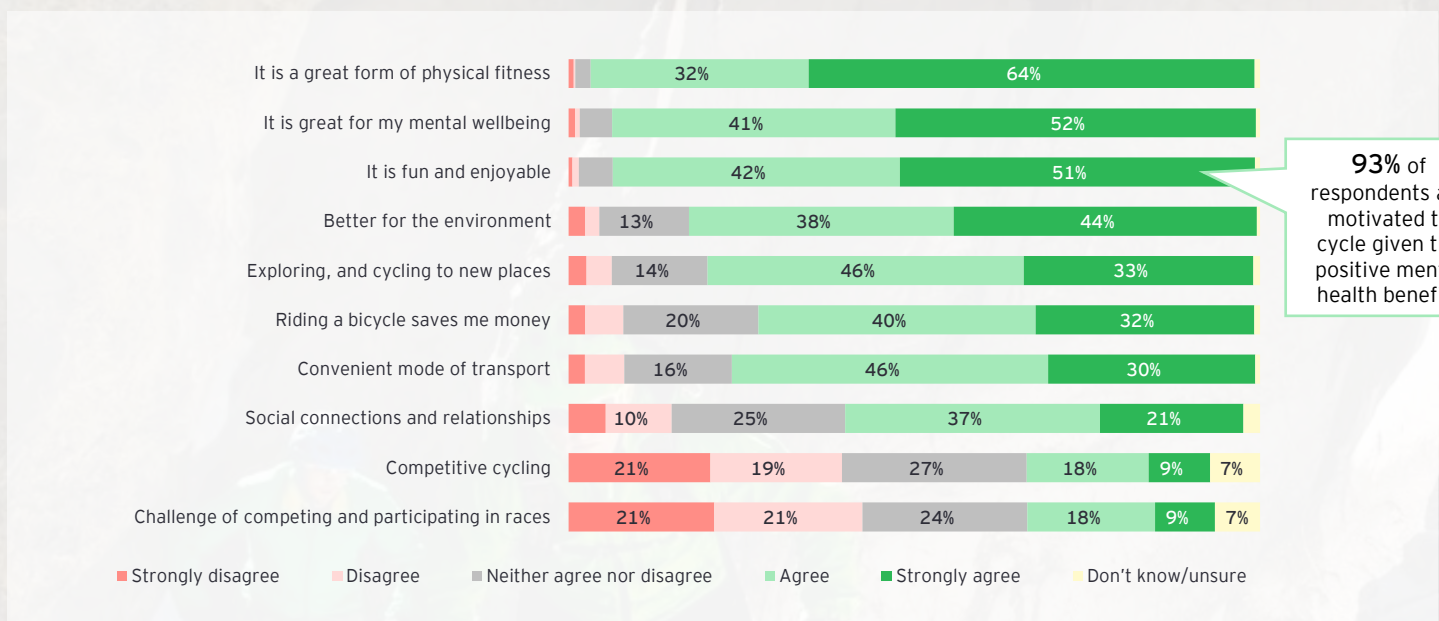
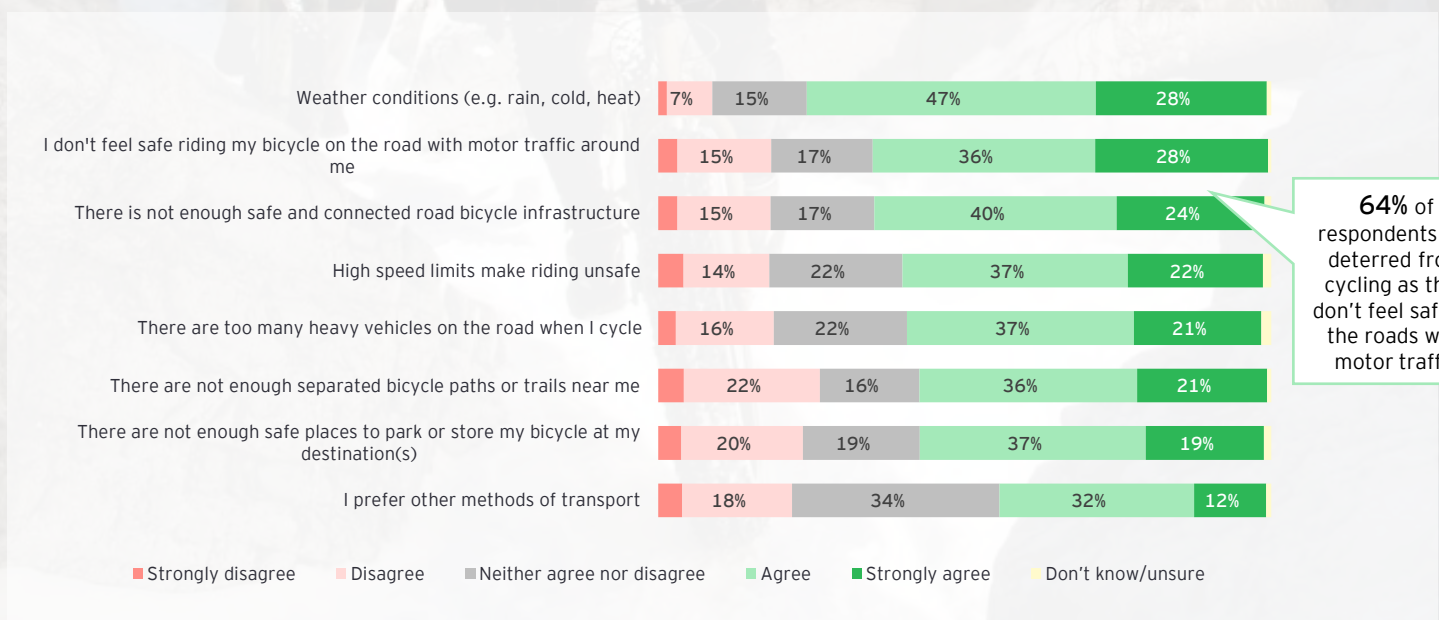


Figure: Q - Cycling deterrents - To what extent do you agree or disagree that the following factors stop you from riding your bicycle more?



4. E-scooter motivating factors

The majority of people are motivated to ride an e-scooter as its fun and enjoyable, with 30% of people anticipating their use of e-scooter share schemes would increase in the future.

This study profiled adult preferences for e-scooters in 2022. The key findings are as follows:

- ▶ Over 97% of people are motivated to ride an e-scooter due to fun and enjoyment and 85% are motivated to use them to explore new places
- ▶ Approximately 80% of e-scooters users are motivated to use them due to the environmental benefits
- ▶ Over 90% of users find e-scooters a convenient mode of transport
- ▶ Approximately 40% of e-scooter users say their use of share schemes will remain the same and 30% say their use of share schemes will increase over the next 12 months.

Figure: Q - Cycling motivators - To what extent do you agree or disagree that the following factors motivate, or make you want to use an e-scooter?

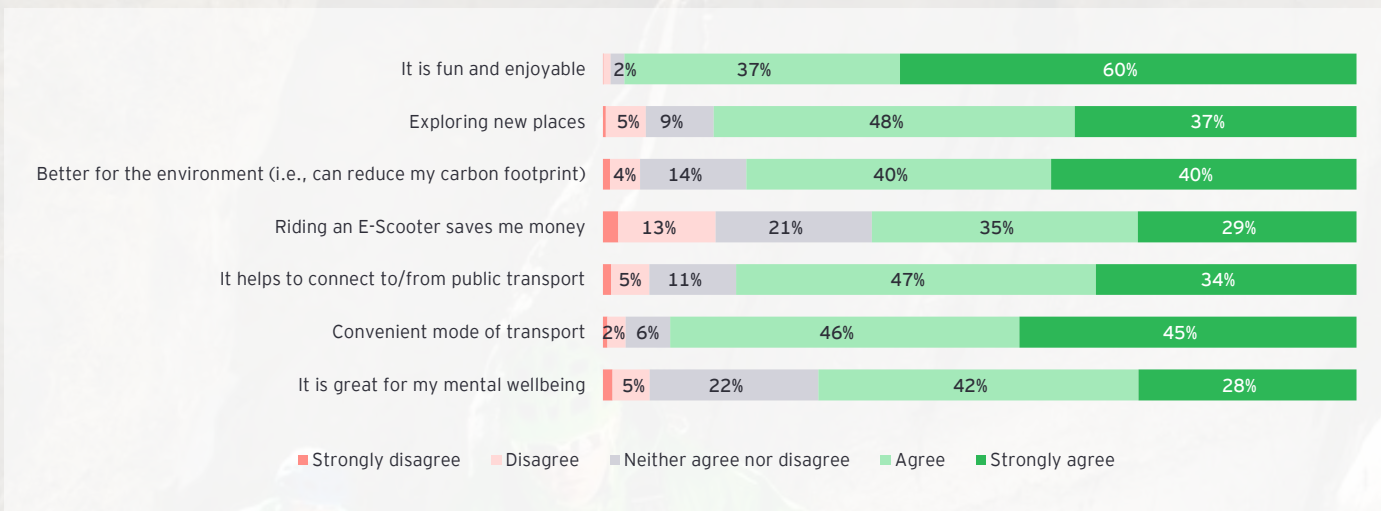
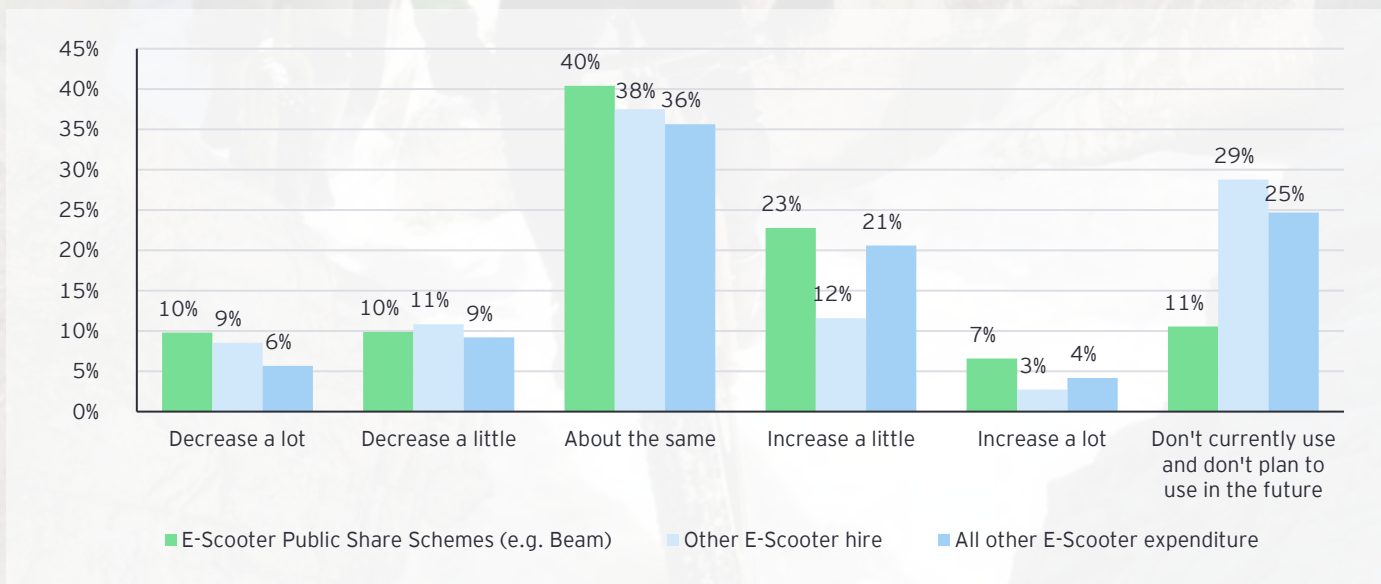


Figure: Q - Thinking about the next 12 months, do you anticipate your spending on these different categories of e-scooters expenditure will increase, stay the same, or decrease





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