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The Social Cost of Road Crashes in Australia

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Executive Summary

Road crashes continue to impose a substantial and persistent burden on Australian society. While long term improvements in vehicle safety, infrastructure and trauma care have contributed to reductions in road fatalities and severe disabilities, the overall social and economic cost of road trauma has increased in real terms.

This white paper summarises findings from the Australian National University study commissioned by the Bureau of Infrastructure and Transport Research Economics to estimate the social cost of road crashes in Australia.

The study updates and extends the previous national costing undertaken in 2006, using contemporary data, improved analytical methods and a broader scope that includes consideration of who bears the costs of road crashes.

Using a Hybrid Human Capital approach, the total social cost of road crashes in Australia was estimated at

$27.0 billion in 2020, equivalent to approximately 1.4 per cent of gross domestic product. Given uncertainty in key assumptions, the estimated range of costs lies between $22.2 billion and $30.3 billion.

In an average year between 2016 and 2020, approximately 966,000 road crashes occurred, involving around 1.7 million vehicles. This represents a substantial increase compared to 2006, driven almost entirely by growth in property damage only crashes.

Over the same period, an average of 1,187 people died each year as a result of road crashes, representing a 26 per cent reduction compared to 2006. Hospitalised injuries increased, while non hospitalised injuries declined significantly.

The largest contributors to the total social cost were vehicle repair costs, workplace and household productivity losses, and medical related costs. Human losses, including pain, grief and suffering and lost quality of life, accounted for approximately one third of total costs.

The findings demonstrate that road trauma remains a major economic and social issue in Australia. However, the level of increases in road trauma levels since 2020 means that the figures listed here would be well under current social and economic costs.

While safety interventions have reduced the severity of outcomes, increasing crash volumes, rising repair and medical costs, and greater system complexity continue to drive overall costs upward.

The results provide a strong evidence base for ongoing investment in road safety programs, infrastructure and policy reforms, and for the integration of road safety considerations into transport, workplace and public health decision making.

Introduction

After several decades of sustained decline, the number of road deaths recorded in Australia has been increasing year on year since 2020. This reversal in the road fatality trend represents a serious public safety concern and signals that previous gains in road safety can no longer be assumed to continue without renewed and coordinated effort.

Beyond the profound and personal human impact of road trauma, there is a significant economic cost borne by the community. Until recently, this cost had not been comprehensively quantified using contemporary data and modern analytical methods.

It could be argued that establishing a full understanding of the economic cost of road trauma is challenging at best, due to the lack of co-ordinated data between agencies and stakeholders, hospitals, government departments and emergency services.

Understanding the full social and economic burden of road crashes is essential to informing effective policy responses, prioritising investment and ensuring that road safety interventions deliver meaningful and sustained outcomes.

Road transport is fundamental to Australia’s economic and social functioning. However, road crashes continue to generate significant human, social and economic impacts that extend well beyond those directly involved.

These impacts are borne by individuals, families, workplaces, insurers, governments and the broader community.

Robust cost estimates enable governments and organisations to assess the benefits of safety interventions, prioritise investment and evaluate policy effectiveness.

The most recent documented summary of the economic costs of road trauma in Australia was undertaken by the Australian National University in 2022.

The road crash costing study was commissioned by the Bureau of Infrastructure and Transport Research Economics.
https://www.bitre.gov.au/sites/default/files/documents/social-cost-of-road-crashes.pdf

Study Objectives and Scope

The study was undertaken to update national estimates of the social cost of road crashes in Australia and to extend previous analyses by incorporating improved data sources, updated valuation techniques and a broader analytical scope.

- Specifically, the study aimed to
- Replicate and update the previous BITRE costing study published in 2009;
- Estimate the total social cost of road crashes using best practice economic methods;
- Analyse changes in crash costs and outcomes over time;
- Identify how costs are distributed across different sectors of society;
- Inform policy development and cost benefit analysis of road safety initiatives.

Data were collected and averaged across the five-year period from 2016 to 2020 to account for year-to-year variation and improve estimate stability.

The total social cost of road crashes was estimated using a bottom-up approach that aggregates three broad categories of cost.

- Direct costs represent the opportunity cost of health and non-health resources used as a result of road crashes. These include medical treatment, emergency services, vehicle repairs, insurance administration, travel delays and vehicle unavailability.
- Indirect costs capture productivity losses arising from death, injury, disability and informal care. These include lost paid employment, reduced household production and long term impacts associated with permanent impairment.
- Human costs reflect pain, grief and suffering and the loss of quality of life experienced by injured individuals and by family members and others affected by fatal crashes.

Total Social Cost of Road Crashes

Using the Hybrid Human Capital approach, the total social cost of road crashes in Australia was estimated at $27.0 billion in 2020. This equates to approximately 1.4 per cent of Australia’s gross domestic product.

Given uncertainty in estimation methods and parameters, the total cost was estimated to lie within a range of $22.2 billion to $30.3 billion.

Applying the Willingness to Pay approach increased the estimated total cost to $27.6 billion, reflecting higher valuations of fatalities.

The estimated annual cost of road crashes was distributed as follows:

- Fatal crashes accounted for $3.5 billion
- Injury crashes accounted for $11.8 billion
- Property damage only crashes accounted for $11.7 billion

Workplace and household productivity losses and pain, grief and suffering together accounted for approximately 32 per cent of the total social cost, highlighting the significant human and economic consequences beyond immediate crash impacts.

Crash Incidence and Trends

An estimated 966,000 road crashes occurred in an average year between 2016 and 2020, involving approximately 1.7 million vehicles. This represents a 48 per cent increase in crash numbers compared to 2006, substantially outpacing population growth. Property damage only crashes accounted for 88 per cent of all crashes and were the primary driver of the increase in total crash numbers.

Fatalities and Injuries

Between 2016 and 2020, an average of 1,187 people died each year as a result of road crashes, representing a 26 per cent reduction compared to 2006. However, in the four years since then, (2020 to 2024) that average has increased by 2.84% to 1,221.

The Australian Trauma Registry (ATR) collates data from 26 designated trauma centres across Australia and is an invaluable source of in-hospital on-road injury data. It indicated that for the 2016-17 financial year alone, 45 percent of serious injuries were transport-related, and 38 per cent were on-road related. https://anztr.org.au/inhospital-burden-of-onroad-trauma

Approximately 39,000 people were admitted to hospital each year (2016 and 2020) due to road crash injuries, representing an increase relative to population growth. An estimated additional 96,000 people were treated without hospital admission, a substantial reduction compared to earlier estimates.

Cost per Crash and Injury

Between 2016 and 2020, there were annually an estimated 1.7 million vehicles involved in road crashes. The estimated average social cost per crash type was:

- $3.2 million for a crash involving at least one fatality;
- $261,000 for a hospitalised injury crash;
- $30,400 for a non-hospitalised injury crash;
- $13,800 for a property damage only crash.

On a per person basis, the social cost of a road fatality was estimated at $2.9 million. A hospitalised injury cost approximately $241,100 including disability related impacts, while a non-hospitalised injury cost approximately $26,000.

The total economic cost of road crash injuries considers both workplace losses, representing paid work, and output losses in the household, representing unpaid work. Across all injury severities, this resulted in an estimated total cost of $4.8 billion, with an average cost of $35,300 per road crash injury.

The cost varies considerably depending on injury severity. Severe injuries, which often lead to long-term or permanent disability and prevent individuals from participating in the workforce, carry an average per-injury cost of $1.1 million.

In contrast, minor injuries, which do not require hospital admission and typically result in only a few days of work absence, have an average per-injury cost of $945.

Disability Impacts

Approximately 10 per cent of people hospitalised due to road crash injuries sustained a disability. Of these, around three per cent experienced severe or profound limitations.

Estimated lifetime losses were:

- $4.2 million for a person with severe or profound impairment;
- $1.1 million for a person with moderate or mild impairment.

These costs reflect long term productivity losses, care requirements and reduced quality of life.

Major Cost Drivers

The largest contributors to the total social of road crash costs were:

- Vehicle repair costs at $10.5 billion;
- Workplace and household productivity losses at $7.6 billion;
- Medical related costs at $2.3 billion.

Other cost components included insurance administration, disability related costs, travel delay, emergency services and vehicle unavailability.

Changes Since the 2006 Costing Study

In real terms, the estimated social cost of road crashes in 2020 increased by 12 per cent compared to 2006. Key drivers of this change in costs included:

- A substantial increase in property damage only crashes;
- Rising real vehicle repair costs due to increased vehicle complexity;

- Higher medical and emergency service costs driven by improved data and higher unit costs;
- Reductions in fatalities and permanent disabilities due to safety improvements;
- Revised methodologies for disability and pain and suffering costs.

The findings demonstrate that road trauma remains a major public policy issue, with costs extending well beyond fatalities and serious injuries. Increasing crash volumes, rising repair and medical costs, and broader system impacts are driving growth in total costs despite safety gains.

The results reinforce the need for continued investment in road safety across infrastructure, vehicles, behaviour, workplace systems and policy frameworks. They also highlight the importance of integrating road safety considerations into transport planning, workplace health and safety and public health strategies.

Conclusion

Road crashes in Australia continue to impose a substantial and multifaceted burden on society, encompassing profound human, social and economic impacts. While long-term safety measures, improvements in vehicle technology, infrastructure investment and trauma care have contributed to reductions in fatalities and severe injuries over past decades, recent trends indicate a concerning reversal, with road deaths beginning to climb once again.

The economic consequences of road trauma stated here are considerable.

Trends in crash incidence and severity reveal a complex picture and one that will progressively become more challenging and costly if the current trends continue.

The findings demonstrate that road trauma remains a major public policy challenge in Australia.

The economic and social consequences extend far beyond those directly involved in crashes, affecting families, workplaces, insurers, governments and the broader community.

Reducing the incidence and severity of road crashes will require sustained, system-wide interventions encompassing infrastructure improvements, vehicle safety standards, behavioural and educational programs, workplace road safety management, and robust emergency and trauma care systems.

Quantifying the full social cost of road crashes provides essential evidence to inform policy, investment and regulatory decisions. It underscores the need for a coordinated, multi-faceted approach to road safety that recognises both the human and economic dimensions of road trauma. The findings outlined in this white paper confirm that road

crashes continue to impose a large and growing economic and social burden on Australia.

While progress has been made in reducing the most severe outcomes, the overall cost of road trauma remains significant and increasing in real terms and it is concerning that these costs currently remain on an upward trajectory.

Russell White
Founder and Chair
Australian Road Safety Foundation

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