TULIPWOOD ECONOMICS
Creating value through better public policy

SHOOTERS UNION AUSTRALIA

Misfire - Estimating the Impacts of a Gun Buyback Scheme on Victoria

A report prepared for Shooters Union Australia

Final Report

19 May 2026

Disclaimer

This report has been prepared by Tulipwood Advisory Pty Ltd (Tulipwood Economics) for Shooters Union Australia.

The information, statements, statistics and commentary (information) contained in this report has been prepared from research undertaken by Tulipwood Economics from publicly available material. The information contained in this report must not be relied on by third parties, copied, reproduced, distributed, or used, in whole or in part, for any purpose without the written permission of Shooters Union Australia.

19 May 2026

Table of contents

Executive summary

Introduction

We have been engaged by Shooters Union Australia to assess the benefits and costs of a Victorian 'gun buyback' scheme. The scheme was proposed as a partnership between the Australian and state and territory governments, in the wake of the Bondi mass shooting in December 2025. As at May 2026, only New South Wales has introduced new firearms restrictions and a gun buyback scheme in response to Bondi.

Background and context

On 14 December 2025, two men opened fire on a Hanukkah celebration at Bondi Beach, New South Wales. Fifteen innocent people, mostly Jewish Australians, were killed. One of the perpetrators was shot and killed by police. That individual, who was not an Australian citizen, held a current New South Wales firearms licence, and the firearms used — two rifles and a shotgun — were legally registered to him.

Within hours, Prime Minister Anthony Albanese stated that Australian gun laws — a responsibility of states and territories — would change. After an urgent meeting of the National Cabinet on 15 December 2025, media reports emerged that state and territory leaders had agreed to make significant changes.

Since then, two issues have dominated the national debate:

i) The number of firearms an individual with a Category A or B licence can own, especially for the 'genuine reasons' of target/sports shooting and hunting (see Appendix A for information about licence classifications and acceptable 'genuine reasons').

   a. In late December 2025, New South Wales legislated to limit the number of firearms a hunting licence holder can own to four, and a target shooter licence holder to ten. Primary producers have also been limited to ten firearms. Previously, in NSW there was no upper limit on ownership for any of these licence types.

   b. New South Wales followed the Western Australian model, introduced in 2024, which limited hunters to five firearms and target shooters and primary producers to 10 (from previously no limits).

   c. Some governments (Queensland, the Northern Territory, and Tasmania) have indicated that they will not be placing caps on gun ownership.

ii) The type of firearms that can be owned.

a. New South Wales has legislated to reclassify all lever-release, button-release, straight pull and pump action firearms, into the heavily restricted Category C.[1]

b. Western Australia reclassified lever- and button-release firearms in late 2024.

c. Some governments (Queensland and the Northern Territory, to date) have indicated that they will not be reclassifying any firearms.

At the time of writing, Victoria had not declared its position on these two issues.

Economic importance of the Victorian firearm owner community

Firearm ownership in Victoria reflects a combination of historical, cultural and economic influences that extend well beyond contemporary policy debates. Over time, a regulated domestic market developed around firearms and related goods and services, supporting a modest but economically meaningful supply chain (Australian Parliament, 2015). A similar process occurred across all Australian states and territories over the 20th century.

Reasons for legal firearm ownership in Australia include sports/target shooting (both handgun and rifle/shotgun), recreational shooting/hunting, primary production, collecting, occupational (e.g., vertebrate pest control), animal welfare (e.g., veterinarians) and business (e.g., firearm dealers, both wholesale and retail).

Long-term, reliable statistics about firearm ownership in Australia are not available. However, based on available information there is clear evidence of a steady increase in legal gun ownership commencing from around the mid 2000's.

By December 2025, there were over 4.1 million legally registered (i.e., privately owned) firearms (or around one firearm for every 6.6 people in Australia) and almost one million licence holders (Australian Government, 2026). The distribution of firearm licenses essentially reflects the population share by state and territory.

- Victoria (26.2% of license holders) accounts for a significant proportion of these, second only to New South Wales (28.1%).

- Victorians own almost 1 million registered firearms, slightly less than in NSW (1.2m) and Queensland (1.1m). (Table 1).

[1] A Category C firearms licence in NSW is highly restricted, primarily available to primary producers or professional pest controllers for specific, high-need scenarios. It covers self-loading rimfire rifles (max 10-round magazine) and pump-action/self-loading shotguns (max 5-round magazine), generally requiring proof that a Cat A/B licence is insufficient.

Table 1 Licences and registered firearms by State and Territory, 2025

State/Territory	Licences[2]	Firearms
NSW	260,946	1,158,654
VIC	243,851	974,279
QLD	231,732	1,143,895
SA	61,498	329,580
WA	73,166	272,453
TAS	36,965	156,339
NT	14,268	55,678
ACT	7,315	22,857
TOTAL	929,741	4,113,735

Source: Australian Government (2026).

Firearm-related activities make a significant contribution to the economy and shooting and hunting activities support multiple types of businesses. These include:

- a combination of 'on trip' and 'off trip' suppliers such as firearm and other specialist hunting/sport shooting equipment dealers (gun shops);
- firearm and related equipment importers;
- hunting and sport shooting clubs;
- hunting guides;
- dog breeders and trainers;
- taxidermists;
- 4WD vehicle equipment retailers, vehicle repairers and dealers, camping equipment dealers; and
- broader 'tourism type' services (e.g., food, fuel, and accommodation services including campsites, caravan parks, motels, and hotels).

In Victoria in 2019, game licence holders alone made an estimated $356 million contribution to Gross State Product (GSP) and supported 3,138 Full Time Equivalent (FTE) jobs. The Victorian Government has indicated that it expects those numbers to be significantly higher today than they were in 2019. Data indicates that average expenditure per hunter is increasing. The strongest predictor of expenditure is participation; for example, hunters who

[2] There may be variations between different states and territories in how licence numbers are counted. For example, some jurisdictions provide figures for individual licencees while others provide number of licences; licence numbers may be greater than individual licencees due to some individuals holding multiple licences (e.g., a Dealer's licence plus a target shooting licence).

spend more on hunting have been found more likely than those who spend less to hunt more frequently.

Law changes that limit firearm ownership are likely to impact hunting/shooting effort (e.g., the number of species that are hunted or number of competitive matches shot), particularly in a state such as Victoria that has multiple different species that can be hunted and legal requirements around calibres/types of firearms that can be used to hunt particular species. Overall reduction in participation and, therefore, expenditure is likely.

What we did

This report undertakes a comprehensive fiscal and economic assessment of a proposed firearm buyback scheme in Victoria based on previous and new statistical analysis of the relationship between the stock of firearms and firearm homicides, including mass shootings.

It begins by examining the cultural and economic footprint of firearm ownership, demonstrating that it is a highly valued activity embedded in parts of the Victorian community and supported by an economically relevant supply chain. This context is important in understanding both the baseline level of activity affected by the policy and the channels through which costs may arise from changes in firearm ownership policy.

The report then reviews the academic and policy literature on firearm buybacks and their relationship to violent crime outcomes, with a particular focus on mass shootings and firearm homicides. Given that the proposed law changes and firearms buyback have been framed in the context of community safety following Bondi, this report focuses primarily on interpersonal violence, such as homicide. Other forms of firearm misuse (such as suicide and accidents) are considered at various points to provide broader context, but the majority of analysis concentrates on intentional acts of violence perpetrated against others.

Building on this foundation, the report undertakes new econometric and statistical analysis to test the central policy proposition — that reductions in the stock of firearms in Victoria will lead to a reduction in firearm homicides and, in particular, mass shooting events. A range of econometric model specifications are explored, including alternative functional forms and robustness checks, to assess whether a credible causal relationship can be identified. The results consistently indicate that such a relationship is not supported by the data, particularly given the rarity of mass shooting events.

On the basis of these findings, the report proceeds to a cost–benefit analysis (CBA) of a stylised Victorian buyback scheme where **20 per cent of the approximately 1 million registered firearms are purchased and then destroyed by the Victorian Government**. Our initial CBA specification applies evidence-based assumptions consistent with the empirical results, while a second specification adopts deliberately favourable assumptions (supporting the gun buyback policy) to test the sensitivity of the conclusions.

The report then estimates the fiscal cost of the scheme and uses a macroeconomic model to assess its broader economic impacts, providing a detailed assessment of how such a policy would affect output, industry activity and welfare across the Victorian economy.

Our findings

Do more guns lead to more firearm homicides?

The empirical analysis undertaken in this report applies a range of econometric and statistical techniques to examine the relationship between firearm availability and key violence outcomes in Australia. Across multiple model specifications the results consistently show no evidence of a statistically significant or robust causal relationship between the stock of firearms and the incidence of mass shootings or firearm homicides.

In particular, the rarity of mass shooting events makes it impossible to establish any credible population-level linkage between firearm prevalence and such incidents.

These findings are reinforced by the broader statistical evidence, which indicates that observed declines in firearm homicides over time are more plausibly explained by long-run socioeconomic trends rather than discrete policy interventions affecting firearm stock. Taken together, the results suggest that variations in firearm ownership are not a primary driver of violent crime outcomes in Australia, and that policy claims linking reductions in firearm stock to meaningful decreases in mass shootings or firearm homicide rates are not supported by the available data.

Cost benefit analysis of the gun buyback policy

When assessed within a formal economic framework, the limited and uncertain benefits of a gun buyback policy are overwhelmingly outweighed by clear and measurable costs, resulting in a **benefit–cost ratio of approximately 0.01** — meaning that for every dollar invested in this proposal, the return to society would be less than 1 cent. There are two key drivers of this result.

- First, there is no evidence that a 20 per cent gun buyback would prevent mass shootings, which are rare and idiosyncratic events. Moreover, there is no statistically significant relationship between the stock of firearms and firearm homicides once long-term economic and social trends are accounted for.

- Second, because the 'bought back' firearm is destroyed, the fiscal cost of the policy is counted as a net cost to society rather than a transfer between groups (i.e. from the taxpayer to the gun owner). In other words, because the buyback involves the destruction of a privately held asset, the taxpayer bears the full cost of funding the scheme, while the firearm owner is, in principle, left no better or worse off after exchanging the asset for cash compensation at market value.

We then ran a second specification whereby we deliberately adopted favourable assumptions (supporting the gun buyback policy) to test the sensitivity of the conclusions. In this scenario, we accepted the following proposition:

- The Victorian 20 per cent gun buyback will prevent all future public mass shootings perpetrated using licenced firearms in Victoria.

- The gun buyback will reduce the frequency of homicides, based on a statistical analysis of the change in the stock of firearms vis-à-vis the change in the firearm homicide rate. We note here that the relationship was found to be not statistically significant, but for this specification we nevertheless accepted the relationship.

Under this second more generous CBA, the **benefit–cost ratio was 0.43, well below the threshold of 1.0 required to justify the policy**. Accordingly, even on the most optimistic interpretation of its benefits, the buyback represents a net loss to society.

This implies that, even on the most optimistic assumptions for the gun buyback policy, for every dollar of cost incurred, only around forty-three cents of benefit is realised.

Fiscal cost of the gun buyback

We then proceeded to estimate the fiscal costs of a 20 per cent Victorian gun buyback scheme. The fiscal costs of the scheme are estimated to be largely an upfront payment to registered firearm owners in the first year. There would also be upfront and ongoing administration costs. These costs were estimated based on the administration costs of the Howard Government buyback. The key assumptions are as follows:

- The average cost paid per firearm is $2,000 multiplied by approximately 200,000 firearms 'bought back'.

- The Year-1 administration cost of $33.6 million, which reflects the costs of the Howard-era gun buyback scaled to Victoria and adjusted for inflation.

- Ongoing administration and compliance costs (estimated at approximately $5 million per year), including registry management, enforcement, firearm disposal, auditing, legal processes and inter-agency coordination.

Table 2 sets out the fiscal costs in nominal dollars (i.e. as would be reported in the budget papers) over the four-year forward estimates period.

Table 2 Fiscal costs of Victorian gun buyback, $m nominal

Cost category	2026-27	2027-28	2028-29	2029-30
Buyback ($m)	404.0	0.0	0.0	0.0

Administration ($m)	33.6	5.0	5.0	5.0
Total ($m)	**437.6**	**5.0**	**5.0**	**5.0**

Source: Tulipwood Economics analysis.

Economic cost of gun buyback on Victoria

The economic costs of a Victorian gun buyback scheme are broader than the fiscal costs.

The economic costs of the proposed buyback extend beyond the direct fiscal outlay to include the deadweight cost of taxation and broader economy-wide impacts. These costs were assessed using Qaive's Computable General Equilibrium (CGE) model, incorporating both the fiscal shock and supply chain effects under a 50/50 gun buyback funding split between Victoria and the Commonwealth.

The results indicate a clear contractionary impact on economic activity.

- Over the four-year forward estimates period, **Victorian output is estimated to decline by approximately $307 million (in net present value terms), with a further $105 million reduction in the rest of Australia, yielding a total national loss of around $412 million**. This reflects the diversion of resources away from productive uses toward a policy that does not generate offsetting economic gains. The impacts are not confined to Victoria, demonstrating that the policy reduces national output rather than simply redistributing activity across jurisdictions.

- Labour market and household effects reinforce this result. In the first year of the policy, **employment in Victoria is estimated to fall by around 432 full-time equivalent (FTE) jobs, with broader national losses of approximately 791 FTE**s.

- At the same time, **private spending declines by around $112m in Victoria in Year-1 and by $90.20m nationally, reflecting reduced disposable income and weaker economic activity**. Taken together, these results show that the buyback is not a neutral fiscal transfer, but a policy that imposes real economic costs—reducing output, employment and household consumption—even under a shared funding arrangement and before accounting for the broader welfare losses identified in the CBA (Table 2).

Table 3 Impacts on Victoria, 2026-27 to 2029-30, Gun Buyback jointly funded and supply chain impacts included

Impact	GDP ($m)	Employment (FTE)	Private spending ($m) Year-1 impact
NPV (7%, 4 yrs)	4-years	Year-1 impact	

Impact on Victoria	-$307.1	-432	-$111.7
Impact on Rest of Australia	-$105.2	-359	-$90.2
Total impact	**-$412.3**	**-791**	**-$201.9**

Source: Tulipwood Economics using Qaive's proprietary CGE model.

Conclusion

The analysis presented in this report leads to a clear conclusion.

When assessed through a cost–benefit framework, the policy performs poorly. Even under deliberately generous assumptions — effectively granting the policy full credit for preventing mass shootings and reducing firearm homicides — the benefits remain insufficient to offset the fiscal, economic and welfare costs. These costs include the direct budgetary outlay, the deadweight cost of taxation, losses in consumer and producer surplus, and broader economic impacts along the Victorian firearms supply chain. The result is a policy that generates a net loss to the Victorian community across all credible scenarios.

A Victorian firearm buyback scheme would impose substantial costs while failing to achieve its stated objectives. The econometric and statistical evidence does not support the proposition that reductions in the firearm stock would lead to a measurable decline in mass shootings. These events are rare, driven by complex factors, and not credibly explained by changes in aggregate firearm ownership. As a result, the central policy rationale for a large-scale buyback is not supported by the available data.

More broadly, the findings highlight the risks of pursuing high-cost interventions without a robust evidentiary basis. Public resources are scarce, and policies should be directed toward measures that demonstrably improve safety and wellbeing. A firearm buyback scheme, as assessed in this report, does not meet that standard. Accordingly, it cannot be recommended as an effective or efficient policy response to gun-related harm in Victoria.

1 The cultural and economic footprint of gun ownership in Australia

1.1 Introduction

Firearm ownership in Australia reflects a combination of historical, cultural and economic influences that extend well beyond contemporary policy debates. While Australia has never had the same scale of civilian gun ownership as some other countries, firearms have long been embedded in rural life, agricultural practice, hunting and sporting traditions (Alpers, Rossetti & Wilson, 2020). Historical factors have also played a role: firearm skills contributed to Australia's military performance and, conversely, returning servicemen from conflicts such as the First and Second World Wars and Vietnam contributed to familiarity with firearms and, in some cases, brought weapons or firearm skills back into civilian life—though this was not the dominant driver of ownership (Squires, 2014). Over time, a regulated domestic market developed around firearms and related goods and services, supporting a modest but economically meaningful supply chain (Australian Parliament, 2015). Understanding this broader context is important, as it highlights that firearm ownership in Australia is shaped by practical use, cultural norms and institutional settings, rather than being solely a function of crime or public safety considerations.

1.2 Legal firearm ownership

Reasons for legal firearm ownership in Australia include sports/target shooting (both pistol and rifle/shotgun), recreational shooting/hunting, primary production, collecting, occupational (e.g., vertebrate pest control), animal welfare (e.g., veterinarians) and business (e.g., firearm dealers, both wholesale and retail).[3,4]

In December 2025, there were over 4.1 million legally registered (i.e., privately owned) firearms[5] (or around one firearm for every 6.6 people in Australia) and almost one million licence holders (Australian Government, 2026; Table 1-1).

Table 1-1 Licences and registered firearms by State and Territory, 2025

State/Territory	Licences[6]	Firearms

[3] Law enforcement and military are not included in this market.
[4] Further detail about each of these 'genuine reasons' is at Appendix X.
[5] Counting convention is to not include stock held by firearms dealers in these figures.
[6] There may be variations between different states and territories in how licence numbers are counted. For example some jurisdictions provide figures for individual licencees while others provide number of licences; licence numbers may be

NSW	260,946	1,158,654
VIC	243,851	974,279
QLD	231,732	1,143,895
SA	61,498	329,580
WA	73,166	272,453
TAS	36,965	156,339
NT	14,268	55,678
ACT	7,315	22,857
TOTAL	929,741	4,113,735

Source: Australian Government (2026).

Figures from New South Wales (the only jurisdiction that publishes detailed information) indicate that the majority of end users who hold Category A and B licences[7] are target shooters or hunters (a minimum of 80 per cent, based on the figure that 80 per cent of licence holders have hunting as a genuine reason).[8]

- There are around 100 different target shooting disciplines and types of competitive matches number in the hundreds in Australia.

- Hunted animals include both native (such as ducks) and introduced (sometimes referred to as pests, feral, or invasive) species. Introduced species include rabbits, hares, foxes, cats, pigs, wild dogs, goats, buffalo, and six species of deer.

- Many of those species have been recognised as major threats to important biodiversity, environmental, and agricultural resources (Bengsen & Sparkes, 2016)

Long-term, reliable statistics about firearm ownership in Australia are not available. Pre-1996 figures[9] are estimates only and based heavily on International Crime Victim Survey (ICVS) data (e.g., van Dijk, van Kesteren & Smit, 2007) and other self-report surveys. In the 1989 ICVS survey, 404 out of 2012 Australian respondents indicated that they owned a firearm (around 20%). In 1992, 321 out of 2006 Australian respondents said they owned a firearm (around 16%).[10,11]

greater than individual licencees due to some individuals holding multiple licences (e.g., a dealers licence plus a target shooting licence).

[7] Further detail about Category types is at Appendix A.

[8] One individual can hold multiple licence types and have multiple genuine reasons; exact breakdowns by individual are not published. Out of 496,113 Category A and B licences in NSW at December 2025, 424, 452 were for hunting and 113,443 were for target shooting, giving a total of 537,895 – meaning that there were 41,782 more individual reasons, than total licences (i.e., shooters had more than one genuine reason). These figures do not refer to individual licence numbers, but to 'genuine reason' numbers.

[9] i.e., before all states and territories adopted the National Firearms Agreement, which required mandatory registration of all firearms.

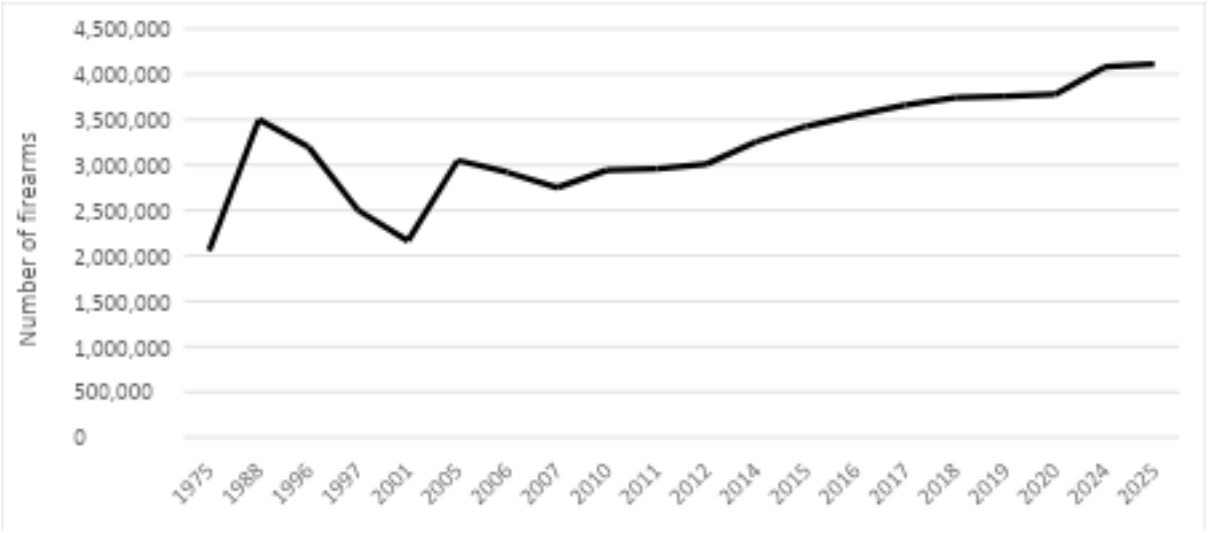
[10] Australia did not participate in the 1996 survey.

[11] To put this in context, however, the number of Australian respondents was around 2000 for each year.

- In the late 1980s, it was estimated that there were around 3.5 to 4 million guns in private ownership in Australia (Chappell, Grabosky, Wilson, & Mukherjee, 1988).
- Gun control groups cited a figure of about 4.25 million guns pre-1996, while gun ownership groups cited up to 11 million.
- It has been suggested that there were about 3.2 million firearms in 1996 (Reuter & Mouzos, 2003). Based on 1996 population figures, that equates to around one firearm for every 5.7 people.
- In 1997, based on a NewsPoll telephone survey of 2,400 people, it was estimated that there were 2.5 million guns in Australia. Based on 1997 population figures, that equates to around one firearm for every 7.4 people.
    - That survey also estimated that 1.2 million people owned firearms and that the incidence of firearm ownership had dropped relatively little over the past 12 months due to many gun owners retaining possession of firearms (NewsPoll, 1997).

States and territories have not consistently published post-1996 information about firearm ownership, however based on available information there is clear evidence of a steady increase commencing from around the mid 2000's (Figure 1.1).

Figure 1-1 Gun ownership in Australia, 1975 to 2025



Sources: Australia Institute (2025a); Australian Government (2026); Gunpolicy.org (2022); Reuter & Mouzos (2003). Note that the years 1975, 1988, 1996 and 1996 are estimates only and that data is not available for all years.

1.3 Economic contribution of shooting and hunting

Firearm-related activities make a significant contribution to the economy.

- Shooting group estimates based on member surveys suggest that in an average year, around 40 per cent of members spend between $1,000 and $5,000 on firearms specifically, while an additional 10 per cent spend more than $5,000 on travelling for shooting activities (Sporting Shooters Association of Australia, 2026).

- A 2006-07 Game Victoria mail survey found that, on average, hunters spend $2,396 per year on their activities (RCMG, 2014).

- In 2011-12, a national survey that have looked only at hunting expenditure found that the average direct expenditure on hunting was $1,835 per person per annum, whereas indirect expenditure was $2,168 (Finch, Murray, Hoy, & Baxter, 2014).

- Statistics from the NSW Department of Primary Industries (DPI) showed that in the 2019-20 financial year, hunting was worth more than $1.4 billion to that state's economy, which was greater than wool output in the same year ($1.09 billion). (Hogan, 2021).

More detailed economic analyses show that shooting and hunting activities support multiple types of businesses. These include a combination of 'on trip' and 'off trip'[12] suppliers such as firearm and other specialist hunting/sport shooting equipment dealers (gun shops) and importers, hunting guides, taxidermists, hunting and sport shooting clubs, dog breeders and trainers, 4WD vehicle equipment retailers, vehicle repairers and dealers, camping equipment dealers, and broader 'tourism type' services (e.g., food, fuel, and accommodation services including campsites, caravan parks, motels, and hotels).

Table 1-2 summarises key findings from recent reports on the economic contribution of shooting and hunting to gross expenditure, Gross Domestic Product (GDP)/Gross State Product (GSP), and fulltime equivalent (FTE) jobs.

[12] 'On trip' expenses typically measured in studies include: Fuel; Long-distance transport (e.g., airfares if hunting interstate); Takeaway and restaurant meals; Groceries; Accommodation; Ammunition; Other supplies; Vehicle repairs; Competition fees/fees to landowners/fees to hunting guides. 'Off trip' expenses include: Firearms; Ammunition; Other equipment (e.g., camping goods, photography equipment); Specialised clothing; Vehicles/boats (specific for purposes); Vehicle repairs; Taxidermy fees; License fees; Hunting dog expenses; Hunting/shooting club memberships; Training/practice (e.g., range visits to test equipment).

Table 1-2 Economic contribution of shooting and hunting, recent evidence

	Economic and social impacts of recreational hunting and shooting (RCMG, 2019)	Economic contribution of recreational hunting in Victoria (RCMG, 2020)	Estimating the economic impact of hunting in Victoria in 2013 (RCMG, 2014)	Economic contribution of recreational hunting and shooting to the Tasmanian Economy (BDO EconSearch and AMR, 2023)	Economic contribution of recreational hunting in NSW (RCMG, 2023)
Year/s conducted	2019	2019	2013	2023	2022
State	National	Victoria	Victoria	Tasmania	New South Wales
Method/s	Online survey	Online survey	Online and telephone survey	Online survey	Online survey
Study focus	Hunting and sports shooting	Hunting only	Hunting only	Hunting and sports shooting	Hunting only
Sample size	16,576 hunters and sports shooters	1,671 Victorian game licence holders	994 Victorian game licence holders	953 Tasmanian game hunting licence and sports shooting licence holders	5,207 NSW hunting licence holders (3,370 Restricted Class Licence holders, 708 General Class Licence holders, 1,129 who did not hold a game hunting licence)

Table 1-3 Economic contribution of shooting and hunting, recent evidence (cont.)

	Economic and social impacts of recreational hunting and shooting (RCMG, 2019)	Economic contribution of recreational hunting in Victoria (RCMG, 2020)	Estimating the economic impact of hunting in Victoria in 2013 (RCMG, 2014)	Economic contribution of recreational hunting and shooting to the Tasmanian Economy (BDO EconSearch and AMR, 2023)	Economic contribution of recreational hunting in NSW (RCMG, 2023)
Contribution to GDP/GSP	$2.4 billion total in GDP $0.8 billion direct $1.6 billion flow-on	$356 million in GSP[13] $160 million direct $196 million flow on	$439 million in GSP $177 million direct $262 million flow on	$88.4 million in GSP $48.0 million direct $40.4 million flow-on	$508.9 million in GSP $196.1 million direct $312.8 million flow on
Gross expenditure	$1.93 billion	$351 million	$417 million	$133.5 million	$601.6 million
Jobs (FTE)	19,500 FTE total 8,800 direct 10,700 flow-on	3,138 FTE total 1,626 FTE direct 1,513 FTE flow-on	2,382 FTE total 1,115 FTE direct 1,268 flow-on	676 FTE total 438 FTE direct 238 FTE flow-on	4,192 FTE total (3,454 FTE from firearm hunting only) 2,273 FTE direct 1,918 FTE flow-on

[13] Discrepancies between 2019 and 2013 are likely due to changes in duck hunting seasonal conditions leading to reduced opportunities to hunt duck.

Nationally, the states where the highest amount of expenditure occurred were New South Wales ($650 million) and Victoria ($512 million; $192m on-trip and $320m off-trip), collectively accounting for 60 per cent of total expenditure. This is due to the relatively large populations of hunters and shooters in these two states and the tendency for hunters and shooters in other states to make expenditures there (RCMG, 2019).

Out of the national sample (RCMG, 2019), 99 per cent of respondents had gone on at least one hunting or shooting trip in the last twelve months.[14]

- It was also found that around 70 per cent of hunters and shooters who had not made a hunting or shooting trip in the last 12 months still made relevant expenditures and that they spend around 42 per cent as much as more 'active' hunters and shooters on average.

- The strongest predictor of expenditure was participation; for example, hunters who spent more on hunting have been found more likely than those who spent less to hunt more frequently.

Nationally, on-trip expenditures accounted for 37 per cent of total expenditures associated with hunting and sports shooting. Around one-quarter of on-trip expenditure was made on fuel and one-fifth on groceries. The other most significant on-trip expenditure items were ammunition, takeaways and restaurant meals and accommodation.

Off-trip expenditures accounted for the remaining 63 per cent of the total, half of which was on firearms, bows, other firearm equipment and ammunition. The other most significant off-trip expenditures were on vehicles/motorbikes/boats (purchased with hunting in mind) and other equipment to support hunting/shooting activities.

Regarding whether shooting and hunting would be substituted with other forms of discretionary spending if current shooters and hunters could no longer participate:

- The net contribution to GDP from recreational hunting and sport shooting activity in Australia in 2018 was estimated to be $335 million in total comprising $80 million directly and $255 million as a result of flow-on economic activity.

- The net contribution estimate is approximately 14 per cent of the gross contribution estimate.

- The net contribution to FTE employment from recreational hunting and sport shooting activity in Australia in 2018 was estimated to be approximately 3,300 FTE in total comprising 2,000 directly and 1,300 as a result of flow-on economic activity.

- The net contribution estimate is approximately 17 per cent of the gross contribution estimate (RCMG, 2019).

[14] The survey sample was not random, self-selection bias was expected to skew the results to over-represent active participants.

Some studies estimate that the number of hunters in Victoria nearly tripled over the 14 years prior to 2016 (Bengsen & Sparkes, 2016). In the national economic analysis, Victoria was estimated to have 131,104 firearm hunters and 6,970 sports/target shooters (who only undertook that activity) (RCMG, 2019).

- A total of 4,112 responses to that survey were from Victoria.
- Of those, 2,244 were from regional Victoria and 1,868 were from metropolitan areas.
- In Victoria, the estimated gross contribution of national recreational hunting and sports shooting activity to employment (FTE) in 2018 was 2,479 direct, 2,284 flow on (intrastate) and 916 flow on (interstate).

In Victoria, in 2013, pest animal hunting had the most significant GSP impact ($59 million), followed by deer ($57 million), duck ($43 million), and quail ($18 million). The economic impact of hunting activity was estimated to make up 0.13 per cent of the Victorian economy. Impacts were spread across the state; total hunting-related expenditure in top 20 towns was estimated to be $135 million, which accounts for 54 per cent of total non-metropolitan game hunting-related expenditure ($250 million) (RCMG, 2014).

Total expenditure across all Local Government Areas (LGAs) was estimated to be $416.9 million:

- 40 per cent ($166.6m) was spent in the Melbourne region.
- 60 per cent ($250.3m) was spent in the non-metropolitan LGAs.
- Of the non-metropolitan LGAs, the largest expenditures occurred in Wellington ($25.8m), Latrobe ($18.5m), Baw Baw ($16.8m), Greater Bendigo ($16.5m) and Mansfield ($14.6m).

Among the Regional Development Victoria (RDV) regions, the largest impacts were estimated for the Gippsland Region where hunting expenditure of $76 million generated direct Gross Regional Product (GRP) of $28 million and direct full-time equivalent (FTE) employment of 267 jobs.

Total expenditure across all animal groups was estimated to be $416.9 million, 58 per cent ($240.4m) of which was on on-trip items and 42 per cent ($176.5m) on off-trip items.

The main categories of off-trip expenditure were:

- Vehicles ($57.7m)
- Firearms ($30.6m)
- Vehicle equipment/accessories ($14.2m).
- Ammunition ($12.8m).

The main on-trip expenditures were:

- Fuel ($61.1m)
- Ammunition ($34.0m)
- Groceries ($33.1m)
- Other hunting equipment ($32.0m) (RCMG, 2014).

In Victoria in 2019 (a diminished hunting season, due to restricted duck hunting), the main off-trip expenditures were:

- Firearms ($45.3m)
- Vehicles ($24.7m)
- Other hunting equipment ($21.1m)
- Vehicle maintenance ($13.5m)
- Ammunition ($13.3m)

The main on-trip expenditures were:

- Fuel ($48.9m)
- Groceries ($36.7m)
- Hunting equipment ($36.5m)
- Other ($24.3m)
- Ammunition ($19.8m) (RCMG, 2020)

The Victorian Government has indicated that it expects the economic contribution of hunting, in terms of GSP contribution and jobs, to be significantly higher today than in 2019 (Dimopoulos, 2026).

Data indicates that average expenditure per hunter is increasing; for instance, New South Wales analysis found that hunter expenditure had increased by 26 per cent (in nominal terms) between 2017 and 2022. In 2022, hunting in New South Wales accounted for 4192 FTE jobs and $509 million gross economic contribution). Regarding hunting method, 81 per cent of economic contribution was estimated to come from firearm-related hunting (RCMG, 2023).

In Tasmania, the total economic contribution of hunting and sports shooting for 2022 was estimated to be $88.4 million in GSP ($48.0 million direct and $40.4 million flow-on) and 676 FTE jobs (438 FTE direct and 238 FTE flow-on jobs).

- Deer-related hunting activity accounted for 33 per cent of total economic contribution: $29.3 million in GSP ($15.9 million direct and $13.4 million flow-on) and 223 FTE jobs (144 FTE direct and 79 FTE flow-on jobs).

- Other hunting activity accounted for 43 per cent of total economic contribution: $37.9 million in GSP ($20.5 million direct and $17.4 million flow-on) and 289 FTE jobs (186 FTE direct and 103 FTE flow-on jobs).

The Tasmanian survey also provided information about sport shooting activity, which accounted for 24 per cent of total economic contribution: $21.2 million in GSP ($11.7 million direct and $9.6 million flow-on) and 165 FTE jobs (108 FTE direct and 56 FTE flow-on jobs).

The main on trip expenditure items were:

- Fuel ($19.3m)

- Groceries ($16.6m)

- Ammunition ($14.5)

- Hunting/shooting equipment ($14.4m)

The main off-trip expenditure items were:

- Firearms ($10.7m)

- Vehicles ($7.0m)

- Ammunition ($5.1m)

- Hunting/shooting equipment ($4.6m) (BDO EconSearch and AMR, 2023).

In RCMG's study of hunting in Victoria, the economic contribution of expenditure in Victoria was $7,295 in GSP and 0.06 FTE jobs per hunter (slightly lower than the comparable figures in Tasmania of $7,606 in GSP and 0.06 FTE jobs per hunter, likely explained by higher hunter activity rates in Tasmania compared with Victoria). Expenditure per hunter in Victoria was an estimated $7,192 per hunter relative to estimated expenditure of $11,606 per hunter in Tasmania (BDO EconSearch and AMR, 2023).

Law changes such as gun limits are likely to affect hunting/shooting effort (e.g., the number of species that are hunted or number of competitive matches shot), particularly in a state such as Victoria that has multiple different species that can be hunted and legal requirements around calibres/types of firearms that can be used to hunt particular species. Overall reduction in participation and therefore expenditure is likely.

Animal management

In 2021, the national economic impact of vertebrate pests in Australia was estimated to be around $63 billion annually (Bradshaw, Hoskins, Haubrock, et al. 2021). New South Wales had the highest costs, followed by Western Australia and Victoria. Hunters contribute to managing introduced animal species in Australia. There are a number of programs in place around Australia to connect volunteer hunters with landholders (such as the Sporting Shooters Association of Australia 'Farmer Assist' program). This is in addition to less formal hunter contributions to removing pest species.

It is unclear what the impacts of the gun buyback would be on hunter participation in pest species management, or what the flow-on economic impacts would be for landholders (for example, in having to hire paid workers to undertake shooting that is no longer performed by volunteer hunters). It is unclear what amount governments would need to spend to compensate for lost hunter effort, in the event of reduced hunting activity due to gun limits and restrictions on firearm types.

'Intangible' measures

In addition to economic aspects, some reports have assessed more 'intangible' measures such as physical activity and wellbeing. For example, RCMG (2019) found that:

- An average hunting/shooting trip involving three hours of time constituted between 86 and 116 minutes of moderate physical activity, contributing significantly to the objective of 150 minutes of moderate physical activity each week.

- For those who hunt/shoot only a small number of times a year, hunting/shooting will contribute a relatively small amount of their overall physical activity. For those who hunt/shoot regularly, it will contribute a significant amount.

- Based on a conservative estimate, hunting/shooting alone provides 44 per cent or more of required physical activity for the 23 per cent of hunters/shooters who hunt/shoot most weeks or more frequently.

- For those who hunt/shoot around once a fortnight – almost one in four hunters/shooters (24%) – between 30 and 40 per cent of physical activity needs are met.

- For those who hunt/shoot once every month (18%) or once every couple of months (16%), between 7 and 18 per cent of physical activity needs are met.

Overall, hunters and shooters were more likely to meet sufficient physical activity requirements than the average Australian adult:

- 58 per cent met physical activity recommendations, compared to only 44 per cent of Australian adults, including 61 per cent of those aged 18-59 (compared to 48% of

those aged 18-64 in the general population), and 53% of those aged 60 and over (compared to 28% of those aged 65 and over in the general population).

- The proportion with sufficient physical activity is higher for those who hunt/shoot more often, an indicator that hunting/shooting is making a contribution to meeting physical activity guidelines.[15]

Shooters and hunters have also been found to have better wellbeing than the general population, for all age groups and both sexes (RCMG, 2019). It is recognised that a person's subjective wellbeing relates to life outcomes. Those with higher wellbeing typically live longer, have fewer health problems and reduced demand on health services, and are better able to contribute to their community, work and family (RCMG, 2019).

The 'wellbeing gap' was largest for younger age groups – younger hunters/shooters reported much higher wellbeing than young people in the general population, while older hunters/shooters report slightly higher wellbeing compared to the general population. This suggests that hunting and shooting may potentially have more significant wellbeing benefits for younger people, particularly those aged under 60. There was also a clear and strong association between frequency of hunting /shooting and subjective wellbeing, with those who had been on more frequent hunting/shooting trips on average reporting higher wellbeing (RCMG, 2019). [16]

Overall, this suggests a potential wellbeing benefit generated through participation in hunting/shooting activities, that may also extend beyond private wellbeing to broader social wellbeing in the form of reduced demand on services and increased community participation.

[15] These findings are associations: they do not identify whether the reason for the high activity levels of older hunters/shooters is because only those who have managed to maintain high activity still engage in this activity, while others stop hunting and shooting activities as they become older.
[16] A longitudinal study would be needed to confirm whether shooting/hunting lead to better wellbeing, or are merely associated with it.

2 Proposed gun buyback policy

2.1 Post-Bondi 'buyback' program

The Australian Government has announced that a 'buyback' program will be run to compensate owners of newly reclassified firearms, and those who have firearms in excess of newly legislated limits. The program will purchase "surplus, newly banned and illegal firearms" (Australian Government, 2025). Although details have not been released, it appears that the scheme will be modelled on the 1996 national buyback program. That program ran after semi-automatic firearms and pump-action shotguns were prohibited following the Port Arthur massacre. It provided monetary compensation to firearm owners who could no longer own those firearms.

Between 1996 and 1997, 643,726 newly prohibited firearms were handed in with compensation payments made at "fair value" (market value).[17] The buyback program was budgeted at $500 million and financed by a one-off 0.2 percent Medicare levy.[18]

- Total public expenditures were about $320 million (approximately $500 per gun, in 1996 dollars).
    - The total cost of compensation to individual owners was about $304 million.
    - By the end of the scheme, a total of 480 claims had been submitted by firearm dealers for loss of business.[19]
    - About five per cent of compensation payments made in Victoria were for parts and accessories. No figures were available for other states and it remains unclear how much was paid in compensation for surrenders of significant quantities of spare parts.
- Around $57 million was paid to the States and Territories to cover the costs of establishing, promoting and operating the scheme.
- $4 million was allocated to a national public education campaign.

[17] Additional firearms were handed in that were not prohibited. Note that the figure of 643,726 is less than the figure cited by Reuter & Mouzos (2003). This may be due to Reuter & Mouzos (2003) including firearms that were handed in, for which compensation was not paid.

[18] There was a smaller scale buyback of handguns in 2003 plus multiple uncompensated amnesties run at various periods, with an estimated total from all buybacks and amnesties of around 1,038, 089 firearms handed in. The handgun buyback is not considered in this report, and amnesties are only mentioned if relevant.

[19] Breakdowns of exact costs paid to dealers are not available, however parliamentary records in Queensland indicate that firearms dealers in that state were compensated $9.975M for loss of business value. Industry estimates suggest that there were around 300 firearm dealers in Queensland in 1996, equating to an average compensation payment per dealer of around $33,250 for loss of business. This does not include compensation for stock on hand, nor does it include payouts for non-viable businesses who handed in their dealers licences.

- $1.5 million was allocated for development of an accredited firearms training program.

- $400,000 was allocated to upgrade the National Exchange of Police Information (NEPI) system (Australian National Audit Office, 1997).

The buyback was accompanied by an amnesty period, enabling people to hand in any type of firearm (not just newly prohibited types), however those were not eligible for compensation.

Unlike the 1996 buyback, which was fully funded by the federal government, this buyback program will be split 50:50 between federal and state governments. It does not appear that the Australian Government plans to impose a levy to fund the scheme (Ilanbey, 2026). It is not clear what will, and will not, be compensated. The initial administrative costs of the scheme (i.e., how much it will cost each jurisdiction to set up the scheme, establish collection centres, and dispose of firearms) are not known, however in Queensland they have been estimated at between $120 and $160 million (Levinson, Rabe, & Ilanbey, 2026)

The Prime Minister has stated that the buyback will cost around $1 billion, however industry estimates cost the scheme at up to $15 billion, based on updated market values and extrapolations from the 1996 buyback (SIFA, 2025). Detailed costings have not been released, and the 2026-27 Budget states that disclosure of anticipated costs would prejudice the Commonwealth's negotiations with jurisdictions on funding levels (Commonwealth of Australia, 2026a).

- New South Wales has not announced what value it will attach to surrendered firearms.

- The Tasmanian government is offering 1.5 times market value for surrendered reclassified firearms. If a full New South Wales-type scheme was adopted, including gun limits, that has been estimated as costing Tasmania around $20 million (Levinson, Rabe, & Ilanbey, 2026).

- Western Australia ran its own buyback in 2024-25, and paid up to $1000 per firearm (i.e., a capped payment rather than market value). That scheme cost $64.3 million and 83,764 firearms were surrendered.

- Although Queensland has declined to participate in the buyback, speculative figures suggest the cost of buying firearms at market value could be $680 million in that state, assuming that 400,000 of the state's 1.15 million registered firearms would be captured by the scheme at an average market price of $1700 (Levinson, Rabe, & Ilanbey, 2026).

2.2 Impacts on the legal firearms market

Based on pre- and post-1996 estimates, the 1996 buyback led to the removal of approximately 20 per cent of the nation's total stock of firearms (Reuter & Mouzos, 2003; Table 2-1). Nationally, estimates of the buyback 'compliance' range between 40 percent and 80 percent (Reuter & Mouzos, 2003), meaning that an unknown number of newly prohibited firearms were not handed in for destruction (even in states where registration of firearms was already required).

For example, in Victoria, which had about one-quarter of the Australian population, there were 750,000 registered firearms, of which 220,000 were prohibited in 1996. Approximately 210,000 prohibited guns were handed in, but 20 percent were unregistered, so the 'success' rate for registered prohibited firearms was about 70 percent (Reuter & Mouzos, 2003). Firearms surrendered in Victoria included 29,084 pump-action shotguns, 63,012 semi-automatic shotguns, 91,612 rimfire rifles, and 6216 centrefire rifles (Yaman, 1997).

Table 2-1 Gun Buyback, Totals and Expenditures, by jurisdiction, August 2021

Region	*Number of firearms collected*	*Compensation paid to firearm owners (A$ thousands)*	*Population (100,000s, approximate)*	*Guns per 100,000*
Victoria	207,409	101,823	48	4,300
New South Wales	155,774	83,535	65	2,400
Australian Capital Territory	5,246	2,803	3	1,800
Tasmania	34,584	19,650	5	6,400
Northern Territory	9,474	5,039	2	4,700
Western Australia	51,499	18,758	19	2,700
South Australia	64,811	25,369	15	4,300
Queensland	130,893	67,614	36	3,600
Total	659,940	359,600	193	3400

Source: Adapted from Commonwealth Attorney-General's Department (2002); ABS (2001).

Source: Reuter & Mouzos (2003).

The number of licence holders and firearms that will be affected by the current buyback is unknown.

- In Western Australia – the model other states are being urged to copy – prohibition of lever- and button-release firearms, and limits of five firearms for hunters and 10 for target shooters led to a 24 per cent decrease in total firearm ownership (Government of Western Australia, 2026).

- 83,764 firearms were surrendered (57,053 rifles, 19,166 shotguns and 7,545 handguns).

- In Tasmania, gun control groups have conservatively estimated that around 10,000 individuals would be affected by reclassifications and limits on ownership (Alannah and Madeline Foundation, 2026).

- If correct, that equates to over a quarter (27%) of Tasmania's 36,965 firearm licence holders.

Both of the above figures are broadly consistent with the estimated reduction of around one-fifth, thought to have been produced by the 1996 law changes and buyback scheme.[20]

Around a 20-25 per cent decrease in total privately owned firearm stock is a reasonable anticipated reduction, resulting from reclassification and limits on ownership.

In New South Wales, industry estimates are that gun shop revenues have decreased by up to 80 per cent as a result of the 2025 law changes (SIFA, 2026). This is supported by recently released New South Wales Police data, showing a sharp decline in dealer 'disposal' transactions (i.e., sales) since December 2025 (NSW Government, 2026).

This is consistent with observations from 1996:

- Media reports suggested that about two-thirds of the firearms dealers in Melbourne were expected to close due to decline in turnover (Johnson, 1997).

- There was a short-term increase in the number of rifles and shotguns imported into Australia in 1996 and the first half of 1997, to more than double the usual quantity of imports (Australian Customs Service, multiple years), suggesting at least some degree of substitution from prohibited firearm types to other firearms. This is not incompatible with observations about declines in individual dealer turnover; it may reflect greater market concentration among dealers who were able to withstand a downturn.

- This was followed by a decline in the number of firearms imported in the second half of 1997 and first three months of the 1997-98 financial year, falling almost 70 per cent relative to the previous period (Wainwright, 1998).

- After that decline, import numbers remained relatively steady until around the mid-2000s, after which they began to grow (Australian Customs Service, multiple years). This implies an approximately 10-year downturn in trade in new firearms post-1996 (noting that import figures relate only to new, not second-hand, firearms).

[20] It is acknowledged that the ownership limits set, and the types of firearms prohibited, may have been selected for the specific purpose of achieving a 20-25 per cent reduction in firearm ownership, however there is no information available to confirm whether achieving a certain percentage reduction was a pre-determined policy objective guiding decision-making.

In Victoria, industry estimates suggest that there are around 300 firearm dealers licence holders, with businesses operating throughout all parts of the state. This only takes into account businesses that specifically cater for firearms; other businesses (such as general outdoor suppliers) are also likely to be affected.

In addition, businesses in other states, who trade into Victoria, are likely to be impacted. For instance, industry estimates suggest that some businesses outside New South Wales have experienced a decline in trade of up to 70 per cent due to the new laws passed in that state in December 2025. This indicates that legislative impacts are not just confined to an individual state, but can affect businesses across the country.

A difference between 1996 and today is that if caps on ownership are applied then 'substitution' or 'replacement' is likely to be lower, which will have a more significant and longer-term impact on firearm businesses. Owners who reach their 'cap' will essentially be removed from the pool of customers.

3 Do gun buybacks reduce firearm homicides?

3.1 Introduction

This chapter assesses the evidence in relation to gun buybacks and firearm-related homicides.

- We first look at trends in firearm deaths and injuries.
- Second, we look at the existing literature, particularly studies related to Australia.
- We then look specifically at the evidence about whether a reduction in the stock of firearms reduces the probability of a mass shooting event (see Appendix B for more detail).
- We then look at the more general relationship between the stock of firearms and firearm-related homicides (see Appendix B for more detail).

3.2 Trends in firearms deaths and injuries

Buyback programs seek to reduce the number of firearms owned, with the rationale that this in turn will reduce the occurrence of firearm-related violence, thus improving community safety. This assumption is based in part on observations from Australia in the early 1980s, when firearm-related deaths were increasing and firearm numbers were also thought to be increasing (e.g., Australian Institute of Criminology, 1990). It also draws on research from the United States of America (USA), where estimates of gun ownership suggest that more guns translate to more gun deaths – particularly, homicides (e.g., Miller, Hemenway, & Azrael, 2007).[21]

Australian data shows that firearm-related homicides and suicides, as well as deaths of accidental and undetermined intent[22], have been declining for many decades despite the growth in firearm ownership (Figures 3-1 to 3-3; for broader context, non-firearm homicides and suicides are also shown for panels A and B). In addition, firearm-related injury

[21] Note that the evidence for this is contested and that different studies produce inconsistent and conflicting results, especially when longarms and handguns are considered separately; handguns are much more strongly associated with homicides.

[22] Note that in early decades these figures are heavily dominated by deaths of undetermined intent; it is likely that a proportion of these were suicides, but where there was insufficient proof of intent for a coroner to make a final determination of suicide. The number of deaths of undetermined intent has fallen markedly since the early 2000s.

hospitalisations for assault and unintentional reasons[23,24] have declined since the early 1990s (Figure 3-1).

Figure 3-1 Homicides in Australia, firearm v non-firearm, 1915 to 2025 (rate per 100,000)

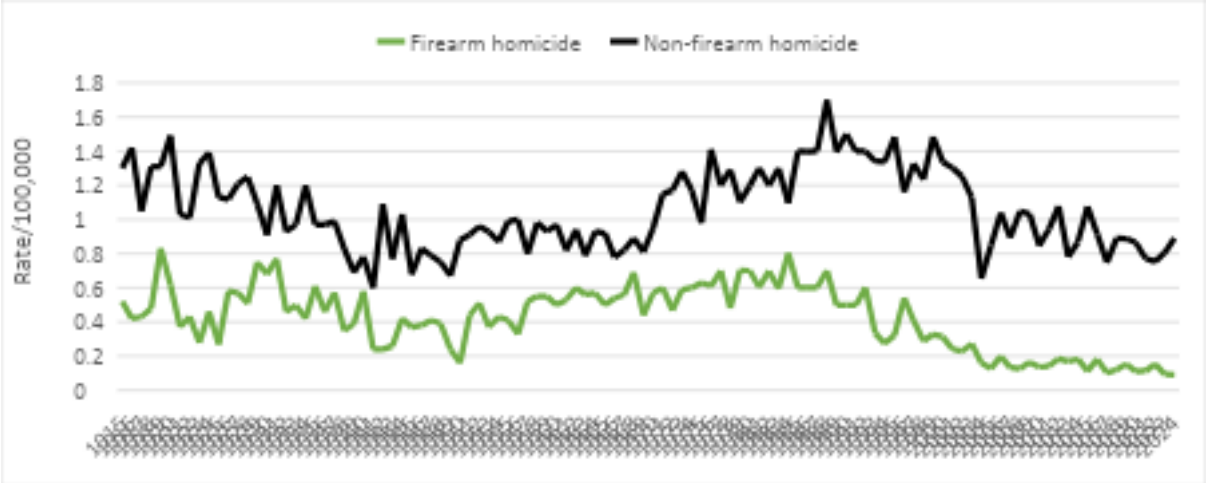
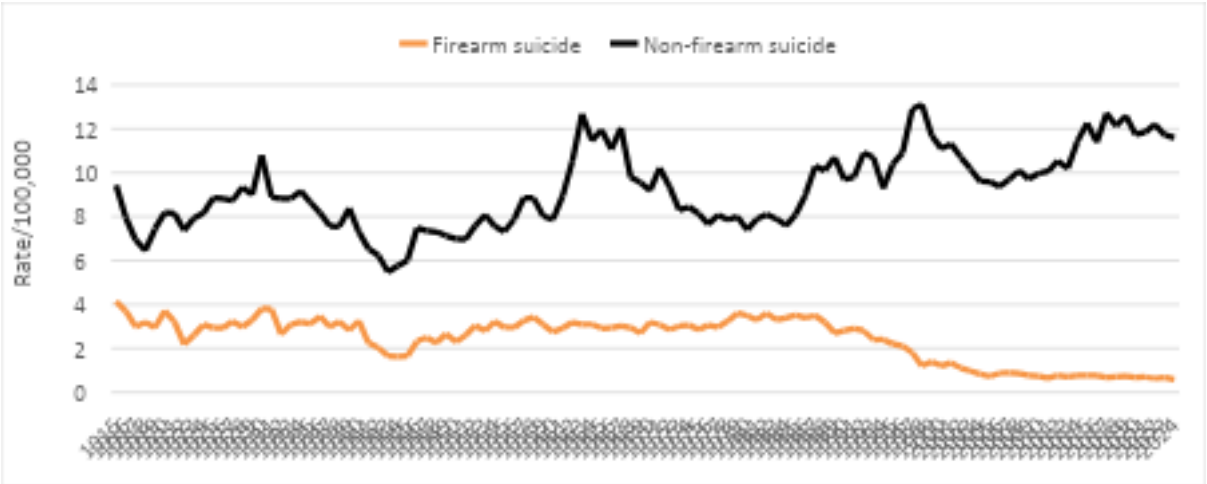
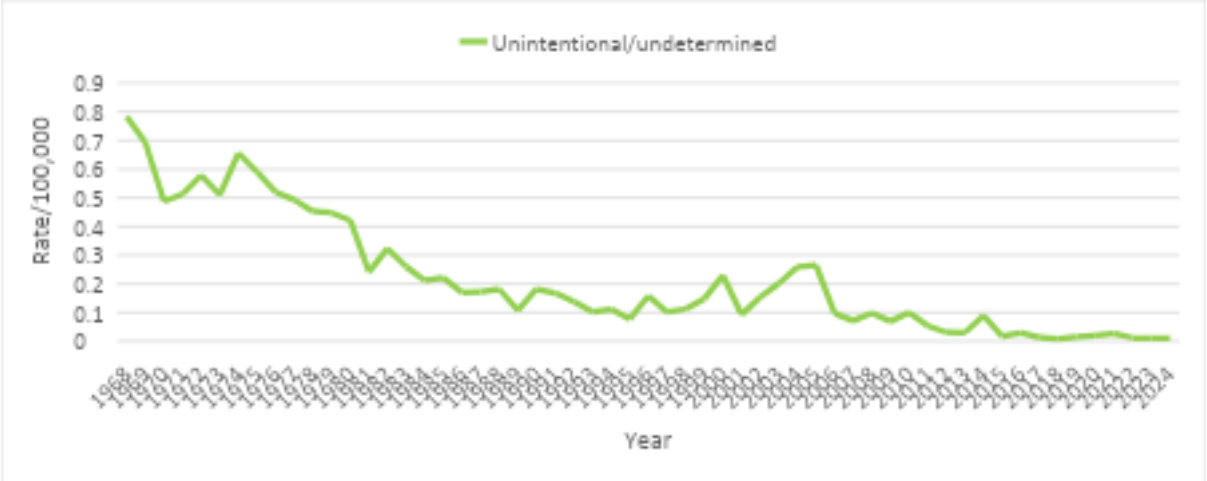


Figure 3-2 Suicides in Australia, firearm v non-firearm, 1915 to 2025 (rate per 100,000)



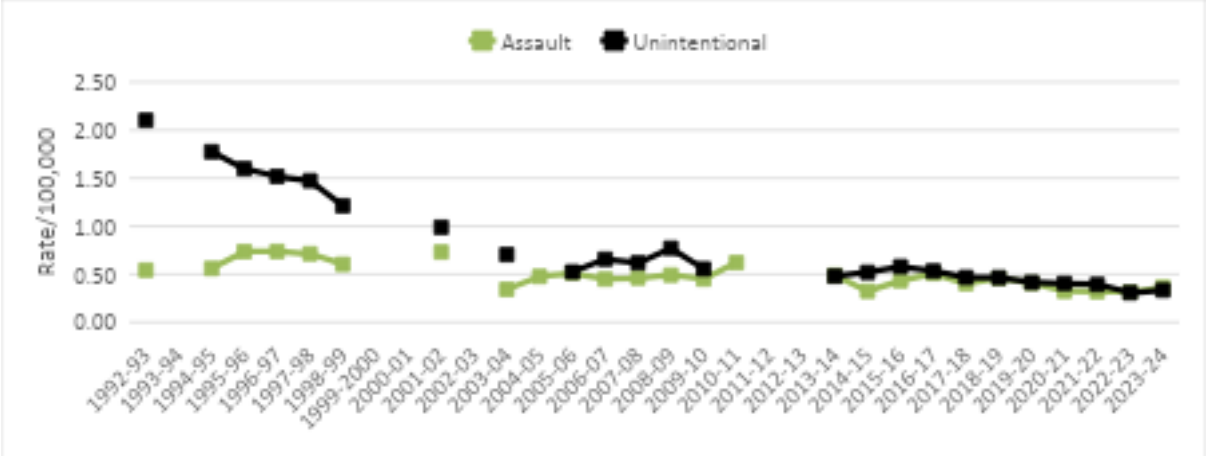
[23] This refers to intentional misuse. For accidental firearm harms, only injuries are shown below. For accidental firearm-related deaths, there have been fewer than five cases per year for the past decade.
[24] There are very few firearm-related hospitalisations for intentional self-harm with a firearm; when firearms are used for self-harm they typically result in fatality (suicide).

Figure 3-3 Unintentional or undetermined firearm deaths, 1915 to 2025 (rate per 100,000)



Source: ABS, Causes of Death, Australia (multiple years).

Figure 3-4 Hospitalisations for firearm-related injury, Australia, 199293 to 2023-24



Source: AIHW (2025).

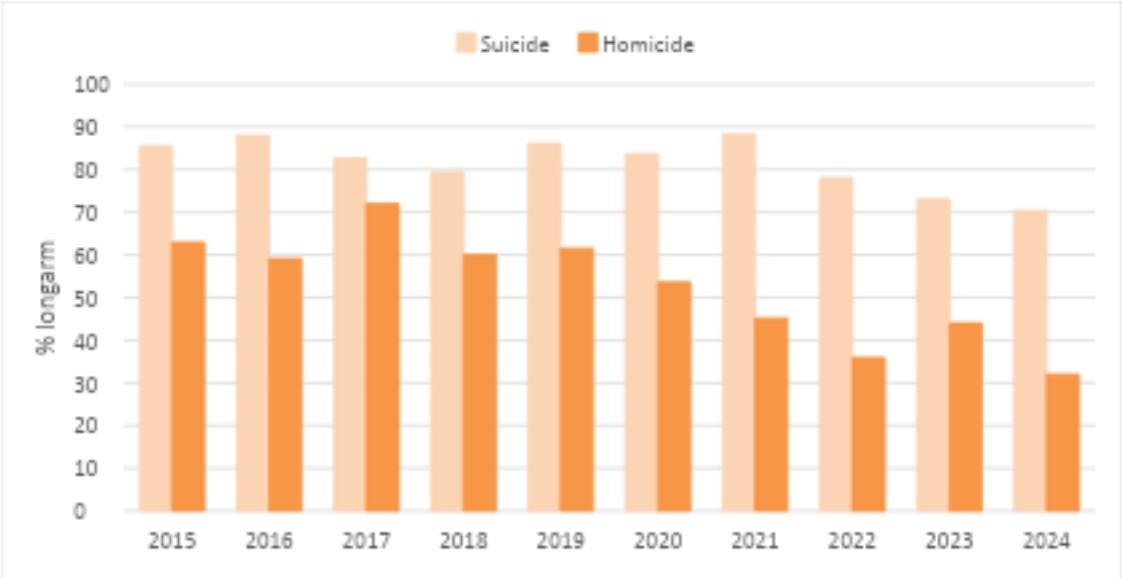
The proportion of different firearm types involved, varies by type of death (Figure 3-5). The majority of suicides over the past decade involved rifles or shotguns (81.5% on average). Far fewer rifles or shotguns were used in firearm homicides (52.6% on average over the past decade).[25] Around 80 per cent of firearms in unintentional deaths involved rifles or shotguns, however there have been fewer than five unintentional deaths per year in Australia for the past decade.

[25] Note that 5.3 per cent of firearm suicides and 26.8 per cent of firearm homicides involved other or unspecified types of firearm.

Although most suicides involve longarms, which will be subject to the buyback, firearm suicide requires only a single shot from one firearm. Ownership limits and restrictions on the type of firearm owned would therefore not be expected to have any impact on suicides.

Around half of firearm homicides involve longarms. This suggests that the maximum impact that could be expected on homicides, which would occur only if <u>all</u> longarm homicides were stopped by the proposed changes, would be around half of the total number of firearm homicides per year.

Figure 3-5 Firearm deaths by rifle/shotgun, 2015 to 2024



Source: ABS, Causes of Death, Australia (multiple years).

3.3 What impacts do buyback schemes have on firearm-related deaths?

A number of studies have examined overall impacts of Australia's 1996 gun law changes on firearm related deaths (primarily suicides and homicides) at the national level:

- Chapman, Alpers, Agho, and Jones (2006) found that the ratio of trend estimates for firearm homicides pre- and post-1996 did not statistically differ ($p = 0.15$). The ratio of trend estimates for firearm suicide differed statistically ($p = 0.007$).

- Baker and McPhedran (2007) found that the pre-existing downward trend observed for firearm homicide continued post-1996. Predicted homicide by firearm (0.28) did not differ significantly from the observed firearm homicide rate (0.27). Suicide rates by firearm pre- and post-NFA both showed decline, but the observed suicide rates post-NFA were consistently lower than the predicted values. The predicted mean suicide rate (1.85) was significantly higher than the observed mean suicide rate (1.22).

- Lee and Suardi (2010) found, using a battery of structural break tests, that there was little evidence to suggest that the 1996 intervention had any significant effects on firearm homicides and suicides.

- Baker and McPhedran (2015) found no significant difference between predicted (0.24) and observed (0.22) firearm homicide rates. The predicted mean firearm suicide rate (1.50) was significantly higher than the observed mean firearm suicide rate (1.05).

- Chapman, Alpers, and Jones (2016) found that after 1996 there was a statistically significant acceleration in the pre-existing downward trend for firearm suicide, but not for firearm homicide.

- Ukert, Andreyeva, and Branas (2018) found that controlling for stochastic trends produced less statistical evidence of the impact of the 1996 laws on firearm mortality than previously reported by Chapman et al. (2016). Introducing artificial interruptions in 1990 through 1995 produced statistically significant decreases in all firearm-related mortality measures well above the expected type 1 error (this study is discussed further below).

- Gilmour, Wattanakamolkul, and Sugai (2018) found that for both men and women, the NFA had a non-significant effect on trends in firearm-related assault mortality (i.e., homicides) over and above a broad decline in rates observed for both firearm- and non–firearm-related deaths. There was no additional effect of the NFA on firearm-related suicide mortality.

- Bartos, McCleary, Mazerolle, and Luengen (2020) found, using a ‘synthetic’ control group constructed from other countries’ data, that from 2002 on, Australia’s homicide rate declined more quickly than the synthetic control. They also examined the impact of the 1996 intervention on motor vehicle fatalities, finding no impact, and concluded that this showed a causal impact of the buyback program on homicide rates. They found “only an idiosyncratic effect” on suicides (p.135). However, that study looked at homicide and suicide rates overall, rather than firearm homicide and suicide rates specifically, meaning that it does not give any insights into firearm-related deaths.

- Duenow and Connelly (2024) found that, using a ‘synthetic’ control group constructed from other countries’ data (Spain, Chile, and the USA for homicides, and Denmark, Norway, Greece, and Finland for suicides), there was a statistically

significant post-1996 drop of around 0.135 firearm-related homicides per 100,000 (or around 35 firearm-related deaths per annum). The rate of suicides by firearm dropped by an average of 0.299 per 100,000 population, per year (a population estimate of 77 firearm-related suicide deaths per annum). However, that study found a notable increase in homicide by other means, offsetting any overall benefits from reduced firearm homicides. Some evidence was also found for substitution of other suicide methods.

Studies that are based on real-world Australian data, that look specifically at firearm suicides and homicides, generally find that there may have been some effect of the laws on reducing firearm suicides, but less (or no) evidence for any effect on firearm homicides.

The 1996 gun laws encompassed a wide range of measures, including changes to licencing requirements (such as fit and proper person status and disqualifying offences), mandatory registration of all longarms, waiting periods, permits to acquire, safe storage, and safety training. The changes were introduced in all states and territories during 1996-97. Given the number of changes that were made simultaneously, it is difficult to establish any unique effect that removal of a large number of firearms may have had (over and above effects of the many other measures introduced).

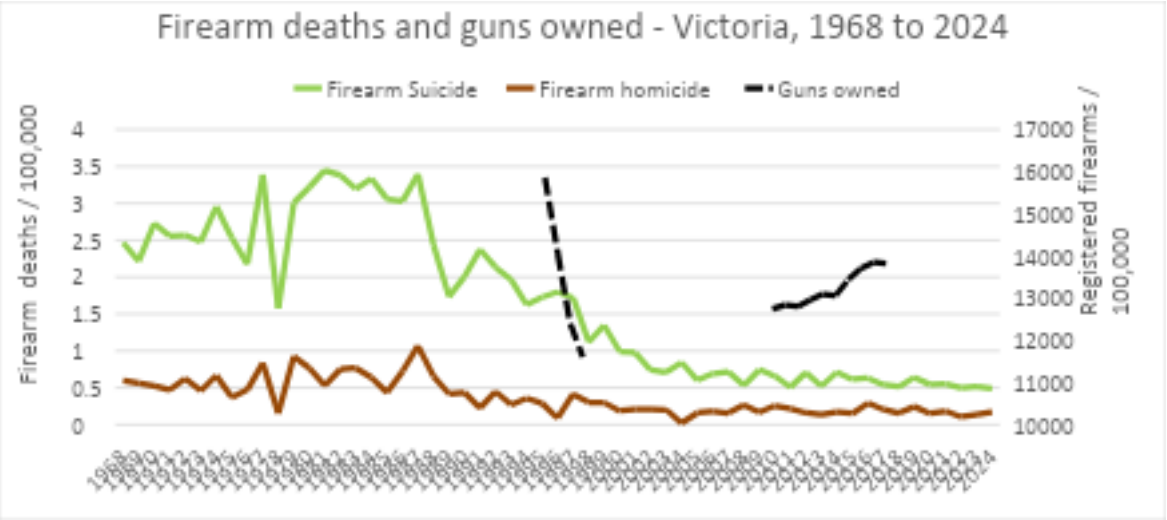
Studies into what effect the buyback component specifically may have had on gun deaths (in other words, what happens when a certain amount of firearms are removed from the population), as opposed to other changes that occurred alongside the buyback, are scarce. One study, Leigh and Neill (2010), asked whether firearm death rates decreased more substantially in states where more guns were bought back.

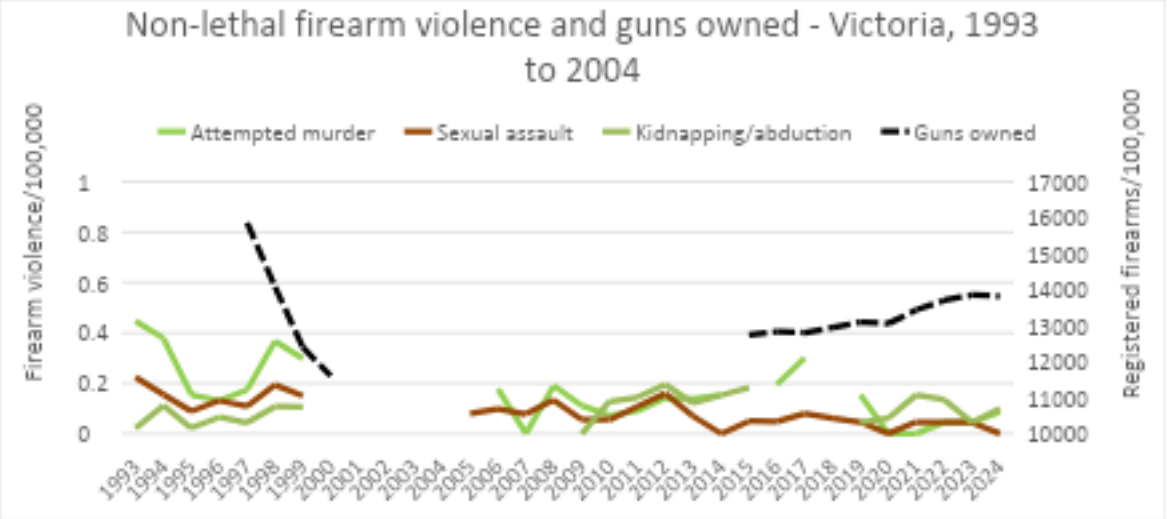
- They estimated that withdrawing 3,500 guns per 100,000 individuals (approximately the rate of withdrawal due to the NFA) reduced firearm suicides by 1.9 deaths per 100,000 (using the time period up to 2006).
- They found no significant effects for firearm homicides.
- The paper did not present individual findings for each state and territory. In other words, all the study shows is that firearm suicides changed after 1996 and that there was some correlation (not necessarily causation) between that change, and the number of guns removed.
- Because there was no way of knowing how many firearms had been in circulation prior to 1996 in each state and territory, assumptions cannot be made about the magnitude of decrease in each jurisdiction's total firearm stock and how that may have related to death rates.
- That paper also found that states with larger firearm buybacks initially experienced a slight relative decline in non-firearm suicides but then saw a large increase in non-firearm suicide around five to six years after the buyback.

3.3.1 Firearm misuse in Victoria

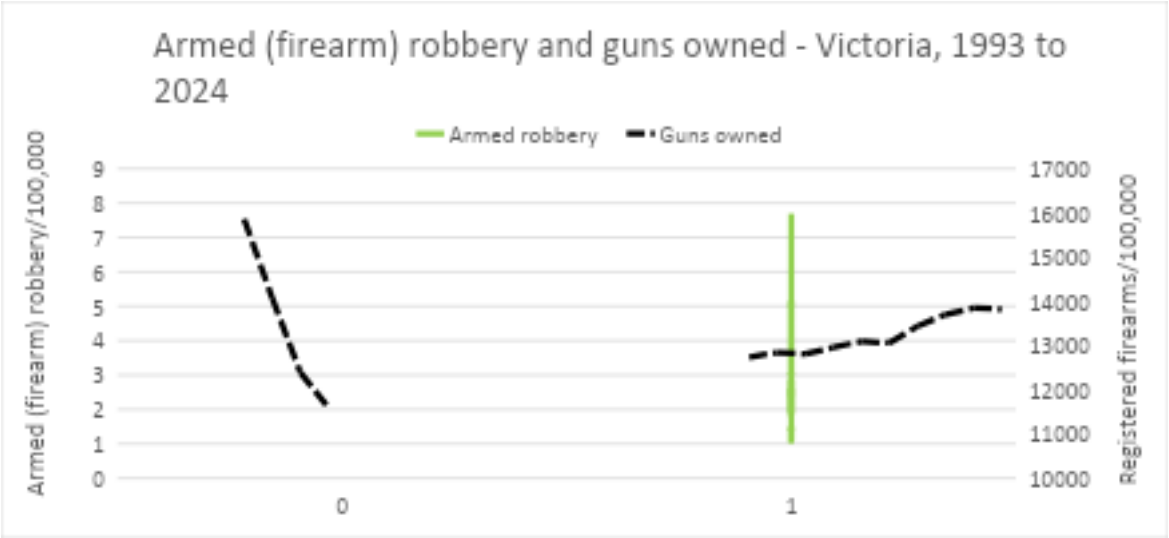
Although reliable long-term firearm ownership and non-lethal firearm misuse data disaggregated by state is not available, data from Victoria shows that there have been steady declines in the rate of both lethal and non-lethal types of firearm violence, despite the growth in gun ownership (Figure 3-6). In addition, the age standardised hospitalisation rate for firearm assault injury declined from 0.6 in 2025-16, to 0.4 in 2023-24 (AIHW, 2025).

Figure 3-6 Firearm misuse and guns owned in Victoria[26]





[26] Armed (firearm) robbery shown separately due to use of different scales.



Sources: ABS Recorded Crime – Victims (multiple years); Victoria Police Annual Reports (2015-2024); Ozanne-Smith et al. (2004)

3.3.2 Gun laws and deaths in Victoria

Victoria is unusual among Australian states and territories, in that it has had two significant epochs of legislative change following mass shootings. The second was after Port Arthur. The first was in 1988 after two mass shootings in 1987: Hoddle Street and Queen Street. These remain Victoria's only modern mass shootings. The changes in Victoria included:

- Most semi-automatic rifles prohibited
- Permit to purchase introduced
- Photographic licence introduced
- Licence required to purchase ammunition
- Police empowered to seize firearms and suspend licences of people convicted of certain offences
- Pre-licence training courses required
- Penalties increased and new offences created.

Household surveys in Melbourne, undertaken by the Australian Bureau of Statistics in 1992 and 1998, suggest that the number of households reporting firearm possession decreased over that period (capturing the 1996 legislative changes).

- The 1992 survey found that 7.4% of all households kept a firearm on the property.
- In the 1998 survey, 4.4% of all households kept a firearm on the property.

Data from the Victoria Police firearm registry show a 25 per cent reduction in registered firearms and 15 per cent reduction in licences over the four years from 1997–98 to 2000–01 (Ozanne-Smith et al., 2004).

Only one study has attempted to examine impacts of the two periods of legislative change. Ozanne-Smith et al. (2004) compared trends in rates of firearm related deaths in Victoria compared with the rest of Australia for the 22 years between 1979 and 2000. They looked at firearm deaths pre-1988, from 1988 to 1996, and post-1996. Years where mass shootings occurred (1987 and 1996) were excluded, to avoid making declines seem more pronounced. They found that in Victoria:

- There were faster declines in firearm suicide relative to the rest of Australia, between 1988 and 1996 and that after 1996, the estimated rate of decline for the rest of Australia matched Victoria (in other words, the rest of Australia 'caught up' with Victoria, post-1996).

- In both periods (1988-1996 and 1997-2003) they estimated an approximately 30 per cent reduction in firearm suicides. They found no significant effects for firearm homicide or unintentional firearm deaths.

In instances where death type was specified, the results were heavily driven by suicides (which make up the majority of firearm deaths). The study presented many of its estimates for firearm deaths overall rather than disaggregating by type of death, meaning that specific impacts across different types of deaths for Victoria vs. rest of Australia were often not presented.

To understand impacts, it is important to determine whether relative trends over time (rather than just an average within each of the three time periods) differed for Victoria and the rest of Australia. Also, Ozanne-Smith et al (2004) used less than 10 years of post-1996 data, relative to the almost 30 years now available.

In addition, that study (like many studies at the national level) assumed that the points 1988 and 1996 represented breaks in the data, and created three time periods based on that assumption. It is equally possible that there were changes in trends or levels (breaks in the data) at other times, and that those breaks did not correspond to the passage of legislation.

The assumption that 1996 represents a break in the data has been found flawed at the national level; for instance, Ukert et al (2017) found nothing inherently 'unusual' about 1996, in terms of data trends.

- Introducing artificial interruptions in 1990 through 1995 produced statistically significant decreases in all firearm-related mortality. Overall, 19 out of the 36 artificial interruption models they tested were found to be statistically significant.

- Those authors suggest that evidence showing decreases in firearm mortality after the 1996 gun laws relies on a model that may have limited ability to identify the true effects of the law.

- In other words, the declines that some authors have attributed to the 1996 gun law changes, were also found when other (pre-law change) years were used as a 'break point'. This suggests there was nothing inherently 'unusual' or 'impactful' about 1996, contrary to what would be expected if the laws had impacted firearm death rates.

A further consideration is that Victoria made multiple changes at the same time in the late 1980s, ranging from photographic licences to prohibitions to greater police powers and penalties for criminal activity. This means that (much like the 1996 national legislative changes) there is no way to determine what impact each of the specific components of those changes may have had.

An additional study (Li & Taylor, 2014), looking at non-lethal violence, found that the 1996 gun law changes had no impact on armed robbery, sexual assault, or attempted murder in Victoria, however it appears that study looked at all types of crimes rather than specifically considering crimes involving firearms.[27]

3.4 Do buyback schemes reduce mass shootings?

In addition to drawing attention to the number of firearms a person can own, the Bondi massacre has driven calls for increased restrictions on the types of firearms a person with a Category A or B licence can own. New South Wales has already passed legislation to recategorise lever- and button-release, as well as straight pull and pump action, firearms into the heavily restricted Category C.

The rationale is that those types of firearms are faster to reload than 'standard' action firearms, and are thus 'almost like' the semi-automatic firearms (and pump action shotguns) that were prohibited after the Port Arthur Massacre in 1996.[28] A stated goal of the 1996 gun law changes was ending mass shootings (Reuter & Mouzos, 2003). This relies on the premise that availability of a certain type of firearm makes mass shootings (using the standard definition of four or more deaths, not including the perpetrator) more likely to occur.

3.4.1 Firearm type and likelihood of violence – two different concepts

The assumption that there is a connection between firearm type and mass shootings typically draws on the dramatic difference in the frequency of mass shootings in the USA and Australia (and, indeed, the USA and most countries).

However, the differing availability of semi-automatic longarms is just one of an extensive range of very substantial legislative and other differences between the USA and Australia. A key difference between Australia and the USA is that in the USA, firearm ownership levels

[27] Curiously, a subsequent published version of that paper did not examine differences between states, and instead presented overall findings for Australia overall; this obscured the considerable differences in outcomes between different states.

[28] It is acknowledged that this does not reflect the technical facts about those firearms' manual reloading action, however it is not the purpose of this report to consider the technical specifications of the firearms in question.

(which are often estimated based on proxy indicators such as the number of hunting permit holders in a particular state) are *positively* associated with firearm-related deaths, whereas in Australia there is a *negative* relationship.

It cannot be assumed that between-country differences in the 'type' of firearms individuals may own, offers significant explanatory power in terms of mass shootings. Further, evidence from the USA about relationships between the availability of 'assault' firearms and mass shootings is limited, weak, and often contradictory (for a brief overview see RAND Corporation, 2026).

Mass shootings in Australia

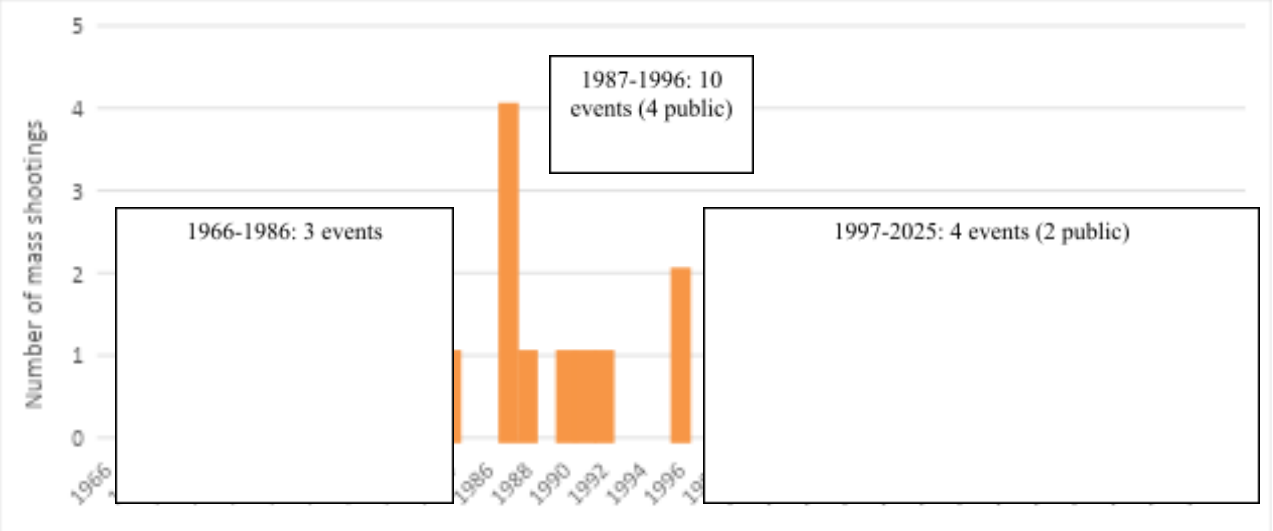
Mass shootings have always been an extremely rare event in Australia. Their infrequency makes them difficult to statistically examine. Most studies simply examine a certain period of time after 1996 and say that there were no mass shootings in that time, then attribute that to the 1996 gun laws (e.g., Chapman, Alpers, Agho, & Jones, 2006).

Chapman, Stewart, & Alpers (2018) compared mass shootings during the period January 1979 to June 1996 (210 months) with the period July 1996 to February 2018 (260 months), and concluded that before 1996, approximately 3 mass shootings took place every 4 years. They state that had mass shootings "continued at this rate, approximately 16 incidents (SD, 4) would have been expected since then by February 2018." (p.63).

That analysis fails to consider that mass shootings were not evenly spaced over time but heavily clustered within the decade from 1987 to 1996. When a longer time series is examined, with 30 years before and 29 years after 1996, the years 1987 to 1996 stand out (Figure 3-7). There is no clear explanation for why such a number of mass shooting events (10 out of 17, or 59%, and four out of six public place mass shootings[29]) were clustered within a short space of time. Based on estimates, gun ownership had also started to decline by that point. It therefore seems unlikely that the sudden cluster of mass shootings could be explained by rising levels of gun ownership.

[29] Note that the Darwin mass shooting in 2019 involved a range of locations across that city, some of which were semi-private (such as motel rooms) and some of which were more public places. The shootings occurred in the course of the perpetrator looking for an intended victim, who was known to them. In this sense, it differs from other public mass shootings in a number of characteristics and is most accurately viewed as an event that does not neatly fit in either the public or the private category. However, to avoid any perceptions of attempting to reduce the number of public mass shootings, it is included in that category.

Figure 3-7 Mass shootings in Australia since 1966



Source: Australian Broadcasting Corporation (2018); Commonwealth of Australia (2026b); McPhedran (2020); Smith & Marsh (2019); Fell (2025).

The relationship between gun types/gun numbers and mass shootings is not straightforward. Various different types of firearms have been used to commit mass shootings, with usually one or two firearms used (McPhedran, 2020). Updating the data from McPhedran (2020), out of 17 mass shootings with 18 individual perpetrators over the period 1966 to 2025:

- 7 perpetrators out of 18 (38.9%) held a gun licence
- 3 (17.7%) shootings were committed with a pump action shotgun
- 3 shootings out of 17 (17.7%; and three out of the five public place shootings) were committed with semi-automatic firearms
- 1 (5.9%) public place shooting was committed with a sawn-off semi-automatic firearm that had to be manually reloaded.

It cannot be assumed that restricting certain firearm types and/or limiting the number of firearms an individual can own will reduce (already extremely infrequent) mass shootings.

Although it is unlikely that restrictions can prevent mass shooting events, it is acknowledged that the political/policy context surrounding the proposed buyback scheme is heavily focussed on this objective and on public place shootings in particular. If it is accepted that this will be achieved (as unlikely as the evidence suggests that to be), what, then, is the maximum impact that can be expected?

To answer this, we examined the average yearly death toll from public place mass shootings in Australia, using the data and time period described above.

- Only mass shootings committed by individuals who held their firearms legally are included, because the policy would not be expected to affect unlicensed persons

(this excludes the Port Arthur and Darwin shootings, both committed by unlicensed individuals).

- Only those shootings involving firearms that are now prohibited (or proposed for prohibition) are included, because those are the firearms that have been described (rightly or wrongly) as being especially connected to mass shootings.

Based on this:

- On average, there have been 0.48 deaths per year in Australia due to public mass shootings by licenced individuals.

- On average, there have been 1.12 people injured per year in Australia due to public mass shootings by licenced individuals.

This translates to an expected maximum impact of around half a life saved per year, on average. To have this impact, the buyback would have to stop all public mass shootings by licensed individuals.

3.4.2 Firearms and terrorism in Australia

The Bondi shootings were a declared terrorist attack. The current definition of terrorism[30] within the *Criminal Code Act 1995* (Cth; s 100.1) is an action or threat of action where:

a) the action is done or the threat is made with the intention of advancing a political, religious or ideological cause; and

b) the action is done or the threat is made with the intention of:

(i) coercing, or influencing by intimidation, the government of the Commonwealth or a State, Territory or foreign country, or of part of a State, Territory or foreign country; or

(ii) intimidating the public or a section of the public.

Australia has had relatively few terrorist events, and of those, fewer still have involved firearms. The most high-profile incidents, prior to Bondi, were the 2014 Lindt Café Siege (Sydney, NSW) and the 2015 murder of Curtis Cheng (Parramatta, NSW).

The Lindt Café Siege was committed by a man who had migrated to Australia from Iran in 1996. At the time of the siege, he was on bail and facing trial for sex offences and for arranging the murder of his ex-wife. Although the incident featured a prominently displayed jihadist flag, it was determined to be unclear whether the perpetrator was motivated by Islamic State. However, he was deemed to have become "radicalised" (State Coroner of New South Wales, 2017).

[30] There is debate about how to define terrorism, and the legal definition is currently under review by the Independent National Security Legislation Monitor.

The perpetrator used an illicitly obtained sawn-off pump action shotgun. He had 28 shotgun cartridges that had been produced in the 1990s. Searches of the Australian Crime Commission's Firearm Transaction Database and the National Firearm Licensing and Registration System did not contain any record of the shotgun. It was considered possible that the shotgun had been legally imported to Australia in the 1960s, however no further records existed (State Coroner of New South Wales, 2017).

The Curtis Cheng murder was committed by a 15 year old boy who was killed by police after firing several shots at officers who had responded to the attack. In the robes he was wearing at the time, police found a note that said he had come "to put terror into your hearts". He used an illegally obtained handgun. Four men – one of whom was described as a "radicalised" supporter of Islamic State and actively involved in the indoctrination of others - were subsequently found guilty of conspiracy to commit that murder. The handgun was found to have been illegally obtained by one of those individuals, who had also been subject to a Firearm Prohibition Order (Australian Federal Police, 2016; Commonwealth Director of Public Prosecutions, 2020).

Although the 2022 Wieambilla shootings in Queensland had elements consistent with terrorism, such as religious/political preoccupations, that incident was determined by the Queensland State Coroner to not fulfil the definition of a terrorist act.[31] Nevertheless, some expert witnesses suggested that the perpetrators had become radicalised towards violent extremism and terrorism from around mid-2021.

One of the three perpetrators had held a firearms licence that had been cancelled approximately four months prior to the incident. He had three registered firearms in his possession that had not been removed when his licence was cancelled. Another of the perpetrators had a minor entry on his criminal history for possession of an unregistered firearm in 1998. A number of unregistered firearms were found at the property (Coroners Court of Queensland, 2025).

One perpetrator at Bondi held a New South Wales Category A and B firearms licence. The circumstances surrounding the Bondi shootings, and that firearms licence, remain under investigation.[32] The Royal Commission on Antisemitism and Social Cohesion, tasked with finding those answers, has recommended in its interim report that "The Commonwealth, states and territories should prioritise efforts to implement the proposed National Gun Buyback Scheme". The only rationale articulated for this recommendation is that it "could reasonably be expected to reduce the number of firearms available in the community" (Commonwealth of Australia, 2026b, p.94). Again, this reflects the assumption that more firearms lead to more misuse.

Overall, the majority of recent firearm-related 'terrorist' incidents in Australia (three out of four) have involved unlicensed perpetrators using unregistered firearms (or, in the case of

[31] The State Coroner also observed that the current definition of terrorism was "unhelpfully narrow."

[32] There is little information publicly available, to date, about how one of the perpetrators obtained a New South Wales firearms licence. Significant questions have been raised about the past involvement of federal law enforcement and security agencies, and about irregularities in the licensing process (such as the three year period between the perpetrator applying for, and receiving, a licence).

Wieambilla, a mixture of unregistered firearms, and registered firearms that should no longer have been in the possession of one of the perpetrators). This suggests a limited relationship between legally owned firearms and terrorist acts. It does, however, draw attention to the illicit market.

3.4.3 The illicit firearms market

Government and media reports indicate that most firearms used in crimes, up to and including homicide, are not legally held. Quantifying the impacts of the illegal market on firearm-related harms was outside the scope of this report. However, the illicit market (including new technologies that contribute to that market, such as 3D printing) is crucial to recognise when analysing the likely impact of restrictions on legal ownership.

The size of the illegal pool of firearms in Australia is unknown and estimates of its size vary greatly, ranging upwards from a lower estimate of 250,000 longarms and 10,000 handguns (Australian Criminal Intelligence Commission, 2016). Up to date information is not available, however:

- From 1997 to 1999 (i.e., post-1996 law changes), over 90 per cent of firearms used to commit homicides were not registered and their owners not licensed (Mouzos, 2000).
- Between 1989-90 and 2005-06, of the 150 offenders known to have used a handgun to commit homicide, 12 per cent were licensed firearms owners and two percent had used a registered handgun. Considering all firearms (n=313), 15 per cent of offenders held a firearms licence and 11 per cent of firearms used were registered (Bricknell, 2008).
- National Homicide Monitoring Programs no longer publish licensing and registration statistics but have continued to state that the majority of firearms used in homicides were unregistered and/or the perpetrators unlicensed (Australian Institute of Criminology, 2015).

It is reasonable to assume that only around 10 per cent of firearms used to commit homicide are legally owned. Meaning, around 90 per cent of homicides – and potentially more - will not be directly impacted by changes to the number and type of firearms that can be legally owned.

3.4.4 Flows between the legal and illicit markets

A way that legally owned firearms may relate to firearm violence is by leakage to the illicit market. This can occur via a range of pathways (e.g., diversion, theft, staged theft, legal loopholes). The Australian Criminal Intelligence Commission (ACIC)'s 2016 report into their firearms trace program shows the 'grey market' – meaning firearms that were prohibited but

not handed in during the 1996 gun buyback[33] – was the most common origin of illicit firearms.

- Between 2004 and 30 June 2016 the most significant diversion methods overall (all firearm types) were the grey market (3,022 firearms or 44 per cent); unknown methods of diverting untraceable firearms (2,158 or 31.4 per cent); and theft (630 firearms or 9.2 per cent). Theft accounted for the diversion of 8.5 per cent of firearms traced in 2015–16.

- For longarms specifically, the grey market accounted for 79.2 per cent of firearms traced. Theft accounted for 9.2 per cent. Other sources were negligible.

- In contrast, for handguns, theft accounted for 30.8 per cent of firearms traced, and the grey market 1.5 per cent. Legislative loopholes that had allowed deactivation/reactivation accounted for 18.5 per cent of traces, and domestic manufacture for 13.5 per cent (ACIC, 2016).

Despite the low prevalence of theft as a source of illicit firearms, theft has been cited as a justification for reducing firearm ownership. For example, it has been argued that restricting the type and number of firearms people can own will reduce the likelihood of firearms being stolen and subsequently misused (SBS News, 2026).

- Past research indicates that around 85 per cent of stolen firearms were registered at the time of theft (Bricknell, 2020).

- Most firearm theft incidents (40% or n=339) resulted in the theft of a single firearm, 20 per cent (n=170) in two firearms and 13 per cent (n=111) in three firearms (Bricknell, 2020).

- That is, almost three-quarters of theft incidents involved the theft of *fewer* than four firearms.

Placing limits on firearm ownership is unlikely to significantly reduce the number of firearms stolen.

There is little up to date information about connections between firearm theft and crime in Australia. Based on past data, a very low percentage of stolen firearms are linked with crime:

- The majority of firearms stolen are Category A and B longarms, with handguns (Category H) only comprising 7 per cent of thefts between 2005-06 to 2008-09. However, 61 per cent of all Serious and Organised Crime Group-seized firearms were (restricted) Category C, D, or H (Australian Institute of Criminology, 2015).

[33] The difference between the 1996 buyback and the current scheme, is that all firearms must now be registered, meaning that police have records of who owns what type of firearm, and how many are owned by each licence holder.

- In 2008–09 information about whether stolen firearms were used in subsequent criminal activity, or found in possession of persons charged with serious offences, was available for 65 per cent of theft incidents (n=392).

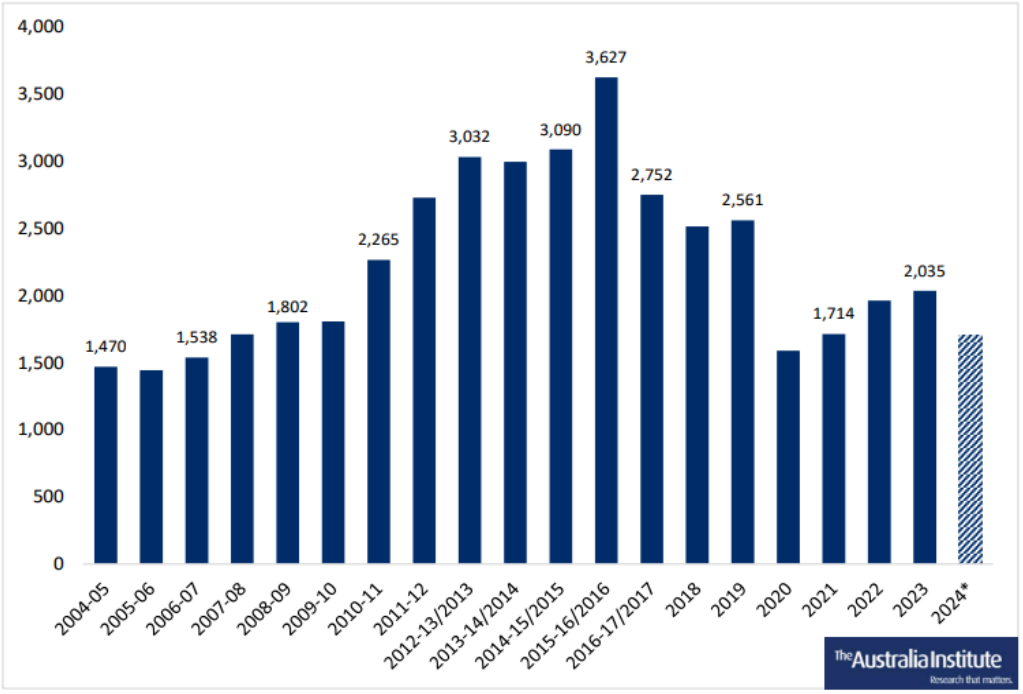
- Of these, firearms stolen in 10 incidents (or 3%) were recorded as being used in subsequent criminal activity, or in the possession of a person charged with serious offences. Only one theft incident resulted in the use of a firearm to commit a violent crime (manslaughter) (Bricknell, 2011).

- Between 2005-05 and 2008-09, stolen firearms were known to be used in 6 armed robberies, 3 murders or suicides, 2 home invasions, 1 manslaughter, and 1 attempted murder, and 1 domestic violence incident. (Australian Institute of Criminology, 2015)

Importantly, this information is dated and does not reflect changes to the illicit market that have been brought about by new technology such as 3D printing.

Firearm theft statistics are not consistently published, however despite the increases in firearms ownership, theft appears to have been declining nationally since around 2016 (Figure 3-8). This suggests that policy measures specifically focussing on theft reduction – such as safe storage compliance inspections and related enforcement activities (Bricknell, 2020) - may be effective.

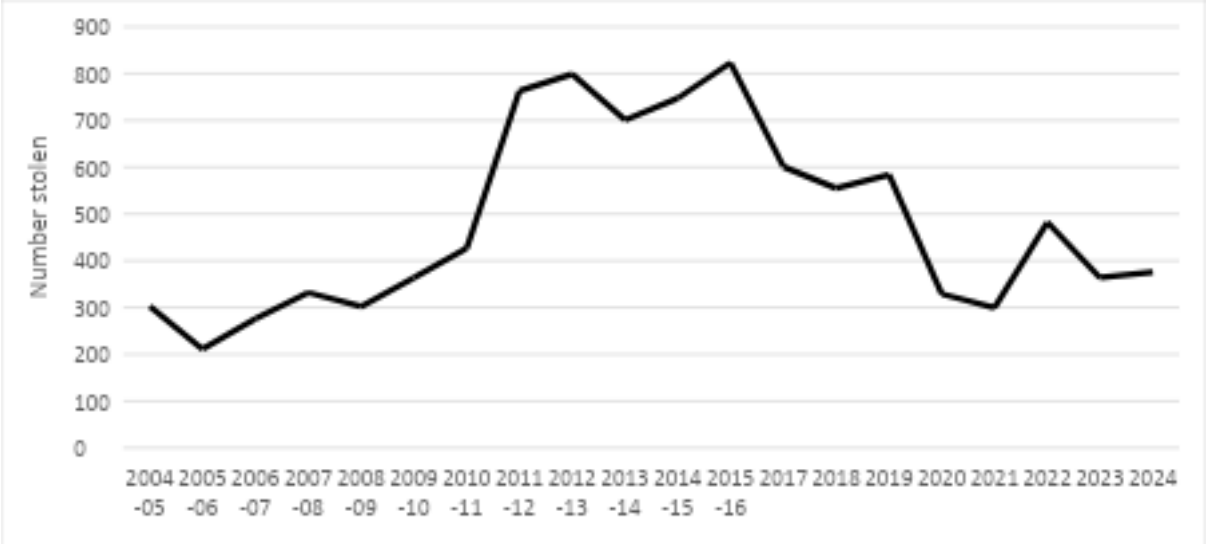
Figure 3-8: Firearm theft in Australia, 2004/05 to 2024



Source: Australia Institute (2025b).

In Victoria, firearm theft has fallen substantially, more than halving since its high point in 2015-16 (Figure 3-9). Again, this has occurred despite ongoing increases in the number of registered firearms.

Figure 3-9: Firearm theft in Victoria



Source: Australia Institute (2025b)

Unintended consequences?

The objective of the gun buyback scheme is to reduce the number of firearms in the community. However, initial evidence from New South Wales suggests that there may be an unintended consequence of the law changes; they may directly drive an increase in the number of people who hold a firearms licence and possess firearms. Media reports, for example, suggest that in New South Wales from December 16 2025 to January 16 2026, relative to the previous year:

- Applications for new firearms licences increased by 71 per cent
- Applications to acquire firearms increased by 33 per cent (NewsCorp, 2026).

Similar evidence has emerged from the Australian Capital Territory, with a 57 per cent increase in monthly firearm licence applications (Tindale, 2026). Recently released data from New South Wales Police indicates that licence applications remained at well above average levels throughout February and March (NSW Government, 2026), suggesting that the December-January increase was not a one-off event.

The reasons for this are unclear. New applicants may be, for example, partners or other family members of existing licencees who now hold firearms in excess of newly imposed (or proposed) limits, and those family members may intend to acquire the excess firearms. They may be individuals who had already been considering applying for a licence and were prompted to do so by the high-profile debate occurring. They may be individuals who see

obtaining a firearms licence as a means of 'sending a message' to a government whose actions they disagree with. Or, there may be other reasons that are not apparent.

Estimates based on licence and registration data suggest that in Victoria the average number of firearms owned is four. However:

- There is no published information available about the 'distribution' of ownership – in other words, whether (e.g.,) half of licencees have fewer than four firearms while half of licencees have more, or whether most licencees have fewer than four firearms but a small proportion have a very substantial number more.

- This means an unknown number of licensees are likely to have fewer firearms than the numbers being proposed as ownership caps (generally, four or five firearms for hunting and 10 for sports/target shooting).

- Assuming a cap of five firearms for hunters and 10 for sports/target shooters, licensees who currently fewer than the limit may be motivated to acquire additional firearms in order to 'reach' their limit.

Legislative changes may have the perverse outcome of increasing rather than decreasing firearm ownership, directly contrary to the stated aim of the policy. A proportion of individual licence holders may have fewer firearms than they previously had, but the total pool of firearms may remain constant - or even grow - and potentially be spread across a greater number of people, elevating overall gun ownership prevalence.

4 CBA of Victorian gun buyback

4.1 Introduction

In this chapter we report the results of the cost benefit analysis (CBA) undertaken of a likely Victorian gun buyback scheme whereby 20 per cent of the stock of registered firearms are purchased by the Victorian taxpayer in return for market value compensation (see Box 4-1 for a description of CBA).

In terms of the CBA specification:

- We have focussed the analysis on the State of Victoria.
- We have assumed that the buyback scheme would seek to reduce the total number of registered firearms by 20 per cent, from around 1 million firearms to around 800,000 firearms (i.e. a reduction of 200,000 firearms).
- We assume that the buyback scheme is effective in the sense that the registered firearms subject to the policy are removed from licensed owners.
- The compensation paid by the taxpayer to registered firearm owners represents market value.
- The time-period for consideration is 20-years from 2026-27 to 2046-47. This longer timeframe allows for any benefits flowing from the policy over time to be fully captured.
- We use a net present value framework whereby all the future costs and benefits over time are discounted back to today's dollars (i.e. 2025-26).

Box 4-1 What is Cost Benefit Analysis

What is Cost Benefit Analysis?

Cost–benefit analysis (CBA) provides a structured framework for evaluating policy by comparing all expected costs and benefits on a common monetary basis. Unlike partial or qualitative assessments, CBA is grounded in welfare economics and seeks to measure changes in overall social wellbeing, not just financial flows. By converting impacts into comparable units, it allows policymakers to assess whether a policy generates a net gain to society and to rank alternative interventions based on their economic efficiency. For this reason, CBA is widely regarded as the gold standard in policy appraisal, underpinning decision-making across infrastructure, health, environmental and regulatory domains.

A defining feature of CBA is its breadth. It goes beyond a narrow fiscal or financial perspective — which focuses on government budgets or firm-level profitability — to capture the full range of social impacts, including those not traded in markets. This includes valuing non-market effects such as changes in health outcomes, safety, time, environmental quality and amenity, alongside direct economic costs and benefits. In doing so, CBA attempts to provide a comprehensive measure of social welfare by identifying, quantifying and monetising all material effects of a policy. While such estimates are necessarily subject to uncertainty and judgement, the framework ensures that trade-offs are made explicit and that policy choices are informed by a transparent and consistent assessment of their overall economic impact.

4.2 Costs of the gun buyback

4.2.1 Household welfare costs

While the primary objective of firearm buyback policies is to reduce potential harm through lower firearm availability, these policies also impose private welfare costs on households. These costs arise because firearms provide non-market value to their owners. For example, firearms provide households with a means to play sport and exercise via target shooting and hunting, which gun owners value.

Accordingly, the removal of firearms through a mandatory or incentivised buyback therefore constitutes a reduction in household utility, even where sufficient monetary compensation is provided to offset the confiscation of a firearm. Although these broader social welfare costs may be given low value politically, it nevertheless represents a real cost that any thorough analysis should include.

From a welfare economics perspective, these effects can be understood as a combination of:

- Loss of consumer surplus from forgone use and choice (i.e. the option value of maintaining multiple firearms that serve different purposes).
- Loss of non-market value (e.g. sentimental attachment).
- Compliance and transaction costs associated with the surrender of firearms.
- Health benefits from participation in shooting or hunting sports and pastimes.
- Potential loss of trust in government as a result of the confiscatory buyback policy.
- Loss of self-sufficiency for those who value it (e.g. hunters who harvest meat).
- Substitution and access costs where legal markets are restricted (i.e. search and risk costs, and potentially higher monetary costs, in obtaining similar firearms illegally).

Below we expand on the main costs that we measure in the central case CBA.

Loss of consumption value and reduced choice

Firearms provide direct consumption value to households through a range of activities, including hunting, sport shooting and collection. In economic terms, this is reflected in the consumer surplus derived from firearm ownership—that is, the difference between an individual's willingness to pay and the market price of the firearm.

Restrictions on firearm ownership reduce both:

- the availability of firearm types (reduced variety), and
- the ability to consume firearm-related services.

The literature emphasises that firearm ownership is not purely functional, but also reflects preferences, identity and recreational value. Cook and Ludwig (2004) highlight that individuals reveal a willingness to pay for firearms even in the presence of regulatory constraints, implying a non-trivial private benefit.

In this context, the buyback can be interpreted as eliminating the stream of consumption benefits associated with firearm use. Even where compensation is paid, this is unlikely to fully offset the loss of consumer surplus, particularly where prices do not reflect heterogeneity in preferences.

Sentimental and non-market value

In addition to use value, firearms often carry non-market value. This may arise from:

- inheritance (family heirlooms);
- personal customisation; and/or
- cultural or identity significance.

Standard economic theory recognises such effects through the endowment effect, whereby individuals value owned goods more highly than equivalent goods not in their possession. Empirical estimates suggest that willingness-to-accept compensation for the loss of an owned good may exceed willingness-to-pay by a factor of 1.5 to 3 times. As a result, compensation paid under buyback schemes — typically benchmarked to market prices — may systematically understate the true welfare loss experienced by households. This component is particularly important in explaining resistance to buyback policies and should be treated explicitly in welfare analysis.

Administrative and compliance costs

Participation in a buyback scheme involves a range of transaction costs, including:

- time spent understanding eligibility requirements;
- travel to surrender locations; and
- administrative processing and documentation.

These costs represent a pure deadweight economic loss, as they do not correspond to a transfer between parties but rather a consumption of real resources.

The broader regulatory literature suggests that compliance costs for individuals typically range from 1 to 5 per cent of asset value, or can be measured directly in terms of time. Applying a time-cost framework, even modest administrative burdens (e.g. 2–5 hours per firearm) translate into measurable economic costs.

Self-sufficiency

A further dimension of value arises from self-sufficiency, which can be understood as a form of non-market consumption and household production. For some firearm owners, hunting provides a direct source of food, contributing to household consumption outside formal market channels. The literature shows that activities such as hunting, fishing and foraging can increase food availability, improve dietary quality and enhance the stability of household food supply, even in high-income countries (Bliss et al, 2025). In this sense, hunting functions as a form of self-provisioning, generating real economic value that is not captured in market transactions but nonetheless contributes to welfare.

Beyond the direct food value, hunting also delivers broader non-market benefits associated with agency, resilience and autonomy. Evidence suggests that non-market food production can act as a skills-based safety net, allowing households to buffer against shocks and maintain access to food independently of commercial supply chains (Bliss et al, 2025). From a welfare economics perspective, this implies that firearm ownership may embody both consumption value (through harvested meat) and option value (the ability to provide for oneself if needed). To the extent that a buyback policy restricts these activities, it may reduce household welfare in ways that are not reflected in observed market behaviour, but which should nonetheless be recognised in a comprehensive cost–benefit framework.

Summary of household welfare costs

The various components discussed above can be brought together into a unified framework for estimating household welfare impacts. Table 4-1 (below) provides indicative ranges for each cost category.

Table 4-1 Indicative per owner values of costs measured in the CBA

Cost component	Description	Indicative value (AUD)

Loss of consumer surplus	Forgone use (hunting, sport, recreation) over and above the paid (market value) of the firearm	$500 - $2,000 per gun per year
Sentimental value	Endowment effect / non-market attachment over and above the market value paid to the owner by the taxpayer	10-100% of market value
Administrative loss	Time, travel, compliance burden. Estimated at 2-8 hours per year (at $50/hour wage rate)	$100-$400 per year
Loss in self sufficiency	Loss of self-sufficiency: reduced ability to hunt and self-provision food, resulting in a loss of non-market consumption and option value (self-reliance).	$500-$1,500 per year per hunter

Source: Tulipwood Economics estimates.

Taken together, these components indicate that firearm buyback policies impose non-trivial private welfare costs on households, even where compensation is provided. Three points are particularly important:

- First, the costs extend beyond simple market value. Non-market and behavioural factors — including sentimental value and self-sufficiency — play a significant role.
- Second, many of these costs are not directly observable, and must be inferred using standard economic techniques such as revealed or stated preference techniques or parameter proxies.
- Third, these effects are conceptually analogous to a regulatory confiscation, in which private assets are removed or restricted in pursuit of broader social objectives.

This does not imply that buyback policies are welfare-reducing overall. Rather, it highlights the need for a balanced cost–benefit framework that accounts for both:

- the social benefits of reduced firearm harm; and
- the private costs imposed on affected households.

Household welfare costs are, therefore, an integral component of the economic evaluation of firearm buyback policies. While the public debate has focused primarily on the (assumed) benefits of reduced violence and injury, the analysis demonstrates that these policies also entail measurable private costs. Incorporating these effects strengthens the analytical framework and ensures that policy evaluation is grounded in a comprehensive understanding of both individual and social welfare.

4.2.2 Results

Table 4-2 reports the results of the cost of a Victorian Gun Buyback policy. We report only those costs that were measured in the central scenario. The central scenario reflects the most likely outcome of the policy, in our view.

The key distinction in this case is that, unlike a standard CBA—where compensation payments are treated as transfers and only the deadweight cost of taxation is counted—the buyback involves the destruction of a privately held asset. As a result, the fiscal outlay is not offset by a corresponding social gain. Specifically, the taxpayer bears the full cost of funding the scheme, while the firearm owner is, in principle, left no better or worse off after exchanging the asset for cash compensation. Because the asset is removed from use rather than reallocated, the transaction does not generate offsetting value elsewhere in the economy.

Accordingly, the compensation payment cannot be treated as a neutral transfer. Instead, the policy results in a net loss to society broadly equal to the full fiscal cost of the scheme, in addition to the deadweight cost of raising public funds.

Table 4-2 Estimated costs of Victorian Gun Buyback policy

Cost (in 2025-26 dollars)	$m (7% NPV)
Fiscal costs of Gun Buyback (payment to firearm owners)	377.5
Administration costs (real resources) initial and ongoing	79.7
Deadweight cost of taxation to fund buyback	137.2
Household welfare costs (loss of consumer surplus)	
Reduced options (choice of firearm)	88.6
Sentimental value	35.4
Red tape (time and money)	17.7
Business (direct and supply chain) costs	
Lower gross margins (producer surplus)	118.1
Lower domestic supply chain profit n.e.c. (producer surplus)	13.1
Lower ammunition and related accessories sales	11.8
Inventory write-downs and stranded working capital	4.9

Business closures and exit costs	2.2
Total Costs	**886.4**

Source: Tulipwood Economics estimates.

4.3 Benefits of the Victorian gun buyback policy

4.3.1 Introduction

The benefits of the proposed buyback are conceptualised as avoided social costs, including reductions in deaths, injuries and associated economic impacts. In the initial iteration of the CBA, benefits were conservatively set to zero, reflecting the finding from the econometric and statistical analysis that there is no robust evidence of a causal relationship between firearm stock and mass shootings or firearm-related homicides. To test the sensitivity of this result, a second specification adopts a deliberately favourable assumption that reductions in firearm stock do prevent these outcomes, and includes avoided mass shootings and homicides in the central case. This approach effectively grants the strongest plausible benefit claims to the policy; however, as shown below, even under these assumptions the benefit–cost ratio remains well below 1.0, indicating that the policy does not generate net social benefits.

4.3.2 First pass

The benefits of the policy are conceptualised as a series of avoided social costs, including reductions in deaths, injuries and related economic impacts. A wide range of potential benefit channels were considered; however, to maintain consistency with the econometric and statistical evidence presented in earlier chapters, the initial CBA assessment does not assume that reductions in the stock of firearms would lead to measurable declines in mass shootings or firearm-related homicides.

In the absence of robust evidence supporting such relationships, these categories are conservatively excluded from the quantified benefit stream. Instead, the analysis focuses on the most direct and empirically defensible channel—namely, reductions in accidental firearm incidents. However, deaths from firearms accidents in Australia are extremely low at around 5 per year, so a 20 per cent reduction in firearms in a single state would provide a barely measurable benefit.

The resulting benefit-cost ratio (BCR) was extremely low.

4.3.3 Central case scenario

In the central case scenario, despite the lack of strong evidence connecting the stock of firearms to mass shootings, we have nonetheless included avoided mass shootings as a benefit in our central case. The reasons are twofold:

- First, it is difficult to analyse the relationship between the stock of firearms and mass shootings because mass shootings are rare events and many of the years in the time series are "zero" (as in "zero mass shootings"). Therefore, it is problematic to interpret the results of any statistical analysis.

- Second, a stated purpose of the gun buyback schemes being implemented in NSW and proposed in other states is to reduce (or eliminate) the number of mass shootings (particularly, terrorism-related events) in the future.

In our central case CBA, we therefore assume that one benefit of the gun buyback will be to avoid any future mass shootings.

- We assume a reduction, on average, of 0.12 deaths per year from mass shootings in Victoria; and

- A reduction, on average, of 0.32 serious injuries per year from mass shootings in Victoria.

These benefits are monetised at standard rates for the value of life and hospital resources costs (see discussion at Appendix A).

Table 4-3 (below) lists the benefits considered in the CBA.

Table 4-3 Estimated costs of Victorian Gun Buyback policy

Benefit (in 2025-26 dollars)	$m (7% NPV)
Avoided mass shootings (homicides)	7.3
Avoided mass shootings (injuries)	1.7
Avoided homicides by firearm	354.4
Avoided firearm accidents (death and injury)	13.1
Reduced violent crime (ie. armed robbery, threats, standover)	1.1
Health system savings - injuries (real resources)	1.1
Policing and Justice savings (real resources)	1.3
Total benefits	379.9

Source: Tulipwood Economics estimates.

4.4 Net benefits/costs of the Victorian gun buyback policy

Even under highly favourable assumptions, the Victorian firearm buyback policy does not generate net social benefits. The CBA deliberately adopts a generous specification on the

benefit side, effectively assuming the elimination of mass shootings and material reductions in firearm homicides, despite the absence of robust empirical evidence supporting these relationships. Under these assumptions, total benefits are estimated at approximately $380 million in present value terms. However, these are outweighed by total costs of around $886 million, driven by the fiscal outlay, deadweight taxation, household welfare losses and impacts on the firearm-related supply chain.

This yields a benefit–cost ratio of approximately 0.43, well below the threshold of 1.0 required to justify the policy. Accordingly, even on the most optimistic interpretation of its benefits, the buyback represents a net loss to society.

This implies that, even on the most optimistic assumptions for the gun buyback policy, for every dollar of cost incurred, only around forty three cents of benefit are realised.

This result is striking given the deliberately favourable assumptions adopted on the benefit side. While the econometric and statistical analysis presented earlier in the report found no robust evidence of a causal relationship between firearm stock and mass shootings or firearm homicides, the CBA nonetheless incorporates a positive benefit stream by assuming that the policy eliminates all future mass shooting deaths and injuries.

- Specifically, the model assumes an average of 0.12 lives and 0.32 injuries saved per year, based on historical data (7 deaths from mass shootings using registered firearms over 60 years). In effect, the analysis adopts a “best case” interpretation — granting the policy full credit for preventing mass shooting outcomes — despite the absence of empirical support for such an effect.

Even under these generous assumptions, total gross benefits remain modest — approximately $26 million in net present value terms — and are overwhelmingly outweighed by the costs of the policy, which are estimated at around $886 million. These costs are driven not only by the direct fiscal outlay required to fund the buyback and associated administration, but also by broader economic impacts, including the deadweight cost of taxation, household welfare losses (e.g. reduced consumer surplus and sentimental value), and reductions in producer surplus across the firearm supply chain.

The resulting BCR of 0.43, therefore, represents a highly conservative estimate of policy performance, in the sense that it attributes benefits that are not supported by the underlying evidence. The implication is that, even under favourable assumptions, the economic case for the policy is weak, and under more realistic assumptions—where benefits from reduced violence are negligible—the net welfare impact would be even more negative.

5 Fiscal and economic impact of proposed Victorian scheme

5.1 Introduction

This chapter assesses the fiscal and broader economic impacts of a proposed firearm buyback scheme in Victoria. Consistent with the preceding analysis, the focus is on quantifying the direct cost to government of implementing a large-scale reduction in the stock of privately held firearms. The fiscal assessment is based on a stylised scenario in which a proportion of the existing registered firearm stock is acquired by the State at market-based compensation rates.

Victoria provides a useful case study given the availability of data on firearm registrations and its scale within the national context. The analysis proceeds in two stages. First, we estimate the direct fiscal cost of the buyback, including compensation payments and associated administrative expenditures. Second, we outline the approach to estimating the broader economic cost, which will be undertaken using a computable general equilibrium (CGE) model to capture economy-wide impacts. The CGE results are not presented in this chapter but will form part of the final assessment.

5.2 Fiscal cost

The fiscal cost of the proposed buyback is driven primarily by the scale of firearm acquisition and the compensation paid to owners. For the purposes of this analysis, we adopt the following central assumptions:

- Victoria has approximately 1 million registered firearms;
- We assumed that the scheme achieves a 20 per cent buyback rate, equivalent to around 200,000 registered firearms;
- We have assumed an average compensation cost of $2,000 per firearm, inclusive of accessories and related equipment. We do not anticipate the Victorian Government compensates gun owners for ammunition.
- The scheme is open for a 12-month window in 2026-27, and then closes.
- There are ongoing administration costs for the scheme over the four-year forward estimates period in terms of additional resourcing required to monitor the scheme.

On this basis, the direct compensation cost can be expressed as:

Fiscal Cost = 201,980 firearms × $2,000 per firearm (on average) = $404 million

This implies a baseline fiscal cost of approximately $404 million for the compensation component alone.

The proposed buyback scheme would entail ongoing administrative and compliance costs extending beyond the initial acquisition phase. These costs reflect the need to maintain the regulatory, enforcement and operational infrastructure required to administer the scheme, monitor compliance, process transactions and manage surrendered firearms and related records. An annual administration cost assumption of approximately $5 million is considered reasonable given the scale of the Victorian firearm registry system, the number of affected firearm owners, and the ongoing compliance and enforcement functions associated with a large-scale reduction in firearm ownership.

The ongoing administration costs would include:

- maintenance and expansion of firearm registry systems and databases;
- staffing for compliance, licensing, auditing and enforcement activities;
- processing and verification of firearm surrender and compensation claims;
- storage, transport and destruction of surrendered firearms and accessories;
- legal, appeals and dispute-resolution processes;
- public communication, education and stakeholder engagement activities;
- policing and intelligence activities associated with illegal retention and non-compliance;
- monitoring and evaluation of the scheme and ongoing reporting requirements;
- IT, cybersecurity and records management costs associated with sensitive firearm data; and
- coordination between state agencies, police and relevant Commonwealth bodies.

5.2.1 Total fiscal cost

Combining compensation and administrative components yields an indicative total fiscal cost in nominal dollars over a four year forward estimates period, as follows:

- **$404.0 million in buyback costs in Year 1**
- **$48.6 million in administrative costs over Years 1 to 4**

- **$135.8 million in deadweight costs (i.e. the cost of raising the tax dollars to pay for the scheme) over a four-year period.**[34]

This estimate should be interpreted as a central case, subject to variation depending on:

- actual participation rates
- realised compensation levels (which may vary by firearm type and condition)
- administrative efficiency and program design.

Table 5-1 presents the fiscal costs over a four year forward estimates time period. In the table below, the fiscal costs are reported in nominal terms as per usual budget practice.

Table 5-1 Components of total fiscal cost of Victorian gun buyback, 2026-27 to 2029-30

Fiscal cost component	Cost ($m, nominal)
Year-1 cost of gun buyback in Victoria	377.5
Administrative cost of scheme (Years 1-20)	79.7
Deadweight cost of raising tax revenue to pay for the scheme	137.2
Total fiscal cost of the scheme over 20-years	594.4

Source: Tulipwood Economics analysis.

5.3 Economic impacts on the Victorian economy

Beyond the direct fiscal impact, the direct effects as a result of the fiscal transfers, the administrative burden and the suppression in retail activity as a consequence buyback scheme will expected to generate broader economic effects through changes in (for example) household behaviour, industry activity and resource allocation. These include:

- reductions in consumption and welfare associated with firearm ownership
- impacts on firearm-related businesses and supply chains
- adjustments in labour and capital across affected sectors.

[34] The fiscal cost of the scheme represents a direct budgetary outlay, funded through general taxation or borrowing (i.e. future taxation). As such, it carries an associated deadweight cost of public funds, reflecting the economic inefficiency of raising additional taxation revenue. At the state level, this inefficiency is generally estimated at 30 cents in the dollar.

These effects have been quantified using a computable general equilibrium (CGE) model, which is a modelling framework that captures interactions across the economy and provides a consistent measure of changes in output, income and welfare.

The CGE modelling allows for estimation of:

- impacts on Gross State Product (GSP)
- sectoral output and employment effects
- changes in real income and economic welfare.

5.3.1 What we did

The CGE modelling assesses the broader economic impacts of the buyback under alternative funding and industry impact scenarios. In the first two simulations, where the policy is funded either entirely by Victoria or shared with the Commonwealth, the results show that the buyback imposes a net contractionary effect on the Victorian economy. This reflects the diversion of resources from general consumption and investment into a policy that does not generate offsetting productivity or output gains. Where the fiscal burden is borne entirely by Victoria, the negative impacts are more pronounced, with reductions in real consumption, output and welfare. Sharing the funding with the Commonwealth moderates these effects at the state level, but does not eliminate them, as the underlying economic mechanism remains one of resource reallocation rather than value creation.

The third and fourth simulations extend the analysis by incorporating impacts on the firearm supply chain, including reduced future sales, lower margins and associated downstream activity. These scenarios amplify the negative economic effects, as they capture not only the fiscal shock but also the contraction in a specific, albeit relatively small, sector of the economy. The reduction in industry activity leads to further declines in output, employment and investment in affected sectors, with flow-on effects through supply chains. Taken together, the CGE results reinforce the findings of the CBA: the buyback does not act as a productivity-enhancing reform, but rather imposes a net economic cost, with the magnitude of the impact depending on the funding structure and the extent to which industry effects are taken into account.

5.3.2 Results

Table 5-2 (below) presents the CGE results for the buyback under two funding scenarios, excluding impacts on the firearm supply chain. The results isolate the effect of the fiscal shock on the Victorian and national economy.

- Under full Victorian funding, GDP declines by $253 million in NPV terms over the four-years, employment falls by 603 FTE in Year-1, and private expenditure declines by $79 million in Year-1.

- Under a 50/50 funding split, which reflects the offer made by the Commonwealth Government to the States and Territories, the impact on Victoria is smaller (-$109 million GDP; -311 FTE; -$49 million consumption), but there are roughly equivalent losses in the rest of Australia.

- The total national impact remains strongly negative (-$219 million GDP; -638 FTE; -$110 million consumption).

Table 5-2 Impacts on Victoria, 2026-27 to 2029-30, no supply-chain impact

Impact NPV (7%, 20 yrs)	GDP ($m)	Employment (FTE) Year-1 impact	Private expenditure ($m) Year-1 impact
Scheme 100% funded by Victoria	**-$253.2**	**-603**	**-$79.3**
Scheme jointly funded by Victoria and Commonwealth			
Victoria	*-$108.8*	*-311*	*-$49.4*
Commonwealth	*-$109.7*	*-327*	*-$60.1*
Total impact	**-$218.5**	**-638**	**-$109.5**

Source: Tulipwood Economics and Qaive's CGE model.

Table 5-3 (below) extends the analysis to include supply-chain effects, capturing reductions in firearm-related industry activity and downstream (retail) impacts.

- Under full Victorian funding with supply-chain impacts, GDP declines by $404 million (NPV), employment falls by 712 FTE, and private expenditure declines by $136 million.

- Under a 50/50 funding split, Victoria experiences a $307 million reduction in GDP, 432 FTE job losses, and a $112 million fall in consumption, with additional losses in the rest of Australia

- The total national impact increases to -$412 million GDP, and -791 FTE in Year-1, with a $202 million reduction in private expenditure, also in Year-1.

Including supply-chain effects materially amplifies the economic cost, demonstrating that the buyback reduces both public and private economic activity

Table 5-3 Impacts on Victoria, 2026-27 to 2029-30, supply-chain impact

Impact NPV (7%, 20 yrs)	GDP ($m)	Employment (FTE) Year-1 impact	Private expenditure ($m) Year-1 impact
Scheme 100% funded by Victoria + supply-chain impacts	-$403.5	-712	-$135.6
Scheme jointly funded by Victoria and Commonwealth			
Victoria	*-$307.1*	*-432*	*-$111.7*
Commonwealth	*-$105.2*	*-359*	*-$90.2*
Total impact	**-$412.3**	**-791**	**-$201.9**

Source: Tulipwood Economics and Qaive's CGE model.

5.4 Conclusion

In this chapter, we demonstrate that the proposed Victorian firearm buyback would impose a substantial and immediate fiscal burden, driven primarily by compensation payments to firearm owners, together with administrative costs and the deadweight cost of raising taxation.

While compensation payments are transfers at the individual level, the destruction of the underlying asset means there is no offsetting gain in productive capacity. As a result, the fiscal outlay represents a real cost to the community, requiring the diversion of public resources from alternative uses that could otherwise generate economic or social value. And given Victoria's obviously precarious fiscal position, with net debt approaching $200 billion or 25 per cent of Gross State Product by the end of this decade, the impacts of borrowing to fund this scheme will be felt in terms of increased interest payments on government debt.

The CGE modelling shows that these fiscal costs translate into broader economic impacts. Across all scenarios, the buyback produces a contraction in output, employment and household consumption. Even when the funding burden is shared between Victoria and the Commonwealth, the policy reduces economic activity at both the state and national level, indicating that the effects are not simply redistributive. When supply-chain impacts are incorporated, the negative effects are amplified further, reflecting reduced activity across firearm-related industries and their downstream linkages.

Taken together, the fiscal and economic evidence indicates that the buyback is not a cost-neutral intervention but a policy with material and persistent economic consequences. It reduces output, employment and household welfare, while imposing a significant call on public finances.

In the absence of offsetting benefits—particularly given the lack of empirical evidence linking reductions in firearm stock to reductions in violent crime—the policy represents a net economic loss to Victoria and to Australia more broadly.

References

Australian Broadcasting Corporation (2018), Margaret River murder-suicide: Police confirm firearms belonged to Grandfather Peter Miles, Australian Broadcasting Corporation, 12 May 2018.
Accessed: https://www.abc.net.au/news/2018-05-12/margaret-river-osmington-murder-suicide-saturday/9754446

Alannah and Madeline Foundation (2026), Tasmania's proposed firearms changes ignore national calls for tighter gun control, Press release, 27 February 2026. Accessed: https://www.alannahandmadeline.org.au/news/tasmanias-proposed-firearms-changes-ignore-national-calls-for-tighter-gun-control . Accessed 7 April 2026.

Alpers, P., Rossetti, A. & Wilson, M. (2020), Gun Policy in Australia, Sydney School of Public Health, University of Sydney (GunPolicy.org).

Australia Institute (2025a), Gun control in Australia. An update on firearms data and policies, Australia Institute, Canberra.

Australia Institute (2025b), Firearm theft in Australia Two decades of stolen guns, Australia Institute, Canberra.

Australian Bureau of Statistics (2025), Causes of Death, Australia, Australian Bureau of Statistics, Canberra, https://www.abs.gov.au/statistics/health/causes-death/causes-death-australia/latest-release

Australian Criminal Intelligence Commission (2016), Illicit firearms in Australia, Commonwealth of Australia, Canberra.

Australian Federal Police (2016), Four men charged with plotting Curtis Cheng terror attack, Press release 27 April 2016, https://www.afp.gov.au/news-centre/media-release/four-men-charged-plotting-curtis-cheng-terror-attack . Accessed 17 April 2026.

Australian Government (2025), Labor Government will establish national buyback scheme, Press release, 19 December 2025, https://www.pm.gov.au/media/albanese-labor-government-will-establish-national-gun-buyback-scheme . Accessed 13 April 2026.

Australian Government (2026), Record number of firearms in Australia show need for gun reform laws, Press release 18 January 2026, https://minister.homeaffairs.gov.au/TonyBurke/Pages/record-number-of-firearms-in-australia-show-need-for-gun-reform-laws.aspx

Australian Institute of Criminology (1990), Violence: Directions for Australia, Australian Institute of Criminology, Canberra.

Australian Institute of Criminology (2015), Submission by the Australian Institute of Criminology to the Senate Legal and Constitutional Affairs References Committee Inquiry into The ability of Australian law enforcement authorities to eliminate gun-related violence in the community, Commonwealth of Australia, Canberra.

Australian Institute of Health and Welfare (2025), AIHW Injury Emergency Department presentations (2018 to 2024), hospitalisations (2014 to 2024) and deaths (2013 to 2023) by State and Territory Supplementary Tables, https://www.aihw.gov.au/reports-data/health-conditions-disability-deaths/injury/data

Australian National Audit Office (1997), The Gun Buy-Back Scheme, Commonwealth of Australia, Canberra.

Australian Parliament (2015), Inquiry into the Ability of Australian Law Enforcement Authorities to Eliminate Gun-Related Violence in the Community, Senate Legal and Constitutional Affairs References Committee.

Baker, J., and McPhedran, S. (2015), Australian firearm-related deaths: New findings and implications for crime prevention and health policies following revisions to official death count data, International Journal of Criminal Justice Sciences, 10(1), 1-9.

Bartos, B.J., McCleary, R., Mazerolle, L., and Luengen, K. (2020), Controlling Gun Violence: Assessing the Impact of Australia's Gun Buyback Program Using a Synthetic Control Group Experiment, Prevention Science, 21, 131–136.

BDO EconSearch and AMR (2023), Economic contribution of recreational hunting and shooting to the Tasmanian economy. A report for the Department of Natural Resources and Environment Tasmania, BDO EconSearch and AMR, Adelaide.

Becker, G.S. (1968), "Crime and Punishment: An Economic Approach", Journal of Political Economy.

Bengsen, A.J. and Sparkes, J. (2016), Can recreational hunting contribute to pest mammal control on public land in Australia?, Mammal Review, 46, 297–310.

Bradshaw, C.J.A., Hoskins, A.J., Haubrock, P.J., Cutherbert, R.N., Diagne, C., Leroy, B., Andrews, L., Page, B., Cassey, P., Sheppard, A.W., and Couchamp, F. (2021), Detailed assessment of the reported economic costs of invasive species in Australia, NeoBiota, 67, 511-550.

Bricknell, S. (2008), Criminal use of handguns in Australia, Trends and Issues in Crime and Criminal Justice No.361, Australian Institute of Criminology, Canberra.

Bricknell, S. (2011), Firearm theft in Australia 2008–09, AIC Reports Monitoring Report 16, Australian Institute of Criminology, Canberra.

Bricknell, S. (2020), Firearm theft in Australia 2018, AIC Reports Statistical Report 24, Australian Institute of Criminology, Canberra.

Chapman, S., Alpers, P., Agho, K., and Jones, M. (2006), Australia's 1996 gun law reforms: faster falls in firearm deaths, firearm suicides, and a decade without mass shootings, Injury Prevention, 12, 365.

Chapman, S., Alpers, P., and Jones, M. (2016), Association Between Gun Law Reforms and Intentional Firearm Deaths in Australia, 1979-2013, JAMA, 316(3), 291-299.

Chapman, S., Stewart, M., and Alpers, P. (2018), Fatal Firearm Incidents Before and After Australia's 1996 National Firearms Agreement Banning Semiautomatic Rifles, Annals of Internal Medicine, 169(1), 62-63.

Chappell, D., Grabosky, P., Wilson, P., and Mukherjee, S. (1988), Firearms and Violence in Australia, Trends and Issues No 10, Australian Institute of Criminology, Canberra.

Commonwealth of Australia (2026a), Budget 2026-27 Budget Measures Budget Paper No.2, Commonwealth of Australia, Canberra.

Commonwealth of Australia (2026b), Interim Report: Royal Commission on Antisemitism and Social Cohesion, Commonwealth of Australia, Canberra.

Commonwealth Director of Public Prosecutions (2020), Office of the Director of Public Prosecutions Annual Report 2019-20, Commonwealth of Australia, Canberra.

Cook, P.J. and Ludwig, J. (2004), The Social Costs of Gun Ownership, NBER Working Paper No. 10736.

Coroners Court of Queensland (2025), Inquest into the deaths of Matthew Joseph Arnold; Rachel Clare McCrow; Alan Thomas Brendan Dare; Gareth Daniel Train; Nathaniel Charles Train and Stacey Jane Train, Coroners Court of Queensland, Brisbane, QLD.

Dimopoulos, S. (2026), Second reading – Outdoor Recreation Victoria Bill 2026, Hansard, 2 April 2026, Parliament of Victoria, Victoria.

Duenow, P., and Connelly, L.B. (2024), The effect of gun buy-back law reform on homicides and suicides in Australia, Health Economics, 33, 248–279.

Fell, J. (2025), The Bondi shooter only had a basic gun licence. How could he buy multiple high-powered rifles?, Australian Broadcasting Corporation, 16 December 2025. Accessed: https://www.abc.net.au/news/2025-12-16/bondi-shooter-legally-had-many-guns-australian-laws-explained/106145624

Finch, N., Murray, P. Hoy, J., and Baxter, G. (2014), Expenditure and motivation of Australian recreational hunters, Wildlife Research, 41, 76–83.

Gilmour, S., Wattanakamolkul, K., and Sugai, M.K. (2018), The Effect of the Australian National Firearms Agreement on Suicide and Homicide Mortality, 1978–2015, American Journal of Public Health, 108(11), 1511-1516.

Government of Western Australia (2026), Buyback ends with more than 83,000 firearms Surrendered, Press release, 20 January 2026, https://www.wa.gov.au/government/media-statements/Cook%20Labor%20Government/Buyback-ends-with-more-than-83%2C000-firearms-surrendered-20260120. Accessed 13 April 2026.

Granger C, Newbold P (1974) Spurious regressions in econometrics. J Econom 2:111–120.

Gunpolicy.org. (2022), Australia — Gun Facts, Figures and the Law, www.gunpolicy.org, accessed 23 November 2021.

Hogan, H. (2021), Hunting shown to contribute more to the economy than the wool industry in NSW, Australian Broadcasting Corporation, 1 July 2021, https://www.abc.net.au/news/2021-07-01/hunting-economic-benefits/100248526, accessed 10 April 2026.

Ilanbey, S. (2026), One-off levies could be imposed to fund gun buyback, Financial Review, 22 January 2026, https://www.afr.com/politics/one-off-levies-could-be-imposed-to-fund-gun-buyback-20260122-p5nw3g, accessed 15 April 2026.

Johnson, L. (1997), As gun buyback ends, dealers count the costs, The Sunday Age, 28 September 1997.

Kahneman, D., Knetsch, J. and Thaler, R. (1991), "Anomalies: The Endowment Effect, Loss Aversion, and Status Quo Bias", Journal of Economic Perspectives.

Lee, W. S., and Suardi, S. (2010). The Australian firearms buyback and its effect on gun deaths, Contemporary Economic Policy, 28, 65–79.

Leigh, A., and Neill, C. (2010), Do gun buybacks save lives? Evidence from panel data, American Law and Economics Review, 12, 509–557.

Levinson, B., Rabe, T., and Ilanbey, S. (2026), Queensland crunches the numbers on gun buyback scheme, Financial Review, 15 January 2026, https://www.afr.com/politics/federal/queensland-crunches-the-numbers-on-gun-buyback-scheme-20260115-p5nu8c.

Li, J. and Taylor, B. (2014), Do fewer guns lead to less crime? Evidence from Australia. Working paper # - 2014-01, Department of Economics, Miami University, Miami, Florida.

McPhedran, S. (2020), Australian mass shootings: An analysis of incidents and offenders, Journal of Interpersonal Violence, 35(19-20), 3939–3962.

Miller, M., Hemenway, D., and Azrael, D. (2007), State-level homicide victimization rates in the US in relation to survey measures of household firearm ownership, 2001–2003. Social Science & Medicine, 64, 656–664.

Mouzos, J. (2000), The Licensing and Registration Status of Firearms Used in Homicide, Trends and Issues in Crime and Criminal Justice, No. 151, Australian Institute of Criminology, Canberra.

NewsCorp (2026), Gun licence applications in NSW up 7000 per cent in some categories. 12 February 2026, https://www.news.com.au/national/nsw-act/gun-licence-applications-in-nsw-up-7000-per-cent-in-some-categories/news-story/ff655a9c3d2c83747a06a62eee29a1a4

NewsPoll (1997), Australian firearms buyback public education campaign Newspoll research results June/July 1997 summary of findings, NewsPoll, Sydney.

NSW Government (2026), Firearms Registry Public Website Data Reporting - March 2026, New South Wales Government, New South Wales.

Ozanne-Smith, J., Ashby, K., Newstead, S., Stathakis, V. Z., and Clapperton, A. (2004), Firearm related deaths: The impact of regulatory reform, Injury Prevention, 10, 280.

Ramchand, R., and Saunders, J. (2021), The Effects of the 1996 National Firearms Agreement in Australia on Suicide, Homicide, and Mass Shootings, RAND Corporation, https://www.rand.org/research/gun-policy/analysis/essays/1996-national-firearms-agreement.html

RAND Corporation (2020), The Science of Gun Policy: A Critical Synthesis of Research Evidence on the Effects of Gun Policies.

RAND Corporation (2026), Effects of Assault Weapon and High-Capacity Magazine Bans on Mass Shootings, https://www.rand.org/research/gun-policy/analysis/ban-assault-weapons/mass-shootings.html.

RCMG (2014), Estimating the economic impact of hunting in Victoria in 2013, RCMG, Bendigo, Victoria.

RCMG (2019), Economic and social impacts of recreational hunting and shooting, RCMG, Bendigo, Victoria.

RCMG (2020), Economic contribution of recreational hunting in Victoria, RCMG, Bendigo, Victoria.

RCMG (2023), Economic contribution of recreational hunting in NSW, RCMG, Bendigo, Victoria.

Reuter, P., and Mouzos, J. (2003), Australia: A Massive Buyback of Low-Risk Guns, in J. Ludwig and P.J. Cook (Eds.), Evaluating Gun Policy: Effects on Crime and Violence, Brookings Institution Press, Washington DC.

SBS News (2026), Thirty years after Port Arthur, are we doing enough about gun control?, SBS News, 28 April 2026, https://www.sbs.com.au/news/podcast-episode/thirty-years-after-port-arthur-are-we-doing-enough-about-gun-control/zhq8beilw

SIFA (2025), Industry demands answers on $15 billion gun buyback scheme, press release 19 December 2025, https://sifa.net.au/media-release-industry-demands-answers-on-15-billion-gun-buyback-scheme/, accessed 13 April 2026.

SIFA (2026), Nowhere in sight: Gun buyback details still missing, press release 2 April 2026, https://sifa.net.au/nowhere-in-sight-gun-buyback-details-still-missing/, accessed 11 April 2026.

Smith, E.J.B., and Marsh, P. (2019),What we know about the Darwin shooting, the alleged gunman and the victims, Australian Broadcasting Corporation, 5 June 2019. Accessed: https://www.abc.net.au/news/2019-06-05/what-we-know-about-the-darwin-shooting/11180040

Sporting Shooters Association of Australia (2026), A snapshot of our members, https://www.ssaa.org.au/?ss_news=a-snapshot-of-our-members#:~:text=Three quarters of members identified, to the SSAA E-newsletter, accessed 27 March 2026.

State Coroner of New South Wales (2017), Inquest into the deaths arising from the Lindt Cage siege Findings and recommendations, Coroners Court of New South Wales, Sydney, NSW.

Stock J.H., Watson M.W. (2008), Heteroskedasticity-robust standard errors for fixed effects panel data regression. Econometrica 76:155–174.

Squires, P. (2014), Gun Crime in Global Context, Routledge.

Tindale, L. (2026), Requests for gun licences spike after Bondi attack, police say, The Canberra Times, 22 April 2026, https://www.canberratimes.com.au/story/9229631/gun-applications-up-57-per-cent-after-bondi-massacre-act-police/

Ukert, B., Andreyeva, E., and Branas, C. C. (2017), Time series robustness checks to test the effects of the 1996 Australian firearm law on cause-specific mortality, Experimental Criminology, 14, 141-154.

van Dijk, J., van Kesteren, J., and Smit, P. (2007), 'Ownership of Firearms and Handguns in Countries and Main Cities (percentages): 1989-2005 ICVS and 2005 EU ICS,' Criminal Victimisation in International Perspective: Key findings from the 2004-2005 ICVS and EU ICS, United Nations Office on Drugs and Crime, Vienna.

Verbeek, M. (2001), A Guide to Modern Econometrics. Jacaranda Wiley. Milton, Queensland.

Wainwright, R. (1998), 300,000 banned firearms still in circulation, Sydney Morning Herald, 27 April 1998.

Yaman, E. (1997), Black market threatens guns buyback, The Australian, 20 September 1997.

Appendix A Genuine reasons for Category A and B licences in Victoria

This Appendix sets out the genuine reasons to own Category A and B firearm licenses in Victoria and sets out the relevant firearm classifications.

Under the *Firearms Act 1996* (Vic):

10. Reasons for applying for longarm licence, category A or B

(1) The Chief Commissioner must not issue a longarm licence for category A or B longarms unless the applicant can demonstrate that the licence is required for one or more of the following reasons—

(a) for sport or target shooting;

(b) for hunting;

(c) for primary production;

(d) for the occupation of security guard or prison guard;

(e) for an official, commercial or prescribed purpose or for a purpose authorised by an Act or regulations.

(2) For the purpose of demonstrating that the licence is required for—

(a) sport or target shooting—

(i) the applicant must be a member of a shooting club or shooting organisation which is approved by the Chief Commissioner; and

(ii) the applicant must engage in sport or target shooting only at a place which is authorised by or under this Act as a place at which sport or target shooting using category A or B longarms may take place;

(b) hunting, the applicant must—

(i) produce written evidence that the applicant owns, occupies or manages the land on which he or she intends to hunt; or

(ia) the applicant must be a member of a shooting club or shooting organisation which is approved by the Chief Commissioner; or

(ii) produce written evidence from the owner or manager of any privately owned land on which he or she intends to hunt that he or she may be permitted from time to time to use that land for the purposes of hunting; or

(iii) if the applicant is the holder of a game licence issued under the **Wildlife Act 1975**, produce the licence; or

(iv) produce written evidence that he or she is from time to time formally employed, engaged or contracted to shoot pest animals or take game; or

(v) produce written permission to hunt pest animals on Crown land, from the Secretary to the Department of Natural Resources and Environment or from any person nominated by the Secretary to give that permission;

(c) primary production, the applicant must produce evidence that he or she is regularly engaged in the business of primary production as an owner, lessee or manager of land used for the primary production or is a person employed for the purposes of such a business;

(d) the occupation of security or prison guard, the applicant must—

(i) hold a licence under the **Private Security Act 2004** that authorises him or her to perform armed guard activities or cash-in-transit activities or be a prison officer, a contractor or a sub-contractor within the meaning of the **Corrections Act 1986** or an employee of such a contractor or sub-contractor; and

(ii) produce evidence that the applicant has a genuine need for the licence because the duties he or she performs as a security guard, prison officer, contractor, sub-contractor or employee are such as to require the carriage or use of a category A or B longarm;

(e) for a purpose specified in subsection (1)(e), the applicant must produce evidence that the licence is required for that purpose.

(3) The Chief Commissioner may approve any shooting club or shooting organisation for the purposes of subsection (2).

(4) A non-prohibited person who has made an application to the Chief Commissioner for an approval under subsection (3) may apply to the Committee for a review of a decision of the Chief Commissioner not to grant the approval or for a review of a failure of the Chief Commissioner to make the decision within a reasonable time.

(5) The Chief Commissioner may—

(a) impose conditions on any approval under subsection (3); and

(b) after notifying the holder of the approval, alter any such condition.

Firearms Classifications

Under the *Firearms Act 1996* (Vic):

Category A longarm means any of the following—

(a) an airgun;

(b) a rimfire rifle (other than a semi-automatic rimfire rifle);

(c) a shotgun (other than a lever action, pump action or semi-automatic shotgun);

(d) any combination of a shotgun and rimfire rifle;

Category B longarm means any of the following—

(a) a muzzle loading firearm;

(b) a centre fire rifle (other than an automatic or a semi-automatic centre fire rifle);

(c) any combination of a shotgun and centre fire rifle;

(d) a black powder, ball firing cannon;

(e) a lever action shotgun with a magazine capacity of no more than 5 rounds;

Category C longarm means any of the following—

(a) a semi-automatic rimfire rifle with a magazine capacity of no more than 10 rounds;

(b) a semi-automatic shotgun with a magazine capacity of no more than 5 rounds;

(c) a pump action shotgun with a magazine capacity of no more than 5 rounds;

(d) a tranquilliser gun;

Category D longarm means any of the following—

(a) a semi-automatic rimfire rifle with a magazine capacity of more than 10 rounds;

(b) a semi-automatic shotgun with a magazine capacity of more than 5 rounds;

(ba) a lever action shotgun with a magazine capacity of more than 5 rounds;

(c) a pump action shotgun with a magazine capacity of more than 5 rounds;

(d) a semi-automatic centre fire rifle;

(e) any other firearm prescribed for the purposes of this category;

(f) any other firearm that is declared under section 3A(1) to be a category D longarm;

(g) any other firearm that is declared under section 3B(1)(a) to be a category D longarm.

Appendix B Econometric and statistical analysis

New econometric and statistical analysis

For this study, we undertook new econometric and statistical analysis to determine whether there is any evidence that the stock of firearms in Australia influence the frequency of mass shootings or the number of firearm-related homicides.

For mass shootings, we examined 30 years of pre-1996 and 29 years of post-1996 data. For other deaths, we have used data from 1968 to 2024 sourced from the Australian Bureau of Statistics. The starting point of 1968 was selected to be consistent with Leigh and Neill (2010), given that study is the only one to date to specifically consider reductions in firearm stock.

Mass shootings

Mass shootings are rare events and exhibit considerable volatility over time. This presents immediate challenges for statistical inference. As shown below, once the data are carefully analysed using standard regression and other statistical and econometric techniques, there is no evidence of a statistically meaningful relationship between firearm prevalence and mass shooting deaths.

The analysis uses annual data for mass shootings (defined as four or more deaths, not including the perpetrator) and the stock of firearms over the period 1966 to 2024. For pre-1996 data, estimated firearm stock includes both registered and unregistered firearms are included (given that some states had registration schemes and some did not). For post-1996, registered only are included. To account for population growth, both series are defined as a proportion of the population.

The dependent variable is: MS_t = mass shooting deaths per 100,000 population

The key explanatory variable is: G_t = stock of firearms per 100 people

The following regression is estimated over the full sample:

$$MS_t = \alpha + \beta G_t + \varepsilon_t$$

This specification tests whether variation in firearm stocks explains variation in mass shooting deaths over time.

Results of mass shootings analysis

The results of the analysis are clear. There is no statistically significant relationship between the stock of firearms and mass shootings in Australia (Table 1-1).

The estimated regression:

$$MS_t = -0.00054 + 0.00070G_t$$

The coefficient on firearm stock is positive but extremely small. But, crucially, the coefficient is not statistically significant:

- T = 0.71
- P = 0.478

Furthermore, the 95 per cent confidence interval spans both negative and positive values:

[−0.00126, 0.00266]

This indicates that the true effect could be negative, positive, or zero.

Table 0-1 Regression results, Mass Shooting homicides and stock of firearms, 1968 to 2024

Test	Sample	Coefficient (β)	T-stat	P=value	R-squared	Interpretation
Levels	1968-2024	0.00070	0.71	0.478	0.009	No statistically significant relationship

Source: Tulipwood Economics analysis.

The explanatory power of the model is effectively zero: R2 = 0.009

This means that less than 1 per cent of the variation in mass shooting deaths is explained by variation in firearm stocks. The F-statistic for the model is also not statistically significant:

- F = 0.51
- p = 0.478

Taken together, these results indicate that the model has no meaningful explanatory power.

Interpretation and implications

The results of the regression provide no evidence of a statistically significant relationship between firearm prevalence and mass shooting deaths in Australia.

- The coefficient is small, imprecisely estimated, and statistically indistinguishable from zero. The model explains virtually none of the variation in the dependent variable.

This outcome is consistent with the underlying statistical properties of mass shooting data. Mass shootings are rare, discrete events, often clustered in time and driven by idiosyncratic factors. As a result, aggregate time-series regressions are unlikely to identify stable relationships between mass shooting outcomes and broad explanatory variables such as firearm stocks.

These results have important implications for the use of econometric evidence in evaluating firearm policy.

The econometric evidence presented in this section shows that there is no statistically significant relationship between the stock of firearms and mass shooting deaths in Australia over the period 1966 to 2024.

The regression provides no basis for predicting how changes in firearm stocks would affect mass shooting outcomes. The estimated coefficient is not statistically significant and is highly uncertain. Using this model to simulate the impact of policies such as gun buybacks would therefore be unreliable.

More broadly, the absence of any detectable relationship suggests that mass shooting events are not well explained by aggregate measures of firearm prevalence. Policy analysis in this area must therefore rely on alternative approaches, including case-based analysis (i.e., in -depth examination of individual incidents), institutional factors (i.e., social, economic, and other factors), and behavioural drivers (i.e., what motivates mass shootings), rather than simple time-series correlations.

Firearm homicides

We now examine whether variation in the stock of firearms in Australia explains variation in firearm homicide rates.

The hypothesis is straightforward:

If firearm prevalence is a key determinant of firearm homicide, then increases (or decreases) in the stock of firearms should be associated with corresponding movements in firearm homicide rates.

A simple statistical regression comparing per capita levels of firearm ownership and firearm homicides initially appears to support this proposition, producing a strong positive and statistically significant relationship over the period 1968 to 2024. However, once standard econometric techniques are applied to address issues related to time trends and structural instability, the statistical relationship disappears. The weight of evidence indicates that the apparent relationship is spurious.

The analysis uses annual data for Australia over the period 1968 to 2024.

- Firearm homicide data is derived from the ABS Causes of Death, Australia publications.

- Firearms stock data is derived from various sources, including surveys and previous studies.

We are testing whether firearm homicides is dependent on the number of firearms in Australia.

The dependent variable is:

$$H_t = \textit{firearm homicides per 100,000 population}$$

The key explanatory variable is:

$$G_t = \textit{stock of firearms per 100 people}$$

The firearm stock series includes both registered and (for pre-1996 periods) an estimate of unregistered firearms. Estimates are drawn from various sources including surveys and previous studies.[35] All variables are expressed in per capita terms to ensure comparability over time — that is, to account for Australia's rising population.

Three complementary specifications are estimated:

i) Levels regression using the full sample (1968–2024); that is, a comparison of the raw data series.

$$H_t = \alpha + \beta G_t + \varepsilon_t$$

ii) First-differences regression, which removes common time trends (such as rising incomes, increased funding for policing and other crime prevention policies).

$$\Delta H_t = \alpha + \beta \Delta G_t + \varepsilon_t$$

iii) Split-sample regressions, estimated separately for pre- and post-1996 periods.

Summary of results and interpretation

5.4.1.1.1 Levels Regression

The full-sample regression produces the following estimate:

$$\boldsymbol{H_t = 0.00094 + 0.02855 G_t}$$

The coefficient on firearm stock is positive and highly statistically significant ($t = 7.75$, $p < 0.001$), and the model explains approximately 52 per cent of the variation in firearm homicide rates.

[35] A data appendix provides all of the data necessary to replicate our results.

Taken at face value, this suggests a strong relationship between firearm prevalence and firearm homicide. However, this interpretation relies on the assumption that the regression is not driven by common time trends; that is trends in both firearm ownership and firearm homicides are caused by similar factors over time. In long historical time series, this assumption is often violated.

Factors common to both series over time include:

-

- Overall economic conditions, reflected in rising income levels, which would be expected to increase the rate of firearm ownership (given that represents largely discretionary spending), as well as growth in expenditure on measures such as social programs and income support, which would be expected to decrease the rate of firearm homicides (and homicides more generally).

- Changing regulatory environment, which may increase the availability of sporting or recreational shooting options for some individuals while decreasing legal firearm access for others (e.g., persons who are not 'fit and proper').

- Increased or better quality policing which may reduce overall crime rates, and firearm homicides in particular.

First-Differences Regression to remove autocorrelation bias

To address this issue, the data are transformed into first differences:

$$\Delta H_t = \alpha + \beta \Delta G_t + \varepsilon_t$$

The estimated coefficient becomes small, negative and statistically insignificant:

$$\beta = -0.03964 \ (t = -1.00;\ p = 0.321)$$

Once first differences are introduced, the explanatory power of the model collapses, with R^2 falling from 0.52 to 0.018.

This result indicates that changes in firearm stocks do not explain changes in firearm homicide rates. The disappearance of the relationship once trends are removed is strong evidence that the levels result is driven by spurious correlation.

Split-Sample Regressions

To test whether the relationship is stable over time, the sample is split into two periods:

a) Pre-1996: 1968–1995

b) Post-1997: 1998–2024

Note that the years 1996 and 1997 were removed to 'see through' the period of rapid policy change with the Port Arthur massacre in April 1996 and the subsequent Howard government led Gun Buyback.

The estimated coefficients are:

Pre-period: $\beta = -0.0093$ ($t = -0.46$; $p = 0.647$)

Post-period: $\beta = 0.0051$ ($t = -0.23$; $p = 0.823$)

In both periods, the coefficient is statistically insignificant and economically negligible. The sign of the coefficient also reverses between periods. In other words, in the first period, estimated gun ownership was increasing and so were firearm homicides. In the second period, gun ownership was increasing but firearm homicides were decreasing. However, in both periods, this relationship was not statistically significant, meaning that many factors other than gun ownership are likely to explain variations in firearm homicides. This instability is inconsistent with a meaningful structural relationship between firearm prevalence and firearm homicide. If such a relationship existed, one would expect some consistency in sign and magnitude across sub-periods. Instead, the results indicate that firearm stock explains virtually none of the variation in firearm homicide in either period.

Interpretation and implications

The combined results provide a consistent econometric narrative.

Table 4-2 (below) reports the results of the four regressions undertaken. The table shows that while there is a strong relationship between the stock of firearms and firearm-related homicides, on closer examination it is spurious and driven by common factors related to time trends (which we cover in chapters 1 and 2).

Table C-0-2 Regressions undertaken

Test	Sample	Coefficient (β)	T-stat	P=value	R-squared	Interpretation
Levels	1968-2024	0.0285	7.75	<0.001	0.522	Strong positive association in levels
First differences	1969-2024	-0.0396	-1.00	0.321	0.018	No statistically significant relationship in differences
Split (pre-1996)	1968-1995	-0.0093	-0.46	0.647	0.008	No statistically significant relationship for the period 1968 to 1995

Split (post-1996)	1998-2024	0.0051	0.23	0.823	0.002	No statistically significant relationship for the period 1998 to 2024

Source: Tulipwood Economics analysis.

The levels regression suggests a strong relationship between firearm prevalence and firearm homicide. However, this relationship disappears when the data are expressed in first differences and when the sample is examined in separate sub-periods. The coefficient becomes statistically insignificant, economically trivial, and unstable in sign. This outcome is also consistent with past research that has found no statistically significant impact of the 1996 gun law changes on firearm homicides.

This pattern is characteristic of spurious correlation arising from common time trends. Over the sample period, firearm homicide rates declined significantly, while firearm prevalence followed a different long-run trajectory. When these series are regressed in levels, the shared time dimension generates a strong statistical association, even in the absence of a causal link.

Once this common trend is removed—either by differencing or by examining sub-periods—the relationship disappears. These findings have important implications for policy evaluation.

- The levels regression cannot be used to infer the effect of changes in firearm stocks on firearm homicide. It does not represent a stable or causal relationship. Any attempt to use that coefficient to predict the impact of policies such as gun buybacks or firearm reductions would therefore be misleading.

- Instead, the more robust specifications indicate that changes in firearm prevalence have no statistically detectable effect on firearm homicide rates in this dataset. This suggests that other factors—such as policing, demographics, and broader social and economic conditions—are more important drivers of long-run trends in firearm homicide.

The econometric evidence presented in this chapter demonstrates that the apparent relationship between firearm stocks and firearm homicide in Australia is not robust, and that in the post-1996 period there is in fact a negative (although not statistically significant) relationship. While a simple regression in levels produces a strong and statistically significant result, that relationship disappears once standard techniques are used to account for time trends and structural instability.

The most reasonable conclusion is that the observed correlation between the stock of firearms and firearm-related homicides (i.e. the levels of the two variables) is spurious, driven by factors and trends that have been in place since the mid-1980s. As such, the apparent relationship should not be used as a basis for causal inference or policy prediction.

Appendix C Value of life and injury

This appendix sets out the evidence on the value of life and injury that is commonly used in cost benefit analysis in Australia.

Avoided firearm-related death and injury from suicides and accidents

Table C-1 (below) shows firearm suicide and homicide data for 2024[36] for Australia (all states) and Victoria specifically. Table X shows Years of Potential Life Lost (YPLL). [37]

- YPLL is a measure of premature mortality which weights age at death to gain an estimate of how many years a person would have lived had they not died prematurely.
- Causes of death with a younger median age at death will have a higher number of YPLL.
- The ABS defines a "premature death" as one, where the person was aged between 1-78 years at the time of death (ABS, 2025).

YPLL varies across type of death and firearm (Table X). Nationally, the firearm and death type with the lowest YPLL per death was rifle/shotgun suicide. The highest was handgun homicide. This is an important distinction, because (a) restrictions on the type and number of longarms owned are unlikely to affect suicides, which require only one shot from one firearm, and (b) restrictions on legally owned longarms are likely to have very limited impact on homicides, given the percentage of homicides that involve handguns/illegally owned firearms in general.

From this, an average dollar value, using Value of a Statistical Life (VSL), can be assigned per death.

Table C-1 Firearm homicide and suicide, 2024

	Australia	Victoria
Suicide	162 deaths 158 (97.5%) males 21 (13%) handgun 114 (70.4%) rifle or shotgun	34 deaths[38] 30 (86%) males 3 (8.8%) handgun 28 (82%) rifle or shotgun 3 (8.8%) other or unspecified firearms

[36] This is the most recent available data. Numbers may change following revisions by the ABS in subsequent years.
[37] Years of Potential Life Lost (YPLL) are calculated by the ABS using the estimated resident population of specific groups as at 30 June of the relevant year.
[38] This is the total for male and female deaths.

	27 (16.7%) other or unspecified firearms	
Homicide	25 deaths 18 (72%) males 7 (28%) handgun 8 (32%) rifle or shotgun 10 (40%) other or unspecified firearms	12 deaths[39] 9 (75%) males 6 (50%) handgun 2 (16.7%) rifle or shotgun 4 (33.3%) other or unspecified firearms

Table C-2 Years of potential life lost (YPLL)

	Australia			Victoria		
	Handgun	Rifle/ Shotgun	Other/ unspecified	Handgun	Rifle/ Shotgun	Other/ unspecified
Suicide						
YPLL (total)	510	2157	578		512	
Years per death	24.3	18.9	21.4	n.p	15.1	n.p
Homicide						
YPLL (total)	293	324	404		n.p	
Years per death	41.9	40.5	40.4	n.p		n.p

Source: ABS and AIHW. Notes: n.p: not published.

[39] This is the total for male and female deaths.