



National Motor Vehicle
Theft Reduction Council

6th Review of the NMVTRC

Benefits of Theft Reform— Summary Report

October 2017

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Report outline

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Title	Benefits of Theft Reform—Summary Report
Address	National Motor Vehicle Theft Reduction Council Suite 1, 50-52 Howard Street North Melbourne Victoria 3051
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Type of report	Evaluation – Summary Paper
Objectives	To provide a summary of the independent assessment of the costs and benefits of vehicle theft reform in Australia and the NMVTRC’s performance in overseeing the reform process.
NMVTRC Program	2017 Review
Key milestones	Final Report
Abstract	<p>In accordance with the terms of the inter-government/insurance industry agreement under which it operates, the NMVTRC is required to present an evaluation of its operations to State and Territory Ministers and the Insurance Council of Australia (ICA) during 2017/18. There are three discrete elements to the Review:</p> <ul style="list-style-type: none">• This study of the economic and social benefits (the benefits element) of the NMVTRC’s theft reform activities;• A survey of stakeholders’ perceptions of the NMVTRC’s performance in meeting its objectives and support for its dissolution or extension (the stakeholder element); and• The development of a set of recommendations by the NMVTRC on whether it should be wound-up or extended. <p>This report deals solely with the <i>benefits element</i>.</p> <p>The report demonstrates the economic value of vehicle theft reform to Australia and the NMVTRC’s considerable contribution to delivering those benefits.</p>
Purpose	The study was commissioned to fulfil part of the NMVTRC’s obligation for independent review under the terms of the intergovernmental/insurance industry agreement which establishes it.
Key words	Review, cost-benefit analysis, impacts, vehicle theft

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1. Introduction

This report was commissioned by the National Motor Vehicle Theft Reduction Council (NMVTRC), a joint initiative of Australian governments and the insurance industry to facilitate the implementation of strategic responses to combat motor vehicle theft. The NMVTRC's term is subject to programmed triennial reviews, with its current term ending in mid-2018. Under the terms of its inter-government/insurance industry agreement, the NMVTRC is required to present an evaluation of its operations to State and Territory Ministers and the Insurance Council of Australia by the end of 2017.

This report is concerned with the economic benefits of vehicle theft reform that can be attributed to the activities of the NMVTRC and comprises part of the triennial review framework. This document provides a summary of the evaluation methodology, the underlying assumptions that have been utilised and the overall results which are expressed in terms of Net Present Value (NPV) and Benefit-Cost Ratio (BCR).

For a more detailed description of the rationale and calculations underpinning this summary please refer to the companion Technical Working Paper.

2. Evaluation Period

The analysis of the NMVTRC's performance examines the benefits of theft reforms that have occurred since 2012/13. To fully assess the benefits, the evaluation period extends through to 2020/21, which gives a 5 year period of actual experience and a 5 year forecast period¹. The forecast period is required because the effect of many reforms extends over more than a single year. For example, once a vehicle has security devices fitted it is substantially protected from theft for the rest of its life and the benefits accrue over its operating life not just the year in which it was first secured (or the expenditure incurred).

Other programs need to be repeated if they are to continue to have an effect, so their costs also continue into the future. For example, public education programs aimed at increasing awareness of motor vehicle theft and the thefts of keys from homes.

3. Analysis Method

Essentially answers (or outcomes) to two questions are required to assess the NMVTRC's performance, namely—

1 What are the net benefits of the NMVTRC's motor vehicle theft reforms?

This question can be answered by a cost-benefit analysis, which identifies all the gains and losses from an action to all members of society and attempts to express them in monetary terms so they can be combined into a single measure. If the total benefits exceed the total costs, then the theft reform activity of the NMVTRC will have been economically worthwhile. All costs, whether incurred by the NMVTRC, other bodies or by motor vehicle owners, should be included in the cost-benefit analysis if they have contributed to the benefits, ie the reduction in motor vehicle theft.

2 How has the NMVTRC performed in reducing motor vehicle theft?

This question can be answered by examining only the costs of the NMVTRC relative to the net benefits of motor vehicle theft reform. In other words, how effective has the NMVTRC been in meeting its objective to reduce motor vehicle theft, either by expending resources itself or by encouraging others to do so. In practice, the only difference to the cost-benefit analysis is that costs incurred by others are excluded.

¹ The NMVTRC has operated since 1999 and similar benefit analyses were undertaken as part of equivalent reviews in 2005, 2008, 2011 and 2014.

3.1 Identifying the Benefits Attributable to the NMVTRC

This report quantifies the costs and benefits of motor vehicle theft reduction that are attributable to NMVTRC activity in the five years from 2012/13 to mid-2017 (including any benefits that will accrue over the following five years from that activity).

In order to do this the analysis requires, to the extent possible, estimates of the proportions of vehicle theft reduction over the period that—

- would have occurred even if there had been no specific vehicle theft reforms of any type, for example identifying the trend in all property crime and discounting this level of reduction from the trend in vehicle theft accordingly;
- could have been expected as a result of vehicle theft initiatives that would have taken place even if NMVTRC did not exist and/or have subsequently occurred without the input or influence of the NMVTRC; and
- occurred as a result of the NMVTRC's direct action or influence.

Only the benefits from that proportion of vehicle theft reduction that is identified as occurring as a result of direct action or influence of the NMVTRC are included in the evaluation results.²

3.2 Defining NMVTRC's Impact on Vehicle Theft

The NMVTRC's Strategic Plan and Work Program is structured around the two main outcomes it seeks to achieve, ie to reduce the:

- volume of vehicle crime—which is primarily driven by *short term* thefts in which a vehicle is stolen for a purpose and then abandoned. Vehicles that are stolen and recovered are 'counted' in this group; and
- cost of vehicle crime—which is primarily driven by *profit motivated* thefts in which a vehicle is stolen and converted to cash in a variety of ways and never found in its original form. Vehicles that are stolen and not recovered are counted in this group.

All of the NMVTRC's reform activities and programs can be allocated to one or other of these theft types. Evaluation results are calculated and presented separately for each and then combined for a total theft result.

Just as vehicle crime rates rise and fall so too do other types of crime due to externalities such as the prevailing economic conditions, employment levels, etc. To explore relationship between these factors and movements in crime levels, the analysis also examined fluctuations in the rates of various other types of property crime and any correlation in volumes and trends. The correlation analysis is outlined in full in the accompanying Technical Working Paper.

3.3 Estimating the NMVTRC's Impact on Short Term Theft

NMVTRC activities that were assessed for their contributing impact in this theft category include its various youth initiatives and extensive range of community education resources provided directly to the public, in support of localised policing initiatives and via community partnerships with local government.

In the last 5 years, the reduction in short term theft volumes is 4.8 per cent (when Queensland and Victoria are excluded) which is consistent with the 2014 review forecast of a 5 per cent reduction by this time.

The analysis conservatively attributes 24 per cent of the reduction in short term theft nationally is attributable to the work of the NMVTRC. That delivers an estimated Net Present Value for the NMVTRC's Short Term Theft interventions of \$150.1m or a benefit-cost ratio of 16.4.

² If a jurisdiction has not participated in NMVTRC processes then what happens in them cannot be attributed to the NMVTRC. Queensland has not been a participant since 2011 and Victoria did not participate in 2015/16. Equally, no account has been taken of potential improvements in the Victorian theft rate now that Victoria has re-joined the collaboration and recent volume rises reversed.

Table 1: Short Term Motor Vehicle Theft, All Vehicles, 2011/12 to 2021/22

Year ¹	Stolen ²	Reduction	Attributable to NMVTRC ³
2011/12	24,599		
2012/13	23,524	-1,075	-258
2013/14	20,602	-2,922	-701
2014/15	19,522	-1,080	-259
2015/16	19,783	261	63
2016/17	19,191	-592	-142
2017/18	18,730	-461	-111
2018/19	18,281	-450	-108
2019/20	17,842	-439	-105
2020/21	17,414	-428	-103
2021/22	16,996	-418	-100

Notes: 1 Year April to March.
2 Actual to 2013/14, then forecast at 2.4% per year.
3 24% of reduction attributed to the NMVTRC.

3.4 Estimating the NMVTRC's Impact on Profit Motivated Theft

It is difficult to achieve once and for all reductions in profit motivated theft, as was forecast in the previous reviews and confirmed by actual theft behaviour. This is not surprising as professional theft is carried out by criminals who will attempt to find new ways to maintain their livelihood once one path is closed off. As the WOVR, information exchange and vehicle identification reforms have been successful in preventing or making re-birthing more difficult, thieves have been stealing older vehicles and selling them for scrap. To reflect this, the theft analysis for this review has been expanded to make forecasts for vehicles over 15 years of age.

In the past two reviews, the main component of the forecasts was the use of the long-term pattern of related theft to guide the future (the step method). However, for this review, a simpler common annual percentage change has been adopted because the pattern of change in the theft numbers is not suitable for the step method. Table A.1 in the companion Technical Working Paper shows the forecasts using the step method for completeness.

Over the last ten years there has been an increase in the number of passenger and light commercial vehicles less than 16 years of age stolen and the increase has been greatest in the last 5 years. However, when the performance of Queensland and Victoria are excluded, there have been decreases. For PLCs more than 15 years old, there have been consistent decreases nationally.

The analysis attributes 80 per cent of the trend changes in professional theft to the work of the NMVTRC based on the comprehensiveness of its related reform programs. That delivers an estimated Net Present Value for the NMVTRC's Short Term Theft interventions of \$76.2m or a benefit-cost ratio of 2.1.

Table 2: Profit motivated theft, PLCs less than 16 years of age, 2011/12 to 2021/22

Year ¹	Actual Numbers & Forecast Trend Change			Revised Damage Criteria ⁴	Trend plus Damage Criteria
	Stolen ²	Change pa	Attributable to NMVTRC ³		
2011/12	3,951				3,951
2012/13	3,694	-257	-206		3,694
2013/14	3,414	-280	-224		3,414
2014/15	3,502	88	70		3,502
2015/16	3,053	-449	-359	-196	2,857
2016/17	3,169	116	93	-294	2,875
2017/18	3,106	-63	-51	-294	2,812
2018/19	3,044	-62	-50	-392	2,652
2019/20	2,983	-61	-49	-294	2,689
2020/21	2,923	-60	-48	-196	2,727
2021/22	2,865	-58	-47	-98	2,767

Notes: 1 The year April to March.

2 Actual to 2016/17, then forecast based on 2% pa growth.

3 80% of the change in each year.

4 80% reduction in 2018/19, following 40% or 60% in the 3 previous years. In each of the following years a 20% reduction is applied.

Table 3: Profit motivated theft, PLCs more than 15 years old, 2011/12 to 2021/22

Year ¹	Stolen ²	Change pa	Attributable to NMVTRC ³
2011/12	4,904		
2012/13	4,462	-442	
2013/14	4,010	-452	
2014/15	3,932	-78	
2015/16	3,445	-487	
2016/17	4,011	566	
2017/18	3,891	-120	-96
2018/19	3,774	-117	-93
2019/20	3,661	-113	-91
2020/21	3,551	-110	-88
2021/22	3,444	-107	-85

Notes: 1 The year April to March.

2 Actual to 2016/17, then forecast based on 3% pa growth.

3 80% of the change in each year.

4. Unit Cost of Stolen Vehicles

A reduction in motor vehicle theft has the effect of reducing costs to vehicle owners whose vehicles would otherwise have been stolen. The unit costs used in this review were derived from indexing values used in the 2014 Review. More details of the estimation process are contained in Appendix B of the companion Technical Working Paper.

The unit costs comprise four categories: vehicle, personal, injury and insurance administration costs. The estimated unit costs are for passenger and light commercial vehicles (PLCs)—

- of all ages for short term theft (recovered vehicles);
- 15 years of age or less for profit motivated theft (unrecovered vehicles); and
- more than 15 years of age for profit motivated theft.

The costs are summarised in Table 4, which shows three categories of unit costs, with a new unit cost for PLCs over 15 years of age subject to profit motivated theft. The profit motivated theft unit cost for vehicle loss and damage is lower than in the last review based on insurance claims data supplied to the NMVTRC's Comprehensive Auto-theft Research Service by insurance companies. Older vehicles subject to profit motivated theft have the lowest unit cost, as one would expect.

Table 4: Unit Cost per Stolen Vehicle by Cost Component and Type of Theft (\$)

Cost Component	Short Term Theft (All vehicles)	Profit Motivated Theft (0-15 years)	Profit Motivated Theft (>15 years)
Vehicle damage or loss	13,130	15,560	3,310
Personal	1,690	2,070	2,070
Injury	2,550	Na	na
Insurance administration	500	890	890
Total unit cost	15,870	18,520	6,270

No new data were available to estimate personal costs. They were indexed from the 2014 Review costs using the CPI.

New data were available on fatalities involving stolen vehicles from the National Coronial Information System and has been included. The injury cost is only applied to the short term theft costs.

Insurance administration costs were indexed using the CPI but have reduced compared to the 2014 Review due to an improved method of calculation.

5. Benefits of Reform

The estimated costs and benefits of the motor vehicle theft reform are shown in Table . The overall returns from the reduction of short term theft are larger than for profit motivated theft, as measured by the NPV and the BCR.

Table 5: Cost-benefit Analysis Evaluation Results, discounted at 5 per cent pa

Indicator	Short Term Theft	Profit Motivated Theft	All Theft
Present value of costs (\$m)	9.8	67.2	82.8
Present value of benefits (\$m)	159.9	143.4	303.3
Net present value (\$m)	150.1	76.2	220.5
Benefit-cost ratio	16.4	2.1	3.7

The corporate costs of the NMVTRC are included in only the all theft total, which shows a good economic result. The overall benefits of motor vehicle theft reform exceed the costs by \$220 million dollars, with each \$1 of cost earning \$2.20 of benefits.

The benefits of profit motivated theft comprise:

- \$89.2 million for the trend reduction in motor vehicle theft;
- \$36.5 million for the damage criteria; and
- \$17.7 million for the stronger controls on the disposal of older PLCs as scrap.

6. Beneficiaries of Theft Reform

There are 2 main beneficiaries from motor vehicle theft reform, as follows:

- 1 Insurers are the main beneficiaries with savings from vehicle loss and damage and administration totalling \$167 million. Their net benefit will be lower due to the costs of lower salvage values from adoption of revised damage criteria for written-off vehicles and their contribution to the NMVTRC's funding. The net benefit is estimated at about \$140 million.
- 2 Vehicle owners are also significant beneficiaries (\$110 million) due to savings in vehicle loss and damage costs and to their savings in personal costs when a vehicle is stolen. Their net benefit may be reduced to \$94 million if they pay the full cost of fitting security measures to their vehicles, estimated at \$16 million for identification.

7. Performance of the NMVTRC

The NMVTRC's performance with respect to the reduction in motor vehicle theft is calculated as its costs relative to the reduction in motor vehicle theft. This measures how effective the NMVTRC has been in meeting its objective to reduce motor vehicle theft, either by expending resources itself or by encouraging others to do so. For this calculation, the costs incurred by others are excluded.

The performance of the NMVTRC is shown in Table 6, with the results shown separately for short term and profit motivated theft and the corporate costs of the NMVTRC included in only the totals for all theft. The results suggest that the performance of the NMVTRC continues to be impressive, with an overall return of 19.3 (BCR).

Table 6: Performance of the NMVTRC, discounted at 5 per cent pa

Indicator	Short Term Theft	Profit Motivated Theft	All Theft
Present value of costs (\$m)	6.1	3.8	15.7
Present value of benefits (\$m)	159.9	143.4	303.3
Net present value (\$m)	153.8	139.6	287.6
Benefit-cost ratio	26.3	37.5	19.3

8. Reasonableness of the Results

A conservative approach to the short term theft forecasts has been adopted by selecting:

- a low rate of growth based on past trends; and
- the same share attributable to the NMVTRC although the other crime and immobilisation data suggest that a higher share could be justified. The share would need to fall to 0.02 (from 0.24) for the costs to exceed the benefits.

The pattern of the theft data for profit motivated theft meant that the step method of forecasting failed. The forecasts are based on an annual growth rate of 2 per cent, which is just under half of the growth rate in the last 5 years (4.3 per cent). The theft reductions attributed to the damage criteria are reduced by about one half due to a longer than anticipated implementation window in some jurisdictions. It has also been reduced as a result of the non-participation of Queensland in the NMVTRC collaboration and Victoria's partial period of non-participation. The 80 per cent benefit share attributed the work of the NMVTRC would need to halve for the costs to exceed the benefits.