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Estimating the costs of crime in New Zealand in 2003/04

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Estimating the costs of crime in New Zealand in 2003/04

Tim Roper
Andrew Thompson

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A C K N O W L E D G E M E N T S

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D I S C L A I M E R

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Abstract

We estimate that the total costs of crime in New Zealand in 2003/04 amounted to \$9.1 billion. Of this, the private sector incurred \$7 billion in costs and the public sector \$2.1 billion. Offences against private property are the most common crimes but offences against the person are the most costly, accounting for 45% of the total estimated costs of crime. Empirically-based measures like those presented here – the total and average costs of crime by category – are a useful aid to policy analysis around criminal justice operations and settings. However, care needs to be taken when interpreting these results because they rely considerably on assumptions, including the assumed volume of actual crime, and the costs that crime imposes on victims. This difficulty in constructing robust estimates also implies that care should be taken not to draw conclusions about whether the Government should be putting more or less resources into any specific categories of crime, based on their relative costs alone.

JEL CLASSIFICATION K42 – Illegal Behaviour and the Enforcement of Law

KEYWORDS crime; justice; costs; New Zealand

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Estimating the costs of crime in New Zealand in 2003/04

1 Introduction

This paper summarises the results of, and methodology employed in, a project to estimate the costs of crime in New Zealand in 2003/04. These include the costs to society as a whole and the fiscal costs to the New Zealand Government.

Treasury has not previously prepared estimates of the costs of crime. We are doing so now as part of a wider project that seeks to develop more robust analysis of policy choices in the criminal justice system. If successful within the criminal justice sector, empirically-based techniques such as cost-benefit analysis could be extended to interventions in other areas of social policy that impact on criminal justice (such as health, education and family policy).

Empirically-based techniques are an increasingly important component of policy analysis. However, the requirement to estimate key parameters, and ongoing debate around estimation procedures, suggests that techniques such as cost-benefit analysis should inform rather than replace policy development and review processes. In particular, it is important to avoid partial approaches. For example, while a proposal might offer positive net benefits when assessed using empirical techniques, proceeding with it in isolation could preclude the adoption of a better alternative or involve unforeseen implementation risks.

The cost-benefit approach requires estimates of the benefits to society of policies that target reducing crime or improving the operation of the criminal justice system. These benefits include the cost of crime avoided as a result of a policy option. We are unaware of any recent estimates of the costs of crime in New Zealand. This paper summarises our efforts to prepare such estimates.

2 Purpose

The broad purpose of this study is to estimate the full cost, in net present value (NPV) terms, to society of all criminal acts committed in New Zealand during 2003/04. This includes the cost of crime prevention activity (which would not be necessary if there were no crime).

Specific goals of the study are to:

- estimate the costs of each type of criminal act, to inform discussion on how best to target interventions to reduce crime, and to estimate the social and economic benefits of a given reduction in crime;
- estimate the total annual cost of criminal acts in New Zealand, both in absolute terms and as a percentage of GDP;
- compare the estimate for New Zealand in 2003/04 with estimates in other jurisdictions, to inform discussion on the relative significance of crime in New Zealand;
- contribute to work in the Ministry of Justice and elsewhere on estimating New Zealand's cost of criminal acts;
- identify any important data gaps that would need to be filled to develop more accurate estimates in the future.

This analysis offers one approach to consider when choosing between alternative policy choices in a world where there are inevitably financial and other constraints. However, there are a range of reasons to be cautious about relying exclusively on such an approach:

- assumptions are required to derive the cost estimates for each category of crime, particularly around the multipliers used to convert data on recorded crime to actual crime levels, and there is a correspondingly wide range of plausible values around each point estimate;
- estimating benefits to society is difficult and similarly relies on assumptions that can materially affect the results;
- while information about relative costs and benefits of different crime categories can provide some guidance on prioritising prevention and enforcement effort, other considerations are important – in particular, how policies are implemented and the likelihood of success in reducing the incidence of the targeted category of crime;
- costs of policies are also uncertain, particularly where there are risks that significant behavioural changes could result, and that these changes could lead to unintended effects.

Nevertheless, other approaches face similar problems. Perhaps the best that can be done is to avoid relying on a single approach to guide policy and instead use a range of techniques to inform decisions that are made in the light of all the analysis. Other countries face similar issues and are beginning to utilise cost of crime analysis as one input to their policy-making framework.

For these reasons we suggest that readers exercise appropriate caution in relying on our estimates when advancing particular policy options.

3 Summary of results

Our study concludes that the estimated total cost of crime in New Zealand in 2003/04 is \$9.1 billion, as a result of an estimated 1.8 million criminal acts in that year. The public sector's share comprises about \$2.1 billion and the private sector's share about \$7 billion.

Total and average (i.e. per offence) costs by major crime category and sub-category are shown in Table 1. Both total cost and average cost (per criminal act) measures are useful, for different reasons. The total cost shows the contribution and magnitude of the impact of different crime types on society. The average cost estimates are a potential input to decisions on policy initiatives that seek to reduce particular categories of crime.

The most costly crime category is offences against the person, contributing to 45 percent of the total cost of crime (but representing only 19 percent of all criminal acts).

The next most costly category is offences against property, contributing to 41 percent of the total cost. This is easily the most common category of crime, accounting for 74 percent of all criminal acts.

On a per criminal act basis, sexual offences are by far the most costly sub-category, primarily reflecting the impact on victims. Serious traffic offences (which on occasions result in injuries and/or fatalities) and robbery also have a relatively high average cost, again reflecting victim impact (intended or unintended).

Table 1 – Total cost, and cost per offence, by category of crime

2003/04	Total cost (\$ million)	Share (%)	Estimated number of actual criminal acts	Share (%)	Cost per criminal act (\$)
Offences against the person	4,120	45%	334,300	19%	12,320
- Violent offences	2,771	30%	311,000	17%	8,910
- Sexual offences	1,192	13%	16,500	1%	72,130
- Robbery	157	2%	6,800	0%	23,100
Offences against private property	3,744	41%	1,334,600	74%	2,800
- Burglary	942	10%	133,400	7%	7,060
- Theft	1,233	14%	946,600	53%	1,300
- Property damage	398	4%	184,300	10%	2,160
- Fraud	1,170	13%	70,300	4%	16,650
Offences with no direct or intended victim	1,273	14%	123,400	7%	10,310
- Drug offences	129	1%	22,200	1%	5,780
- Serious traffic	988	11%	31,700	2%	31,210
- All other	156	2%	69,500	4%	2,240
Total	9,136	100%	1,792,400	100%	5,100

Estimating an average cost per crime disguises the wide range of costs that occur within each category. Costs at the margin can be significantly different from average costs:

- violent offences have a relatively low average cost because more than two thirds of these are comparatively minor in nature; however, some violent offences have very high average costs – homicides, for example, average \$3.9 million;
- conversely, serious traffic offences have a relatively high average cost because the costs associated with injuries and fatalities, on the 15% of occasions these occur, are very high (comparable to those for grievous assaults and homicides, respectively);
- similarly, the average cost for fraud is affected by a relatively small number of high-cost offences.

4 Method

In our analysis we have incorporated published data from the Police on recorded crime in 2003/04, the Ministry of Justice on convicted cases in calendar 2003 and the Department of Corrections' census of inmates as at 20 November 2003.

4.1 Key assumptions

Estimating the costs of crime in New Zealand is not an easy task. There are definitional issues around what counts, both as a crime and a cost, and also significant measurement difficulties around how much crime exists and what the impact of this crime is.

Some components, such as the Crown's core justice sector costs, can be identified and measured with relative certainty. However, even for public sector agencies it is not always obvious which costs are crime-related, nor which category of crime they belong in, so various selection and allocation assumptions become necessary.

Identifying and measuring the costs facing the private sector is even more difficult. By its nature, crime falls outside the legal economy. This inevitably requires important cost components to be estimated on the basis of assumptions. We have made assumptions drawing on approaches used in other, comparable jurisdictions. We acknowledge that different assumptions could result in significantly different cost estimates.

Nevertheless, we consider that the estimates reported in this paper, while only indicative, do offer a basis to discuss the relative costs of criminal acts in New Zealand and are a useful contribution to empirically-based discussion of criminal justice policy settings.

We have made the following key assumptions:

- the multipliers used to convert recorded crime to actual crime rates, and so derived estimated total crime volumes, reflect crime reporting and recording behaviour in New Zealand;
- the social cost of an unrecorded crime is equal to the social cost of an equivalent recorded crime;
- all the main costs to victims have been captured;
- apportioning each justice sector agency's total costs to the various crime categories accurately reflects actual expenditure by that agency;
- Crown costs actually incurred in 2003/04 represent an accurate estimate of the value of present and future costs of criminal acts occurring in that period;
- UK and Australian cost data, where used, are valid proxies for New Zealand;
- missing data are not material to the results.

More detailed assumptions are set out in the Appendix. All monetary amounts are recorded in New Zealand dollars.

4.2 Definition of criminal acts

In quantifying the costs of criminal acts we are essentially interested in measuring the impact of illegal activities on society and the quantity of state resources consumed in preventing, detecting, resolving and redressing them. For the purposes of this study a criminal act is defined as any offence for which the offender may be brought before a court. It follows that offences that are dealt with by way of instant fines (e.g. less serious traffic offences) are not included, although there is an argument that they should be to the extent that they require Police resources and contribute to negative perceptions of safety (e.g. the fear of being injured by a speeding driver).

This definition of a criminal act differs from legal definitions of crime, where a distinction is made between summary (less serious) offences, which are technically not crimes, and indictable (more serious) offences, which are crimes. Our definition of a criminal act includes both summary and indictable offences.

Taking a victim's perspective, we have grouped the various crime statistics into three main types of offence as follows:

- offences against the person (including violent offences, sexual offences and robbery);
- offences against private property (including burglary, theft, property damage and fraud);
- offences with no direct or intended victim (including drug, serious traffic and all other offences).

These broadly correspond to acts that directly threaten a person's physical wellbeing, acts that threaten property and acts that offend against society as a whole rather than a specified or pre-determined individual. There is a continuum of seriousness within each category.

4.3 Coverage of cost items

For the purposes of this study the following costs of crime are included:

- fiscal costs accruing to public sector agencies directly involved in preventing, detecting, resolving and redressing crime (core justice sector agencies);
- fiscal costs accruing to other public sector agencies as a consequence of crime (e.g. health sector costs and benefit fraud);
- direct economic and social costs accruing to the private sector (individuals, households, businesses and institutions) as victims or potential victims. These costs include preventative measures, intangible costs, lost property and the opportunity cost of lost output. We have also included local authorities in this sector.

No attempt has been made to estimate the indirect or second-order costs of crime (e.g. negative impacts on New Zealand's tourism from theft, or on trust and confidence in financial institutions from electronic crime), due to a lack of data. While there are cases of fear of crime changing behaviour, it would be easy to over-state the magnitude of these second-order effects because counterfactuals, such as travelling elsewhere or keeping cash hidden at home, are also risky. Crime is not unique to New Zealand, and people make relative risk assessments in deciding on their travel plans and banking arrangements.

Many crimes (e.g. burglary) involve an involuntary transfer of resources from the victim to the offender. For the purposes of this study, losses to victims are counted as a cost of crime but benefits to offenders are not (i.e. they are not an offset to victims' losses). For example, say a \$1,000 laptop computer is stolen: we count the full \$1,000 loss to the victim as a cost of crime, even though the item may now be worth say \$200 to the offender.

Key reasons why we ignore all gains to offenders are:

- for consistency with other, similar studies;
- to avoid substantial measurement issues (e.g. in the above example there is no simple way to measure how much the laptop is worth to the offender);
- to avoid the potentially perverse result whereby the economically optimal approach might appear to be for enforcement against a particular offence to be minimised (or even for the offence to be encouraged), for crimes where the pecuniary gains to offenders offset, or even outweigh, the losses to victims;
- that from an ethical perspective it would be difficult to defend including non-pecuniary elements (e.g. enjoyment that an offender might derive from a criminal act) as an offset to a victim's costs.

Costs accruing to offenders and their families (e.g. loss of income during imprisonment) are costs to the economy. However they are not included here due to lack of data. Nor are second-order costs that accrue to victims, e.g. increased fear of crime causing a victim to change his or her lifestyle.

4.4 Timeframe

We have used 2003/04 as the reference year, because this was the most recent year for which recorded crime statistics and actual costs for all Crown agencies were available at the time of drafting. While updating cost data to reflect the 2004/05 financial year would in all likelihood increase total costs, we consider that relative costs across the various crime categories would remain largely unchanged.

For core justice sector agencies we have used the fiscal costs incurred in 2003/04 in preventing, detecting, resolving and redressing crimes – whether those costs relate to crimes committed in that year or earlier years. This is not ideal because it requires a 'steady state' assumption. For example, some inmates in prison during 2003/04 were there for crimes committed in an earlier time period. Also, costs relating to some convictions and sentences handed down in the Courts in 2003/04 related to offences that occurred in earlier periods. Also, the Department of Corrections' 2003/04 costs do not necessarily reflect the NPV of the costs relating to the actual custodial sentences being served, many of which are for more than one year. Similarly, costs to victims can be long-term.

However, data limitations preclude quantifying the costs facing core justice sector agencies for crimes committed in 2003/04 on a true NPV basis. During 2003/04, longer sentences were being phased in. Longer sentences would increase fiscal costs in the absence of any significant deterrence effect reducing the number of imprisonable crimes. Current work by the Ministry of Justice on constructing a justice sector 'pipeline' model may enable NPV costings for core justice sector agencies to be compiled in the future.

For most other costs (e.g. health sector costs, lost output and intangibles) NPV costings have been used where possible. This is discussed more fully later in the paper.

4.5 Estimating the volume of crime

Not all incidents of crime are reported to the Police. Moreover, the Police do not record all incidents that are reported to them. To arrive at an estimate of the 'true' level of crime, an estimate of the number of offences either not reported to, or not recorded by, the Police needs to be added to the official recorded crime statistics.¹

This is most commonly achieved by grossing up the recorded crime figures using 'multipliers'. Appropriate multipliers for the various categories of crime can be derived from comparing victim of crime surveys with recorded crime statistics. However, victim of crime surveys have the following limitations:

- the sample size is usually relatively small;
- participants' recall of events may be incomplete;
- some victim categories (e.g. businesses, institutions and people aged less than 15) are typically excluded;
- surveys do not always classify crimes using the official Police categories – and in some cases do not cover particular categories of crime.

There is a conceptual problem with using multipliers in that costs are in all likelihood lower, on average, for unreported than reported crimes. Thus if unit costs (e.g. property lost) have been calculated on the basis of observed costs from reported crimes (e.g. from insurance company payouts for burglaries), there is a risk that overall costs may be overstated, possibly by a considerable amount.

To develop multipliers for New Zealand we have reviewed recent and similar studies in the UK and Australia. This is mainly because the multipliers derived from the New Zealand National Survey of Crime Victims 2001 are not readily convertible to the particular crime sub-categories covered in this study. We have generally preferred to follow the UK multipliers (except where noted in the Appendix) because they relate to the 2003/04 timeframe used in our study, whereas the Australian estimates relate to an earlier period (2000/01) and, in many cases, are themselves based on previous UK multiplier estimates. We consider that the criminal justice system and institutions in the UK are reasonably similar to those in New Zealand, although reporting and recording practices may differ.

The multipliers and derived estimates of the number of criminal acts by category as used in this study are summarised below in Table 2 (see the Appendix for details of the underlying assumptions).

These multipliers suggest that offences against private property are more likely to be reported than offences against the person. This may be because people are motivated to report property crimes to the Police for insurance purposes. People may also tend to consider some offences against their person as a private matter. Alternatively, reporting imposes costs that some victims may be unwilling to incur (such as the time taken to file a complaint, or to give evidence).

¹ Official recorded crime statistics invariably include some falsely reported incidents (e.g. for the purpose of making fraudulent insurance claims) that are not crimes – at least of the type recorded.

Table 2 – Estimated number of criminal acts, by category of crime

2003/04	NZ recorded crime (incidents)	Multiplier	Estimated number of criminal acts
Offences against the person	48,245	6.93	334,300
- <i>Violent offences</i>	43,231	7.19	311,000
- <i>Sexual offences</i>	3,179	5.20	16,500
- <i>Robbery</i>	1,835	3.70	6,800
Offences against private property	286,161	4.66	1,334,600
- <i>Burglary</i>	60,630	2.20	133,400
- <i>Theft</i>	165,091	5.73	946,600
- <i>Property damage</i>	42,872	4.30	184,300
- <i>Fraud</i>	17,568	4.00	70,300
Offences with no direct or intended victim	123,409	1.00	123,400
- <i>Drug offences</i>	22,249	1.00	22,200
- <i>Serious traffic</i>	31,667	1.00	31,700
- <i>All other</i>	69,494	1.00	69,500
Total	457,816²	3.92	1,792,400

For offences with no direct or intended victim a multiplier of one is assumed, mainly in the absence of any better data. Given that the costs associated with these offences are largely those accruing to the justice sector (detection, investigation, etc.) and so are automatically captured, we consider this assumption to be not unreasonable. However, to the extent that there are also likely to be some health sector, lost output and intangible costs accruing to third parties from unreported or unrecorded offences of this type, the estimated total volumes will be understated.

Classification difficulties aside, some of the multipliers in the above table appear high relative to the findings in the New Zealand National Survey of Crime Victims 2001. We would welcome any further work to refine the above estimates in the New Zealand context.

² This figure is higher than the official total recorded crime figure (426,149), as it includes 31,667 serious traffic offences, which, for the purposes of this study, are considered crimes.

5 Results

Costs have been broken down according to which of the following sectors bears the cost: the public sector (fiscal costs) or the private sector (social costs).

As indicated earlier, we have included costs associated with crimes committed against local authorities in the private sector category. A more detailed sectoral analysis could separately identify local authority costs.

5.1 Costs borne by the public sector

Costs borne by public sector agencies are based on actual 2003/04 expenditure, taken from relevant agencies' annual reports.

5.1.1 Core justice sector

The following core justice sector agencies incurred crime-related costs in 2003/04: the Police; the Ministry of Justice (Courts and Justice outputs); the Department of Corrections; the Department of Child, Youth and Family Services (mainly Youth Justice outputs); the Crown Law Office; the Serious Fraud Office; and a handful of Crown entities, namely the Law Commission, the Legal Services Agency (mainly legal aid) and the Police Complaints Authority.

Costs for the core justice sector total an estimated \$1.6 billion net (i.e. after including offsetting revenue from Courts' fines).³ Summary fine revenue collected by the Police (speeding cameras and tickets) is excluded from this analysis. Table 3 breaks down core justice sector costs by crime category.⁴

Total net core justice agency spending is fairly evenly split over offences against the person, offences against private property and offences with no direct or intended victim.

³ Courts' fines revenue figures include some Court-imposed victim reparation orders. Strictly speaking these should be an offset to costs borne by the private sector rather than to costs borne by the public sector. A more detailed sectoral analysis could split these out.

⁴ The Police's definitions and classifications for official recorded crime are not followed by the rest of the justice sector on a consistent basis. For the purposes of this study we have allocated all crimes to the nearest applicable Police category.

Table 3 – Core justice sector costs, by category of crime

2003/04 \$ million	Police	Courts	Justice	Correct ions	CYF	CFO	SFO	Other	Gross total	Less fines	Net total	Share (%)
Offences against the person	192	19	2	311	20	21	0	7	573	(26)	547	35%
- <i>Violent offences</i>	127	17	2	131	19	10	0	6	312	(23)	289	19%
- <i>Sexual offences</i>	47	1	0	119	1	11	0	0	179	(2)	177	11%
- <i>Robbery</i>	18	1	0	61	1	0	0	0	82	(1)	81	5%
Offences against private property	343	27	3	115	81	4	5	10	587	(36)	551	35%
- <i>Burglary</i>	156	5	1	76	27	1	0	2	267	(6)	260	17%
- <i>Theft</i>	123	14	2	18	27	2	0	5	191	(19)	172	11%
- <i>Property damage</i>	35	5	1	7	27	1	0	2	76	(6)	70	4%
- <i>Fraud</i>	29	4	0	14	0	1	5	1	54	(5)	49	3%
Offences with no direct or intended victim	337	119	14	102	0	5	0	45	623	(161)	462	30%
- <i>Drug offences</i>	77	10	1	47	0	4	0	4	142	(13)	129	8%
- <i>Serious traffic</i>	129	70	8	44	0	1	0	26	278	(94)	183	12%
- <i>All other</i>	131	40	5	12	0	1	0	15	203	(54)	150	10%
Total	872	165	20	528	101	30	5	62	1,783	(223)	1,560	100%

Table 4 breaks down core justice sector costs by intervention stage. The largest cost share for the core justice sector is in detection and investigation (mainly by the Police). Redress and sanctions (mainly Courts) would be the next largest, except for the large offset of Courts' fines. The next largest is resolution and adjudication (incurred by Courts, Corrections and Crown entities, chiefly in legal aid).

Table 4 – Core justice sector costs, by intervention stage

2003/04 \$ million	Police	Courts	Justice	Correct ions	CYF	CFO	SFO	Other	Gross total	Less fines	Net total	Share (%)
Policy & legislation	1	1	9	4	2	0	0	2	19	0	19	1%
Prevention & education	122	2	7	86	20	0	0	(0)	237	0	237	15%
Detection & investigation	691	6	0	0	19	0	3	1	720	0	720	46%
Resolution & adjudication	58	116	0	84	24	30	2	59	373	0	373	24%
Redress & sanctions	0	40	3	353	38	0	0	0	434	(223)	211	13%
Total	872	165	20	528	101	30	5	62	1,783	(223)	1,560	100%

5.1.2 Health sector costs

Violent and sexual offences and robbery often involve injuries to the victim requiring medical treatment. The costs of providing these services have opportunity costs that need to be included in any calculation of the costs of crime. While the actual health consequences are suffered by the victims, the treatment costs are largely paid for by the public sector.

We have estimated New Zealand's health service costs for victims of violence, sexual offences and robbery using the UK Home Office methodology for measuring the health costs of violent crime (Dubourg, Hamed and Thorns, 2005). That methodology estimates health service costs based on assumptions about the activities likely to be involved in treating each health state (e.g. ambulance, nurse, physiotherapy, and counselling). These are then weighted by health state prevalence and duration indexes for each crime type and multiplied by unit costs of health care activities to derive unit health service costs by type of offence.

The UK monetary estimates have been converted to New Zealand dollars using the OECD's index of purchasing power parities for GDP for 2004.⁵ It is assumed that the types of activities used to treat victims of violence, sexual offences, robbery and the (adjusted) unit health service costs are similar between the UK and New Zealand. This ignores differences in the respective health systems – New Zealand has ACC, for example. Ideally, New Zealand treatment type and cost data should be used; however, these are not readily available.

We have assumed there to be no health sector costs associated with crimes other than violence, sexual offences, robbery and serious traffic offences. Costs for serious traffic offences have been proxied using unit health service costs for victims of violence.

5.1.3 Other public sector agencies

A number of other public sector agencies incurred crime-related costs in the 2003/04 year. We have derived cost estimates for the following agencies for inclusion in this study: the Ministry of Social Development (preventing and detecting benefit fraud, at-risk youth development activities); NZ Customs Service (detecting fraud, border security); the Inland Revenue Department (detecting fraud); the Ministry of Fisheries (detecting and resolving theft and fraud); and the Ministry of Agriculture and Forestry (detecting and resolving biosecurity and animal welfare breaches).

There will also have been crime-related expenditure in other public sector agencies, such as the Ministry of Education (e.g. preventing damage to schools), the NZ Defence Force (e.g. sea patrols to deter illegal fishing, and seconding army personnel to help with murder investigations) and the NZ Fire Service (responding to deliberately-lit fires). However, no cost data for the crime-related expenditure of these other agencies have been included.

⁵ Purchasing power parity is a method used to calculate an alternative exchange rate between the currencies of two countries. The PPP measures how much a currency can buy in terms of an international measure (usually dollars), since goods and services have different prices across different countries. Comparisons using real exchange rates are considered less valid, since they do not reflect price differences between the countries. On the basis of the OECD's index of PPPs for GDP for 2004, \$1NZ equates to £0.4151.

Also, one could argue that public spending on welfare, education and health is intended, amongst other things, to create healthy and educated citizens who can participate in and contribute productively to (legal) society, thereby indirectly reducing crime. No quantification of public sector interventions to reduce crime through general welfare, education and health services has been attempted.

Total health sector and other identified public sector (outside of the core justice sector) costs total an estimated \$0.6 billion and are broken down in Table 5. Most of the identified public sector crime-related costs outside of the core justice sector are in the health sector and are incurred in response to violence against the person.

Table 5 – Health and other public sector costs, by category of crime

2003/04 \$ million	Health sector	Other public sector	Total	%
Offences against the person	400	1	401	71%
- <i>Violent offences</i>	358	1	360	64%
- <i>Sexual offences</i>	34	0	34	6%
- <i>Robbery</i>	8	0	8	1%
Offences against private property	0		0	27%
- <i>Burglary</i>	0	1	1	0%
- <i>Theft</i>	0	9	9	2%
- <i>Property damage</i>	0	0	0	0%
- <i>Fraud</i>	0	143	143	25%
Offences with no direct or intended victim	3		3	2%
- <i>Drug offences</i>	0	0	0	0%
- <i>Serious traffic</i>	3	0	3	1%
- <i>All other</i>	0	6	6	1%
Total	403	161	564	100%

5.2 Costs borne by the private sector

For costs borne by the private sector (individuals, households, businesses and institutions) UK Home Office estimates have been used, except where relevant New Zealand estimates are available.

As previously noted, local authorities are included in this group. There may be some crime-related costs incurred by local authorities reflecting their role that other organisations do not bear, e.g. costs relating to crime prevention. These have not been separately identified or included.

The costs incurred by private, not-for-profit groups that deal with the consequences of crime (e.g. Rape Crisis and Women's Refuge) have not been separately identified.

5.2.1 Preventative expenditure

This category comprises all those costs that individuals, households, businesses and institutions incur to prevent crime, e.g. security alarms, fencing and deadlocks. It also includes insurance administration (see Section 5.2.2 below).

We have used UK estimates (Dubourg, Hamed and Thorns, 2005) for this preventative expenditure, converted to New Zealand prices, in the absence of recent New Zealand estimates.

5.2.2 Property lost

This category comprises property lost and damaged as a result of criminal acts, less any property recovered. Again the converted UK estimates for 2003/04 produced by Dubourg, Hamed and Thorns (2005) have been used, in the absence of New Zealand estimates.

Property insurance is effectively a risk-pooling activity in which individuals and businesses transfer to insurers, through their premium payments, the cost of having to replace property lost as a result of crime. Insurance has the effect of spreading the cost of property crime over all insured people. This is a transfer of risk rather than a reduction in the amount lost to society from property crime.

As property insurers (businesses) fall into the 'private sector' category, we have neither added on the cost of insurance premiums nor subtracted insurance 'recoveries' from the cost of property lost. Rather, we have assumed that, collectively, the private sector ends up bearing the overall cost of insured, as well as uninsured, property loss.

A portion of insurance premium payments represents insurers' administration costs and profits, namely the residual left over after claims for property loss have been paid out. We have included this portion under preventative expenditure costs.

5.2.3 Intangibles

Intangible costs reflect the impact on victims' quality of life through the physical and emotional effects of crime. While difficult to measure⁶, these victimisation costs can be significant and need to be included in any calculation of the total costs of crime. Not including victims' intangible costs could risk biasing policy choices against preventing victimisation (one of the principal reasons for crime prevention activities).

We have estimated direct intangible costs to victims using the UK Home Office methodology (Dubourg, Hamed and Thorns, 2005). That methodology essentially takes health state outcome prevalence and duration indexes associated with a range of violent crime incidents (e.g. broken bones, bruising, concussion, miscarriage, and anxiety) and translates them into estimated losses of quality-adjusted life years (QALYs) and then into monetary terms through the application of an appropriate QALY valuation.

In the absence of similar New Zealand data, the UK monetary estimates for each comparable category of crime have been converted to New Zealand dollars using the OECD's purchasing power parity for GDP index for 2004. It is implicitly assumed that the injuries sustained across various violent crimes (robbery, sexual assault, etc.) in the UK are similar to those in New Zealand in terms of type and severity.

⁶ Cohen (2000) discusses the various approaches that have been used to estimate the monetary value of intangible costs (e.g. linkages to jury compensation awards, inferring society's willingness to pay).

5.2.4 Lost output

Many victims have to take time off work as a consequence of the emotional and physical impacts of crime. The value of this lost output also needs to be included in the calculation of costs of crime. This is regardless of whether the victim or employer is insured against loss of earnings, as the insurance merely shifts the burden of the loss (i.e. the actual loss to the economy remains unaffected).

The UK Home Office methodology uses the health state prevalence and duration indexes referred to above to estimate the total duration of time off work for each crime type, multiplying this by an estimate of average UK daily output to derive monetary estimates of the total cost of lost output by crime type. This approach implicitly assumes that crime victims are a representative sample of the overall population.

We have used these UK estimates to estimate crime-related lost output costs for New Zealand, converting the UK figures for each comparable crime category to New Zealand dollars using the OECD's purchasing power parity for GDP index for 2004. It would be preferable to use New Zealand data for the lost output due to crime, but none exist.

5.2.5 Total private sector costs

The costs borne by the private sector described in the sections above total an estimated \$7 billion per annum (Table 6). Intangible costs are by far the largest component, comprising over half of all costs borne by the private sector.

Table 6 – Private sector costs, by category of crime

\$ million	Preventative expenditure	Property lost	Intangible costs	Lost output	Total	%
Offences against the person	2	2	2,492	675	3,172	45%
- <i>Violent offences</i>	2	0	1,616	505	2,122	30%
- <i>Sexual offences</i>	0	0	827	154	981	14%
- <i>Robbery</i>	0	2	50	17	68	1%
Offences against private property	320	1,801	881	38	3,039	43%
- <i>Burglary</i>	128	325	208	21	681	10%
- <i>Theft</i>	170	514	354	15	1,052	15%
- <i>Property damage</i>	22	94	210	3	328	5%
- <i>Fraud</i>	0	868	109	0	977	14%
Offences with no direct or intended victim	2	4	524	272	801	11%
- <i>Drug offences</i>	0	0	0	0	0	0%
- <i>Serious traffic</i>	2	4	524	272	801	11%
- <i>All other</i>	0	0	0	0	0	0%
Total	324	1,806	3,897	985	7,012	100%

5.3 Comparing the public sector and the private sector

Table 7 compares the costs of crime borne by the public and private sectors (i.e. the fiscal and social costs, respectively). Overall, the private sector bears about three quarters of the costs of crime and the public sector about one quarter. The public sector bears proportionately more of the costs from offences with no direct or intended victim and proportionately less for offences against private property.

Table 7 – Public and private sector costs, by category of crime

2003/04 \$ million	Public sector	%	Private sector	%	Total	%
Offences against the person	948	10%	3,172	35%	4,120	45%
- <i>Violent offences</i>	649	7%	2,122	23%	2,771	30%
- <i>Sexual offences</i>	211	2%	981	11%	1,192	13%
- <i>Robbery</i>	88	1%	68	1%	157	2%
Offences against private property	705	8%	3,039	33%	3,744	41%
- <i>Burglary</i>	261	3%	681	7%	942	10%
- <i>Theft</i>	181	2%	1,052	12%	1,233	14%
- <i>Property damage</i>	70	1%	328	4%	398	4%
- <i>Fraud</i>	192	0	977	0	1,170	13%
Offences with no direct or intended victim	471	5%	801	9%	1,273	14%
- <i>Drug offences</i>	129	1%	0	0%	129	1%
- <i>Serious traffic</i>	187	2%	801	9%	988	11%
- <i>All other</i>	156	2%	0	0%	156	2%
Total	2,124	23%	7,012	77%	9,136	100%

5.4 Total costs by intervention stage

Table 8 brings together all the costs of crime and breaks them down by intervention stage. As is to be expected, impacts on victims (health costs, property lost, lost output, and intangibles) are by far the largest costs of crime, and these are nearly all borne by the private sector. Of the \$9.1 billion total, nearly 80% reflects victim impacts. Of the 20% balance, about a quarter represents the costs of prevention and three quarters the costs of dealing with crime.

Table 8 – Costs of crime, public and private sector combined, by intervention stage

2003/04 \$ million	Core justice sector	Health sector	Other public sector	Private sector	Total	Share (%)
Policy	19		8		27	0%
Prevention	237		22	324	582	6%
Victim impacts		403		6,688	7,092	78%
Detection	720		112		832	9%
Resolution	373		18		391	4%
Redress	211		1		211	2%
Total	1,560	403	161	7,012	9,136	100%
Share (%)	17%	4%	2%	77%	100%	

5.5 Comparison with other jurisdictions

New Zealand's GDP in 2003/04 was \$140.512 billion.⁷ Hence our \$9.136 billion estimate for the total costs of crime in New Zealand in 2003/04 represents approximately 6.5% of GDP. This figure is in line with the recent UK and Australian estimates. The UK Home Office (Brand and Price, 2000) calculated the costs of crime in England and Wales in 1999/2000 at £60 billion, or about 7% of GDP. Similarly, the Australian Institute of Criminology (Mayhew, 2003) calculated the costs of crime in Australia in 2001 at A\$32 billion, or about 5% of GDP.

To the extent that both these countries have similar characteristics to New Zealand, it is perhaps not surprising that their total costs of crime as a percentage of GDP are broadly similar to ours. However, it would be inappropriate to make direct comparisons or to draw conclusions for New Zealand on the basis of these figures, particularly because we have relied on the UK and Australian data to form the New Zealand estimate.

A 1995 report prepared by the New Zealand Institute of Economic Research for the then Department of Justice (Yeabsley, Duncan and Mears, 1995) estimated the costs of crime in New Zealand in 1993/94 to be just over \$5 billion, or about 6% of GDP, although the report used a different methodology from that used here. Hence the current 6.5% figure may reflect the different methodologies underlying the estimates rather than any implied increase in the costs of crime.

The Police's crime statistics (recorded crime) show that New Zealand's overall incidence rate is falling, but the number of incidents of violent crime is reasonably static. Violent crime is more costly on average, so it may be that the overall incident rate is falling even though the costs of crime are the same, or slightly higher, than they were a decade ago.

5.6 Sensitivity analysis

As mentioned earlier, the cost estimates in this paper have been derived on the basis of assumed total volumes for each category of crime, using multipliers. Table 9 shows how much a one percent increase in the assumed total volume (i.e. after the multiplier effect) for each crime category would increase the estimated costs of crime.

⁷ This figure was obtained from the Statistics New Zealand website <www.stats.govt.nz>.

Table 9 – Additional costs associated with a one percent increase in the volume of crime

2003/04 \$ million	1% increase in volume of crime
Offences against the person	36
- <i>Violent offences</i>	25
- <i>Sexual offences</i>	10
- <i>Robbery</i>	1
Offences against private property	30
- <i>Burglary</i>	7
- <i>Theft</i>	11
- <i>Property damage</i>	3
- <i>Fraud</i>	10
Offences with no direct or intended victim	8
- <i>Drug offences</i>	0
- <i>Serious traffic</i>	8
- <i>All other</i>	0
Total	74

The cost estimates are also sensitive to assumptions around the value of property lost per crime, intangibles and lost output. A one percent increase in the assumed unit cost for each of these would increase our estimates of the costs of crime, by the amounts shown in Table 10.

Table 10 – Additional costs associated with a one percent increase in unit costs

2003/04 \$ million	1% increase in unit costs for:		
	Property lost	Intangible costs	Output costs
Offences against the person	0	25	7
- <i>Violent offences</i>	0	16	5
- <i>Sexual offences</i>	0	8	2
- <i>Robbery</i>	0	0	0
Offences against private property	18	9	0
- <i>Burglary</i>	3	2	0
- <i>Theft</i>	5	4	0
- <i>Property damage</i>	1	2	0
- <i>Fraud</i>	9	1	0
Offences with no direct or intended victim	0	5	3
- <i>Drug offences</i>	0	0	0
- <i>Serious traffic</i>	0	5	3
- <i>All other</i>	0	0	0
Total	18	39	10

6 Suggestions for future work

Owing to limitations in the availability and consistency of data, we have not been able to include estimates for every part of the costs of crime 'matrix', although we have sought to capture most of the significant costs. This means the results from our work are at best indicative. Areas where estimates are missing and, for completeness, could be added are:

- health and lost output costs associated with drug offences;
- health and lost output costs associated with 'all other' offences;
- costs for public sector agencies that have not yet been included, notably: the Ministry of Education (preventing damage to schools); the NZ Defence Force (sea patrols to deter illegal fishing, seconding army personnel to help with murder investigations); the NZ Fire Service (responding to deliberately-lit fires); ACC (preventing/responding to fraud); Internal Affairs (e.g. preventing and detecting illegal pornography); and MED (preventing and detecting insider trading);
- costs incurred by not-for-profit groups that deal with the consequences of crime (e.g. Rape Crisis and Women's Refuge).

Ideally, in the future, more robust costs of crime estimates for New Zealand would be compiled and updated on a regular basis, in particular drawing on New Zealand data where available and incorporating developments in international thinking. We note that the Ministry of Justice has recently begun a number of relevant pieces of work, including: an estimate of the costs of households and firms in anticipation of, and in response to, crime (with NZIER); three two-yearly victim of crime surveys, with the first planned for 2006; and a justice sector 'pipeline' model. These studies would be valuable in informing future analyses of New Zealand's costs of crime.

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Appendix – Further details of the method

This appendix gives more details of the methods employed in this study.

Categories of crime

For the purposes of this study, crime has been broken down into three main categories:

- offences against the person: violent offences, sexual offences and robbery;
- offences against private property: burglary, theft, property damage and fraud;
- offences with no direct or intended victim: drug offences, serious traffic offences and all other offences.

Some of these categories have a number of sub-categories, which are described more fully below. Within each there is a range/continuum of seriousness, which is necessarily masked through aggregation. More detailed statistics are available from sector publications.

Apportioning justice sector spending across the categories of crime

Apportioning total spending across each of the relevant crime categories has been calculated as follows for each of the core justice sector agencies:

- Police – the actual cost of Police time per category of offence multiplied by the number of recorded offences per category;
- Courts – total spending on criminal cases weighted for each crime category by the ratio of convicted cases for that category to total convicted cases;
- Justice and Crown entities – same as for Courts;
- Corrections – total spending weighted for each crime category by the ratio of inmates sentenced for crimes of that category to total sentenced inmates;
- CLO, CYF – on an apportionment basis provided by the agencies.

Multipliers

The most recent crime survey data for New Zealand relates to 2001. The multipliers from that survey have not been used in this study, as they are generally not readily convertible to the crime sub-categories used here and/or are not available for those sub-categories.

Instead, comparable multipliers from either the UK (2003/04) or Australia (2000/01) have been used, where appropriate. This assumes that the percentage of crimes officially reported in the UK and Australia are similar to the New Zealand experience (which may or may not be the case). Judgement has been used in choosing the appropriate multipliers, so the resultant costs of crime estimates are at best indicative. Where there are comparable New Zealand multipliers, this is noted below.

Note that most of the multipliers used here have been based on surveys of individuals and households, and exclude businesses and institutions. In the absence of any further information on incidents of property crime against businesses and institutions, it is assumed that the applicable individual/household-based multiplier can be applied to

businesses as well (e.g. non-residential burglaries, arsons, etc. are as likely to be reported as residential ones).

Violent offences

This category comprises homicide, grievous assault, intimidation/threats, kidnapping and abduction and other assaults. There were 43,231 recorded violent incidents in New Zealand in 2003/04, made up of 100 homicides, 3,351 grievous assaults, 10,901 incidents of intimidation/threats, 214 incidents of kidnapping and abduction and 28,665 other (serious and minor) assaults.

For both homicide and kidnapping and abduction it is assumed that all actual incidents are reported to the Police (i.e. they are recorded). For grievous assaults a multiplier of 1.8 is assumed (this is the 2003/04 UK multiplier for 'serious wounding'). For other assaults a multiplier of 7.7 is assumed (this is the 2003/04 UK multiplier for 'common assault'). This last multiplier has also been assumed for intimidation/threats.

Applying these multipliers brings the estimated total number of violent crimes in New Zealand in 2003/04 to 311,000. Derived average private sector, public sector and total costs for each category of violent offences are shown in Appendix Table 1.

Appendix Table 1 – Average costs for violent offences

Average costs (\$)	Private sector	Public sector	Total
Homicide	3,160,300	745,860	3,906,160
Grievous assaults	13,780	16,650	30,430
Intimidation & threats	13,780	3,520	17,300
Kidnapping & abduction	13,780	51,020	64,800
Other assaults	2,550	760	3,310
All violent offences	6,820	2,090	8,910

Sexual offences

This category includes sexual violation and other sexual offences (i.e. sexual attacks and affronts, acts of immoral behaviour, etc.). There were 3,179 recorded sexual offences in New Zealand in 2003/04, made up of 832 sexual violations and 2,347 other sexual offences.

The relevant multipliers for the UK in 2003/04 ('sexual offences') and Australia in 2000/01 ('sexual assault') are similar, at 5.2 and 5.6 respectively. We have used the UK multiplier (5.2) as it is the more recent.

However, it is important to estimate sexual violation (rape, etc.) separately from other sexual offences, as the individual costs relating to the former tend to be much higher. Thus sub-multipliers of 1.5 and 6.5 (approximately) have been derived for sexual violations and other sexual offences respectively (together these give a weighted average of 5.2) on the assumption that the former are more serious and so more likely to be reported/recorded than the latter. This assumes that two thirds of all sexual violations are recorded.

Applying these multipliers brings the estimated total number of sexual offences in New Zealand in 2003/04 to 16,500 (comprising about 1,200 sexual violations and 15,300 other sexual offences). Derived average private sector, public sector and total costs for each category of sexual offences are shown in Appendix Table 2.

Appendix Table 2 – Average costs for sexual offences

Average costs (\$)	Private sector	Public sector	Total
Sexual violation	172,040	132,330	304,370
Other sexual offences	50,150	3,010	53,160
All sexual offences	59,350	12,770	72,120

Robbery

Robbery is defined as the act or process of taking unlawfully by force or threat of force. Hence it is a crime against the person, even though property typically changes hands. There were 1,835 recorded incidents of robbery in New Zealand in 2003/04.

A multiplier of 3.7 is assumed (this is the 2003/04 UK multiplier for 'robbery'), bringing the estimated total number of robberies in New Zealand in 2003/04 to 6,800.

Burglary

Burglary is defined as illegal entry into a building with intent to commit theft or do damage. There were 60,630 recorded incidents of burglary in New Zealand in 2003/04.

A multiplier of 2.2 is assumed (this is the 2003/04 UK multiplier for 'burglary in a dwelling', which is not dissimilar from the 2.5 multiplier from the NZ National Survey of Crime Victims 2001), bringing the estimated total number of robberies in New Zealand in 2003/04 to 133,400. As noted earlier, it is assumed that non-residential burglaries from businesses, etc. are equally likely to be reported to and recorded by the Police as residential ones. The relatively low magnitude of this multiplier is plausible, given that burglaries are required to be reported to the Police for insurance purposes.

Theft

Theft is defined as any other dishonest appropriation of another's property with intent to deprive him or her of it permanently. This category comprises theft of vehicles, theft from vehicles and other theft/receiving. There were 165,091 recorded incidents of theft in New Zealand in 2003/04, made up of 20,564 vehicle thefts, 49,482 incidents of theft from vehicles and 95,045 incidents of other theft/receiving.

For vehicle theft a multiplier of 1.05 is assumed (this is the 2000/01 Australian multiplier for 'vehicle theft'). For theft from vehicles a multiplier of 2.8 is assumed (this is the 2003/04 UK multiplier for 'theft from vehicle'). For other theft/receiving an overall multiplier of 8.28 is assumed. This is a composite of the 2003/04 UK multiplier for 'other theft and handling', which does not include businesses, of 2.7 and an assumed multiplier of 25.0 for thefts from businesses (reflecting the high incidence of unreported or undetected crime, mainly shoplifting). It assumes that 25 percent of other/receiving offences are thefts from businesses.

Applying these multipliers brings the estimated total number of thefts in New Zealand in 2003/04 to 946,000. Derived average private sector, public sector and total costs for each category of theft are shown in Appendix Table 3.

Appendix Table 3 – Average costs for thefts

Average costs (\$)	Private sector	Public sector	Total
Theft of vehicles	10,060	2,560	12,620
Theft from vehicles	1,940	70	2,010
Other theft & receiving	720	150	870
Total theft	1,110	190	1,300

Property damage

There were 42,872 recorded incidents of property damage (e.g. arson and wilful damage) in New Zealand in 2003/04.

A multiplier of 4.3 is assumed (this is the 2003/04 UK multiplier for ‘criminal damage’), bringing the estimated total number of incidents of property damage in New Zealand in 2003/04 to 184,300.

Fraud

There were 17,568 recorded incidents of fraud in New Zealand in 2003/04. Fraud covers a wide spectrum of offences (e.g. counterfeiting, using stolen credit cards, abusing positions of trust for financial advantage, providing false information to obtain welfare benefits, ACC payments, etc.).

On the basis of a number of international business crime surveys, Mayhew (2003) suggests a multiplier of 4.0, taking into account both undetected and unreported frauds. Applying this brings the estimated total number of incidents of fraud in New Zealand in 2003/04 to 70,300.

Given the wide range of fraud offences and the potential for a small number of very high-value incidents, it is difficult to derive a unit cost estimate for losses resulting from fraud. In the absence of anything better we have used the \$700 million estimate that was derived by the NZIER from information supplied by the Serious Fraud Office in 1995, inflated by the CPI change between 1993/94 and 2003/04. Unit intangible costs are assumed to be the same as for burglary.

In addition to core justice sector costs relating to Fraud (e.g. the SFO) there are costs borne by other public sector agencies in preventing and detecting fraudulent behaviour, e.g. MSD, IRD and Customs.

Drug offences

This category comprises cannabis and other drug offences. There were 22,249 recorded drug offences in New Zealand in 2003/04, comprising 18,271 cannabis and 3,978 other drug offences.

We have categorised drug offences as crimes with no direct or intended victim and assumed that the costs of drug offences are simply those borne by the criminal justice system in prevention, detection, resolution and sanction. In other words, the estimated total count of drug offences is the same as the number of recorded offences and so the multiplier is one. It is likely that some drug offenders (both recorded and unrecorded) also incur potentially significant health and lost output costs. However, we have not attempted to estimate these costs at this time. It is therefore probable that the cost estimate for drug offences is too low. This is an area for further work.

Drug users and dealers are commonly responsible for other crimes (e.g. violent offences and burglary). These are already captured under the relevant categories. Derived average private sector, public sector and total costs for each category of drug offence are shown in Appendix Table 4.

Appendix Table 4 – Average costs for drug offences

Average costs (\$)	Private sector	Public sector	Total
Cannabis offences	0	3,550	3,550
Other drug offences	0	16,020	16,020
Total drug offences	0	5,780	5,780

Serious traffic offences

The total number of serious traffic offences is calculated as the total of drink-drive and dangerous/reckless driving offences. There were 31,667 drink-drive and dangerous/reckless driving offences recorded in New Zealand in 2003/04. It is assumed that all such incidents resulting in fatalities and injuries are recorded, and so the multiplier is one.

The costs of serious traffic offences comprise two sets of data. The first is estimated costs borne by core justice sector agencies catching and dealing with serious traffic offenders through the justice system. The second is estimated victim costs of fatalities and injuries resulting from crashes where alcohol and speed have been identified as factors (using Land Transport Safety Authority crash data for 2003). Surveys of fear of crime have consistently highlighted public concern about drink-drivers. This suggests that the intangible costs of serious traffic offences as calculated here are potentially understated.

All other

This category is a residual, picking up all administrative offences (e.g. perjury and bigamy), property abuse offences (e.g. trespass and littering) and anti-social offences (e.g. disorder and unlawful group assemblies). Note that while this sub-category is included within the 'no direct or intended victim' category for convenience, in some instances the offences may have direct victims (e.g. bigamy impacting on the legal spouse).

There were 69,494 other offences recorded in New Zealand in 2003/04. It is reasonable to assume that most of the costs of these offences are those borne by the criminal justice system (i.e. there are few direct victims and so negligible associated health sector, lost output or intangible costs). Therefore a multiplier of one is used. While it is likely that the private sector will face at least some preventative and intangible costs as a result of these types of offences (e.g. security lighting or worry), these have not been included due to a lack of data.

Unit costs by category – private sector and health sector

Appendix Table 5 shows the average (or unit) cost estimates that have been used in this study for the various cost categories borne by the private sector and also the health service costs borne by the public sector.

Appendix Table 5 – Average costs borne by the private sector and the health sector

Average costs (\$)	Preventative expenditure	Insurance administration	Property lost	Intangible costs	Lost output	Total private sector	Health sector costs
Violent offences	3	3	0	5,195	1,624	6,820	1,153
- Homicide	349	552	0	2,072,670	1,086,732	3,160,300	1,855
- Grievous assaults	2	2	0	10,971	2,809	13,780	3,247
- Intimidation & threats	2	2	0	10,971	2,809	13,780	3,247
- Kidnapping & abduction	2	2	0	10,971	2,809	13,780	3,247
- Other assaults	2	2	0	1,898	648	2,550	296
Sexual offences	7	12	0	50,033	9,300	59,350	2,045
- Sexual violation	7	12	0	148,010	24,006	172,040	5,016
- Other	7	12	0	42,030	8,099	50,150	1,802
Robbery	0	51	246	7,343	2,436	10,070	1,164
Burglary	532	426	2,436	1,556	154	5,100	0
Theft	74	105	543	374	16	1,110	0
- Of vehicles	1,472	942	5,608	1,927	113	10,060	0
- From vehicles	279	120	855	641	48	1,940	0
- Other & receiving	0	79	348	284	7	720	0
Property damage	31	87	511	1,137	14	1,780	0
Fraud	0	0	12,352	1,556	0	13,910	0
Drug offences	0	0	0	0	0	0	0
- Cannabis	0	0	0	0	0	0	0
- Other drugs	0	0	0	0	0	0	0
Serious traffic offences	897	574	3,417	461,889	239,876	706,650	2,943
Alcohol/speed with death	1,472	942	5,608	2,072,670	1,086,732	3,167,420	1,855
Alcohol/speed with injury	736	471	2,804	10,971	2,809	17,790	3,247
All other offences	0	0	0	0	0	0	0

As earlier noted, most of the above estimates are based on UK Home Office unit cost data for respective, or similar, crime categories, converted to New Zealand dollars using the OECD's index of purchasing power parity for GDP for 2004.

There are two main exceptions, however. One is that the unit costs for serious traffic offences, for which the preventative expenditure, insurance administration and property lost cost estimates are linked to the respective estimates for theft of vehicles; and for which the intangible, lost output and health sector cost estimates are linked to the respective estimates for homicide and grievous assaults.

The other main exception is that the unit costs for fraud, for which as earlier stated the intangible cost estimate is linked to the respective estimate for burglary; and for which the property lost cost estimate is based on a 1995 NZIER figure, adjusted to 2003/04 prices by the CPI.

Spreadsheets

All the underlying data (unit costs, volumes, inflators, etc.) and calculations used in this study can be found in the following two spreadsheets, which are available from the authors on request:

- Spending on Crime by Government Agency 2003-04 (Treasury ref. 758029)
- Costs of Crime by Crime Category and Sector (Treasury ref. 782088)