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Benefit cost analysis of Australian Federal Police Economic Crime Investigations

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Executive Summary

This report is in response to the Australian Federal Police's request to provide a benefit cost analysis of its economic crime investigations including the Net Present Value (NPV) of those activities and Return on Investment (ROI). In 2002, McFadden and Mwesigye estimated the costs and benefits of economic crime investigations in the AFP using a sample of 100 fraud cases from a population of fraud cases that reached legal process during 1999-2000 and 2000-01. The results suggested that the Australian community received $6.00 of benefit for every dollar invested in fraud investigations.

In addition to extending and confirming the results of the earlier study, the current analysis also examined the distribution of costs and benefits across cases. In particular, previous work with illicit drug investigations (McFadden 2009a) had suggested that the top 10-20 per cent of cases in terms of hours worked accounted for a substantial majority of both the costs and the benefits. This observation is consistent with the Pareto Principle or 80/20 rule which suggests that 80 per cent of the effects come from 20 per cent of the causes.

The study included 7,165 PROMIS parent cases that were created after 30 June 2000 and finalised before 1 July 2009 and had an economic crime incident type. The study included only finalised cases as it is only at that point when all costs and all benefits associated with the case can be assessed.

Total costs were estimated at $231.6 million. Costs were calculated for hours spent by the AFP on economic crime, legal process and prisons. The AFP spent a total of 1.7 million hours and $190.8 million on economic crime related matters – 1.3 million hours against cases and 0.4 million against economic-related Y-codes. Legal process costs were estimated at $24.3 million based on the number of offenders processed by the legal system. The Productivity Commission (2009) has estimated cost of maintaining prisoners as $269 per day or $98,185 per annum. There were 166 offenders with an average non-parole period of one year. The total cost of prison was estimated at $16.5 million.

Total benefits were estimated at $1,026.2 million based on an initial value of $331.0 million for cases successfully prosecuted and an Estimated Financial Return (EFR) multiplier of 3.1. The model for EFR (McFadden, 2009c) comprised estimates of past losses recovered, specific deterrence and general deterrence.

The AFP and its partners have maintained a strong return to the Australian community for the funds invested in economic crime investigations returning an NPV of $794.6 million and a ROI of $4.40 for every dollar invested in it. It should be noted that the ROI of 6.0 reported in

2002 related to fraud cases only and did not include prison costs. The current estimated ROI for fraud was 5.8, which is consistent with the previous study. Positive ROIs were returned for the majority of incidents types ranging from 3.5 for corporate/bankruptcy to 15.4 for civil proceedings. Corruption, counterfeit currency, identity crime and transnational economic returned negative NPVs and ROIs less than one, indicating that the expenditure related to these cases exceeds the social benefit.

The negative results for corruption, counterfeit currency, and transnational economic are perhaps expected as these cases do not generally involve substantial sums of money. The negative result for identity crime is more problematic. This is a growing crime type and one that has attracted considerable public attention with the underlying assumption that it has the potential to cause considerable economic disruption. It may well be that further research is needed to identify the potential social impacts of identity crime.

Cases were ranked in terms of the total hours expended on them and assigned percentile rankings. The top 10 per cent of cases consume 81.8 per cent of AFP hours worked and 76.2 per cent of total cost, and return 85.3 per cent of the benefits. By way of comparison, the 'bottom' 50 per cent of cases consumes 0.8 per cent of AFP hours, incurs 1.1 per cent of the cost and returns 1.5 per cent of benefits. . These results suggest that AFP investigations into economic crime are a good example of the Pareto Principle that 20 per cent or less of the cases returns 80 per cent or more of the results.

The distribution by ROI does not follow the same pattern. The ROI for the 'top ten' is 6.7; somewhat surprisingly the 'bottom half' returns an ROI of 8.0. The middle categories returned a more modest ROI of approximately 2.0. Despite these differences, it should be noted that the ROI across all categories is greater than one, indicating a positive return for large and small cases alike. The findings suggest it is profitable economically as well as in terms of experience gained to train police officers on minor economic crime matters.

Background

This report is in response to the Australian Federal Police's request to provide an economic evaluation of its economic crime investigations. The analysis was to be completed along similar lines to a 2009 economic evaluation of AFP drug law enforcement (McFadden, 2009a).

There have been many attempts over the years to measure the success of economic crime investigations. There are many difficulties in measuring the effectiveness of any law enforcement activity given the clandestine nature of criminal activity itself. Many earlier measures of police performance tended to concentrate on the activity of policing, e.g. number of arrests and response time, rather than on the social impact of policing. In the past decade, there has been considerable interest in Australia and many other nations in measuring the social impact of a broad range of government services, including policing. In response to both Government and community desire for a more transparent and accountable public sector, the AFP has introduced a number of social impact measures into its organisational performance reporting such as the Drug Harm Index and Estimated Financial Return (Australian Federal Police, 2008). The AFP has also undertaken a number of studies (Centre for International Economics, 2004; McFadden & Mwesigye, 2002; Smithson et al, 2005) to assess the efficiency and effectiveness of its operations. The current study forms part of that series.

Economists use a wide range of measures in evaluating the economic value of a given project or function. The principal measures used in this report are Net Present Value (NPV) and Return on Investment (ROI). NPV is the difference between the costs and benefits of a program –its 'profit', in other words, and return on investment (ROI) which is the number of dollars returned by a program for every dollar invested. In this instance, both measures are used to represent the relative effectiveness of AFP economic crime investigations in dollar terms. While expressing the costs of economic crime investigations – including police, courts and prisons – in dollar terms is relatively straightforward, the translation of the social impact of the investigation of economic crime into monetary values is more challenging. The current study used the AFP's Estimated Financial Return (McFadden, 2009c), described in more detail later in the paper, to calculate these benefits.

The use of economic evaluation techniques to measure the value of law enforcement activities in general is relatively recent and limited (Crew & Hart, 1999; Edmonds & McCready, 1994; Greasley, 2001; Stockdale, Whitehead & Gresham, 1999). In addition to its studies of drug law enforcement (McFadden, 2006, 2009a, 2009b), the AFP has previously been involved in economic evaluations of economic crime (McFadden & Mwesigye, 2002) and the protection

offered to Australian and non-Australian office holders (Centre for International Economics, 2004).

In the 2002 study of economic crime investigations in the AFP, costs and benefits were estimated using a sample of 100 fraud cases from a population of fraud cases that reached legal process during 1999-2000 and 2000-01. The results suggested that the Australian community received $6.00 of benefit for every dollar invested in fraud investigations. The 2002 study was limited to fraud cases while the current study included all cases of economic crime.

In addition to extending and confirming the results of the earlier study, the current analysis also examined the distribution of costs and benefits across cases. In particular, previous work with illicit drug investigations (McFadden 2009a) had suggested that the top 10-20 per cent of cases in terms of hours worked accounted for a substantial majority of both the costs and the benefits. This observation is consistent with the Pareto Principle or 80/20 rule which suggests that 80 per cent of the effects come from 20 per cent of the causes.

Methodology

Benefit cost analysis is a quantitative method for assessing the economic value for a program, project or function. It is widely used in the private sector to assess the potential income and profit from a particular course of action, e.g. from a new silver mine or from a new brand of breakfast cereal. It is also useful in deciding between alternative courses of actions or for determining the optimal benefit that could be derived from a fixed budget.

As noted previously, two of the most widely used measures are Net Present Value (NPV) and Return on Investment (ROI). NPV is simply the difference between the benefits and costs of a program taking into account the impact of interest rates or inflation over time. NPV is closely akin to the everyday notion of profit. ROI, on the other hand, is the ratio of benefits to costs again taking into account inflation. ROI is akin to the odds in horse racing.

An ROI of one means that the program has returned in benefits the exact cost of the program. Good or profitable programs will have positive NPVs and ROIs greater than one. A negative NPV or an ROI less than one indicates that a program has cost more money than it is worth. Earlier reports (McFadden 2006, 2009c) have more detail on the assumptions behind key variables used in the analysis.

Data

The study included 7,165 PROMIS parent cases that were created after 30 June 2000 and finalised before 1 July 2009 and had an economic crime incident type. The study included

only finalised cases as it is only at that point when all costs and all benefits associated with the case can be assessed. The number of cases by incident type is provided in Table 1.

Table 1 Economic crime investigations by incident type

	Number
Civil proceeding	130
Corporate or bankruptcy	173
Corruption	232
Counterfeit currency	268
Fraud	2,183
Identity crime	209
Money laundering	832
Money laundering and FTRA*	3,115
Transnational – economic	23
Total	7,165

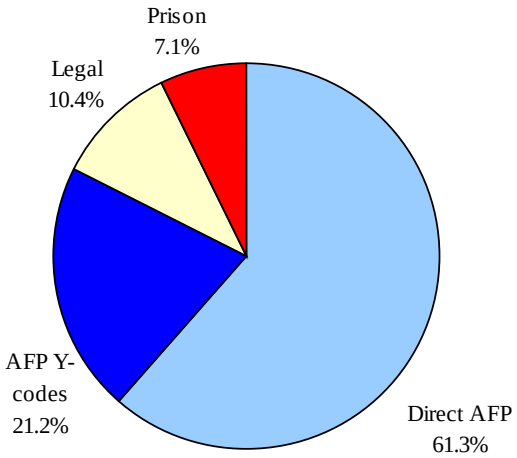
* Financial Transaction Reporting Act

Estimating costs

Total costs were estimated at $231.6 million. Costs were calculated for hours spent by the AFP on economic crime, legal process and prisons. Figure 1 has the percentage distribution of costs across major costs types.

Figure 1

Distribution of economic crime investigation costs



The AFP spent a total of 1.7 million hours and $190.8 million on economic crime related matters – 1.3 million hours against cases and 0.4 million against economic-related Y-codes. The AFP has estimated the cost of one hour of direct activity at $110.00 including support and corporate overheads. The relatively high proportion of costs related to Y-codes is of some concern. Y-codes were developed to allow hours to be attributed to a specific crime type although no particular case was involved. The main issue with Y-codes is that it is not possible to make any further attribution of the hours recorded here. Y-codes have none of the

attributes of cases beyond crime type. The use of Y-codes is declining. NPV and ROI estimates are reported including Y-codes and excluding them.

The AFP is responsible for majority of the costs associated with economic crime investigations, 82.5 per cent according to Figure 1. Additional costs are incurred by the by the legal profession and the Courts in prosecuting offenders (10.4 per cent) and by the prison system in maintaining offenders that receive custodial sentences (7.1 per cent).

Legal process costs were estimated at $24.3 million based on the number of offenders processed by the legal system. It was derived from separate estimates of Director of Public Prosecutions (DPP), court and defence costs for all criminal cases

Based on figures in the 2007-08 Annual Report of the Commonwealth Director of Public Prosecutions, 4,591 offenders were processed at a total cost of $91.3 million giving a rounded average cost of $20,000 per offender for DPP costs. In 2007-08, total criminal court costs were $616.5 million (Productivity Commission, 2009). The average cost per offender was calculated in terms of the estimated average DPP cost per offender multiplied by the total criminal court costs divided by the total of State and Commonwealth DPP costs of $368.9 million (Commonwealth Director of Public Prosecutions, 2008; DPP, 2009). The rounded average court cost per offender was $33,000. Court costs where there was an appeal against the severity of the sentence were set at 50 per cent of average court costs, i.e. $16,500 per offender. As in the previous study, defence costs, in the absence of any published estimate, were set at twice that of the DPP. Legal costs were adjusted according to the extent of the legal process such as contested/non-contested cases and appeals. Refer Table 2 for details.

Table 2 Summary of legal costs by extent of legal process

		Legal Process Involved				
Legal process	**Cases**	**DPP**	**Defence**	**Court**	**Appeal**	**Cost**
DPP did not proceed	52	$20,000				$20,000
Guilty Plea/Convicted without Trial	292	$20,000	$40,000			$60,000
Contested	38	$20,000	$40,000	$33,000		$93,000
Guilty plea, appeal severity	12	$20,000	$40,000		$16,500	$106,500
Contested, appeal decision	1	$20,000	$40,000	$33,000	$33,000	$186,000
Contested, appeal severity	5	$20,000	$40,000	$33,000	$16,500	$139,500

The Productivity Commission (2009) has estimated cost of maintaining prisoners as $269 per day or $98,185 per annum. There were 166 offenders with an average non-parole period of

one year. In general, the costs reported in this study occur within a reasonably short period and are estimated in 2007-08 dollar values, so that discounting would have minimal impact on cost estimates. The total cost of prison was estimated at $16.5 million.

Estimating benefits

Total benefits were estimated at $1,026.2 million based on an initial value of $331.0 million for cases successfully prosecuted and an Estimated Financial Return (EFR) multiplier of 3.1.

The model for EFR (McFadden, 2009c) comprised the following elements:

- *Past losses recovered* includes the recovery of amounts fraudulently received, fines, settlements out of court and proceeds of crime. It was extended to include recoveries from third party beneficiaries who were not the subject of a criminal investigation.

- *Specific deterrence* relates to the deterrence of further criminal activity with respect to the matter at hand including (a) future losses averted which is the avoidance of further loss by the Commonwealth from the continuation of the specific crime, and (b) future indirect costs associated with the specific crime; and

- *General deterrence* is the deterrence of like crimes in the community by the prosecution of fraud.

McFadden (2009c) used cases that were created after 30 June 2000 and finalised before 1 July 2009. There were 719 cases which reached DPP during that period with a value of $403.9 million. There were 593 cases with a positive outcome in terms of either a criminal conviction or a voluntary agreement to pay all or part of the sum in dispute. These cases had a value of $306.5 million. Using the results of an Australian Institute of Criminology study, the total value of undetected economic crime for this period was calculated as $8.7 billion. The 593 cases with a positive outcome were reviewed to assess the amount of funds recovered either voluntarily or involuntarily. The review suggested that a total of $78.7 million was recovered by the AFP or the agency on whose behalf the AFP undertook the investigations (i.e. past losses recovered). It was estimated that a further $306.5 million was potentially saved through future losses avoided and, again based on Australian Institute of Criminology findings; $122.6 million in indirect costs was also saved. Therefore specific deterrence accounted for $429.1 million. Finally, a 5 per cent general deterrence effect was assumed as a conservative estimate based on findings in other fields. On this basis, it is estimated that a further $436.2 million was saved through general deterrence. Overall, the potential saving to the Federal Government and the Australian community for these cases was $944.0 million. The estimated

value of these cases was $306.5 million. Thus EFR multiplier to estimate the social impact of AFP economic crime investigations on the community is 3.1.

Results

The overall benefit to the Australian community of economic crime investigations was $749.6 million in terms of NPV and a ROI of 4.4 to one. It should be noted that the ROI of 6.0 reported in 2002 related to fraud cases only and did not include prison costs. The current estimated ROI for fraud was 5.8, which is consistent with the previous study. Details of NPVs and ROIs overall and by crime type are given in Table 3.

Table 3 Summary of results for AFP and specified sub-groups

		Costs ($m)	Benefits ($m)	NPV ($m)	ROI
Whole of AFP	All costs	231.6	1,026.2	794.6	4.4
	Y-codes excluded	182.4		843.9	5.6
Civil proceeding	All costs	1.9	29.2	27.3	15.4
	Y-codes excluded	1.9		27.3	15.5
Corporate or bankruptcy	All costs	8.9	31.5	22.6	3.5
	Y-codes excluded	6.4		25.0	4.9
Corruption	All costs	13.5	1.7	-11.7	0.1
	Y-codes excluded	12.7		-11.0	0.1
Counterfeit currency	All costs	15.3	11.0	-4.3	0.7
	Y-codes excluded	14.9		-3.9	0.7
Fraud	All costs	125.6	727.1	601.5	5.8
	Y-codes excluded	85.2		641.9	8.5
Identity crime	All costs	12.0	8.1	-3.9	0.7
	Y-codes excluded	11.8		-3.7	0.7
Money laundering	All costs	10.0	57.0	47.1	5.7
	Y-codes excluded	10.0		47.1	5.7
Money laundering and FTRA	All costs	43.5	160.6	117.1	3.7
	Y-codes excluded	38.5		122.1	4.2
Transnational - economic	All costs	0.9	-	-0.9	-
	Y-codes excluded	0.9		-0.9	-

Positive ROIs were returned for the majority of incidents types ranging from 3.5 for corporate/bankruptcy to 15.4 for civil proceedings. Corruption, counterfeit currency, identity

crime and transnational economic returned negative NPVs and ROIs less than one, indicating that the expenditure related to these cases exceeds the social benefit.

Cases were ranked in terms of the total hours expended on them and assigned percentile rankings. Results are given in Table 4.

Table 4 Summary of results for cases ranked by hours worked

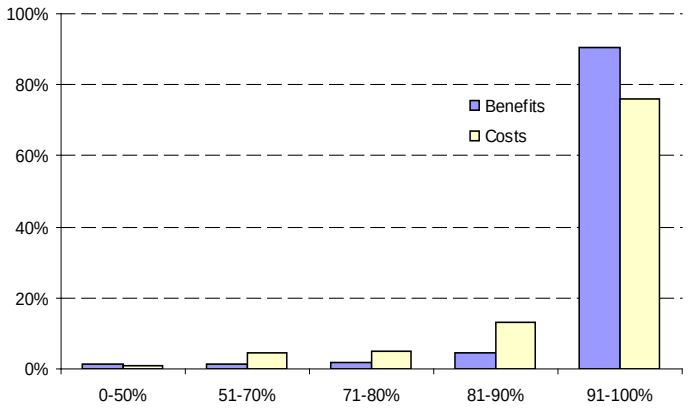
Percentile:	**0-50%**	**51-70%**	**71-80%**	**81-90%**	**91-100%**
Total hours	9,671	36,280	52,686	135,906	1,053,953
Cost $ million	1.9	7.8	9.4	24.2	139.0
Benefit $ million	15.6	14.7	18.8	48.4	928.7
% hours	0.8%	2.8%	4.1%	10.5%	81.8%
% cost	1.1%	4.3%	5.1%	13.3%	76.2%
% benefit	1.5%	1.4%	1.8%	4.7%	90.5%
ROI	8.0	1.9	2.0	2.0	6.7

Results are strongly skewed to the larger cases in terms of both costs and benefits. This is to be expected in that cases were ranked by hours worked; however, it is the strength of this effect which is of interest.

The top 10 per cent of cases consume 81.8 per cent of AFP hours worked and 76.2 per cent of total cost, and return 85.3 per cent of the benefits. By way of comparison, the 'bottom' 50 per cent of cases consumes 0.8 per cent of AFP hours, incurs 1.1 per cent of the cost and returns 1.5 per cent of benefits. Figure 2 has details.

Figure 2

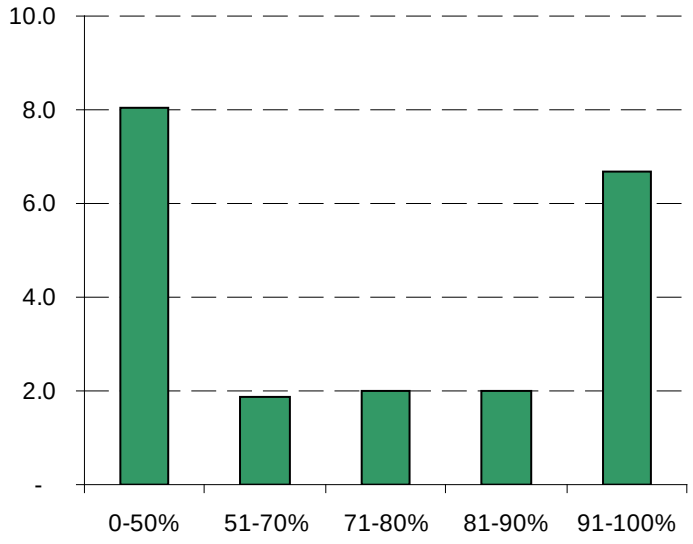
Distribution of benefits and costs for cases ranked by hours worked



The plot by ROI does not follow the same pattern (Figure 3). The ROI for the 'top ten' is 6.7; somewhat surprisingly the 'bottom half' returns an ROI of 8.0. The middle categories returned a more modest ROI of approximately 2.0. Despite these differences, it should be noted that the ROI across all categories is greater than one, indicating a positive return for large and small cases alike.

Figure 3

ROI for cases ranked by hours worked



Discussion

The AFP and its partners have maintained a strong return to the Australian community for the funds invested in economic crime investigations returning an NPV of $794.6 million and a ROI of $4.40 for every dollar invested in it. Excluding costs associated Y-codes, the NPV is $843.9 million and the ROI 5.6. The economic benefits varied across crime types. Fraud consumed most of the hours and returned the next highest ROI after civil recovery. The results for civil proceedings may be an overestimate as costs related to other agencies involvement are not included.

The investigation of some crime types did not result in an overall benefit to the community at least in terms of the assumptions of this study. The negative results for corruption, counterfeit currency, and transnational economic are perhaps expected as these cases do not generally involve substantial sums of money. The negative result for identity crime is more problematic. This is a growing crime type and one that has attracted considerable public attention with the underlying assumption that it has the potential to cause considerable economic disruption. It may well be that further research is needed to identify the potential social impacts of identity crime. The use of initial case value which underlies the calculation of benefits may not be appropriate in this case.

The current study also examined the issue of the overall distribution of effort, costs and benefits across cases. Cases were ranked into percentiles according to hours worked. The analysis demonstrated that the top 10 per cent of cases in terms of hours worked accounted for over 75 per cent of all hours worked, total costs and total benefits. These results suggest that AFP investigations into economic crime are a good example of the Pareto Principle that 20 per cent or less of the cases returns 80 per cent or more of the results. Similar results had been found in an earlier study of illicit drug law enforcement (McFadden, 2009a). Unlike that earlier study, the current study did not find a similar increase ROI as the number of hours worked increased.

The current findings suggest that the lower 50 per cent of cases in terms of hours worked return the highest ROI remembering, of course, that the proportion of resources employed and the benefits returned are a small proportion of the whole. The findings suggest it is profitable economically as well as in terms of experience gained to train police officers on minor economic crime matters.

Finally, the work conducted to date on ROI has the potential to be extended to the reporting requirements of the AFP's Portfolio Budget Statement (PBS). It should be noted that the current study tracked cases from their creation to finalisation, which in most instances will involve data spread over more than one financial year. The PBS, however, is concerned with comparing costs and outcomes in a *single* financial year. An adjusted ROI measure would compare the cost and benefits accruing within a financial year using data accessible from PROMIS, viz. hours worked and Estimated Financial Return, and extrapolating to other costs on the basis of the findings of the current study.

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