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What Price Prohibition? An Estimate of the Costs of Australian Drug Policy

by
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Abstract:

The prohibition against Australians using illicit drugs is ineffective, but still imposes a high burden on government revenues and indirectly contributes (because of its ineffectiveness) to additional costs paid by Australian households. These are the claims of those who argue for a change in policy in Australia towards illicit drugs and their use. How much does present policy cost the Australian taxpayer? To what extent does the ineffectiveness of the law in preventing illicit drug use indirectly add to costs paid by Australian households? We argue that the Cleeland Report underestimates the true costs of the law enforcement against illicit drug use by a factor of at least two. We argue that a large proportion of these costs would be eliminated if the drugs were made available, at cost, to regulated drug users. We estimate a total annual cost to Australia of $776 million, as well as forced transfers of $656 million (in 1987–88).

Keywords:

DRUG POLICY; LAW ENFORCEMENT; SOCIAL COSTS; CLEELAND REPORT.

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1. Introduction

The prohibition against Australians using illicit drugs is ineffective qua prohibition. At the same time the prohibition imposes a high burden on government revenues, that is, on Australian taxpayers, and indirectly contributes (because of its ineffectiveness) to additional costs borne by Australian households for such things as insurance and health care, as we discuss in Section 4, below. These are the claims of those who argue for a change in policy in Australia towards illicit drugs and their use. Just how much does present policy cost the Australian taxpayer? To what extent does the ineffectiveness of the law in preventing illicit drug use indirectly add to costs paid by Australian households? These are the questions to be addressed here.

Some economists have argued that a government policy of attempting to prohibit the use of some drugs is justified by the spillovers, or external costs, that this use imposes on non-users (Wagstaff and Maynard 1988).[1] From this perspective, if the users cannot be made to acknowledge the costs borne by others, then there is an argument for prohibition. An effective prohibition would result in no spillovers. In Australia today, however, the spillovers are significant and bear testimony to the ineffectiveness of the prohibition. Rather than providing arguments for governments to ban the use of certain drugs, many have argued that the spillovers flow the other way: that it would be cost-effective for a relaxation of the prohibition, with regulated rather than prohibited drug use.

Mugford (1991) has proposed a useful four-way categorisation of the social costs of drug use, whether under legal or illegal conditions. First, define "intrinsic" costs and "extrinsic" costs: intrinsic costs are those that arise as a necessary result of use, even under ideal conditions; extrinsic costs are those costs, additional to the intrinsic costs, which arise when the drug use occurs under less-than-ideal conditions. The illnesses that tobacco smokers risk are an example of intrinsic costs; the illnesses that heroin users risk through the sharing of dirty needles are an example of extrinsic costs. Second, define "direct" costs and "indirect"costs: direct costs are those borne by the user, including the money for purchase, and the ill-health; indirect costs are those borne by others. Indirect costs range from the consequences of passive smoking to the costs to the taxpayer of the criminal-justice and health-care systems, and the wider costs to society of the forgone production associated with premature deaths and increased morbidity, and higher market costs for such things as insurance and home security. The risk of the spread of HIV infection to non-users is an indirect cost of drug use (a cost to all of society, not just to the hapless drug users), and to the extent that this infection is exacerbated by the prohibition, through the sharing of needles, then it is an

1. A recent study of the economic costs of drug "abuse" in Australia is Collins and Lapsley (1991), which focuses on the costs associated with the use and abuse of the legal drugs, alcohol and tobacco.

extrinsic cost.

This categorisation of the costs highlights the possibility of tradeoffs: for instance, the prohibition on the use of certain drugs can be interpreted as an attempt by society to reduce the costs, both direct and indirect, associated with this drug use. But if the prohibition attempts to do this by increasing the direct, extrinsic costs (those borne by the drug users who break the law), it may also increase the indirect, extrinsic costs (borne by non-users as a result of the prohibition) to levels greatly above the costs the prohibition was meant to eliminate, including the indirect, intrinsic costs that would fall on non-users when the drug use occurred under ideal, legal conditions, and also—paternalistically—the direct, intrinsic costs that would be incurred by drug users under ideal, legal conditions.

A cost–benefit analysis would conclude that the prohibition were inefficient if the sum of the social costs under prohibition were greater than the sum of the social costs with legal, regulated drug use.[2] That is, if the direct and indirect, extrinsic and intrinsic costs of drug use under the prohibition exceed the intrinsic costs (both direct and indirect) under a regulated regime of legal drug use, then the prohibition is inefficient and non-cost-effective. This study focuses on the indirect, extrinsic costs of the prohibition; that is, those costs borne by the non-users which arise by virtue of the laws prohibiting the use of certain drugs. These include costs paid by the taxpayer for the criminal-justice system, the social-welfare system, and the health-care system, and costs paid by society at large for home security and because of such things as forgone production through ill-health or death. There are some costs which are intangible. These include the feelings of insecurity, fear, and anxiety from the threat of drug-related crime, and the costs of curtailed civil liberties as a result of attempting to enforce the prohibition. We do not attempt to measure these costs, which are none the less real.

2. Drug-Law-Enforcement Costs

Let us first consider the drug-law-enforcement (DLE) costs. These include the expenditures by government to enforce the law against drug importation, drug manufacture, drug exchange, drug possession, and drug use. There are four costs associated with the criminal-justice system:

- the costs of anti-drug law enforcement, that is, the costs of the Customs service and the various police drug squads;

2. We distinguish between the social costs and benefits of a cost–benefit analysis (Lind and Lipsky 1971) and external costs, which could justify government intervention (Wagstaff and Maynard 1988) up to some optimum (Stigler 1970).

- the costs of the lawyers involved in prosecution and defence;
- the costs of court time and forensic staff;
- the costs of imprisonment and rehabilitation (if any) in custody.

The 1989 Report by the Parliamentary Joint Committee on the National Crime Authority, *Drugs, Crime and Society* (hereafter referred to as the Cleeland Report, after the Committee's chairman) was an attempt to examine the costs of the existing policy and to compare these with the costs of a liberalised policy of regulating drug use rather than one of attempting complete prohibition. The Cleeland Report calculated the DLE costs as shown in Table 1.

Table 1

Drug-Law-Enforcement Costs, 1987–88

	$ million
Australian Federal Police	18.1
National Crime Authority	9.8
Australian Customs Service	6.9
State Police	25.7
Prisons	45.3
Courts	17.4
Total	123.2

Source: Cleeland Report (1989, Table 4).

We shall discuss the assumptions underlying these figures[3] and, using a "bottom-up" methodology for estimating the costs of drug law enforcement, argue that they understate the law-enforcement costs by a conservative factor of two.

The figure for the National Crime Authority, the Report notes, is simply 60% of its budget, which suggests that the costs are for 1987–88, in current-year dollars.[4] We shall take the figures to be for 1987–88, in 1987–88 dollars. The

3. As Mukherjee and Dagger (1990, p.51) put it, "No uniform national crime statistics exist", and this holds for cost estimates, too, although the "top-down" study by Barnard and Withers (1989) attempts to reconcile extant public-accounts data on judicial finance in Australia.
4. With an underlying rate of price inflation of more than 7% per annum, the researcher must beware of adding one year's dollars to another's. The *Budget Papers 1988–89* report that in 1987–88 the National Crime Authority expenditure was $15.572 million, 60% of which is $9.34 million; 60% of the 1988–89 appropriation and expenditure figures are $10.80 million and $14.59 million, respectively, in current-year dollars. Using the CPI to adjust, we find that 60% of the 1986–87 and 1985–86 expenditures would have been $9.43 million and $8.05

figure for the New South Wales Drug Crime Commission, included with *State Police*, is that body's total budget. The figure for *Prisons* is based on an average recurrent costing of $33,000 per prisoner per year,[5] times the 1,380 prisoners who were in gaol in 1986 for drug offences. The figure for *Courts* is based on the proportion—around 3.4%—of drug offences dealt with, and does not include the costs of legal representation and the costs of the time and delays for non-forensic participants.

In order to derive estimates of the costs of anti-drug law enforcement, the Cleeland Report gathered figures on numbers of staff engaged exclusively on DLE work in the Customs Service and the various police forces. These figures appear in Table 2.

Table 2

Officers in Drug Law Enforcement, 1987–88

	Numbers of DLE Officers	% of Total Officers	DLE Officers per Million
Australian Federal Police	350	13.2	
Australian Customs Service	200		
New South Wales	170	1.5	30.3
Victoria	72	0.8	17.1
Western Australia	41	1.2	27.3
Queensland	32	0.6	12.0
South Australia	28	0.8	20.1
Tasmania	25	2.5	55.8
Total	918		

Source: Cleeland Report (1989), *Australia Year Book 1989*.

Table 2 also presents the numbers of officers exclusively engaged on drug law enforcement as a percentage of the total numbers of State police officers, and per million of population by State. The greatest concentration of DLE officers is in

million, respectively, in 1987–88 dollars. For the three years after 1987–88, the expenditures on the National Crime Authority grew at the impressive rate of over 20% p.a. *in real terms*.

5. The average annual cost per prisoner for 1986–87 ranged from $43,970 in South Australia, to $24,568 in Tasmania. In NSW the figure was $40,880, and the weighted average for Australia $34,570 (Walker 1988, Table 8). A 1987–88 figure of $33,000 per drug-related prisoner—more frequently found in NSW—seems conservative.

Tasmania (55.8 per million), the least in Queensland (12.0 per million), which State also has the lowest number of police per capita.[6] Whether these ratios accurately represent the anti-drug efforts State-by-State, or—more likely, I believe—are an artefact of the internal organisation of the various forces, the third column shows that across the State police forces the proportion of officers who are employed directly and exclusively in drug law-enforcement is less than 2.5% of the total number of officers in all States, and closer to 1% in most. Compare this with the estimate in Table 3, below, that of all prisoners in all Australian gaols in 1988, 11%, or 1,351, had been convicted of "drug offences", and with the assertions that 80% of NSW prisoners are there for drug-related crimes, that drug use is implicated in 63% of Victorian house burglaries[7] and in half of the break-and-enter crimes committed in NSW, and that 46% of the armed robberies in NSW are committed by drug addicts (Dobinson and Ward 1985).

These proportions indicate that while a small proportion of officers are engaged in enforcing the prohibition against drugs, a significant proportion must be engaged in coping with crimes committed by those circumventing the prohibition. Moreover, the Australian Federal Police (1988) state that they have about 650 staff "actively involved in the collection of intelligence on and investigation of drug-related offences," compared to the 350 officers of Table 2, which would pro-rate their DLE costs to $33.6 million in Table 1. Focusing on the small percentages of exclusively drug-law-enforcing officers is to underestimate considerably the actual costs in terms of personnel associated with the prohibition.

Significantly, the Report made no attempt to include the law-enforcement costs associated with offences committed by drug users in order to finance their drug purchases. Just as the numbers of police officers exclusively employed in drug law enforcement underestimates the numbers of police involved in drug-related work, so the proportion of court cases directly on drug offences underestimates the number of crimes which are drug-use related, such as income-generating crimes, as we discuss in Section 3, below. Nor were capital costs—estimated to be around $200,000 per cell for new prisoners—included.

The figures in Table 3 show that at 30 June 1988 5,431 prisoners (44.1%) were held in Australian gaols for various kinds of theft, and only 1,351 (11.0%) were there for drug offences. If only 40% of the total theft offences/charges were associated with the high price of illicit drugs, then a regulated, low-price regime for these drugs would have reduced the prison population by a further 2,172

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6. Barnard and Withers (1989, Table 46) found that per-capita expenditure on police in 1987 varied from a low of $93.31 for NSW to $114.20 for W.A. Per-capita expenditure on prisons varied from $17.44 for Queensland to $45.77 for W.A. (all in 1987 dollars).
7. According to Louisa Costa in the *Sydney Morning Herald* of 27 March 1985 "a recent three-month police survey . . . found that 62.9% of house burglaries in Victoria were drug-related." A further article by Margaret Harris stated that 80% of prison inmates in NSW were there for drug-related crimes.

Table 3

Number of Prisoners by Most Serious Offence/Charge, 1988

Offence/Charge	Number	Total	Share
Theft:			
Robbery	1,568		
Extortion	21		
Break-and-Enter	1938		
Fraud and misappropriation	543		
Receiving	215		
Other theft	1,146		
All theft		5,431	44.1%
Drug Offences:			
Possession, use of drugs	238		
Trafficking drugs	962		
Manufacturing drugs	151		
All drug offences		1,351	11.0%
Other:			
All other crimes		5,539	45.0%
Total persons		12,321	100.0%

Source: *Australia Year Book 1990.*

prisoners in 1988, at a saving of $71.7 million in recurrent costs for that year. To the extent that this is an extrinsic cost, it should be added to the cost to Australia of the prohibition, which would result in a 258% increase in the figure for *Prisons* in Table 1. If we assume a round factor of 250%, then the annual recurrent cost of *Prisons* due to the prohibition becomes $113.3 million. If the same factor of 2.5 applied for the *Courts* and *State Police* costs, those figures would become $43.5 million and $64.3 million, respectively.[8]

8. There has been at least a four-fold increase in criminal work in the NSW Supreme Court since 1972–1973, substantially contributed to by the prosecution of Commonwealth drug conspiracy cases, according to the NSW Bar Association (1989), and the number of reported drug offences per Australian rose by almost five times between 1974–75 and 1987–88 (Mukherjee and Dagger 1990, p.96), while the incidence of property crime barely doubled over the same period (Mukherjee, Neuhaus and Walker 1990, p.7).

Using a figure of $200,000 per cell and assuming dual occupancy[9] and a discount rate of 12% p.a., we can calculate the annualised cost of housing 3,523 prisoners.[10] Since a desirable operating level of occupancy for a prison is about 85% of accommodation capacity, we should divide the cost per prisoner by 0.85 to obtain the equivalent capital cost, but in practice prisons are operated at higher levels, reducing the capital cost, if not the recurrent cost. The capital cost of the prison cells which would otherwise be unnecessary is $352.3 million, equivalent to an annualised total cost of $42.3 million, or $12,000 per prisoner.

A cost to taxpayers ignored by the Cleeland Report is the cost of legal aid. The Commonwealth Government funds the Legal Aid Commissions in each state and the A.C.T. In 1986–87 the cost of legal aid was $66.2 million (Mukherjee Neuhaus and Walker 1990, p.56), after growing at a nominal rate of 6.6% p.a. over the previous four years. Assume a cost of $70.6 million for 1987–88. If we pro-rate this figure by the ratio of the number of drug offences reported to the number of all offences reported in 1987–88,[11] we obtain a figure of $2.4 million, which ignores drug-related property crimes. Using the factor of 2.5, we obtain drug-crime-related legal-aid costs of $5.9 million.

We can present these revised figures in a new table, in which the figures for the National Crime Authority and the Australian Customs Service are unchanged, since a much larger proportion of their costs is associated with drug criminals than the 2% or less of the State police forces, and the 11% of the courts and prisons, the DLE costs of which are revised upwards in Table 4.

The figures in Tables 1 and 4 must be approximations, since law-enforcement agencies do not present their budgets in such a way that their spending on drug law enforcement can be identified. Moreover, relaxation of the prohibition against these drugs would not eliminate all these expenditures; even if all drugs were legalised, Australia would still require the frontier controls and coastal surveillance undertaken by the Customs Service.

As mentioned above, our estimates are "bottom-up", in that we estimate unit costs and incidences and multiply the two. The costs of Table 4 can be compared with Barnard and Withers' (1989) "top-down" estimates of total expenditures on courts, police, and prisons in Australia, from official public accounts. Their most recent complete figures are (in 1985 dollars) for 1985: Courts $323.393 million, Police $1,402.955 million, and Prisons $314.322 million. Using the implicit price

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9. Recent figures (Mukherjee, Neuhaus and Walker 1990, p.58) show that a medium-security prison in South Australia was built for $132,800 per prisoner. Maximum-security prisons will cost more. Tasmania is the only state to provide a single cell for each prisoner; Victoria has over half its prison population in shared cells (Mukherjee, Neuhaus and Walker 1990, p.49).
10. One thousand, three hundred and fifty-one drug offenders, plus the 2,172 property offenders we have assumed would not be in prison under a regulated drug regime.
11. Total drug offences reported 46,683; total crimes reported 1,398,466 (Mukherjee and Dagger 1990, p.13, 97); a ratio of 3.34%.

Table 4

Revised Drug-Law-Enforcement Costs, 1987–88

	$ million
Australian Federal Police	33.6
National Crime Authority	9.8
Australian Customs Service	6.9
State Police	64.3
Prisons (recurrent)	113.3
Prisons (capital)	42.3
Courts (recurrent)	43.5
Courts (Legal Aid)	5.9
Total	320

deflator for current public outlays, that is, assuming conservatively that these expenditures rose no more than the rate of inflation, these amounts in 1987/88 dollars are: Courts $388.45 million, Police $1,685.17 million, and Prisons $377.56 million. It is readily seen that the $49.4 million for Courts, $114.6 million for all Police, and the $155.6 million for Prisons from Table 4 correspond to 12.7%, 6.8%, and 41.2%, respectively, of Barnard and Withers' estimates of total expenditures. The relative smallness of the first two can partly be explained as the difference between our marginal, bottom-up estimates, and their average, top-down estimates. For prisons, we impute an annual figure for the capital expenditure necessary to house additional prisoners, using 1987/88 construction costs, whereas their figures include capital expenditures only if made in the twelve-month period. This comparison underlines the conservative nature of our estimates.

The figure of $320 million for 1987–88 represents the cost to the Australian taxpayer of the resources diverted from other law-enforcement work to attempt to enforce the drug laws.[12] It is over twice the estimate made by the Cleeland Report of $123.2 million, but, despite the revised costs, the figure remains a very

12. Benson and Rasmussen (1991) explore the possibility that, as a result of the reallocation of the "common pool" of law-enforcement resources, increased DLE efforts reduce the risk of apprehension for those who commit property crime, which in turn may increase the incidence of property crimes, including those that are drug-related. Higher ill-gotten incomes for drug users may well result in higher drug demand and consumption, even with the higher prices from drug law enforcement. They conclude that a "crime-control policy focusing on drug crime will not serve as an effective means of controlling property crime" (p.114).

conservative estimate of the law-enforcement resources spent by Australia in response to behaviour by illicit drug users. In the longer term, these resources might have flowed into other avenues of government expenditure (education, health care, defence, public works infrastructure, refinancing the statutory corporations), or even have been left in the pockets and bank-balances of the taxpayers, as a result of lower tax rates. As the Cleeland Report notes, with a policy of regulation of drug use rather than the ineffective prohibition, most of these costs would disappear.

In order to derive the total costs associated with the criminal-justice system, it is necessary to have estimates of the full costs of legal representation, the costs of property crime committed by users of illicit drugs, and the costs associated with court delays. We shall examine the costs of crime in the next section. The costs of court congestion may be met by the taxpayer when more courts are built and more judges appointed; otherwise these costs are borne by society at large through justice delayed. We consider other social costs of the prohibition in Section 4, below.

3. The Costs of Crime

Let us consider the crimes committed by users of illegal drugs in order to obtain funds to purchase these drugs. The purpose of this section is to estimate the total value of drug-related crimes. From estimates of the number of heroin users and the average amounts of heroin consumed per user we derive a "bottom-up" estimate of the total quantity of heroin consumed in 1987–88. Estimates of the heroin prices and purities down the illicit distribution pyramid result in an estimate of the total cost of black-market heroin purchases in 1987–88. Surveys of the various sources of heroin users' incomes allow estimates of the proportion of income which is generated from drug-related crime, and this in turn allows estimates of the total value of property stolen in these crimes. The section concludes with a brief comparison of the cannabis and cocaine markets with the heroin market.

To what extent should the value of stolen property be regarded as a social cost? Economists do not agree. Stigler (1970) would completely discount the criminals' gains, maintaining that the market value of stolen property is a social cost; others argue that, although involuntary, property crimes do not significantly destroy value—even though the prices of stolen property might be much less than those of legitimate sales. We have counted the gains to the thieves as balancing the losses of the previous owners, but have listed the value of these involuntary and illegal transfers separately.

Because of the DLE effort, the prices of the illegal drugs are much higher than the costs of supply (including the costs of growing, processing, transport, and distribution). Marks (1990*b*) compares the gross returns for heroin at the three stages in the distribution process of importing, wholesaling, and ounce dealing in 1974 New York, in 1981 Melbourne, and in 1988 Sydney. We reproduce this as Table 5.[13]

Table 5

Heroin: Gross Return as a Percentage of Purchase Costs

	New York City 1970–74 %	Melbourne 1981 %	Sydney 1988 %
Importers	660	1,400	1,550
Wholesalers	90	63	72
Ounce Dealers	133	103	120

Sources: Moore (1977), Marks (1990*b*, Table 5).

Table 5 reveals the extremely high incentives for unscrupulous entrepreneurs to take the risk of smuggling the illicit heroin into Australia. The net returns are, of course, lower, after the costs of transport, handling, and (perhaps) bribery are deducted. A further deduction at the lower end of the chain is for profits which are consumed literally, by dealers who finance their own consumption by selling a proportion (usually about half) of their purchases, further diluted, and consuming the remainder (Marks 1990*b*).

In considering the crimes committed in order to obtain funds, it is relevant to examine estimates of the total amount of funds spent on illicit drugs in Australia. We examine the total funds expended on illicit drugs in general and on heroin, in particular. We then examine the means by which this money is raised.

The Cleeland Report provides estimates for three prohibited drugs, cannabis, heroin, and cocaine, which are reproduced in Table 6. We shall focus on the figures for heroin, in order to confirm the estimated annual consumption and the estimated annual turnover, or to see to what extent the heroin figures may be conservative. We shall then discuss the implications for the cannabis and cocaine estimates.

Despite the concern expressed in the Australian community over illicit drug use in general and heroin use in particular, there is no clear picture of the size of the problem. The Cleeland Report relies on a commissioned survey to derive its

13. The gross margins down the distribution pyramid reported in these three surveys—two from the outside and one (1981) from inside the illegal industry—agree reasonably well with the only other surveys, one of the U.S.A. in 1980 (Reuter and Kleiman 1986, Table 1) and the other of the U.K. in 1983–84 (Wagstaff and Maynard 1988, Table 4.10). One would expect regional variation and shifting over time, so the three surveys are in remarkable agreement, especially for the Australian data.

Table 6

Estimates of the Size of the Illicit Drug Industry

Drug	Cannabis	Heroin	Cocaine
Used in last 12 months	780,000	33,600	84,500
Frequent, regular users	226,000	3,360	6,640
Estimated annual consumption	120,000 kg	350 kg	65 kg
Estimated annual turnover	$1905 m	$699 m	$13 m

Source: Cleeland Report (1989, p.ix).

conservative estimates. It is possible, however, to estimate the net revenues generated by the exchange of black-market heroin in Australia. We shall use the prices cited in Dobinson and Poletti (1988), the structure of the industry revealed by the 1981 Melbourne survey described in Marks (1990*b*)—in particular the consumption and prices paid by the frequent and regular users contrasted with the occasional users—and the numbers of frequent and regular users of heroin in 1987 from various trends (Marks 1990*a*).[14] The final figures will be approximate, of course, but the underlying assumptions will be clearly stated.

3.1 Prices Paid for Heroin

In 1988, the importers were paying between $12,000 and $15,000 per kg for 80%-pure heroin in Thailand, and selling it in Sydney for between $200,000 and $250,000 per kg (Dobinson and Poletti 1988). As the drug moved down the distribution pyramid, its purity fell as it was successively diluted, while its effective price (for the 80%-pure equivalent) rose, and while some of the drug was consumed before it reached the street at the bottom of the distribution pyramid. The effective price on the street was equivalent to between $800,000 and $1,000,000 per 80%-pure kilogram.

14. As Marks (1990*b*) reveals, there are many kinds of heroin users, so the two categories mentioned above are not meant to imply a clear division, rather they provide a convenient method of summarising the distribution of heroin users.

3.2 Numbers of Heroin Users

Despite disagreement on the actual numbers, there is growing agreement on the ratio of the numbers of occasional or "social" heroin users to the numbers of frequent and regular users—addicts, in the popular view—of between eight and ten to one, which reflects the belief of many researchers that about 15% of heroin users are compulsive (compared, for example, to figures of 95% for tobacco smokers, and about 15% for alcohol drinkers). This ratio of ten to one has appeared in overseas studies (Zinberg 1979), and in an unusual survey made in 1981 Melbourne by the illicit industry itself (Marks 1990*b*). But what of the actual numbers of users?

As Marks (1990*a*, Figure 1) and Holman and Armstrong (1990, Table 5.11) report, the opiate-related deaths per 100,000 have risen from 0.4 in 1977 to 2.0 in 1987. Similar trends are seen in the number of deaths in NSW related to morphine-type drug dependence, and in the number of court appearances for opiate drug offences in NSW resulting in a finding of guilty. As the Cleeland Report (pp.40–48) discusses, there is no *necessary* correlation between these figures and the number of heroin users, but, as discussed below, this author believes that the Committee's figures in Table 6 above are very conservative.[15]

If, following Marks (1990*a*, p.144–146), we assume that in 1977 there were 8,000 regular and frequent users of illicit heroin—which is conservatively consistent with estimates made at that time by the Williams and Woodward Royal Commissions—and if one assumes that these numbers are correlated with the death rates and other indicators, which exhibited a five-fold increase between 1977 and 1987, then the estimate of regular and frequent heroin users in 1987 would have been 40,000, with around 300,000 occasional or "week-end" users. These figures are in broad agreement with the National Advisory Council on AIDS study of Australian experience of injecting illicit drugs, which suggested that 600,000 people had self-injected illicit drugs at least once in their lives, and that 240,000 had self-injected illicit drugs at least once in the previous twelve months (NACAIDS 1988), and with the National Drug Abuse Data System's "conservative" estimates of "30,000 to 50,000 frequent, regular dependent heroin users," although our numbers of occasional users are greater than their "at least 60,000 irregular, 'recreational' non-dependent heroin users" (NDADS 1988).

3.3 Amounts of Heroin Used

If we accept the conservative figures of 30,000 regular and frequent heroin users and 200,000 occasional heroin users, what can we say about the amounts of heroin they consume and the amounts of money spent in buying the drug? We shall use

15. A further indicator not yet used for this purpose is the number of needles exchanged under the government-sponsored exchange programs.

estimates of the per-user annual consumption in the two categories of regular and frequent users and occasional users to determine the total quantity of heroin consumed in Australia in 1987.

If we accept the 1981 Melbourne data on quantities consumed, the regular and frequent heroin users consume on average 98 g per year per person of 80%-pure, and the occasional users consume on average 4.5 g per year per person of 80%-pure (Marks 1990*b*, p.76).[16] Support for these figures comes from Leader-Elliott (1986), who analysed Dobinson and Ward's (1985) survey to derive a median weekly heroin consumption of 1.4 g 100%-pure, equivalent to 91 g per year of 80%-pure for the regular and frequent users, and a smaller figure of 6.2 g per year of 80%-pure heroin for occasional users. Our figures correspond to a total of 2,940 kg per year for the regular and frequent users, and a total of 900 kg per year for the occasional users, a grand total of 3,840 kg per year, or eleven times more than the Cleeland Report estimated (Cleeland 1989, p.ix). The seizure of heroin peaked in 1984 at 101.6 kg, which had no observable effect on heroin prices, which suggests that the seized quantity was readily replaced and that it corresponds to a small proportion only of the total smuggled into Australia. Indeed, police have admitted that seizures amount to less than 7% of the total,[17] which suggests total smuggled imports of at least 1,400 kg per year, four times the Cleeland estimate.

3.4 The Heroin Bill

To err on the side of caution, we shall assume that the total amount of heroin successfully smuggled into Australia in 1987 was 2,500 kg of 80%-pure equivalent. From the figures presented above, this would cost between $30 million and $37.5 million in Thailand, with a theoretical value added of between $2 billion and $2.5 billion at Sydney street prices; "theoretical" because only a proportion of each imported kilo of 80%-pure reaches the street—the rest is consumed higher up the distribution pyramid. From the 1981 Melbourne survey (Marks 1990*b*, p.76), roughly 70% by mass of any imported kilo is consumed by the regular and frequent users, paying wholesale prices, and the remainder is consumed by the occasional users, paying street prices. The 70% by mass translates into 60% by value, since the occasional users pay more for their (more diluted) street heroin. That is, the consumption at wholesale prices means that the total revenue generated at point of consumption of each imported 80%-pure kilo is 28% lower than the

16. There is a misprint on line 26 of page 76 of Marks (1990*b*), which should read "the weekly supply of 12 lb of 20% pure heroin," not 80% pure.
17. On February 15, 1985, the then head of the joint federal/NSW Joint Task Force on Drug Trafficking, Detective Chief Superintendent Jim Willis, stated that only 4% to 7% of imported illegal drugs were being interdicted (Davies 1986, p.133). This was broadly corroborated by the Australian Federal Police (1988) in their submission to the Cleeland Committee.

theoretical maximum, because the value of the 70% bought at wholesale prices is 40% lower. This is shown in Table 7.

Table 7

Heroin Consumption by Mass and Value, by User Groups

User	Quantity		Value at Street Prices		Value at Wholesale, Street Prices	
	(kg)	(%)	($ m)	(%)	($ m)	(%)
Regular & frequent	1,750	70	1,400	70	900	60
Occasional	750	30	600	30	600	40
Total	2,500	100	2,000	100	1,500	100

The consumption at the wholesale level reduces the theoretical value from $2 billion per year to $1.5 billion per year.

This amount, less distribution and handling costs, is the return to the people in the distribution pyramid. An enormous amount, it could readily be used for corrupting some of the band of law-enforcement officials discussed above (Marks 1990*a*, p.149). It underlines the lure of heroin trading for unscrupulous entrepreneurs. It also represents the value of the income necessary to obtain heroin. How is this money raised?

3.5 How Drugs are Paid For

For the occasional users, the cost of their recreational drug use—about $40 per week per user on average, or about $600 million in aggregate—may well represent a burden that they are able to meet from legitimate sources of income, whether earnings, savings, or pensions. That leaves up to $900 million per year spent by the regular and frequent users, who, because of their lifestyles and drug usages, are in general unable or unwilling to generate more than a small fraction of this amount legally. That is not to say that these users are *compelled* to commit crimes to support their habits—as Dobinson and Poletti (1988) note, the demand for heroin is not as price inelastic as was believed twenty or more years ago, and addicts are not as helpless as their stereotype would suggest.

Wardlaw's (1981, p.45) study of the criminal records of 1,314 randomly chosen Australian drug offenders led him to conclude that the tendency for the drug habit to *cause* the user to embark on a criminal career had been exaggerated. Dobinson and Ward (1985, p.48), in their study of 225 property offenders in NSW gaols, found that, although 72% reported a first instance of property crime before the first use of heroin, only 42.6% reported that they had progressed to "regular" crime before they became regular heroin users. They also found that as the rate of

heroin consumption increased, so did the amounts spent on the drug and the amounts of money from property crime. Amongst property offenders in prison who used heroin, 90% gave "need to support drug habit" as the main reason for committing the major offence (Mukherjee, Neuhaus, and Walker 1990). These findings agree with those of Brown and Silverman (1974), Silverman and Spruill (1977), and Parker and Newcombe (1987) that there is a broad relationship over time between the number of regular users—addicts—and the property-crime rate, and suggest that another of Brown and Silverman's findings—that there is a short-run positive correlation between increases in the price of heroin and increases in property crime—might also apply in NSW in particular, and Australia in general.

Apart from dealing in illicit drugs, the major sources of income for the regular and frequent heroin users include property crimes, prostitution, and other illegal activities, such as shoplifting, fraud, and armed robbery. In their survey of 129 "active regular heroin user/sellers" in Sydney's King's Cross/Darlinghurst area in 1987, Dobinson and Poletti (1988) gathered data on weekly income. Regular using and selling were defined as having occurred on at least three days per week. Table 8 presents their results. Note in Table 8 that *Family/friends* includes money received from de-factos and girlfriends earned by way of prostitution. Table 8 shows that for these user/sellers most income occurs from sales of the drug, but that up to two-thirds of the rest is obtained from illegal activities: 34.7% from property crimes, up to 30.3% from prostitution, and a further 1.8% from drug-related rip-offs. At some level in the distribution pyramid below the level surveyed by Dobinson and Poletti there must be an end to on-selling; the users buy for their own consumption alone. The figure of $1.5 billion in Table 7 represents the sum of the income necessary for own-consumption purchases. For this reason we focus on the pattern of *Other income* of $592 per week per user/seller presented in Table 8, and ignore the revenues from sales to other drug users.

The $900 million (Table 7) comes from non-drug-selling income. From Table 8, this means $312 million from property crime, $190 million from social security payments, $174 million from family and friends (including some prostitution earnings), $99 million from prostitution, and the balance of $125 million from the remaining (legal) activities. The Cleeland Report (1989, p. 79) was told that as much as 70% of all crime and 80% of property crime in some States is drug-related. In 1987–88 312,432 break-and-enter offences were reported to police in Australia (Mukherjee and Dagger 1990, p. 19). Based on an average figure reported by NSW Police of property worth $1,100 stolen in such burglaries in 1985–86, such crimes could generate up to $400 million (in 1988 dollars) alone, so our estimate of $312 million is seen to be conservative.[18] Although not all such

18. Moreover, a Crime Victims Survey in 1983 revealed that more than 30% of break-and-enter crimes and around 60% of other thefts, excluding car thefts, never became known to police (Mukherjee and Dagger 1990, p. 53). The official figures greatly understate the true costs of property crime.

Table 8

Sources of Income, Street Heroin Users/Sellers, 1987

Source	Amount ($ per week)	Share (%)
Selling heroin	4,526.12	
Selling other drugs	39.11	
Past drug credit	13.95	
less past drug debt	23.64	
	4,555.54	
Other income	592.49	100.0
Property crime	205.45	34.7
Social security	124.89	21.1
Family/friends	114.46	19.3
Prostitution	64.96	11.0
Savings	23.14	3.9
Odd jobs	16.71	2.8
Gambling	15.47	2.6
Drug-dealing rip-offs	10.62	1.8
Pawning/selling possessions	7.99	1.3
Employment	4.96	0.8
Services	3.84	0.6
Total income	5,148.03	

Source: Dobinson and Poletti (1988, Table 69).

burglaries are covered by insurance, none the less the costs associated with such crime are shared across Australian society, through higher insurance premiums, through expenditure on better security of homes, offices, factories, and shops, whether required by the insurance companies or chosen by the occupants themselves. Similarly, the cost of shoplifting is passed on to customers through higher prices, and the costs of fraud on financial institutions is passed on through higher charges for their services. These figures emphasise the conservative nature of the figures in Tables 1 and 2 above.

To focus on the breakdown of property crimes, we present data on two groups of drug users gathered by Dobinson and Ward in Table 9. One group is 89 drug users in NSW prisons; individuals were classified as users if they had consumed at least one of barbiturates/hypnotics, cocaine, heroin and/or other opiates/narcotics on a regular or heavy basis, which required the individual to have

Table 9

Property Crimes—Drug Treatment Study, Prison Study

	Drug Treatment Study				Prison Study			
	People	(%)	Crimes	(%)	People	(%)	Crimes	(%)
Break-and-enter	33	23.7	1,156	24.4	64	34.6	5,590	63.8
Larceny	32	23.0	1,504	31.8	12	6.5	123	1.4
Shoplifting	25	18.0	889	11.8	12	6.5	1,034	11.8
Fraud	21	15.1	484	10.2	24	13.0	948	10.8
Receiving	12	8.6	415	8.8	10	5.4	147	1.7
Motor vehicle theft	5	3.6	226	4.8	20	10.8	506	5.8
Robbery	8	5.8	55	1.2	12	6.5	88	1.0
Armed Robbery	3	2.2	6	0.1	31	16.8	320	3.7
Total	139	100.0	4,735	100.0	185	100.0	8,756	100.0

Source: Dobinson and Ward (1985, Table 28; 1987, Table 26).

reported consuming a minimum of one “weight gram of street pure” heroin per week during the period prior to arrest. The second group is 24 people, from a sample of 134 drug users interviewed at eight drug-treatment agencies in NSW, who had last obtained their heroin by illegal means such as property crime and drug selling. Comparing the pattern of property crimes committed by the two groups, we see that there are close similarities in shoplifting, fraud, and motor vehicle theft. The figures for break-and-enter together with larceny are not so different (56.2% for the drug treatment group, compared with 65.2% for the prisoners), although the first group admitted to many more cases of receiving than did the prisoners.

In the absence of data on the importance of the various types of property crimes in generating income, we shall use the percentages of the incidence of these crimes as equivalent to their shares of income generation. We shall assume that the average shares of income from property crime among regular and frequent heroin users are bounded by the percentages of Table 9, which means that break-and-enter plus larceny is 60.7%, shoplifting 11.8%, fraud 10.5%, receiving 5.3%, motor vehicle theft 5.3%, armed robbery 1.9%, and robbery 1.1%.

Following the methodology of Casey and Preble (1974), we calculate the value of stolen goods necessary to generate the above proportions of the total proceeds of drug-user property crime, calculated above to be at least $312 million. Break-and-enter and larceny is a source of revenue for 60.7% or $189 million of all income earned from the illegal sources. This figure represents the total revenues that addicts received either directly as a result of the criminal acts or by having

obtained property from a break-and-enter, and then selling the goods for dollars. To determine the dollar transfers brought about by these crimes, it is necessary first to determine the proportion of the $189 million that constituted cash stolen—the balance was derived from the sale of fenceable goods. The amount raised by selling stolen goods would be somewhat less than their legal market valuation; Roumasset and Hadreas (1977) reported a 50% discount in the second-hand market in which such stolen goods are sold. If only cash were taken, the transfer would be equal to $189 million; if, instead, only fenceable goods were taken, the amount would be $378 million (twice $189 million). There is no direct evidence on the basis of which to predict where in this range the actual transfer will fall. We take the mean of $284 million per year,[19] which is conservatively less than the $400 million mentioned above.

Shoplifting, motor vehicle theft, and receiving together generate 22.4% or $70 million of all income from property crime. Since these crimes result in the theft of fenceable property, the total transfer that results is equal to $140 million, with a welfare gain to buyers of up to $70 million. Fraud, robbery, and armed robbery involve transfer of money. (We do not estimate the further losses due to personal injury.) These three crimes together generate 13.5% or $42 million of all income from property crime, which is the value of the money taken. Our conservative estimate of the total value of forced transfers as a consequence of drug-related property crime was thus $466 million in 1988. Furthermore, the value of prostitution by drug users or their de factos may have been as much as $273 million in the prostitutes' hands (from total revenues of perhaps twice that, once the pimps and madams had been paid).

3.6 Cannabis and Cocaine

As stated in Table 6 above, the Cleeland Report's conservative estimate of the annual turnover of the heroin industry in Australia was $699 million in 1988. We have argued that a very conservative estimate of this turnover is $1.5 billion, which is associated with forced transfers of property worth $466 million, and other direct and indirect costs: the market for stolen goods is imperfect—we have estimated a welfare gain to buyers of stolen property of up to $165 million. If the Report's figures for cannabis and cocaine are pro-rated, these annual turnovers are $4,090 million and $28 million, respectively.

19. The figure of $284 million stolen to fetch $189 million implies a welfare gain of up to $95 million to buyers in the imperfect, illegal market for stolen goods, since they are prepared to buy "hot" property. I acknowledge the argument of an anonymous referee that this is not a social cost.

4. Other Social Costs and Transfers

4.1 Crime

In addition to these tangible costs of crime associated with drug use, there are the intangible traumas and fears which stem from higher levels of crime in society, against both property and persons. We do not argue that this tide is entirely due to the unsuccessful prohibition, but in the case either of an effective prohibition or of a regulated supply of drugs at cost of production, the evidence strongly suggests that the costs, both tangible and intangible, of drug-related crime would be much reduced.

There is a further cost associated with the large amounts of money changing hands in the black markets for illicit drugs. The very high returns to be made (see Table 5 above) attract unscrupulous entrepreneurs into the trade, people who are willing and—through the profits of the black market—able to spend large amounts to achieve their nefarious ends, and who will readily hire "rough justice" or buy the blindness, deafness, and silence of corrupt law-enforcement officials. Indeed, the Cleeland Report (1989, p.83) notes several cases in which corrupt police were active participants in importing heroin or growing marihuana in Australia.

In response to the property losses resulting from drug-related property crimes (which we conservatively calculated at $466 million above), households and firms will incur private costs of employing services, equipment, or techniques to prevent such crimes against their property or to reduce the impacts of such crimes, and further costs of insuring against such losses. As the incidence of such property crimes has risen—and with it the total value of insurance payouts—insurance premiums will have risen, spreading some of the property-loss costs across the community. If people spend as much or more on defensive measures (including insurance) as they expect to lose through property crime, then the social costs will be higher by another $466 million or so. A U.S. study (Casey and Preble, 1974, pp.301–302) estimated that such defensive measures were worth about 49.5% of the value of property stolen,[20] which would be $230 million if the ratio held for Australia.

4.2 Health Care

Universal health insurance through Medicare results in society (that is, the taxpayer through the Medicare income-tax levy) bearing the cost of health care for those who could not otherwise afford it. One effect of the prohibition, especially on those who inject the illicit drugs, is to increase the risks that they will suffer bad

20. This ratio was calculated by estimating the total cost of all preventative equipment and services (alarms, surveillance, security devices, protection agencies, guards), adding the overhead cost of insurance against addict crime, and dividing by their estimate of the value of total addict property crime.

health, and contract infectious diseases through sharing needles. Indeed, the spectre of HIV infection spreading rapidly into the heterosexual population has, in Australia at any rate, led to the slight relaxation of the anti-drugs law-enforcement effort of the needle exchange schemes. None the less, the user of illicit drugs has no assurances about the purity of the drugs, the strength of the dose, the kinds of dilutants and adulterants, or even the presence of the promised drug. Moreover, as the Cleeland Report (1989, p.84) notes, their preoccupation with raising the required money and then using the drug when they can means that the regular and frequent heroin users will often pay little attention to their general health, fitness, and adequate nutrition. To the extent that this neglect adds to the burden on the public hospital and health-care systems it is properly counted as a further cost of the existing regime of prohibition.

Unfortunately, there is no consistent measure of hospital costs Australia-wide. Even data on drug-related hospital morbidity (which indicated for 1984–85 that cannabis, cocaine, and opiate-related drugs together accounted for less than 5% of total 100%-drug-caused,separations) are severely deficient, since the principal condition recorded for in-patient admission to hospitals often overlooks the fact that drug use is a major underlying cause for this condition. As a consequence, the National Drug Abuse Data System conservatively estimates that as few as one in ten of the total number of drug-caused separations are identified. We have commented above on the importance of reducing the spread of HIV infection from intravenous drug users to the heterosexual population at large. The needle-exchange schemes instituted in Sydney and Melbourne are an attempt to reduce this spread. The emotional costs from the AIDS epidemic will be high. So too will the social costs: Coe (1987) estimated that the cost of the unchecked epidemic to Australia would be $22 billion.

To the end of 1987–88, $56.7 million had been allocated by Australian governments on new and expanded treatment and rehabilitation centres for drug users (CDCSH 1988). As of June 1988, there were 6,120 clients in methadone maintenance programmes, at a cost per client per week of between $61 and $239 (Baldwin 1987), depending on the degree of support, an annual bill of between $19.4 million and $76 million. We take the mean of $48 million.

4.3 Forgone Production due to Premature Deaths

As well as adding to the taxpayers' burden, the morbidity and mortality associated with the prohibition impose a cost on Australia through reduced production. Table 10 reproduces the data on working years lost through premature drug-related deaths for 1987. The Table shows that the 709 deaths from illicit drug use in 1987 (including 323 from opiate drug use) resulted in 20,490 working years forgone through premature death (including 10,965 from opiate-related premature death). At an average annual labour cost of $23,980 in 1987–88 (*Australia Year Book 1990*) and assuming that this reflects the average productivity per worker and assuming no increase in real productivity, then the premature deaths in one year, 1987, from all illicit drugs resulted in a present value of forgone future production

Table 10

Illicit Drug Deaths, Working Years Forgone, 1987

Age Group (Years)	Working Life Expectation (Years)	Working Life Expectation Discounted (Years)	Deaths: Opiates	Deaths: All Illicit Drugs	Total Working Life Lost: Opiates (Years)	Total Working Life Lost: All Illicit Drugs (Years)
0–14	45	4.3	2	4	90	180
15–34	40	12.0	243	390	9,720	15,600
over 34	15	8.7	77	314	1,155	4,710
Total			323	709	10,965	20,490

Source: Holman and Armstrong (1990, Table 5.9).

of $178 million (including $86 million from opiate deaths) using an 8%-per-annum discount rate.[21]

At an average income tax rate of 25%, the present value of the tax forgone was $45 million (including $22 million from opiate deaths).[22] This understates the value of lives and health, since it does not include the value people place on the lives and health of themselves and their families.

4.4 Social Security Payments

From the data in Table 7, 21.1% of the non-drug-dealing income of the group of user/sellers interviewed by Dobinson and Poletti (1988) came from government pensions. With minimal demands on users' time, government payments provide dollars for nothing. Moreover, for some frequent and heavy users these funds may be in the form of invalid pensions, as well as unemployment benefits or other

21. The discounted expected working life of 4.3 years for those who died aged between birth and 14 years was calculated from

$$\int_{20-7}^{65-7} e^{-0.08\,t}\,dt,$$

and the other figures similarly.

22. As Collins and Lapsley (1991, p.92–94) discuss, there is an argument that the value of production forgone as a result of death should be calculated net of the consumption which the dead person would have undertaken. In their study, such consumption was about 28% of production for men and 44% for women. With a mortality ratio of 3:1 for males to females from illicit drug use, this would result in reduction of the production-forgone cost by about a third. We could not validate these figures using data available.

payments. It may also be the case that some of the payments from family/friends also originate from social security payments. Pro-rating these direct payments across the required income implies a total annual cost of $190 million, close to $125 per week for each of 30,000 regular and frequent heroin users we have assumed.

5. Conclusion

We have examined two sets of estimates of the cost of illicit drug use in Australia, both published in the Cleeland Report. Using data published in Marks (1990*b*), and the three studies by the NSW Bureau of Crime Statistics and Research (Dobinson and Ward 1985, 1987; Dobinson and Poletti 1988), we have argued that the Cleeland Report underestimates the true costs of the law enforcement against illicit drug use by a factor of at least two. Our estimates of the social costs and drug-related transfers[23] in 1987/88 are presented in Table 11.

Table 11

Social Costs and Transfers from Illicit Drug Use 1987–88

Losses	
Drug-Law-Enforcement Costs	$320 million
P.V. of Future Production Lost	$178 million
Methadone Maintenance Costs	$48 million
Defensive Costs against Theft	$230 million
Total Costs	$776 million
Transfers	
Property-Crime Losses	$466 million
Social Security Payments	$190 million
Total Transfers	$656 million

23. Although we have summed the value of property stolen and the value of social security payments, this should not be taken to imply a belief that taxation is theft.

The assumptions underlying these calculations are clearly discussed above. We believe that these estimates are very conservative: the paucity of data would not allow us to be more precise, so we have erred on the side of underestimating the costs.

We emphasise that the figures are for the twelve-month period from 1 July 1987 to 30 June 1988, in 1987/88 dollars. The figure of $776 million includes the discounted continuing costs flowing from events in this period, such as the increase in the prison population during this period and premature deaths that occurred in this period as a consequence of the drug laws and their impacts, but does not include the continuing costs of events that occurred in other years before or after this period.

The costs represent the value of goods and services denied to the community because of the laws with regard to illegal drugs. The transfers represent the value of the gains through the tax system and from property crimes to illegal drug users. In terms of the 2×2 classification of Section 1, the losses are an attempt to estimate the extrinsic direct and indirect costs associated with the drug laws. A reduction in the total intrinsic direct costs (incurred by the users) has been accompanied by an increase in extrinsic costs (to users and others). Although there remains uncertainty about the increase in numbers of users with a relaxation in the prohibition, it is likely, as discussed, that the total social costs, direct and indirect, extrinsic and intrinsic, would fall with a less draconian drug policy. We leave to other papers discussion of the possible forms of such a relaxation.

We have not included the costs of morbidity and mortality in terms of forgone production due to the drug-related spread of the AIDS epidemic. We have argued that a large proportion of these costs would be eliminated if the drugs were made available, at cost, to regulated drug users, rather than the existing situation of black-market availability. The cost of such regulation need not be high: in a study of methadone maintenance clinics in Sydney, Baldwin (1987) has costed a "bare-bones" clinic at $61 per patient per week. If only a relatively small number of addicts commence productive, tax-generating work under the regulated regime, the cost of administering it will be recouped in higher income-tax receipts, and the addicts and their families will experience great relief and a sense of accomplishment, which we have not attempted to evaluate here.

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