A CBA of cannabis legalisation:
Lessons learned and future directions

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Abstract

Cost benefit analysis, with its foundation in social welfare theory, is widely used to assess programs in a range of policy areas. Many CBA are conducted by simply quantifying the implementation costs and valuing one or more of the potential outcomes. Legalisation of cannabis in any jurisdiction will potentially have a wide range of benefits and harms some of which may be easily identified and valued while others will be more demanding. If significant harms and benefits of legalisation of cannabis are excluded the results of the CBA may not provide a true valuation of policy and produce misleading recommendations.

This paper will discuss the challenges encountered while undertaking a CBA of two cannabis policy options. Specific attention will be given to the identification and valuation of the harms and benefits of the legalisation. The potential role of the alternate methods of valuing outcomes, such as contingent valuation and discrete choice experiments will be considered.
Introduction

The debate on how prohibitive drugs policy should be, particularly cannabis policy, has often centred on arguments associated with liberty and harm. Advocates of legalisation have argued that maintaining the criminal status of cannabis encourages criminal activity, necessitates contact with illicit drug sellers, leads to individuals acquiring criminal records/penalties for use of small amounts of cannabis, results in taxation losses, and increases the costs of enforcement [1-3]. Advocates of total prohibition have countered by arguing that prohibition leads to higher prices, lower consumption, better health status, and improved productivity [4-6]. In the face of this debate there is often a call for additional research that begins to actually quantify the various outcomes as a prerequisite to rational consideration of public policies [7-10]. Further, the argument has often been put forward that the application of economic theory and methods might provide additional information to inform decision making.

A review of the published literature has not revealed any economic evaluations designed to assess the economic implications of changing the legislative status of cannabis. There have been studies which have examined some of the potential societal costs and outcomes but all have clearly indicated that their studies were not a cost benefit analysis (a form of economic evaluation). For example, some have examined the potential impact on the criminal justice system [11-14]; on taxation revenue [11, 12], on rates of use [11, 12, 15-19]. Others have focused on treatment outcomes [20], or the impact of cannabis on driving [21-24] but none have combined the many social costs and savings from changing cannabis policies and as well as the potential benefits or harms to the individuals if the legal status of cannabis were to change.

The aims of this paper are to outline the economic theory and tools which might be brought to bear in analysing cannabis policies, and secondly to present some of the challenges faced and lessons gained while conducting a cost benefit analysis (CBA) of an existing policy and a hypothetical legalised–regulated model for cannabis.

Economic theory and tools

Resources are scarce thus requiring choices to be made as to their best use. These choices are usually made through market mechanisms such as price, but when there are failures of the market system economists turn to other methods to assist with the optimal allocation of
resources. Economic evaluations are often used to provide information to policy makers to assist with decision making. There are two primary types of economic evaluations which might be brought to bear, cost-effective analyses (including cost-utility analyses) and cost-benefit analyses.

Cost-effectiveness analyses (CEA) are widely used, particularly when assessing health treatments, pharmaceuticals and medical interventions. A CEA has as its objective to assess the relative opportunity costs of achieving a given type of outcome across two or more interventions using a single unit of effect [25]. The measure of outcome may be life years saved, a measure of quality of life, or a relevant clinical outcome. The results are reported as an incremental cost effectiveness ratio (ICER). When a new intervention results in achieving better outcomes but at a greater expense (often the case when new technologies or medicines are introduced), a cost-effectiveness acceptability curve (CEAC) can be used to explore the overall threshold for societal willingness to pay [26]. The CEAC, which relies on the results from bootstrap replications or a parametric approach, provides a method to present the probability that the additional expenditure will be acceptable to a decision maker given an expected maximum ceiling on their willingness to pay for an additional quantum of outcome [26].

A CEA typically only includes a single natural outcome within a given study. The outcomes typically used (life-years saved, cases detected or prevented, change in recidivism, change in drug use) may not individually be sufficiently encompassing when there are multiple benefits and harms from a complex intervention. This is particularly true if some outcomes improve with one intervention while others improve with another intervention. This was demonstrated in a study of different drug treatments where multiple outcomes were measured [27]. The magnitude of the change in outcomes over the course of treatment varied by type of outcome leading to very different incremental cost effectiveness ratios depending upon which outcome measure was used [27].

While cost-utility analyses (a form of CEA) combines both changes in lives saved and in quality of life, their use in assessing a policy change as far-reaching as legalising and regulating cannabis is limited. Generic health quality-of-life-measures such as those obtained with EQ-5D or the SF-6D [28, 29] are often not sufficiently sensitive for assessing changes in mental health, social care and public health or for certain groups [30]. Nor do they reflect changes in productivity, educational attainment and other non-health outcomes such as the
stigma from a criminal record. Work is ongoing to develop a simple generic measure of wellbeing, which goes beyond health, that may be useful when comparing the benefits of a diverse range of health and social care policies [30]. One approach based on Sen (1985) and Nussbaum’s (2000) capability work focuses on functional capabilities and freedoms to function in the specific way that an individual chooses to, rather than focusing on their level of utility or access to resources [26]. However, the capability instruments are not sufficiently developed to be used in evaluations. Until an outcome measure that includes not only health outcomes but also a broader set of outcomes such as wellbeing, fear and the negative impacts of stigma, is developed, the outcome measures available for a CEA are unlikely to be sufficiently comprehensive for use in an evaluation of policy options with complex range of outcomes.

This leaves cost benefit analyses, where all outcomes are quantified in monetary values, as the most appropriate method to use when there are multiple important outcomes that need to be included in the evaluation [27, 31, 32]. Cost-benefit analysis (CBA) has a specific meaning in the language of economic evaluation. Where CEA has as its objective to provide insights as to how to achieve a given outcome at for the least opportunity cost, a CBA attempts to identify the most efficient use of societal resources. Or to put it another way, to answer the question as to whether the societal benefits of a program / policy outweigh the costs of that program / policy [25]. Although CBA is alternatively referred to as a tool [33]; as a way to assess governments’ return-on investment [34]; or as a method to quantify willingness to pay, it is a great deal more.

CBA, unlike CEA, has its foundations in welfare economics. This is the branch of economics that addresses normative questions (what should be) as compared to positive economics (making predictions without value judgements). Normative, in the context of CBA, assumes that: i) social welfare is made up from the welfare (or utilities) of each individual within society and ii) individuals are the best judges of their own welfare (consumer sovereignty) [25]. The central concept that lies behind CBA is Pareto optimality. Pareto optimality is defined as ‘no person should be worse off under an alternative program compared to prior to its introduction’ [35]. The consequence of this rule would be that it would be virtually impossible to introduce a program or policy which was deemed beneficial to society. As it would rarely be possible to make everybody better off without making someone worse off what is actually believed to be important is whether or not a policy leads to an increase in
aggregate real benefits allowing those who might be worse off from a policy change to be compensated [36]. Whether this compensation takes place is not seen as relevant; what is important is whether there could hypothetically be compensation from the winners to the losers. This is referred to by economists as the Kaldor-Hicks criterion. The test as to whether the potential winners could offer the potential losers sufficient income so the losers would be as well off as they were at baseline known as the potential compensation test (PCT) [35]. If the PCT is passed then the project is determined to be allocatively efficient. The adoption of the Kaldor-Hicks criterion means, that for example, an increase in harm to some individuals due to an increased use of cannabis (i.e. increased in number who are dependent on cannabis) following a change in cannabis policy is neither a necessary nor a sufficient condition for policy intervention to be socially undesirable if the overall sum of the positive benefits outweighs the sum of the costs and loss of benefits. This is an important point, ignored by much of the medical research literature, which concentrates on estimating the magnitude of individual harms, and often appears to assume that the existence of such harms necessarily generates a case for prohibition [37].

The basic premise of a CBA appears simple – assess the value of a program, policy or intervention by weighing up its costs and consequences in monetary terms, and then determining whether there are sufficient benefits gained such that those who incur harms /losses may potentially be compensated (there is a positive net social benefit). One then should theoretically be able to compare and rank the results of all the various states of world in which one is interested [38] and chose the one/s with the largest net social benefit. However, as one begins to think about the potential costs and benefits from a policy change the quantity of potential impacts are substantial. Although there are a number of comprehensive list of potential harms from drug use, see, for example [7, 39, 40], this is only the beginning of the process. The next steps, of identifying which harms and benefits may be important (both in expected frequency of occurrence and relative value); of identifying to whom they will occur; and then measuring and valuing are where the challenges begin.

Many so-called CBA are conducted by simply quantifying the implementation costs and valuing one of the potential outcomes and ignoring all the rest. If significant harms and benefits of an intervention are excluded the results of the CBA will not provide a true societal valuation of a policy and may produce misleading recommendations. One review of the CBA literature reported that 60% of the studies claiming to be CBA were actually costing studies, examining
only the costs and cost savings of a program but not valuing any of the benefits or harms in monetary terms (Zarnke et al 1997 in [25]).

**Net social benefit (NSB) or benefit cost ratio (BCR): Beware of ratios**

The results of CBA studies are often reported in terms of the benefit cost ratio (BCR) [41-44]. The benefit-cost ratio is particularly sensitive to the specification of an outcome as either a negative benefit or a cost [45]. The decision as to where to place a ‘benefit’ which for some might be positive and for others a negative becomes a crucial decision. For example, consider the potential value attached to stigma resulting from a criminal record as a consequence of a cannabis offence. An individual who is subject to arrest and conviction may attach a large negative value to stigma. But those who believe that the personal costs of a criminal record, such as stigma, are a justifiable consequence of being found in possession of cannabis and may act as a deterrent for the use of an illegal substance [46, 47] may feel it should have a high positive value. The values in and of themselves are not the issue, but in conceptualising the problem, some analysts construct the BCR with all the positive benefits in the numerator, and the negatives as a cost and place them in the numerator. Alternatively, savings are sometimes included in the denominator, while for others they are placed in the numerator. This obviously makes a difference as the following illustration demonstrates.

\[
BCR = \frac{((\text{Benefits} + S_1 + S_2)/(C_1 + C_2 + C_3) )}{(C_1 + C_2 + C_3 - S_1 - S_2)} = 1.8 : 1 \tag{1}
\]

\[
BCR = \frac{\text{Benefits}}{(C_1 + C_2 + C_3 - S_1 - S_2)} = 4.0 : 1 \tag{2}
\]

Where Benefits =$1000, S_1 =$450, S_2 =$250, C_1 =$400, C_2 =$300, C_3 =$250. In the first example, savings accrued from the intervention, such as decrease in health care costs following a treatment intervention are included as benefit; whereas in the second example savings are included in the denominator as a negative cost.

An alternate approach which is extensively recommended is the Net Social Benefit approach [25, 38, 48, 49]. Under this approach the higher cost option is chosen if, and only if, the additional (marginal) benefits of the higher cost option exceed the additional (marginal) cost of that option.

\[
NSB = [\text{Benefits} + S_1 + S_2 - C_1 - C_2 - + C_3] = 350
\]
The use of the NSB avoids an arbitrary decision as to whether a certain item is a change in costs or a (dis)benefit.

A CBA should also include the lifetime costs and consequences of an intervention and a more complete equation might appear as follows where \( b_i(t) \) = benefits in money terms derived in year \( t \); \( c_i(t) \) costs in money terms in year \( t \); \( 1/(1+r) \) = discount factor at annual interest rate \( r \), and \( n \) = lifetime of project.

\[
NSB_i = \sum_{t=1}^{n} \left( \frac{b_i(t) - c_i(t)}{(1+r)^{t-1}} \right)
\]

The primary goal of a CBA is to identify interventions where the NSB is greater than zero [25]. If the researcher chooses to report the BCR, the BCR must be greater than one for a intervention to be accepted. If the question at hand is whether or not to either accept/reject a given project then BCR may be sufficient. However, if there is a choice between mutually exclusive projects, the BCR and NSB may rank projects differently [25, 48, 50]. The NSB will identify those projects which have the highest net benefit to society.

**Challenges**

Having a theoretical approach, the substantive challenges in conducting a CBA are to identify the alternative policies, and then to identify and quantify the costs and benefits to be included. The remainder of this paper discusses some specific challenges in undertaking an actual cost benefit analysis of two policies for cannabis [51]. This study which found that the NSB for the status quo in New South Wales (cannabis is illegal but there is a cannabis cautioning program for possess/use) was statistically equivalent to the NSB for a highly regulated–legalised model. The analysis included a wide range of costs and benefits, for example: heath care costs, costs to the criminal justice system, impact on youth educational attainment, regulatory costs to government and the individual, well-being, cannabis production, distribution and retail costs, and a valuation of stigma from a criminal record. An obvious major challenge in conducting the CBA, given the lack of an existing example, was the formulation of the details of the legalisation model.
Defining the policy

Context is important when determining the detail of the legalised model. Here, context refers to existing drug laws and how they are enforced, the existing regulatory and legal structures, and current cannabis use patterns. Conducting a CBA without the availability of results from a random controlled trial or a high-quality before-and-after evaluation of a new drug policy requires not only developing a model but generating credible evidence to populate the model. Evaluating such a model requires many assumptions with data or expected outcomes extrapolated from one jurisdiction to another despite major differences in existing legislation and important cultural differences. In conducting a CBA, particularly while modelling a hypothetical legalised policy option, insights as to what might be feasible are essential. For example, in Australia, in recognition that advertising and promotion of tobacco and alcohol products may increase harmful use particularly among youth, there are numerous regulations including the provision of warnings on cigarette packages [52], restrictions as to when and where advertising may occur, where tobacco cannot be consumed [53, 54], and laws requiring plain paper packaging [55]. Several of these laws have met constitutional challenges in other countries; for example, in the US, attempts to limit alcohol advertising have been struck down by the US Supreme Court [56]. Currently, plain paper packaging laws for tobacco are being challenged in the Australian courts.

In a similar fashion, the existing regulatory environment surrounding competition is germane. One of the objectives of the Australian Consumer and Competition Commission is to ensure there is competition in agricultural industries [57]. But given the potential harms, and the well documented actions of the tobacco and alcohol industries to ensure their sales are not restricted, and the legal responsibility of company boards to attempt to maximise profits for their shareholders [52, 58-61] there may be an argument for such a regulated monopoly. On the other hand, advocating for such a framework if the existing regulatory framework or constitution did not permit it, or when the horse as already bolted would be senseless. This may be the situation in California where the legal sales of cannabis for medical use in California, which some describe as a quasi back door legalisation, have seen the establishment of a large number of legal shops, and a substantial decline in the price [12]. In California, where supply has expanded through the legalisation of medical cannabis, it is likely that any attempt to assert a monopoly supply and distribution would at worst be futile, and at best highly resource intensive.
In Australia however, monopoly supply and distribution model may be more achievable if introduced at the outset. Having said that, given the current situation with an apparently competitive market for cannabis with a large number of growers and suppliers providing cannabis to their customers, the question as to how a monopoly government or a non-profit, non-government controlled supply and distribution for cannabis would be implemented remains up for debate. Such a feat may prove to be difficult, financially expensive as well as socially and politically unpalatable. Nonetheless the design of a business model for the supply, distribution and regulation of cannabis and an estimation of the associated resource implications is a necessary task when conducting a CBA of legalisation of cannabis. In undertaking the CBA, information on the costs and consequences of enforcing laws and regulations for alcohol, tobacco and the legal production of opium poppies in Tasmania were utilised.

What is clear at the onset of such a study is that undertaking a CBA is made more complicated by not only the uncertainties around the details of the potential policy but also because of the number of sectors and people affected by the policy. This includes current and future users of cannabis, their wellbeing, their potential educational attainment, productivity, as well as the impact on the health and criminal justice systems, the departments of agriculture, and state and local governments.

Space precludes discussing the complexities and methods of valuing all the potential costs and benefits but there are several areas where it is clear that important challenges remain. Critical to any CBA is the method by which outcomes are valued. Although the measure must be monetary there are multiple methods by which an outcome measure may be converted to a monetary measure. These include the human capital approach, contingent valuation, hedonic pricing and revealed preferences. Each has limitations [38] but as long as double counting is avoided it is possible to utilise several of these methods. The CBA of the two cannabis policies employed contingent valuation to assess the value of stigma from a criminal record; human capital approach to value live years lost from accidents; and revealed preferences to approximate the value of well-being from the choice to consume cannabis.

Quantifying wellbeing from cannabis

In economic consumer theory, the consumer chooses a vector of goods and services, given her or his income, the prices and her individual preferences. Typically cost benefit analyses
in the illicit drug and alcohol fields have not recognised any positive utility from the purchase and consumption use of tobacco, alcohol or illicit drugs [32, 62] but others argue it is necessary to recognise the gain in utility otherwise any intervention to assist with decreasing use of the drug is overvalued [63, 64], or in this case, the move to the legalisation of cannabis would be undervalued. Cannabis users when asked why they consume cannabis provide a number of reasons such as it helps them to relax, to get intoxicated, to socialise, it enhances some activities, lessens boredom, and aids in sleep [65]. Thus to the consumer, the consumption of this drug provides some positive utility, such that they are willing to pay for its use although some, particularly adolescents, may be myopic in assessing their own risks [64]. Given that social welfare is comprised of utilities of each individual member of society, coercive policies or restrictions on the individual’s choice implies some loss of individual welfare compared to an alternative allowing more freedom of choice [39].

The challenge is how to estimate the value of social consumption while acknowledging some consumption is myopic and fails to take account of future risks [63] and some is as result of dependence. The Australian Productivity Commission addressed this issue with gambling by estimating the consumer surplus for the 97.9% of recreational gamblers, and then asserting an estimate of the loss due to the 2.1% of the problem gamblers [64, 66]. Another approach to estimating the offset for addiction to tobacco use was undertaken by Weimer et al. (2009) with data from a willingness to pay study for tobacco cessation programs and data on demand for tobacco to calculate a consumer surplus with and without addiction. The ratio of the consumer surpluses is, it is argued, the percentage loss in consumer surplus which should be included in the CBA [63]. However, and importantly, for the CBA of cannabis policies the shape of the demand curve for cannabis is not known [12] for either the current legal status or the projected legalisation model, thus the traditional consumer surplus cannot be estimated. In the absence of this information, a proxy of the additional value gained from the policy change was estimated by first estimating the expenditure on cannabis consumed under the status quo and then under legalisation. From each of these amounts, the amount of cannabis consumed by both those who are less than 21 years of age and those with a cannabis use disorder (CUD) was subtracted, crudely adjusting downward for those who may be myopic when assessing their own risks and those who are dependent. This assumes that these two groups of consumers receive no benefit from the cannabis consumed (thus possibly underestimating benefits). This exercise also assumed the price remains unchanged.
While this exercise provided a total value based on revealed preferences, knowledge of the shape of the demand curve both under the status quo and for a legalised–regulated policy option is important for documenting the potential gain in utility. In the absence of actual policy change, behavioural economics research might be brought to bear on this question.

*Costs/savings for the criminal justice system*

Drug-related crime constitutes a large part of the societal costs of drug use [37](p 177); however, the relationship between cannabis use and crime is less clear-cut. Violence in the cannabis market is rare [67], in part due to the fact that most transactions are not visible as they occur in private homes or other off-street locations. Fattah (1971), after critically reviewing the relationship between cannabis and crime, reports there was little agreement on a causal relationship between cannabis and crime [68]. Other reviews have concluded that violent behaviour is usually either decreased or unaffected by cannabis use [69].

In New South Wales, 79% of all cannabis offences are possession/use offences, many of which will be the result of routine policing activities [70] and dealt with by issuing a caution. Top-down methods of costing criminal justice activities [11, 71] infer that the average cost of managing a posses/use offence is the same as every other drug offence, and importantly it also equates to the average cost for all other offences such as homicides. This is not a plausible assumption.

For a CBA, detailed costing of police activities related to cannabis offences is important. Micro-costing was undertaken through surveying police as to the time, and number of officers required to manage the various offenses for both adults and juveniles. The cost estimates obtained through this method [51] were eight times smaller than when top down estimates were used. Others have found similar comparisons when costs to the criminal justice system are examined closely [72]. There remains considerable work to be done in understanding the opportunity costs related policing cannabis supply and gang activities. This will likely vary considerably by jurisdiction.

*Assessing the potential impact on the education attainment/future productivity*

The literature is divided as to the impact of cannabis use on productivity, educational attainment and employment. Conditional on being in employment, it appears that cannabis has no detectable impact on earnings (and thus, presumably, on productivity), with positive
impacts being as common in the research literature as negative ones [37]. This is however, one area where context and cultural differences may impact upon the outcomes as opportunities for employment may differ.

It is known that cannabis acutely impairs cognitive performance [7] but whether there is lasting cognitive impairment remains open to debate. The issue of the impact of heavy cannabis use on the still developing adolescent brain and any subsequent negative impact on educational attainment also remains contentious although there is some evidence that early initiation (in adolescence) is correlated with heavier and longer period of use [73]. Attempting to identify the quantum of any potential negative effect of long-term use is a challenge as many studies exploring these issues have not controlled adequately for pre-existing characteristics [7] or not used sufficiently subtle measures of cognition (Solowij, 1998 in [74]. Although there appears to be evidence of short-term memory deficits and impaired attention spans in those with long-term use (greater than 10 years) debate continues as to whether these deficits are related to drug effects, abstinence effects, changes in the brain or cumulative THC exposure [74]. Even more unclear are the related societal costs and (dis)benefits.

Although population surveys often find an association between cannabis use and poor educational attainment and early school leaving, the issue of causality has not yet been resolved [74-76]. Three recently published papers [76-78] epitomise the challenges and debate in this area. One Australian study, using cross-sectional data, found that boys who start using cannabis at age 13 reduce their educational attainment by 1.1 years; and girls by 1.9 years, while starting cannabis use at age 15 leads to a decrease of educational attainment of 0.8 years for boys and 1.3 years for girls [78]. A meta-analysis of longitudinal data from three Australasian cohort studies suggest that early use of cannabis accounts for 17% of the overall rate of failing to complete high school, 5% of the overall rate of failure to attend university and 3% of the overall rate to complete a university degree compared to those who do not initiate cannabis use [77]. These authors, while making the point that caution still needs to be applied when asserting a causal relationship, argue that these data support the interpretation that cannabis use causes a negative impact on educational attainment. A third study used a single longitudinal data set collected in the US state of South Dakota. Data was collected at multiple points and propensity score methods to account for differences in characteristics of non-users and users prior to uptake of cannabis [76]. This paper found that
while there was a relationship between cannabis use and early school leaving, after they included a number of demographics, family characteristics, and pre-existing differences between users and non-users the odds ratio decreased from 5.595 to 2.406. With the addition of other variables on prior academic achievement, and previous history of smoking cigarettes they concluded that their findings do not support a causal model in which cannabis use results in dropout through cognitive impairment.

In order to obtain an monetary estimate for the CBA of the potential impact of cannabis use on the developing brain a range of data sources were used including the number who started using cannabis before the age of 15 [78], the average years of education lost for males and females individually [76-78] and the average return for an additional year of schooling of 10% (range 8% to 12%) of average earnings [78, 79].

**Discussion**

The interest in legalising cannabis waxes and wanes but recently there appears to be a resurgence in interest worldwide [80-86]. Exploring the costs and benefits of different policies for cannabis is complex and contentious. Although it is unlikely that all the costs and benefits can ever be included, the complexity of the policies and the often conflicting outcomes can expose economic methods to the criticism of having overlooked significant factors. There is, however, still research to be done, some of which cannot be undertaken until a jurisdiction legalises cannabis and even then care will need to be taken in generalising across different jurisdictions.

All the estimates of costs and benefits in the CBA described were for only one year. In future work, this limitation would need to be addressed in order to capture the long term outcomes. Herein lays another challenge. The decision to undertake a CBA based on one year and assuming equilibrium was based on the uncertainty around many data points. Using the example of the impact on educational attainment, data from longitudinal studies would be required to assess the lifetime impact of cannabis use as an adolescent. The impact of potential lost wages (annualised) was a significant factor in the results of the CBA [51], but what remains unknown is whether this decrease in educational attainment is a permanent effect, or if cannabis use stop in late adolescence whether individuals return to the norm.

Knowing the price of cannabis and the shape of the demand curve for both the current policy and for legalisation is also essential. While information on the current price of cannabis was
obtained from police sources and from street interviews with drug users [87] these data are limited and are not sufficient to allow a determination of the shape of the demand curve for cannabis [12, 37, 88] nor do they provide any indication of the potential size of the shift of the demand curve should legalisation occur. In the absence of legalisation behavioural economics studies may be able to provide insights on the shape of the demand curve. A related question pertains to whether alcohol and cannabis are substitutes or complements, and whether this varies by age, gender and use patterns.

There is also a need for research on the impact of various regulations and laws. Understanding the relationship between the minutia of the regulatory system and those involved (users, growers, suppliers and distributors) is crucial to understanding resource flows, the impact on the black market, and importantly the impact on consumption [56].

Many will question, given the uncertainty around the estimates whether it is worth the challenge of conducting cost benefit analyses of current and potential drug policies. I would argue that not only is it useful, but it is essential. Only with ongoing research such as this will we identify and fill gaps in the evidence base. Policy development is an iterative process but having good evidence to inject into the process may result in fewer unexpected consequences.
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