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## **COSTING POLICY CHANGE:**

### **A Case Study In Applying The GPI Cost Of Crime Methodology To A Hypothetical Policy Shift from Legalized Cannabis Use to Prohibition of Cannabis as a Prosecutable Offence**

#### ***1. Background: Relevance of the GPI Method to the Costing Exercise***

GPI Atlantic is a non-profit research group that is constructing an index of wellbeing and sustainable development for Nova Scotia as a pilot project for Canada. The current use of economic growth measures based on the Gross Domestic Product to assess how “well off” we are as a society sends highly misleading signals to policy makers.

- Natural resource depletion is counted as economic gain;
- Growth measures make no distinction between economic activity that improves wellbeing and that which signals a decline in quality of life;
- The value of unpaid work is ignored;
- The economy can grow even as inequality increases;
- Longer work hours make the economy grow and no value is given to leisure time.

For example, crime contributes to economic growth because it stimulates spending on prisons, police, courts, burglar alarms and security systems. *The Wall Street Journal* noted that the Oklahoma City explosion stimulated the security industry, which now contributes \$55 billion a year to the U.S. economy. Prison building contributes \$7 billion more and maintaining those prisons contributes another \$35 billion a year. Indeed, imprisonment has been one of the fastest growing sectors of the “dynamic” and “robust” U.S. economy of the last 10 years, growing at an average 6.2% a year. There are now more than 2 million Americans behind bars.

Similarly pollution, sickness, natural disasters, accidents, and natural resource depletion all make the economy grow. In short, economic growth measures and standard economic accounting mechanisms are incapable of signaling whether society is better off or worse off as the result of a particular policy action. The architects of national income accounting knew this. Simon Kuznets, Nobel Prize winner, warned more than 50 years ago that current income accounting methods should not be used to assess the welfare of a nation. His advice was not heeded, and today we do not have adequate measures to assess whether policy outcomes will produce long-term benefit or harm.

This is the challenge that the Genuine Progress Index (GPI) attempts to address. The GPI consists of 22 social, economic and environmental components, and attempts to provide a more accurate and comprehensive measure of wellbeing than current measures based on the current income accounting methods of the GDP. To this end the GPI values natural capital and social assets that are ignored in standard accounting systems, where, at best,

they are regarded as “externalities.” It assesses the value of non-market assets as well as manufactured capital and market transactions, and it applies “full-cost accounting” mechanisms to specific policy applications.

There are three fundamental principles of “full cost accounting” that not only provide greater accuracy in assessing benefits and costs, but also encourage greater efficiency by preventing the displacement of costs to the public arena. These principles are that:

- 1) External costs are internalized.
- 2) Non-market as well as market assets and transactions are specifically valued.
- 3) Fixed costs are translated into variable ones related to actual usage.

In addition, the GPI uses a capital approach to accounting, that assesses the value of long-term investments in social and natural capital and that counts their depletion or degradation as depreciation, just as in assessments of manufactured capital.

The Genuine Progress Index attempts to apply these principles *both* at the macro-level, as measures of wellbeing for a nation, region, province or community, and *also* at the micro-level in relation to specific policies. It is the latter application that is of particular interest in this Justice Canada costing exercise.

In its previous work, GPI Atlantic has done such full cost accounting policy analyses in:

- costing the potential for a 10% shift from road to rail freight in Nova Scotia;
- assessing the long-term benefits and costs of building sewage treatment plants for Halifax Harbour;
- assessing the potential for shifts to sustainable forest practices on Maritime woodlots.

The first two of these studies are currently available on the GPI web site at [www.gpiatlantic.org](http://www.gpiatlantic.org) and the third is now in final draft stage and will be posted there this spring.

In addition, the GPI *Water Quality Accounts*, *The Cost of Crime in Nova Scotia*, *The Economic Value of Civic and Voluntary Work in Nova Scotia*, *The Economic Value of Unpaid Housework and Child Care in Nova Scotia*, *The Cost of Tobacco in Nova Scotia*, *The Cost of Obesity* (separate reports for eight provinces), *The Cost of HIV/AIDS in Canada*, and other GPI studies demonstrate the valuations of social assets and natural capital at the macro level. All these reports are also available on the GPI web site.

In summary form, this explains the general approach to costing policy changes that is used in the GPI. Further details and more information are contained in a 135-page document on the methodologies, framework and approach of the GPI that is also available on the web site. In its simplest form, it can be said that the GPI approach is to elucidate the full range of benefits and costs – social, economic and environmental – associated with particular policy choices. Because many of these benefits and costs are currently hidden in standard accounting mechanisms, the GPI results can provide more accurate and comprehensive assessments of policy choices than methods currently in use.

### ***2. Limitations of Monetary Estimations***

A fundamental tenet of the GPI approach is that all cost exercises must be based on actual physical data. Monetary estimates are considered a *secondary* and *derivative* estimate of actual values and costs. In justice costs, the *primary* value is the benefit of a peaceful, secure and harmonious society to its inhabitants, and the deterioration of that social capital asset is first measured by actual crime rates. Economic and monetary cost estimates are derived from those non-monetary values and from physical crime rates. Similarly the (secondary) monetary value of work is based on the (primary) non-monetary value of physical *time use*, and the value of a forest is derived from the actual physical functions performed by that forest.

It is therefore dangerous to use monetary cost estimates to assess wellbeing and progress directly. They are a necessary *strategy* given the primacy of budgetary considerations in the policy arena, and full cost mechanisms are an essential antidote to the highly misleading use of the current income accounting mechanisms now in use. But monetization should never be seen in its own right as an accurate guide to policy making. Rather, the most effective and correct use of economic costing mechanisms is to point towards the underlying physical data.

An example of the difficulty of using monetary assessments to guide policy and assess progress is the case of investment in prisoner rehabilitation programs. On the one hand, such programs are a “regrettable” expenditure, in that they would not be necessary if there were no crime. On the other hand, the same expenditure is an “investment” in the future that will likely protect innocent people and result in a more productive life for the offender. Therefore it is impossible to assess whether “*more*” of such investments constitutes progress or lack of progress. Higher rehabilitation costs might be a sign of higher rates of crime and imprisonment; and they might equally signal greater public and government commitment to a safer future. The size of the costs in itself tells us nothing about whether we are making progress. Only physical data (in this case crime rates and recidivism rates) can tell us whether we are actually making progress.

The most practical use of monetary assessment is in comparative cost-benefit analyses that assess the cost-effectiveness of alternative policy choices designed to achieve the same physical outcome. It is the achievement of the outcome that measures progress and success, and the setting of the outcome target is dependent on political will and social values, not on cost-benefit analysis. The monetary cost-benefit analysis can help determine the most cost-effective means to achieve that outcome, but should never be used (as unfortunately it too often is) as a determinant of policy goals.

### **3. Costing Policy Change – Cost Categories**

Because the chain of cause and effect is infinite, it is theoretically possible to have a limitless number of cost categories, and *impossible* to have a complete “full” cost accounting of any scenario. Therefore, even “full cost accounting” mechanisms must specify the major categories to be considered and must acknowledge the limits of their

own frameworks. While they may justly claim to be significantly more comprehensive and far more accurate than conventional accounting system that make no qualitative distinctions at all, they are also approximations. To indicate that reality, GPI Atlantic always rounds its estimates. It also makes clear that any cost estimate is not a “final” assessment but one that is always subject to improvements in data sources and methodologies.

With the important caveats listed above, the GPI considers the following broad range of costs related to justice issues. For the purpose of this particular exercise, cannabis possession will here be considered a “crime” under proposed legislation to prohibit the substance, and the terms “crime” and “offence” are therefore used interchangeably.

### **A. Market Costs and Costs Directly Measurable in Monetary Terms**

- 1) *Victim Losses*. These include direct monetary and property losses; medical costs; and indirect costs to the economy due to lost production and absenteeism.
- 2) *Public Justice Costs*. These include police, court and corrections costs.
- 3) *Private Defensive Expenditures*. These include both “front end” preventive costs, and also detection and remedial/restoration costs. Expenditures on security systems, security guards, private investigators, store surveillance and “target hardening,” and theft insurance are examples of defensive expenditures. The United Nations *Handbook of National Accounting* also includes the costs of compensating for or repairing damage in its definition of “defensive expenditures,” though care must be taken not to double count these costs and victim losses.

Defensive expenditures are justly considered “costs,” because they would not be necessary if there were no crime. They are sometimes called “regrettable expenditures” to denote the reality that they do not contribute to a net improvement in wellbeing, but are designed to prevent or compensate for an actual deterioration in wellbeing. An example of a “defensive” or “regrettable” expenditure in another field would be the purchase of bottled water or filtration systems when households do not trust the drinking water coming from their taps.

### **B. Non-Market and Comprehensive Cost Estimates**

The three cost categories used above are generally summed as “conservative” estimates of the costs of crime. In most analyses, however, they constitute less than 50% of the full costs of crime. “Comprehensive” cost estimates are considered more accurate portrayals of actual crime and justice costs, but they include several categories that are much more difficult to quantify than the three categories listed above.

- 4) *Victim Losses due to Unreported Crime*. Victimization surveys are far more accurate guides to actual victim losses due to crime than the police-reported crime statistics

that are generally used in standard accounting mechanisms of justice costs. This will be particularly true in the costing exercise to be considered here, since the prohibition of cannabis is unlikely to be widely enforced. A cost-benefit analysis must therefore balance the cost of cannabis use against the cost of prohibiting cannabis, with any assessment of the former necessarily including estimates of unreported offences.

- 5) *Unpaid Work Losses and Costs.* These are almost never considered in standard accounting mechanisms that regard households as “consumers” rather than “producers.” In actual fact, however, households produce many goods and services for “free” that are also exchanged for money in the market economy, -- including food preparation, housecleaning and domestic services, child care, repair and maintenance of the housing capital stock, and so on. All these services require work and have value. Indeed, it may be argued that the history of industrialization has, to a large extent, been the movement of goods and services from the household economy to the market economy.

For these reasons it is essential to estimate the value of unpaid household work that is lost due to crime or crime prevention efforts. In addition, if actual time is lost by crime victims, then the costs of foregone community voluntary work must also be considered. As well, voluntary work efforts geared to prevention, detection, justice and rehabilitation (Neighbourhood Watch, Crime Stoppers, Legal Aid, John Howard and Elizabeth Fry societies, etc.) are all “costs” of crime, since they would be unnecessary if there were no crime.

- 6) *Hidden Business Losses.* There are hidden business costs that are rarely accounted for because they are passed on to consumers in the price of goods and services. For example, business shrinkage due to shoplifting and employee theft; or higher insurance premiums due to insurance fraud are hidden costs of crime for which consumers ultimately pay. Nevertheless, these costs *can* be estimated through surveys conducted by the Retail Council of Canada, the Canadian Coalition Against Insurance Fraud and other industry associations, and should be included in any comprehensive estimate of crime and justice costs.
- 7) *Personal Suffering due to Crime.* These are the most difficult cost estimates. Nevertheless, they are generally the largest single component of any comprehensive cost estimate of crime and justice costs, and undeniably one of the most important *actual* costs from the perspective of crime victims. In the case of victims of violent crime or abuse, there may be life-long disabilities and psychological scars that inhibit effective functioning and that are far in excess of the medical, hospital and monetary losses considered in (1) above. In such cases, court awards for “shattered lives” are often used as a proxy for this suffering. As noted below, the case of cannabis possession makes this particular cost estimate particularly challenging.

#### **4. Application of the Framework and Cost Categories to Cannabis Prohibition**

It now remains to apply the GPI approach to the cost categories considered above for the particular scenario under consideration. Each of the above categories will be considered in turn with reference to the kinds of data sources and methods that might be appropriate. For further details on sources, methods and costing mechanisms, please see Colin Dodds and Ronald Colman, *The Cost of Crime in Nova Scotia*, GPI Atlantic, Halifax, 1999, available on the GPI web site at [www.gpiatlantic.org](http://www.gpiatlantic.org). Note that sources cited below are generally those available up to the first part of 1999. They will need to be updated using more recent available data.

In order to limit the scope of this analysis, the following summary considers only potential justice-related costs. The analysis does not, for example, enter into any discussion of potential health costs related to cannabis use, or of the impacts of cannabis use on learning, work performance or other social assets.

A more comprehensive costing analysis should begin with a literature review of costs and benefits associated with use of the substance itself. Such a comprehensive costing exercise would need to determine the percentage decrease or increase in actual *use* of the substance that is likely to result from prohibition. It would then consult the medical and social science literature to assess the likely impacts of that use on health, education, labour productivity and other social assets before assessing economic benefits and costs.

This paper does not consider these wider issues related to actual *use* of the substance, but confines itself to the specific justice costs related to *prohibition* of cannabis and to making its possession an *offence*, as described in the exercise scenario. This narrower scope is not recommended for a full cost analysis, but will suffice here to demonstrate the methods and data sources used by GPI Atlantic in such work.

##### **4.1. Victim Losses.**

In the case of cannabis prohibition, it will be necessary to begin with two clear definitions:

- a) Is cannabis possession a “victim-less” crime? And how is “victim-less” defined?
- b) How can *direct* victim losses be distinguished from *indirect* victim losses?

This is not the place to enter a discussion on question (a). Suffice to say that if cannabis possession is “victim-less” (unlike crimes against the person or against property), then *direct* “victim losses” can be considered a zero cost by definition.

However, it is possible that there may be *indirect* costs borne by crime victims that arise from the prohibition of cannabis itself (rather than from its use). For example, illegal drug deals may produce *other* crimes (against persons or property) that will carry losses. In addition, if prohibition raises prices for the substance, then potential purchasers may

engage in other types of crimes (against persons or property) in order to obtain the means to make their purchases.

### **Assessment Methodology and Data Sources for Indirect Victim Losses**

#### ***Step 1: Estimating Indirect Physical Crime Rate Data for Crimes Generated by Cannabis Prohibition***

As noted above, a fundamental principle in costing exercises is always to base costing estimates on physical data. Therefore, a prerequisite to assessing indirect victim losses is to produce data (in this case a time series) that demonstrates the likely or potential change in the incidence of crimes against persons or property that will arise from cannabis prohibition. If such a change cannot be demonstrated, then costs due to indirect victim losses must be assumed to be zero.

In order to assess potential indirect victim costs (and similar costs on which data are not available in the location of the assessment), the GPI Atlantic method is to begin with a search for

- (i) comparable case studies in other jurisdictions (e.g. other provinces or countries) that have prohibited cannabis, in order to determine whether the policy change produced an increase in certain types of crimes;
- (ii) assessments of such changes in crime incidence from the academic literature, based on historical evidence, laboratory studies, and other sources.

In addition, efforts should be made to assess from these sources, the percentage of crimes of each type or category likely to result from the projected policy change. If this search produces evidence that the prohibition of cannabis will likely produce an  $x\%$  increase in certain categories of property crimes, and a  $y\%$  increase in certain categories of crimes against the person, then it is possible to proceed to Step Two below.

Another possibility in the case of this scenario is to make estimates of current and historical crimes attributable to illegal sales and trafficking of cannabis. Although this will not allow a comparative assessment of crime rates in a situation where possession and sale of cannabis is legal, it will nevertheless allow estimates of the types, magnitude and pervasiveness of crimes likely to be generated by the projected policy shift.

It must be emphasized here that this initial literature review, case study search and estimate of projected crime rates likely to be generated by the policy shift is the most important step in the whole procedure. If this can be accomplished successfully, then costing procedures are mere technical exercises for which spreadsheets can be readily created.

If the available evidence on projected crime rates indicates a likely decrease in crime due to the policy shift, then the following costing results will be presented as potential *savings* rather than expenditures. Step Two below assumes a projected increase in crime

due to prohibition. If the evidence in Step One indicates a projected decrease in crime, then the wording in the following paragraphs must be changed accordingly to reflect expected savings. However the costing procedures remain the same.

***Step 2. Costing Procedures for Indirect Victim Losses due to Crimes Generated by Cannabis Prohibition***

As noted above, there are several categories of victim losses that must be defined and distinguished according to the evidence uncovered in Step One above. These include losses of money and property, medical costs due to physical injury, and loss of life, all of which are part of the “conservative” estimate of costs. Further victim costs, due to loss of unpaid work services and personal suffering due to injury or property loss are included in the “comprehensive” cost estimate.

These costs are categorized according to the standard crime categories in the uniform crime statistics maintained by *Juristat* and available in Statistics Canada’s *CANSIM* database (see GPI Atlantic, *The Cost of Crime in Nova Scotia* for precise references). In relation to cannabis possession, the most pertinent crime categories related to indirect crime costs due to prohibition are likely to include personal theft; household theft; break and enter; assault; and robbery. Other crime categories such as vandalism and sexual assault can likely be omitted from the analysis of this particular scenario.

The ratios of reported to unreported crimes within each category are then obtained from the victimization surveys in Statistics Canada’s *General Social Survey*, and from analytical papers produced both by Statistics Canada and by the Solicitor-General’s office. These analytical reports include:

- Statistics Canada, *An overview of the Differences between Police-Reported and Victim-Reported Crime*, 1997, catalogue no. 85-542;
- Solicitor-General Canada, *Canadian Urban Victimization Survey: Reported and Unreported Crimes*, Bulletin no. 2, 1984.

**2a) Monetary and Property Losses**

Property and monetary victim costs for each crime can then be assessed using the report of the Solicitor-General of Canada, *Canadian Urban Victimization Survey, Bulletin 5: Cost of Crime to Victims*, 1985, which is the only direct survey-based estimate of Canadian victim losses in monetary terms.

Per incident costs from that survey translated into 1997 dollars for the crime categories considered above are: theft - \$2,188; robbery - \$2,934; break and enter - \$2,370; assault - \$224. It should be noted that assault losses here include only direct economic and monetary losses, and do not include medical and injury costs.

These per incident costs would then be multiplied by the number of incidents projected to occur due to “indirect” crimes generated by cannabis prohibition. Based on the literature,



it is clear that unreported crimes tend to be less serious than reported crimes. Therefore, it might be assumed that victim losses for unreported crimes would be discounted accordingly. However, the cost estimates reported in the 1985 study were based on a victimization survey rather than on police-reported crimes alone, and the cost estimates can therefore be used as a rough average for both reported and unreported crimes. If only police-reported crimes were used as the basis of the costing exercise, it would be necessary to inflate the cost estimates according to estimates of the average severity of police-reported crime compared to unreported crime.

Because the existing victim loss cost estimates per incident are based on such outdated data, GPI Atlantic is currently conducting a survey in two Nova Scotia communities (Kings County and Glace Bay) to collect data on victim losses due to crime. These data will (later this year) become the most current available source of victim loss information in Canada, and should allow for more accurate assessments of victim losses in the future.

Another failing in the data is that the data available in the 1985 Solicitor-General's report are currently published only at the national level. If costing procedures were incorporated more systematically into future Justice Canada assessments, GPI Atlantic would strongly recommend that the next General Social Survey victimization cycle include questions on victim losses that will allow updates of the earlier information at the national and provincial levels.

### **2b) Medical Costs**

No available data allow direct assessments of physician and drug costs due to crime. However, victimization surveys do allow assessments of hospitalization costs due to crime. Statistics Canada's *Hospital Indicators* and *Hospital Statistics* databases allow per day assessments of hospital costs due to crime. Existing Health Canada ratios between hospital costs and drug and medical costs (Health Canada, 1997, *The Economic Burden of Illness in Canada 1993*) then allow indirect estimates of medical and drug costs for total estimates of medical costs. This would be the major cost category for assaults due to crimes generated by the prohibition of cannabis.

### **2c) Production Losses**

These indirect victim losses fall into two major categories:

- 1) Production losses due to homicide, and
- 2) Production losses due to absenteeism

Because these losses are borne by society rather than by individuals and families alone, it is more accurate to assess costs according to GDP per capita calculations rather than according to lost earnings alone.

GPI Atlantic uses a very complex procedure for assessing production losses due to homicide (see *Cost of Crime in Nova Scotia* pages 120-123). Due to the accuracy of available data on homicide victims and the fact that these are always police-reported, it is

possible to find data on the exact age of homicide victims at the time of death, and therefore to assess the number of productive work-force years lost. Again, the relevance of these estimates to this particular scenario (cannabis prohibition) depends completely on the accuracy of projected crime-rate extrapolations from other jurisdictions, and of projections of likely homicides that may result from drug trade crimes generated by prohibition.

A simpler procedure for estimating costs due to homicide is to take a standard estimate (like Transport Canada's \$1.56 million per road fatality) and multiply by the number of projected homicides due to cannabis prohibition. The results will not be as accurate as those based on the actual age of victims, but GPI Atlantic found that the two methods yielded broadly comparable results.

Losses due to absenteeism are based on victimization survey data on days lost due to particular categories of crime. As in the monetary cost estimates above, separate estimates must be derived in this category for each type of crime, as days lost vary considerably in different crime categories. Therefore the ratios for different types of crime in the monetary loss section should also be applied to absenteeism cost estimates based on average work days lost for each crime category. As above, GDP per capita figures more accurately represent the loss to society, rather than estimates based on wage losses alone, which represent individual victim costs.

Again, the new GPI Atlantic victimization data being collected this year in Kings County and industrial Cape Breton will allow new and updated estimates of bed-days, days of work lost and other production-related expenses due to crime.

## **2d) Unpaid Work Losses**

Unpaid work loss estimates (used in comprehensive estimates of crime costs) are based on Statistics Canada's time use surveys, also part of the General Social Survey cycles. The most recent available data are from the 1998 General Social Survey time use survey (Statistics Canada, *Overview of the Time Use of Canadians*), and are available by province through custom tabulations. Labour Force survey data can then be used to assess the ratio of paid to unpaid work hours in the population as a whole (Colman, Ronald, *The Economic Value of Unpaid Housework and Child Care in Nova Scotia*, GPI Atlantic, 1998). Total unpaid work hours lost due to crime can then be estimated by extrapolating from the data in 2b) and 2c) above in accordance with this ratio of paid to unpaid work hours.

The actual cost estimates are derived by using Statistics Canada valuations of households' unpaid work, which vary by province according to existing rates of pay for market work that is the equivalent of volunteer work, domestic services, child care and other forms of unpaid work. These estimates are available in Statistics Canada, *Households' Unpaid Work: Measurement and Valuation*, catalogue no. 13-603E, 1995.

For Nova Scotia, the values in 1997 dollars are \$13.02 an hour for volunteer work, and \$9.20 an hour for household work.

## **2e) Costs of Suffering**

Traditionally this is the single largest category of crime costs in comprehensive estimates. It reflects the fact, for example, that a permanent disability or loss of life has far greater impacts on individuals, families, neighbourhoods and society than simple economic production losses due to the victim's inability to perform paid work. Just as insurance companies provide monetary compensation for the loss of limbs, so courts grant awards designed to compensate victims for suffering beyond mere production losses.

In the words of the Solicitor-General of Canada:

*Many of the most important costs of crime – the psychological and emotional suffering of victims, the fear and insecurity of those who believe they are at risk, the pain and often anger of the families of victims, the loss of freedom and potential productive labour that incarceration means for the criminal who is caught – cannot be measured in dollars. But these largely unmeasurable costs must be a significant part of any cost-benefit equation.*

Canadian Urban Victimization Survey, op, cit.

Nevertheless, a ground-breaking study by Brandon Welsh and Irvin Waller at the University of Ottawa's Department of Criminology has attempted to monetize these costs by examining court awards. Welsh and Waller's results have also been applied by Paul Brantingham and Stephen Easton in their assessment of Canadian crime costs ("The Crime Bill: Who Pays and How Much?" *Fraser Forum*, The Fraser Institute, 1996). These indirect costs due to suffering are also recognized in the National Crime Prevention Centre's own estimates of crime costs in Canada.

### **Important Note:**

As with all victim loss estimates, the accuracy of cost estimates depends completely on the reliability of projections for crime rates and types of crime likely to result from the prohibition of cannabis. It must be strongly emphasized again, therefore, that cost estimates are only secondary derivatives and can never be more accurate than the physical crime rate data on which they are based.

To repeat: The most critical step in all assessments is therefore the initial literature review of comparable case studies that may be used to project likely outcomes of policy changes in Canada. If we are satisfied that we can predict with some reliability the potential crime that may be generated by cannabis prohibition, then the cost estimates are simply technical exercises that follow established formulae for which spreadsheets can be readily created.

What sounds complex in the explanations given above can be simplified greatly in the use of such spreadsheets. Formulae for each calculation can be determined from the data sources, and the major variable then becomes the projected increase or decrease in each category of crime that will be generated by prohibition of cannabis.

### **4.2 Public Justice Costs due to Cannabis Prohibition**

Although public justice costs (police, courts, corrections) generally amount to about half of conservative crime cost estimates and one-quarter of comprehensive crime cost estimates, they can be expected to be by far the largest cost category in the scenario under consideration here. This is due to the fact that all the victim loss estimates discussed above are projections for indirect losses due to crimes that may be generated by cannabis prohibition, rather than direct losses due to the offence of possession itself. We have already assumed direct victim losses to be zero by definition, if cannabis use is classified as a “victim-less” crime.

Most crime cost estimates (GPI Atlantic, National Crime Prevention Centre, Fraser Institute) assess the costs of victim suffering at about one-quarter of total comprehensive crime costs. When these are added to the cost of direct victim losses and when unreported and unpaid victim losses are included, total victim loss estimates generally amount to about 50% of total comprehensive crime costs. The GPI Atlantic study found total victim losses to amount to 47.6% of comprehensive crime costs.

For victimless crimes that ratio can be expected to be very different indeed. ***This is a caution against using generalized crime cost estimates to cost particular policy scenarios.*** Projected outcomes from the particular scenario must be carefully assessed based on as many concrete comparable case studies as possible. Without such preliminary work with the physical data, costing exercises can send misleading signals to policy makers.

No such actual assessment has been done here for the scenario under consideration. However, it may be assumed that minimal victim losses will render public justice costs the major cost component in this scenario. In other words *enforcement* of the new law (a public “defensive” expenditure) will likely be costly. It will require a significantly increased police presence, which can be assessed by current estimates of prevalence of cannabis use. Both Statistics Canada and provincial health departments have conducted drug use surveys; and reliable statistics are also available in the medical literature.

In addition more arrests will put increasing pressure on the court system and on the corrections system. While conventional GDP-based measures of wellbeing assess increased employment in police, the legal profession, courts and corrections as contributions to economic growth and prosperity, the GPI counts all these expenditures as defensive or “regrettable” costs borne by the taxpayer. From the GPI perspective a diminution in these costs represents *savings* that can be invested in more productive welfare-enhancing activities that will also produce employment of a different type.

Cost estimates for excess public justice expenditures that can be expected when cannabis is prohibited and a prosecutable offence must therefore be based on concrete estimates of projected increased police employment (from which increased administration and infrastructure costs can be extrapolated), increased court load, and higher rates of incarceration. These physical estimates, based on empirical studies in various jurisdictions, will be an essential prerequisite for any costing exercise.

*In addition*, the proposed legislation prohibiting cannabis possession and use must be carefully examined, as conditions of prosecution and length of prison sentences will have a major effect on public justice costs. The cost of prison days is readily available for different categories of prison, so the nature of the legislation and the penalties it specifies are important variables in assessing projected public justice costs. These are not specified in the present costing exercise, but will be important in any actual practical application of the methods described here.

The costs deriving from projected increases in police employment, court loads and incarceration rates can be very substantial indeed, as witnessed by examining U.S. data sources and trends in recent years. In that country significant increases in imprisonment are largely due to higher rates of prosecution and longer sentences for drug offences. Policy shifts can therefore have very significant cost implications that are hidden in the current tendency to count increased police and corrections employment as contributions to economic growth and prosperity.

#### **Public justice expenditure data sources.**

Public justice costs are far more easily available than victim loss data and can be gathered primarily from Statistics Canada data sources, although GPI Atlantic found that some provincial level data, particularly for corrections, were available only in provincial Justice Department files and were not available in national databases. In each case, unit costs can be established, for example, per additional police officer, or per additional corrections guard.

- a) Police costs are estimated in Statistics Canada, *Police Personnel and Expenditures in Canada – 1997 and 1998*, catalogue no. 85F0019, and in Statistics Canada's *CANSIM* database. Assessments can be made at the municipal level using Statistics Canada, *Crime and Police Resources in Canadian Municipalities, 1997*, catalogue no. 85-223. Historical police data are available in Statistics Canada, *Police Administration Statistics, 1967-77*, catalogue no.85-204 and in the *CANSIM* database. These historical data are important to assess potential savings that could be expected if police : population ratios were at lower historical levels.
- b) Court costs are more difficult to estimate than police expenditures due to inconsistent historical data classifications and due to the difficulty of separating criminal and civil legal costs. However, recent estimates are available in the following Canadian Centre for Justice Statistics publications: "Justice Spending in Canada," *Juristat*, catalogue

no. 85-002, volume 17, #3; “Prosecutions: Resources, Expenditures and Personnel, 1994-95,” *Juristat*, catalogue no. 85-402, October 1996; “Adult Criminal Court Statistics,” *Juristat*, catalogue no. 85-002, volume 18 no. 7; “Legal Aid in Canada: 1996-97,” *Juristat*, catalogue no. 85-002, volume 18, no. 10. Legal costs are available from Statistics Canada’s *Family Expenditure Surveys* (catalogue no. 62-555).

- c) Corrections costs can be derived from Statistics Canada, *1978-1996 Correctional Services in Canada*, catalogue no. 85-211, and from the *CANSIM* database. Average daily inmate costs are calculated by dividing “Institutional Operating Costs” by “Total Days Stay.” These costs are also separately described for each province in Statistics Canada, “Average Daily Inmate Cost of Corrections by Province,” *Juristat*, catalogue no. 85-002, volume 12, no. 22.
- d) Given the importance of assessing the costs of cannabis use among youth, and the consequent justice expenditures that are likely to derive from higher rates of arrest and prosecution of youth offenders, it is important to go beyond the standard adult justice cost expenditures. Data are available in Statistics Canada, “A Profile of Youth Justice in Canada,” *Juristat*, catalogue no. 85-544.

GPI Atlantic, in order to retain consistency of method, also assessed the indirect costs of economic production losses (see victim losses above) due to incarceration of offenders. In other words, there are indirect losses to the economy and to society that result from taking actively employed workers out of the work force, and these costs are additional to the direct taxpayer costs of public justice services.

However, the higher rate of unemployment of offenders was taken into account in these estimates to assess lost production days only among those who were employed at the time of arrest. Provincial Justice Department data indicated that 22% of Nova Scotia inmates were employed full-time at time of arrest, and another 6% were working at part-time, seasonal and other temporary forms of employment. In addition, wage rates were discounted to reflect the generally lower educational level of inmates.

### ***4.3 Defensive Expenditures due to Cannabis Prohibition***

The limited time and budget associated with this costing exercise does not permit a detailed examination of other likely expenditures due to cannabis prohibition. The cost categories listed above indicate both private and business defensive expenditure categories due to crime. In the case of cannabis prohibition, these expenditures are likely to be much smaller than the cost estimates for crime in general. Most defensive expenditures are undertaken to protect property from theft and to prevent attacks on persons. For victimless crimes, such expenditures are likely to be much less significant.

Nevertheless, detailed explanations on costing methodologies and data sources for defensive expenditures are available in GPI Atlantic, *The Cost of Crime in Nova Scotia*, chapters 10 and 11. One defensive expenditure cost category that is likely to be

significant in the case of cannabis prohibition is drug counseling, residential and non-residential drug treatment, and related expenditures on prevention. GPI Atlantic pointed to studies that demonstrate the cost effectiveness of such preventive measures in deterring crime.

### **Concluding Remarks**

Again it must be emphasized that the examples given here are based on a *narrow* definition of justice-related costs likely to be incurred in the policy scenario described. A broader costing exercise would consider the costs and benefits of cannabis *use* itself in the realms of health, education, and work productivity. This would be based on extensive consultation of the medical and other literature. For example, there has been considerable controversy in the press concerning the use of marijuana by terminally ill patients who experience great physical suffering. Such issues have not been explored in this short paper.

Without repeating the basic *principles* described above, it is worth concluding by reiterating four important *cautions* that should always be applied to costing exercises designed to assess the impacts of particular policy shifts:

- 1) A full range of direct and indirect, market and non-market costs must be considered if the exercise is to produce accurate and comprehensive policy-relevant information to decision makers. Confining cost estimates to market outcomes only can send inaccurate, misleading and even dangerous signals to policy makers.
- 2) Cost-benefit assessments of “cost effectiveness” should never be used to determine desired policy goals or outcomes. Those goals are derived from social values and political will. Cost-benefit analyses *can* be effectively used to evaluate and compare the cost-effectiveness of alternative policy options designed to achieve the *same* policy goal or outcome, and to identify “no-regrets” measures that identify co-benefits in one area that can balance projected expenditures in another. That is the best and correct use of costing exercises, and can be an invaluable aid to policy makers when used judiciously.
- 3) Cost estimates can only be as accurate as the underlying physical data on which they are based. Therefore the most important prerequisite for any costing exercise is a preliminary literature review and data search to estimate projected crime rate changes and enforcement requirements (or in other cases health, employment and physical non-monetary data.) Monetary estimates are always secondary, derivative estimates based on these physical data, and cannot be used in their own right to assess wellbeing and progress.
- 4) The assumptions underlying any costing exercise must be made explicit and generalized “cost of crime” results can never be used to assess the economic costs and benefits of specific policy shifts. For example, if cannabis use is considered a victim-

less crime, it will produce a very different cost profile from crimes against property or persons. Thus, for example, the ratio of victim losses, public justice costs and defensive expenditures in the scenario under consideration is completely different than the overall cost-of-crime estimates derived by GPI Atlantic, the National Crime Prevention Centre and the Fraser Institute.

As indicated above, it can be assumed that public justice costs for enforcement will likely constitute by far the most significant cost category in the scenario under consideration, whereas these costs account for only about one-quarter of comprehensive crime costs in overall cost-of-crime estimates. In short, each policy shift must be considered in its own right, with the projected physical outcomes well-researched prior to any costing exercise, and the assumptions clearly specified.

Time and budget constraints have restricted the scope of this analysis. However, further details on the GPI approach are available both in the GPI *Cost of Crime* report, and on the GPI Atlantic web site at [www.gpiatlantic.org](http://www.gpiatlantic.org).