



**FACULTEIT ECONOMIE
EN BEDRIJFSKUNDE**

**TWEEKERKENSTRAAT 2
B-9000 GENT**

**Tel. : 32 - (0)9 - 264.34.61
Fax. : 32 - (0)9 - 264.35.92**

WORKING PAPER

An analysis of the Belgian public expenditure study 'Drugs in Figures III': exploring the potential roles for drug policy

Delfine Lievens¹

Freya Vander Laenen²

Jonathan Caulkin³

Brice De Ruyver⁴

February 2012

2012/771

1 Corresponding author, Department of Accountancy and Corporate Finance, Ghent University,
Delfine.Lievens@UGent.be

2 Ghent University

3 Carnegie Mellon University

4 Ghent University

Abstract

There is growing interest in public expenditure studies with regard to drug policy. These studies have a potential role on multiple levels. Firstly, they provide insight into how the drug budget is composed and what the public authority's so-called 'policy mix' is. Moreover, in view of the growing demands for accountability and evidence-based policy, these studies show whether the government's stated priorities for drug policy are mirrored in their actual expenditures. Secondly, the potential role of public expenditures studies increases with a comparison over time, and thirdly with a cross-country comparison. These comparisons may provide important insight into the dynamics of drug policy. The present study serves as both an important case study – in this case of Belgian public expenditures – and also as a model to explore the potential role(s) of public expenditure studies more generally.

The study *Drugs in Figures III* (Vander Laenen, De Ruyver, Christiaens & Lievens, 2011) measured how much the Belgian government spent on drug policy in 2008. It advances beyond two previous studies (De Ruyver et al. 2004, 2007) in two distinct ways: by carrying out a new and more refined estimation of public expenditures on *illegal* drugs and by providing a first estimation of expenditures concerning *legal* drugs (tobacco, alcohol and psychoactive medication). The study combined two methods of data collection for the inventory of public expenditures: the top-down and the bottom-up approach. The top-down approach starts from the resources made available by the different public authorities involved in drug policy. The bottom-up approach starts from activities taking place in the field and traces the money flow back to the public authorities' funding.

The results of *Drugs in Figures III* reveal two important contributions. Firstly, the study presents the percentage of government money for drugs that is spent on the traditional four pillars of drug control: prevention, treatment, harm reduction and law enforcement. Secondly, public expenditures on illegal drugs anno 2008, put in comparative perspective with the previous estimations of 'Drugs in Figures II', gives insight into the evolution of public expenditure on drugs over time. The potential third level being a cross-country comparison encounters more difficulties because of conceptual and methodological differences in expenditure measurement across countries.

Key words

Public expenditure, drug policy, illegal and legal drugs, cross-country comparison

1. Introduction

A public expenditure study indicates how much a country spends on different kinds of programs that aim to reduce drug problems. This kind of study is gaining momentum in view of the growing importance of the evaluation of a drug policy. Since the beginning of the 21st century, studies on public expenditure have been conducted in Australia, Belgium, Luxembourg, the Netherlands, and Sweden, among other countries (Origer, 2002; Postma, 2004; Rigter, 2006; Ramstedt, 2006; De Ruyver et al., 2004, 2007; Kopp & Fenoglio, 2003, 2006; Moore, 2008; Mostardt, Flöter, Neumann, Wasem, & Pfeiffer-Gerschel, 2010). The United States of America has a long tradition of studying federal (as opposed to national) drug control spending with the Office of National Drug Control Policy (ONDCP) annual Budget Summary report (federal spending only; ONDCP, 1989-2011), augmented just for the years 1990-1991 with an attempt to measure state and local spending (ONDCP, 1993). The National Center on Addiction and Substance Abuse (CASA) released complementary studies of the total budget impact of legal and illegal studies (CASA, 2001 & 2009). These diverse public expenditure studies have one thing in common; they are all an important step for the economic evaluation of drug policy interventions (EMCDDA, 2008; Vander Laenen, Vandam, De Ruyver & Lievens, 2008). However, questions remain unanswered regarding the realization of this study as an evaluation tool for drug policy. The research *Drugs in Figures III*⁵ serves as both an important case study – in this case of Belgian spending on drug policy – and also as a model to explore the potential role(s) of public expenditure studies more generally.

In this contribution, we will discuss three important roles for public expenditure studies in the monitoring and economic evaluation of drug policy interventions. First, we investigate the country's drug budget in a single time period and compare it to official policy pronouncements to see whether spending match the rhetorical priorities. On a second level, expenditures are examined over time within one jurisdiction, which provides a sense of historical context and the changing face of drug control. These first two levels stress that a public expenditure study is of value for decision makers in their own country. Another way to get a sense of perspective on a country's drug policy is to make comparisons with other countries. The third level considers the potential role of the study in a cross-country comparison (Reuter, Ramstedt & Rigter, 2004).

⁵ In 2004, the Belgian research "Drug policy in Figures, A study into the actors involved, public expenditure and target groups reached" (*Drugs in Figures I*) have been published (De Ruyver et al., 2004). In 2007 a new estimation of public expenditures on illegal drugs have been carried out: *Drugs in figures II* (De Ruyver et al. 2007). The methodology in the present study '*Drugs in figures III*' is refined and extended to carry out a new estimation of public expenditures (anno 2008) on illegal drugs and a first estimation for legal drugs (tobacco, alcohol and psychoactive medication).

At a first level, understanding current public expenditures enables us to evaluate the commitments of governments in the drug policy field. A study of drug budgets indicates the public resources dedicated to drug policy and shows whether the government's stated priorities are reflected in the corresponding budget. A drug budget provides insight into how the drug expenditures are composed or what the public authority's 'policy mix' is. Consequently, it visualises the prevailing balance between the various sectors of drug policy (prevention, treatment, harm reduction and law enforcement) (Moore, 2005; Vander Laenen et al., 2008). Likewise it is possible to examine the division of expenditures between legal and illegal drugs. Moreover, it is also interesting to investigate whether the expenditures are aligned with the most cost-effective programs. For some types of programs, cost-effectiveness can be studied at the micro level, e.g., by randomly assigning dependent users to different treatment programs or classrooms to different prevention programs. However, other policies and programs operate at the national level, so such research designs are more difficult, and sometimes not possible at all. Hence, a complementary analytic approach is to see whether changes in distributions of funding are predictive of changes in problem outcomes. This can be examined by time series methods for a single jurisdiction.

At a second level, the public expenditures of a country can be tracked over time alongside various outcomes. This may allow for the measurement of the drug policies' and/or the expenditures' impact on problem indicators. However, if there is considerable stability over time in a country (the institutional framework of drug policy remains the same and the drug expenditures do not undergo significant changes), then a cross-country comparison could possibly provide more insight.

At a third level, a cross-country comparison can be useful if variation occurs in the independent variables (budget, policy) of the studied countries (MacCoun and Reuter, 2001). The variation may provide important insight into the dynamics of drug policy across nations. For example, it has been observed that enforcement dominates the budget in most public expenditure studies on drugs. There are various plausible explanations. The imbalance could stem from a political decision to invest more on law enforcement. Or law enforcement may simply involve more expensive activities. Or the cause could lie in the realities of drug markets (since the drug markets activity has an effect on the public sector's efforts to enforce prohibitions, and this may determine the enforcement expenditures) (Reuter, 2006). Moreover, a cross-country comparison could enable individual nations to assess whether better performance could be expected (Reuter, 2006). A country having high treatment expenditures

per problematic user, in comparison with other countries, could indicate the use of inefficient treatment programmes or a (mental) health care system with limited cost-effectiveness.

Finally, a comparison with other countries enables us to view the different options in drug policy and explore the correlation between different drug policies and public expenditures. Two approaches are possible for the cross-country comparison. Firstly, a cross-sectional study involves the observation of a set of public expenditures from different countries at a single point in time. Secondly, a *panel study* uses variation over time and across countries in drug policy spending. Both methods may predict the impact of a change in drug policy on the public expenditures for prevention, treatment, enforcement or harm reduction (Lievens & Caulkins, 2010). For example, the Netherlands are known for tolerant drug policy, and from this point of view, we expect that the Dutch government spends less on enforcement in comparison with other countries. However, Rigter (2006) showed that 76% of the drug budget is spent on enforcement in the Netherlands. The unexpectedly large investment in enforcement by the Dutch government has several explanations. The public and political stance has been generally 'antidrug' despite making a partial exception for cannabis. In addition, the country is also a hub of international drug trading routes, just as it is a hub of international trade of all sorts (Rigter, 2006). This case shows us that there is not necessarily a correlation between a tolerant drug policy and lower enforcement expenditures.

In order to explore the potential role(s) of a public expenditure study described above, we will use the results of the study *Drugs in Figures III* on the public expenditures of the Belgian drug policy for the year 2008. We will address the following research questions: a) What is the composition of the Belgian drug policy mix? b) Which evolutions took place in the field of Belgian public drug expenditures (2004 versus 2008)? And c) What does the cross-country comparison tell us about the dynamics of drug policy across nations? Finally, the answers to these questions are used to evaluate if a public expenditure study can fulfil its potential role.

The paper has been organized in the following way. The first part deals with the methodology used in the *Drugs in Figures III* study; it describes the approach used to identify, measure and classify public expenditures. The next section outlines the results; the estimate of Belgian public drug expenditures will be presented and compared over time and across countries. Finally, the implications of these findings are discussed by referring to the three important roles of a public expenditure study.

2. Method

Public drug expenditure studies in Europe (Vander Laenen et al., 2008) are characterized by varying conceptual and methodological frameworks. With regard to the conceptual field, there is no global definition that determines the scope of public drug expenditures. This enhances the risk of wrongly including spending that should not appear in the budget, and wrongly excluding spending that should appear (Walsh, 2004). From this point of view, it is important to define which areas of expenditure lie within or beyond the scope of a public expenditure study. Secondly, the methods for *estimating government drug policy* expenditures vary from study to study. Different methodological steps and choices are possible and have their effect on the figures. A comparison over time or across countries asks for a single and clear methodology used in a uniform manner to avoid ‘measurement error’ (Murphy, Davis, Liston, Thaler & Webb, 2000). Therefore it is worthwhile to describe in some detail the concepts used in the study, as well as the approach taken to data collection and data processing.

2.1. Conceptual framework

This third Drugs in Figures study uses the same definition for public expenditure as the two previous studies: “*the composition of the drug budget as an estimation of public authorities’ expenditures on the drug policy*” (De Ruyver et al., 2007, p.31). The drug budget of the public authorities is analysed at each level of competency (national, regional, provincial and local) for the different policy domains (prevention, treatment, harm reduction and law enforcement).

This study focuses on the direct nature of the public expenditure: “*investments or budget lines of public authorities for actions expressly and directly aimed at implementing drug policy*” (Vander Laenen et al., 2008, p. 26). This differs from, for instance, the CASA studies mentioned above which also included other types of spending (e.g., healthcare provided to treat sequelae of untreated drug use). Consequently, external expenditures related to the consequences of drug use are not included in the public expenditure analysis. Examples of excluded expenditures are policing expenditures for property and violent crimes resulting from drug use or expenditures for treatment of lung cancer due to smoking. Furthermore, the definition of public expenditure already indicates that private expenditures are excluded. This means that the spending of individuals and private organisations⁶ is not measured. A corollary merits stating explicitly. Under this conceptual framework, the total social cost is not measured; the public expenditure is one element of the social cost of the drug problem, but it is not the entirety of social costs.

2.2. Methodological framework

This study attempts to refine the methodology of 'Drugs in figures I and II' (De Ruyver et al., 2004, 2007) in order to re-estimate the public expenditures on illegal drugs (anno 2008) and to conduct a first estimation for legal drugs (tobacco, alcohol and psychoactive medication). The methodology consists of three phases: data collection, data processing and data classification.

Data collection: top-down and bottom-up

In order to collect data, both a top-down and bottom-up approach are applied. The top-down approach is a method that starts from the resources made available by the different public authorities involved in drug policy. First, the public authorities are identified (De Ruyver et al., 2004, 2007). Afterwards, the public authorities' drug budgets are collected and analysed. This top-down approach starts with an analysis of the budget lines of the public administrations. The bottom-up method is an approach that starts from the activities in the field and traces the money flow back to the funding from public authorities. In order to collect this financial data, a survey was administered to Mental Health Care Consultation Platforms and centers for local community health, drug prevention and treatment.

In the study, 98.45% of the identified expenditures are derived from the top-down approach. Top-down data, coming from official accounting documents such as national budgets, may be more valid for the study, since these data are audited by the Court of Audit and therefore are partially protected from political pressure. Uncertainty arises about the data available from the bottom-up approach, although their impact on the results (1.55%) is limited. These public expenditures come from organisations that depend on the government for most of their funding.

Data processing: Drug specific, Proration technique & Unit expenditure

The financial data are collected during the first phase, followed by the process of data processing. In line with the previous Drugs in Figures studies three methods are distinguished: drug specific data, a proration technique, and unit expenditure. In the study, 75.85% of the identified expenditures is processed by the unit expenditure calculations, 15.48% by proration technique and 8.67% is drug specific. These methods have several advantages, but also a couple disadvantages that are listed below.

For the drug specific methodology no further calculations are necessary, because the expenditures are exclusively used for drug policy. The other methods are used for drug

⁶ Such as the expenditure of drug users and expenditure of charity funds. Other examples include drug testing and EAP programmes paid for by private employers and, in countries such as the United States that have large private

programmes that are embedded within broader budget categories. This means that a process must be followed to ascribe a portion of that broader budget category to the drug programme. Typical approaches are the proration technique or unit expenditure calculations (Van Malderen, Vander Laenen & De Ruyver, 2009). This study uses the proration technique for estimating the expenditure on enforcement by police, judicial authorities and customs. The expenditures of the local police are calculated by multiplying the total local police budget by the fraction of all offences that are offences concerning violations of drug laws⁷. In some cases the methodology of unit expenditure is preferred, because it simplifies the calculation⁸. For example, the public drug expenditures on hospitalisation are estimated by multiplying the average expenditure for hospitalisation per day by the average number of days that drug users are hospitalised.

The main disadvantage of the proration method is that it can lead to distorted figures, because this methodology assumes that, for example in the case of law enforcement, all criminal activity has the same unit cost. However, a number of studies (e.g. Aos, 2006; Carey, 2005) have documented the common sense notion that the cost per arrest varies widely across offence types. In Washington State the average cost of an arrest varies from 31,648 dollars for murder to 5,370 dollars for drug offenses (Aos, 2006). The difference in the cost of arrest by offense is not taken into account in the proration method and consequently the amount of drug expenditures could be exaggerated. They are likewise exaggerated to the extent that the police do things other than arrest criminals; presumably some portion of policing expenditures are better thought of as allocated to traffic control, order maintenance, and emergency response, not to arresting people, and so do belong in the aggregate pool that is prorated by the relative number of arrests by crime type. The results should also be taken with caution since for the underlying aggregate expenditure data were provided by interested institutions/actors, leading to a possible contestation of the reliability of those data. Finally these examples show that the drug budget is a fragile construction. The results of the public expenditure studies can only be estimations, and the quality of the studies is only as good as the quality and timeliness of the available data (Vander Laenen et al., 2008).

Classification

The classification of public expenditures according to the goal, allows an insight into the 'policy mix' of the drug policy. The classification system of Reuter (2004) is applied: prevention, treatment, harm reduction and enforcement. In the studies of Ramstedt (2006), Rigter (2006)

health insurance markets, drug and alcohol treatment and smoking cessation paid for by private health insurance.

⁷ A full overview of the data processing (formulae of the different proration techniques and unit expenditures) is available in Vander Laenen, F., De Ruyver, B., Christiaens, J. & Lievens, D. (2011).

⁸ The proportion of drugs is taken into account for a repartition key and therefore the quantity of 'drugs' is divided by the total amount. For an unit expenditure less data are required because only the quantity 'drugs' (for example, number of hospitalization days drugs) is necessary to estimate the drug related public expenditure.

and Moore (2008) the four conventional categories have also been used. The addition of a fifth category “other” in this study is required because some of the expenditures could not be assigned to one of the four pillars of drug policy. The following expenditures are added, amongst others, to the category “other”: European School Survey Project on Alcohol and Other Drugs and contribution to Pompidou Group.

3. Results

3.1. One-time period: comparison across sectors and to policy pronouncements

Numeric results

In 2008, Belgian public authorities spent between 655,473,287 Euros and 1,294,698,299 Euros on drug policy (for illegal drug, alcohol, psychoactive medication and tobacco), with a best estimate⁹ of 975,085,793 Euros. A comparison across sectors is made for illegal drugs, alcohol and psychoactive medication in table 1¹⁰ and the comparison across sector for tobacco policy is presented separately in table 2.

Table 1: Estimated drug policy expenditures (illegal drugs, alcohol and psychoactive medication), Belgium, 2008 (rounded million Euros).

<i>Category</i>	<i>Low estimate</i>	<i>High estimate</i>	<i>Baseline</i>	<i>Baseline fraction of total expenditures (%)</i>
Prevention	12	12	12	1.24
Treatment	438	1036	737	76.5
Harm reduction	2,3	2.3	2.3	0.24
Enforcement	188	229	209	21.67
Other	3.4	3.4	3.4	0.35
Total	644	1283	964	100

Table 1 illustrates that treatment accounts for 76.5% of the total drug policy expenditures, and enforcement expenditures represent about one-fifth (21.67%). Prevention (1,24%), harm reduction (0.24%) and other policy activities (0.35%) are minor components of spending. For

⁹ A great deal of the expenditures are measured with unit expenditure or proration technique and this must be regarded as approximations as they are built mainly on various assumptions. Therefore intervals are presented: a low end estimate and a high-end estimate augment the baseline or best point estimates (which is the average between low and high estimate).

the category treatment there is a very wide range between the low and high estimate, because the expenditures for the hospitalisation sector depend on the inclusion or exclusion of hospitalisation costs for secondary diagnoses of substance abuse/dependence. Further analysis shows that at least three-quarters¹¹ of the treatment expenditures is for alcohol. If the expenditures for illegal drugs are analysed separately¹², the policy mix changes to: 49.14% treatment, 45.09% enforcement, 3.85% prevention, 0.79% harm reduction and 1.14% other. Conversely, for alcohol, the domination of treatment spending is that much greater.

With regard to illegal drugs, the underlying idea of the Belgian federal drug policy note of 2001¹³ was that prevention should be the highest priority, followed by treatment, with repression as a final resort. Contrary to those stated policy intentions, the most substantial expenditures relate to treatment, followed by enforcement and then prevention and harm reduction.

Table 2 presents the expenditures for the tobacco policy and shows that enforcement is the largest pillar (68.88%), treatment with 18.74% is second in rank and prevention accounts for 11.54%.

Table 2: Estimated tobacco policy expenditures, Belgium, 2008 (rounded million Euros).

<i>Category¹⁴</i>	<i>Expenditures</i>	<i>Fraction of total expenditures (%)</i>
Prevention	1.3	11.54
Treatment	2.2	18.74
Enforcement	7.9	68.88
Other	0.1	0.85
Total	11.5	100

At first, it seems a remarkable result that enforcement dominates the budgetary pie of tobacco policy. Part of the explanation is that tobacco policy is not entirely *laissez-faire*; tobacco smoking is prohibited in workplaces, public spaces, restaurants,... and the management of that

¹⁰ The expenditures are not presented separate for each type of drugs, because the sector of alcohol is entangled with illegal drugs. For instance, treatment activities focus on both type of drugs and this makes it impossible to measure the exact amount of expenditures for alcohol or illegal drugs.

¹¹ Minimum 557 million of the treatment expenditures is specifically labeled for alcohol treatment (for example treatment of alcohol abuse in hospitals, the project ‘alcohol and pregnancy’,...).

¹² There is probably an overestimation of illegal drug expenditures for the sector prevention and treatment, because a large amount of the expenditures is used for interventions that do not distinguish between alcohol and illicit drugs.

¹³ The federal drug policy note resulted in a Joint Declaration of the Inter-ministerial Conference on Drugs in January 2010.

¹⁴ No category harm reduction for tobacco is included, because no public expenditures are identified in this domain for the year 2008 (Vander Laenen et al. 2011).

prohibition (or regulation) requires financial means. However, the larger explanation is that tobacco enforcement's relative share is so large primarily because treatment spending is so small. The treatment expenditures are rather limited because the reimbursement of tobacco dependence treatment is restricted to patients who are pregnant¹⁵. Furthermore, hospitalisation costs for tobacco are not included because spending on treatment for consequences of drug use (such as lung cancer in the case of tobacco) is viewed as an external expenditure and so is excluded from the study.

Since 2004, the Belgian tobacco policy officially tries to transcend the legal framework and a predominant repressive approach by focusing on prevention and on treatment of dependence (Federal plan tobacco control, 2004). The expenditures tell another story, however, since the biggest investments are still made to ensure compliance and to enforce the laws prohibiting the sale and distribution of tobacco products to minors, smoking bans, tobacco advertising, etc.

Interpretation

In an ideal world the drug budget should support the announced policy, and at a superficial level one might expect the highest priorities to receive the largest budget allocations. But these examples show that Belgian drug policy in practice fails to align programme resources with its announced priorities, strategic goals and objectives. Carnevale (2008) draws attention to the fact that the administration must ensure a match between the *goals* of the drug control strategy and the budget passed to support it. He even goes one step further by claiming that there should be a consistency between funding and the *effectiveness* of interventions. The consensus in the academic literature is that "treatment works", and many studies conclude that treatment produces social benefits that exceed its programmatic costs (Gerstein et al., 1994; Rajkumar and French, 1997; Cartwright, 2000; Harwood et al., 2002; Belenko et al., 2005). For example, the study of Caulkins et al. (1999) indicates that treatment is more cost-effective than school-based prevention at reducing cocaine consumption. Another study found that the treatment of heavy (cocaine) users is more cost-effective than supply-control programmes (Rydell, Caulkins & Everingham, 1996). These studies assessed cost-effectiveness at the margin; that is, they addressed how the next million dollars might best be spent. So strictly speaking they do not directly inform what the optimal allocation shares are. However, they suggest that from an effectiveness point of view, an optimal drug policy should spend more on treatment rather than enforcement, as compared to the status quo. Within this framework, the Belgian drug policy in 2008, with high expenditures for treatment, follows science rather than policy. However, this is a statement that needs to be handled with care, because a good match between funding and

¹⁵ Since September 2009, the reimbursement of tobacco dependence is extended to each patient that wants to quit smoking. Consequently, the public expenditure for tobacco will raise in the year 2010 with 3.4 million Euros.

effective programmes is complex in different ways, which we will discuss in detail in the discussion section of the paper.

3.2. Comparison over time

Numeric results

The expenditures of 2008 are being compared to the ones of 2004, derived from 'Drugs in figures II' (De Ruyver et al., 2007). The latter study, with a research scope limited to illegal drugs, found that over 50% of the public expenditures dealing with illegal drugs went to enforcement, approximately 40% to the treatment sector (harm reduction included), and the share of prevention amounted to just under 4%. It is difficult to make a comparison with the 2004 estimate, because of differences in research scope and methods of performing the calculations. Therefore, a new calculation is made for the year 2008 using the same proration techniques as in 2004. This provides a consistent comparison across years, allowing for direct comparisons between past and future budgets produced with the same methods. The public expenditures for illegal drugs are calculated by the previous method and are presented in table 3.

Table 3 Estimated drug policy expenditures (illegal drugs), Belgium, 2004 versus 2008

<i>Category</i>	<i>Expenditures of 2004 expressed in 2008 monetary units¹⁶</i>		<i>Expenditures of 2008</i>		<i>Change in absolute numbers</i>
Prevention	12,294,733	3.72 %	11,412,257	2.91 %	- 882,476
Treatment	130,909,594	39.58 %	133,557,858	34.05 %	+ 2,648,264
Harm reduction	min. 340,628 ¹⁷	0.10 %	2,329,752	0.59 %	(+ 1,989,124)
Enforcement	186,038,337	56.24 %	243,000,490	61.96 %	+ 56,962,153
Other	1,190,329	0.36 %	1,890,813	0.48 %	+700,484
Total	330,773,622	100 %	392,191,170	100 %	+ 61,417,548

Between 2004 and 2008, the government expenditures for drug policy have increased quite substantially by more than 61 million Euros (18.57%), with 92.75% of this increase going to supply reduction programs. Only small changes in expenditures are noticed for demand

¹⁶ The expenditures mentioned in the 2004 study are expressed in terms of their real value in 2008. Inflation is taken in account (general index= 111,32 base 2004, year 2008)

¹⁷ In the Drugs in Figures III study, the Flemish expenditure for syringe exchange programmes are no longer listed as prevention; it is considered as the minimum amount for harm reduction.

reduction. The main reason for the increase in treatment is rising hospital costs per day; for example, the average daily cost in psychiatric hospitals goes from 178.76 Euros to 242.04 Euros, while the number of drug dependence diagnoses declines.

In table 4 the expenditures for supply reduction are analysed for each level of the criminal justice system.

Table 4: Expenditures enforcement (illegal drugs), Belgium, 2004 versus 2008

<i>Category</i>	<i>Expenditures 2004¹⁸</i>		<i>Expenditures 2008</i>		<i>Change in absolute numbers</i>
<i>Detection</i>	152,318,468	81.87 %	168,989,940	69.54 %	+ 16,671,472
<i>Prosecution</i>	3,832,648	2.06 %	6,799,870	2.80 %	+ 2,967,222
<i>Sentencing</i>	3,883,307	2.09 %	6,229,902	2.56 %	+ 2,346,595
<i>Sentence execution</i>	21,836,579	11.74 %	57,430,379 ¹⁹	23.63 %	+ 35,593,800
<i>Indefinable level of the criminal justice system</i>	4,167,335	2.24 %	3,550,399	1.46 %	- 616,945
<i>Total</i>	186,038,337	100 %	243,000,490	100 %	+ 56,962,153

Increasing expenditures are observed for each level of the criminal justice system. Two factors have influenced this evolution. First, the general budget on each level has increased more than one would expect on the basis of inflation. Secondly, an upward trend in the number of recorded drug crimes is noticed: on the level of detection the number rises from 4.27% in 2004 to 4.53% in 2008, for prosecution from 4.05% to 5.7% and for sentencing from 2.29% to 2.99%. Similar increases²⁰ are revealed for two subcategories of the level of the sentence execution: the houses of justice and penitentiary.

Interpretation

The Belgian comparison over time shows changes in the drug budget, especially in the field of enforcement. This could indicate that drug policy has influenced the public expenditures. This is probably not the case since the Belgian federal drug policy note of 2001 remained applicable during the years 2004-2008, and no important changes were made in the national drug policy. A

¹⁸ Inflation is taken in account (general index= 111,32 base 2004, year 2008)

¹⁹ The methodology of Drugs in Figures II could not be used for the penitentiary, because the necessary information for the proration technique was not available. The minimal estimation of Drugs in Figures III is therefore taken into account.

²⁰ The proportion of new mandates 'drugs' in houses of Justice increased from 13.12% to 17.20%.

The population in the penitentiary for a drug offence increased with 9.78% (minimum estimate) and with 15.45% in the case of drug offences in combination with other offences(maximum estimate).

sequence of small decisions on several levels is responsible for the decreasing prevention expenditures and increasing treatment and enforcement expenditures²¹. For example, the police reports on the offence 'drug possession' and 'import/export drugs' increased between 2004 and 2008. It is possible that the focus on drug tourism has enhanced the enforcement expenditures (Vander Laenen, De Ruyver, Christiaens & Lievens, 2011). Another explanation could be an increase in the fight against public drugs nuisance (Ward, 2011). Finally, there may have been no change in enforcement policy per se, but an increase in arrests because of an increase in the level of the underlying criminal activity.

Secondly, the Belgian public expenditure study of 2004 warned that prevention is underfinanced. The 2004 study was used as an argument by the prevention sector to ask the government for more funding, a request that was not granted, as the 2008 study shows. The comparison over time shows that resources for prevention programmes not only did not grow; they actually decline, while resources for enforcement increase (by 29.01%). It seems that it was not possible or desirable for Belgium to change the (historical) drug policy mix and enlarge the pillar prevention over this period of four years. It is much simpler for a government to maintain the historical resource allocation than to carry out changes to the resource allocation mix (McDonald, 2011). Furthermore, the drug expenditures are always after-the-fact calculations based on decisions made by those competent public authorities and therefore they use data collected from budgets and/or accounting statement. The results of a public expenditure study may be useful for guiding future decisions, but it is not a decision forcing instrument (Reuter, 2006).

3.3. Cross-country comparison

A comparison with other public expenditure studies is difficult, because of the differences in the applied conceptual framework. For example, the studies of Sweden and the Netherlands take into account a fraction of the reactive expenditures. In table 5, 6 and 7 a cross-country comparison is provided²², but the estimates for Sweden, the Netherlands and Luxembourg are reorganized to match the conceptual framework of 'direct' expenditures. The conceptual differences are eliminated by excluding amongst others the expenditures for HIV/AIDS treatment to patients infected via IDU and drug related crimes. However, differences remain with regard to methodology and social welfare systems.

²¹ The dependence rates of drug use did not change in Belgium during the period 2004-2008 (Lamkaddem & Roelands, 2010).

²² A comparison with US studies is not possible, because the studies are limited to federal expenditures (ONDCP, 2004) or because the expenditures for illegal drugs could not be extracted from the total expenditures for substance use (CASA, 2009).

First, a comparison of the results of the global public expenditures for seven countries will be presented. Second, the drug expenditure mixes of four countries are studied.

3.3.1. Global public expenditures

Numeric results

In the first part of this cross-country comparison, the following indicators are examined: proportion of gross domestic product (GDP) and the expenditures per capita. Belgium's public expenditure on drug policy (illegal drugs) for the year 2008 amounted to 296 million Euros. On the 1st of January 2008, Belgium's population stood at 10,666,866 inhabitants and Belgium's GDP was 344.7 billion Euros. This means that public expenditure on drug policy represented 27.78 Euros per inhabitant or 0.09 % of the GDP.

Table 5 Cross-country comparison (illegal drugs)²³

Country	Year	Expenditure (million Euros)	Proportion of GDP(%)	Per capita (Euros)
The Netherlands (Rigter, 2006)	2003	1721 ²⁴	0.36	106.07
Germany (Mostardt, 2010)	2006	5144 - 6024	0.22 - 0.26	62.45 - 73.13
Sweden (Ramstedt, 2006)	2002	502 ²⁵	0.19	56.25
Australia ²⁶ (Moore, 2008)	2002 - 2003	770	0.17	39.20
Luxembourg (Origer, 2002 & 2010 ²⁷)	1999 2009	2228 38 ²⁹	0.11 0.1	51.54 77

²³ If the public expenditure per capita or the proportion of GDP is not mentioned in the study, then authors' calculations are made with the statistics (population or GDP of the country) of OECD (Organisation for Economic Co-operation and Development). Retrieved October 10, 2011, from OECD.StatExtracts: http://stats.oecd.org/Index.aspx?DataSetCode=SOCX_AGG.

²⁴ Original expenditures: 2185 million Euros. Expenditures for drug related crime (462 million Euros) and treatment of people with infectious diseases arising from drug use (2,8 million Euros) are subtracted (appendix).

²⁵ Original expenditures: 737 million Euros. Expenditures for drug related crime (235 million Euros) are subtracted (appendix).

²⁶ The proactive government expenditures of Australia are taken into account. The amount of 1875 million \$ reactive expenditures is excluded.

²⁷ An update of the study Origer (2002) is conducted for the year 2009. Information available in the 2010 national drug report "Grand Duchy of Luxembourg" from Origer (2010).

²⁸ The original expenditures were 23 million Euros. Expenditures for HIV/AIDS treatment provided to patients infected via intravenous drug use (1,3 million Euros) are subtracted.

Belgium	2008	296	0.09	27.78
France (Kopp & Fenoglio, 2006)	2003	907	0.06	15.04

The absolute amount of public expenditures in a country might be caused by the size and wealth of this country, e.g., because wages of police and treatment workers might tend to be higher in more affluent countries. So drug-related expenditure as a proportion of GDP is also relevant, because it takes into account that a richer country might invest more in drug control for a given size problem (Reuter, 2006). An analysis of this indicator and the expenditure per capita, tells us that the Netherlands, Germany and Sweden invest the largest share of GDP in drug policy, whereas France and Belgium are located at the bottom. Australian drug expenditures are situated between these extremes. It is difficult to draw conclusions for Luxembourg, since the proportion for public expenditures on drugs of the GDP is rather low, although the expenditures per capita lean more towards Sweden and Germany.

As mentioned, we cannot compare U.S. expenditures directly, because the most comparable figures pertain only to federal spending. However, we can work the calculation in reverse. The average proportion of GDP across the seven countries in the table is about 0.175%. If the U.S. spent 0.175% of its \$14.5T GDP on drug control, that would be about \$25B per year. That is considerably more than the federal government spends, but less than twice as much. So if state and local spending on drug control exceeds federal spending, as was the case back in 1990 and 1991 (ONDCP, 1993), the last time direct estimates were made, then the U.S. spends a larger proportion of its GDP on drug control than the average of the countries in the table. On the other hand, spending at a rate that matched the highest country in the table, the Netherlands at 0.36% of GDP, would require that the U.S. spend over \$50B per year on drug control, which is on the high side of guesses typical made about U.S. national spending.

Interpretation

It is clear that the public expenditure in Belgium and France is far from the level of expenditure in the Netherlands and (less) than half of the expenditures in Sweden and Germany. A possible explanation lies in the history of the countries’ drug policy.

Both Belgium and France developed a drug policy at a later stage than countries such as the Netherlands and Sweden. Apart from the adoption of the international drug laws and regulations and accompanying expenditures for law enforcement, in Belgium and France,

²⁹ The cost for HIV/AIDS treatment provided to patients infected via intravenous drug use cannot be subtracted, because the precise amount is not reported. The total expenditure of 38 million Euros is consequently an overestimation.

subsidies in the field of prevention or treatment remained scarce. Only after societal and political changes at the beginning of the 1990s, did the Belgian government start to develop a drug policy; its first drug policy note was written in the year 2001 (De Ruyver, Vander Laenen & Eelen, 2011). A similar story occurs in France. The French government waited until 1999 to develop a triennial plan that defines priorities for action, objectives and specific measures (Collin, 2001).

The countries with high drug-related public expenditures have a longer history in drug policy. For example, Sweden transformed to a clear law-enforcement approach already at the end of the 1960s (Lenke & Olsson, 1996). The Dutch drug policy, regarded as liberal and tolerant, has its foundations in the early involvement of the Netherlands in the legal trade of coca and opium. Since 1960s the Netherlands viewed drug addiction as a social problem and they amended radically the Opium Act in 1976 (Chatwin, 2003). Germany's drug policy has a long standing history, and it is also progressive in comparison with other countries (Schroth, Helfer & Gonshorek, 2011). Furthermore, Australia has formed a framework of drug policy, with the principle of harm minimisation, since 1985 (Green, 2002). The development of an Australian drug policy can be situated in time between the Netherlands, Sweden and Germany on the one hand and Belgium and France on the other hand. This might explain why Australia has an average drug expenditure in comparison with the other countries.

This correlation between level of expenditure and longevity of formal national policy could be purely coincidence. It could also readily be a spurious correlation stemming from an omitted third variable, to use social science parlance; that is, countries with worse drug problems may both launch their formal policy sooner and spend more, on average. However, the correlation does also raise the provocative policy that formalizing a policy creates a bureaucratic tendency to grow budgets over time. So that even if the official policy adopts a lenient tone, the very existence of that formal policy may stimulate greater expenditures over time, perhaps including expenditures on enforcement. To be clear, no such causal inference can be supported by this simple cross-sectional comparison. But it is an interesting hypothesis that might merit empirical investigation in further work.

Stepping back from such generalities, one can at least say in conclusion, the combination of the cross country comparison results and the drug policy history provides support for the following conjecture: the late development of the Belgian drug policy may have delayed growth in the financial investments in drug policy.

3.3.2. Drug expenditure mixes

Numeric results

A second way to conduct a cross-country comparison is by studying the drug expenditure mixes of different countries. As mentioned, the Belgian policy mix for illegal drugs consists of 49.14% treatment, 45.09% enforcement, 3.85% prevention, 0.79% harm reduction and 1.14% other. The level of spending per pillar is taken into account in Table 6 and 7³⁰. For the comparison, the countries that used the same policy categories (prevention, treatment, law enforcement and harm reduction) are included. The drug expenditure mixes of the four countries are presented in two separate tables. The policy mixes of the Netherlands and Australia are presented separately because it is not correct, from a *methodological* point of view, to compare them with the figures of Belgium or Sweden.

Table 6 Cross-country comparison (illegal drugs) for Sweden and Belgium³¹

Country	Year	Prevention	Treatment	Harm reduction	Enforcement	Other
Sweden ³²	2002	1.6 %	35.5 %	0.2 %	62.7 %	/
Belgium	2008	3.9 %	49.1 %	0.8 %	45.1 %	1.1 %

Table 7 Cross-country comparison (illegal drugs) for the Netherlands and Australia

Country	Year	Prevention	Treatment	Harm reduction	Enforcement	Other
The Netherlands ³³	2003	2.4 %	20.2 %	4.3 %	68.8 %	4.2 %
Australia	2002 -2003	23 %	17 %	3 %	55 %	1 %

First of all, harm reduction and prevention are the smallest sectors in each country, with the exception of prevention in Australia. Australia's spending on prevention appears to be higher than their expenditure on treatment or other countries' spending on prevention because its

³⁰ The drug expenditure mixes of four countries are presented in two separate tables. The policy mixes of the Netherlands and Australia are presented separately because it is not correct, from a *methodological* point of view, to compare them with the figures of Belgium or Sweden.

³¹ Germany, France and Luxembourg are excluded from this comparison because they used other classification systems. Proportions for the Netherlands and Sweden were calculated without the reactive expenditures.

³² Original division: 24 % treatment, 75 % enforcement, 1 % prevention and 0,1 % harm reduction (Ramstedt, 2006).

³³ Original division: 13 % treatment, 75 % enforcement, 2 % prevention and 10 % harm reduction (Rigter, 2006).

figures include school-based drug prevention programmes³⁴. Those expenditures are not taken into account in the Belgian and Swedish study, due to lack of information about the proportion of drug prevention in school time. Furthermore, the Dutch expenditures for harm reduction are bigger than for prevention. This seems plausible because the Netherlands have consistently practiced a policy of harm reduction to drug problems (Chatwin, 2003).

Secondly, tables 6 and 7 also tell that the majority of spending is on enforcement, except for in Belgium. It has been assumed that supply control interventions absorb the great bulk of drug control spending in punitive countries as the United States (Caulkins, 2009), but these results show that they also do in countries often associated with less hawkish policies, including the Netherlands and Australia. Belgium strikes the eye because of the slightly bigger amount of treatment expenditures in comparison with the enforcement expenditures. This is due in part to methodological differences and to differences in the health care systems in the countries. For example, the Dutch study used a methodology that probably underestimated the drug-related costs in hospitals³⁵. Consequently the expenditures for general health care are much lower in the Dutch study (general health care counts for 2.56% of the total treatment sector, in comparison with the Belgian proportion of 55.53%). Furthermore, the Swedish number of hospital days for a drug-related diagnosis is also less than in Belgium (Sweden: 60,900 and Belgium: 146,813).

Interpretation

It is hard to draw any conclusions in a cross country comparison, given the uncertainties about the methodology. For example, the Dutch and German studies indicated high expenditures for the enforcement sector. Rigger (2006) found that 76% (adapted estimation in table 7: 68.8%) of the expenditures belong to this sector. The German study of Mostardt (2010) estimated that police, courts and prisons spend a minimum of 3.3 billion Euros (65.4%) and a maximum of 4.2 billion Euros (70%) on drug enforcement. This might indicate that countries with high expenditures for drug policy have, in comparison, a bigger sector enforcement. On the other hand, the proration techniques to calculate drug-related expenditures in the enforcement pillar vary in the studies. In the Belgian study, the proportion of police reports for 'drugs' (1%) is applied on the general police budget. The Dutch study used the share (13%) of Opium Act offences in the total number of cases leading to detention verdicts in courts. A test is conducted where this Dutch proration technique is applied for Belgium. The Belgian share of drug offences in the total number of cases leading to imprisonment is 15.29 %. If this share is applied to the police budget, than the Belgian policy mix changes to: 79.18% enforcement, 18.64% treatment,

³⁴ In the study of Moore (2008) is 1% of governments' education expenditures marked as illicit drug prevention.

1.46% prevention, 0.30% harm reduction and 0.43% others. It is clear that different proration techniques can distort the cross country comparison and it possibly explains the larger sector enforcement for the Netherlands.

Secondly, the different welfare security systems further complicate a comparison of countries' public expenditures. There are big differences between the welfare states, and this becomes clear in the various social expenditures (Cantillon, 2009). Social expenditures' proportion of GDP is for example much lower for Australia (16% in 2007) than for Belgium (27.3% in 2007). From this point of view, it is plausible that the Australian treatment expenditures are lower than the expenditures in the other countries in the cross country comparison³⁶.

4. Discussion

The ultimate goal of a public expenditure study is to improve drug policy. A preliminary clear view on the public expenditures is necessary to assist policy makers in setting priorities (Moore, 2008), because an appropriate drug policy should rely on the assessment of drug related public expenditure (EMCDDA, 2008). This paper investigated if a public expenditure study can fulfil the potential role of informing the decision makers on three levels. The results of 'Drugs in Figures III' show that the study passes for the first two levels. Firstly, the study provides insight into how the drug expenditures are composed and what the public authorities so-called 'policy mix' is. The study shows whether the government's stated priorities for that drug policy are mirrored in their expenditures. Secondly, the study gives insight into the evolution of public expenditures on drugs over time.

On a first level, the composition of a country's drug policy expenditures mix becomes clear during a comparison across sectors. The Federal Drug Policy Note was the backbone of the Belgian drug policy in 2008 and listed prevention as the highest priority. However, it is surprising to find that public expenditures on prevention are a fraction of the amount spent on treatment. This is particularly true for the prevention of tobacco and alcohol: only 9,52 % of the amount spent on prevention is spent for tobacco and alcohol. Since further analysis shows that

³⁵ The total direct addiction treatment costs in general health care were calculated by taking one-third of the expenditures of addiction care centers into account (Rigter, 2006). The Belgian study multiplied the daily cost with the days spent in a hospital for a drug-related diagnosis (Vander Laenen et al., 2011).

³⁶ In 2007, the total public social expenditure as a percentage of GDP is 20,1% for the Netherlands and 27,3% for Sweden. Retrieved October 10, 2011, from OECD: http://stats.oecd.org/Index.aspx?DataSetCode=SOCX_AGG.

at least 75.59%³⁷ of the treatment expenditures is for alcohol, it might seem warranted to invest more in prevention, both from a cost-effectiveness point of view as well as from a social cost point of view. (The pattern of spending should consider the drug types that are the source of most harm to society, McDonald, 2011.) It seems that decision makers need the drug policy expenditures mix to monitor the balance of resource allocation, namely equality in the quantum of funds allocated to the various drugs and implementation sectors (McDonald, 2011).

The comparison of drug policy expenditures to policy pronouncements brings up that there is no match between government's spending and policy declarations in the Belgian case. The Belgian drug policy developed in a bottom up manner: it proceeds from the work field. Consequently, the public expenditures are more dependent on activities and initiatives in the field, and less dependent on the federal drug policy. This being said, the budget proportions should not necessarily match with priorities. There are several reasons why, even in an ideal world, central priorities may not be associated with the largest budget outlays. For one, the priorities may be pursued through a policy or a mandate, not a programme with a specific budget line. This is clearly the case in Belgian drug policy since only 8.69% of public expenditure on drugs is drug specific and thus retraceable as such in the budget lines. Another reason is that political statements of priority often represent directions of change, not absolute levels. So when a new administration makes a particular programme its priority, that may mean large percentage increases in spending on that programme, not that the programme's level of funding will suddenly become the largest. In fact, the historical resource allocation formulae will not be fundamentally changed by putting into place a (new) drug policy note (McDonald, 2011).

The second level, a comparison over time, sketches the evolutions in the field of public drug expenditures. The results indicate that Belgium focuses more and more on enforcement of illegal drugs. There was no significant change in the Belgian drug policy that could explain the rising expenditures for the pillars enforcement and treatment (to a limited extent). There is no need to automatically link a change in drug budget to a change in policy. A closer study of general trends in the public expenditures can reveal different kind of explanations. The treatment expenditures in Drugs in Figures III are raised because the treatment of all patients has become more expensive in hospitals, namely the hospital costs per day spent in hospital rose substantially over the four years between the two studies. In contrast, the growth in enforcement spending is caused by a deliberate policy option to increase enforcement activity with regard to the possession and import/export of drugs.

³⁷ Minimum 557 million of the treatment expenditures is specifically labeled for alcohol treatment (for example treatment of alcohol abuse in hospitals, the project 'alcohol and pregnancy',...).

As for the third potential role of public expenditure studies, a cross-country comparison should make it possible to view the different options in drug policy and to explore correlations between different drug policies and public expenditures. If not, the cross-country comparison can only be of limited value for decision makers. From the results section it has become clear that it is very difficult to draw conclusions on a cross-country level because the question always remains if variations in expenditures can be attributed to methodological differences. We illustrated that indeed small changes in proration technique can easily generate other results, and this makes public expenditure studies fragile (Vander Laenen et al., 2008). From this point of view, a cross country comparison should be avoided until there is a uniform methodology to estimate the public expenditures in different countries. In this respect, the initiative of the EMCDDA to develop a common EU-wide methodology for public expenditure studies warrants applause (EMCDDA, 2008). However, even if an identical methodology is used, (historical) differences in social security systems and institutional factors will still make it difficult to compare public expenditure study results across countries. For example, the reality of private investments in drug policy complicates comparisons across place and space. If one country has a tradition of larger private involvement/donations while another leaves most of its investment to government, a cross-country comparison becomes hazardous. Such differences can be the accidental consequences of differences not directly related to drug policy. For example, in countries with large private and parochial school systems, government expenditures on school-based prevention may be substantially less than societal investments in school-based prevention programs. Indeed, a public expenditure study is limited to the estimation of public expenditures on drug policy actions; neither private expenditures nor external expenditures are included. Therefore only a social cost study can provide the total social cost of drugs in a given society. Alternately, one could define a new type of study, one that tracked public and private proactive *expenditures* but which did not include the other social costs (e.g., reactive spending, monetized value of morbidity and mortality, etc.).

In conclusion, a public expenditure study can play an important role on two levels: a comparison across sectors and over time. The public expenditure study can be an instrument for guiding the drug policy toward a balanced resource allocation. Moreover, the public expenditure studies can fulfil an important role by serving as the first step for economic evaluation of drug policy interventions, where a cost analysis and social cost study are the next steps. The ultimate goal of public expenditure studies is to derive important information for policy makers and to improve policy making. However, caution must be applied when using the results of a public expenditure study alone for policy (decision making) purposes.

First, a full policy evaluation can only be completed by combining information about public expenditures with a range of other types of information/studies. This means basing it upon epidemiological data about new trends in drug use and groups of (problem) drug users, on data about reached target groups (in prevention, early intervention and treatment) and on evaluation and effectiveness studies. A public expenditure study identifies facts that are worth looking into more deeply, but only further research can detect for example a lack of performance. Ideally, this leads to an evidence-based policy, where the financial resources are assigned to the implementation and evaluation of evidence-based prevention, regulatory, treatment, and harm-reduction interventions (Wood et al., 2010).

Secondly, through a public expenditure study the resource allocation to and balance in the various drugs and implementation sectors became clear. The EU Strategy 2005-2012, states that *“The present integrated, multidisciplinary and balanced approach of combining demand and supply reduction will remain the basis of the Union’s approach to the drugs problem in the future”* (Council of the EU, 2004, p. 5). It is not clear how demand and supply reduction will be ‘combined’ to reach this balance. In general, what is an ‘appropriate’ or desired balance in resource allocation will depend on the criteria deemed to be essential in (drug) policy decision making. For example, it could mean that the resources need to be allocated in accordance with the relative burden that a type of drugs imposes on society. To others, it means allocating the public expenditures to cost-effectiveness programmes (McDonald, 2011). There are thus multiple meanings of the word balanced, and it is interpreted differently by academics and politicians. The drug budget is most of the time allocated from the departments of law enforcement and health (Ritter, 2010). The public expenditure studies show that policymakers choose for law enforcement, although research indicates that the cost-effectiveness of treatment and harm reduction is substantially higher than in the criminal justice sector (Boyum & Reuter, 2005). De Beck et al. (2009) confirm that governments are still investing in drug policies and practices that are not supported in the scientific literature, and even conflict with evidence-base (Reuter, 2001; MacCoun & Reuter, 2008). Politicians follow the historical allocation and want to comply with the prevailing standards. Academics on the other hand, embrace cost effectiveness as an important principle for drug policy. Although a tension exists between the scientific and political worlds, both parties have one thing in common: they want to reduce drug-related harm. This brings us back to the importance of a social cost study. Based on a social cost study, the drug budgets could be contrasted with the (health) impacts of the various classes of drugs, which would allow for reallocation of drug budgets (Mc Donald, 2011). For example, an Australian study indicated that the social cost for tobacco is three times higher than for illegal

drugs (Collins & Lapsley, 2008). The international overview of Single et al. (2003) indicated that the government drug budget on average represented only 5 % of the social costs of drug use.

In this paper different manners are explained where the public expenditure study could play an important role for drug policy. Public expenditure studies can provide a valuable basis for an assessment about the public spending on drug policy and they can contribute to a more objective discussion (Mostardt et al., 2010). These kinds of studies can be applied to other criminological policy domains (Van Malderen et al., 2009). The demand for estimations of governmental costs in response to crime is likely to increase in the future (Bowles, 2009). The credit crisis of 2008 puts pressure on the criminal justice budgets and this may enhance the interest in public expenditure studies and economic analysis in general. After all, good supervision on the level of public spending will decrease at least the financial burden of crime on society.

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