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REGISTRATION OF ILLEGAL PRODUCTION IN THE NATIONAL  
ACCOUNTS OF THE NETHERLANDS

Submitted by Statistics Netherlands<sup>1</sup>

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## **Registration of illegal production in the National Accounts of The Netherlands**

Summary: This paper reviews the computation of preliminary estimates of the impact of the inclusion of illegal activities in the national accounts of The Netherlands

Keywords: National accounts, production boundary, illegal production

### **1. Introduction**

So far, illegal activities like drugs transactions, prostitution and theft usually are not covered in national accounts. Although they may be looked upon as 'bads' rather than 'goods', illegal activities do contribute to output and income of the (national) economy. As such, they should be registered accordingly, as laid down in the 1993 SNA<sup>1</sup>.

Usually, obtaining data needed for the estimation of illegal production is difficult. In the following sections the registration of the various illegal activities in the national accounts is discussed and some - enforced unconventional - methods of estimation are presented. Details, proper reserves, and some theoretic reflections on the (preferable) registration of illegal production in the national accounts can be found in Van der Werf and Van de Ven (1996)<sup>2</sup>.

### **2. Illegal drugs transactions**

The production and possession of and trade in all drugs is illegal in The Netherlands. The sale and possession of small quantities of cannabis, however, are 'tolerated'.

From a theoretic point of view, the treatment of production and use of drugs is straight-forward. Value added from drugs transactions can be subdivided into domestic production of drugs and (local) trade in drugs. Assumptions have to be made about the residency of the drugs traders: some of the margins may be generated by non-residents and, therefore, do not contribute to gross domestic product (GDP) of the national economy. On the other hand, trade margins may be generated by residents on illegal drugs transactions in the rest of the world.

Output originating from illegal drugs transactions is not included explicitly in the present national accounts of The Netherlands. However, some transactions may be included implicitly. Most of the 'coffeeshops' where cannabis is sold pay taxes and are included in the General Business Register. As a consequence, they are bound to be part of the random samples on which the production statistics are based. At least part of the turnover may be imputed to cafés as a result of grossing-up procedures. This kind of complication does not occur in estimating hard drugs transactions.

#### **2.1 Hard drugs**

The main products are cocaine, heroin and synthetic drugs, mostly XTC. Synthetic drugs are produced in the Netherlands, cocaine and heroin are not.

Solid information on hard drugs comes from two sources: health and social care provide very reliable estimates on the number of drug addicts in The Netherlands<sup>3</sup>, and law enforcement agencies have information on the quantities of confiscated drugs<sup>4</sup>.

The method of estimation is more or less dictated by the available information. First the quantities have been estimated. The estimate of imports has been computed using information on confiscated quantities, domestic final consumption has been computed using information from health care institutions. Exports have been estimated as imports minus final consumption (corrected for confiscations). Subsequently these quantities have been valued.

Based on various publications<sup>5</sup> the following assumptions have been made concerning heroin and cocaine: the domestic confiscation rate is 25%, hard drug addicts use 0.5 grams of hard drugs daily on average, the import price of hard drugs is dfl 20 per gram, including costs of transportation, the export price of hard drugs is dfl 50 per gram and the street price of hard drugs is dfl 100 per gram.

As said, the estimate of the imports has been based on the confiscated quantities. To avoid strong fluctuations, a three-year moving average is used. The average confiscated quantity was 6,100 kg per year in the period 1993-1995. In 1995, 5,200 kg was confiscated. All cocaine and heroin has to be imported. So it has been estimated 24,400 kg was brought into The Netherlands. The number of hard drug addicts is 27,000. Using 0.5 grams per day, these addicts consume 5,000 kg. The remaining 14,200 kg (imports minus consumption minus confiscated quantities in 1995) is assumed to be exported. Combining these figures with the prices completes the picture: the value of the imports (including all confiscated quantities) is 490 million guilders, final consumption can be valued at 500 million, and exports at 710 million. The figures indicate that 720 million of value added was generated by trade in heroin and cocaine.

In contrast with heroin and cocaine, production of synthetic drugs, like XTC, takes place in The Netherlands. This means XTC is imported, produced, exported, consumed and last but not least confiscated. Description of the XTC sector is therefore more complicated than description of the heroin and cocaine sector. Moreover, health care institutions do not provide numbers of users of XTC.

Like for heroin and cocaine, firstly quantities have been estimated. Although questionable, imports have been assumed to be negligible. Exports have been estimated using confiscated quantities, and domestic final consumption and intermediate consumption, necessary to produce XTC, using expert opinions. Output has been estimated as final consumption plus exports minus confiscated quantities. Subsequently, the estimated quantities have been valued.

According to drug experts of the police, there are about 200,000 users of XTC in The Netherlands. They are believed to consume 3 or 4 pills per weekend.

From a survey of the Trade Organization Horeca<sup>6</sup> it can be learned that the average numbers of visits per person, of people that go to discotheques, is 34.5 per year. Usually, discotheques are visited on Friday or Saturday. This leads to the assumption that the average number of 'full' weekends XTC is used is 17. Half of the visitors are 14-19 years old, 40% in the age group 20-26.

Based on these assumptions, it is concluded that the domestic final consumption of XTC amounts to 12 million pills per year (3.5 pills\*17 weekends\*200,000 users). In a discotheque a pill costs 25 guilders, elsewhere half of this. Most of the users buy their XTC elsewhere. Consumption can thus be valued at 180 million (15 dfl/pill\*12,000,000 pills).

The estimate of exports has been based on (the moving average of the) confiscated quantities, combined with assumptions on the confiscation rate and prices. The average confiscation of XTC is 2.32 million tablets per year (kilos converted into tablets, average 1993-1995, source: CRI). In 1995, 570,000 tablets have been confiscated. For heroin and cocaine, a confiscation rate of 25% is assumed. Most of the heroin and cocaine passes the border twice: first being imported, later being exported. As XTC is not imported and the larger part of the confiscations is made at the borders, the total confiscation rate of XTC probably will be less. Here, it has been assumed that 10% is captured. This means 23.2 million tablets have been produced and 10.6 million tablets (production minus final consumption minus confiscations in 1995) exported from The Netherlands in 1995.

Although production moves from The Netherlands to eastern Europe (due to police efforts) it is believed that the majority of the XTC is produced locally. Consequently, it is assumed here that imports of XTC can be neglected. Another assumption is that the export price of XTC is 7.5 guilders per tablet, about half of the 'street-price' in The Netherlands. The intermediate consumption needed to produce a tablet of XTC amounts to 0.25 guilders.

All these quite hazardous assumptions lead to the following estimates of the XTC sector: imports 0 million guilders, exports 80 million, domestic final consumption 180 million, total output 260 million, intermediate consumption 10 million and value added 250 million.

## **2.2 Soft drugs**

In The Netherlands the soft drugs sector is dominated by 'nederwiet', the domestic variant of marijuana, imported marijuana and hashish. A detailed analysis of the subsector of the soft drugs economy was published by Van Dijk et al<sup>7</sup>. In this report, information from tax authorities and law enforcement agencies has been combined with information from interviews with drug traders, owners of 'coffeeshops' (where drugs are sold), growers of nederwiet and users of cannabis, and reports from health care organizations on the use of cannabis. This publication has gratefully been used to compile estimates of this sector. For the early nineties, the report gives prices, quantities and information on the intermediate consumption of the 'nederwiet' sector (needed are seeds, fertilizer, energy, lamps, nutrition systems, etc.). To compile estimates for this period, only some assumptions on export prices and

the ownership of confiscated quantities had to be made.

For the year 1995, the figures mentioned above have been updated using confiscated quantities (exports, imports, transits and domestic production), demographic information (growth of the number of inhabitants of 15-25 years old) (domestic final consumption). Excluding confiscated quantities, the estimates for 1995 are: domestic final consumption 100,000 kg, exports 300,000 kg, imports 350,000 kg, domestic production 50,000 kg, transits 675,000 kg. Moreover, 7,000 kg of nederwiet and 240,000 kg of imported cannabis have been confiscated (average 1993-1995). In 1995 confiscations added to 330,000 kg imported cannabis and 7,000 kg nederwiet.

Subsequently, these quantities have been valued. Prices mentioned by Van Dijk are updated using the Paranoia Drug Price Report<sup>8</sup> and price indices of energy and electrical household equipment are used to update intermediate consumption. The resulting estimates are: domestic final consumption 1,000 million, exports (including transits) 4,900 million, imports (including transits and confiscated quantities) 3,800 million and intermediate consumption needed to grow nederwiet 60 million. These figures indicate an output of 2,100 million and a value added of 2,040 million.

### **3. Prostitution**

Like illegal drugs transactions, the registration of prostitution is quite straight-forward. However, here too some observations can be made on its treatment in the present national accounts. Besides that, the question arises whether estimates actually should be made for prostitution in the scope of describing the illegal economy. Fact is that in The Netherlands prostitution (of adult persons) itself is legal. Only exploitation of these services is thus far illegal. Nevertheless, prostitution as well as the exploitation of prostitution is included here in the illegal economy.

The part of the service industries that exploits prostitution is not surveyed by Statistics Netherlands. On the other hand, if their activities are known, prostitutes and the persons or businesses that exploit their services are taxed. As such, one can assume that they are (partly) included in the income statistics. The measurement of GDP in The Netherlands, however, is mainly based on a combination of the production and expenditure approach. Therefore, output of prostitution may still not be included in the present national accounts.

However, a part of the consumption of prostitution services may already be accounted for in the national accounts implicitly. Services rendered by prostitutes that are paid by enterprises, are accounted for in their books as 'other costs', i.e. as part of intermediate consumption. As some of these costs are tax deductible, it is likely that this is usually not omitted.

Also the intermediate consumption needed to produce prostitution services is partly accounted for in the national accounts. The necessary lingerie and other objects no doubt are registered as final consumption of households. The rents of rooms and the amounts paid to club-owners can be seen as intermediate consumption of prostitutes and as output of (illegal) prostitution exploitation services. This intermediate consumption is

considerable, but it probably does not influence the estimate of the total value added of prostitution including exploitation of prostitution.

Prostitution is a popular theme for Ph.D-theses and essays. Estimates for prostitution are based on these studies. Usually these estimates are computed as the product of the estimated number of prostitutes, the average price of the services and the average number of services rendered. Sometimes the estimates are somewhat refined<sup>8</sup>. Our preliminary conclusion is that output of prostitution is about 1 billion guilders per year.

#### **4. Illegal gambling**

Also the inclusion of illegal gambling in the national accounts is straight-forward, that is from a theoretic point of view. In practice, the lack of information on this phenomenon makes it extremely difficult to compile estimates. The only figures encountered are estimates of the number of players in 1989: 21,000 addicts to gambling, 360,000 persons who play the fruit machine regularly, 440,000 persons who play the fruit machines incidentally, 400,000 persons who visit a casino incidentally, 200,000 bingo players (every now and then) and 5,300,000 players of the lotteries<sup>9</sup>. Also an estimate of the number of problematic 'fruiters' was found: 75,000<sup>10</sup>. A problematic fruiter is somebody who loses more than 25% of his net income.

These figures have been used to compile estimates. The 75,000 gamblers, average net income of 25,000 dfl a year, together would lose some 500 million (stakes minus winnings). The lottery players represent a revenue of around 1,300 million, under the very hazardous assumption the average losses are 20 dfl per month. Adding something for the other players gives an estimate of the total revenues of 2,000 million. Subtracting the output of the legal gambling industry leaves an output of 600 million of the illegal gambling industry. The assumption that the average losses of the lottery players are 20 dfl per month is not based on solid information. If this guess is wrong by dfl. 2.5, the estimate of the output of the illegal gambling industry is under- or overestimated by 150 million. However, the estimate is in line with figures mentioned in a classified report<sup>11</sup> of the organization of legal gambling industry that states that the output of the illegal gambling industry is between 458 and 817 million (in 1995).

#### **5. Theft and fencing**

In contrast with the activities discussed in the previous sections, the inclusion of theft and fencing in the national accounts is rather complicated. In relation to theft, a distinction can be made between theft of capital goods, consumer durables, money or other financial assets on the one hand, and theft from the inventories of producers on the other hand. Both are discussed below. In addition, fencing, an activity related to theft, is dwelt upon.

If thefts involve 'significant' redistributions of assets, it should be taken into account, according to the 1993 SNA. Registration as an 'other flow', i.e. a change in the value of assets or liabilities that does take place as a result of a transaction, is preferred<sup>12</sup>. Such a registration is comparable to an uncompensated seizure that decreases the assets of the

institutional unit losing the asset and increases the assets of the unit doing the seizing<sup>13</sup>.

Theft of capital goods, consumer durables, money or other financial assets often involves significant amounts. However, because this kind of theft consists of redistributions of assets, it is only important when two different subsectors are involved. All thefts by households from households for example are mere redistributions within the sector. Only when dividing the households into subsectors, it needs to be taken into account.

Theft from the inventories of producers includes theft from stocks of materials and supplies, and finished goods on the one hand, and theft from stocks for resale on the other. The first mentioned reductions of stocks mainly consists of theft by employees, the second also includes shoplifting. In the 1993 SNA, output and intermediate consumption are defined as sales/purchases of goods and services plus/minus the value of changes in inventories. Because recurrent losses due to normal rates of wastage, theft and accidental damage are considered as (negative) changes in inventories, theft of finished goods leads to a decrease of output, and theft of materials and supplies leads to an increase of intermediate consumption. Value added decreases accordingly. The same holds for theft from stocks of goods for resale: output and value added of wholesalers is influenced negatively by theft. As such, theft is registered neither as a transaction nor as an other change in (the volume) of assets; it is completely removed from the system of national accounts<sup>14</sup>.

The conclusion is, no value added is generated by theft as such. This does not apply for an activity related to theft: the trade in stolen goods. The purchase and subsequent sale of stolen goods constitute (monetary) transactions, which should be registered accordingly. Furthermore, value added (trade margin) is generated. Scheme 5.1 summarizes the flows related to the theft of a truck, that is subsequently sold to the rest of the world (excluding insurance-transactions).

Scheme 5.1 Theft of a truck

	before	theft	revalua- tion	fencing	value added	sale
company 1 (initial owner)	100,000	-100,000				
household 1 (thief)		100,000	50,000	-50,000		
company 2 (fence)				50,000	20,000	-70,000
rest of the world (export)						70,000

This results for company 1 in an other change in the volume of assets of -100,000, for the thief in an other change in the volume of assets of +100,000, a revaluation of -50,000 and disposal of assets (negative consumption) of -50,000, for the fence (receiver) in a value added of 20,000 and for the rest of the world in an export of 70,000.

In the present national accounts of the Netherlands, explicit adjustments have never been made. However, some of the value added generated by receivers may be included implicitly. Trade in stolen goods may be mixed with legal trade. Examples are second-hand books, CD's and bicycles. This, and the fact mentioned before that value added only is generated when stolen goods are fenced, or, with other words sold **and** resold, makes it necessary to look into the different types of theft more closely.

First, it has been assumed that fencing of 'shop lifted' articles is negligible: these goods usually are consumed by the thief or sold to an other consumer, but seldom traded.

Second, from several surveys<sup>15</sup> it can be derived that theft from households (excluding cars) adds to about 1.5 billion guilders. The largest part, between 1,1 and 1.2 billion, comes from burglary and theft out of cars. The larger part of these goods is fenced probably. If all of the stolen goods are fenced, and if the trade margin of the fence is 10%, a maximum of 150 million value added is generated. However, some of the stolen goods (books, CD's) are sold to 'official' traders, who act as fence willingly or not. Value added generated by these traders already is accounted for in the present national accounts. The same holds for stolen bicycles (200 million). Our preliminary estimate is that about 100 million of value added, generated by fencing of goods stolen from households, is not accounted for in the present national accounts.

Third, theft of goods (excluding cars and loads of cars) from enterprises added to about 300 million in 1995. This estimate has been derived from analysis of 1000 police reports<sup>16</sup>, that indicated the average loot is worth 5,000 dfl. In this year 65,200 reports were made. About one quarter of the loot was money, and about three quarters of the rest, stolen goods, is fenced. This means that goods, initially worth about 150 million, are fenced. If the trade margin of the fence is assumed to be 10%, it can be concluded that value added generated by fencing of stolen goods from enterprises probably will not exceed 20 million.

Last but not least, value added is generated by the fencing of stolen cars. The value of stolen cars from households was little over 300 million (average of 1988, 1990 and 1992). Sixty percent of the stolen cars is recovered, a part is exported. Bruinsma<sup>17</sup> estimates the value of non-recovered cars (trucks and passenger cars) is about 220 million guilders a year. The theft of trucks (about 100 million, including loads) and part of the theft of passenger cars is committed by organized crime<sup>18</sup>. The margin made on stolen cars sold to the rest of the world may be higher than the margin on other stolen goods fenced locally. The larger part of the stolen cars is exported, a smaller part is taken apart and the parts are sold. Our preliminary estimates are that the value of exported stolen cars (including loads) is about half of the initial value (220 million), that is 100 million and that



the value added generated by the fencing of cars is about 50 million.

Summarizing: the preliminary estimate of total value added generated by fencing is 170 million.

#### **6. Illegal copies of software, video and audio tapes and CD's**

In relation to illegal copies of software, video and audio tapes, a distinction can be made between illegal copies for own final use, and illegal copies in large quantities which are sold subsequently.

Illegal copying for own (final) use especially relates to use of software that is not bought on the market. Copying video and audio tapes for own use is legal, at least in The Netherlands; copyrights are reflected in the price of empty video and music cassettes. Use of software without paying the required copy-rights, however, clearly is illegal. It is a phenomenon that takes place on a regular base. In these cases no monetary transactions are involved.

Illegal copying originals for subsequent sale clearly involves the generation of income. Output and value added should be adjusted accordingly. The Buma Stemra is engaged in the collection and distribution of copyrights. This organization claims that each year illegal copies are sold that would be worth 500 million if they were sold legally. This may indicate an output of 250 million of the illegal 'copying-industry', as consumer prices of illegal copies are assumed to be approximately 50% of the price of the legal versions. Intermediate consumption of this industry is said to be about 10% of the output.

#### **7. Bribery**

In some countries bribery is more common than in others. Blades<sup>19</sup> mentions two different kinds of bribery. First, there are the supplementary payments above 'official' prices. Blades gives the example of the hotel clients who are required to bribe the receptionists to confirm their reservation. In this case, the official price plus the bribes should be considered as the genuine market prices.

Secondly, bribery may refer to illegal payments to persons in privileged positions, e.g. officials who award contracts to the highest bribing supplier or policemen who accept bribes in return for not prosecuting. Blades states that these payments should appear in the secondary distribution of income account as current transfers.

In Van der Werf and Van de Ven<sup>20</sup> it is indicated in The Netherlands the influence of bribery on GDP can be neglected.

#### **8. Other illegal activities**

In The Netherlands, next to the activities mentioned before, a lot of other illegal activities may take place. Examples are smuggling, production and selling of illegal pornography, illegal disposal of (harmful) waste and refuse, illegal catches (over EU-quotas) of the fishery industry, poaching,

espionage, extortion, contract murders, smuggling and trade in human beings, usually prostitutes or refugees. Non of these are believed to have a significant impact on GDP. Indications of insignificance are given in Van der Werf and Van de Ven<sup>21</sup>.

## 9. Conclusion

Table 9.1 summarizes the preliminary estimates of the impact of illegal activities on GDP of The Netherlands.

Table 9.1 Preliminary estimates of the impact of illegal activities on GDP of the Netherlands, 1995. Millions of dfl

	(domestic) final con- sumption	export	import	output	intermediate consumption	value added
heroin, cocaine	500	710	490	720	0	720
XTC	180	80	0	260	10	250
cannabis	1,000	4,900	3,800	2,100	60	2,040
prostitution	1,000	0	0	1,000	0	1,000
illegal gambling	600	0	0	600	0	600
fencing	70	100	0	170	0	170
illegal copying	250	.	.	250	30	220
total	3,600	5,790	4,290	5,100	100	5,000

The GDP of The Netherlands was 635,010 million dfl in 1995. The figures in table 9.1 indicate that it is unlikely that total value added generated by illegal activities, that is not included in the present national accounts, exceeds 1% of GDP.

Obviously, while estimating illegal production great practical difficulties are encountered. Usually, very few reliable sources can be found and therefore the methods to estimate illegal production are enforced unconventional. Each activity needs a different method. Moreover, the methods chosen are dictated by local circumstances. This probably means that each country will have to develop its own procedures.

Also, the lack of reliable sources causes the margins of the estimates to be larger than usual. Unfortunately, it has to be expected that the nature of illegal activities will prevent improvement of this situation in the near future.

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- 10 De Zwart and Mensink, 1993, see footnote 3.
- 11 NRC Handelsblad, 19 September 1996.
- 12 SNA, 1993, § 3.56.
- 13 SNA, 1993, § 12.39.
- 14 For an alternative method of registration of theft see Van der Werf and Van de Ven, footnote 2.
- 15 Statistics Netherlands, Enquête slachtoffers misdrijven (Survey victims offences), 1993, Enquête rechtsbescherming en veiligheid, 1995.
- 16 Ministry of Justice of The Netherlands, Diefstal in bedrijven (Thefts from enterprises), 1995.

- 17 Tweede Kamer der Staten Generaal, see footnote 5.
- 18 In this case, the thief and the fence may be the same 'company', which complicates the registration: the loot is sold only once and no value added is generated by fencing. This complication is disregarded.
- 19 Derek W. Blades, Crime: what should be included in the National Accounts and what difference would it make, OECD, Paris, 1983.
- 20 See footnote 2.