

National Accounts
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Illegal activities in the Swedish National Accounts

- **prostitution**
- **narcotics**
- **gambling**
- **alcohol and tobacco**

Summary

The standards set up for compilations of the national accounts are available in two manuals, the global System of National Accounts, SNA93 and the European version named the European System of Accounts, ESA95. These state that all transactions based on a mutual agreement between two parties should be included in the estimates. The reason for inclusion is that it will make comparison of national accounts between countries more accurate as these activities may be considered differently in across countries. Activities which in some countries may be legal may in other countries be forbidden by law. This means that they could already be included in the estimates of some countries and excluded in others.

During 2007 a major revision of the Swedish national accounts has been carried out. In this context illegal activities have for the first time been included for the whole time series from 1993 and onwards.

The following areas have been considered:

- Prostitution services
- Narcotics
- Smuggling of alcohol and tobacco
- Home production of alcohol
- Gambling

The first experimental calculations of prostitution, narcotics, alcohol and tobacco were presented in a report published on 1 April 2005. It was published on the website and sent out for comments to people with knowledge within the different areas. This report is an updating of that work taking into accounts the viewpoints received. Information from further research and reports has also been included. Furthermore, a calculation of illegal gambling has been added. Time series for the period from 1993 and onwards have also been included.

Sources of information

Information on these kinds of activities is scarce and much more uncertain than for most other areas of the economy. In addition, research and reports typically have other aims than measuring economic variables. They are more concentrated on the social motives and effects and on prevention activities. However, any available information found has been used and combined in order to make economic estimates. It is of course important to stress that this is not the absolute truth, but the best effort that we could make thus far.

The conclusions drawn from work carried out by Eurostat and other international bodies are that in this sector the Member States should focus on economically significant factors and simplify the calculations where possible. Totally accurate measurements of illegal activity are not possible; instead, a pragmatic approach is called for.

Data and other information have mainly been found in various official reports from ministries, central and local social authorities, project groups, networks, the police, universities, the customs and individual studies.

Information has also been received through consultation with people working within these areas.

Effects on the national accounts

Regarding production activities in Sweden, only home production of alcohol has been considered for resale. Own production of wine exists but has been considered to be for own final use. Drugs are not produced in Sweden but imported. There might be some production or mixing of pills but no solid information for this production is available.

Economic values of imported products are included in the existing figures for imports. They will be included in the currency exchange estimates. Therefore the production generated in Sweden is equal to the trade margins that distributors of the products gain. The consumption of these products is recorded as effecting only household final consumption expenditure. From interviews and court proceedings however, there is information that some expenses on prostitution are paid by companies, but we have not enough information to make an assessment of to what extent.

Illegal activities influence the national accounts to some extent. The following table shows to what extent GDP has been affected after the inclusion of these illegal activities. The GDP level in current prices increases but the effect on growth in GDP is minimal. It is likely that illegal transactions may have a contra-cyclical effect i.e. it dampens economic fluctuations.

Effects on GDP, million SEK of

	1993	1994	1995	1996	1997	1998	1999
Alcohol, smuggling	65	70	93	156	145	141	128
Alcohol, home made	477	543	688	900	715	609	530
Wine	7	7	7	11	14	16	25
Strong beer	134	136	145	165	144	183	201
Tobacco	319	251	254	179	205	218	186
Prostitution	434	468	495	515	538	557	393
Gambling	888	895	922	926	949	1 006	1 012
Drugs	1 951	2 244	2 635	2 142	2 231	2 378	3 248
Total	4 275	4 615	5 241	4 994	4 941	5 108	5 723
GDP	1 573 381	1 679 179	1 809 756	1 852 092	1 927 001	2 012 091	2 123 971
Relation to GDP, %	0,27	0,27	0,29	0,27	0,26	0,25	0,27

	2000	2001	2002	2003	2004	2005	2006
Alcohol, smuggling	106	142	207	139	205	295	280
Alcohol, home made	412	438	424	292	304	237	179
Wine	26	26	36	78	70	79	71
Strong beer	215	236	335	497	637	614	594
Tobacco	216	223	241	240	220	189	196
Prostitution	427	472	520	582	585	529	520
Gambling	1 021	994	1 035	1 000	983	953	974
Drugs	2 386	2 363	2 195	2 453	2 282	2 292	2 073
Total	4 809	4 894	4 994	5 281	5 287	5 188	4 887
GDP	2 249 987	2 326 176	2 420 761	2 515 150	2 624 964	2 735 218	2 899 653
Relation to GDP, %	0,21	0,21	0,21	0,21	0,20	0,19	0,17

The effect on GDP in current prices varies between 0.17 and 0.27 percentage points for the period in question. The prices of drugs increased heavily in 1999, which contributes to the high estimate for that year. Value added from drugs is the main contributor to the GDP effects. Gambling is the second biggest item. Prostitution was reduced in 1999, as the law against buying sexual services was passed. An immediate reduction in street prostitution was noticed. By and by new ways of advertising have been established within this area. Internet and mobile telephones have to some extent replaced previous contact patterns. The estimates of smuggling of tobacco have been revised upwards compared to the previous report.

Project group

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1 Background

The Member States of the European Union estimate national accounting aggregates on the basis of the methodological criteria and standards laid down in Council Regulation 2223/96, better known as ESA95¹. Though it is not the only purpose of accounting aggregates, one of their main uses is to determine the contribution of all Member States to the European Communities' own resources. Council Decision 2000/597 identifies ESA95, GNI² as the basis for budgetary and own-resource calculations starting from budget year 2002.

The ESA95 Regulation has three main aims; that the national accounts should be internationally comparable (methodologically and numerically), reliable and exhaustive. These aims may be achieved by application of a common methodology³ and use of a sufficiently robust structural-statistics basis, such that the estimation methods used generate figures that reflect as closely as possible the economic structure of the Member States.

ESA95 explicitly states that production forbidden by law should also be included in GNI, (see notably paragraph 1.13g of ESA95). Therefore, Member States will have to make estimates of illegal activities and include them in their ESA95-based national accounts estimates. This makes the need to clarify issues relating to the treatment of illegal activities for own-resource GNI purposes very pressing. However, there are big difficulties because of the problems of collecting suitable and reasonably reliable data on the main activities customarily referred to as illegal.

Eurostat set up a task force on these matters in 2002, but its results were not very straightforward. The test compilations made could show very different results depending on which underlying assumptions were made. Therefore the models tested were not considered to be good enough to be the sole recommendation for inclusion of these activities in the core of national accounts.

To be included in value-added, an economic flow, legal or illegal, must satisfy the definition of a transaction, which presupposes a mutual agreement between the units involved (ESA95, paras 1.33 and 1.42) and must fall within the production boundary (ESA95, paras 3.07 to 3.08). Drugs, prostitution, fencing of stolen goods, and trade in illegal copies of originals appear to meet these two criteria. On the other hand, Eurostat has doubts as to whether theft (ESA95, para. 1.42) and extortion should be regarded as transactions or retained in the suggested list, given that generally there is no mutual agreement in these activities. As for bribery, while a mutual agreement can generally be assumed, it is debatable whether it may be considered as falling within the production boundary.

Secondly, the aim should be that the various countries compile exhaustive national accounts estimates including illegal activities. To that end, attempts

¹ European System of Accounts

² GNI=Gross National Income

³ ESA95, Annex A

should be made to set up harmonised data sources and calculation methods, building on and extending experience already gained in several countries.

The term “illegal” refers to (criminal) law. The definition of “illegal activities” depends on the laws of each country and laws may differ between countries and over time. Production and consumption of alcoholic beverages is a good example. In some countries it is illegal, whereas in most countries it tends to be legal. Looking at comparisons over time, prohibition periods could be mentioned. Another example is prostitution, which in some countries is illegal, while other countries have all kinds of approaches to the (il)legality of prostitution. From a theoretical point of view, this point may be less relevant as the national accounts should be exhaustive, i.e. all activities, legal as well as illegal, should be included.

Under ESA95, therefore, illegal activities must be included in the accounts. Illegal activities that fit the characteristics of transactions – particularly that there is mutual agreement between the parties – should be treated the same way as legal activities. Certain illegal activities do contribute to output and income in the (national) economy and as such they should be registered accordingly, as laid down in the 1993 SNA⁴.

Great practical difficulties are encountered when estimating illegal production. Very few reliable sources can be found and a problem with the registration of illegal activities is the fact that in several countries some illegal activities may be included implicitly in the national accounts data. For example, units providing prostitution services are often included in the Business Register, under massage salons, renting of rooms, cafés, film studios, etc. As a consequence, some prostitution services are implicitly included, and grossing up the survey data and simply adding explicit estimates of illegal activities to GDP⁵ may lead to double-counting. Transactions could also be covered by balance of payments data, and therefore have to be excluded to avoid double-counting. Similarly, laundering of revenue from these activities needs to be eliminated as well, but there is no statistical information to handle these problems.

Sweden has on commission from Eurostat⁶ tried to calculate the economic consequences of illegal activity and this text covers prostitution, narcotics, illegal gambling and the smuggling of alcohol and tobacco. Some general recommendations and theoretical models for making calculations were developed at seminars and in working parties organised by Eurostat.

No matter how good the models for compiling statistics are, they serve no purpose if the requisite data are not available. There is a great deal of uncertainty involved in measuring activities in this sector. For obvious reasons, no exact data are available, so instead we have to deduce as much as possible from the information available in different contexts. Such data have primarily been compiled to illustrate the various problems faced by those involved and to which the activities give rise, and to monitor the effects of related amended legislation.

⁴ System of National Accounts

⁵ GDP=Gross Domestic Product

⁶ Statistical body of the European Union

For an activity to be included in the Swedish national accounts it has to have a centre of economic interest on the economic territory of Sweden (in accordance with ESA 1.30). This means engaging for an extended period (one year or more) in economic activity on this territory. It must also involve a transaction – an economic flow –based on mutual agreement between the parties. The value from imports and money exchange is already registered in the national accounts. The production value to be added from resale of imported illegal goods, is therefore equal to the mark up that the reseller adds to the import price.

If a person who resided in Sweden for less than a year sells services in Sweden, this is recorded as an import in the Swedish national accounts.

Swedish household final consumption expenditure can take place both at national and non-national territory. If Swedes are outside the country for a period of less than one year, their final consumption expenditure in the other country is included in the Swedish national accounts. This expenditure is recorded under the heading “Consumption by Swedes Abroad” when compiling household final consumption expenditures. The opposite relation is valid for visitors in Sweden. Their expenses are in the context of national accounts regarded as exports. The data are based on figures relating to credit card purchases and bureaux de change, and consequently consumption by Swedes abroad is included in our national accounts. However, we unfortunately have little information on the breakdown by different goods and services for these transactions.

2 Prostitution

Legislation

On 1 January 1999, the Law prohibiting the purchase of sexual services⁷ was adopted in Sweden. The prohibition applies everywhere, irrespective of whether the purchase occurs on the street, in dwellings, in restaurants, in brothels or via the Internet.

The law makes prostitution a criminal offence only for the purchaser and the offence is deemed to begin as soon as the purchaser contacts the seller/prostitute, e.g. on the street, and offers payment for sexual services.

However, the courts require high standards of proof to institute legal proceedings and to sentence a purchaser of sex. This means that the prosecution of a crime being committed requires members of the police to engage in such reconnaissance that it makes them eye witnesses to the dealings between the parties. In principle this means that only dealings which take place in a car or somewhere else outside can be verified. In the case of sexual services provided indoors it becomes almost impossible to prosecute.

⁷ Law 1998:408.

According to statistics compiled by the National Council for Crime Prevention (*Brottsförebyggande Rådet*), the numbers of reported sex-purchase infringements of Law 1998:408 during the years 1999 to 2004 were the following:

Year	Infringements
1999	94
2000	92
2001	86
2002	110
2003	300
2004	156

The prosecution ratio, i.e. the ratio between the number of suspected infringements and the number of infringements which resulted in indictment and the imposition of penalties, is just under two-tenths. In cases where the accused was convicted solely of the purchase of sexual services the penalties varied between 40 and 80 "day fines" [corresponding to 33.3% of a person's daily income, with social exemptions]. In one of the cases the accused was also convicted of serious assault and sentenced to one year in prison. The large number of cases reported in 2003 follows the discovery of a client register in connection with the detection of a brothel business.

Changes following the adoption of the law

In Sweden, the government has asked the National Board of Health and Welfare, *inter alia*, to constantly monitor and collect information on the scope and development of prostitution.

The report *Prostitution in Sweden (Kännedom om prostitution) 1998-1999* gives an initial description of the situation before and after the adoption of the law. The report is based on information collected via surveys of all police authorities and police sectors, all municipalities and a sample of restaurants, hotels and similar businesses as well as the local offices of RFSL⁸. Internet sites linked to prostitution were also identified and interviews were conducted with key informants including, *inter alia*, the police, social and health services, and a number of purchasers of sex.

A follow-up to this report, *Prostitution in Sweden 2003*, is based primarily on interviews with approximately 35 persons whose work places them in close contact with prostitutes. This report presents their knowledge of prostitution – or rather their perceptions and assessments.

The Swedish law against purchasing sex has been criticised for being ineffectual, for moving prostitution indoors and making the situation of prostitutes more difficult. However, the police and social workers who are in close contact with prostitutes agree that the sex trade has declined and in any event it is clear that street prostitution has decreased. There are indications that there are fewer clients on the street, as they are possibly afraid of being caught, but also that there is a larger proportion of clients who want to do "worse things" and have "weird cravings".

⁸ National Federation for Sexual Equality

In the preliminary work on *SOU 1995:15* [SOU = *Statens offentliga utredningar* (Reports of official commissions of inquiry)] it was estimated that the total number engaged in prostitution in Sweden was about 2 500, of which approximately 650 were engaged in street prostitution. Estimates made since the adoption of the law indicate a total of 425 engaged in street prostitution in 2003. However, it is much more difficult to get a clear view of indoor prostitution. Access to mobile phones and the Internet means that contacts between purchaser and seller can take place in secret. There is information that contacts are initiated at certain restaurants, hotels and dance halls, in connection with conferences and private parties, as well as on the Sweden/Finland ferries. In the case of the Internet, estimates vary – the same person may appear in different contexts and the advertisements may be out of date. However, there are a number of reports which indicate that there are about 100 people in Sweden who sell sexual services via the Internet.

Trafficking in human beings for the purpose of performing sexual services

The national police force estimates that there are between 400 and 600 female victims of trafficking each year in Sweden⁹. Most are from the Baltic countries, Eastern Europe or Russia but there are even women from Thailand. These women become prostitutes in brothels and in sex clubs and are isolated from the rest of society. The women are guarded by pimps who often appropriate most of their earnings. The women do not know the language and have no permit to be in the country, so pimps have almost complete control over them. Sexual services are sought primarily via the Internet.

On 1 July 2002, trafficking in human beings for sexual purposes became a new crime in Sweden and, on 1 July 2004, criminal responsibility was extended to include trafficking within national borders and trafficking for the purpose of other forms of exploitation than sexual services, such as forced labour and trade in organs. Consequently, Sweden has a comprehensive legal framework against trafficking for the purpose of performing sexual services. According to the national police, the Law against purchasing sex is hindering the establishment of trafficking in Sweden. The profits are low, since traffickers do not dare to place the women on the street owing to the risk of discovery.

The following is a description of the conditions to which these persons may be exposed.

The woman was lured to Sweden by the man she loved. On arrival her passport was taken from her and she was locked in an apartment, and forced to accept clients to perform sexual services on the grounds that she had a debt to pay off. She was forced to remain silent, as her pimps told her that if she revealed to anyone what she was doing in Sweden she would be thrown into prison, since prostitution was a serious crime and she was also an illegal immigrant. The woman succeeded in escaping and took her life by throwing herself from a bridge over a motorway.

⁹ Report 6: 2003

Figures for trafficking are not explicitly included in the calculations with reference to that these women do not enter into a voluntary agreement regarding the services which they must perform. As this is a prerequisite for inclusion figures for such activities should consequently not be included in the national accounts. However, since the Internet is used as a channel for selling sexual services, it is difficult to exclude this particular subset of the activity.

Demand – estimating the output value of prostitution

A potential and very rough effort has been made to estimate demand on the basis of data from an interview survey conducted by the Swedish National Institute of Public Health in 1996¹⁰, according to which one in eight men in Sweden purchases sex on some occasion during his life. This means that almost 14 per cent of Swedish men have paid for sexual services at some time. This is equivalent to more than 430 000 men over the age of 18. For the majority, it was limited to one or very few occasions, while a smaller group had had more than 20 contacts with prostitutes. Of the latter, a group of 20 had had almost 700 such contacts. The majority, 77.9 per cent of contacts with prostitutes, had occurred abroad when travelling on holiday or for work and on mission.

Number of times	Approx. average	%	Of total 430 000	Total number of purchases	Average price per occasion	Total consumption
1	1	33.9	145 770	145 770		
2-3	2.5	24.1	103 630	259 075		
4-10	7	30.5	131 150	918 050		
11-20	15	5.2	22 360	335 400		
21-50	35	5.2	22 360	782 600		
51-100	75	1.1	4 730	354 750		
Total			430 000	2 795 645	2 000	5 591 290 000

The columns "Number of times" and "Percentage" are based on the survey, otherwise the tables comprise own assumptions and calculations.

77.9% of sex purchases had taken place abroad, which means that domestic consumption represents only SEK 1 123 849 290.

Since the survey concerns the number of purchases during a respondent's life, it is in fact not possible to calculate an annual value on the basis of these data. However, assuming that a period of five years is involved, annual consumption is SEK 224 769 858. Price data also are assumed, but are to some extent based on price data mentioned in this context. Since a large proportion of the purchases took place abroad, SEK 2 000 may perhaps be on the high side.

This calculation is not considered usable for the following analysis. In addition, with the high proportion of purchases abroad, it would mean that 80 percent of all consumption, i.e. purchases which took place abroad, is already included in the final consumption expenditure of households. In

¹⁰ Sex in Sweden, Swedish National Institute for Public Health

that case the Swedish domestic market would only have a turnover of approximately SEK 225 million.

Different types of prostitution

Street prostitution

According to the National Board of Health and Welfare report "Prostitution in Sweden 2003", there is street prostitution in Stockholm, Gothenburg and Malmö.

The social services prostitution group in Stockholm knows of approximately 180-200 women per year with experience of prostitution. It is estimated that there are 25-30 women on the street every evening. The police in Stockholm, however, report a significantly lower figure. They estimate that there are 50-60 women engaged in street prostitution, and that only 5-7 women are on the street every evening. The police report that some of the women have a substance-abuse problem. The prostitution group has also noted that some men are engaged in prostitution.

The social services prostitution group in Gothenburg knows of approximately 100 women per year with experience of prostitution. About 10-15 women are reported to be offering sexual services on the street each evening and on rare occasions this figure can rise to around 20 women. It is also believed that there are fewer heroin addicts currently engaged in street prostitution. A group of women in their 40s, who had been in prostitution circles for many years, are reported to be leading more regular lives. Over the last five years the prostitution group has encountered about twenty women whom they suspect are trafficking victims.

The social services prostitution group in Malmö reports that it knows of approximately 135 women in street prostitution. It is estimated that there are approximately 30-35 women on the street every evening. It is also estimated that the majority of the women, perhaps as many as 90%, are heroin addicts.

Summary of street prostitution

Street prostitution in Stockholm: approximately 190 (1998: 280 individuals)

In Gothenburg: fewer than 100 (1998: 286 individuals)

In Malmö: just under 135 (1998: 160 individuals)

This gives a **total of approximately 425 individuals**.

The drop in the number of prostitutes is primarily the result of the law prohibiting the purchase of sexual services, which entered into force on 1 January 1999.

The substance-abuse problem among women in street prostitution differs in the three cities. In Malmö the overwhelming proportion of prostitutes are reported to be heavy abusers, primarily of heroin, and figures of up to 90 per cent are mentioned. In contrast, in Stockholm and Gothenburg, the majority do not have serious substance-abuse problems. There are more non-abusers than abusers. In total, approximately half are estimated to be substance-abusers. Some individuals suffer from psychiatric disorders. Some are receiving sickness benefits and there are also some who are

receiving social-assistance benefits. In general, the average age among street prostitutes has increased in recent years and there are few new recruits.

According to data from informants, those who are active in street prostitution have lived in Sweden for a long time and are not casual visitors.

An effort to calculate income from street prostitution is outlined below.

In *SOU 1981:71*, an attempt was made to calculate gross income for the approximately 900 persons engaged in street prostitution at that time. A conversion to 130 man-years and an annual income of SEK 300 000 gave a total income of SEK 40 million. The average income for the 900 part- and full-time prostitutes then becomes almost SEK 45 000. Calculated at 2004 values on the basis of the Consumer Price Index, this is equivalent to an average income of just under SEK 124 000.

However, since many are heavy substance-abusers, one can also calculate the level of income necessary to finance an individual's substance abuse. This is based on the estimates made in *SOU 1998:18, Utredningen om tullens verksamhet* [Report on customs' operations]. This report makes a calculation based on various scenarios of what volume of drugs are consumed in Sweden and what quantities are consumed by different consumer groups. However, the report is not specific about the volume of consumption. Instead, various consumption levels are discussed on the basis of different assumptions regarding annual consumption and the number of days of active substance-abuse. The following alternatives relate to heroin and amphetamines.

Heroin	Different abuse alternatives				Average
	Alt 1	Alt 2	Alt 3	Alt 4	
Dose in grams per day of substance abuse	0.5	0.5	0.8	0.8	
Number of days of substance abuse	100	250	200	250	
Annual consumption, in grams	50	125	160	200	134

Amphetamines	Different abuse alternatives				Average
	Alt 1	Alt 2	Alt 3	Alt 4	
Dose in grams per day of substance abuse	0.8	1	0.8	1	
Number of days of substance abuse	100	100	200	200	
Annual consumption, in grams	80	100	160	200	135

According to the above tables, average consumption by a heavy substance-abuser is approximately 134 grams/year. The price of a gram of brown or white heroin is between SEK 900 and SEK 1 300, and of a gram of amphetamines approximately SEK 190¹¹. On this basis, own-consumption of heroin costs between SEK 120 000 and SEK 174 000 per year, and own-consumption of amphetamines approximately SEK 25 000 per year.

¹¹ See section on drugs

Added to this are average living costs, which on the basis of various calculations¹² are estimated at between SEK 50 000 and SEK 60 000 per year for a single woman. However, these calculations do not include the costs of rent and holidays. A reasonable assumption is that such expenditure can be a further SEK 100 000 per year. In such a situation, an income of between SEK 125 000 and SEK 274 000 per year would be necessary.

This corresponds well with the illegal earnings of between SEK 10 000 and SEK 20 000 per month that are offered when trying to attract new prostitutes¹³.

Income from street prostitution

Average income per prostitute per year	200 000
Number of prostitutes in street prostitution	425
Total output	85 000 000
(this thus requires 200 occasions per year at SEK 1000).	

SOU 1981:71 reports that the majority of prostitutes in Malmö have an annual income of over SEK 200 000. However, the report also points out that annual incomes above SEK 200 000 are likely to be a clear exception, but it is likely that the average income is above SEK 100 000. An income of SEK 150 000 in 1980 converted on the basis of the CPI is equivalent to SEK 417 000 in 2004. However, it is not self-evident that earnings from these activities have kept pace with the CPI trend over the same period.

In some cases there is also evidence that prostitutes support another person out of their own income. This can be someone the prostitute is living with or has some other form of relationship with. In some cases the prostitute finances the substance-abuse of both parties out of his/her own income.

Internet

Prostitution activity via the Internet is substantially more difficult to tackle than street prostitution. A certain portion of what is offered via the Internet comes under the heading of trafficking in human beings. Net prostitution occurs in all parts of the country and the prostitutes travel around to different places to remain anonymous or to get new clients. Many of the women have a permanent dwelling and sometimes family and friends who do not know that they are working as prostitutes. Substance-abuse is not as common as among street prostitutes, but it does exist. Few use narcotics, but many are addicted to alcohol or pills.

The women do not always act alone. There are people who set up websites for a lump sum, a commission or a combination of money and sex. The cost for a website can vary between SEK 1 500 and SEK 10 000 and to update the website can cost around SEK 5 000¹⁴.

¹² See also The Swedish Consumer Agency (Konsumentverket), Institutet för privatekonomi (Personal Finance Institute), LO-föreningssparbanken.

¹³ See *SOU 2001:14*, page 382.

¹⁴ According to articles in *Aftonbladet* in December 2000.

Sven-Axel Månsson and Peder Söderlind, who have done considerable research on sexual exploitation on the Internet and have also published the book "*Sexindustrin på nätet*" (The sex industry on the net), report that at least 80-100 women market themselves on Swedish websites. The newspaper *Aftonbladet* conducted a survey in 2000 and found that 106 women sold sexual services on the Internet.

The prices indicated on the websites varied for different services and in February 2005 ranged between SEK 1 000 and SEK 4 000.

An average price of SEK 2 500 for 100 women who have 500 contacts per year amounts to a turnover of SEK 125 million annually, equivalent to SEK 1.25 million per woman.

Internet prostitution

Average income per prostitute and occasion	2500
Number of prostitutes via Internet	100
Number of contacts per year per person (assumed)	500
Total output	125 000 000

(Equivalent to an average income per year of SEK 1.25 million per person)

However, this category also includes active women who have spent less than one year in Sweden. Their income should not be included in Swedish output, but it is very difficult to estimate the scale. These women generally have somebody who organises their activity, and who takes a share of the income. Probably the organisers have lived for longer than one year in Sweden in order to create a contact network, and in that case those persons' incomes should be included.

Sex clubs

Numbers and employees

In 1998, the National Commission on Sex Crimes [*Sexualbrottskommitté*] (2001:14) conducted surveys of the national police authorities and social services in Stockholm, Gothenburg, Malmö and Norrköping in order to obtain information, *inter alia*, on the activity and scope of sex clubs. The surveys related to the situation in the spring of 1999. Replies were supplemented by interviews with representatives of the social services, the public prosecutor's office and police authorities, and by study visits to sex clubs. All the material indicated that there were a total of **13 sex clubs in Sweden**: four in Stockholm, three in Gothenburg, two in Karlstad and one each in Eskilstuna, Borås, Jönköping and Strömstad. Stockholm and Visby also each had a sex club, the activity of which consisted solely of a bar service and on-stage nudity, such as striptease.

The survey responses indicated that the majority of women in the sex-club branch are active in Stockholm and Gothenburg. The police authorities report that approximately 400 women work in Stockholm's sex clubs. In Eskilstuna and Visby the figures are 9 and 6 women respectively. In the Jönköping club, one or two women work simultaneously but the total numbers could not be ascertained. In one of the clubs in Karlstad there is

only one woman. Internet data suggest that approximately 40 women work in one of the clubs in Gothenburg and approximately 50 in another.

Turnover

There is not enough information to estimate the turnover of the sex clubs. However, a ruling from *Svea Hovrätt* (court of appeal) in November 1998 gives an indication of the sums circulating in the branch. The representatives of the Stockholm clubs *Studio Anna / New Studio Anna* and *Tusen och en Natt (1001)* were convicted, *inter alia*, of financial crimes. From the case it emerged that the surplus liquidity from the activity in the clubs over a two-year period had amounted to about SEK 20 million¹⁵.

Range of activities

The visible portion consists of striptease performances on stage. This portion can also include the sale, rental and showing of pornographic films (on large video screens and in private booths) and the sale of pornographic magazines and sex articles. After the performance the women circulate among the audience and take orders for private/personal posing.

Posing generally occurs in a booth or adjacent room. During the posing the woman and the client are separated by a plate of glass or chicken wire. Another type of private posing, which is offered to individuals or smaller groups of clients, is known as "table dancing", where the woman poses standing on a table or a raised stage. Also in some of the Stockholm clubs there are special rooms for massage and bubble pools, where the client is allowed to bathe together with the woman.

The clubs serve coffee, soft drinks, light and medium-strength beer and some light snacks. The clubs do not have a serving licence under the Alcohol Act.

Price data

Generally there is a price list for the various services offered. The price for a private posing at a club in Gothenburg can vary between SEK 300 and SEK 1 000. The sex club *Tusen och en natt (1001)* in Stockholm had the following price list:

Erotic body massage: SEK 2 000 per 30 minutes

Bath in bubble pool with your favourite girl: SEK 3 500 per 30 minutes

VIP room, accompany the girl to her own bedroom: SEK 5000 per 30 minutes

Spend the whole night with the girl of your choice, do what you will, for as long as you like: SEK 15 000¹⁶.

Payment

The services provided in *Studio Anna / New Studio Anna* and *Tusen och en natt (1001)* were in 80 per cent of the cases paid for with some form of

¹⁵ Svea Hovrätt (Court of Appeal), Case No B1103/98, DB 113 (no leave to appeal to the Supreme Court).

¹⁶ The price list has been taken from the Court of Appeal judgment, district court appendix No 7.

electronic payment card¹⁷. A survey of the clients at the two clubs shows that many had paid with a company card. The survey was based on 6 500 card purchases for a total of SEK 23 800 000 over a two-year period. Approximately half of the men were businessmen or company directors. The 4 000 visitors included persons who had paid almost SEK 100 000 in one evening. In most cases the invoices were issued on a number of restaurants and other companies around the country, thereby concealing the fact that a visit to a sex club was involved. The businesses named in the judgments of Svea Court of Appeal are included in Statistics Sweden's company database for the period in question and in the national accounts, with the data reported to the tax authorities. Thus income and expenditure for club activities are already included in the national accounts under SNI [Swedish Industrial Classification] branches 93022, 93040 and 55300.

Crime

Various forms of crime arise in connection with sex club activity, e.g. drug crimes, illegal threats, fraud, assault and battery, blackmail, infringement of safety and health regulations, pimping, and violation of the law prohibiting the purchase of sexual services. Some crime data are based on criminal convictions, others on responses to surveys of police authorities and social services, and yet others on information received from people who have spent time in a sex-club environment.

One example, provided by police authorities, of a crime carried out in the above-mentioned sex clubs is that a client's credit card can be debited several times for the same amount. This could be SEK 5 000 for a glass of water or SEK 140 000 for a full night, while the client has no memory of the night because somebody drugged him. Those clients who protested, were silenced, in some cases by threats.

Prostitution contacts formed in sex clubs

In connection with the investigation of the sex clubs, it emerged that in one of the smaller clubs the owner might sell prostitution services for SEK 1 000. In another small club it might be possible to pay a total of SEK 1 200 for entrance to the club premises, access to nude performances on stage and for the services of a prostitute who was waiting in an apartment or hotel room.

Via contacts with women who have experience of working in sex clubs, the prostitution team in Gothenburg has obtained information that certain women offer prostitution services. The services are provided outside the club's premises, since the club owners take care that prostitution does not take place in the actual club.

Nationality

SOU 2001:14 reveals that women of foreign origin are involved in the sex clubs. If these persons reside in Sweden for less than one year, the income should not be recorded under Swedish output, but rather as imported services.

¹⁷ Data from the Court of Appeal judgment, district court judgment, p.26

Wages and working conditions

SOU 2001:14 states that the police in Stockholm have observed that the recruitment of girls to the sex clubs often takes place in schools. They are tempted by the undeclared wages of between SEK 10 000 and SEK 20 000 per month.

The women do not have any job security, since in principle they are never formally employed by the clubs. Frequently the income is undeclared. Some of the club owners ensure that the women have an "F" tax form. In that way, by virtue of the fact that the women are self-employed, the club owners believe that they have no obligations as an employer. However, it has been shown to be difficult for the women to declare and pay tax on their income. For instance, in certain cases in Gothenburg the tax authorities accepted that tax should be paid for dancing, but refused in the case of stripping, on the grounds that such activities are not legal.

The economic transactions of the women and the club owners take different forms. Some club owners require that the woman pay to reside on the premises. In some cases the woman has a right to a commission based on the client's payment. In one sex club in Stockholm the women had a commission on both drinks which the client purchases in the bar and services he purchases in the club's private rooms. The commission amounted to 25 per cent or 50 per cent. The result is that the women are largely at the mercy of the club owners. It is not uncommon that the women fall outside the social safety net, e.g. the social security system.

Some women in the sex clubs use drugs for their own consumption. These are primarily amphetamines, cocaine and smoked heroin. There are some cases where the women are introduced to substance-abuse in the clubs.

Sex clubs as an introduction to prostitution

It may perhaps be said that sex clubs occupy a grey zone with regard to the sale of sexual services¹⁸. Some of those interviewed in the Board of Health and Welfare reports indicated that women in prostitution had often spent some time in a sex club before taking the step into prostitution and that the women's work in the sex club can in this sense lead to a gradual acclimatisation to the prostitution environment.

SOU 2001:14 reports that it is reasonable to assume that the total number of women working in sex clubs is at least 500. The majority are active in Stockholm and Gothenburg.

A rough calculation gives the following estimate:

Prostitution in connection with sex clubs

Average income per prostitute and occasion	5000
Number active in sex clubs	500
Number of contacts per year per person (assumed)	150
Total output	375 000 000

(Gives an average income per year of SEK 750 000 per person)

¹⁸ Social security report *Information on prostitution 1998-1999, SoS-report 2000:5*, p.56ff

The calculations are based on the assumption that the people who work in sex clubs do not sell sex in the clubs, but only arrange contacts there. The sale of sex then takes place outside the club business, on other premises, hence the low number of contacts. This restrictiveness arises because the clubs do not want to risk selling sexual services on their premises. Such persons are or should be self-employed.

The activity in which the women are engaged in in the sex club is not illegal, but it may not be recorded if the clubs are not included in the population for the national accounts – in principle the business register. Adjustments are then made to the national accounts in order to cover up for such concealed activities.

Other prostitution

There is information that prostitution occurs in certain restaurants, hotels, conferences and escort services etc. However, this activity is among the most difficult to survey and for this reason no estimate could be made. Experienced analysts of this activity consider that it takes place on a very small scale.

Summary

To sum up, this very rough estimate would mean that turnover on prostitution is about SEK 585 million. However, as pointed out earlier, some of this money probably accrues to people who reside in Sweden for less than one year.

Overview of data

Number of prostitutes

Street	425
Internet	100
Clubs	500
	1025

Average number of contacts per prostitute and year

Street	250
Internet	500
Clubs	150

Average price per occasion

Street	1000
Internet	2500
Clubs	5000

Average turnover per prostitute: SEK 571 000 per year

Total turnover: SEK 585 000 000

Prostitutes working in the context of clubs and via the Internet incur certain expenses for premises, travel and working clothes. These could however already be included in some way, although in a different context. With reference also to the total uncertainty of the compilations, no reduction has been made for this.

A prostitute who had worked in the sector for 19 years and applied for an "F" tax form, reported her estimated annual income as SEK 900 000 per year in her application to the tax authorities.

In *SOU 1981:71*, gross income from prostitution in Sweden was calculated. The total income added up to SEK 120 million. Indexed in line with the CPI at 2004 values, this is equivalent to SEK 334 million. The number of prostitutes was estimated at just under 2 000.

Time series from 1993 and onwards

After the publishing of the first experimental compilations in April 2005, the report was made public on the internet and also sent to a number of people having knowledge within the area. No reactions were received on revising the first compiled estimates. As normal statistical information does not exist, estimates within this area contain a large proportion of uncertainty. As no better information has been revealed the benchmarks from the previous investigation will be used.

The benchmark estimates of 2003 have been used as a starting point. Previously published intermittent investigations¹⁹ within the area have been used for benchmarking other years. For years with no information, interpolation methods have been used. The material has been divided into different groups where possible, i.e. women, men and teenagers.

After the law was introduced in 1999, information is available on the number of reported crimes. The figures are however very volatile with ups and downs for different years. This is due to the fact that some years a gang or a brothel dealing with activities within this area has been revealed and then long lists of people engaged have been found. A great number of people have then been reported. Therefore this information has only been used to some extent.

Reports are recorded according to the following time series

	1999	2000	2001	2002	2003	2004	2005	2006
Reports, crime code 4024	91	92	86	110	300	156	460	163

The introduction of the law resulted in a notable reduction of street prostitution. During a few years a reduction of total activities was noted. New ways of establishing contact between buyer and seller have emerged. Internet, mobiles, communities and blogs expand the possibilities for contacts. From the reports that have tried to map prostitution services on the internet it seems that the number of people active in these areas is increasing. Therefore only a moderate total reduction of prostitution is calculated. For marketing purposes, it can be noted that various attributes, like for instance ethnicity, are used. This could be an indication that some actors are in Sweden for shorter periods than a year. In the border regions between Sweden and Denmark there is also frequent interchange.

¹⁹ SOU 1995:15 SOU2001:14, SOS 2000:5, SOS 2004

Two reports on internet activities during 2005 and 2006 for the Stockholm and the Öresund (Malmö/Copenhagen) regions respectively have also been studied. They indicate that the number of people offering services have increased compared to the mapping made in 2003. The number of websites far outnumbers the individuals behind them, like 369/272, since the same seller may advertise on many different sites.

It has been noted that there is frequent movement among the sellers and that the sellers can be categorized as being either habitual or casual sellers. It is also mentioned that both Swedish customers and sellers operate in Copenhagen. One of the interviewed prostitutes says that she knew of about 50 Swedish women who had been active in Copenhagen during the first six years of the 2000's²⁰. The Stockholm report has information on the language in which the internet advertisements are written. The majority of the ads are in Swedish. One third does not specify language. Of the others, one third has not mentioned Swedish and a total of 70 persons have ads only in English²¹. This is an indication that there is a certain share of non-Swedish actors on both sides of the transactions.

The following time series estimates of values in current prices have been used:

1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
434	468	495	515	538	557	393	427	472	520	582	585	529	470

The time series is characterized by only small movements between the years, with the exceptions of 1999 and 2005/2006. The official reveal of the great number of people having had contacts with prostitutes ought to have decreased activities at least for some time. A new report from the National board of Health and Welfare on knowledge of prostitution based on information for 2006 has also been considered.

As no regular price collection has been made in the past, price changes have been adopted to the general price movements of the consumer price index during the period. However, work is in progress for a future regular collection of price information.

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²⁰ När prostitutionen flyttade in i vardagsrummet, p 43

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3 Narcotics

Sweden has a very restrictive policy towards illicit drugs. All handling and possession of narcotics for private use is forbidden by law.²² Drug use prevention programs, interventions aimed at vulnerable groups, information campaigns and participation in a number of international anti-drug fora, are some of the ongoing activities. The Swedish National Institute of Public Health coordinates drug preventive efforts. Various private organizations also are active in drug abuse prevention and public information programs. Under Swedish law, individuals who abuse drugs can be sentenced to drug treatment.

After a liberalisation period in the 1960's the Association for a Drug-Free society was founded in 1969. During the following years actions in legal as well as prevention and treatment areas were taken. In 1984 was also adopted a bill that spelled out the aim of Swedish drug policy as a drug-free society. An increase in drug use was noted during the 1990's, maybe in combination with reduced priority in this area during the general economic slow-down and a considerable increased rate of unemployment.

The increased problem of drug abuse resulted in the appointment of a new commission. A renewed National Action Plan and A National Drug Policy Coordinator were installed in the beginning of the 2000's. The overall goal is still a drug-free society. However we are not there yet. According to the ESPAD²³ survey conducted in 35 european countries in 2003 among 15-16 year olds, illegal drug use was 8 percent in Sweden. The European average of the same study was 22 percent.

So in the following chapter we look at the availability and use of narcotics from the perspective of the Swedish national accounts. Estimates of narcotics have been incorporated into the Swedish national accounts as of 29 November 2007. Prior to that, no explicit supplement for narcotics was made in the national accounts. However, the calculation methods used to compile the national accounts nevertheless took narcotics into consideration to some extent. Purchases made abroad were included under "foreign exchange for travel", which is calculated on the basis of data on foreign exchange and creditcard transactions. However, a relatively large proportion of the transactions were not included. Including narcotics in the Swedish national accounts has an impact on the final consumption expenditure of households as well as on output and value added.

Narcotics is a wide term which covers many different substances. In Sweden, all use of drugs covered by the "Medical Product Agency's regulations on listing narcotics" is classified as drug abuse. This list changes over time, e.g. when new substances appear.

The statistical office of the EU, Eurostat, has attempted to define the best possible methods and sources for the relevant calculations²⁴. Eurostat

²² SFS 1968:64, Act on Penal Law on Narcotics.

²³ European School Survey Project on Alcohol and Drugs

²⁴ EUROSTAT, Measurement of illegal activities.

suggests that drugs with different areas of use and prices should be studied separately. Accordingly, this report makes a distinction between the following substances: amphetamines, heroin, cocaine, cannabis, ecstasy and narcotic medicines.

The significance of narcotics for the final consumption expenditure of households, output, value added, imports and exports is shown. The calculations for 2001 are outlined in detail. Other years are described more briefly under the section "Time series from 1993 and onwards".

Final consumption expenditure of households

The basic premise is that all narcotics used are consumed by households. Efforts have, various reports, been made to estimate total consumption²⁵. These estimates are based primarily on assumptions regarding the number of addicts and their average consumption. A similar model will be adopted here, with data on the number of addicts, prices, average dose and days of abuse as input. The model is constructed as follows:

Household final consumption expenditure per substance = Price (SEK/gram) x number of addicts x average dose (grams per day of abuse) x number of days of abuse.

The calculation of drug consumption is done separately for six types of drugs: cannabis, heroin, cocaine, amphetamines, ecstasy and narcotic medicines. This is obviously a simplification of the reality and implies, for example, the omission of GHB and khat consumption. However, the market for these is small in Sweden. Cocaine abuse has increased in recent years and has become established as a recreational drug, especially in the cities²⁶. Ecstasy abuse occurs primarily at rave parties and in club and restaurant circles²⁷.

Drug abuse encompasses everything from brief or on-off experiments to daily abuse. In calculating household final consumption expenditure on drugs it is therefore relevant to make a distinction between heavy abuse and other abuse. "Heavy abuse" is, in this context, defined as including all abuse via injection, irrespective of the substance and frequency, and all daily or almost daily use of drugs, irrespective of the method of intake. In the case of heavy abuse, a number of surveys and estimates have been made of the number of abusers and their consumption.

The category "other abuse" covers all abuse which is not classified as heavy, i.e. everything from brief/experimental use to more regular use which is not daily or almost daily. Various interview and questionnaire surveys provide some data on this group. In the following, estimates are calculated separately for these two groups of users.

²⁵ *SOU 1998:18, Ds 1999:46 and report of Swedish Customs etc. "Att mäta samhällsnyttan av myndigheternas insatser"* (Measuring the social benefit of public sector activities), 2000. The National Criminal Investigation Department and Swedish Custom report "The illegal drug situation in Sweden 2007"

²⁶ The National Criminal Investigation Department and Swedish Custom report "The illegal drug situation in Sweden 2007".

²⁷ The National Criminal Investigation Department and Swedish Customs report "Drug situation in Sweden", 2001.

Heavy abusers and their consumption

It is the heavy users, i.e. the more regular abusers, who account for the major portion of drug consumption. To estimate the consumption of this group, we need data on the number of heavy abusers, the prices of different drugs, information on which substances are consumed and how often the abuse occurs, i.e. the number of days of active abuse.

Number of heavy addicts

National surveys of heavy addicts were conducted in three different studies for the years 1979, 1992 and 1998²⁸. In these surveys, respondents with knowledge of narcotics abuse reported the number of addicts known to them. A number was then calculated and added for unreported cases, i.e. the number of addicts unknown to the authorities, using a special statistical method (case-finding method). In the 1998 survey, the previous calculations of unreported cases were revised, since certain assumptions had changed and the statistical methods had been refined. The 1979 survey was a total survey, while the two others were based on a sample of municipalities.

In Granath, Svensson and Lindström's (2003) report, the number of heavy addicts was estimated for the years 1997–2001. The report is based on medical data, and the number of heavy addicts was estimated at 26 000 in 1998²⁹. It was estimated that the number of addicts rose thereafter to approximately 28 000 in 2001 (between 27 640 and 28 870). After that the number of addicts is believed to have fallen and at present the number is approximately 26 000³⁰. The following table presents a summary of the available estimated data on the number of heavy addicts.

Year	Number of heavy addicts
1979	15 000
1992	19 000
1998	26 000
2001	28 000

Source: Olsson, Adamsson Wahren and Byqvist, 2001 and Granath, Svensson and Lindström, 2003.

Prices

The Swedish Council for Information on Alcohol and Other Drugs (CAN) collects price data for the most common drugs. For the period 1988–2006 price data are available for hashish (and to some extent marijuana), amphetamines, cocaine and heroin. From the year 2000 and onwards, price data is also collected for ecstasy, khat, LSD and GHB. Prices are collected by selecting persons with a good insight into the local drug situation in different municipalities and asking to twice a year respond to a questionnaire including questions on the street price of different drug substances. The respondents are asked to give the "street prices" on the basis of the usual amount dealt, converted to SEK per gram as appropriate.

²⁸ Olsson, Adamsson Wahren, Byqvist, 2001.

²⁹ Olsson, Adamsson Wahren, Byqvist (2001) also arrived at an estimate of 26 000 heavy drug addicts in 1998.

³⁰ The national policy drug coordinator yearly report 2006

Prices for various drugs 1993-2006, median value

Year	Hashish SEK/g	Mari- juana SEK/g	Am- pheta- mine SEK/g	Cocaine SEK/g	Brown heroin SEK/g	White heroin SEK/g	LSD SEK/ Trip	Ecstasy SEK/ tabl.	Khat SEK/ bunch	GHB SEK/ Capsule
1993	90	70	362	1 000	1 500	2 375				
1994	80	48	300	1 000	1 750	2 500				
1995	90	85	300	1 000	2 000	2 250				
1996	85	80	275	1 000	1 350	1 750				
1997	80	92	300	1 100	1 250	1 600				
1998	90	100	300	950	1 375	1 875				
1999	90	85	260	1 100	1 825	1 750				
2000	80	68	250	900	1 000	2 250	80	150	275	35
2001	80	70	250	1 000	1 000	2 000	100	150	250	30
2002	80	70	250	800	1 000	1 600	100	150	300	28
2003	80	70	250	800	1 100	2 000	90	125	300	30
2004	80	72	250	800	1 000	2 000	90	122	250	30
2005	80	80	250	800	1 200	1 350	60	100	250	30
2006	80	80	250	800	1 000	1 500	85	100	100	30

Source: Fender och Guttormsson, CAN. "Narkotikaprisutvecklingen i Sverige 1988-2006" [Drug price trends in Sweden 1988-2006].

The average price does not take into account regional price differences, variations in purity levels, etc. In terms of regional price differences, prices are lower in the cosmopolitan regions and in southern Sweden, and lowest of all in the most southern administrative provinces.

Dominant drugs of abuse

Central stimulants (primarily amphetamines), opiates (primarily heroin) and cannabis are the dominant narcotic substances used by heavy drug abusers in Sweden. Of these, central stimulants have in the past been the most common types and also the types that most frequently dominated the abuse pattern. On comparing the 1979, 1992 and 1998 surveys, it emerged, *inter alia*, that the proportion of heavy addicts using central stimulants and cannabis had fallen slightly in the 1998 survey, while opiates had become more common.

In the 1998 survey, there were also fewer respondents who could state which substance dominated the abuse pattern. This was probably due to both an increase in the occurrence of combined abuse, with no clear dominating substance, and to less knowledge among those working with drug issues at the various agencies.³¹ Despite the risk that the pattern may look different today, the 1998 survey is the most recent source available to calculate heavy consumption of various substances. The following table records narcotics use broken down by dominant abuse.

³¹ Olsson, Adamsson Wahren and Byqvist, 2001.

Users and abusers broken down by dominant substance, percent

Substance	Proportion
Central stimulants	32.2%
Opiates	27.5%
Cannabis	8.1%
Alcohol	7.9%
Tablets	3.0%
Combined drug abuse	1.3%
Not specified	20.1%
Total	100.0%

Source: Olsson, Adamsson Wahren and Byqvist, 2001.

Central stimulants consist primarily of amphetamines, and opiates primarily of heroin. By tablets is meant mainly different types of narcotic medicines.

In the following, these data have been streamlined so that the number of abusers in 2001 is broken down only by amphetamines (central stimulants are assumed to consist primarily of amphetamines), heroin (opiates are assumed to consist primarily of heroin), cannabis and narcotic medicines (tablets are assumed to consist primarily of narcotic classified medicines). This means that when it was not possible to determine the dominant substance, abusers are broken down according to the same pattern as in the cases where the dominant substance could be identified. In addition, the assumption that only amphetamines, heroin, cannabis and narcotic medicines are consumed is a simplification of the reality. For example, the consumption of khat, cocaine and ecstasy is not included. In the case of cocaine and ecstasy the assumption is that their use is recreational (see section "Other user/abusers").

Among narcotic medicines, substances which contain benzodiazepines are the most common. Within this group, rohypnol is the most common medicine available on the illegal market³². Medicines classified as drugs are used separately or in combination with other substances in order to increase the effect of the drug in question.

Number of abusers in 2001 broken down by main substance

Substance	Abusers	Proportion
Amphetamines	12 742	46%
Heroin	10 891	39%
Cannabis	3 195	11%
Narc. Medicines.	1 172	4%
Total	28 000	100%

Source: Own calculation. According to Olsson, Adamsson Wahren and Byqvist (2001), for 1 783 addicts central stimulants were the dominant substance, for 1 524 opiates, for 447 cannabis and for 164 tablets. Calculated as a percentage this gives the following breakdown 46% central stimulants (here interpreted as amphetamines), 39% opiates (here interpreted as heroin), 11% cannabis and 4% tablets (here interpreted as narcotic medicines). This breakdown applies to the number of abusers in 2001.

³² The National Criminal Investigation Department and Swedish Customs report "Drug situation in Sweden", 2003".

SOU 1998:18 estimated the types of drugs consumed in Sweden and the volumes used of each. However, the report does not give any exact data regarding the scale of consumption. Instead different consumption levels, based on different assumptions of annual consumption and the number of active days of abuse, are discussed. The following table outlines the various assumptions/scenarios based on dose in the form of grams per day of abuse and number of active days of abuse. It is very difficult to estimate the number of active days of abuse. A heavy addict does not use drugs daily because of combined abuse, or because the person has been placed in care/prison etc. The following table also shows that the assumed number of active days of abuse has a major impact on the annual consumption per abuser.

For amphetamines, the annual consumption per abuser was estimated at between 80-200 grams. The lower limit can be said to apply to combined abusers and the upper limit to those who only use amphetamines on a large scale. For heroin, the range is between 50 and 200 grams and for cannabis between 25 and 300 grams. In the case of cannabis the lower estimate relates to smallscale consumer, i.e. primarily users who cannot be denoted as heavy or combined drug users.

Annual consumption per user/abuser for amphetamines, heroin, and cannabis

Substance		Scenario			
		A	B	C	D
Amphetamines	Grams per day of abuse	0.8	1	0,8	1
	Number of days of abuse	100	100	200	200
	Annual consumption, grams	80	100	160	200
Heroin	Grams per day of abuse	0.5	0.5	0.8	0.8
	Number of days of abuse	100	250	200	250
	Annual consumption, grams	50	125	160	200
Cannabis	Grams per day of abuse	1	1	0.5	
	Number of days of abuse	150	300	50	
	Annual consumption, grams	150	300	25	

Source: The data are compiled by the National Institute of Public Health and reported in Annex 1 to *SOU 1998:18*. Annual consumption in grams is our own calculation.

Calculations of consumption of amphetamines, heroin and cannabis have also been compiled by the Swedish Customs etc.³³ The annual consumption of amphetamines per user/abuser is estimated at 360 grams/year (1.5 grams/dose x 240 days), heroin at 274 grams/year (1.5 grams/dose x 182.5 days) and cannabis at 365 grams/year (1 gram/dose x 365 days). The estimates are higher than those of the National Institute of Public Health, but they are not corrected for time spent by users/abusers in care or in prison. It is therefore not surprising that indicates that the estimates of consumption are at the higher end of the National Institute of Public Health's range.

³³ Swedish Customs etc. "*Att mäta samhällsnyttan av myndigheternas insatser*" ("Measuring the social benefit of public sector activities"), 2000. The estimates of annual consumption are based on calculations made in Ds 1999:46.

Calculation of consumption by heavy abusers

As can be understood from the above, there is a relatively large degree of uncertainty regarding the level of annual consumption of the respective substances. Certain assumptions must, however, be made in order to estimate total consumption. The annual consumption per abuser is assumed to be 160 grams for amphetamines, 160 grams for heroin and 300 grams for cannabis. In the case of amphetamines and heroin, alternative C of the National Institute of Public Health's four scenarios is thus used, while for cannabis the higher range is used. The National Institute of Public Health's data include an assumption regarding combined abuse, where the number of abusers is broken down by dominant substance. Annual consumption by these abusers should lie in the upper end of the National Institute of Public Health's range. For medicines classified as narcotics a dose of 5 tablets per occasion is assumed (based on discussions with the National Criminal Investigation Department), the number of active days of abuse per year is estimated at 200 days, giving an annual consumption of 1 000 tablets.

On the basis of the above assumptions regarding the substances used, the annual consumption and the street prices arrived at by CAN, total consumption is estimated at around SEK 2.7 billion. Consumption expenditure per abuser is substantially higher for heroin than for other substances. Heroin is also the drug where quitting is most difficult.

Consumption of drugs 2001 broken down by types of substances

Substance	Number of users	Annual consumption g/person (1)	Annual consumption Kg (1)	Price SEK/g (1)	Annual consumption SEK '000 /person	Annual consumption SEK million
Amphetamines	12 742	160	2 039	250	40	510
Heroin	10 891	160	1 743	1 200	192	2091
Cannabis	3 195	300	959	79	24	76
Narcotic medicines	1 172	1000	1 172 000	18	18	21
Total	28 000					2 698

(1) Narcotic medicines: number of tablets and price per tablet.

Source: Own calculation. Annual consumption Kg = (number of abusers x annual consumption gram/pers)/1 000. Annual consumption SEK million = (number of abusers x annual consumption gram/pers x price SEK/gram)/1 000 000. Prices: With the exception of narcotic medicines, the prices are based on CAN's median value prices. For cannabis, a weighted price between hashish (90%) and marijuana (10%) is used. The weights are based on Swedish Customs and police seizures in 2004. For heroin, a weighted price between brown heroin (80%) and white heroin (20%) is used. The weights are taken from the "World drug report 2004" of the United Nations Office on Drugs and Crime. Narcotic medicines are based on the National Criminal Investigation Department and Swedish Customs price data for rohypnol (Drug situation in Sweden, 2001). The unit price on the street is SEK 25-30. For larger quantities, e.g. about 500 tablets, the price falls to SEK 10 per unit. Here a price of SEK 18 per unit is assumed.

Other users/abusers

The group denoted "other users/abusers" consist of users who are not classified as being heavy ones. This includes in part those who engage in occasional/experimental use and in part those who are at a stage between occasional use and heavy abuse. The information available in this area comes from various interview and questionnaire surveys. Since 1971, annual surveys have been conducted among school children in grade 9 (aged 15), as well as among recruits for military service. Starting in 2004, annual surveys are also conducted among highschool students. Certain information is also obtained in interview surveys with young people aged 16–24 years, as well as with the total population.³⁴

The school and recruit surveys ask, *inter alia*, if the respondents have ever used drugs and if they have used drugs any time in the past month. In addition, they are asked about their attitude to drugs. According to these surveys, 8% of ninth graders and 18% of recruits had tried drugs on some occasion in 2002. Their experience of drugs consisted primarily of cannabis use. In later years, almost 60% of those with drug experience in these surveys had used only cannabis, while 5–10% had used only drugs other than cannabis, with ecstasy and amphetamines being among those most common. If illegally used medicines (generally sleeping tablets/tranquilisers) are included in the picture, these substances are as common as ecstasy and amphetamines. The surveys indicate changes in attitudes to and experience of drugs on the part of young people. However, the underlying data are not sufficient enough to calculate the drug consumption of other users/abusers.

Drug use by young people has also been studied in telephone surveys in 1994, 1996, 1998 and 2003. The proportion of 16- to 24-year-olds in these studies who responded that they had tried drugs was 4%, 11%, 11% and 17% respectively.

Direct interviews with members of the population in the ages 15 to 75 were conducted between 1988 and 2000 (up to 1991, the age group was instead 16 to 74 years). In these studies, approximately 12% of the population stated that they had tried drugs on some occasion. About 1% of the population had used drugs in the past 12 months. Experience of drugs was highest amongst the younger respondents and almost nonexistent in the group aged between 50 and 75 years. In most cases the experience involved only cannabis. About 1–2% stated that they had tried amphetamines or cocaine, while even fewer listed other types of drugs. The table below indicates the proportion that reported having used drugs in the 12 months preceeding the survey. As can be seen, the proportion of 15- to 29-year-olds who had used drugs in the previous 12 months is lower than in the youth surveys conducted.

³⁴ The surveys are discussed *inter alia* in CAN's report "Drug trends in Sweden".

Proportion (in percent) of persons who had used drugs in the previous 12 months, broken down by age

Year	15-29	30-49	50-75	All
1988	2	1	-	1
1989	2	1	-	1
1990	2	1	-	1
1991	2	1	-	1
1992	2	0	-	1
1993	2	0	-	1
1994	2	0	-	1
1996	1	0	-	1
1998	2	1	-	1
2000	2	1	-	1

Source: The table is taken from *Drogutveckling i Sverige* [Drug trends in Sweden] – 2003 report. The surveys were conducted by the market and opinion research companies *SIFO* and *TEMO*.

Since 2004 the Swedish National Institute of Public Health carries out a yearly questionnaire survey of cannabis use by people in the ages 16 to 84. In these studies, approximately 10 % of the population stated that they had tried cannabis on some occasion. About 2 % of the men and 1 % of the women have tried cannabis the last year.

To calculate drug consumption by other users/abusers, some assumptions need to be made. It is assumed here that the direct interviews of the total population reflect use which is not classified as heavy abuse. The assumption of the calculation of drug abuse by other users than heavy is that slightly more than 1% of the people aged between 15-75 years had used drugs in the previous year.

Apart from estimating the number of users, assumptions must be made regarding the substances and quantities used. All the above surveys indicate that cannabis accounts for an absolute majority of the consumption. Direct interviews with members of the entire population indicate a slightly higher cannabis use than that which emerges through the surveys of school children and military recruits. What this may indicate is that other drugs are more widespread in the younger age groups. However, since any such calculation will only be a rough estimate, no differentiation by age is made. Instead it is assumed, on the basis of the results of the population surveys and youth surveys, that most of the users consume cannabis and that consumption of amphetamines, ecstasy, cocaine and narcotic medicines is small.

In the report *SOU 1998:18*, the National Institute of Public Health estimated drug consumption (see the section on the number of heavy users/abusers and their consumption levels). There it was assumed that small-scale cannabis users smoke around 0.5 grams per week. That calculation by the National Institute of Public Health did not include those who had consumed cannabis only on a few isolated occasions, as is the case here. Consumption should thus be somewhat lower than 0.5 grams per week. Here it is assumed that every user consumes 0.5 grams on 25 occasions per year. The same report also includes different dose sizes for, *inter alia*,

amphetamines. These are based on health-care records and refer to consumption by those who use drugs on a more frequent basis.

The report points out that sporadic users use small doses at irregular intervals. The lowest option for amphetamines put the daily dose at 0.8 grams and the number of days of active use at 100 annually. Thus small-scale consumers should have a lower dose and a lower number of annual days of use. Here the assumption is 25 days of use per year with a dose of 0.4 grams per day³⁵. In the case of ecstasy and narcotic medicines, the assumption is a dose of 3 tablets per day of use and an average of 25 days of use per year. For cocaine the assumption is 25 days of use per year with a dose of 0.2 grams per day³⁶.

In the following table, consumption is calculated by combining the above assumptions regarding the number of small-scale consumers, dose sizes, days of use and prices. As can be seen, consumption by small-scale consumers is minor compared with heavy users/abusers and the assumptions made regarding dose sizes and number of days in the case of narcotic medicines, amphetamines and ecstasy do not influence the outcome to any great extent.

Drug consumption by other users/abusers, 2001

Substance	Number users	g/dose (1)	Number doses/yr	Annual consumption on Kg (1)	Price SEK/gramme (1)	Annual consumption SEK million
Amphetamines	1 310	0,4	25	13	250	3
Cannabis	62 205	0,5	25	778	79	61
Cocaine	13 780	0,2	25	69	1000	69
Narcotic medicines	654	3	25	49 050	18	0,9
Ecstasy	1 310	3	25	98 250	150	15
Total	79 259					149

(1) Ecstasy and narcotic medicines, number of tablets and price per tablet.

Consumption kg = (Number users x g/dose x number doses/year)/1 000

Consumption SEK million = (number users x g/dose x number doses/year x price SEK/g)/1 000 000

Prices: The prices are based on CAN's data, but in the case of narcotic medicines the price quoted by the National Criminal Investigation Department is used. In the case of cannabis, a weighted price between hashish (90%) and marijuana (10%) is used.

Summary - total final consumption expenditure

Household final consumption expenditure consists of the combined consumption of heavy users and other users. Above, the consumption of heavy users was estimated at SEK 2 698 million and consumption by other users at SEK 149 million. The total final consumption expenditure of households was estimated at SEK 2 847 million.

³⁵ According to staff at the Stockholm County Council Centre for Drug Dependence, the dose for ecstasy varies between about ½ and 5 tablets per day of use.

³⁶ According to San Diego Reference Laboratory 30 mg is 1-3 lines.

Household final consumption expenditure (SEK million) and quantity consumed (kg and number of tablets) broken down by substance

Substance	Quantity Kg (1)	Value SEK million
Amphetamines	2 052	513
Heroin	1 743	2091
Cannabis	1 736	137
Cocaine	69	69
Narcotic medicines	1 221 050	22
Ecstasy	98 250	15
Total		2 847

(1) For narcotic medicines and ecstasy the number of tablets is given

Comparison with previous studies

Consumption of heroin, cannabis and amphetamines has been estimated in the past in *SOU 1998:18* and *Ds 1999:46*. In these reports, consumption was estimated at about SEK 1 100 million and 1 200 million respectively. In both surveys consumption was calculated on the basis of various assumptions concerning the number of users per substance and the cost per day of use. The number of users was based on the 1992 survey of user numbers. The quantity of drugs consumed was calculated in two different reports³⁷. There are substantial differences in these reports, particularly in the case of cannabis. In one instance, cannabis consumption is estimated at 3 000 kg³⁸ and in the other at 1 090 kg³⁹. Cannabis is the drug which is used most in combined abuse, thereby making it considerably more difficult to estimate consumption. In both reports, heroin abuse was at a lower level than is the case here. However, this can be explained by the fact that heroin abuse has increased since those estimates were made⁴⁰.

Output

Output arises through both domestic output and through the trade margins on imported quantities which are sold to consumers. In Sweden domestic output occurs on a very small scale. In the case of heroin and cocaine, there is no indication that they are manufactured in Sweden. There is a certain degree of limited home cultivation of cannabis plants for own consumption, but the effect on total supply is considered very marginal. In the case of synthetic drugs, the manufacture of ecstasy is considered almost nonexistent and the manufacture of amphetamines as very small.

In this context, no attempt is made to calculate domestic output, as consistent data reveal this to be very marginal. Instead it is assumed that all drug consumption in Sweden is supplied through imports.

³⁷ *SOU 1998:18* and the Swedish Customs report "Att mäta samhällsnyttan av myndigheternas insatser" ["Measuring the social benefit of public sector activities"], 2000

³⁸ *SOU 1998:18*

³⁹ Swedish Customs report "Att mäta samhällsnyttan av myndigheternas insatser" ["Measuring the social benefit of public sector activities"], 2000.

⁴⁰ *SOU 1998:18*

Trade margins

In the national accounts, the margin collected within the sale chain of the drug, from the time it is imported until it reaches the final consumer, is regarded as output.

Trade margins = (street price - import price) x quantity.

Corrections have to be made in the above formula since the degree of purity of the substance can differ at the import and/or street stage.

The National Criminal Investigation Department estimates the wholesale price⁴¹. This price is the price which the Swedish wholesalers pay for the drug. The price data are very uncertain. In the national accounts, the import price should refer to the price at Sweden's border. Thus the import price should include the freight price up to the border, while trade and transport margins within the country should not be included. It is not certain that the wholesale price refers to the price including transport up to the Swedish border.

Wholesale price for different drugs in 2001 and 2003, SEK '000 per kg

	2001	2003
Amphetamines	60-100	50-100
Heroin	280-400	280-400
Cannabis	30-40	25-40
Cocaine	300-400	300-400
Narcotic medicines(1)	10	10
Ecstasy(1)	40	40

(1) The price for ecstasy and rohypnol is the price per tablet when purchasing 1 000 ecstasy tablets or 500 rohypnol tablets.

Source: National Criminal Investigation Department and Swedish Customs report "Drug situation in Sweden, 2001 and 2003". The price for heroin is a weighting between brown heroin (80%) and white heroin (20%). For narcotic medicines, the price for rohypnol is used.

Presumably, however, some transport costs up to the Swedish border are included in the above prices. The import price is thus assumed to be equal to the higher level in the range. However, for cannabis the average is used since the wholesale price for marijuana is not available. The street price for marijuana is somewhat lower, which is why it is assumed that the wholesale prices for hashish and marijuana are also somewhat lower.

Of the various drugs, only heroin, amphetamines and cocaine are diluted. Tests carried out on seized drugs show that cocaine is diluted 2.4 times, heroin 2.2 times and amphetamines 2.5 times⁴². For cocaine recent tests of larger seizures show that the cocaine may already be diluted upon arrival⁴³. In this case more information is needed. If the quantity of drugs consumed

⁴¹ The National Criminal Investigation Department and Swedish Customs annual report "The drug situation in Sweden".

⁴² Swedish Customs etc., "Measuring the social benefit of public sector activities", 2000.

⁴³ *Rikskriminalpolisen och Tullverket* (2005)

at street level is corrected for the dilution, we get the quantity of imported drugs.

Imported quantity of drugs 2001

Substance	Quantity at street level kg (1)	Diluted	Quantity imported kg (1)
Amphetamines	2 052	2.5	821
Heroin	1 743	2.2	792
Cannabis	1 736	No	1 736
Cocaine	69	2.4	29
Narcotic medicines	1 221 050	No	1 221 050
Ecstasy	98 250	No	98 250

(1) Ecstasy and narcotic medicines refer to the number of tablets.

Source: Own calculation

Imported quantity = Quantity consumed at street level / the degree of dilution of the drug

In the following table, the trade margins are calculated for the respective substances. As can be seen, the margins are very high. Heroin, cocaine and amphetamines have the highest margins. The total trade margins are calculated at SEK 2 363 million, which is equivalent to 83 % of the street value. For the purpose of comparison, it can be mentioned that the trade margins for drugs in the United Kingdom have been estimated at 70%⁴⁴.

Trade margins for different substances, 2001

Substance	Import price SEK '000/kg (1)	Import Kg (1)	Import value SEK million	Street value SEK million	Trade margin SEK million	% (margin/ street stage)
Amphetamines	100	821	82	513	431	84%
Heroin	400	792	317	2091	1774	85%
Cannabis	35	1 736	61	137	76	56%
Cocaine	300	29	9	69	61	88%
Narcotic medicines	10	1 221 050	12	22	10	44%
Ecstasy	40	98 250	4	15	11	73%
Total			484	2 847	2 363	83%

(1) For ecstasy and narcotic medicines price per tablet and number of tablets. Trade margin = (street price - import price) x quantity in terms of purity = street value - import value (the street value is based on the above calculations regarding heavy users and other users)

⁴⁴ Office of National Statistics (ONS), "Developing a Methodology for Measuring Illegal Activity for the UK National Accounts", 1998.

Intermediate consumption

Since domestic output consists only of the trade margins which accrue before the drug reaches the final consumer, intermediate consumption should be very low. Any intermediate consumption may consist of e.g. rental cost of premises, telephone costs and transport costs. However, it is probable that these costs are already included in part in the national accounts, although they may be in the wrong sector. Here it is assumed that intermediate consumption which may not have already been covered in the national accounts is very low, and consequently no estimate is made.

Imports

Above, imports are estimated by using import prices and the estimated amount of drugs consumed, corrected for differences in the degree of purity. Another way to calculate imports is to base the calculation on the quantities seized coupled with an assumption of what share of the total quantity has been seized. However, it is difficult to use statistics on seizures to calculate imports of drugs since the quantities seized can vary sharply from one year to the next. However, some commentators⁴⁵ consider seizure statistics a relatively good indicator of market changes if longer time-series are used. But it is probable that seizures are affected in the short term by the level of resources, working methods, priorities etc. of national control bodies. For example, drug consumption itself became a criminal offence in 1988, and in 1999 and in 1993 stricter penalties were imposed for this crime, giving police the right to take blood and urine samples in the case of suspected own consumption. The number of full-time police staff dealing with drugs increased between 1990 and 1997, and numbers have remained unchanged since then⁴⁶. Between 1997 and 2001, the number of hours spent by the customs authorities on drug tasks rose by about 25%⁴⁷.

Some of the drugs seized by Swedish Customs and police are intended for markets other than the Swedish one. Such transits should not be included in the national accounts. How large this share might be is not known, but it has been established that certain large seizures could not have been intended for the Swedish market only. For example, in the case of large seizures of heroin and cocaine, it was established that the lots were intended for another country⁴⁸. Even the reverse can occur, i.e. seizures in other countries of drugs intended for the Swedish market. The following table shows the seizures made by Swedish Customs between 1998 and 2004.

⁴⁵ United Nations Office on Drugs and Crime, 2004. Swedish National Council for Crime Prevention "Police efforts to combat drug crime – scope, character and effects", report 2003:12.

⁴⁶ Granath, Svensson and Lindström, 2003.

⁴⁷ Carlsson I and Goede C 2002.

⁴⁸ SOU 1998:18.

Customs seizures, 1998-2004, Kg (ecstasy and narcotic medicines, number of tablets, thousands)

Substance	1998	1999	2000	2001	2002	2003	2004
Amphetamines	79	53	39	89	145	170	199
Heroin	65	43	19	22	29	8	18
Cannabis	310	942	843	259	502	458	532
Cocaine	11	410	32	28	35	29	23
Narcotic medicines	223	146	237	85	766	144	196
Ecstasy				19	25	42	151

Source: Swedish Customs (ecstasy and narcotic medicines) and Drug situation in Sweden 2007 (amphetamines, heroin, cannabis and cocaine). By narcotic medicines are meant tablets containing flunitrazepam and sleeping tablets and tranquilisers which are classified as drugs. Seizures of ecstasy before 2001 are uncertain and are not shown.

Before some drugs reach the street they are diluted. As stated earlier only heroin, amphetamines and cocaine are diluted. If such dilution is taken into account, the customs authorities' seizures are equivalent to the following quantities of street cocaine, heroin and amphetamines:

Customs seizures of heroin, amphetamines and cocaine on the street, kg

Substance	1998	1999	2000	2001	2002	2003	2004
Amphetamines	197	133	98	223	363	425	498
Heroin	143	95	42	48	64	18	40
Cocaine	26	984	77	67	84	70	55

Source: Own calculation. Tests on seizures show that heroin is diluted 2.2 times cocaine 2,4 times and amphetamines 2.5 times (Swedish Customs etc., "Measuring the social benefits of authorities' efforts", 2000 Report).

Seizure statistics give an indication of the trend in drug imports, but estimating total imports on the basis of seizures must be regarded as very uncertain. Apart from the uncertainty regarding import prices and whether the seized lots are intended for the Swedish market or not, it is also necessary to have data on what proportion the seizures represent. Estimates of proportion of the total market accounted for by the seized drugs are very uncertain. In *SOU 1998:18*, the proportion of total cannabis, amphetamines and heroin accounted for by seizures by the Swedish Customs were estimated for 1997, the figures being about 17 percent for cannabis, about 3.5 percent for amphetamines and about 3 percent for heroin. Overall, it was estimated that Swedish Customs seized about 11 percent of the total quantity of cannabis, amphetamines and heroin. These calculations include no conversions for degree of purity.

In the following table, estimated consumption is compared on the basis of Customs seizures. According to this comparison, cannabis seizures account for 15 percent, amphetamines 4 percent and heroin 1 percent of the total quantity. In total for these three substances, the proportion represented by seizures is about 7 percent. For ecstasy it is 19 percent. The proportions of cocaine, ecstasy and cannabis seized are relatively high. In the case of ecstasy and cocaine this can partly be explained by the fact that even heavy

users use a certain amount of the substance. For cocaine more information is needed about the dose and if the drug is diluted (it is hard to believe that the seizures are in almost the same level as the consumption). Recently test of larger seizures shows that the cocaine already is diluted. However, the value of cocaine and ecstasy is marginal. In the case of cannabis 15 percent seems very high. Heavy addicts often use cannabis combined with other drugs and the consumption of cannabis are therefore difficult to measure.

Comparison between estimated quantity of different substances and seizures by Customs, 2001

Substance	Customs seizure Kg (1)	Customs seizure corr. (1)	Estimated consumption Kg (1)	Seizure %	Seizure corr. %
Amphetamines	89	223	2 052	4%	11%
Heroin	22	48	1 743	1%	3%
Cannabis	259	259	1 736	15%	15%
Cocaine	28	67	69	41%	97%
Narcotic medicines	85 080	85 080	1 221 050	7%	7%
Ecstasy	18 788	18 788	98 250	19%	19%

(1) Narcotic medicines and ecstasy refer to the number of tablets.

Source: Own calculation. Estimated consumption is based on consumption by heavy and/or other users. "Customs seizure corr." is customs seizure corrected for dilution.

It would be desirable to be able to estimate output, imports and consumption separately and then reconcile availability and use of drugs, in accordance with the usual method of compiling the national accounts. However, owing to the high uncertainty of the basic data, especially in the case of imports, it has been impossible to estimate supply in a satisfactory manner. Imports are therefore estimated by using import prices and the estimated quantity of drugs consumed, corrected for dilution (see section on calculation of trade margins).

Import of drugs broken down by substance, 2001

Substance	Import price SEK '000 /kg (1)	Import Kg (1)	Import value SEK million
Amphetamines	100	821	82
Heroin	400	792	317
Cannabis	35	1 736	61
Cocaine	300	29	9
Narcotic medicines	10	1 221 050	12
Ecstasy	40	98 250	4
Total			484

(1) For ecstasy and narcotic medicines price per tablet and number of tablets

Exports

Drugs in transit should not be included in exports and imports. Since there is no domestic output of drugs in Sweden, exports can only occur in the form of sales to tourists. However, this is likely to occur on a very small scale, and therefore no estimates of exports are included.

Consequences of implementing the estimates

As stated above, it has been assumed that some intermediate consumption is already included in the national accounts. This applies to imports as well through the item "foreign exchange for travel", which includes all currency conversions. Conversions to foreign currency by households are recorded as Swedish household consumption abroad and conversion to Swedish currency are recorded as foreign consumption in Sweden. These items are included when calculating the total consumption expenditure of households, with Swedish household consumption abroad thus contributing positively to total consumption, while foreign consumption in Sweden is excluded. There is inadequate knowledge of how transactions are arranged when importing drugs, but for the moment it is assumed that all imports are covered by foreign exchange for travel. Introduction of drugs into the Swedish national accounts therefore have an impact only on households consumption expenditures and on output from the margins on resales.

Narcotic medicines reach the illegal market either through import from other countries or through theft or the prescription of medicines at national level. Imports from other countries consist of both illegally and legally manufactured medicines. The domestic supply can result for instance from theft, prescription of medicines by less careful doctors, or from the user having the medicine prescribed by several different doctors. Such cases may involve consumption both for own use as well as with intent to sell. Domestic supply, apart from the margins on resales, was included in the national accounts, but the majority of the narcotic medicines which are consumed are presumably imported, which is why no correction is made in this case.

Summary of the 2001 estimates

On the basis of assumptions regarding the number of users, their average annual consumption and prices, consumption expenditure of households is estimated at SEK 2 847 million in 2001. Consumption by heavy users is estimated at SEK 2 698 million and by other users at SEK 149 million. Consumption has been broken down into six different substances: amphetamines, heroin, cannabis, cocaine, narcotic medicines and ecstasy. Of these substances, heroin weighs most heavily in consumption.

Consumption expenditure of households (SEK million) and quantity consumed (kg and number of tablets) broken down by substance

Substance	Quantity Kg (1)	Value SEK million
Amphetamines	2 052	513
Heroin	1 743	2091
Cannabis	1 736	137
Cocaine	69	69
Narcotic medicines	1 221 050	15
Ecstasy	98 250	68
Total		2847

(1) Narcotic medicines and ecstasy refer to number of tablets

The domestic output of drugs is very marginal. However, output arises through the trade margins levied in the sales chain, from the time the drugs are imported until they reach the final consumer. Trade margins are estimated at SEK 2 363 million.

Imports are estimated on the basis of import prices and the volume of drugs consumed, corrected for the dilution of drugs carried out at street level. Imports are estimated at SEK 484 million.

Owing to the calculation methods used to compile the national accounts, purchases of drugs abroad by Swedes are currently already included. These purchases are included in foreign exchange for travel, which is calculated on the basis of data from foreign exchange and credit-card transactions. Introducing drugs into the Swedish national accounts will therefore have an impact only on the consumption expenditure of households and on output and value added.

Additions to the Swedish National Accounts:

Output (trade margin) = SEK 2 363 million

Consumption expenditure of households (estimated consumption – imports, which are already included) = 2 847 – 484 = SEK 2 363 million

Import = No addition is made since this is already included in foreign exchange for travel.

The calculations are based on several assumptions. In particular, there is a lack of quality data on users' average annual consumption and import prices.

Time series from 1993 and onwards

Above the calculations of 2001 were described in detail. A model with similar premises has been used to create a time series starting in 1993. Final consumption expenditures of households per substance are based on assumptions regarding the number of addicts and their average consumption. Imports are estimated on the basis of import prices and the volume of drugs consumed, corrected for dilution of drugs carried out at street level. Trade margins are calculated as import value minus street value. Constant t-1 prices are calculated by using the previous year price for respective drug. Otherwise the model is the same as for current prices.

The model is constructed as follows:

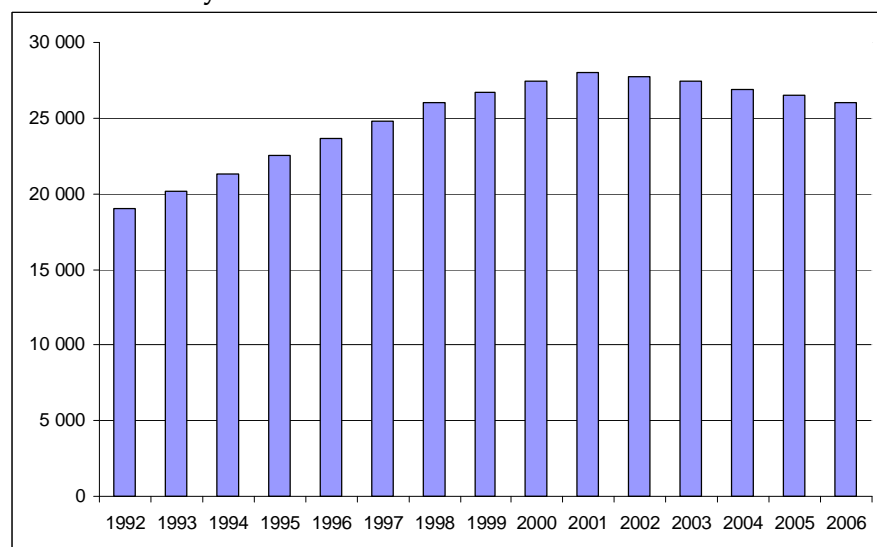
- Household final consumption expenditure per substance = Price (SEK/gram) * number of addicts * average dose (grams per day of abuse) * number of days of abuse.
- Import = import price * consumed quantity corrected for differences in degree of purity
- Trade margins = household final consumption - import

Below we describe the assumptions that made for the number of addicts, prices and annual consumption per substance (average dose and number of days of abuse).

Number of heavy addicts and dominant drug of abuse

As mentioned earlier, national surveys of heavy addicts were conducted in three different studies for the years 1979, 1992 and 1998. In 1992 the number of heavy addicts were 19 000 and in 1998 26 000, which is on average a yearly increase of about 1 200 addicts. In Granath, Svensson and Lindström's (2003) report the number of addicts rose thereafter to approximately 28 000 in 2001. Thereafter the number of addicts has fallen and the assumption is that the number of addicts in 2006 is 26 000. The following table presents the estimated number of heavy addicts 1992-2006 used in the calculations of narcotics in the Swedish national accounts.

Number of heavy addicts 1992-2006



The number of other users/abusers is assumed to be about one percent of the people aged between 15-75 years. But for ecstasy the proportion of users are assumed to be lower in the beginning of 1990 and for cannabis the information from the questionnaire survey by the Swedish National institute of Public Health is used from 2004 (in these studies about 2 percent of the men and 1 percent of the women aged between 16-84 years had used cannabis during the last year).

Dominant drugs of abuse

In the calculations of 2001, presented earlier, the number of heavy abusers was broken down by main substance based on information from the national survey conducted 1998 (see section "Dominant drugs of abuse").

The same pattern has been used from 1998 and onwards. A similar calculation has been done for year 1992 based on data from the national survey conducted in 1992. On comparing these two surveys the proportion of heavy addicts using amphetamines and cannabis had fallen in the 1998 survey, while heroin had become more common. For the years 1993-1998 the change in pattern of dominant abuse has been interpolated. The following table records narcotics use broken down by main substance 1992 and 1998.

Number of abusers in 1992 and 1998 broken down by main substance*

Substance	Abusers 1992	Proportion 1992	Abusers 1998	Proportion 1998
Amphetamines	9 690	51%	12 150	46%
Heroin	5 130	27%	10 113	39%
Cannabis	3 420	18%	2 967	11%
Narc. Medicines.	760	4%	1 088	4%
Total	19 000	100%	26 000	100%

* Own calculation based on information from the national surveys of heavy addicts conducted 1992 and 1998.

For other user/abusers the same assumption as described in section other users/abusers are used.

Prices

Street prices are available from 1993 for all drugs except for ecstasy and narcotic medicines. Price data for ecstasy has been collected since the year 2000. In the calculations for 1993-1999 the price for ecstasy and narcotics medicines is assumed to develop in the same way as that for amphetamines. Import prices for year 2001-2003 are based on information from The National Criminal Investigation Department. For other years prices are assumed to develop in the same way as street prices.

Annual consumption per user/abuser of respective drug

The annual consumption per user/abuser (grams per day of abuse x number of day of abuse) is assumed to be unchanged. For heavy abusers the assumption is 160 grams for amphetamines, 160 grams for heroin, 300 grams for cannabis and 1000 tablets of narcotic medicines. For other abusers the assumption is 10 grams for amphetamines (25 days of use per year with a dose of 0,4 gram), 12,5 grams for cannabis and 5,2 grams for cocaine. In the case of ecstasy and narcotic medicines, the assumption is a consumption of 75 tablets per year.

**Household final consumption expenditure, import and trade margin
(SEK million) 1993-2006**

	1993	1994	1995	1996	1997	1998	1999
Household consumption	2 357	2 692	3 157	2 576	2 679	2 900	3 704
Import	406	448	522	434	447	522	455
Trade margin	1 951	2 244	2 635	2 142	2 231	2 378	3 248
	2000	2001	2002	2003	2004	2005	2006
Household consumption	2 859	2 847	2 675	2 925	2 741	2 761	2 502
Import	472	484	480	472	459	469	430
Trade margin	2 386	2 363	2 195	2 453	2 282	2 292	2 073

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4 Alcohol and tobacco smuggling

Background

Alcohol and tobacco smuggling is an illegal activity in Sweden. However, it is legal to import alcohol and tobacco to Sweden if the items are declared and taxes are paid. It is also legal to use alcohol and tobacco – in contrast to drugs, for example.

Alcohol and tobacco smuggling is probably rather wide-spread in Sweden since the taxes are high (excise duties and VAT) and consequently the prices too. If prices are significantly lower in, for instance, Finland or Poland, it can be quite profitable for a smuggler, who would presumably have a high margin but low transport costs, to choose adjacent countries for smuggling to – e.g. Sweden.

Home-production of spirits is illegal and an attempt to calculate the economic value of illegal own-production of alcohol is also made.

The Centre for Social Research on Alcohol and Drugs, SoRAD at Stockholm University was established in 1999 as a national centre to strengthen social research on alcohol and drugs in Sweden. SoRAD conducts a monthly survey directed at the adult section of the Swedish population. These surveys include questions on travel imports, smuggling and home-production of spirits, wine and beer. Since 2001, questions have covered alcohol consumption and as of 2003 questions have also been introduced on the consumption and import of tobacco products. The surveys are conducted at the end of each month and in each case 1 500 persons are interviewed. These surveys⁴⁹ can provide data on quantities relating to household consumption. Annual and quarterly changes of consumption are also presented.

It should be added that in SoRAD's surveys, a distinction is made between registered alcohol consumption which is covered by statistics and taxed in Sweden and unregistered consumption, which is not covered by any other statistics and not taxed in Sweden.

The purchase of alcohol at *Systembolaget*⁵⁰, in restaurants and food stores constitutes registered quantities, while travel imports, smuggling and home-production are unregistered. From the table below it appears that unregistered consumption accounts for 32 percent of total consumption.

⁴⁹ Alcohol consumption by the Swedish population in 2003, Nina-Katri Gustafsson and Björn Trollidal, SoRAD, Stockholm 2004, *Forskningsrapport* [research report] No 26. www.sorad.su.se.

⁵⁰ The monopoly which provides for all sales of alcoholic drinks in Sweden.

Total consumption of alcohol in 2003 by way of acquisition, 100 percent alcohol

Systembolaget	49
Restaurants	11
Food stores (light/medium beer)	8
Travel imports	22
Smuggling	6
Home-production	4
Total consumption	100

Source: SoRAD, Systembolaget, Statens folkhälsoinstitut

The principles governing the calculations

Calculations are made separately for spirits, wine, beer and cigarettes. Ideally an annual calculation should be made because of the dynamic nature of this activity. However, the more pragmatic approach of extrapolating an earlier calculation is used here. The year 2003 is chosen as a bench-mark. Only smuggling and home-production of alcohol is considered in the compilations performed. Estimates are calculated for final consumption of households, imports and value added respectively. In the national accounts, the supply side has to be in balance with the demand side.

Calculation of final consumption expenditures of households

The consumption expenditures of households are calculated as: street price x quantity purchased.

According to information from SoRAD and previous investigations, consumption of alcoholic beverages has increased by almost 29 percent since the middle of the 90-ies. Strong beer and wine account for the increase by more than 70 percent while spirits show a decrease. Later reports indicate an increase up to and including 2005, whereafter a declining trend is observed. Home-produced alcohol show a declining trend over the whole period.

Percentage change in alcohol consumption 1996-2003

Spirits	-4%
Wine	+74%
Strong beer	+71%
Weighted total	+29%

Source: SoRAD.

Smuggled alcohol

The calculations are broken down into spirits, wine and beer, but also by country of origin wherever possible, i.e. when data is available indicating from which countries the products have been smuggled. The report from SoRAD provides data on the origin of travel imports, i.e. in which countries the alcohol imported by travellers was purchased in 2003. In the calculations it is assumed that smuggling follows the same country pattern.

According to a report from the National Criminal Investigation and Swedish Customs⁵¹, the major share of alcohol smuggled to Sweden and to

⁵¹ A criminal intelligence-based survey of alcohol related crime, Niki Ekman etc., National Criminal Investigation Department and Swedish Customs, 2004.

Skåne, the most southern part of Sweden, originates in Germany and Denmark. This coincides with the picture of travel imports presented by SoRAD in the table that follows.

Countries of origin of travel imported alcohol in 2003, percent

Purchased in	Pure (100%) alcohol	Spirits	Wine	Strong beer
Germany	38	32	51	44
Denmark	27	13	29	34
Finland	7	7	4	9
Other EU	15	26	11	5
Outside EU	13	22	5	8
Total	100	100	100	100

Source: SoRAD.

The following table presents household purchases of smuggled alcohol between 2001 and 2003, also taken from the SoRAD report. In the interview surveys of adults (16-80 years) on which these figures are based, smuggling is defined as "alcohol which has been imported by individuals to Sweden for sale for profit".

Household purchases of smuggled alcohol, 1000 litres by volume, 2001-2003

	2001	2002	2003
Smuggled spirits	3 240	4 720	3 190
Smuggled wine	1 760	2 530	5 550
Smuggled beer	26 600	36 600	55 300

Source: SoRAD.

By using the country breakdown of the origin of alcohol at the time of purchase, it is possible to break down the smuggling by country and product. To complete the formula "final consumption expenditure of households = street price x quantity purchased", street prices also have to be determined. However, price data proved difficult to obtain. Several conceivable sources were contacted – e.g. Swedish Customs, Swedish Tax Office, SoRAD, CAN⁵², National Institute of Public Health, Systembolaget, police, as well as journalists and the media, etc. However, only the Malmö police were able to provide data regarding the street prices for illegal alcohol and tobacco.

The calculations therefore use data on street prices obtained from the Malmö police⁵³. In addition, SoRAD notes in the above-mentioned report that Skåne, where the city of Malmö is situated, is the only county in Sweden where, expressed in volume, travel-imported alcohol in 2003 exceeded alcohol sales by the *Systembolaget* in the same county.

Below, calculations for smuggled spirits, smuggled wine and smuggled beer are shown in separate tables, based on SoRADs quantities and the Malmö police data on street prices. According to the Malmö police there are data on street prices for alcohol smuggled in from Poland and on street prices for

⁵² CAN = Central Association for Alcohol and Drug Information.

⁵³ Kaj Bauer at Malmö police.

alcohol smuggled in from other countries. Since Poland was not in the EU in 2003, the calculation is simplified and it is assumed that “non-EU” is equivalent to Poland. We therefore use the street price for alcohol from Poland for that quantity and the other street price for the remaining quantities. This does not apply in the case of wine, however, since the Malmö police only have price data on spirits and beer from Poland.

In the three following tables, quantity = 1 000 litre by volume, price = SEK per litre and value = SEK million in 2003. The total of the parts does not always tally owing to rounding.

Household purchases of smuggled spirits

Spirits	EU	Non EU	Total
Quantity	2 488	702	3 190
Price	150	200	
Value	373	140	514

Source: Own calculation.

Household purchases of smuggled wine

Wine	EU	Non EU	Total
Quantity	5 274	278	5 550
Price	30	30	
Value	158	8	167

Source: Own calculation..

Household purchases of smuggled beer

Beer	EU	Non EU	Total
Quantity	50 876	4 424	55 300
Price	19	20	
Value	967	88	1 055

Source: Own calculation.

According to these calculations, consumption expenditure of households is SEK 514 million for smuggled spirits, SEK 167 million for smuggled wine and SEK 1 055 million for smuggled beer, or a total of SEK 1 736 million for smuggled alcohol purchased by households.

Imports

It is more difficult to estimate the value of imports. As stated above, SoRAD conducts a survey directed at consumers (households). There is no equivalent overall view of imports – for instance there is, for obvious reasons, no interview survey of importers/sellers.

What is available are Swedish Customs seizure statistics⁵⁴ broken down by cigarettes, strong beer and alcoholic liquor. According to Lars Andrén, information head at Swedish Customs, there is a rule of thumb which says that Swedish Customs seizes 5%–15% of the alcohol and cigarettes actually smuggled.

⁵⁴ See www.tull.se.

In general, however, the trend indicates that spirits seizures are declining and beer seizures increasing, since the gradual adoption of new import rules each year between 2001 and 2004. On 1 January 2004 the so-called "EU quotas" came into force. The rules say that as a private person one may in fact import an unlimited quantity as long as it is for private consumption and not for commercial use. However, indicative volumes of permitted imports are given: 100 litres of beer, 90 litres of wine and 10 litres of spirits. For example, if a private person imports more than 100 litres of beer, this is considered suspicious, since it is doubtful that the person will manage to consume the beer before the expiry date. However, this can be difficult to determine if, for example, it is intended for a large party.⁵⁵

The Monitor-project at SoRAD has compared the Customs seizure statistics of alcohol with the estimates based on their surveys for the period 2002-2006. According to this material, seizures account only for a minimal share of all the smuggled alcohol sold in Sweden. It is estimated to account for at the most 0.4 percent for the period in question⁵⁶. Except for wine, the development trends over the years are not in accordance with each other either.

Customs-seizure statistics cannot be used to calculate imports. Instead we have used quantity data from the SoRAD reports.

Calculations are given below of the import value of smuggled alcohol. Imports are calculated as: import price x smuggled quantity, where import price = legal price in the country of origin. It is important to bear in mind that: import price < street price < legal resale price in Sweden. In practice, it would therefore be possible to use price data from the country where the smuggled goods originate. It has not, however, been possible to obtain unit prices for alcohol and tobacco from the various national statistical offices – in this case the statistical offices of Germany, Denmark and Finland. For various reasons, they did not provide data or did not have the data required.

Instead we have used price data from the Purchasing Price Parity survey (PPP) by SCB⁵⁷. This material contains unit prices for the different products. They are average prices for 2003, including VAT, and are expressed as average prices for the respective country in that country's currency. To convert unit prices in foreign currencies to Swedish crowns, the average exchange rates for 2003 are used for the respective currencies, from Eurostat's database New Cronos.

In this report, detailed unit prices are used for spirits, wine, beer and cigarettes. Since the Malmö police consider that vodka is generally sold illegally on the street, we have opted to calculate an average price from the vodka prices included in the PPP measurements and to use this price in the calculations of smuggled spirits. For wine, red wine of standard table-wine quality is used. For beer, domestic beer of normal quality is used.

⁵⁵ Lars Andrén, Head of Information at Swedish Customs

⁵⁶ SoRAD, Report no. 49, p.21

⁵⁷ Purchasing Price Parity survey, SCB, Unit for economic statistics, The price unit, www.scb.se.

We have opted to make use of Germany's legal unit prices for all countries and products apart from Poland. Poland's legal unit prices at the time Poland was a non-EU country is used for non-EU spirits and beer. This original Polish unit price is then extrapolated with relevant CPI to cover the unit prices of the non-EU countries in later years. Thus we have adopted a pragmatic approach and made a simplified and rough calculation. This is in line with the BNI committee's recommendations which say that it is possible to use data from the country where the goods generally originate.

Below we present equivalent calculations of the import value as for households above. They are based on the same country breakdown and smuggled volume of the respective product groups as in the case of households. In the tables, quantity = 1 000 litres by volume, price = SEK per litre, and value = SEK million in 2003. The total of the items does not always tally, because of rounding.

Import of smuggled spirits

Spirits	EU	Non EU	Total
Quantity	2 488	702	3 190
Price	124	95	
Value	309	67	375

Source: Own calculation.

Import of smuggled wine

Wine	EU	Non EU	Total
Quantity	5 274	278	5 550
Price	16	16	
Value	84	4	89

Source: Own calculation.

Import of smuggled beer

Beer	EU	Non- EU	Total
Quantity	50 876	4 424	55 300
Price	10	11	
Value	509	49	557

Source: Own calculation.

Home-produced alcohol

Home-produced alcohol concerns spirits and wine. The consumption of home-produced strong beer in 2003 was barely significant and is therefore not considered. Home-produced spirits and wine accounted for about 6 percent each of their respective totals of consumption in 2003.⁵⁸

⁵⁸ Alcohol consumption by the Swedish population in 2003, Nina-Katri Gustafsson and Björn Trollidal, SoRAD, Stockholm 2004, *Forskningsrapport* No 26. www.sorad.su.se.

As stated above, it is difficult to obtain data on the street prices of illegal alcohol. A report from the Ministry of Finance⁵⁹ considers that a litre of home-produced alcohol costs about SEK 100. This is assumed to apply to 1999 when the report was written. By extrapolating 1999 prices on the basis of the CPI-increase for alcoholic liquor⁶⁰ between 2003 and 1999, the price for home-produced spirits comes out at SEK 104 per litre in 2003. The price of wine is calculated using the same relation between smuggled and home-produced as for alcoholic liquor. The following table shows figures of home-production.

Household consumption of home-produced alcohol in 1000 litres by volume, SEK per litres and SEK million, 2003

	Home-produced spirits	Home-produced wine
Quantity	2 810	14 800
Price	104	20
Value	292	296

Source: SoRAD and own calculation.

According to these calculations, the consumption expenditure of households is SEK 292 million on home-produced spirits and SEK 296 million on home produced wine, or a total of SEK 588 million for home-produced alcohol purchased/used by households. This includes both sales to households and production for own final use. Regarding home-production of wine, however, it is doubtful if the quality is good enough for sale and this item has therefore been considered as consumption for own final use

Output, intermediate consumption and value added

Swedish output of smuggled alcohol is made up of the trade margins that the smuggled quantities generate. These are calculated as street price minus import price x quantity sold. According to the above calculations this gives SEK 1 736 million - SEK 1 022 million = SEK 714 million for alcohol in 2003.

Any intermediate consumption in the smuggling sector is probably primarily made up of transport costs. However, it is probable that these costs are already included in the national accounts, although they may be in the wrong sector. Here it is assumed that intermediate consumption which may not already be covered in the national accounts is very low, and therefore no estimate is made. Output is therefore equal to value added.

The output value for home-produced alcohol is equal to the sales value, equivalent to the consumption expenditure of households on home-produced alcohol if we assume that all home-produced alcohol is purchased/used by the household. Thus, the output value is

⁵⁹ *Bostad sökes* [Looking for a home] – an ESO report on the homeless in Sweden, *Ds* 1999:46, Stefan Fölster and Per Säfsbäck, Ministry of Finance, Stockholm 1999.

⁶⁰ Consumer price index, annual mean value, product group 02.1.1 alcoholic liquor, www.scb.se.

SEK 292 million according to the calculations presented. As no reduction for intermediate consumption is made, this is also the value added.

Retail trade and restaurants

Does all use of illegal alcohol and tobacco fall under the final consumption expenditure of households, or is some used as intermediate consumption in the economy to be sold on by, for instance, restaurants to consumers? Is illegal alcohol and tobacco sold in the retail trade or only on the street?

It was not possible to obtain any data on this, but according to the sources we have contacted, sale of illegal alcohol in the catering sector occurs only on a relatively small scale. The Restaurant Commission (*Krog Kommission*) of the Stockholm police works with drugs, weapons, violence and alcohol in restaurants in Stockholm, but has no data on the sale of illegal alcohol in this branch. In addition, alcohol has low priority.⁶¹

The yearbook of tax statistics raises the question of the purchase of illegal alcohol by restaurants. In the past, the general view has been that restaurants represented a major distribution channel for illegal alcohol. However, in a study (*DS 1997:8*), the Ministry of Health and Social Affairs concluded that the role of restaurants is exaggerated. This view was mainly based on the fact that restaurants run a relatively high risk when handling illegal alcohol. If discovered, there is a great likelihood that the business would be shut down⁶².

The Stockholm County Administration is responsible for monitoring restaurants and alcohol sales in restaurants in Stockholm, an activity, which comes under the heading "restaurant clean-up" (*operation Krogsanering*). According to this, there is currently no proof that illegal alcohol is sold in restaurants in Stockholm. However, in the future, Finland's lower tax on alcohol and the fact that the Baltic States have joined the EU may lead to an increase of illegal alcohol in Stockholm's restaurants.⁶³

Intensified actions by the National Tax Agency and regional actors during recent years, due to the introduction of new tools that help the authorities to check the activities better, will most likely contribute to some reduction of illegal handling in this area.

Nevertheless, the Skåne County Administration has made most progress in mapping sales of illegal alcohol in restaurants. The *ISAK* project was launched there in 2004 and found that 16 restaurants in Malmö had sold illegal alcoholic drinks. Often it is alcohol bought by a private person in Germany or Denmark which is then sold illegally in restaurants in Malmö.⁶⁴ According to the Malmö police, as many as half of the smaller convenience stores in Malmö sell smuggled alcohol and smuggled cigarettes. However, there are no quantitative data on the overall volumes involved.⁶⁵

⁶¹ Torbjörn Nilsson of Stockholm police.

⁶² Yearbook of tax statistics, Chapter 10 "*Fel och fusk*" [Errors and fraud], Tax authorities, Stockholm 2003.

⁶³ Jan-Olof Tidbeck at the Stockholm County Administration .

⁶⁴ Håkan Johansson of the Skåne County Administration.

⁶⁵ Kaj Bauer of the Malmö police.

The above sources give a somewhat fragmented picture of the extent of sales of illegal alcohol and tobacco in the retail and catering trade. In any event there appear to be some sales, primarily in the retail trade.

Summary of the 2003 estimates on alcoholic beverages

On the basis of data on quantities and prices from the above-mentioned sources, the final consumption of households on illegal alcohol is estimated at SEK 2 028 million in the year 2003.

National output consists of home-produced alcohol and the value added of this output is SEK 292 million. Output is also based on the trade margins achieved through sales of the imported goods. Trade margins are estimated at SEK 714 million.

Imports are estimated on the basis of legal prices in the country of origin and the volume of illegal alcohol which is consumed. Imports are calculated at SEK 1 021 million.

In view of the calculation methods on which the national accounts are based, purchases abroad by Swedes are already included in the national accounts. These purchases are included in the "foreign currency" item, which is calculated with the aid of data from currency exchange and credit-card transactions. The introduction of illegal items into the Swedish national accounts therefore has an impact only on the final consumption expenditure of households, output and value added.

The supplement to final consumption expenditure of households is calculated as total household consumption minus imports. There is no addition to the national accounts for imports since these are already included in the foreign currency exchange item.

Time series of smuggled and home-produced alcoholic beverages from 1993 and onwards

Before the Monitor project at SoRAD started their monthly surveys in June 2000, some other surveys were also performed. Information is available, on a more intermittent and partial basis at least from the beginning of the 1980's. In the calculations of the national accounts time series from 1993 and onwards this information has been used.

Where annual information was not available, the years in between certain estimates have been interpolated. One of the most comprehensive projects was the KALK study, which covered the period from 1989 to 1998 with an emphasis on 1996. Also information from the previous KAMEL-group has been used.

The values for 2003 have been used as benchmark values. The figures on annual consumption per person were combined with the adult population. Changes in total consumption volumes were then calculated. The time series was built in this way for the whole period. Consumption patterns were available for the different products from the studies. Price movements were applied by using the appropriate consumer price indices for the products in question.

Smuggling of tobacco

By the time for the work with the previous project on illegal activities published on 1 April 2005, SoRAD had not yet reported any data from their surveys on tobacco. A survey was however introduced starting in 2003. Other sources were therefore used for experimental estimates.

According to these reports cigarette smuggling is broken down into three categories:

1. Smuggling for personal needs.
2. Smuggling as secondary activity linked to an occupation, e.g. by long-distance lorry drivers, sailors and airline employees.
3. Organised smuggling.

The price of cigarettes is high in Sweden compared with other countries. This makes smuggling to Sweden attractive. Since cigarettes are bulky the transport volume is relatively large, and organised smuggling with lorries therefore dominates. A big long-distance lorry with smuggled cigarettes can generate a profit of between SEK 5 million and SEK 10 million on the wholesale market in Sweden.⁶⁶

Since mid-1998, mail order and internet trade in illegal cigarettes has been on a relatively small scale. This is because at that time Swedish Customs were given greater powers to check postal dispatches.

Various methods have been made to estimate the volume of smuggling, both for the entire world and for Sweden. In one calculation, total exports and imports world-wide were compared. The difference of 280 billion cigarettes was regarded as equivalent to the volume of smuggling traffic in the world. Sweden's population as a proportion of the world population multiplied by the total volume gave a smuggled volume of just under 400 million cigarettes for Sweden.

In a report by Leif G.W. Persson and Jan Andersson⁶⁷, the authors drew the conclusion that cigarette consumption and smuggling was relatively low in Sweden and that the Swedish volume was therefore about 100-200 million cigarettes.

Another method that Persson and Andersson used in their report was to estimate the actual volume smuggled on the basis of Swedish Customs

⁶⁶ *Skattestatistisk årsbok* (Yearbook of tax statistics)=, Chapter 10 "Fel och fusk", Skatteverket (Tax Authority), Stockholm 2003.

⁶⁷ *Cigarettsmuggling* (Cigarette smuggling), Leif G.W. Persson and Jan Andersson, *Grossistförbundet/svensk Handel* (Wholesale Association/Swedish Trade), 1997.

seizures and a calculation of the probability of being discovered. A "cautious" calculation, gave a result of 100 million cigarettes, which was regarded as being too low. However, an "educated guess" gave a figure of 150 million cigarettes.

Persson and Andersson also compared cigarette consumption on the basis of an interview survey with sales in lawful outlets and in this case also arrived at about 150 million cigarettes.

On the basis of this information the amount of 150 million cigarettes was chosen as a measure of smuggled cigarettes for household consumption in 2003. Information from Malmö police⁶⁸ put the cost of a carton of cigarettes at about SEK 200 on the street. This price was both below the Swedish legal price of about SEK 340 and the "tax-free" price of about SEK 240. A carton of cigarettes contains 200 cigarettes. The street price for one cigarette would thus be SEK 1. The consumption expenditure of households on smuggled cigarettes was thus assumed to be SEK 150 million in 2003.

Organised crime still accounts for a large proportion of the smuggling of alcohol and tobacco. For this, transport, storage and distribution channels are necessary. The smuggled cigarettes come primarily from Estonia, Latvia, Lithuania and Poland. Smuggled cigarettes transit to Norway where the prices are the highest in Europe.

For cigarettes, Poland's legal unit price is used. Poland's unit price per cigarette is about SEK 0.5. Other countries' legal unit prices for cigarettes based on the PPP values are often higher than the Swedish street prices, according to Malmö police data.

Revised estimate of tobacco smuggling

After the first figures from the SoRAD surveys of tobacco were published a new calculation of tobacco has been made. The surveys had preliminary figures for 2003 and 2004, which were 480 and 377 million cigarettes respectively. By assuming the same import and "street" prices as in the previous calculations the Swedish production, equal to the trade margin, was estimated to SEK 240 million instead of 75 in 2003. This estimate has been introduced into the revised national accounts.

Time series for tobacco smuggling from 1993 and onwards

A time series from 1993 and onwards has been built with the help of various pieces of information. The surveys of living conditions conducted by Statistis Sweden and reports from The Swedish National Institute of Public Health include data on the number of daily smokers in the population. The share is available in a series starting in 1980. Between 1993 and 2006 the share of daily smokers has decreased from 23 percent to 14 percent. Figures on registered cigarette sales are found on the website of Swedish Match.

⁶⁸ Kaj Bauer at Malmö police.

	Share of daily smokers	No. of daily smokers	Annual change	Registered sale, million	Annual change
1992	26.0	144 339		10 966	
1993	23.0	128 190	0,888	8 723	0,795
1994	23.0	129 113	1,007	8 710	0,999
1995	23.0	129 462	1,003	8 123	0,933
1996	22.0	124 075	0,958	8 278	1,019
1997	19.5	110 191	0,888	5 999	0,725
1998	19.0	107 696	0,977	5 738	0,956
1999	19.0	108 094	1,004	6 878	1,199
2000	19.0	108 701	1,006	7 067	1,027
2001	19.0	109 379	1,006	7 290	1,032
2002	17.5	101 414	0,927	7 478	1,026
2003	17.5	102 120	1,007	7 224	0,966
2004	n.a.	93 976	0,920	6 900	0,955
2005	n.a.	94 746	1,008	7 228	1,048
2006	14.0	83 751	0,884	6 985	0,966

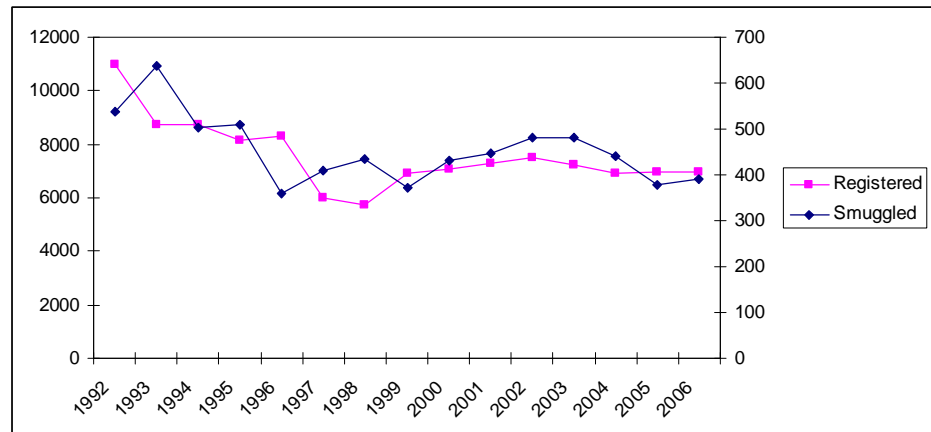
When comparing these series, it is noted that during the 1990's sales decreased more than smoking. In December 1996 and August 1997, prices increased by more than 40 percent. This affected smoking habits. The share of daily smokers decreased from 22 percent to 19.5 between 1996 and 1997 and followed suit in 1998 to 19 percent. The lowest figures on registered sales are found for 1998. After that registered sales has increased more than smoking has. However, recent years have seen an increase in the number of occasional, nonhabitual smokers. The customs reported increased seizures of cigarettes in 1996-1998. The figure for 1996 was 16.6 million, in 1997 it was 39.3 and it culminated in 1998 with 45.6 million cigarettes. A rough calculation of the share of seizures during the latest years gives an estimate of between 1.5 and 3 percent of all smuggled cigarettes.

The time series calculated from the first report of the survey made by SoRAD⁶⁹ and a combination of price increases of sold registered cigarettes give the following estimates in current prices.

	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006
Smuggled cigarettes	319	251	254	179	205	218	186	216	223	241	240	220	189	196

⁶⁹ Report no. 29, table 7

Diagram showing registered sales of cigarettes and calculated smuggled amounts in million SEK*



*Cigarettes bought abroad for private use are not included in these estimates

The estimates calculated by SoRAD have been revised after the report referred to above was published. The number of smuggled cigarettes has been raised by between three to five times for the period 2003 and onwards. Unfortunately this information was revealed too late to be included in the national accounts time series this time. Sale prices are also given in the 2007 report. They indicate that the prices and levels now used in the national accounts are too low.

In the survey covering the first half of 2007, questions are also asked on internet shopping of cigarettes and snus. Only 0.1 percent of the total number of respondents had bought cigarettes and 0.004 percent had bought snus. No estimates have yet been published for these responses.

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5 Illegal gambling

The gambling market

Gambling is a pervasive phenomenon in Swedish society and by international comparison, Swedes rank among the most gambling populations in the world. In 2005 the Swedish gambling market had an official turnover of nearly 36 billion SEK which corresponds to almost three percent of the households' disposable income⁷⁰. Measured in turnover, gaming machines, followed by betting on horse races, constitute the most popular forms of gambling.

Because of the potential harmful effects of gambling, lotteries have been restricted through Swedish legislation since the 1800's. Today, gambling is regulated through two acts of parliament: the Lotteries Act (1994:1000) and the Casinos Act (1999:355). Through the Lotteries Act virtually all arrangements of lotteries⁷¹ require a permit and all permits are subject to government control and scrutiny. The right to arrange lotteries is primarily reserved for public benefit organizations, horseracing associations and the national lottery. Furthermore, the surplus generated through lotteries is in principle required to benefit general, and for society beneficial, causes.

Public benefit organizations have been granted the right to organize traditional lotteries, bingo and betting on sporting events that are held at a county level. Horseracing associations are permitted to handle betting on horse races. The state-owned gaming company, Svenska Spel, handles sports betting when more than one county is involved and betting on dog races, in addition to operating the four international casinos that currently exist in Sweden. Furthermore, the government has granted the company the exclusive right to arrange gaming on token machines.

The few commercial interests currently allowed on the gambling market consist of dice, cards and roulette games in amusement parks or in hotels and restaurants. These so-called restaurant casinos are characterized by strict limitations on the size of stakes and winnings. Also, machines with other than cash prizes may be placed in amusement parks and similar venues.

The rationale behind the current Swedish lottery legislation is two-fold. The legislation is to both protect society from the adverse effects of gambling and to curb the risk of fraud and illicit gambling. It is only those who organize and provide illegal gambling that are targeted through the legislation; participation in illegal lotteries is not, and never has been, prohibited by law.

⁷⁰ www.lotteriinspektionen.se. The figure corresponds to turnover prior to the deduction winnings.

⁷¹ The Lotteries Act's definition of a lottery comprises the drawing of lots, guessing, betting, bingo games, gaming machines, roulette games, dice games and card games.

Gaming machines

Betting on gaming machines is the most common form of officially registered gambling in Sweden today. According to a number of sources⁷², illegal gaming machines constitute the most prevalent and economically significant form of illicit gambling as well. Current legislation allows token machines that pay winnings in the form of value certificates exchangeable for cash. The number of machines and their placement, the hours during which they may be operated and by whom they may be operated are just a few examples of areas currently restricted through rules and regulations. Furthermore, the maximum allowed bet is 5 SEK and the largest possible win is limited to 500 SEK. The machines may be placed in bingo halls or in hotels or restaurants that hold a permit to serve alcohol. The government has granted the state-owned gaming company, Svenska Spel, the exclusive right to arrange gaming on token machines and has limited the total number of machines allowed on the market to 7 500.

Historical background

Gaming machines have for a long time been subject to varying degrees of government regulation. The Lotteries Act of 1939 stipulated that gaming machines were only allowed in connection with public events or with events that benefited charitable or otherwise socially beneficial causes. No permit was required; it sufficed with a notice to the local police authority.

By 1970, the Swedish market contained somewhere between 10 000 and 20 000 machines. The stock primarily consisted of slot machines, typically placed in hotels, restaurants, coffee shops, gas stations, movie theatres but even in less expected locations such as office buildings and ordinary shops. The prizes were usually paid in the form of tokens that could be exchanged for goods or directly for cash. The dispersion of the machines that had occurred by 1970 was in violation of prevailing legislation and concern for the social implications began to grow. In 1973 the regulations were modified and gaming machines became subjected to permits and the allowed locations were restricted. These changes brought the number of machines down to about 6000.

During the years that followed, the issue of gaming machines and their impact on society was the subject of numerous government committees and law proposals. From this work stemmed the Lotteries Act of 1979 which placed a complete ban on all gaming machines with the possibility of cash, token or other any other form of prize. The law also forbade the possession of such machines.

The ban was eventually lifted through the Lotteries Act of 1994. By then the winds had changed and gaming machines were to be reintroduced, albeit under strict regulation, in order to provide additional revenue to public benefit organizations. The committee that prepared the proposal also contended that a legalization of gaming machines would help subdue the widespread problem of illegal ones.⁷³

⁷² See for example Statens Folkhälsoinstitut dnr 20-01-0649. Discussions with experts during the course of this study also corroborate this.

⁷³ SOU 1992:130

The new legislation defined gaming machines as comprising machines that have a mechanism for payment of prizes, be it in cash or in goods, incorporated into the machine itself. This wording provided a loophole that the market was quick to draw benefit from. The law was circumvented by the introduction of machines that lacked such a mechanism and where the winnings were instead paid through the staff working in the business where the machine was placed. The legislation was modified in 1996 in order to incorporate even this type of machine. However, in 2000/01 these machines once again emerged on the market. The operators of the machines claimed that the Swedish government had committed a technical error in the process of the new legislation. The error consisted of not having preinformed the EU Commission of the proposals in accordance with directive 98/34/EG. The mistake took until February of 2002 to rectify. A temporary decrease in the number of machines on the market followed but during the course of 2002 reports claimed that the number was quickly rising again⁷⁴.

Illegal gaming machines

The Swedish government has sanctioned Svenska Spel the right to place 7500 token machines on the market; 500 in bingo halls and the rest in restaurants. The National Gaming Board is in charge of issuing the individual permits. The legal market is therefore closed for private, commercial interests. However, these interests have entered the market nonetheless through unregulated machines. Generally speaking these illegal gaming machines fall under one of two categories. One category involves a breach of the Lotteries Act through the operation with machines that generate cash or token winnings. The second category involves using recreational machines for which the restrictions are less severe. Recreational machines provide arcade-type games and have in common that they do not generate any prizes, other than perhaps free games. In past years numerous concerns have been raised that these machines are often used for illegal gambling as well⁷⁵. Technological innovation has implied increased diversity and flexibility and it is becoming increasingly more difficult to determine whether a given machine should be viewed as a gaming machine or as a recreational one.

Running a business with illegal gaming machines has for a long time been a lucrative and fairly low-risk endeavor. The situation has presumably worsened due to the scarcity of the resources devoted to targeting the problem. According to police sources⁷⁶, illegal gambling has long been regarded as an area deserving relatively low priority. The few police districts that have devoted resources to tackling the problem have, however, quickly achieved results. This suggests that the problem may significantly diminish if the attitude on behalf of the authorities changes.

Illegal machines are typically owned by one agent (commonly with wider criminal affiliations) and placed on another business owner's premises, with the winnings split between the two. The arrangement is often formalized through a written contract. A potential legal consequence of possessing illegal machines is that the proprietor's liquor license may be revoked. The

⁷⁴ Lotteriinspektionen (2003)

⁷⁵ SOU 2000:50

⁷⁶ Lotteriinspektionen dnr 68/2004

trend, therefore, is towards placement in businesses that do not serve alcohol⁷⁷. The turnover from illegal machines is thought to be greater than for their legal counterparts for which the size of the winnings and of the stakes is regulated⁷⁸.

During 2007, the issue of illegal gaming machines has received a good deal of public attention and efforts have been made to deal with the problem. Past experience indicates that the prevalence can be significantly reduced with fairly small means and the current increased awareness on behalf of the authorities suggests that the matter may be of less consequence in years to come.

Estimation of illegal gambling in 2003

Illegal gaming machines are considered to be the by far most important incidence of gambling previously not captured in the accounts. The other forms are believed to occur either on a much lesser scale or to consist of more or less zero-sum games where one player's losses make up another player's winnings. As such neither type is prioritized for inclusion in the national accounts system.

Sources

In 2003 the National Gaming Board, in cooperation with the National Police Board, did a mapping of the occurrence of illegal gaming machines. The study was the first comprehensive examination of the illegal gaming market in Sweden⁷⁹.

The directive that the government gave to the National Gaming Board was to map the market, assess the number of machines and their turnover and provide recommendations on how to address the problem. The government motivated the assignment by referring to illegal gambling's negative societal impact as well as its association with social and economic difficulties for individual gamblers. Furthermore, the government was concerned that the earnings generated by illegal machines benefited organized crime.

In the course of their study, the Gaming Board visited over 2000 businesses throughout the country. The businesses were randomly picked and of the type where illegal machines are known to sometimes be placed. The inspections were carried out by anonymous controllers. With the help of the Swedish National Laboratory of Forensic Science (SKL), the seized machines were examined and estimates on turnover and on the ratio of wins to losses were made.

Unregulated machines were found in approximately one third of the businesses that the Gaming Board visited. The highest concentration was found in suburbs to the two largest cities in Sweden, Stockholm and Gothenburg. However, the problem had a wide geographical spread and

⁷⁷ Lotteriinspektionen (2003)

⁷⁸ SOU 2000:50

⁷⁹ Illegal gambling had been the focus of some research in the 1970's but the emphasis then had been primarily on illegal betting clubs.

illegal machines were found to be abundant in smaller communities as well. The dispersion was widespread enough for the Gaming Board to describe the issue as one of national concern.

The machines were placed in a multitude of locales with the highest prevalence being in restaurants, coffee shops, candy stores, convenience stores, video rental shops and tobacco shops. The investigation did not include private associations and the like, where illegal gaming machines are also believed to be abundant.

Both old and new machines were found; providing typical games such as fruit wheels and poker. Common for the newer machines, is that they allow greater flexibility and the investigators found that settings could be varied in order to maximize profits. The ratio of wins to losses, for example, was in cases found to be lower on the days right after the receipt of monthly salaries.

The study revealed a strong link between illegal gaming machines and organized crime. A typical set-up is that criminal associations own the machines and rent them to business owners for a share in the profits generated. The investigation divulged that the placement of machines often involved coercive methods and business owners who wished to remove the illegal machines were often threatened into not doing so. There also exists a widespread problem of betting on credit with ensuing debts as a result. What is more, a market for collecting these debts has also emerged.

The Gaming Board's study included a questionnaire sent out to all the police districts in Sweden. The survey consisted of eight questions, mainly relating to their knowledge of illegal machines in their district and to the steps taken to address the issue. The results indicated that the knowledge was limited and several answers also revealed that the issue was not particularly prioritized. Many of the answers did, however, lend further support to the link between illegal gaming machines and organized crime. In 2005 a follow-up survey was conducted, the results of which disclosed that the situation had by then not improved.

The authors emphasize that agents dealing in the business of illicit machines have been very successful in capturing market shares. Considering the large amounts of money at stake they conclude that the problem is not bound to diminish unless more law enforcement is deployed.

With the help of data on different business types from Statistics Sweden, the findings from the Gaming Board's field study were used to produce an estimate of the total number of illegal machines in 2003. The conclusion was that the market in 2003 contained at least 3000 illegal machines.

The machines that were seized in connection to the field study were examined by SKL. According to SKL's estimate the machines had an average turnover of one million SEK per year and machine. Their estimate was that two-thirds of this was returned to the players in the form of winnings and that the remaining third constituted profits to be split between the owner of the machine and the proprietor of the business where the machine was located.

Estimation

The components of the national accounts system affected by the inclusion of illegal gambling are consumption expenditure within the household sector and production within the non-financial corporations sector. There exists a certain risk of double-counting to the extent that the illegal production that we aim to include is already registered in the national accounts. The units providing the illegal gaming may already be included in the business register and may want to legitimize some of their illegal earnings. However, the consensus is that these types of earnings are seldomly reported⁸⁰. Consumption may also to a certain degree be included in the Household Budget Surveys. However, the ordinary calculations for household expenditure on gambling are not based on these surveys, mitigating this additional risk of double-counting.

Information on the magnitude of illegal gaming is somewhat scarce. The National Gaming Board's investigation is the most comprehensive study to be conducted on the issue of illegal gaming machines in Sweden and as such constitutes the basis of the following estimations.⁸¹

The two necessary ingredients for an estimate of illegal gambling are an estimate of turnover and an estimate of the ratio of wins to losses. With an estimated 3000 machines, an average annual turnover of one million SEK and a wins to losses ratio of two-thirds, the resulting estimate of household consumption expenditure and of value added in production in 2003 is one billion SEK.⁸²

Time series for 1993 and onwards

Yearly estimates of illegal gambling have been made for the period 1993 to 2006 and were finalized in connection with the first definitive calculation of 2005, carried out in the fall of 2007.

Previous studies contain little guidance as to the development of illegal gambling over time. For this reason, simplicity has been favored and consideration has not been taken to specific circumstances that perhaps should have been allowed to affect the estimates for a given year. For example, no attempt has been made to quantify the effect of the legislative loophole that led to an increase in the number of unregistered machines in the beginning of the 2000's. The legislation was subsequently rectified in 2002 and a large portion of the unregulated machines disappeared from the market only to reappear again shortly thereafter. According to the assessment made by the National Gaming Board, approximately 5000 unregulated, but not illegal, machines existed on the market during the first years of the 2000's. Although these were, due to a technicality, not illegal

⁸⁰ In support of this is the investigation in 2005, launched by the newspaper GöteborgsPosten in cooperation with Sveriges Radio. As reported in the article "Apparaterna drar in miljoner" published 2005-05-13, on average 80 to 90 percent of the earnings from the illegal gaming machines went unreported.

⁸¹ The Swedish National Institute of Public Health has reported a significantly greater appraisal of the number of machines and estimated that the yearly turnover in 2002/2003 was approximately 4 billion SEK.

⁸² Operating costs and intermediate consumption are believed to be small and are therefore disregarded.

per se, the assumption is that the earnings from them nevertheless went unreported. In support of this assumption, the Swedish National Tax Board⁸³ commented that the interests behind these machines were primarily illegal ones.

The volume growth of officially recorded gambling (COICOP purpose 0943) was employed to construct a time series. This, however, is not unproblematic as the relationship between legal and illegal gambling is theoretically ambiguous. On the one hand, an increase in legal gambling opportunities can result in a general growth in demand, thereby spurring even the illegal counterparts. This concern has had a profound influence on Swedish legislation in the past⁸⁴.

On the other hand, many observers believe that the high degree of regulation on the Swedish gaming market is responsible for the market not being satiated and thereby open for illegal interests. Accordingly, an easing of the restrictions on gambling is commonly argued to be justified through the allegedly positive impact this would have on illegal gambling. This has been a reoccurring argument of many of the committees appointed during recent years to analyze the gambling market and its legislation⁸⁵. However, whether empirical evidence supports this latter stance or not is debatable and the experience of other countries has been mixed. An additional theory is that illegal and legal forms of gambling to a large extent appeal to different sets of consumers, implying that the two may not be strongly linked.

The picture that nonetheless emerges, with the help of available research and through consultation with experts, is that the number of illegal gaming machines has increased somewhat during the period 1993 to 2005. During the same period, the market has undergone considerable liberalization, of which the introduction of casinos and the removal of the ban on gaming machines are the most prominent examples. This would suggest that there is no set demand for gambling and that legal and illegal gambling may correlate positively. This implies that the volume growth of official gambling may very well be an adequate indicator even for the illegal forms.

Due to the aforementioned scarcity of information, the derived estimates should be viewed as somewhat tentative. Furthermore, the estimates are prudent in several regards. Firstly, only the illegal gambling that occurs on gaming machines is considered. Although other forms are thought to be of far less monetary significance, they are presumably not nonexistent. Secondly, the estimates build on the assumption from the National Gaming Board's report that there were 3000 illegal machines on the market in 2003.

⁸³ Tax Statistical Yearbook 2004.

⁸⁴ For example the reasoning in SOU 1979:29 was that neither the restrictions on casinos nor gaming machines should be eased due to the stimulating effect that that might have on illegal forms of gambling. The Swedish National Council for Crime Prevention argued along these lines in conjunction with SOU 1992:130, claiming that legalizations may very well lead to an increase in illegal gambling.

⁸⁵ For example SOU 1992:28 contains a strong conviction that illegal gambling would be severely stifled by the introduction of state-run casinos and SOU 1992:130 argued along the same lines with regards to a legalization of gaming machines.

This is according to the authors a lower-end estimate and should rather be viewed as a minimum. Furthermore, neither the report nor our estimates include illegal machines placed in private associations.

With the help of the point estimate for 2003, appraisals for the preceding and following years were extrapolated using the development of household consumption expenditure on legal forms of gambling. Estimates in constant prices were achieved with the help of the corresponding consumer price index (CPI). From the yearly estimates, quarterly estimates were derived using the same distribution as for legal gambling.

Estimates of illegal gambling 1993 to 2006, million SEK

	1993	1994	1995	1996	1997	1998	1999
Current prices	888	895	922	926	949	1 006	1 012
Constant (t-1) prices		879	899	922	944	1 008	1 008
	2000	2001	2002	2003	2004	2005	2006
Current prices	1 021	994	1 035	1 000	983	953	958
Constant (t-1) prices	1 012	971	1 024	979	980	937	957

Source: own calculation

The resulting time series corresponds fairly well to the development that experts believe took place during the years in question. Anders Stymne, who works with gambling issues at the Swedish National Institute of Public Health, estimates that the illegal market expanded somewhat during the period 1993 to 2003, and then remained relatively unchanged or diminished slightly in more recent years.

The above estimates have been incorporated into the national accounts and estimates of illegal gambling will continue to form part of the both the quarterly and the yearly accounts to come. The premises for the estimations will perhaps need to be modified to accommodate any future developments that may have a bearing on the magnitude of illegal gambling in Sweden.

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