THE BUSINESS OF NARCOTICS

- do Outlaw Motorcycle Gangs affect young men’s experience of narcotics?
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Do Outlaw Motorcycle Gangs affect young men’s experience of narcotics? *

Magnus Nilsson*
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ABSTRACT

In this thesis, Outlaw Motorcycle Gangs are used to measure the effects of organized crime on young men’s experience of narcotics. The study relies on panel data for Swedish counties stretching over the period 1995-2005, using results from conscript surveys to determine young men’s experience of narcotics. When applying a fixed effect model, the results show that Outlaw Motorcycle Gangs actually have a negative effect on the experience of narcotics among 18-year-old Swedish men. However, when lagging the time of establishment for the gangs one year, positive estimates are derived for individuals ever used, or been offered to use illicit narcotics. These findings are only significant on a ten percent level, but the results could implicate that it may take some time for the Outlaw Motorcycle Gangs to penetrate new markets; finding a profitable way of adapting to the new market conditions. Due to possible problems with endogeneity, it’s difficult to derive any definitive conclusions regarding the true effects of Outlaw Motorcycle Gangs. It’s possible that the location of a new OMG is partially determined by the use of narcotics, wherefore the results are to be taken with some caution.

Keywords: Organized crime, Outlaw Motorcycle Gang, narcotics, fixed effect, panel data.

* I wish to thank Per Johansson at RNS for background material and general advice concerning the current situation of narcotic abuse in Sweden. I also wish to express my gratitude to Ulf Guttormsson for the data provided and advice concerning the use of it.

** Correspondence: Phone: +46 733 400 009. E-mail: Magnus.Nilsson.0991@student.uu.se, mange80@hotmail.com.
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1 INTRODUCTION

Reports from the Swedish Council for Information on Alcohol and other Drugs (CAN) show that the consumption of illegal drugs among young Swedish adults exploded during the early nineties. From 1992 to 1997 the number of young Swedish males who had ever been offered to buy or use narcotics doubled to 41 percent and this trend has continued into the 21 century.¹ During this very period, a new form of organized crime was established in Sweden, the Outlaw Motorcycle Gangs (OMG:s). Is there a connection?

This study is an extension of the recent work by Hilldén and much of the information concerning the mapping of Outlaw Motorcycle Gangs in the Swedish counties is based on his work.² Unlike Hilldén who focused on how OMG:s affects the rate of violent and property related crimes in the Swedish municipalities, I have chosen to aim my energy on one of the greatest problems of modern society; narcotics. According to the Swedish Police, drug traffic is the most common form of organized crime and during 1995 and 2001, the Swedish Customs seizures of narcotics increased with over 175 percent.³ Although the business of narcotics is considered to be one of the main income sources for different organized crime elements, I know of no empirical study proving this statement. What lies behind this assumption? My aim is to bring light into this debate and more specifically, the purpose of this study is to investigate whether there is any connection between drug experience amongst young men and the establishment of organized crime formations. Can this connection be proven through empirical methods using an economic model?

Focus in this study will be on Swedish 18-year-old men’s experience of illegal narcotics and the main questions to be answered is:

- Do the establishment of organized criminal units in the form of OMG:s increase young Swedish men’s use of illicit narcotics?
- Do young men’s exposure to illicit narcotics increase with the establishment of OMG:s? In other words, do the establishment of organized crime

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² Hilldén, J. 2006.
formations increase the number of young men ever been offered to buy illegal narcotics?

I base my approach on panel data stretching over the period 1995-2005 to which a fixed effect model, created in line with the recent empirical work on the demand for narcotics is used. The results show that Outlaw Motorcycle Gangs have a negative effect on Swedish 18-year-olds experience of narcotics. When lagging the time of establishment for the gangs one year, positive estimates statistically significant on a ten percent level are derived for individuals ever used or been offered to use illicit narcotics. This could be due to time consuming activities associated with the process of penetrating a new market, meaning that it could take some time for the Outlaw Motorcycle Gangs to actually increase consumption in each area.

The study faces a dual problem. First I need to find an appropriate way of measuring the extent of Outlaw Motorcycle gangs in the Swedish counties. This will be covered in section two with the aim of mapping the illegal activities conducted by these formations and the dispersion of the units in the Swedish counties. Secondly, I need to derive a general equation of consumption of illicit narcotics for young men in the Swedish counties. This will be dealt with in section three covering previous empirical research and section four, covering the theoretical approach used in this study. Section five presents the data later to be applied in the fixed effect model derived in section six, dealing with the economic specifications. Finally, the results are presented in section seven followed by concluding remarks in section eight.
2 ORGANIZED CRIME AND NARCOTICS

A number of definitions of organized crime are available in the literature and according to the United Nations, an organized criminal unit is explained as:

“a structured group of three or more persons, existing for a period of time and acting in concert with the aim of committing one or more serious crimes or offenses established in accordance with this Convention, in order to obtain directly or indirectly, a financial or other material benefit.”

basically saying that the criteria for organized crime formations are structure and endurance over time. The European Union has a more robust way of defining these formations including qualities like international activity, the use of force and threat, organizational structures, undue influence on public administration and so on. I do not intend to demonstrate a more legal termed definition, but for those interested, I refer to Enfopol 35 Rev 2. Instead I will focus on the activities undertaken by these networks in Sweden.

Most formations are considered multicriminal in the sense that they are involved in a variety of different criminal activities. In most cases these activities can be divided into three main subgroups consisting of principal industry, special crimes and corollary crimes. By definition, principal crimes includes the ongoing criminal activity and could be compared to a regular company’s field of business. These crimes often require a structured organization capable of handling large capital investments and solving logistical problems etc. Specialist crimes on the other hand are crimes preformed more sporadic when opportunity is given, depending on the associated risk and profitability. Finally, corollary crimes are categorized by crimes that have no profit in themselves, but are crucial to succeeding activities, for instance requiring arms for a planned bank robbery or intelligence gathering on police officers.

Table one shows an extract from an analysis made by the Criminal Intelligence Department (KUT) at the Swedish National Criminal Investigation Department (RKP), where different criminal networks are listed in accordance to their pattern of criminal behavior.

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6 RKP KUT2005:7 a.
As table one shows, each formation has their own field of expertise, but the overall most frequent and widespread principal industry seems to be narcotics and various forms of smuggling. Note also that these enormous sources of income are not seldom combined with legal activities in the restaurant business etc, as a way of investing criminal capital.\footnote{RKP KUT 2005:7 a, p 21.}

Up until the turn of the millennium, organized crime formations as such described above were mainly concentrated to, or in the vicinity of major cities. Today, this fact remains true for the majority of the known formations, but what troubles RKP inter alia is the development, or more correct the dispersion of the Outlaw Motorcycle Gangs. These formations in particularly have broken the tradition of locating their offices to big cities and are now running their operations even from much smaller communities like Torsby and Ludvika. This scattering means that areas not used to heavy criminal

\begin{table}
\centering
\begin{tabular}{|l|l|l|l|}
\hline
\textbf{Network} & \textbf{Principal industry} & \textbf{Special activities} & \textbf{Corollary activities} \\
\hline
Albanian formations & - alcohol and tobacco smuggling & - bank- and money transport robbery & - crimes of violence \\
& - narcotics & - economical crimes & - crimes against the State \\
& - trafficking & - weapon smuggling & - pro forma marriage \\
Economic crime formations & - economical crimes & - smuggling & - money laundry \\
Outlaw Motorcycle Gangs & - economical crimes & - arms smuggling & - arms felony \\
& - extortion & - collection & - counterfeit \\
& - narcotics & - deception & - crimes against the State \\
& & - doping preparations & - homicide and violence \\
Prison- and Suburb-gangs & - narcotics & - extortion & - arms felony \\
& - theft & - gambling & - crimes of violence \\
& & - money transport robbery & - money laundry \\
THB formations* & - human trafficking & - alcohol smuggling & - counterfeit \\
& & - narcotics & - pro forma marriage \\
Yugoslavian formations & - alcohol and tobacco smuggling & - arms smuggling & - arms felony \\
& - narcotics & - collection & - crimes against the State \\
& & - extortion & - homicide \\
& & - insurance frauds & \\
& & - receiving stolen goods & \\
\hline
\end{tabular}
\caption{Criminal activities among different criminal networks} \footnote{"Trafficking in Human Beings"}
\end{table}

\begin{flushright}
\end{flushright}
behavior are choked by well organized units, capable of infiltrating large proportions of vital social functions and overriding all other existing competition.\textsuperscript{8}

\subsection*{2.1 Outlaw Motorcycle Gangs}

Organized criminal networks are often distinguished by a strict formal hierarchy, designed to protect the leaders at the top of the organization. The two most frequently investigated OMG:s, Hells Angels and Bandidos use different structures of power where the latter is ruled by an international president. Three national presidents for North America, Europe and Australia are next in rank closely followed by the numerous club presidents. Hells Angels’ structure on the contrary is more open and each club, or charter president share equal amount of power.\textsuperscript{9} Event though the organizations are managed in different ways, the structure within each club are more or less the same with distinctive positions for each member. Each club is run by a totalitarian president protected by an enforcer, or bodyguard. The treasurer and secretary handles the club’s finances and the crimes associated with OMG:s are often preformed by individuals further down in the hierarchy, or in some cases even by outsiders like drug dealers and such. This clear dispersion of responsibilities and the strict chain of command enables the clubs to run a more organized and profitable business, unlike more loosely controlled organizations.\textsuperscript{10}

It’s important to note that the Outlaw Motorcycle Gangs are not, unlike other networks, designed solely for the pure purpose of criminal activity. Crimes associated with OMG:s are in most cases committed by formations or separate individuals within the gang and not by the clubs as an organization. More correct, the gangs are to be viewed as miniature societies providing a social safety net for their members who live by the gangs’ own laws. In return from the loss of independence, each member is guaranteed protection from other criminal networks and individuals, but also from the legal system. Besides protection, the membership also generates an exclusive status among other criminals in the underground world, almost comparable to regular celebrities, like movie stars or athletes.\textsuperscript{11}

\textsuperscript{8} RKP KUT 2005:2 b, p 37.
A club is called “charter” by Hells Angel, or equivalently “chapter” by Bandidos. To avoid confusion, I will hereafter use the term club or gang for all established charters and chapters.
\textsuperscript{10} BRÅ 1996:6, p 27.
\textsuperscript{11} RKP KUT 2004:5 c, p 13.
Outlaw Motorcycle Gangs are also characterized by extensive contact to various criminal networks both domestic and abroad. International operations are foremost undertaken by the two dominating organizations, Hells Angels and Bandidos and a recent example based on RKP:s intelligence indicate an increased connection to Russia. Members of Hells Angels Sweden have on a regular basis visited likeminded motorcycle gangs in Moscow, indicating a direct connection to the Russian underground.¹²

Before continuing with the Outlaw Motorcycle Gangs in Sweden, it’s important to remember that not all motorcycle gangs are involved in the activities described above. Ten years ago there were over 300 motorcycle gangs active in Sweden and it’s crucial to state these social clubs have little in common with the criminal phalange covered in this study.¹³

2.2 The Swedish situation

The competitive gangs Hells Angels, Bandidos, Outlaws and the Pagans represent the four most dominating formations among the Outlaw Motorcycle Gangs. With an approximated number of 1,500 members in over 100 countries, Hells Angels is considered to be the wealthiest club also most capable of illegal activity. All the gangs except the Pagans have extensive business outside the United States and the first establishment in Scandinavia took place in 1980 when four local Danish gangs were merged and taken under the wings of Hells Angels. As mentioned in the introduction, it took over ten years for Hells Angels to break ground in Sweden when the Dirty Dräggels in Malmö became a full worthy member of Hells Angels in 1993. In the following year, Bandidos initiated the Helsingborg based club, the Morbids and the rivalry between these two major gangs led to a large scale war in Scandinavia. When the peace treaty was signed in June 1997, eleven people had lost their lives as a result of the over 90 attempted murders that took place during the conflict.¹⁴

One of the conditions in the peace treaty was to limit the two clubs from further expansion in Scandinavia.¹⁵ Even though new clubs within both organizations have been established since then in Sweden, the treaty gave other smaller, so called

¹² RKP KUT 2005:7 a, p 22.
supporter clubs a larger role in the exploration of the Swedish counties. These clubs are often directly submitted to one of the big four, of which at present all except the Pagans are represented by full member clubs in Sweden.  

Today, Hells Angels and Bandidos are still the two major forces in the outlaw biker society in Sweden. Hells Angels have six full worthy clubs located in Malmö, Helsingborg, Gothenburg, Karlstad and Stockholm with two official support clubs; Red Devils and Red & White Crew represented at over ten locations. Bandidos have an equal amount of clubs, positioned in Malmö, Helsingborg, Halmstad, Gothenburg, Säffle, Ludvika and Stockholm. Just like Hells Angels, Bandidos is supported by the two official clubs Diablos and X-team with a similar representation to Hells Angles’ supporter clubs. In addition to these clubs are also the Outlaws’ supporter clubs and other smaller clubs located further down in the hierarchy. The complete mapping used in this study is presented in appendix one along with the year of establishment.

The data in appendix one is based on Hilldén’s study, but some modifications have been made in accordance to the primary sources at RKP and KUT. The data is considered very reliable, but unfortunately not flawless. In some cases the date of establishment is hard to specify, and when comparing the list to the other only known and open equal study carried out by the Swedish public service broadcaster (SVT), there are some small differences mainly concerning the number of supporter clubs. Furthermore, the dates used to determine the time of establishment are the dates reported from RKP et al, and in some cases these figures differ from the official dates reported by the OMG:s themselves. For instance, Hells Angels Stockholm claim to have been founded on the 27th of February, 1997, whereas the date in appendix one shows 1994. The reason for this is that RKP et al have reported the date when Mc Sweden, later to become Hells Angels Stockholm, achieved the level of prospect.  

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16 Similar to the initiating process of an individual becoming a full member, clubs cooperating and contributing to a larger club can achieve different levels of status. The first step in becoming an official club is to be granted the status of hangaround. The next step before eventually becoming a fullmember club like Hells Angel or Bandidos is prospect, but in order to avoid confusion I will categorize hangaround- and prospect-clubs as supporter clubs.

17 SVT, www.svt.se

18 Hells Angels MC Sweden, http://www.hells-angels.se/stockholm
For explanation see reference 7
The reason for choosing Outlaw Motorcycle Gangs in front of other criminal networks such as the ones referred to in table one is both due to the widespread location of these formations, but also due to the evident difficulties associated in mapping covert organizations. Fortunately for me, members of Outlaw Motorcycle Gangs are easily detected by their uniformed waistcoats, making a mapping more manageable.\textsuperscript{19} This also poses some limitations since only these easily detected gangs are included in the mapping process. It’s possible that there are additional gangs in various counties, but this is out of my control.

Despite these errors, it’s hard to produce a better mapping of the Outlaw Motorcycle Gangs in Sweden. In some cases, interesting material is classified and in other cases it’s hard to determine the reliability of the source, but no such material is included in this study. Before I begin to estimate the effect of the reported OMG:s on young men’s experience of narcotics, it’s time to face the second problem of my thesis; how to determine the consumption of narcotics among young men, starting with an overview of previous work on the matter.

3 PREVIOUS EMPIRICAL WORK

Hilldén managed to show that the reported amount of some crimes actually decreased when an OMG was established.\textsuperscript{20} This conclusion is also made by RKP, who besides KUT and The Swedish National Council for Crime Prevention (BRÅ) conducts most of the intelligence on organized crime in Sweden.\textsuperscript{21} One possible explanation for this effect presented by Hilldén is the public fear of reprisals imposed by the OMG:s violent reputation. To my knowledge there is nevertheless no study that estimates the effect of organized crime on drug consumption and even empirical work focusing on the consumption of narcotics are rare. Most frequent are studies that estimate the effects of narcotic use on crime rates treating abuse as an independent variable. Interesting results show that narcotics have a significant effect mainly on property

\textsuperscript{19} Irrelevant in this context but rather interesting are the not too common know purpose and facts of the waistcoats. Each member can be identified by the embroidered patches on the back of the west, reveling facts of which club the wearer is a member of. The system is international and different symbols can be added to the club ensign in order to share information of the member’s position, status and experience earned throughout the years. Some badges like the “Filthy Few” are awarded to those who have participated in conflicts with deadly outcomes. For more information see BRÅ 1996:6.
\textsuperscript{20} Hilldén, J. 2006.
\textsuperscript{21} RKP, 2004:5 c.
crimes, but these results will not be discussed further in this study. Instead I rely on the few studies described below, in order to develop a general theoretical approach concerning the consumption of illicit drugs among young men in section four.

3.1 The search for explanatory variables

A fundamental question posed by Sickles and Taubman is who actually uses illicit drugs? Assuming that each individual maximizes her utility function subject to her budget constraint, they tried to determine the consumption of drugs by each individual’s income, endowments, taste and the price of preferred narcotic. “Taste” was measured by so called socioeconomic variables including education, family background, marital status, age and their main findings showed how the use of drugs decreased with education and favorable family background.22

Just like Corman et al expresses it, research where the consumption of narcotics is treated as the dependent variable have however mainly been concerned with estimating effects of different drug policies, or the results of changes in prices.23 Grossman, Chaloupka and Brown tried to determine the consumption of cocaine by using a panel of cross sectional surveys of American high school seniors. Roughly 13,000 respondents were studied in order to measure past, current and future individual consumption of cocaine. Measures were taken to control for socioeconomic variables including race, sex, number of aged 18-26, education, unemployment, annual earnings, marital status, religious commitment and number of if any, offspring in the final regression. Based on rational addiction theory (see p 14), their main conclusion was that cocaine consumption in fact was rather sensitive to changes in price. They stated that a permanent decline of ten percent in price would increase the number of abusers with eight percent.24

In a more recent study Grossman et al focused on youth’s consumption of cocaine and marijuana and the amount of explanatory variables were increased to determine the effects of legal preventions. Gender, race, environment while growing up, unemployment, religious involvement, marital status, parental and personal education and average income were all used to determine the demand of the two substances. In

consistence with Grossman’s et al earlier findings, the results showed that the demands for both substances were sensitive to changes in price, but also that the sensitivity seemed to decrease with age. Moreover, legal consequences had a negative effect on the number of young people doing drugs, but not on the frequency of use among abusers. Youths with high likelihood of doing either marijuana or cocaine were white men with a high average income who lived in an urban area and did not attend religious services on a frequent level. Unemployed youths were also more likely to consume cocaine and education did not show any significant effect on consumption but young people still living with both parents showed a significant negative effect on both substances.25

Unlike Grossman et al who focused on young individuals, Saffer and Chaloupka concentrated their early works on deriving the demand for narcotics regardless of age. Using a pooled data set of self reported household surveys, they tried to investigate the effects of changes in price on consumption for three different substances. Consideration was taken for demographic variables like gender, race, income and marital status and their results showed that price was a most important factor for the demand of different illegal narcotics, even when considering the whole population.26 Since the participation elasticities derived from Saffer and Chaloupka’s study were lower than both of Grossman’s et al studies, one could draw the conclusion that the younger the abuser is, the more sensitive he is to changes in price.

In subsequent research Saffer and Chaloupka expanded their work, investigating the effects of crime fighting and public health expenditures on abusers demand using a simple supply and demand model. They also enlarged the income definition and included variables like self-employment, social security, public assistance, child support and pension income. When excluding price from the model, the regression showed that both expenditures on crime fighting and public healthcare reduced the number of users and dealers. Saffer and Chaloupka drew the conclusion that both factors affect drug participation by deterrence, education and treatment but also by raising the price of drugs. The results thus implicate that spending money on drug control policies is a good way of reducing the number of abusers.27

Interest has also been shown for other cohorts than young adults and adolescents. Corman et al investigated the abuse among pregnant women on city-level in the United States using medical records and interviews. This combination enabled Corman to control for a large number of variables otherwise hard to collect data for, such as information on childhood, religious believes and commitment and relations to the child’s father. Also more regularly occurring variables like unemployment, marital status, race, citizenship and income were included in their multivariate analysis which showed that pregnant women were just as responsive to changes in price as any other population. Furthermore the results revealed that mothers living in areas with high unemployment were more likely to do drugs whereas well educated mothers who spend their childhood with both parents and were not born in the United States were less likely to do drugs during pregnancy.  

To sum up, most empirical work has been based on self reported individual data. Whether investigating price elasticities for different substances, the effect of preemptive actions or estimating the consequences of different drug policies, the greater part of the studies seem to use the same demographic and sociological variables. By this I mean that the explanatory variables used when investigating the consumption of illicit narcotics are very similar too each other and this conclusion will be a useful tool when developing my theoretical approach in the following section.

4 THEORIES OF ILLICIT DRUG DEMAND

Even if the numbers of empirical studies concerning drug consumption are few, theories and foremost opinions on the subject are vast. Since drug traffic and the abuse of different addictive substances have numerous implications to different sections of society, drugs are subject to a number of different branches of modern science. Focusing on the economic research, a popular approach when analyzing the consumption of narcotics is the Becker-Murphy theory of rational addiction. Some goods like narcotics and cigarettes tend to be more addictive than others and the theory implies that a good is addictive if an increased consumption in the past increases the consumption of it today. Addicts are rational in the sense that they are aware of the future consequences of their current abuse and surrounding factors like “level of

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incomes, temporary stressful events that stimulate the demand for addictive goods, and the level and path of prices…” act as catalysts in terms of the probability of becoming addicted. Becker concludes that individuals who care less about their future situation are more likely to lose themselves in addictive behavior, ceteris paribus.

A further development of the Becker-Murphy theory by Doyle and Smith, considers the possibility of differences among various subgroups in society. People with different endowments face different utility problems, where poor abusers often fall into criminal activity as a way of financing their abuse. All user’s demand for drugs are dependent of the market price, but poor users know that an increased consumption automatically forces them to commit crimes in order to finance their addiction. 

4.1 The demand for narcotics

Following the empirical work of Kaestner, I ignore the intertemporal features of the Becker-Murphy model. The goal here is not to examine any possible link between past, current or future abuse, but to describe the consumption of narcotics amongst 18-year-old Swedish men. The idea is to describe the basic consumption as a demand function of the different social and demographic factors that are considered, or proven to have an influence on the chosen cohort. The supply and demand models applied by Kaestner and Saffer display the market equilibrium of the downward sloping demand curve and the upward sloping supply curve. Much emphasis is put on the importance of different substances price elasticity and Kaestner, whose interest lies in the relation between wage and demand suggests that:

$$D = f(W, P, X)$$  \hspace{1cm} (1)

where the demand for narcotics (D), is seen as a function of wage (W), the price of narcotics (P) and different independent sociological and demographical variables (X). Saffer and Chaloupka use the same principle but is more concerned with the effects of preventive measures, which leads to a model emphasizing healthcare and crime prevention in conjunction with independent demographic variables. As seen in the previous section, these independent variables are meant to reflect certain characteristic

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29 Becker, G S. & Murphy, K M. 1988, p 694.
features of the cohort and society that are believed to affect the abuse of narcotics. Depending on the variable of interest, different authors derive the demand for narcotics in different ways, but the important issue is to adapt the model for the specific features of the chosen cohort.

Since I focus on young Swedish men, I need to uncover what variables affect young peoples decision to do narcotics. Are there any characteristic features in the Swedish society that are commonly known to influence the use of narcotics? I have chosen to derive the general demand for narcotics with the findings of CAN:s extensive surveys of Swedish conscripts. A more detailed description of the surveys will be given in section 5.1, but throughout the years, some so called individual “background conditions” have proven to be especially correlated to high levels of narcotic abuse. According to these conditions, the respondents can be categorized into three different subgroups shown below, determining the risk of ever taking narcotics.³³

i. the high risk group
ii. the normal risk group
iii. the low risk group

The high risk group consists of individuals raised in big cities or an urban environment with more than 50,000 inhabitants. They lack education higher than the mandatory nine year compulsory school and often consume large amounts of alcohol. Individuals with regular jobs show a relative high consumption rate, but the highest rate of consumption is found amongst those not occupied with regular jobs or enrolled in any education at the time of the survey. Among the more heavy users involved in frequent abuse, both parents often lack higher education, but parental education status does not have any affect on one time users, or the share of men ever been offered to do narcotics.³⁴

The low risk group includes individuals with the opposite characteristic features. People found in this group are often raised on the countryside and are currently enrolled in senior high school education. They never drink alcohol nor use tobacco and

³⁴ ibid.
their parents often have a higher level of education. Finally, individuals with characteristics from both groups are placed in the Normal risk group.\textsuperscript{35}

Following Kaestner and Saffer, the conclusion drawn from these risk groups is straightforward and I derive the demand for narcotics in each county, including the plausible effects of Outlaw Motorcycle Gangs (OMG) as:

\[ D = f(OMG, Pop, School, Unemp, Income, X) \] \hspace{1cm} (2)

18-year-old Swedish men’s demand for narcotics (\(D\)) is here determined by the population per square kilometre (\(Pop\)), the share of 18-year-olds enrolled in senior high school or higher level of education (\(School\)), the youth unemployment rate (\(Unemp\)) and the average income for 18-year-olds (\(Income\)). Some variables like average alcohol consumption and the educational level of parents are hard to collect for the average 18-year-old in each county and is therefore included as demographic variables (\(X\)). In this category I also include the total share of unemployed, the share of divorced couples, the share of foreigners and the total crime clearance rate. All variables are chosen in accordance to the empirical studies mentioned in the previous section examining abuse among young people and are measured as the total share of each county.\textsuperscript{36} A detailed definition of each variable is found in appendix three and a more descriptive explanation of the data used in this study follows in the next section.

5 DATA

Characteristic for a panel data set is the use of the same cross sectional units over a chosen period in time. In my case, I follow 20 of Sweden’s 21 counties during the period 1995 to 2005 giving me a total amount of 220 observations. Just like Guttormsson, I exclude Gotland from my analysis due to high uncertainty and missing data for various years concerning young peoples’ experience of drugs. Survey data for the remaining counties are available for year prior to 1995, but unfortunately they are considered unreliable, especially on the county-based level justifying my choice of

\textsuperscript{35} Guttormsson, U. 1995, p 57.
time period. This part aims to give a clear view on the variables described in the previous section, starting with the dependent variable; experience of narcotics.

5.1 The dependent variable – How to measure young men’s experience of narcotics

The measurement of young men’s experience of narcotics used in this study is based on the annual surveys of military conscripts carried out by the Swedish Council for Information on Alcohol and other Drugs (CAN). Other feasible data measuring the number of narcotic related crimes, or the number of narcotic related deaths are also available for the Swedish counties and the first mentioned have been used frequently when estimating the effects of narcotic abuse on different crime rates. Since the number of narcotic related crimes are highly dependent of the effectiveness and the activity undertaken by the police, I have chosen to reject this measurement. The number of drug related deaths is also rejected simply because of the fact that casualties related to narcotics most often occur later on in life, making this data unsuitable for my specific population.

Dating back to 1970, CAN:s surveys take place in conjunction with the mandatory physical and psychological tests performed by the National Service Administration for the Swedish compulsory military service and the results provide a unique source of information concerning young men’s experience of different drugs. When the surveys first started, the majority of all Swedish 18-year-old men underwent the examinations, but in line with the massive reorganisation of the Swedish Armed Forces, the number of individuals actually taking part in the survey has decreased. In the earlier years, individuals with disabilities or injuries had to confirm their condition by doctor’s or psychologist’s note. Today, in line with the cutbacks and tougher competition amongst future conscripts, people with minor injuries or other milder conditions making them unfit for military service are excluded from the tests. Other cohorts excluded are immigrants lacking Swedish citizenship and during 2005 this cohort represented four percent of the total amount of 18-year-olds registered in Sweden. All in all, 25 percent of the Swedish 18-year-old males were excluded from the military service tests in 2005. Of the 48,000 individuals who did take part in the tests, 88 percent chose to participate in CAN:s voluntary survey.

Although the trend shows a decreasing number of young Swedish males undergoing the National Service Administration’s tests, the drop out due to the non mandatory nature of CAN:s survey shows a stable average participation rate over the chosen time period of about 88 percent.\textsuperscript{38} For a more detailed description of selection, reduction, measurement errors and method, I refer to CAN:s official reports available through Ulf Guttormsson.

CAN:s drug survey is completely voluntary and after completion, each individual places his form in a sealed container, making sure his identity remains hidden. Some of the findings are available on county level and I focus on the results measuring the share of individuals ever tried narcotics (use), the share of individuals who have used narcotics during the last 30 days (heavy use) and the share of individuals ever been offered to purchase or use narcotics (exposure rate). Each measurement is derived from the original questions stated below in table two and the results from these questions form the three dependent variables later to be used in my analysis.\textsuperscript{39}

<table>
<thead>
<tr>
<th>Variable</th>
<th>Question asked</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use</td>
<td>“Have you ever used one or any of the following narcotics without doctor’s prescription?” *</td>
</tr>
<tr>
<td>Heavy use</td>
<td>“Have you used narcotics during the last 30 days?”</td>
</tr>
<tr>
<td>Exposure rate</td>
<td>“Have you ever been offered or in any other way had the opportunity to try one or any of the substances mentioned below?” *</td>
</tr>
</tbody>
</table>

* The listed substances deviate from year to year but since 1995 Cannabis, Amphetamine, Cocaine, Heroin, Ecstasy, LCD, sedatives including sleeping drugs and other narcotic substances are all included in the list of substances.


The results show the percentage share of the respondents in each county that have ever used, are heavy users or have ever been offered to try or purchase illicit narcotics. As mentioned earlier, not all 18-year-old men participate in the survey, but the data derived from the surveys are used as an approximation for all Swedish 18-year-old men. Figure one illustrates the national results during the observation period and as the figure shows, there has been a massive increase in the exposure rate peaking at 48 percent in 2002. Even the share of young men ever used narcotics culminated in this year, having increased from 12 to 18 percent.

\textsuperscript{38} Guttormsson, U. 2006.
\textsuperscript{39} Guttormsson, U. 2006.
The figures might seem low, but as table three indicates, there has been a rather large variety in the results between the different counties.

![Graph showing trends over years for different variables.]

**Figure 1:** National data of 18-year-old men’s experience of illicit narcotics.


<table>
<thead>
<tr>
<th>Dependent variable</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Stand. Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use</td>
<td>5.40</td>
<td>26.00</td>
<td>13.81</td>
<td>3.57</td>
</tr>
<tr>
<td>Heavy Use</td>
<td>0.50</td>
<td>5.00</td>
<td>2.29</td>
<td>0.89</td>
</tr>
<tr>
<td>Exposure rate</td>
<td>20.10</td>
<td>60.50</td>
<td>38.94</td>
<td>7.24</td>
</tr>
</tbody>
</table>

**Table 3:** Descriptive statistics for the three dependent variables during 1995-2005 in all Swedish counties.


Counties with big cities like Stockholm and Skåne clearly distinct themselves from the remaining counties. Stockholm county experience the highest ratings for all variables during the observation period peeking in 2002. In this year, more than half of all young men had been offered to buy or use narcotics and over a fourth had used narcotics once or more.

Jämtland showed the lowest share of users in 1995 with 5.4 percent of the young men ever used narcotics. However small compared to Stockholm or Västra Götaland, Jämtland experienced a massive growth especially regarding the share of users peeking at 21.1 percent in 2003. Increases of this magnitude are extreme, but many of the counties experienced a duplication concerning the share of users during the observation period. Large increases in the share of heavy users can also be seen in counties like
Halland, Dalarna and Norrbotten and for a more extensive graphical analysis I refer to appendix two.

5.2 The explanatory variables – How to explain young men’s experience of narcotics

As stated in the theoretical approach, I base much of the explanatory variables on the results from the conscript surveys executed by CAN, described in the previous section. Complementary addition are made by demographic variables that resembles the most frequent occurring variables used in recent empirical studies referred to in section three. These explanatory editions are added in order to control for phenomena often associated with the abuse of narcotics.

Table four below summarizes the descriptive statistics for all explanatory variables used, including figures of the established Outlaws Motorcycle Gangs. The variables School participation, Youth unemployment and Income refer to young people, whereas the remaining variables refer to the entire population of each county. In addition, all variables except Income, Alcohol consumption and population density are expressed as percentage shares of these different cohorts.

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>Stand. Dev</th>
<th>Sign</th>
</tr>
</thead>
<tbody>
<tr>
<td>School participation</td>
<td>88.11</td>
<td>96.35</td>
<td>93.19</td>
<td>1.57</td>
<td>-</td>
</tr>
<tr>
<td>Youth unemployment</td>
<td>2.10</td>
<td>18.20</td>
<td>7.81</td>
<td>3.32</td>
<td>+/-</td>
</tr>
<tr>
<td>Income</td>
<td>9700.00</td>
<td>25200.00</td>
<td>15526.82</td>
<td>+</td>
<td></td>
</tr>
<tr>
<td>Alcohol consumption</td>
<td>3.20</td>
<td>8.80</td>
<td>5.04</td>
<td>1.97</td>
<td>+</td>
</tr>
<tr>
<td>Crime clearance</td>
<td>18.00</td>
<td>38.00</td>
<td>27.47</td>
<td>3.74</td>
<td>-</td>
</tr>
<tr>
<td>Divorced</td>
<td>5.67</td>
<td>10.48</td>
<td>8.23</td>
<td>1.04</td>
<td>+</td>
</tr>
<tr>
<td>Foreign</td>
<td>3.90</td>
<td>18.70</td>
<td>9.01</td>
<td>3.33</td>
<td>+/-</td>
</tr>
<tr>
<td>Higher education</td>
<td>41.58</td>
<td>57.32</td>
<td>49.45</td>
<td>3.46</td>
<td>-</td>
</tr>
<tr>
<td>Population density</td>
<td>2.60</td>
<td>289.90</td>
<td>43.95</td>
<td>58.98</td>
<td>+</td>
</tr>
<tr>
<td>Unemployment</td>
<td>2.10</td>
<td>10.30</td>
<td>5.23</td>
<td>1.74</td>
<td>+</td>
</tr>
<tr>
<td>OMG:s</td>
<td>0</td>
<td>11</td>
<td>1.22</td>
<td>2.39</td>
<td>+</td>
</tr>
</tbody>
</table>

Table 4: Descriptive statistics of explanatory variables. School participation, Youth unemployment and Income are expressed as average share of young people in each county. Remaining variables show the average share of the whole population in each county. Alcohol is expressed as average liters of consumption. Income measures average annual income in thousands of SEK and population density shows the average number of inhabitants per square kilometer.

Reference: BRÅ, CAN, FHI, KUT, Local Police Authorities, RKP, and SCB.
As can be seen in the column furthest to the right, the expected effect for youth unemployment on young men’s experience of narcotics is somewhat uncertain. The traditional view states that an increased unemployment implies an increased amount of drug abuse from say depression inter alia. Whether this is true for young men is uncertain since a young man with no source of income from neither study grants nor regular wage will have a hard time financing the abuse. It’s possible that an increased income due to lower unemployment actually boosts young men’s use of narcotics, not only in the meaning that the are able to afford the substances, but also since it might increase their social nightlife activity.

The outcome of the variable foreigners measuring the share of individuals not born in Sweden is also uncertain. In accordance to the previous work sited in section three this variable has show a negative effect on drug consumption, meaning that individuals with no foreign background are more likely to use narcotics. CAN:s survey from 2005 however, points to a higher frequent abuse among individuals with one or more parents born in a foreign country. This pattern also concerns the exposure rate and the expected sign for this variable is therefore somewhat uncertain.  

Total unemployment measures the share of people through the ages 16-64 being openly unemployed. The reason for also including this variable is to capture any effects occurring in families subject to poorer living standards. It’s possible that children living in families subject to unemployment face a rough climate, both financially and socially. Moreover, unemployment has been controlled for in every empirical work sited in section three with the exception of Sickles and Taubman’s study and the variable has in general shown to increase the number of abusers in society.

The expected effects for the remaining variables are somewhat more predictable as shown in earlier studies. Income has been a popular variable and occurs in every empirical study mentioned in section three. I measure income as the average income of acquisition among 16-19 year old men. Included in this definition is among other all income derived from wages, allowances, grants, sickness benefit etc. Crime clearance rate measures the annual share of total crimes solved by the Police, and serves as a measure of the effectiveness of each counties crime fighting organization. Both

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40 Guttormsson, U. 2005, p 67
Grossman et al and Saffer and Chaloupka use a similar variable, measuring the effects of legal expenditures on drug consumption and I expect the results to show a negative effect to the abuse of narcotics.\textsuperscript{41}

The opposite effect is expected for people with \textit{higher education}. A person with a higher human capital in the form of education is generally less likely to do narcotics, a statement empirically proved by Sickles and CAN.\textsuperscript{42} Here, the variable serves as a general measurement of the educational level in each county measuring the share of people with additional education to the nine year compulsory school. The variable has been chosen in accordance to Hilldén and is included to substitute for the lack of data concerning the educational level of the respondents’ parents.\textsuperscript{43} The same assumption goes for the variable \textit{Divorced} were the aim is to control for the overall family situation in each county. A high share of divorced couples should in accordance to previous studies indicate a higher share of young people consuming narcotics, due to inferior family conditions.

A variable that has formerly occurred in criminal research, investigating the relation between crime and narcotics is the \textit{alcohol consumption} variable. After discussing the matter with Per Johansson at the Swedish National Association for a Drug-free Society (RNS), I too include a variable measuring the average amount of pure litres of alcohol sold to individuals older than 15 years of age in each county.\textsuperscript{44} Research by CAN shows that alcohol often functions as a gateway to heavier drugs and young people used to consuming alcohol are more likely to initiate an abuse of narcotics. A large consumption of alcohol could therefore indicate a higher degree of abuse of narcotic substances in each county.\textsuperscript{45}

Finally, the \textit{population density} is expressed as the number of inhabitants per square kilometer in each county at each year. The aim of this variable is to control for the fact that narcotic substances are more frequently occurring in high density areas like major

\textsuperscript{43} Hilldén, J. 2006.
\textsuperscript{44} Johansson, P. 2007-04-02.
cities; a conclusion proved by CAN:s conscript surveys.\textsuperscript{46} The same goes for the number of abusers and similar variables have been implemented by Grossman et al.\textsuperscript{47}

To sum up, all data is supplied by well respected Government Authorities including The Swedish National Council for Crime Prevention (BRÅ), the Swedish Council for Information on Alcohol and other Drugs (CAN), the Swedish National Institute of Public Health (FHI) and Statistics Sweden (SCB). Furthermore, the mapping concerning OMG:s in Sweden is provided and confirmed by The National Criminal Investigation Department (RKP), the Criminal Intelligence Service (KUT) and personal at Local Police Authorities concerned.

### 5.3 The unobservable variables – Theory vs reality

Some might claim that my theoretical approach in section four is a poor simplification of real life. The explanatory variables chosen in this section might be insufficient to derive the true reasons why young men abuse narcotics. After all, not all abusers are people with poor living conditions and limited education. Nor do every young adult who decides to experiment with narcotics have social problems at home or a criminal record. In fact, a large quantity of first time users might just be curious or seeking approval amongst other adolescents. Interesting supplementary explanatory variables would be information on young people’s leisure activities, relations to friends and the opposite sex, performance and conditions in school, personal preferences and attitude towards narcotics and so on. These factors are however hard to retrieve on county level and the outline of this study confines my choice of explanatory variables somewhat.

Another variable frequently used, but excluded from this study is the price of narcotics. Most empirical applications of Becker’s rational addiction theory and the more straightforward supply and demand approach, both exemplified in section four, use adequate price information for selected substances. Even though “street price” information for the most common narcotics is accessible in Sweden, the data is unfortunately not available for all counties, which forces me to exclude price as an explanatory variable.\textsuperscript{48} Still, the overall problem with omitting certain explanatory variables might not pose a problem when implementing the so called fixed effects

\textsuperscript{46} Guttormsson, U. 2006, p 61.
\textsuperscript{48} Guttormsson, Ulf. 2005 Rapport nr 85.
estimator described in the next section regarding the econometric specification of this study.

6 ECONOMETRIC SPECIFICATIONS

As stated in the previous section, some variables that might be important when deriving young men’s experience of narcotics are hard to observe. A model omitting these unobservable variables might be biased due to underspecification, wherefore I need a specification capable of accounting for these effects.\(^49\) If I suspect these effects to be correlated to any of the remaining explanatory variables, the fixed effect estimator can be used to eliminate the unobserved effects in the regression.\(^50\)

The solution applied for this study is to control for two types of effects that might explain young men’s experience of narcotics and might be correlated to the other observable variables.\(^51\) First a *county specific fixed effect* variable is added in order to control for effects that are constant over time but vary across the counties. This allows me to control for unobserved variables that are specific to certain counties, like the distance to larger international connection like Öresundsbron or the presence of a major city like Stockholm, Malmö or Gothenburg. Young people in these areas might be more exposed to drugs as a result of the close distance to the Continent or the extensive nightlife which could affect the supply of illicit narcotics. This in turn could also affect the price level, which has shown to be an important explanatory variable in the empirical studies mentioned in section three in the sense that most narcotic substances tend to be cheaper in big city areas.\(^52\) Including the county specific fixed effect therefore enables me to estimate young men’s experience of narcotics without having access to observable price data.

\(^{52}\) Guttormsson, U. 2005, Rapport nr 85.
Second, a *time specific fixed effect* is included to control for unobservable effects that change over time in all counties. This could for instance be macroeconomic shocks like inflation or legislative changes concerning narcotics that affect all counties in the same way, at a specific point in time. Other examples could involve more sociological emphasized effects mentioned in section 5.3, like nationwide changes in the attitude towards narcotics, or changes in young peoples social life and leisure activities.

When adding these effects to the theoretical framework derived in section four, I generate the general specification shown below:

\[
\text{ln } \text{Narcotics}_{it} = \alpha_i + \tau_t + \beta \text{OMG}_{it} + \gamma X_{it} + \epsilon_{it} \quad (3)
\]

were the dependent variable, \(\text{ln Narcotics}_{it}\) represents the three measurements of 18-year-old men’s experience of narcotics described on page 19. Just as the introductive part of this section declared, the county specific fixed effects marked by \((\alpha_i)\) are specific to each county \(i\), but constant over time. The time specific effect on the other hand shown as \((\tau_t)\) are the same for all counties at a specific period in time indicated by the index \(t\). Outlaw Motorcycle Gangs is shown by \(OMG_{it}\) and all the observable explanatory variables derived in section four; population per square kilometre, share of 18-year-olds enrolled in senior high school education, youth unemployment rate, average income for 18-year-olds, average alcohol consumption, total unemployment, share of divorced couples, share of people with higher education, share foreigners and the total crime clearance rate, are marked by \((X_{it})\). An error term \((\epsilon_{it})\) is also included.

The general specification (3) will be used in four different models described below and depending on the question asked, the OMG variable will take on different forms. All models will be estimated using the fixed effect estimation and the coefficients derived are to be interpreted as semi elasticities, meaning that a one unit change in any of the explanatory variables generates a percentage change in the dependent variable, ceteris paribus.\(^{53}\)

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6.1 Model 1
The first specification is meant to investigate whether the establishment of an Outlaw Motorcycle Gang has any effect whatsoever on 18-year-old men’s experience of narcotics. To answer this question, a single dummy variable is used to express whether there is an established gang in the chosen county at the given time or not. The dummy variable $OMG_{dummy_i}$ for county $i$ at time $t$ takes on value one if one or more gangs are present and likewise the value zero if no gangs are established.

$$\ln(Narcotics_{it}) = \alpha_i + \tau_t + \beta OMG_{dummy_{it}} + \gamma X_{it} + \varepsilon_{it}$$  \hspace{1cm} \text{(Model 1)}$$

6.2 Model 2
To investigate whether the share number of OMG:s have any meaning to the experience of narcotics, I replace the dummy variable in model (1) with a quantitative measure of the OMG:s. The intuition of the model is otherwise the same as in the general model with both unobservable and observable variables. This specification will tell me if there are any observable differences in counties with more than one OMG.

$$\ln(Narcotics_{it}) = \alpha_i + \tau_t + \beta OMG_{it} + \gamma X_{it} + \varepsilon_{it}$$  \hspace{1cm} \text{(Model 2)}$$

6.3 Model 3 and 4
There are two reasons for questioning model one and two. First, is it really reasonable to believe that the establishment of an OMG shows any effect on young peoples experience of narcotics the very same year of establishment? Comparing an OMG to a normal company opening up at a new location, it would be reasonable to assume that it might take some time for the OMG to get into business. Correcting the general specification for this eventuality is done by introducing a lagged OMG variable showing the number of established OMG:s one year delayed to the year examined. The lagged variable is introduced to both model one and two according to:

$$\ln(Narcotics_{it}) = \alpha_i + \tau_t + \beta OMG_{dummy_{it}} + \lambda OMG_{dummy_{i,t-1}} + \gamma X_{it} + \varepsilon_{it}$$  \hspace{1cm} \text{(Model 3)}$$

$$\ln(Narcotics_{it}) = \alpha_i + \tau_t + \beta OMG_{it} + \lambda OMG_{i,t-1} + \gamma X_{it} + \varepsilon_{it}$$  \hspace{1cm} \text{(Model 4)}$$
This procedure also deals with a more serious problem concerning the causality of the results estimated by model one and two. Are young people’s experience of narcotics affected by Outlaw Motorcycle Gangs; or do counties with a high/low consumption rate of narcotics attract OMG:s? Counties with a high consumption rate might be especially attractive for OMG:s since there is already a large number of buyers. Likewise a county with a small amount of consumers could pose as a lucrative location for starting up a new market with little, or no competition. If so, both model one and two could have difficulty deriving any causal effects and a way of minimizing this problem could be to use a lagged variable for the OMG:s. The ultimate cure for this dilemma would be to use an instrumental variable, but finding such a variable for Outlaw Motorcycle Gangs has shown to be very hard, and will not be covered further in this study.

7 RESULTS

As mentioned earlier, the explanatory variables School participation, Youth unemployment and Income refer to young people, whereas the remaining variables refer to the entire population of each county. In addition, all variables except Income, Alcohol consumption, Population density and the Outlaw Motorcycle variables are expressed as percentage shares of these different populations. This means that a one percentage unit change in any of these variables generates a percentage change in the dependent variable equal to the variable’s coefficient, ceteris paribus.\textsuperscript{54} To calculate the change regarding the variables not expressed as percentage shares, each coefficient has to be multiplied by one hundred to give the correct percentage change in the dependent variable.

I start by analyzing the results from the two basic models, one and two. Shortly after, I consider the possibility of any lagged effects using model three and four. Finally, I derive a plausible interpretation of the combined findings in section 7.2.

\textsuperscript{54} Wooldridge, J. 2003, pp 46 & 688.
7.1 Overall findings

Table five and six shows the resulting estimates from model one and two. Both specifications show similar results for Outlaw Motorcycle Gangs with negative signs in all cases and according to the results, young men’s overall experience of narcotics declines with the presence of an Outlaw Motorcycle Gang. Considering the statement posed by RKP in table one, these results are somewhat unexpected. If trade of illicit narcotics is one of the main income sources for organized crime formations, you would at least expect the presence of an OMG to have a positive effect on the exposure rate among young men.

When considering the OMG variables, some differences are noticeable between the two specifications. Overall, it seems as if model two generates smaller coefficients than model one. According to model one, the presence of an Outlaw Motorcycle Gang decreases the share of users with 13.71 percent, ceteris paribus. Compared to model two, this effect is more than ten times as big. Even though the results from model two do not show that an increased amount of Outlaw Motor Cycle Gangs generates an increased abuse or exposure to narcotics, it appears as if the number of gangs in each county is quite important when estimating the effects on the experience of narcotics. More gangs in each county would according to this mean higher experience of narcotics among 18-year-old men.
Concerning the explanatory variables, most of the estimated effects correlates well with my previous expectations and other writers conclusions, regardless of model used. Although all variables do not show significant results, some interesting findings are made especially to those variables that were hard to foretell in section 5.2.
Just as I suspected, an increased unemployment among young people seems to have a negative effect on the consumption of narcotics. Focusing on model two, a one percentage unit increase of the youth unemployment rate would decrease the share of young men ever tried narcotics by 0.044 percent. The effect is almost the double among heavy users and to explain this relation, one has to consider the possible living conditions of the average young man. If I assume that the majority of all 18-year-old men still live with their parents, it’s likely to presume that these individuals have a small cost of living. They do not have to pay for bed or lodging and a high income as a result of employment could mean that the individual is left with quite a large amount of disposable income. This reasoning would justify an increased abuse among young men currently employed and the argument is confirmed by the income variable which is significant on the one percent level for both models. Focusing on model two, an increase of youth income by one thousand Swedish crowns would increase the use of narcotics by 6.97 percent. The share of heavy abusers would increase by almost the double amount.

The results regarding the share of foreigners contradicts CAN:s reports. According to CAN, young Swedish men with foreign background, or at least one parent born outside Sweden are more likely to be exposed or use narcotics. These individuals are however highly underrepresented in the surveys which might cause some trouble when interpreting my results. After all, the variable foreigners measure the total amount of people not born in Sweden in each county and according to the results in table five and six, the share of this cohort has a negative effect on Swedish 18-year-old men. These results correlate well with the findings of Grossman and Corman implicating that people not born in Sweden are less likely to be exposed or use narcotics. The findings regarding the crime clearance rate are also in line with Grossman’s et al and Saffer and Chaloupka’s previous work. The effects are not significant, but a more efficient crime fighting organization would according to the negative results decrease the incitement to do narcotics.

The variable school participation corresponds well with the findings of CAN:s extensive surveys. According to my calculations, both models show negative effects for school participation meaning that young men still in school are less likely to have any experiences of narcotics. When referring to model two in table six, a one percentage unit increase in the share of young men still in school decreases the share of young men ever used narcotics with 0.0045 percent. The result regarding the population density also coincides with CAN:s finding meaning that young men living in a highly populated area are more likely to have tried or been exposed to narcotics.

In accordance to Per Johansson’s findings, the amount of alcohol consumed seems to have a significant effect on young men’s experience of narcotics.\textsuperscript{57} In model two, an increased consumption of one liter pure alcohol would increase the share of users by 9.42 percent. Likewise, the share of heavy users would increase by 7.19 percent and both models clearly shows that an increased alcohol consumption increases the risk of being exposed to narcotic substances. These results also coincide well with the findings of CAN:s conscripts surveys.\textsuperscript{58}

Some of the variables do show somewhat troubling coefficients. Despite significant estimates in general, the share of divorced people in each county show very high coefficients in all cases. Compared to the other variables there is reason to question the definition of the variable. As defined now, the variable shows the cumulative share of divorced individuals in each population and perhaps a measurement of the annual number of divorces would be more fitting. Odd results are also derived for the variable higher education. According to model one, a one percentage unit increase of the share of people with higher education would decrease the share of users by 0.0266 percent. This relation corresponds well with the previous studies in section three, but model two shows the complete opposite relation. A variable showing each respondent’s parents’ educational level would possibly generate a better result, but unfortunately this information is not available for the data used.

\textsuperscript{57} Johansson, P. 2007-04-02.
\textsuperscript{58} Guttormsson, U. 1995-2006.
As mentioned in the previous section, the results derived from model one and two might suffer from problems with endogeneity. Do OMG:s affect young men’s experience of narcotics, or do young men’s abuse affect the gangs’ choice of location? After viewing the estimates from model one and two it’s plausible that OMG:s deliberately chose to set up new establishments in counties with few local distributors of narcotics to avoid competition. This is a however a vague conclusion since counties with a high share of narcotic users like Stockholm, Skåne and Västra Götaland also house the largest quantity of gangs. This fact would impose the opposite relation where OMG:s are attracted to areas with a large amount of abusers. If any of these scenarios are true, it would mean that the OMG variable is jointly determined with the dependent variable. If so, little conclusion can be drawn from the results of model one and two since the estimated effects on young men’s experience of narcotics suffers from simultaneity bias.

In order to try to minimize this problem, I turn to model three and four with the additional lagged variables $OMG_{dummy,-1}$ and $OMG_{-1}$. As described on page 27 these specifications are derived to control for the possibility that it may take some time for the OMG to get into business and as seen in table seven and eight below, the models show some interesting results.
Table 7: Estimated OLS results from model three with OMG expressed as a dummy variable plus a lagged dummy variable. Robust standard errors in brackets. *significant at 10% level  ** significant at 5% level  ***significant at 1% level
County specific fixed effects and time specific fixed effects are included in all specifications.

Table 8: Estimated results from model four with OMG expressed as a quantitative variable plus a lagged quantitative variable. Robust standard errors in brackets. *significant at 10% level  ** significant at 5% level  ***significant at 1% level
County specific fixed effects and time specific fixed effects are included in all specifications.

Positive coefficients are generated for the lagged variable when holding use and exposure rate as dependent variables in both models. Model four even shows significant results when holding use and exposure rate as dependent variables.
According to model four in table eight, the presence of an Outlaw Motorcycle Gang would increase the share of young men ever used narcotics with 2.13 percent one year after establishment. Likewise, the presence of an OMG would increase the risk of being exposed to narcotics by nearly one percent.

The third dependent variable measuring the share of heavy users differs from the share of young men ever used or been offered narcotics. No significant result are found in either specification and in model three the estimate even shows the opposite sign from the other two dependent variables. At this point, it might be reasonable to question whether the models are capable of estimating reliable results for this variable? After all, the theoretical approach derived in section four was foremost designed to deal with people ever been offered or used narcotics. It’s highly likely that the small group of men consuming large quantities of narcotics share specific features not covered by any of the explanatory variables used in my models. It’s also plausible that an examination of this population requires a more sociological approach with individual based data from interviews and such. Due to this reason, no further notice will be given the result derived using heavy users as dependent variable. Instead I turn to the interpretation of the combined results using the dependent variables use and exposure rate.

Before continuing it’s important to note that I still can not reject the possibility of simultaneity after introducing model three and four. It’s still possible that the establishment of Outlaw Motorcycle Gangs is determined to some extent by the dependent variable, narcotic experience among young men. When considering table one in section two regarding the activities of criminal networks, this problem becomes even more troubling since narcotics is considered to be one of the principal industries among OMG:s. It’s not far fetched to believe that the gangs to some extension consider the local market for narcotic before choosing a new location. I do not intend to solve this matter in this study, but as mentioned earlier it might be possible to use an instrumental variable for the gangs in order to get more reliable results.
7.2 Instant vs delayed effects – A plausible interpretation of the combined results

As seen in table five to eight, all models show negative results for OMG regardless whether using the dummy variable \textit{OMGdummy} or the quantitative measurement \textit{OMG}. Even the expanded models in table seven and eight show this result which implies that the share of young men ever used, or ever been offered to try narcotics decrease with the establishment of an Outlaw Motorcycle Gang. At the same time, the lagged variables show the opposite results. How is this possible?

When analyzing the situation more carefully, one has to consider the current situation of the county being exposed to a new OMG establishment. Surely, there is already some existing market for narcotics in the county run by local formations or smaller distributors. In order to finance their business in a profitable way, any newcomers have to adapt to this competition, or find a way to outmaneuver any possible threats. Communication and cooperation between different criminal networks do occur, but whether the Outlaw Motorcycle Gang choose to join forces with already existing forces or eliminate them, this process will most likely take some time.\textsuperscript{59} Moreover, the business of narcotics requires large economic reserves and starting up a new market would possibly involve resource demanding activities like targeting new formations of consumers, locating suitable clubs for distribution and sales, infiltration of important social functions and elimination of other competing agents.\textsuperscript{60} Bear in mind that members often operate on their own or in smaller formations inside the gang, not taking advantage of the organizations full potential. It’s also understood that members often use outsiders for simple duties like dealing and these outsiders need to be located and hired.\textsuperscript{61} These are just a few examples of time-consuming activities stated by RKP which might take up large amounts of the gang’s resources disabling their principal industry.

During this adaptation period it’s likely that the market will experience disturbances from conflicts or disagreements between the newly established OMG and the local agents. If a large amount of each formation’s efforts and resources are devoted to this

\textsuperscript{59} RKP KUT 2005:2 b, p 17.
\textsuperscript{60} RKP KUT 2005:2 b, p 10
\textsuperscript{61} RKP KUT 2004:5 c, p 13.
matter, it could result in a diminishing supply of narcotics in the county. A decreasing supply would imply that the risk of being exposed to narcotic substances decreases which in turn would lead to a lower share of young men actually using them. A smaller supply could also mean higher prices, making narcotics less desirable for individuals with a low income including young people, still in school or unemployed.

One also has to consider the highly competitive relationship between the three main OMG formations in Sweden. As mentioned in section two, one of corner stones in the peace treaty established in 1997 between Hells Angels and Bandidos restricted the two clubs of any new establishments in Sweden. Although the treaty has been broken on a number of occasions, it did not pose any restrictions to each club’s supporter gangs. Even though the war is over, the rivalry between Bandidos and Hells Angels and each respectively supporter gangs could still be highly current when looking for new markets in the Swedish counties. This conflict of interests could therefore be yet another time consuming activity taking up large amounts of each club’s resources, disabling their principal industry at the new location.

The combined effect of this reasoning would explain the negative effect of Outlaw Motorcycle Gangs seen in table five to eight. But what about the positive lagged effect accompanying the negative effect in table seven and eight? According to my results, counties with established OMG:s experience an increased share of young men ever used or been offered to use narcotics, one year after the gang has been established. This could be an indication of a successful adaptation of the Outlaw Motorcycle Gang to the new market. The organization has managed to recruit new supporters, located profitable channels of distribution and either found a lucrative way of collaborating with the original agents or simply eliminated the competition. According to the lagged variables in table seven and eight their presence has both increased the exposure rate and the share of young men using narcotics. This could also mean that the Outlaw Motorcycle Gangs with their extensive international networks actually has increased the supply of narcotics in the exposed county.

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64 RKP KUT 2005:7 a.
The positive lagged effect also coincides well with Hilldén’s results when estimating the effects of Outlaw Motorcycle Gangs on different crime rates. Although investigating a totally different issue, Hilldén found that the effect of OMG:s on crime rates were dependent of the number of years the club had been established in the area. He also in accordance to RKP made the conclusion that OMG:s have a deterrent effect in society that increases over time, making people more and more reluctant to report crimes committed against them. When comparing these conclusions to my findings, it seems as if the Outlaw Motorcycle Gangs need a certain period of time in order to establish themselves as a major actor in the criminal world in each county.

8 CONCLUSIONS

The purpose of this study was to investigate whether organized crime in the shape of Outlaw Motorcycle Gangs have any affect on 18-year-old Swedish men’s experience of narcotics. Do the establishment of an OMG increase the use, or the exposure rate of illicit narcotics among young Swedish men? The problem arose from the statement made by the National Criminal Investigation Department (RKP), claiming the business of narcotics to be the principal industry for a large amount of the Swedish criminal networks. Four different specifications was used in order to examine the matter, but due to the possibility of endogeneity problems, it’s hard to draw any definitive conclusions. In other words, I can not reject the possibility that the establishment of Outlaw Motorcycle Gangs is determined to some extent by the narcotic experience among young men.

Nevertheless, all four fixed effect models point to a common conclusion where the establishment of one or more Outlaw Motorcycle Gangs decreases the share of young men with experience of narcotics. Surprisingly, my estimations therefore show that young men’s experience of illicit narcotics actually decreases with the presence of a Outlaw Motorcycle Gang. When adding the lagged OMG variable in order to control for the possibility that it may take some time for the gangs to get into business, interesting results are made with positive estimates for all variables, except the heavy use variables. A plausible explanation for this effect discussed in section 7.2, that coincides with the intelligence reports carried out by the National Criminal

65 Hilldén, J. 2006.
Investigation Department (RKP) are the time consuming activities associated with new establishments. The results also correlates well with Hilldén’s previous findings stating that municipalities exposed to OMG:s experience a decreased number of reported crimes as a result of the deterring effect inflicted over time by the OMG:s.

However, the positive results are yet only significant for the variables use and exposure rate when using model four, that is the specification using the quantitative OMG variable along with the lagged OMG variable. Moreover, it’s important to note that the results are only statistically significant on the ten percent level, making any certain conclusions on this matter unreliable.

To answer my thesis, it’s plausible that Outlaw Motorcycle Gangs affect young Swedish men’s experience of narcotics. The presence of a gang in a county do according to my result not increase the share of young men ever tried narcotics immediately, but possibly one year after establishment. Likewise it’s also plausible that young men are more likely to be exposed to narcotics when there is a OMG established in the county one year after establishment. The findings regarding the positive one year lagged effects are however too weak to draw the conclusion that Outlaw Motorcycle Gangs increases young men’s experience of illicit narcotics. In order to estimate more reliable results, one could try to use a different approach in future studies and more emphasis should be put on the long-term effects of OMG:s on young men’s experience of narcotics over time. Perhaps it’s even possible to find a suitable instrumental variable for organized criminal formations that would minimize the simultaneity problem faced in this study. Nevertheless, when conducting a study of this matter, one has to bear in mind the difficulties associated with the covered business of narcotics.

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The reports are annual and all reports from 1995 to 2005 have been used in this survey.


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**Interviews**

Guttormsson, Ulf, research secretary CAN, telephone interview, 2007-02-07, Uppsala

Johansson, Per, Association secretary RNS, interview, 2007-04-02, Stockholm.
Table 9: OMGs in Sweden showing county, municipality, gang and year of establishment

Table 10: Conscript survey results showing each county’s share of Users, Heavy users and Exposure rate among the respondents.

Table 10: Conscription survey results showing each county’s share of Users, Heavy users and Exposure rate among the respondents.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>OMGdummy</td>
<td>Dummy variable for Outlaw Motorcycle Gangs taking on the value one if a gang is present, or zero if not.</td>
</tr>
<tr>
<td>OMGdummy&lt;sub&gt;,-1&lt;/sub&gt;</td>
<td>The Outlaw Motorcycle Gang dummy lagged one year.</td>
</tr>
<tr>
<td>OMG</td>
<td>The number of reported Outlaw Motorcycle Gangs in respective county at given time.</td>
</tr>
<tr>
<td>OMG&lt;sub&gt;,-1&lt;/sub&gt;</td>
<td>The number of Outlaw Motorcycle Gangs lagged one year.</td>
</tr>
<tr>
<td>School participation</td>
<td>The percentage share of 18-year-old men in each county enrolled in senior high school, municipal adult education, university or other higher education.</td>
</tr>
<tr>
<td>Youth unemployment</td>
<td>The percentage share of 18-19 year old men in each county openly unemployed.</td>
</tr>
<tr>
<td>Income</td>
<td>Average income of acquisition among 16-19 year old men in each county expressed in thousands of SEK. Included in this definition is among other all income derived from wages, allowances, grants, sickness benefit etc.</td>
</tr>
<tr>
<td>Alcohol consumption</td>
<td>The average number of pure alcohol sold in retail, restaurants and bars per inhabitant older than 15 year in each county.</td>
</tr>
<tr>
<td>Crime clearance</td>
<td>The percentage share of the total number of crimes attended to by the police, prosecutors and customs during respective calendar year.</td>
</tr>
<tr>
<td>Divorced</td>
<td>The percentage share of divorced individuals in each county.</td>
</tr>
<tr>
<td>Foreign</td>
<td>The percentage share of individuals in each county not born in Sweden.</td>
</tr>
<tr>
<td>Higher Education</td>
<td>The percentage number of individuals in each county with more than 9 years of compulsory schooling including, senior high school, university and post graduate studies.</td>
</tr>
<tr>
<td>Population density</td>
<td>The number of inhabitants per square kilometer.</td>
</tr>
<tr>
<td>Unemployment</td>
<td>The percentage share of unemployed individuals in the age group 16-64 in each county.</td>
</tr>
</tbody>
</table>

Table 11: Definitions of explanatory variables
Reference: BRA, CAN, FHI, KUT, Local Police Authorities, SCB, RKP
Appendix IV

The Fixed Effect model

The simple example below shows how the dependent variable $y_{it}$ for county $i$ at time $t$ is determined by a county specific factors ($\alpha_i$), one single explanatory variable ($x_{it}$) and an error term ($\epsilon_{it}$). In the subsequent equation (2) all variables are expressed as the average value over time, but as the superscript for $\alpha_i$ shows, the county specific variable shows is constant over time and therefore not affected by the transformation.

\[ y_{it} = \alpha_i + \beta x_{it} + \epsilon_{it} \]  \hspace{0.5cm} (1)

\[ \bar{y}_{it} = \alpha_i + \bar{\beta} \bar{x}_{it} + \bar{\epsilon}_{it} \]  \hspace{0.5cm} (2)

\[ y_{it} - \bar{y}_{it} = \beta(x_{it} - \bar{x}_i) + \alpha_i - \alpha_i + (\epsilon_{it} + \bar{\epsilon}_i) = \beta(x_{it} - \bar{x}_i) + (\epsilon_{it} + \bar{\epsilon}_i) \]  \hspace{0.5cm} (3)

This transformation enables me to eliminate the unobservable variable by subtracting the averaged variables from the original equation (1). This simple elimination is done in equation (3) and the sum shows an expression were all the variables are expressed as the deviation from the mean value.\(^{66}\)

\(^{66}\) Wooldridge, J. 2003 pp 461- 483