

Safe Storage and Thefts of Firearms in Sweden: An Empirical Study

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Abstract: Strict safe storage regulations are a cornerstone of the Swedish gun control legislation. The rationale is that by limiting the number of guns a licensed gun owner may own and requiring them to have their guns locked up in gun safes when not used, legal guns may be prevented from ending up in the hands of criminals through theft. In this paper we have for the first time studied gun thefts and gun safekeeping in Sweden.

We have investigated all reported gun thefts ($n=3,336$) in Sweden between 2003 and 2010 and in the County of Stockholm for the period from 1995 to 2010. We have found that actual thefts from legal gun owners are very rare both in absolute terms and when compared to the number of gun owners, to legal guns and to burglaries. From 2003 to 2010 on average 269 guns, on 105 occasions, were stolen annually from legal gun owners. Theft of firearms thus corresponds to about four per thousand burglary thefts in homes, while 16% of Swedish households have guns. Most firearms stolen were properly stored in gun safes, a proportion that also has increased to almost 100% during the period. Our study shows that the most common method of theft (53.2%) is to steal the entire gun safe. The remainder has been accessed using a key found by the burglars to open the safe (35.0%) or by breaking into the safe (11.2%). In one single case the lock to the safe had been picked. From the nature of the burglaries we can also deduce that few thefts had been specifically targeted at guns; instead burglars have been looking for valuables in general.

We have also found that the official reports on gun thefts have serious errors, e.g. 16% of police reports on gun thefts referred to cases in which no modern firearm requiring a license had been stolen.

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Introduction

From an international perspective, Sweden has very restrictive legislation on civilian gun ownership. At the same time, however the country has many civilian gun owners. In 2011, 619,000 people held approximately 1.8 million licenses¹, making Sweden one of the countries with the highest gun ownership rate in the world. Hunting and sport shooting are popular pastime activities in all social strata (cf. Mattsson & al (2008)).

The cornerstone of the Swedish firearm control policy is that prospective gun owners must meet strict requirements in order to be granted licenses, and that licensed gun owners must store their firearms in approved gun safes in order to prevent legal guns from ending up in the hands of criminals through theft.

Individual licenses are needed for every firearm, and the applicant must show that he or she has a "need" for a specific firearm, in order to be approved. As a general rule, only hunting, sport shooting or gun collecting are approved needs. In theory, licenses may be granted for protection but in practice no such licenses are ever granted.²

The legislator and the regulating authority (the National Police Board), assume that fewer legal guns lead to less criminal gun use, especially with reference to the fact that firearms may be stolen and later used in crime.³ As a result, Sweden has severe restrictions also on the number of guns a licensed hunter or sport shooter may own.

The relationship between the availability of guns and the crime rate has been treated extensively in international research, and in recent years also in several Swedish studies. Hagelin (2012) examined the firearms used in serious crimes and found that crimes committed with weapons of previously legal origin are very rare. During the period 2000-2010 a total of nine acts, i.e. less than one case a year, of murder, manslaughter or robberies against banks or post offices were committed with firearms stolen from legal gun owners. The issue has also been studied by Granath (2011) and The Swedish National Council for Crime Prevention, SNCfCP (2012). These studies reached similar conclusions to that of Hagelin, i.e. that it is highly unusual for legal or previously legal guns to be used in crimes (SNCfCP 2012, pp. 97, 134, 168). Instead criminals usually use weapons smuggled into Sweden from Eastern Europe (SNCfCP 2012 pp 16, 69, 134). For a compilation of international research, see for example Kleck (1997) pp. 22-23, Kates & Mauser 2004 p. 670 note 82, Wellford, Pepper & Petrie 2004 pp. 6-10).

This relationship between firearm ownership and crime is outside the scope of this paper, but the question is relevant since the storage requirements are often justified by the hypothesis that increased supply of legal firearms leads to increased crime.⁴

Although the safe storage of firearms in order to prevent thefts is a foundation of Swedish gun control legislation, the storage of guns, or the nature of gun thefts, have never previously been studied. Also internationally there is limited research in this area. Lott and Whitley (2001 p. 662), which deals among other weapon seizures notes that "Despite the active Policy Debate on guns,

¹ The number of actual weapons is lower since not only modern firearms require licenses, but also certain gun parts, some air guns, muzzle loaders, replicas etc.

² In order to be eligible for a license for a rifle or shotgun for hunting or a handgun for sport shooting the applicant must also pass tests including shooting skills. To obtain a handgun license, membership and six months active training in an approved shooting club is also required.

³ Cf. RPS POL 551-1998/04 p. 14.

⁴ Cf. RPS POL 551-1998/04 p. 14

there has been surprisingly little similar research on the safe storage of guns." They also recognize that the political demands for more stringent storage regulations that have been raised in the U.S. are not backed by empirical research. "While we know of no empirical evidence that has been provided to back up this claim it has been an issue that has been raised in Legislative Debates of safe-storage laws" (Lott & Whitley 2001 p. 661). An important difference however is that the American debate about safe gun storage is largely centered on trigger locks or other devices that will prevent guns from being accidentally discharged, while the Swedish rules stipulate fire arms are locked in a gun safe.⁵ This means that even if the international research had been more extensive it would have limited room for generalizing.

The purpose of this paper is to examine: (1) How many firearms have been stolen from private individuals, (2) how these firearms have been stored; (3) the methods used to steal the firearms; and (4) the types of firearms stolen and if they are of a type, model or appearance that makes them suitable for criminal use.

One advantage of studying an issue in a small country like Sweden is that the number of cases is so small that it is possible to examine all cases over a long period of time (2003-2010). The use of a complete dataset also eliminates the risk of selection bias and allows for more robust conclusions. In addition to the research questions above, the study also allows us to assess the quality of the statistics provided to policy makers by the regulating authority (The National Police Board)⁶, as well as whether the regulatory changes regarding safe keeping in 2002 had any impact on thefts.

Storage Policy in Sweden

Legally held firearms, as well as the storage of legally held firearms is regulated in Sweden by the Weapons Act (*Vapenlagen 1996:67*), the Weapons Ordinance (*Vapenförordningen 1996:70*) and by the National Police Board directives. Since 1996, the Weapons Act stipulates that firearms must be kept in "a gun safe or an equally safe storage space". In 2000 the National Police Board regulated that an approved gun safe is one that meets the requirements of Swedish Standard SS3492, however gun owners were given respite until July 2002 until they had to conform to the new regulation. Guns rendered permanently inoperable and pellet guns, even though they require licenses, may be stored in another safe way, e.g. in a locked gun rack. Before 2002 the storage of firearms in gun safes, which did not meet the SS3492 requirements, or in locked gun racks were allowed.

Methodology and Data

The study is based on all police reports in Sweden regarding the theft of firearms from private individuals (theft from homes or vacation homes, offense codes 0836 and 0837) during the period 2003 to 2010.⁷ Here we have examined 1,155 crime reports regarding theft of 2,873 "weapons."⁸ As one purpose of the study is to assess whether the new regulations on safe storage which were introduced in 2002 have had any effect on gun thefts, we have also examined all reports regarding thefts of firearms from private individuals in Stockholm County from 1995 to 2010. Here 371 reports

⁵ In addition, there are some articles in medical journals on gun safekeeping in the U.S., but they are not focused on thefts. See e.g. (Cummings P 1997; Grossman Dc 2005; Hemenway D 1995; Johnson, Coyne-Beasley, and Runyan 2004).

⁶ The fact that the gun registry had deficiencies was observed by the 1987 Government Study on Gun Control (SOU1989:44) p. 196, and the 1995 Government Study on Gun Control (SOU1998:44) p. 69. The Swedish National Council for Crime Prevention has also showed that the police often use the wrong offense codes when crime is reported (Färnström 2012).

⁷ 2003 has been chosen as the beginning year since new regulations of gun safekeeping (requiring gun safes of type SS3492) became effective on July 1, 2002. From 2003 through 2010 gun owners faced the same set of regulations regarding storage.

⁸ A significant number of the reports, albeit coded as reports on theft of firearms from homes or vacation homes, referred to other types of crimes or no crime at all.

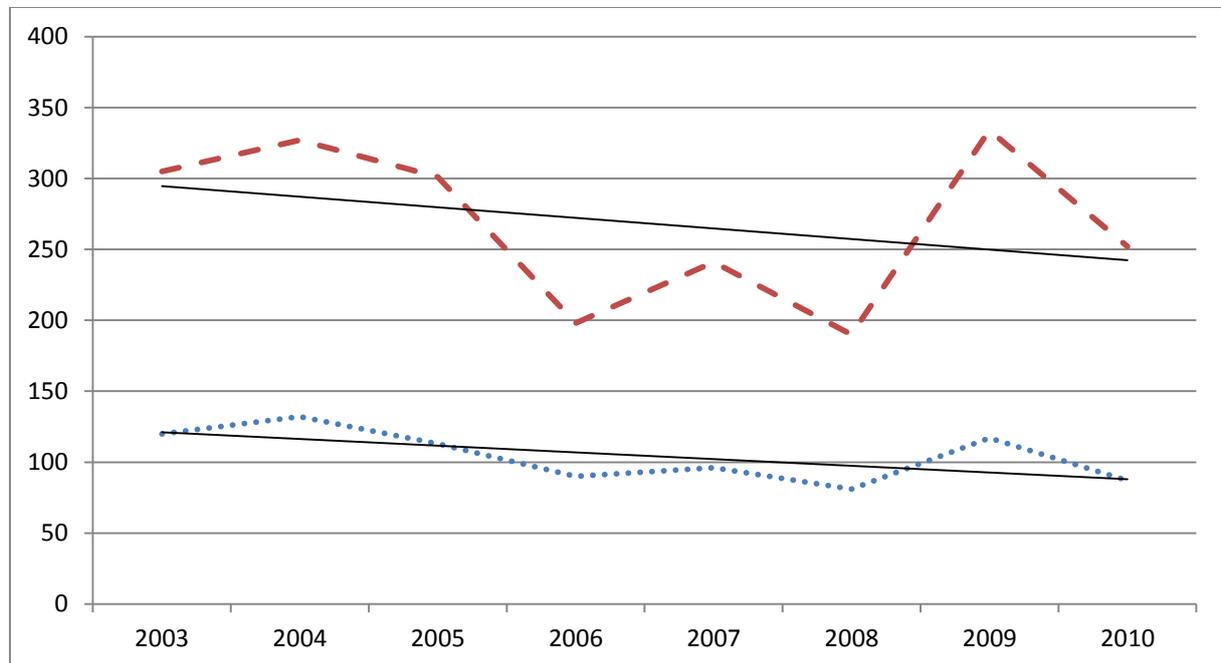
covering 828 thefts of “weapons” were examined. In total 3,336 crime reports have been examined. Furthermore, we have collected data on the number of legal gun owners and legal weapons in all Swedish counties for the period 2007-2012. The data collection and analysis have been performed during the period from November 2011 to August 2012.

We have coded all stolen weapons by type (functional weapons; weapons rendered permanently inoperable; antique weapons; weapons not requiring licenses (e.g. low power pellet guns); muzzle loaders manufactured before 1890; gun parts; non-weapons). Modern firearms requiring a license have thereafter been coded by type (rifle, shotgun, combination gun (e.g. bockbüchsfinten or drillings), handgun or fully automatic weapon⁹; storage modes (approved gun safe, gun safe SS3492, other approved storage, unapproved storage); method of theft (safe stolen, safe broken open, lock picked, lock opened with key, robbery). From the total number of “weapons” reported stolen we have then removed non-weapons, weapons not requiring a license, antique weapons and weapons belonging to the Swedish Armed Forces (kept in homes by members of the Home Guard). Furthermore, we have discarded all reports of crimes not including any weapons at all (but nonetheless coded by the police as “gun thefts”) as well as all duplicates. Thus, only actual thefts of modern firearms requiring licenses (the ones subject to safe storage rules) are analyzed in this paper.

In addition, we have, in order to examine whether weapons stolen might be of interest for later criminal use (according to the National Police Board “handguns and [fully] automatic weapons”¹⁰ are especially suited for criminal use), also coded all handguns stolen in Stockholm County after manufacturer, model and caliber.¹¹

Results

How many guns have been stolen?



⁹ Fully automatic weapons were then divided into civilian weapons and weapons belonging to the Swedish Armed Forces, e.g. weapons used by the Home Guard.

¹⁰ RPS POL 551-1998/04 p. 11

¹¹ Only one fully automatic weapon was stolen during the period, and not in Stockholm.

Diagram 1: Number of thefts (dotted) and number of guns stolen (dashed) in Sweden (all counties) 2003-2010

During the period studied, on average 269 weapons (modern firearms requiring licenses) were stolen each year (max: 334; min: 190) on 105 occasions (max: 123; min 81) a year. Seen in relation to both the total number of legal firearms and the total number of burglaries, and in absolute numbers, theft of legal firearms is a very unusual crime in Sweden.

In 2010, there were 3,829,973 households and 622,154 gun owners in Sweden. If we assume that there was only one gun owner per household, this means that there were guns in 16% of Swedish households. In the same year, 19,800 residential burglaries took place; at 87 of these, firearms were stolen.¹² Thus, firearms are stolen at a rate of four per 1000 residential burglaries. Some margin of error must however be granted. Both firearm owners and residential burglaries are unevenly distributed over Sweden, so there are local variations in the rate (see table 1). It is however clear that the number of thefts of firearms in relation to the total number of residential burglaries is significantly lower than the gun owners' share of households. Had the thefts corresponded to the gun owners' share of households, the number of gun thefts would have been 64 times greater. This very significant difference may be explained by that the burglars did not find the gun safe during the burglary or by they deliberately refrained from stealing any guns as it would increase the risk of being detected or caught. In Sweden, the likelihood that a burglary will be investigated by the police is rather high if guns are stolen, and the proportion of burglary thefts including firearms solved is much higher than burglary thefts not involving firearms.¹³

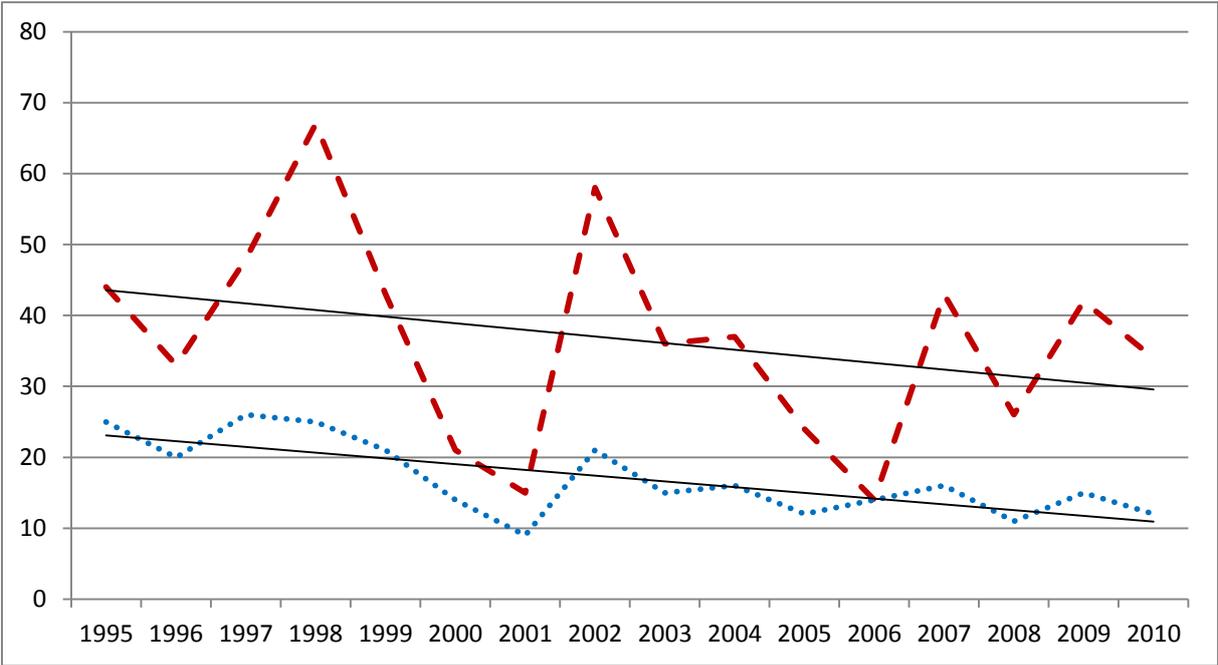


Diagram 2: Number of thefts (dotted) and number of guns stolen (dashed) in Stockholm County 1995-2010

¹² Data on burglaries from The Swedish National Council for Crime Prevention, database on reported crimes “anmälda brott.”

¹³ The Swedish National Council for Crime Prevention, database on crimes solved (“upplarade brott”) Se also “Brottslutvecklingen i Sverige fram till år 2007: Bostadsinbrott”.

The longer time period (1995-2010) studied for Stockholm County shows the same downward trend as for Sweden as a whole. As the number of yearly thefts is low, annual variation is however correspondingly larger. In both Stockholm County and in Sweden the number of thefts and the number of firearms stolen have declined at approximately the same rate. This is probably caused by the fact that the burglars steal indiscriminately and take whatever firearms available.

County	Gun thefts per 1000 licenses				Gun thefts per 1000 burglaries			
	2007	2008	2009	2010	2007	2008	2009	2010
Blekinge	0,1	0,8	0,2	0,8	2	4	4	9
Dalarna	0,3	0,2	0,8	0,6	7	5	9	6
Gotland	0,2	0,5	0,6	0,7	13	30	17	35
Gävleborg	0,3	0,7	0,9	0,1	12	11	8	5
Halland	0,5	0,9	1,2	1,0	6	7	9	8
Jämtland	0,2	0,2	0,2	0,0	11	10	10	0
Jönköping	0,4	0,1	0,4	0,5	5	1	4	6
Kalmar	0,4	0,2	0,1	0,3	6	5	2	6
Kronoberg	0,3	0,1	0,7	0,7	3	2	10	8
Norrbottn	0,2	0,1	0,2	0,1	9	5	8	2
Skåne	0,5	0,6	0,7	0,6	3	3	3	3
Stockholm	0,6	0,4	0,6	0,5	4	2	3	2
Södermanland	0,4	0,2	0,4	0,4	3	2	2	3
Uppsala	0,0	0,1	0,4	0,1	0	4	7	2
Värmland	0,7	0,1	0,4	0,1	9	4	10	2
Västerbotten	0,3	0,1	0,2	0,1	11	6	9	6
Västernorrland	0,5	0,1	0,7	0,2	7	4	17	4
Västmanland	0,2	0,0	1,6	0,2	6	0	10	2
Västra Götaland	0,4	0,3	0,6	0,5	4	3	5	5
Örebro	0,3	0,4	0,0	1,4	4	11	0	11
Östergötland	0,2	0,0	0,5	0,1	2	2	6	2
Sweden	0,4	0,3	0,5	0,4	5	4	5	4

Table 1: Gun thefts per 1000 licenses and gun thefts per 1000 burglaries (in homes and vacation homes), per county and in Sweden 2007-2010.¹⁴

For the period 2007-2010 we have also been able to match the number of gun thefts to the number of gun owners and the number of burglaries (in homes and vacation homes) per county. Here we found some differences among counties and over time. The differences have however been assumed to be primarily driven by, in absolute terms, the low number of thefts of firearms. It should also be noted that in some years in some counties (e.g. *Uppsala* in 2007 and *Västmanland* and *Örebro* in 2009) no single modern firearm was stolen. The high figures for *Gotland* in 2008 and 2010 can be explained by the low number of burglaries (the number of gun thefts in the Country of *Gotland* was two in 2008 and 2010, and one in 2007 and 2009).

What types of weapons have been stolen?

Out of the 2,252 licensed modern firearms stolen during the period 2003-2010, 1,010 (45%) were rifles, 840 (37%) shotguns, 277 (12%) handguns and 122 (6%) combination weapons. Only one fully

¹⁴ Data on burglaries from The Swedish National Council for Crime Prevention, database on reported crimes "anmälda brott."

automatic weapon was stolen during the period (a submachine gun stolen in the county of *Dalarna* in 2003). In addition, a number of items that do not belong to the category modern firearms were stolen, including 77 gun parts (barrels, bolts and slides and other miscellaneous parts), 60 weapons manufactured before 1890 and 391 non-gun objects (air and spring rifles, spear guns, dummies etc.). The thefts of gun parts (primarily bolts for repeating rifles) primarily took place in 2003, i.e. the first year after the introduction of the new storage regulations. One possible explanation to this is that rifles then still were stored disassembled (as the previous regulation allowed) and the bolt was stored separately from the rest of the gun, which was locked to a gun rack.

How have stolen guns been stored?

The most common method of theft is that the burglars have stolen the entire gun safe. Of firearms stored in an approved gun safe, 53.6% were stolen by this method. The second most common method was that the burglars found a "hidden" key to the gun safe; 35% of guns otherwise stored properly were stolen this way. A smaller proportion of the guns (11.3%) were stolen by breaking into the gun safe (using saws or drills). During the entire eight-year period studied, there is only one sure case in which the lock to the gun safe was picked. In this specific case the perpetrator (a relative of the victim) was a locksmith. In addition, there are five reports in which the victim stated that the lock had been picked but where the circumstances indicated that the safe instead had been opened with a key found by the burglar.

We have also found that historically, a relatively large proportion of firearms stolen had not been stored correctly. The number of improperly stored stolen firearms has however fallen sharply. In 2003, 32% of the weapons stolen were not properly stored; in 2009 the number had dropped almost to zero. One possible explanation was that the new storage rules did not penetrate at once, possibly because the weapon owners were not aware that the storage rules had been changed.

Based on the nature of the crimes, we can also conclude that burglaries focused exclusively on firearms are extremely rare. An indication of this is that we have found only one case of a selective theft, i.e. one in which only some of the victim's "weapons" had been stolen. Neither have we found any cases of burglary in which only firearms have been stolen. In every reported case, there have been other items besides guns stolen as well. We have also found a number of cases in which the gun safe had been opened but the guns had not been stolen. That gun parts or inoperable guns have been stolen in addition to modern firearms further indicates that burglars have not primarily been looking for weapons for use in a future crime. One reason why gun safes are of interest to burglars even if they are not interested in guns is that cash or other valuables are commonly stored in the safes; from the police reports, we have found that victims in a number of cases have stored large sums of cash (30,000-50,000 SEK) in their gun safes.

How does safe keeping affect the risk of theft?

In order to examine if the more stringent storage regulations that took effect in 2002 have had any impact on the thefts, we examined all thefts of firearms in Stockholm County seven years before and after the new directive. When we compare the number of thefts before and after the introduction of the directive, we can see that it is lower in the latter period. During the period 1995-2001 there was an average of 20 thefts (of modern firearms requiring a license) a year; during the period 2003-2009 there was an average of 14 thefts a year. However, there is no difference in the trend before and after the new more stringent regulation; the trend is falling at the same rate throughout the period. At the same time, we can observe that the proportion of burglaries in residences and vacation homes where firearms have been stolen has declined during the period. During the period modern firearms requiring a license were stolen at an average of about three per thousand burglary thefts (falling to two per thousand burglaries at the end of the period). Differences among the years are large and the sample is insufficient for firm conclusions.

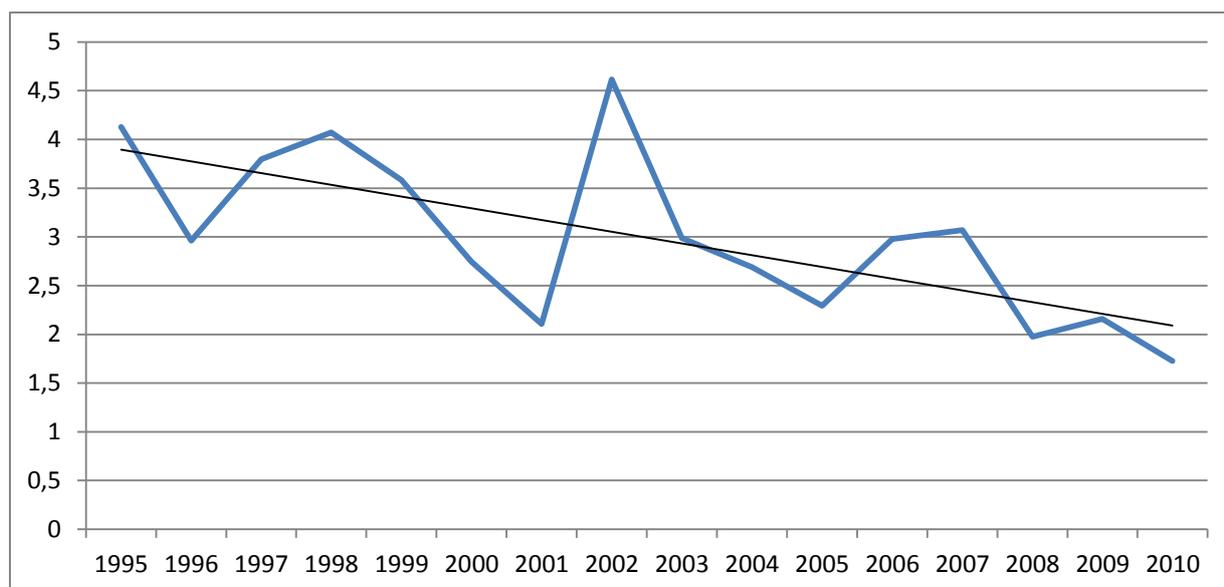


Diagram 3: The proportion of burglary thefts in residential and vacation homes where guns were stolen, (gun thefts per 1000 burglaries) Stockholm County 1995-2010.¹⁵

The findings can be interpreted to conclude that the previous storage requirements were sufficient to deter most thieves without a specific interest in firearms. Another explanation may be that many gun owners met the more stringent storage regulations even before their introduction. The regulation was announced in 2000 and most gun safes sold before the changes in regulations (from 1996 and onwards) likely met the requirements for SS4392. However, this is an area that requires more research.

Relationship to the National Police reported figures

National Police Board (RPS) has been tasked to provide annual reports on gun thefts to the Swedish Justice Department. The RPS has decided that instead of reporting stolen weapons separately, they should be reported along with weapons "unaccounted for." The latter category includes firearms that are registered but for some reason cannot be found, e.g. firearms missing from estates of deceased gun owners, but also firearms that due to deficiencies in the police records management are registered despite the fact that the firearm does not exist, is registered under a different serial number, has been scrapped but not removed from the registry, or as "inventory losses" within the Swedish Armed Forces.¹⁶

Year	Reported as "stolen or unaccounted for" by RPS	Stolen from private person
2003	2405	305 (12.7%)
2004	2233	327 (14.6%)
2005	2216	301 (13.6%)
2006	1939	198 (10.2%)

Table 2: Guns reported "stolen or unaccounted for" and guns actually stolen from private individuals, 2003-2006.¹⁷

¹⁵ Data on burglaries from The Swedish National Council for Crime Prevention database on reported crimes "anmälda brott."

¹⁶ RPS POL-551-1415/05 p. 11.

¹⁷ Data from RPS POL-551-1415/05 s 11, POL 551-1998/04 s 11, POL-551-2228/06 s 10, RPS "Statistik från 2006" 2007-06-29.

If we compare the “guns stolen or unaccounted for” with the number of actual thefts, we find that only a small proportion of these weapons are modern firearms requiring a license stolen from private individuals. We have compared these figures for years and found that only between 10.2% and 14.6% of the “stolen or unaccounted for” were actually stolen from private individuals. For certain categories of weapons, the percentages are even lower. For example, during the same period, 9% (126 of 1,143) of the handguns and 0.6% of automatic weapons (1 of 176) reported as “stolen or unaccounted for” were actually stolen from private legal gun owners; these are the types of weapons that the National Police Board describes as the most interesting in criminal circles.

The difference has also increased over time. This applies to both weapons in general and to individual categories of weapons. In 2003, 9.9% of handguns reported “stolen or unaccounted for” were actually stolen; in 2006 the corresponding proportion was 6.7%. At the same time, no fully automatic weapons have been stolen from private individuals since 2003 making the proportion effectively zero percent.¹⁸

It is impossible to disregard the possibility that the reporting might have had an impact on gun control regulation in so far as measures to further regulate safe storage of guns is more likely if thefts from licensed gun owners were a common source of weapons used in crimes (as opposed to e.g. smuggling).¹⁹ The extent to which these figures have had policy effects in the sense that they formed the basis of regulation is not possible to determine. The regulatory changes that took place during the examined time period are largely focused on restrictions on gun ownership among civilians, rather than on measures aiming at other potential sources of illegal weapons, such as smuggling. This is an area where further research is required.

The attractiveness of stolen firearms

That firearms stolen from legal gun owners are rarely used in crimes has been shown by for example Hagelin (2012 p. 10). His study shows that from 2000 to 2010 a total of nine cases of serious crime took place (i.e. <1 year) using firearms stolen from private individuals, in addition five or six guns were found in connection with crimes being prepared.²⁰

Our study on theft of handguns in Stockholm County 1995-2010 shows that a large part of the weapons stolen, even if they belong to the category of firearms (handguns) that the National Police Board believe is most interesting for criminal activity and therefore most attractive to thieves, are not of such model, design, caliber, function or appearance (e.g. muzzle loaders, competition firearms such as pistols for the 25 or 50 m pistol events, weapons rendered inoperable, or weapons of rare or obsolete caliber) that they are very attractive to criminals. Out of 75 handguns stolen, 23 (30%) are of such a nature that they can be judged to be less interesting for criminal activity. Hagelin's study shows that in the period 2000-2010 no case of serious crime was carried out with a stolen

¹⁸ The National Police Board has in their report to the Department of Justice assumed that “approximately 50%” of firearms reported as “stolen or unaccounted for” are stolen from private homes. RPS POL 551-0305/03 p 11. This assumption should be compared to an actual share of maximum 14.6% during the period studied.

¹⁹ As the National Police Board also has the right to issue directives and recommendations on gun licensing and safe keeping it cannot be ruled out that the overstatements of the risk of thefts from legal gun owners may have influenced their regulations. One indication is that the National Police Board in their report to the Department of Justice in 2004 state that “Measures to reduce the number of *illegal* weapons must therefore, according to the opinion of the National Police Board, target *legal* weapons” (emphasis added) RPS POL 551-1998/04 p. 14. The Swedish National Council for Crime Prevention on the other hand emphasized that guns used in crimes rarely have legal Swedish origin but are usually smuggled into the country from Eastern Europe. SNCfCP (2012) pp. 14, 72, 96, 97, 134.

²⁰ In one case it has not been possible to determine if the gun in question (a Browning pistol) was a civilian weapon or belonged to the Swedish Armed Forces. Hagelin, personal communication.

handgun. Due to the limited number of crimes committed with guns of legal origin, however, it is not possible to draw any conclusions on the attractiveness of specific gun types.

Thefts of fully automatic weapons

Fully automatic weapons are often considered to be particularly interesting for criminals and therefore assumed to be more theft-prone than other types of firearms. Hagelin (2012 p. 10) has despite this shown that no previously legal fully automatic weapons were used for criminal activities during the period 2000-2010. During the same period, our survey shows that only one civilian fully automatic weapon was stolen (a submachine gun designed for competitive shooting that was stolen in the County of Dalarna in 2003). All other automatic weapons stolen during the period studied have been weapons belonging to the Swedish Armed Forces.

Summary

For the first time, we have examined all thefts of firearms in Sweden from 2002 to 2010 (and for the County of Stockholm from 1995 to 2010), as well as how all firearms stolen have been stored. A total of 1,155 crime reports, covering the theft of 2,873 "weapons" have been examined.

Out of these, about 84% turned out to be modern firearms requiring a license; the remainder were weapons not requiring licenses, gun parts, weapons rendered permanently inoperable, antique weapons or pure coding errors (i.e. cases where no theft had occurred).

The number of firearms stolen is low and falling. During the period examined on average 269 guns, at 105 occasions were stolen annually. Theft of firearms thus corresponds to about four per thousand burglary thefts in homes (in the County of Stockholm about two per thousand). Gun owners at the same time make up 16% of Swedish households.

Rifles made up 45% of firearms stolen, 37% were shotguns, 12% handguns and 6 % were combination guns. Only one theft of a civilian fully automatic weapon was reported during the period.

Of weapons stolen, the vast majority were properly stored in gun safes, a proportion that also has increased significantly during the period. In 2003, 32% of firearms stolen were not stored in approved safes (something that probably can be explained by the fact that the regulations changed the year before and many guns were still stored in the previously approved way); in 2010 the percentage of firearms not properly stored was close to zero.

Our study shows that the most common method of theft is to steal the entire gun safe. This type of theft constituted 53.2% of thefts of firearms stored correctly. The remainder were accessed using a key found by the burglars to open the safe (35%) or by breaking into the safe (11.3%). In one case the lock to the safe had been picked. This however was a special case in which the offender proved to be a locksmith.

The study further shows that, based on the circumstances of the crimes, it is unlikely that any thefts have been specifically targeted at firearms intended for future criminal use. That only one selective theft has taken place, as well as a large number of inoperable firearms, gun parts or spring and air guns not requiring a license have been stolen, gives further indication to this, even though the small number of gun thefts prevent solid conclusions. The information obtained from the crime reports also indicates that gun safes are highly interesting for burglars not looking for weapons since it is common that gun safes contain cash or other valuables. We have also found that a significant proportion (30%) of the handguns stolen in Stockholm County are of such a model, function or appearance that they are less interesting for criminal activity.

As the number of thefts and firearms stolen is small, it is for methodological reasons impossible to assess the effect of individual storage regulations. The infrequency of firearm thefts, both in absolute terms and as a share of burglaries, as well as the almost nonexistent use of previously legal weapons in serious crime (Hagelin 2012), however lends support to the hypothesis that the Swedish storage rules during the entire period 1995-2010 have met the requirements as they prevent legal weapons through theft ending up in the hands of people who intend to use them for criminal activity.

References

- Cummings P, Grossman D. C. Rivara F. P. Koepsell T. D. 1997. State gun safe storage laws and child mortality due to firearms. *JAMA: The Journal of the American Medical Association* 278 (13):1084-1086.
- Färnström, Anton. 2012. Användningen av brottskoder: En kvalitetsstudie inom kriminalstatistiken. Stockholm: The Swedish National Council for Crime Prevention.
- Granath, Sven. 2011. Det dödliga våldets utveckling. Stockholm: The Swedish National Council for Crime Prevention
- Grossman Dc, Mueller B. A. Riedy C. et al. 2005. Gun storage practices and risk of youth suicide and unintentional firearm injuries. *JAMA: The Journal of the American Medical Association* 293 (6):707-714.
- Hagelin, Björn. 2012. Skjutvapen använda i brott i Sverige 2000-2010.
- Hemenway D, Solnick S. J. Azrael D. R. 1995. Firearm training and storage. *JAMA: The Journal of the American Medical Association* 273 (1):46-50.
- Johnson, Renee M., Tamera Coyne-Beasley, and Carol W. Runyan. 2004. Firearm ownership and storage practices, U.S. households, 1992–2002: A systematic review. *American Journal of Preventive Medicine* 27 (2):173-182.
- Kates, Don B, and Gary Mauser. 2004 Would Banning Firearms Reduce Murder and Suicide? A Review of International and some Domestic Evidence. *Harvard Journal of Law and Public Policy* Vol 30 (No 2):650-694.
- Kleck, Gary. 1997. *Targeting Guns: Firearms and their Control*. Hawthorne, NY: Aldine de Gruyter.
- Lott, John R., Jr., and John E. Whitley. 2001. Safe Storage Gun Laws: Accidental Deaths, Suicides, and Crime. *Journal of Law and Economics* 44 (S2):659-689.
- Mattsson, L, M Boman, G Ericsson, A Paulrud, T Laitila, B Kriström, and R Brännlund. 2008. Welfare foundations for efficient management of wildlife and fish resources for recreational use in Sweden. In *Consumptive Wildlife Tourism – Hunting, Shooting and Sport Fishing*, edited by B.Lovelock: Taylor and Francis.
- SNCfCP. 2012. Brottslighet och trygghet i Malmö, Stockholm och Göteborg: En kartläggning. Stockholm: The Swedish National Council for Crime Prevention.
- SOU1989:44. 1989. *Översyn av vapenlagstiftningen : slutbetänkande, Statens offentliga utredningar, 0375-250X ; 1989:44*. Stockholm: Allmänna förl.
- SOU1998:44. 1998. *En samlad vapenlagstiftning : slutbetänkande, Statens offentliga utredningar, 0375-250X ; 1998:44*. Stockholm: Fritzes offentliga publikationer.
- Wellford, Charles F., John V. Pepper, and Carol V. Petrie. 2004. *Firearms and Violence: A Critical Review*. Edited by C. F. Wellford, J. V. Pepper and C. V. Petrie, *Committee on Law and Justice National Research Council: The National Academies Press*.