Testimony on SB 223/HB 542

Philip F. Lee, PhD for MCDL

3/10/02

"Necessity is the excuse for every infringement of human freedom. It is the argument of the tyrant and the creed of the slave."
--William Pitt

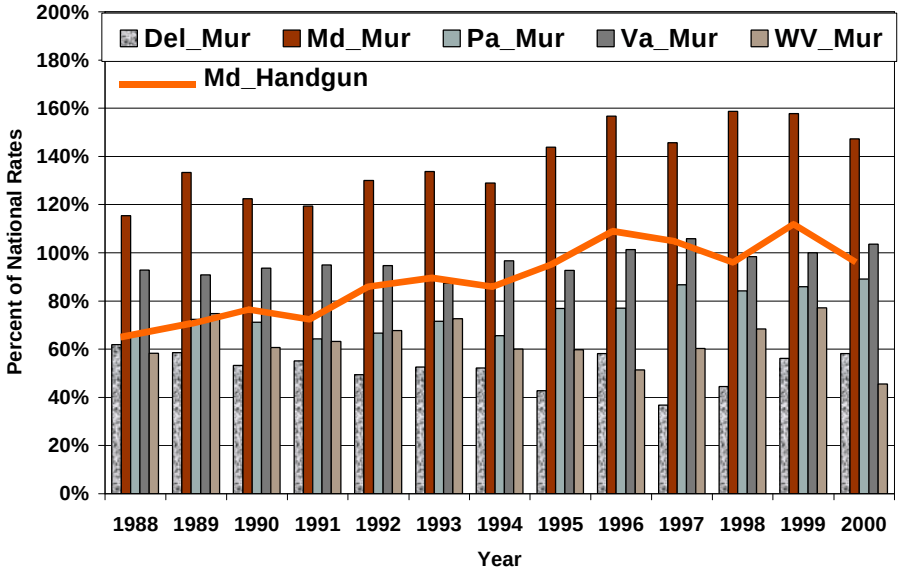
We Oppose this bill and ask it be reported unfavorably.

It is an example of ineffective, "feel good" legislation proposed by cynical politicians who try to scapegoat gun-owners for the complete failure of Maryland to address its high levels of crime.

This bill also fails to recognize that legal gun-owners tend to be good citizens – better even than people who don't own guns as a class. Discouraging legal gun ownership will make violence worse not better.

Maryland has a severe crime problem which the present administration would like to hide because their record is so poor. Figures 1 and 2 show that record by comparing Maryland to the United States as a whole and Maryland's neighboring states in violent crime. All data is show as a percent of the corresponding US rate rates. **The figures tell a tale of Maryland crime control failure!**

Figure 1 Murder Rates in Maryland and Neighboring States

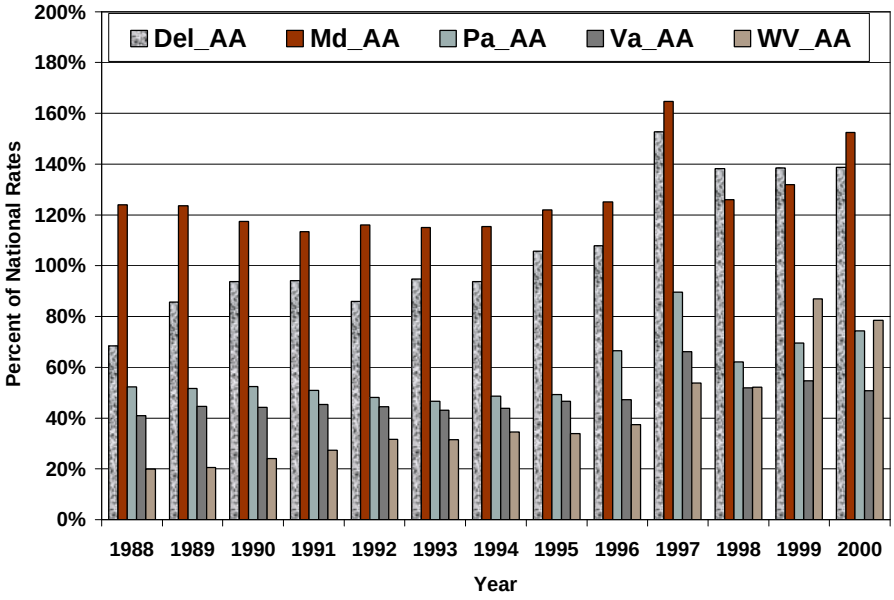


In Figure 1 we see Maryland has had significantly higher murder rates than the US as a whole and higher than each of its neighboring states for more than a decade. Despite numerous gun control measures, Maryland handgun murders by themselves are high enough by themselves to match national rates and have grown by nearly two-thirds since 1988 and the Saturday night special (SNS) ban enacted that year by Maryland (handgun murders from Maryland State Police data).

While the Maryland Legislature fiddles with feel-good anti-gun legislation such as this bill, Maryland burns from drug addiction and drug trafficking which fuels both property crime and violent crime in Baltimore and other communities. Maryland will spend millions of dollars on useless gun training and shell casing measures while allowing rape kits to go unprocessed for DNA and while its revolving door justices system fails to keep predators off the streets like those that killed Sgt. Prothero and Cpt. Toatley.

Figure 2, Aggravated Assault, shows by comparison weak growth for that category of Maryland violence compared to the United States and our neighbors. The weak growth in Aggravated Assault compared to the strong growth in handgun murder suggests that criminals are becoming more effective in murder. That effect was predicted to be the result of the ban in 1988 of Saturday night special handguns since that ban would drive criminals to more effective handguns (large caliber, high quality meaning high reliability). Although Johns Hopkins University anti-gun advocates have published a report claiming the Saturday night special ban did reduce violence with handguns, that report is wrong and we expose its problems in Enclosure (1).

Figure 2 Aggravated Assault Rates in Maryland and Neighboring States

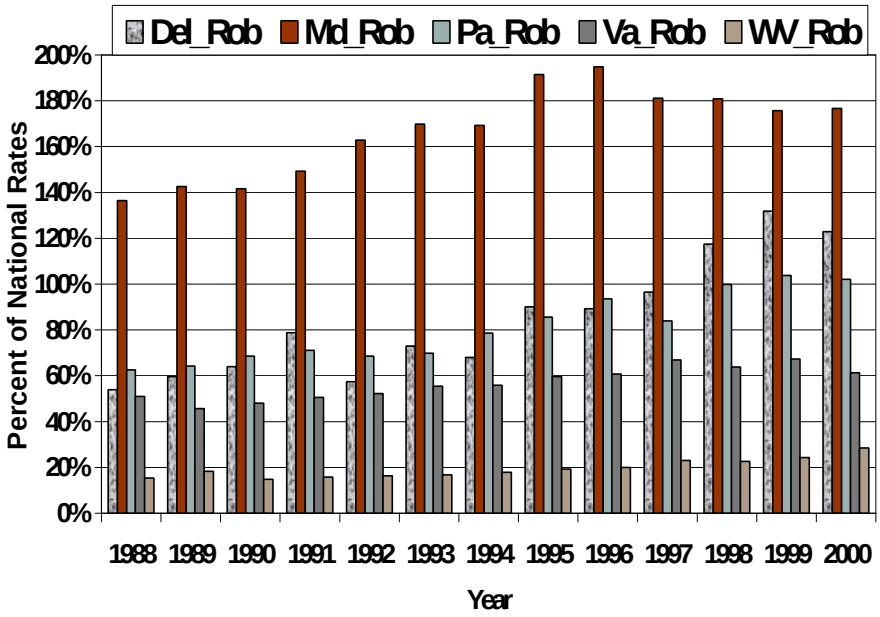


No discussion of Maryland violent crime would be complete without recognizing Maryland's special place in America as the state having the top robbery rate. No other state has had a robbery rate higher than Maryland's since 1995. Maryland captured this top ranking after several years in the number two position.

Figure 3 shows robbery rates for Maryland and neighboring states as percent of American robbery rates. In the early 1990s Maryland's relative rate moved from 150% of the national rate to 190% in 1996. Except for Delaware, which has recently climbed to 120% of the national rate, Maryland's neighbors stay near or below the national rate.

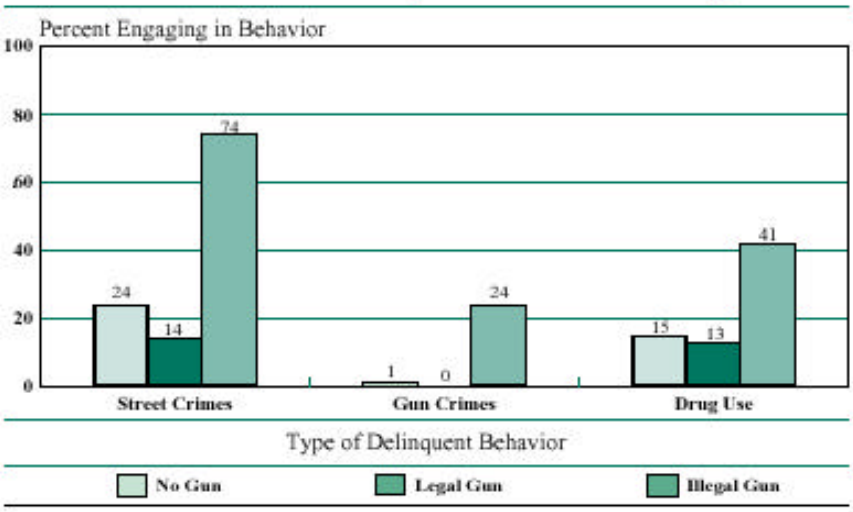
Owning Guns benefits society since children of legal gun-owners commit fewer gun crimes than even the children of people who do not own guns legally according to the US Department of Justice report **Urban Delinquency and Substance Abuse**, March 1994, David Huizinga, Ph.D., Rolf Loeber, Ph.D. & Terence P. Thornberry, Ph.D., NCJ-143454. That report says "The socialization into gun ownership is also vastly different for legal and illegal gunowners. Those who own legal guns have fathers who own guns for sport and hunting. On the other hand, those who own illegal guns have friends who own illegal guns and are far more likely to be gang members. For legal gunowners, socialization appears to take place in the family; for illegal gunowners, it appears to take place 'on the street.'" Page 18 of that report contains the figure 13 included below. While the color code of the legend of the figure may not reproduce well here, the order of the bars (left to right) within each category is the same as the order in the legend.

Figure 3 Robbery Rate for Maryland and Neighboring States



The report, interpreting the figure, states "Boys who own legal firearms have much lower rates of delinquency and drug use and are even slightly less delinquent than nonowners of guns."How our kids handle violence and the friends they choose are more important than how they handle guns or how many they have access to. How many guns are in your neighborhood isn't as important as how many of your neighbors are hoods. The kids of NRA members, and kids who are in supervised shooting programs are

Figure 13: Relationship Between Type of Gun Owned and Percent Committing Street, Gun, and Drug Crimes



Note: Rochester data only.

actually less likely to be involved in gun violence or accidents than kids who are not. There are plenty of guns in the hands of Maryland's licensed gun dealers, their gun stores, and the gun ranges these guns are shot at. All of them are safer places to be than our schools, our libraries, and our MacDonald's restaurants. Education and training, the character and judgment built in the children of legal gun-owning families are MORE POWERFUL than the fear and ignorance gun haters promote.

Gun ownership in the United States is near its all-time high, yet gun violence is markedly lower than it was 10 years ago. When honest citizens are allowed to carry guns, criminals are less likely to attack. That is why violent crime tends to decline as gun ownership by decent people increases. For a contrast, consider Great Britain which has some of the strongest gun laws in the world today and where handguns were banned in 1997 following the school massacre at Dunblane. Even to own a long gun requires a license. Within two years of the ban, gun violence was up 40 percent. "Stripped of the ability to defend themselves, Britons were left helpless against criminal attacks. And the criminals knew it."

Britain finds that criminal enterprises are able to easily smuggle firearms from eastern European countries or Jamaica ("**Yardies at War on our doorsteps**," Justin Davenport, 10/9/01, Associated Newspapers Ltd.) or manufacture them locally ("**Yard smashes guns factory**," Philip Nettleton, 8/8/01, http://www.thisislondon.co.uk/) to supply all of their needs. Even machine guns are readily available in Britain now (to criminals, not decent citizens).

Recent editorial writers in Britain have declared that the government has failed them in protecting against violent crime and called for people to defend themselves (see **If the state fails us, we must defend ourselves**, By Simon Heffer, 24/02/2002, http://www.telegraph.co.uk/)

When the National Association of Chiefs of Police asked police commanders last year whether they agreed or disagreed "that a national concealed handgun permit would reduce rates of violent crime," 62 percent agreed. When asked whether law-abiding citizens should be able to purchase a firearm for sport or self-defense, 93 percent said yes. **Cops can confirm from experience what millions of Americans know by intuition: Guns make us safer. Now the Maryland legislature has been told – again!**

In America, where 33 states now permit law-abiding residents to carry concealed handguns for their own protection, the inverse relationship between gun crime and gun ownership is clear. Yale Law School scholar John Lott analyzed 18 years of crime data from all 3,054 U.S. counties, and discovered that nothing was more decisive in lowering violent crime rates than the passage of "shall-issue" or "right-to-carry" gun laws. In the biggest counties, those with populations of 200,000 or more, concealed-carry laws led to an average drop in murder rates of more than 13 percent. **But this bill would continue Maryland's perverse policy of discouraging the decent citizens in protecting themselves.**

This legislation will encourage illegal firearm ownership and increase violence. Any legislation should be based on a real-world picture rather than popular myth and junk science. While Maryland is burning with violence, MCDL strongly suggests that passing this bill will do nothing but throw gasoline, rather than water, on the problem.

Analysis of the JHU Article Entitled 'Effects of Maryland's Law Banning "Saturday Night Special" Handguns on Homicides' by Daniel W. Webster, Jon S. Vernick, and Lisa M. Hepburn

Philip F. Lee, PhD
For MCDL (www.mcdl.org)
3/10/02

Those who have knowledge, don't predict. Those who predict, don't have knowledge.

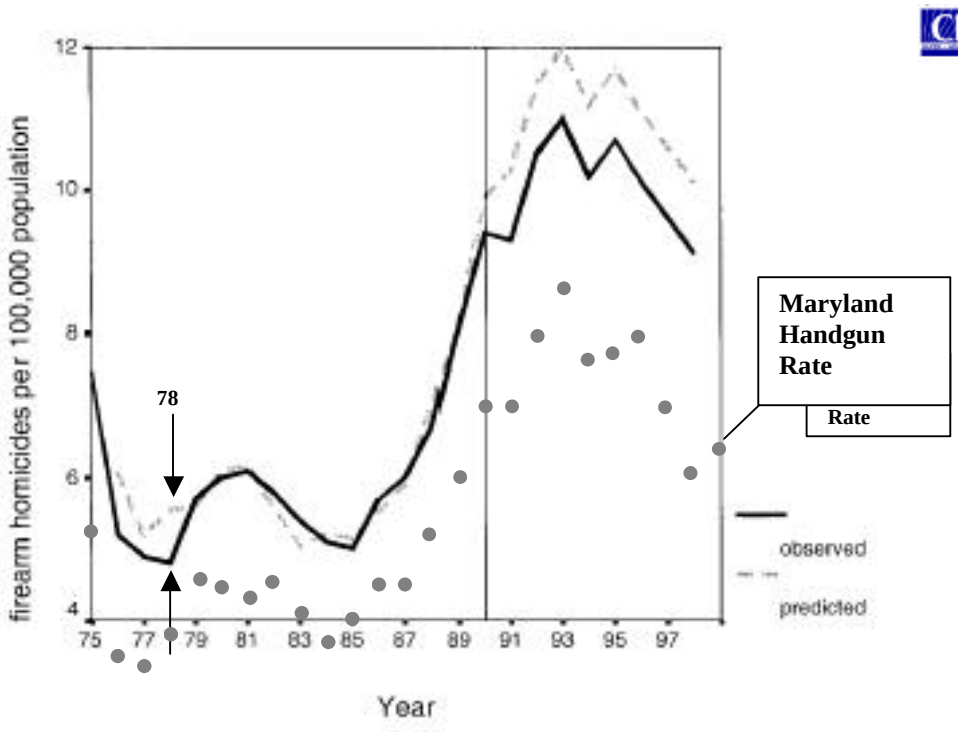
--Lao Tzu, 6th Century BC Chinese Poet

An unsophisticated forecaster uses statistics as a drunken man uses lamp-posts -- for support rather than for illumination.

--After Andrew Lang

Summary

The authors of the subject study use the wrong data in their modeling and, by their data selection, have missed a large increase in handgun homicides following the SNS ban. They have made numerous modeling errors such as neglecting national crime policy effects in addition to using the wrong data. They have made a conceptual error of arguing causality from correlations which would have invalidated their conclusions even if they had not made the significant errors that they did.



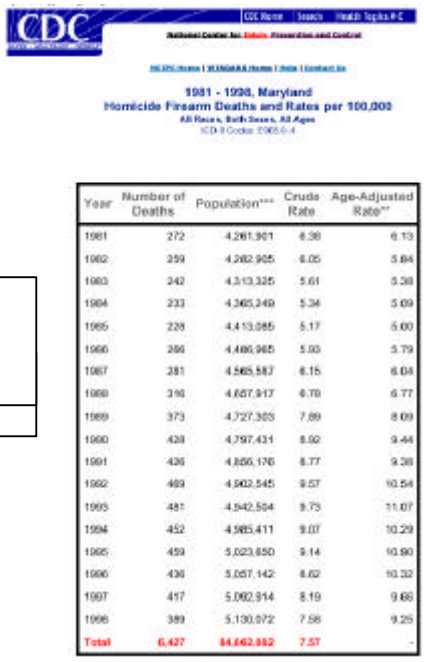


FIGURE 1. Observed age-adjusted firearm homicide rates in Maryland during 1975–1998 versus rates predicted by an autoregressive integrated moving average regression model that assumes a gradual effect of the state's 1990 ban of "Saturday night special" handguns. During 1990–1998 the predicted series represents the rates that would have been expected without the Saturday night special ban.

Introduction

In making conscious decisions under uncertainty, we all make forecasts. We may not think that we are forecasting, but our choices will be directed by our anticipation of results of our actions or omissions. In passing the law to ban Saturday night special (SNS) handguns in 1988, Maryland politicians expected declines in violence relative to what would have happened absent the law. The subject study by Daniel W. Webster, Jon S. Vernick, and Lisa M. Hepburn, referred herein as WVH, published in **Am J Epidemiol**, Vol. 155, No. 5, 2002 uses a model to argue that the SNS ban contributed to a reduction in Maryland violence. WVH have made errors in methodology which invalidate their conclusions. To explain their errors, we reproduce their Figure 1 (and their caption for that figure) with some additions to the figure (e.g. handgun murder rate and the CDC source for their data – see the CDC site **http://webapp.cdc.gov/sasweb/ncipc/mortrate9.html**). We describe these additions and their significance below.

Moral Concerns

Before addressing the technical aspects of the paper and its errors, we note an editorial statement made by WVH creating a moral issue. On page 411 WVH say in connection with the ban on Saturday night special guns:

> *Opponents of the law predicted that it would leave low-income citizens more vulnerable to crime by increasing the price of handguns and would increase the lethality of shootings, because criminals would acquire higher caliber substitutes for Saturday night specials. We could not examine these possible intermediate effects with the data available. Absent such data, the net effects of the law suggest that any negative consequences for homicide rates were apparently outweighed by the law's benefits.*

By looking only at the "net effects of the law" WVH have equivalence all bodies produced by firearm homicides no matter how. That is, these JHU researchers count the deaths of a Sgt. Prothero or Cpt. Toatley (to name two decent citizens killed by thugs) with the same weight as the deaths of thugs like their killers. They dismiss the moral issue of decent people losing their lives from lack of means for self-defense by claiming the data does not allow a better accounting. That claim simply begs the moral question.

It would be fair to raise this moral issue in connection with any paper of this kind, but these authors have made it an imperative to do so because they demonstrate moral blindness in dismissing the issue. And this is not the first time Johns Hopkins University has failed with moral issues in research. Maryland Court of Appeals Judge Dale R. Cathell recently accused the Johns Hopkins University board that oversaw a study connected with exposing poor children to lead paint of purposely misleading participants about the dangers involved (see **Md. Appeals Court Slams Researchers, Participants in Study on Lead Paint Weren't Informed of Risks, Judge Says**, Manuel Roig-Franzia and Rick Weiss, Washington Post August 21, 2001; Page B01).

Sloppy medical review practice at Johns Hopkins led to the death of a healthy volunteer (Ellen Roche) in a Medical experiment investigating asthma (**Johns Hopkins Admits Fault in Fatal Experiment**, Gina Kolata, New York Times, July 17, 2001 and **Human Research halted in wake of volunteer's death**, Sheila Hotchkin, Associated Press, reported in St. Paul Pioneer Press, July 20, 2001).

In this asthma case the sloppy practice, including not obtaining FDA approval for the drug used, was blamed in part on "Funding Concerns." Bluntly, Johns Hopkins neglects its moral responsibility for the people it uses in experiments and prefers to spend its money generating publishable papers. The moral blindness shown by the quote from WVH demonstrates the writ assumed by Johns Hopkins to perform social experiments with Marylanders as Laboratory Rats without any concern at all for the consequences to decent people.

Both the motivation for and the conclusions of WVH about the relationship between selling Saturday Night Specials (SNSs) and handgun homicide must be questioned because they make no effort to distinguish lawful use of firearms from lawless uses. WVH seem to assume that US society is uniform in the way it's members use firearms. They ignore the thugs who do not accept our legal system or lawful methods of handling conflicts. That these thugs resort to violence and use weapons in their conflicts as the first, not the last resort distinguishes them from decent people. Decent people may carry firearms but are not in the same group as these thugs who will pull out a gun and kill another human being with little hesitation. Decent people are to be found among the poor as well as the rich. Decent poor people frequently suffer more from crime because politician pay them little heed. The SNS ban was just one more case of government sticking it to the poor and morally blind researchers like WVH avert their eyes and only care about "net effects."

Technical Flaws in Methodology

1. **The WVH study is based on Center for Disease Control (CDC) firearm homicide rates for Maryland in Figure 1 as indicated for the ordinate[1] rather than handgun murders.** So, the WVH paper asserts the 1988 SNS handgun ban reduced deaths by using homicide numbers which include long guns in addition to handguns and some other homicides (e.g., self-defense). Since long gun murders averaged 18% of the firearm used in the ten years prior to 1988 (10% of the total murders) according to the Maryland State Police (MSP) and long gun use decreased to nearly 3.6% of firearms used in 1996 (2.7% of the total murders), that decrease masks part of the increased handgun usage in the CDC total firearm data. The decreased use of long guns cannot be attributed to a SNS ban and might even suggest the ban was counter productive. **By including long gun use in their data the WVH authors have been careless in their data selection.**

Using CDC data makes Maryland appear to have a smaller rate increase than using Maryland handgun murder data would -- 38% increase versus 68% from 1988 to 1996. The CDC firearm homicide data include homicides from cases where the reason for the homicide might be uncertain (some suicides, self-defense), hunting and other kinds of accidents, and long gun homicides. For many of these additional cases, no violent crime is suspected by the police. In their reports, the Maryland State Police give the same murder counts and rates published in the FBI Uniform Crime Report (UCR), but also include additional details of handgun use for murder. Table 1 shows the Maryland handgun homicide count and total firearm murders published by the MSP and compares the CDC firearm homicide numbers.

Table 1. Various Counts of Maryland Homicides from MSP UCR and CDC Sources

YEAR[2]	MSP ALL FIREARM COUNT	CDC ALL FIREARM COUNT	CDC/MSP DIFFERENCE COUNT	CDC/MSP FIREARM DIFFERENCE	MSP HANDGUN COUNT	CDC ALL/ MSP HG ONLY DIFFERENCE
1981	248	272	24	9.7%	186	46.2%
1982	257	259	2	0.8%	200	29.5%
1983	213	242	29	13.6%	179	35.2%
1984	199	233	34	17.1%	162	43.8%
1985	206	228	22	10.7%	177	28.8%
1986	235	266	31	13.2%	204	30.4%
1987	250	281	31	12.4%	214	31.3%
1988	283	316	33	11.7%	241	31.1%
1989	336	373	37	11.0%	282	32.3%
1990	368	428	60	16.3%	339	26.3%
1991	372	426	54	14.5%	342	24.6%
1992	422	469	47	11.1%	393	19.3%
1993	457	481	24	5.3%	432	11.3%
1994	407	452	45	11.1%	384	17.7%
1995	421	459	38	9.0%	394	16.5%
1996	421	436	15	3.6%	405	7.7%
1997	377	417	40	10.6%	356	17.1%
1998	332	389	57	17.2%	313	24.3%

The MSP handgun data has significant differences from CDC firearm data of between 7% and 46% of MSP handgun murder counts. **By using CDC firearm homicide data in the WVH study, Maryland 1988 homicides appear 30% more than handgun murders and 1996 homicides appear only 7% more than handgun murders. By using the CDC numbers, WVH show a smaller increase in handgun use than actually happened with handguns for murder after the SNS ban.**

2. **WVH appear unaware that handgun usage for Maryland murder grew from 54% (of the MSP total) in 1988 to 69% in 1996 (see MSP UCR) while long gun usage actually decreased (9.4% to 2.7%).** WVH describe their study (page 407):

> *Trends for firearm and nonfirearm homicide rates were analyzed separately to determine whether changes were specific to gun homicides and to examine possible weapon substitution effects.*

The failure to recognize the trend in handgun usage within the overall firearm data is inexcusable given that their study is intended to show banning SNSs reduced handgun deaths. The authors of a study are negligent in analyzing the effect of the SNS ban by including long guns homicide counts in their data while ignoring the trend (decrease) in long gun use. Using long gun homicide counts may even be a deliberate effort to disguise the SNS ban effect.

We've added Maryland handgun homicide rates to Figure 1 for 1988 through 1999 as large dots to show a visual comparison to the WVH model and "observed" data. The Maryland State Police handgun murder rates increased from 5.2 in 1988 to 8.6 in 1993 and then stays at a level near 8 through 1996. The JHU researchers WVH may see a benefit from a SNS ban on handgun homicides, but a 65% increase in handgun homicide rates in 5 years makes it hard to argue that benefit.

In fact WVH say (page 409):

> *The magnitude of these effect estimates is consistent with our prior research that indicated crime guns recovered in 1996 and 1997 in Baltimore, Maryland, were much less likely to be banned Saturday night specials than was the case in 15 other cities without a Saturday night special ban (8.7 percent vs. 19.7 percent of crime guns).*

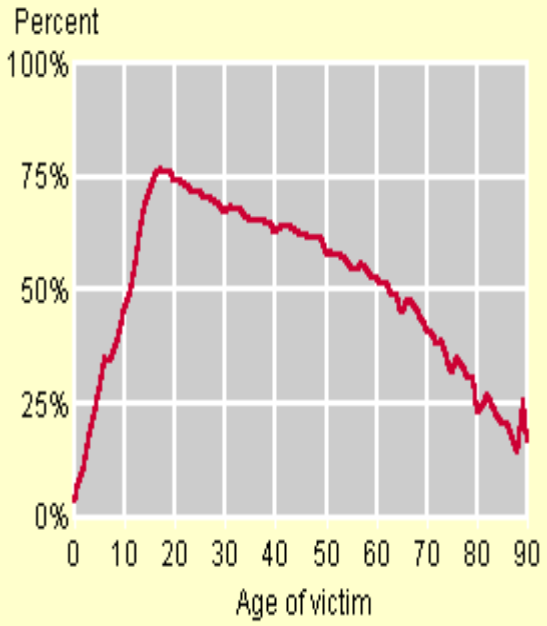
and (page 409):

> *Opponents of the law predicted that it would leave low-income citizens more vulnerable to crime by increasing the price of handguns and would increase the lethality of shootings, because criminals would acquire higher caliber substitutes for Saturday night specials. We could not examine these possible intermediate effects with the data available. Absent such data, the net effects of the law suggest that any negative consequences for homicide rates were apparently outweighed by the law's benefits.*

If WVH are correct about the reduction of SNSs in Baltimore as a result of the ban, the 65% increase in handgun murders would seem to support fears of increased lethality of shootings as criminals shift to higher caliber (and more reliable) substitutes. **Increased lethality may also be argued from Maryland's aggravated assault rates (FBI UCR) which grew only 6.5% between 1988 and 1996. That is, handgun lethality rate increase is a factor of 10 larger than the increase in assaults. But WVH do dismiss the increased lethality by their claim "Absent such data," the law has a "net benefit".** The fears of increased vulnerability of decent low-income citizens seem fully justified and increased lethality seem fully justified by objective review of the data.

Figure 2 Percent of homicides involving guns by age of victim, 1976-99

http://www.ojp.usdoj.gov/bjs/homicide/weapons.htm#weapons

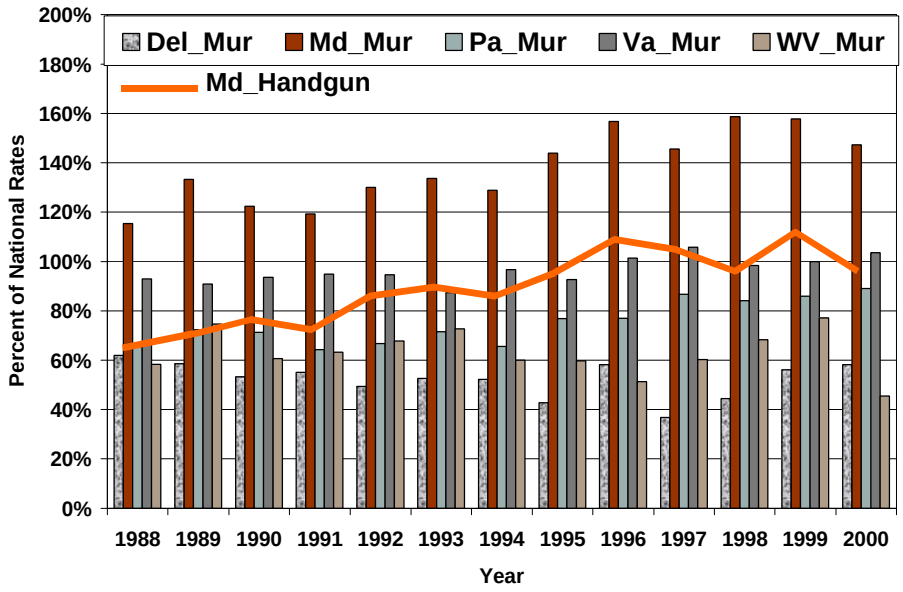


3. The WVH study uses an age adjusted[3] normalization technique (to a 1980 standard population). **So, each "observed" value is not really observed in the usual scientific sense. Rather, the data is transformed (age adjusted) and the transform would vary state to state for the same FBI UCR rates.** Applying age adjustments to Maryland increases homicide rates in the 1990's and decreases the rate in 1981. In 1995 Maryland's FBI UCR rate of 9.1 is age adjusted to 10.9 and in 1981 the rate of 6.4 is age adjusted to 6.1.

Age adjustment has the effect of weighting victims differently according to their age. If the standard population were the 1940 population shown in the CDC referenced document[4], the weighting would have the effect of **counting people who are killed in the age range of 15-24 by 50% more than those in the range 35-44**. As you might guess a state like Florida with a different age distribution of people would end up with different "age adjustments" than Maryland. For example, Florida crude rate of 11 in 1981 become 11.6 age adjusted and 5.8 in 1995 becomes 6.7 age adjusted (compare with the Maryland age adjustments above). **Considering that firearms are preferred to kill young adults as shown in the Department of Justice Figure 2, "age adjusted" weighting tends to inflate firearm homicide rates particularly where gang activity is large**.

It is apparent that the weighting is designed to emphasize firearm homicides. This focus on the instrument of murder rather than the crime itself denigrates the murders that do not involve firearms. So, for example, the WVH authors prefer murder victims be beaten to death, as are most murdered children under 10, rather than shot.

Figure 3 Murder Rates in Maryland and Its



4. Violence peaked nationwide near 1992 and some national effects are to be expected in the Maryland increase between 1988 and 1992 as well as the any trends after 1992. But the WVH study pretends that Maryland is isolated from the remaining United States because it does not recognize national effects in Maryland homicides. That is, the study attributes all reductions in homicides to the SNS ban and does not credit national effects for contributing to the reduction. To see what effect national policy might have in Maryland we show Figure 3 containing murder rate for Maryland and its neighboring states plotted as a percent of the US murder rate with all rates taken from the FBI UCR. We plot the Maryland handgun murder rate as a percent of US total murder rate in a line graph on the same chart.

From Figure 3, we see Maryland's murder control policy is less effective than the nation as a whole and all of its neighbors.

Maryland's murder rate has climbed from around 120% of the national rate in the 1990 time frame to 150% of the national rate near 2000. Neighboring states show murder rates near or lower than the national rates and substantially lower than Maryland. The line graph of handgun murders shows an increasing trend ending following the SNS ban. This increasing handgun trend in the early 1990's makes clear the WVH study claims about the SNS ban effects are wrong.

Maryland's peak reported murder rate (12.7 FBI UCR) occurred in 1993 and exceeded the previous peak rate of 12.5 in 1972. There is an old joke which goes:

> Two people are standing on Wall Street in New York City and one is snapping his fingers. The second person says, "why are you snapping your fingers?" The finger snapper replies, "I'm keeping elephants away from Wall Street." The first person snorts with derision and says, "There are no elephants anywhere near Wall Street!" The finger snapper replies, "See, its working!"

Given Maryland's murder rate returning to levels above the previous peak of 1972, it is easy to believe that claims for Maryland's SNS ban are as substantial as our finger-snapper's. Unfortunately, people are dying because Maryland politicians are devoted to finger-snapping solutions for violence.

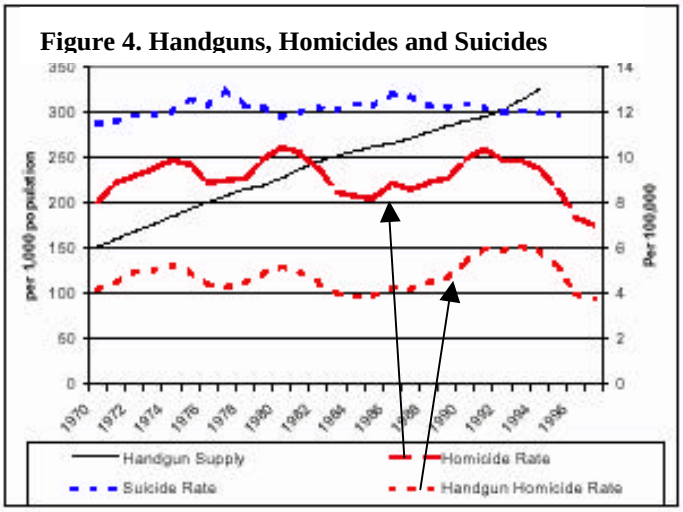
5. **As "scientists" WVH should understand that correlation does not prove causality. To prove causality, they need controlled experiments.** To illustrate take the example (not my example, but one taken from the url

http://www.kellogg.nwu.edu/faculty/weber/decs-437/Week_5/Correlation.htm):

> In the late 1940s, a nationwide study conducted over several years found a high correlation between the incidence rate of new cases of polio among children in a community, and per capita ice cream consumption in the community. (Equivalently, a simple regression model, using ice cream consumption to predict the rate of occurrence of new polio cases, had a high coefficient of determination.)
>
> Fortunately for those of us who like ice cream, a re-examination of the data showed that the high values of both variables occurred in communities where the study collected data in the summertime, and the low values of both occurred in communities where the data was collected during the winter.
>
> Polio - which we now know to be a communicable viral infection -- spreads more easily when children gather in heterogeneous groups in relatively unsanitary conditions, i.e., it spreads more easily during summer vacation than when the children are in school. The high correlation in no way provided evidence that ice cream consumption causes or promotes polio epidemics.

WHV are asserting a correlation between handgun availability and homicides. It is not the first time ideologically motivated "scientists" have attempted such a connection. Figure 4 (Source **Gun Facts**, Version 3.0, Guy Smith) shows the national supply of handguns per 1,000 people have more than doubled from 150 in 1970 to 325 in 1995 while homicide, suicide and handgun homicide rates have essentially been constant with fluctuation on the order of 20% and smaller fluctuations for suicides. A positive correlation between gun availability and violence would require increases in violence rates to reflect the gun availability growth.

Figure 4. Handguns, Homicides and Suicides



WVH have failed in the most elemental steps of science. They have proposed no controlled study to verify their "correlations". (Of course, the WVH misrepresentation of what they have actually modeled is a serious flaw too). WVH should have used Great Britain's ban on handguns. If WVH had studied the effects of that ban, they would have seen large increases in handgun and non-handgun violence since the ban took effect. In the year (1996) before the total handgun ban Britain had 72,266 robberies. By 2001, there were 95,154 robberies -- an increase of more than 30% (ref. Recorded Crime, England and Wales, 12 Months to March 2001, Dave Povey and colleagues, 19 July 2001). Handguns were used in about two-thirds of these robberies showing criminals don't obey handgun bans (ref. Illegal Firearms in the United Kingdom' Report - Overall Executive Summary, July 2001, King's College London Centre for Defence Studies). While the British show lower levels of homicide than in America, handgun murders in Britain have increased since the ban (in London handgun murders have increased more than 80% in 2001 from the prior year) and by all other measures the British have more violence than Americans. A person is more likely to be burglarized, almost twice as likely to be robbed, and two-and-a-half times more likely to be assaulted there than in America.

6. All forecasting models have either an implicit or explicit error structure, where error is defined as the difference between the

model prediction and the "true" value. **This fundamental understanding -- that models are not reality -- has confounded the WVH authors.** To see the nature of the difference between reality and prediction, note Figure 1 for 1978. The difference between predicted (approximately 5.5) and observed homicides (approximately 4.8 -- these values were taken from the Figure) may be model bias error and amounts to 15% of the observed homicides in 1978. Model bias error arises from mismatch between model assumptions and reality. Bias error is not discussed by the WVH authors. Ignoring bias error is a serious technical deficiency.

WVH take the model prediction as giving the number of homicides that would have happened absent the passage of the 1988 SNS ban and use that result to determine the lives saved by the ban. The WVH model in 1978, well prior to the ban, predicts too many deaths by about 15% (see Figure 1) indicating potential bias error in the fundamental model itself (i.e., wrong model order, wrong model coefficients, or even the differenced data might not be stationary as assumed). Bias error **means that the model results deviate from reality for other than random effects.** The existence of bias error in any modeling is particularly a concern since as a rule of thumb, Box-Jenkins ARIMA model fitting requires 40 to 50 equally-spaced periods of data. Even more data is required for model fitting if there are changes in model parameters (i.e., the SNS ban which is expected to produce differences in handgun purchases and violence). The accuracy of any technique should be questioned given that it uses only about 16 time values to determine the model (the model construction had to be limited to 1975 through 1990 for the identification or parameter determination step since the model does not fit the observations after 1990).

WVH claim to have “predicted” age-adjusted firearm homicide rates in Maryland in the absence of the SNS ban5. If the WVH model prediction error due to bias was 15% too high in 1993 as it appears to have been in 1978, the 9% decrease from “predicted” to “observed” shown by Figure 1 in 1993 is smaller than the 1978 error and may indicate the need for a bias correction. So, can WVH assert that there is not such bias error? It is doubtful, since they would require God-like insight into what would have happened without the law’s passage. Since a 15% error happened previously, it is possible, even likely, in 1993.

7. **The WVH study frequently includes “speculation” without supporting facts. In some cases, the speculations are misleading about the real conditions of homicides.** As examples, we see statements like .(p 411):

> *Many homicides stem from spontaneous altercations that end in gunfire. Ready access to a firearm can increase the lethality of violent altercations because firearms are much more lethal than other personal weapons. Prohibiting the sale of Saturday night special handguns could reduce the likelihood of these fatal encounters by either decreasing handgun ownership (particularly among high-risk persons) by making handguns more expensive or decreasing the incidence of concealed gun carrying.*

There are four speculations stated by WVH in the previous paragraph that are not supported in their study with data. Some of these speculations are contradicted by other real world data. These are:

A) *Many homicides stem from spontaneous altercations that end in gunfire.*

> “Many” is vague, but Baltimore law enforcement officials estimate that 50 to 60 percent of the city's homicides are related to drug dealing, including violent clashes among competing dealers and buyers and sellers. [Bar Association of Baltimore City. The Drug Crisis and Underfunding of the Justice System in Baltimore City: Report of the Russell Committee. 1990. The Russell Committee reported that 55 percent of the city's homicides were drug-related.] Drug dealing is not a spontaneous activity such as, say traffic accidents. drug transactions and other criminal activities carry risks of violence. While some altercations may not be planned, it is hardly fair to characterize resulting violence as spontaneous.

B) *Prohibiting the sale of Saturday night special handguns could reduce the likelihood of … fatal encounters … .*

> Fatal handgun encounters have actually increased in Maryland over the studied period from 1988 to 1996 by 66%.

C) Handgun ownership has been decreased by the SNS ban among high risk persons because handguns were made more expensive.

> No data is offered concerning handgun prices in the criminal market. No data is shown that ownership of firearms by high risk persons was decreased in Maryland. Contrary indicators stem from the BATF’s Youth Crime Gun Interdiction Initiative (YCGII) Gun Trace Reports for Baltimore where the crime gun trace requests continued to increase 1.8% from 1998 to 1999 (3717 in 1998, 3783 in 1999).

D) Carrying concealed handguns has been decreased by the SNS ban among high risk persons.

> No data is offered for reductions in the rate of carrying concealed handguns by individuals in Maryland.

8. **We observed several instances of carelessness in statements by WVH.**

WVH say (page 407):

> *Homicide data for the years 1975-1998 were obtained from the National Center for Health Statistics’ multiple cause of death data files using International Classification of Diseases, Ninth Revision, external cause of death codes E960-969.*

While it is hard to know what WVH actually used, it is doubtful they included:

Assault by corrosive or caustic substance, except poisoning (E961)
Assault by poisoning (E962)
Assault by hanging and strangulation (E963)
Assault by submersion (drowning) (E964)

WVH say (discussing the change in handgun sales after the ban went into effect and the bulge in purchases before the ban on page 408):

> *The annual change in per capita handgun sales dropped sharply in the first year the Saturday night special ban was in effect and was 15 percent lower during the entire postlaw period of 1990-1998 than would have been expected with no Saturday night special ban. However, this difference was not statistically significant.*

If the difference was not statistically significant, why mention it?

Notice that a 15% decrease in actual handgun sales relative to predicted is stated to be not statistically significant, but a 9% decrease in homicide predictions is claimed as statistically significant.

9. **The WVH modeling approach shows signs of instability that the authors have not recognized. By not being aware of the instabilities, WVH have not analyzed their impact. This lack of analysis is just one more reason we should have a low confidence in the modeling methodology employed.** The instability is identified in their statements (page 409):

> *An analysis of model residuals revealed the presence of an outlier (year 1976) that, when excluded, had a significant effect on one of the four Saturday night special ban estimates. When the Saturday night special ban effect was assumed to be immediate and constant and the 1976 observation was excluded from the analysis, the ban was associated with a 15.1 percent increase in firearm homicide rates (95 percent confidence interval: 7.1, 23.1), and the preban effect was associated with a 12.1 percent increase (95 percent confidence interval: 5.9, 18.3).*

The idea that an event 12 year earlier could somehow affect the SNS ban results by a significant amount in the period 1988 to 1992 confirms the unsuitability of the model being used. Yet, WVH don't realize the instability of their methodology. Rather they attribute the strange results obtained to an outlier in the data. While outliers can cause problems in data fitting, outlier recognition takes more than just pointing to a modeling problem. There should be some analysis or visual inspection that convinces that the data is truly an outlier. In this case, the 1976 value nearly equals the 1977 and 1978 values. Examination of the FBI UCR total homicide results show a decrease from 1975 to 1976 followed by two more years of similar homicide numbers. So, it appears that WVH label 1976 as an outlier because it produces bad effects on their model fitting the data and not because the results are sufficiently different enough to be listed as an outlier. WVH should have questioned whether the model was suitable given the instability observed, especially given the effect produced so many (12) years later.

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[1] We can verify that conclusion from the from the CDC web site Age Adjusted values (1980 population) from the link http://webapp.cdc.gov/sasweb/ncipc/mortrate9.html using the firearm selection.

[2] Thanks to John Josslyn of the Associated Gun Clubs of Baltimore who extracted and provided Maryland State Police Data for the periods of interst.

[3] A description of the method used by the CDC and others to calculate the adjustment is given on page 20 of http://www.cdc.gov/nchs/data/techap95.pdf.

[4] See previous note

[5] "*Figure 1 contrasts trends in age-adjusted firearm homicide rates in Maryland with the rates predicted by the model that assumed a gradual Saturday night special ban effect beginning in 1990. In the postlaw period, the figure shows the observed rates in relation to those expected in the absence of the Saturday night special ban.*" (page 409)