

GUN-CONTROL: INTENTIONS AND RESULTS

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Abstract

Guns are deadly. Most homicides, robberies and other types of criminal activities are mostly committed by guns, therefore many politicians try to regulate them in hope to decrease crime rates and are wildly supported by public. To determine how gun-control laws influence crime rates, regression analysis has been conducted with many control variables, however it hasn't found any statistically significant relationship between gun ownership and homicide rates. Then the logical question arose: if it is really so, then why do the politicians regulate gun-ownership? To answer that question, an experiment has been conducted to determine public's attitude towards gun-control. The experiment results showed that people generally see guns in negative light and have less information about their good uses, therefore politicians, influenced by that attitude, try to regulate guns, as it is hard not to do anything when masses are expecting action from you. These findings motivate research on law-making process to determine whether and which laws have intended results.

Keywords: *gun-control, public policy, crime rate, law effects, intentions and results, regulation;*

INTRODUCTION

When we make decisions, we often use beliefs and unproven knowledge during this process that could be misleading. These beliefs, however misleading they may be, still influence the politicians, because we ask them to address the issues with the help of regulations. Therefore some laws may not work, as they are not able to achieve the results they are intended to and these dysfunctional laws could not only regulate unimportant matters, but also may be affecting the most extreme and important issues as well, like self-protection and protecting life.

Guns are perceived as a cruel invention and instrument of felony by many, ignoring its protecting or other uses, thus the governments try to regulate gun possession for to reduce crime rate, with big support from public. One of most often discussed examples, as a great result of strict gun-control is one from Japan. Japanese gun-regulation is one of strictest in the world (it starts with the words – “No one should possess gun or sword”) (Kopel, 1993) and Japan has very low crime-rate, such as 1.2 homicides per 100,000 of population; Tokyo is one of safest cities in the world, with only 59,000 licensed gun-owners (from 14 millions of inhabitants) and 40 armed assaults annually. In comparison, USA has 48% of world's licit guns in civilian possession and much higher crime rates, such as 11,000 armed robberies annually in New York City only, 200 times higher homicide rate than Japan (in absolute numbers) (Alpers, 2017) and notorious mass-shootings that are directly results of high gun-ownership to a lot of people. In Georgia (my country) the situation is similar: when the new government came into power in 2013, they made gun-regulations stricter soon as to “make next steps into battling against crime” (Liberali, 2014). Therefore the first questions I asked were: Are gun-regulations effective? Do they affect crime rate? Do stricter laws mean reduction of crime?

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2. EMPIRICAL TECHNIQUE

To determine whether those gun regulations are achieving their goals, I decided to research whether gun ownership affects crime rates throughout the world. If we discover that it does (i.e. strict gun laws decrease crime rates), then we can definitely say that gun-control could be the law that achieves its goals, but the main question here is: what if it does not? If such important regulation fails, we will definitely need to look at other laws as well, as they may also not be achieving desired results and with limiting our rights we may not be going to the better world, where we will be all safer.

To answer my question, I decided to compare crime rates throughout 195 countries and gun ownership, therefore I created a database, where I had chosen 2017 as the basis year, because more data existed, consisting of:

- 195 countries of the world (Worldometers, 2017);
- Their Population Numbers and nominal GDP (Worldometers, 2017);
- Population Density (Worldometers, 2017), assuming that where more people live in small perimeters, the risk of crime is higher;
- Alcohol Consumption per capita, from the data of World Health Organization (2017), as some researches determine that excess use of alcohol affects crime rates. (Kwon et al., 1997; Jarrell and Howsen, 1990; Kellerman et al., 1994).

Then, by using data from gunpolicy.org (Alpers, 2017), I created a database, which shows:

- Gun Ownership in 195 countries (both illicit and licit, as for my research there is no difference between murders committed by illegal gun or legal one; if the gun-control is strict in a country, meaning that no legal guns exist and only illegal weapons are being used in crime, it does not show regulation results as successful, it only means that those regulations disarmed law-abiding citizens and took away their means of self-defense);
- Homicide Rate per 100,000 people during last 23 years (1995-2018) by any means, because weapon of choice does not make any difference here - if gun-control measures are strict once again and the civilians do not possess any firearms, but still commit murders by other means, such as knife, it means that the regulations have not achieved the goal - lower the crime rate;
- I also created data for murders committed by guns, for statistical analysis and;
- Suicide Rate per 100,000 population.

I also added (based on UNDP (2017) research when not stated otherwise):

- Law-abiding Index, assuming that effects of gun-control will be weaker among non-law-abiding population and results of gun regulations will be obscure, based on the research by World Justice Project in 2017-2018, Rule of Law Index (Malkawi, 2018), determining how strong the law is in 113 countries and whether the people abide it with the help of analysis of more than 100,000 answers in numerous questionnaires, etc.;
- Human Development Index that shows average life expectancy of population in different countries, their education index and GDP per capita, to determine how high living standards affect crime rate;
- Unemployment Rate, assuming the more unemployed, the higher the crime rate;
- Human Equality Index;
- In addition, for separate analysis, I also added separate data of GDP per capita and;
- Education Index.

3. RESULTS

I ran regression analysis $Y_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_i X_i + \varepsilon_i$ with different specifications, to see which one from above mentioned criteria affects crime rate.

In the first regression analysis I have chosen Gun Ownership (gun_own) per 100 people as an independent variable (X_i) (this is the most important question to answer for our research, whether this variable affects crime rate and is this relationship statistically significant) and Homicide Rate by any weapon (homic_any) per 100,000 population as a dependent variable (Y_i). The relationship between them appeared to be negative ($\beta = -0.076$), but it was not statistically significant ($P = 0.294$).

I added Human Development Index (hdi) as an independent variable alongside of Gun Ownership for the next analysis. The relationship between the latter and Homicide Rate appeared as statistically insignificant once again ($P = 0.691$), however relationship between HDI and Homicide Rate was ($P = 0.001$) and it was negative ($\beta = -0.259$), meaning that when living conditions improve, murders happen less often (it sounds quite logical).

I added Unemployment Rate (unempl) as an independent variable for the next analysis. The regression has shown that it had positive ($\beta = 0.144$) and statistically significant ($P = 0.052$) relationship with Homicide rate, meaning that when unemployment rises, crime does as well.

Other added independent variable - Alcohol Consumption (alc_cons) showed that its effects to Homicide Rate was not statistically significant ($P = 0.703$). I can explain this phenomenon this way: the average level of alcohol consumption is higher in European countries (such as France, etc.) than in Georgia, however the consumption culture differs, based on my observation: people drinks alcoholic drinks more often in France, but in lesser amount and in Georgia it's the opposite - less frequent, but more volume; consuming a lot of alcohol with small doses does not affect behavior, therefore not influencing crime rate, when being very drunk could have absolutely different outcome. I must also add that in Georgia alcoholic drinks are being distilled, sold and consumed without appearing in formal trade channels, therefore I assume that consumption statistics could be much higher than the database shows. I also assume that this phenomenon is not exclusive for Georgia and could be extended to other developing countries, distorting alcohol consumption numbers significantly. Lastly, we need also to see that alcoholic drinks are prohibited in many muslim countries, meaning that their inclusion in our regression analysis automatically decreases statistical significance.

After more tries, where independent variables (X) were Population Density (pop_dens), Alcohol Consumption (alc_cons), Gun Ownership per 100 of population (gun_own), Human Inequality Index (inequal), Unemployment Rate (unempl), GDP per capita (gdp_cap) and Education Index (edu), regression analysis showed that only GDP per capita (its growth decreases crime rate by 0.241) and Human Inequality Index (its growth increases crime rate by 0.338) had statistically significant relationships with Homicide Rate.

Population Density appeared not to have statistically significant influence on homicide statistics, which I thought to be illogical at first, however this could be explained this way: in USA, for example, average population density is 36 people per square kilometer, when in New York City this number is 10,431. Such a huge difference gives us ineffective average rates and could be the issue when analyzing its effects, but as our goal is not to determine relationships among population density and alcohol consumption and homicides, I won't analyze it any further.

I did a lot of versions of above explained regression analysis, with a lot of different combinations of control variables, etc. and **the result was that none of those showed statistically significant relationship between Gun Ownership and Homicide Rate** (for the results of some of those experiments please see Table 1 below)

Table 1. The statistical influence of different variables on Homicide Rate (P-values are shown in the brackets)

	1	2	3	4	5	6	7	8
gun_own	-0.076 (0.294)	0.031 (0.691)	0.033 (0.677)	0.025 (0.757)	0.033 (0.694)	0.048 (0.572)	0.079 (0.401)	0.150 (0.219)
hdi		-0.259 (0.001)	-0.281 (0.001)	-0.258 (0.005)	-0.252 (0.008)	-0.178 (0.183)	0.265 (0.286)	0.505 (0.120)
unempl			0.144 (0.052)	0.160 (0.033)	0.164 (0.033)	0.149 (0.065)	0.092 (0.289)	-0.051 (0.657)
alc_cons				-0.033 (0.703)	-0.052 (0.554)	-0.069 (0.431)	-0.050 (0.631)	-0.073 (0.553)
pop_dens					0.076 (0.325)	0.074 (0.339)	0.039 (0.644)	0.097 (0.349)
gdp_cap						-0.107 (0.385)	-0.287 (0.077)	-0.319 (0.291)
inequal							0.360 (0.061)	0.331 (0.129)
law_index								-0.270 (0.179)

It is very interesting that Ilia Tchavtchavadze, very famous Georgian author and political figure had the same thoughts about gun-control more than one hundred years ago:

“One of most provoking reasons of robbery and felony is that people don’t have guns. Felon, robber is armed to teeth, when you will have difficulties to find even one village in our country where locals have any guns. People are armless, thus powerless and can’t volunteer to do anything against robbers and reavers, and what of those should be afraid of? It is said that no gun policy is mandatory here, as our people are hot-tempered, during hard times or feast, or even during simple brawl, instantly grabbing weapons, injuring or killing each other. Ok, that’s understandable - if regulations decrease such cases, they will be acceptable and likable, but is it so? After the gun-control did crime drop”? (Tchavtchavadze, 1897)

After the analysis I started to go deeper into the individual country cases and saw that in Ghana, for example, the gun ownership increased fourfold during last years, but no increase in Homicide Rate has been detected; In Hong Kong gun-regulations became stricter in 1999, because the government thought that interest of general population towards sport and recreational guns was increasing (for example the number of shooting ranges increased from 13 to 20 in the last 10 years) and more control was necessary: the people were required to pass an exam before using shooting range, stricter regulations were enacted for buying guns and ammunitions, etc. (info.gov.hk, 2005), however homicide rates in the next five years didn’t see any improvement and general decreasing trend was clear even before the regulations; and lastly, Sweden, adopting European Union gun regulations of 2012 (Regulation No 258/2012 of the European Parliament and of the Council, 2012), saw no improvement in crime statistics, in contrary, they went up.

1. EXPERIMENT AND RESULTS

After that, I asked myself a question: if it is really so (gun-control does not affect homicide rate), then why do the politicians still regulate gun possession? I assumed that public attitude influences them, therefore to determine public viewpoint against guns, I conducted an experiment, where 485

respondents were placed into two groups and asked to grade their support towards gun-control on the scale from 0 (minimum support) to 10 (maximum support). After that stage two anti-gun-control arguments (gun_good) were presented to the first group:

1. The most criminals say that they wouldn't attack their victim if they knew beforehand that they were armed. In addition, most criminals also say that they don't rob the houses where the owners could be present due to fear of being shot.
2. In Wisconsin (USA) Bonnie Elmasri wanted to purchase a gun, because her ex-husband threatened her, but due to gun purchase waiting period, before she got the permit, her husband killed her and her children.

Two pro-gun-control arguments (gun_bad) were presented to the other group:

1. The more guns in civilians possession, the higher the risk of accidents and murders committed during affect.
2. Gun is much easier to use and much deadlier weapon, than its alternatives. Therefore, if we prohibit guns, people will use other tools, but they will be ineffective and less accidents will result in death or serious injuries.

After those arguments, both groups were asked to once again grade their support towards gun-control on the same scale. The goal of the experiment was to see whether positive and negative arguments affects people's attitude towards gun-control and whether it shifts.

The result of the experiment was that the attitude of the group, to whom the pro-gun-control (gun_bad) arguments were presented, almost didn't change (the mean was increased by 0.14 and the median stayed the same, meaning that they started to support gun-control by a little more).

However, I saw much more interesting results with the first group, to whom the anti-gun-control information (gun_good) was presented - their support mean score towards gun-control has been decreased by 0.49 and the median by 0.5 points.

To determine whether those results were statistically significant, I conducted the Wilcoxon Signed-Rank test (please see table 2).

Table 2. Wilcoxon Signed-Rank test results

	gun_bad_2 - gun_bad_1	gun_good_2 - gun_good_1
Z	-1.708^b	-4.667^c
Asymp. Sig. (2-tailed)	.088	.000

As you can see, the results are statistically significant (P1=0.088 and P2=0.000). I determined that the public attitude towards gun possession is generally negative, thus they support gun-control without having the information about the positives of gun ownership (not having enough information for to form an opinion, however they still have it) and two paragraphs of new information, showing that guns could be beneficial was enough to shake their attitude and change it.

5. CONCLUDING REMARKS

I could conclude that **because the Gun Ownership has no obvious effect on Crime Rate, gun regulations might be not achieving their goals**, despite the fact that pro-gun-control crowd are certain that limiting gun access for the general population is the key to decrease crime in a country.

The results of my analysis gives us the basis to think that gun politics may not be aiming specifically reducing crime, but being reaction on public sentiments, because the government are frequently forced by population to make steps to solve issues, as it is much harder not to do

anything when people are expecting you to do effective countermeasures against all issues. This means that people's attitude towards guns automatically deciphers itself into gun regulations. I think that was why in 2019, after New Zealand mosque mass shooting, when 51 died and 49 injured, prime-minister Ardern instantly promised stricter gun regulations to the people: "Our gun laws will change, now is the time ... People will be seeking change, and I am committed to that. There have been attempts to change our laws in 2005, 2012 and after an inquiry in 2017. Now is the time for change" (Junge, 2019; Mervosh, 2019)

I think that we reasonably could widen our findings to general law-making process to find other ineffective laws and ask ourselves THE question: are these the results we intended to achieve?

DISCLOSURE STATEMENT

No potential conflict of interest was reported by the author.

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