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Homicides and Open Usage of Guns: A Case of Louisiana, USA

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Abstract
Louisiana is known as the state with the highest per capita murder rate or homicides rates (12.4 per 100,000) among all U.S. states in 2017 for the 29th consecutive year (1989–2017). Despite the fact that the United States of America is known as the leading country in the world security, yet its sub-cities, provinces, and states are battling with security issues regarding internal murder or killing rates or homicides of which Louisiana is not in an exception. Meanwhile, the country has several gun policies, which allow the adult citizens to openly use or hold gun without restrictions. In light of these gun polices in some of the states including Louisiana, this study investigates the relationship between the open usages of gun and murder or homicides rates in Louisiana. The study uses secondary sources of data ranging between 1990 and 2012. The study applies a simple regression and correlation analysis to establish the relationship between open gun use and homicides. The study finds a weak significant positive relationship between the homicides rates and the open usages of gun among adult citizens in the state based on limited data. I therefore, recommend that both the federal and the local or state government should put restrictions on the open usages of guns in order to control the high murder or homicides rates across the provinces, cities, and the states.
Keywords: Homicides, Gun, Murder, Crime, and Regression
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INTRODUCTION:

It is very surprising that Louisiana as one of the states in the United States of America is battling with the high murder rates despite its endowment in mineral resources (oil & gas, etc.), fertile land, human and capital resources (Effgen, 2018; Christie, 2017). Additionally, the United States is known as the leading country in the world security, yet its sub-cities, provinces, and states are battling with security issues regarding internal with respect to high homicide particularly when it comes to murder. Louisiana is one of the states in U.S. that allow the citizens to openly use gun through the legal inspection post. Meanwhile, scholars including Effgen (2018); Christie (2017); Grillot (2017) have predicted that increasing rates of murder or homicides can be attributed to disrespect, easy access to guns, income inequality, hardship and many others.

Currently, Louisiana has been ranked as the state with the highest per capita murder rate (12.4 per 100,000) among all U.S. states in 2017 for the 29th consecutive year (1989–2017) (FBI Uniform Crime Report, 2017; Effgen, 2018; Christie, 2017; Grillot, 2017). Also, over the past four decades, Louisiana averaged 13.7 murders per 100,000, compared to the U.S. average of 6.6 murders per 100,000 from 1989- 2014 (FBI Uniform Crime Report, 2017; Effgen, 2018; Christie, 2017; Grillot, 2017). According to the Louisiana Uniform Crime reporting program, there were 193,902 crimes reported in Louisiana in 2012. All categories of crime decreased in 2012 from 2011, except for robbery, which saw a 4.6% increase (FBI Uniform Crime Report, 2017; Effgen, 2018; Christie, 2017; Grillot, 2017). Louisiana's overall crime rate, at 4,037.5, ranked fourth among U.S. states in 2012 (FBI Uniform Crime Report, 2017; Effgen, 2018; Christie, 2017; Grillot, 2017). Among the ten largest cities in Louisiana, the town of Alexandria had the highest crime rate at 9,174.6 crimes per 100,000 people (FBI Uniform Crime Report, 2017; Effgen, 2018; Christie, 2017; Grillot, 2017).

Despite a 2.8% decrease in its murder rate for 2012, Louisiana had the highest murder rate among U.S. states at 10.8 homicides per 100,000 people (FBI Uniform Crime Report, 2017; Effgen, 2018; Christie, 2017; Grillot, 2017). The total number of homicides perpetrated in Louisiana in 2012 was 495, a decrease of 11 murders from 2011. Firearms accounted for 370 murders or 81% of all homicides (FBI Uniform Crime Report, 2017; Effgen, 2018; Christie, 2017; Grillot, 2017). With 193 homicides, New Orleans had the highest total number of murders for any city in Louisiana. Two police officers were murdered in the line of duty in 2012 (FBI Uniform Crime Report, 2017; Effgen, 2018; Christie, 2017; Grillot, 2017). In 2012, Louisiana's prison population stood at 41,248, a 3.9% increase from 2011, for an incarceration and homicides rate of 893 prisoners per 100,000 people (FBI Uniform Crime Report, 2017; Effgen, 2018; Christie, 2017; Grillot, 2017). The main concern or the research question is why is it that murder rate is so high in Louisiana as compared to the other states in United States? Or what accounted for the high murder or homicides rates in Louisiana? *See the figure 1 below*:

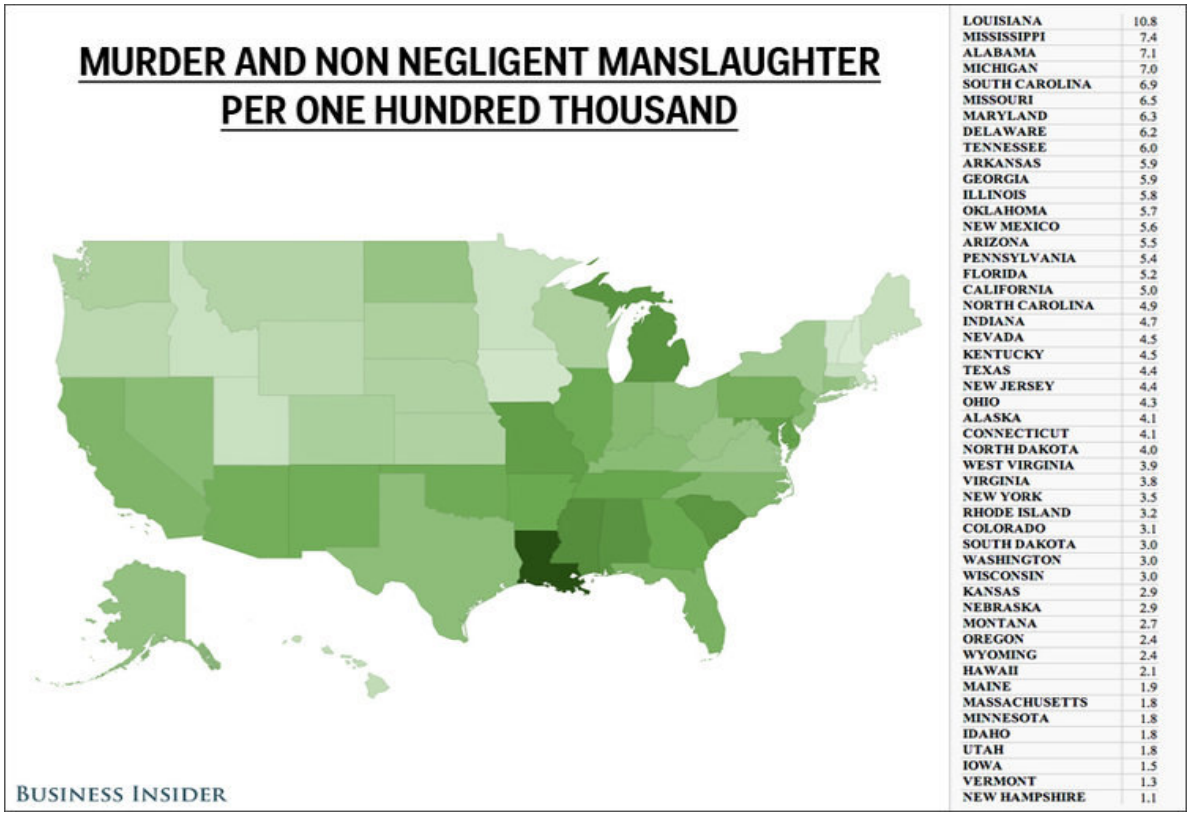

Figure 1: United States Rates of Murder/Homicides across States.
Source: FBI Uniform Crime Report, 2017.

In the light of the above homicides rates in Louisiana, the state still practiced open gun ownership or usage of gun among its citizens. The purpose of this study is to investigate the relationship between homicides rate and rate of open gun ownership or usage among Louisianans.

METHODOLOGY

The study is quantitative in nature and involves a simple regression analysis. Both ordinal and ratio scale variables were used for the data analysis. The research used Ordinary Least Square (OLS) analysis and correlation analysis to examine the relationship between homicides rates and gun ownership rates in Louisiana. The paper used secondary sources of data from FBI Uniform Crime Report for the murder or homicides data, and the open gun usage (a proxy from license firearm ownerships) from the Firearms Commerce in the United States, annual statistical update for 2017. The dependent variable is homicides rates or murder rates in Louisiana, and the independent or explanatory variable is the gun ownership or open usage of gun. The data spanned from 1990 to 2012 based on availability. The ordinary least squared (OLS) model of a simple regression below was used to evaluate the data. (Christiaan Heij, 2004) That is,

$$Y = a + bX \quad \text{..... [1]}$$

Where Y is the dependent variable (homicides or murder rates in Louisiana), X is the independent variable (Open usage of gun among adults Louisianans), a is the intercept, and b is the slope of the equation (or model) or the relationship between homicide (dependent variable) and the (independent) variable is open gun usage rate.

The study was coded and analyzed with the help of SPSS 20.0. The data was presented and discussed with the help of charts, tables and p-values analysis. Perhaps, since the study was done to see the relationship between open gun usage and homicides or murder rates in Louisiana. Before computing the test value for the Ordinary Least Squared (OLS) test, there is a need to state the hypothesis.

H_0: There is no significant relationship between gun ownership or open usage of gun and murder rate/homicides rates.

H_1: There is a positive significant relationship between gun ownership or open usage of gun and murder rate/homicides rates.

RESULTS AND DATA PRESENTATION

The discussion is organized into three sections: (1) summary statistics, (2) correlation analysis, and (3) regression or ordinary least squared analysis.

Table 1: Summary Statistics of Homicides Rates and Open Usage of Gun Rates in Louisiana

Descriptive Statistics

	N sample	Range	Minimum	Maximum	Mean Average	Std. Deviation	Variance Statistic
Homicides	23	10.30	10.00	20.30	14.0435	3.04763	9.288
Open Gun Usage - Carrier Rates	23	17.20	3.20	20.40	9.6087	5.12693	26.285
Sample Size	23						

In all 23-sample size were used for the data analysis. Based on the summary statistics, the minimum homicides rates was 10.00% and the maximum was 20.30%, while the minimum gun usage rates was 3.20%, and maximum rates was 20.40%. The average homicides rate between 1990 and 2012 was 14.0435%, while the average frequency usage of gun among adult citizens in Louisiana between 1990 and 2012 was 9.6087. In terms of the measure of dispersion or variability; the standard deviation associated with the homicides data was 3.04763 smaller than the standard deviation associated with open usage of gun among citizens with a value of 5.12693. The range associated with the homicides data was 10.30% smaller than the range associated with open usage of gun among citizens with a value of 17.20%. This implies that the gun usage data is widely spread or disperse away from the mean than the homicides data given the measurement with respect to the standard deviation and the range of the available information.

Table 2: Correlation between Homicides Rates and Open Usage of Gun Rates in Louisiana

Correlations

		Homicides	Gun Usage Rates
Homicides	Pearson Correlation	1	.389
	Sig. (2-tailed)		.067
	N	23	23
Gun Usage Rates	Pearson Correlation	.389	1
	Sig. (2-tailed)	.067	
	N	23	23

Regarding the correlation analysis between the homicides rates and open usage of gun rates in Louisiana, it was observe that there is a positive association or relationship between the two variables. However, there is a weak positive relationship between the homicides rates and open usage of gun rates with a correlation value of 0.389 less than 0.500. It is weak because the relationship was not significant at 0.05 (5%) significance level or conventional level but was statistically significant at 0.10 (10%) significance level.

Table 3: A Simple Regression Analysis for Homicides Rates and Open Usage of Gun Rates in Louisiana

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.389[a]	0.151	0.111	2.87392

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.264	1.295		12.556	0.000
	Gun Usage (Carry) Rates	0.231	0.120	0.389	1.934	0.067

In relation to the simple regression analysis results as indicated in Table 3, about 15.1% variation in the homicides is explained by the variation in the open usage of gun among the citizens. This implies that there are other relevance factors which are causing about 84.9% variations in the high homicides or murder rates in Louisiana. The R-square value of the 0.151 is explaining that 15.1% variations in the homicides can be attributed to the changes in the open usage of gun. Some of the other relevance factors according to literature could be attributed to inequality, disrespect, hardships, and also may be explained by the low level of the sample size.

In reference to the coefficients table, the constant term exhibited a very high positive significant impact or relationship to the regression model, with a p-value of 0.000 significant at all the significance levels at 1% (0.01), 5% (0.05), and 10% (0.10). That is, if the explanatory variable of open usage of gun is set to zero, then the homicides rates will be significantly equal to 16.264%.

For the case of the open usage of guns, the coefficient value is 0.231 with a p-value of 0.067 greater than 0.05 (5%) but less than 01.0 (10%). This implies that the open usage of guns is statistically significant at 10%, meaning

that a 1% increase in the open usage of gun will cause a 0.231% increase in the homicides rates in Louisiana. Based on the significance level at 10%, I can confidently reject the null hypothesis and accept the alternative hypothesis.

CONCLUSION

In conclusion**,** there is a positive relationship between the open usage of gun rates and the homicides rates in Louisiana. This implies that whenever the open usage of gun rates among the citizens increases there is a likelihood of increasing the homicides rates. Therefore, all other things being equal, I recommend that both the federal and the local or state government should put restrictions on the open usage of gun across the nation in order to control the homicides rate. A model case can be observed from a lower crime or homicides rates in the United Kingdom, wherein, even police officers are not permitted to openly use guns but rather a shocking button (rod).

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Grillot, C. (2017). "Baton Rouge the 25th most dangerous city". LSUNow.com. Retrieved 2017-07-13.
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https://en.wikipedia.org/wiki/Crime_in_Louisiana

APPENDIX

Descriptives

Notes

Output Created			16-NOV-2018 15:09:35
Comments			
Input		Data	C:\Users\casham\Documents\crime and gun rates.sav
		Active Dataset	DataSet0
		Filter	<none>
		Weight	<none>
		Split File	<none>
		N of Rows in Working Data File	23
Missing Handling	Value	Definition of Missing	User defined missing values are treated as missing.
		Cases Used	All non-missing data are used.
Syntax			DESCRIPTIVES VARIABLES=homocides guninspectionrates /STATISTICS=MEAN STDDEV VARIANCE RANGE MIN MAX SKEWNESS.
Resources		Processor Time	00:00:00.02
		Elapsed Time	00:00:00.02

[DataSet0] C:\Users\casham\Documents\crime and gun rates.sav

Descriptive Statistics

	N	Range	Minimum	Maximum	Mean	Std. Deviation	Variance	Skewness	
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error
Homicides	23	10.30	10.00	20.30	14.0435	3.04763	9.288	.644	.481
guninspectionrates	23	17.20	3.20	20.40	9.6087	5.12693	26.285	.819	.481
Valid N (listwise)	23								

```
CORRELATIONS
  /VARIABLES=homocides guninspectionrates
  /PRINT=TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```

Correlations

Notes

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Comments		
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	Filter	<none>
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	Split File	<none>
	N of Rows in Working Data File	23
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
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	Elapsed Time	00:00:00.02

[DataSet0] C:\Users\casham\Documents\crime and gun rates.sav

Correlations

		homocides	Guninspectionrates
Homicides	Pearson Correlation	1	.389
	Sig. (2-tailed)		.067
	N	23	23
guninspectionrates	Pearson Correlation	.389	1
	Sig. (2-tailed)	.067	
	N	23	23

```
NONPAR CORR
  /VARIABLES=homocides guninspectionrates
  /PRINT=SPEARMAN TWOTAIL NOSIG
  /MISSING=PAIRWISE.
```


Nonparametric Correlations

Notes

Output Created		16-NOV-2018 15:13:07
Comments		
Input	Data	C:\Users\casham\Documents\crime and gun rates.sav
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	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	23
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics for each pair of variables are based on all the cases with valid data for that pair.
Syntax		NONPAR CORR /VARIABLES=homocides guninspectionrates /PRINT=SPEARMAN TWOTAIL NOSIG /MISSING=PAIRWISE.
Resources	Processor Time	00:00:00.00
	Elapsed Time	00:00:00.01
	Number of Cases Allowed	174762 cases[a]

a. Based on availability of workspace memory

[DataSet0] C:\Users\casham\Documents\crime and gun rates.sav

Correlations

			Homicides	guninspectionrates
Spearman's rho	homocides	Correlation Coefficient	1.000	.317
		Sig. (2-tailed)	.	.141
		N	23	23
	guninspectionrates	Correlation Coefficient	.317	1.000
		Sig. (2-tailed)	.141	.
		N	23	23

```
REGRESSION
  /MISSING LISTWISE
  /STATISTICS COEFF OUTS R ANOVA
  /CRITERIA=PIN(.05) POUT(.10)
  /NOORIGIN
  /DEPENDENT homocides
  /METHOD=ENTER guninspectionrates.
```


Regression

Notes

Output Created		16-NOV-2018 15:16:53
Comments		
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	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	23
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on cases with no missing values for any variable used.
Syntax		REGRESSION /MISSING LISTWISE /STATISTICS COEFF OUTS R ANOVA /CRITERIA=PIN(.05) POUT(.10) /NOORIGIN /DEPENDENT homocides /METHOD=ENTER guninspectionrates.
Resources	Processor Time	00:00:00.03
	Elapsed Time	00:00:00.05
	Memory Required	1356 bytes
	Additional Memory Required for Residual Plots	0 bytes

[DataSet0] C:\Users\casham\Documents\crime and gun rates.sav

Variables Entered/Removed[a]

Model	Variables Entered	Variables Removed	Method
1	guninspectionrates[b]	.	Enter

a. Dependent Variable: homicides
b. All requested variables entered.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.389[a]	.151	.111	2.87392

a. Predictors: (Constant), guninspectionrates

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	30.888	1	30.888	3.740	.067[b]
	Residual	173.448	21	8.259		
	Total	204.337	22			

a. Dependent Variable: homicides
b. Predictors: (Constant), guninspectionrates

```
DESCRIPTIVES VARIABLES=homocides guninspectionrates
  /STATISTICS=MEAN STDDEV VARIANCE RANGE MIN MAX SKEWNESS.
```

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	16.264	1.295		12.556	.000
	guninspectionrates	.231	.120	.389	1.934	.067

a. Dependent Variable: homicides