

Regression Analysis: Death Gun Rate versus Firearm Ownership Rate

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	1	407.8	407.848	45.41	0.000
Firearm Ownership Rate	1	407.8	407.848	45.41	0.000
Error	48	431.2	8.982		
Lack-of-Fit	32	222.7	6.959	0.53	0.936
Pure Error	16	208.5	13.029		
Total	49	839.0			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
2.99706	48.61%	47.54%	44.36%

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	4.45	1.13	3.94	0.000	
Firearm Ownership Rate	0.2130	0.0316	6.74	0.000	1.00

Regression Equation

$$\text{Death Gun Rate} = 4.45 + 0.2130 \text{ Firearm Ownership Rate}$$

Fits and Diagnostics for Unusual Observations

Obs	Death Gun Rate	Fit	Resid	Std Resid
6	3.100	9.350	-6.250	-2.12 R
50	2.600	14.036	-11.436	-3.89 R

R Large residual

Residuals from Death Gun Rate vs Firearm Ownership Rate

Regression Analysis: Death Gun Rate versus Firearm Ownership Rate

Method

Rows unused 1

Analysis of Variance

Source	DF	Adj SS	Adj MS	F-Value	P-Value
Regression	1	462.38	462.377	73.53	0.000
Firearm Ownership Rate	1	462.38	462.377	73.53	0.000
Error	47	295.54	6.288		
Lack-of-Fit	32	226.53	7.079	1.54	0.189
Pure Error	15	69.01	4.601		
Total	48	757.92			

Model Summary

S	R-sq	R-sq(adj)	R-sq(pred)
2.50761	61.01%	60.18%	57.55%

Coefficients

Term	Coef	SE Coef	T-Value	P-Value	VIF
Constant	4.170	0.948	4.40	0.000	
Firearm Ownership Rate	0.2286	0.0267	8.58	0.000	1.00

Regression Equation

Death Gun Rate = 4.170 + 0.2286 Firearm Ownership Rate

Fits and Diagnostics for Unusual Observations

Obs	Death Gun Rate	Fit	Resid	Std Resid	
6	3.100	9.428	-6.328	-2.56	R
7	10.300	5.313	4.987	2.11	R
22	16.500	11.257	5.243	2.11	R
34	7.600	12.629	-5.029	-2.03	R

R Large residual

Residuals from Death Gun Rate vs Firearm Ownership Rate

http://www.oregonlive.com/pacific-northwest-news/index.ssf/2015/10/the_link_between_gun_deaths_an.html

Date Checked: 11/17/17

It appears that there is a relationship between Firearm Ownership Rate and Gun Death Rate but it's a weak relationship with Hawaii being the major outlier. Without Hawaii it becomes a moderate relationship but on the weaker side. Generally, the more firearm owner the more deaths caused by a firearm will be increased throughout the United States.

The samples were collected from series of steps from another source. The data was collected from U.S. Centers for Disease Control and Prevention and Gun Ownership and Social Gun Culture. The purpose of this study was to see where more deaths has occurred by firearms to see if there is a relationship between them and come up with a way to minimize the death rates. The Death Rate is from death certificates and pulled them together and Firearm Ownership came from results of a survey and pulled the results together across the United States

States	Firearm Ownership Rate (%)	Death Gun Rate (%)
Alaska	62	19.8
Arkansas	58	16.8
Idaho	57	14.1
Wyoming	54	16.7
West Virginia	54	14.3

Montana	52	16.7
New Mexico	50	15.5
Alabama	49	17.6
North Dakota	48	11.8
Louisiana	45	19.3
Hawaii	45	2.6
South Carolina	44	15.2
Mississippi	43	17.8
Kentucky	42	13.7
Tennessee	39	15.4
Nevada	38	13.8
Minnesota	37	7.6
Texas	36	10.6
South Dakota	35	10
Wisconsin	35	9.7
Indiana	34	13
Colorado	34	11.5
Iowa	34	8
Florida	33	11.9
Arizona	32	14.1
Georgia	32	12.6
Utah	32	12.6
Kansas	32	11.4
Oklahoma	31	16.5

Vermont	29	9.2
Virginia	29	10.2
North Carolina	29	12.1
Michigan	29	12
Washington	28	8.7
Oregon	27	11
Pennsylvania	27	11.2
Missouri	27	14.4
Illinois	26	8.6
Massachusetts	23	3.1
Maine	23	10.9
Maryland	21	9.7
California	20	7.7
Ohio	20	11
Nebraska	20	9
Connecticut	17	4.4
New Hampshire	14	6.4
New Jersey	11	5.7
New York	10	4.2
Rhode Island	6	5.3
Delaware	5	10.3

The data that is shown is from a study that includes all fifty states in the United States. Generally, the more ownership of firearms causes more people to be killed by a firearm. Hawaii is an outlier in this data. Having Hawaii in the data makes it more of a cubic data. Removing Hawaii makes the data more linear and less cubic, which is very interesting how Hawaii changes the graph of the data. It still makes the general consensus that the more firearm ownership the higher the rate of deaths caused by a firearm. All in all, the data was surprising and made it very interesting and made it fun to see and interpret the results of the study.