Center for American Progress



America Under Fire

An Analysis of Gun Violence in the United States and the Link to Weak Gun Laws

By Chelsea Parsons and Eugenio Weigend October 2016



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Contents

1 Introduction and summary

- 4 10 indicators of gun violence and the Gun Violence Index
- 27 The link between high levels of gun violence and weak state gun laws
- 32 Conclusion
- 34 Methodology
- 39 About the authors
- 40 Endnotes

Introduction and summary

One of the key questions in the gun debate is whether strong gun laws—such as requiring background checks for all gun sales; limiting who may carry guns and where they may carry them; and providing increased oversight of the gun industry—are effective at reducing gun violence. This is not an easy question to answer, as there are myriad factors that may contribute to the rate of gun violence in any community. In addition to easy access to guns facilitated and enabled by weak gun laws, there are an interconnected web of social and economic issues that can have an impact on rates of violence in a community, such as persistent poverty, lack of employment and educational opportunities, and a breakdown in the police-community relationship that imperils community safety. Much of the burden of day-to-day gun violence in this country falls disproportionately on communities of color, which are often at the epicenter of these related challenges. Another factor that may affect rates of gun deaths in a state is the level of gun ownership in that state, which is difficult to assess because of the lack of any comprehensive accounting of private gun ownership in this country.¹ And roughly two-thirds of gun deaths in the United States are the result of suicide, which raises another set of questions regarding the role of access to guns in contributing to high rates of suicide.

Despite the many factors that may contribute to rates of gun violence in a particular community, there is a robust and growing body of research that demonstrates an undeniable correlation between certain strong gun laws and lower rates of gun violence. A 2013 study by a group of public health researchers examined the relationship between the overall strength of a state's gun laws and rates of gun deaths in the state and found that states with stronger gun laws had lower rates of gun deaths than states with weaker gun laws.² A 2011 study that analyzed statelevel data drew similar conclusions: Firearm-related deaths were significantly lower in states that had enacted laws to ban assault weapons, require trigger locks, and mandate safe storage of guns.³ Two studies led by Daniel Webster at the Johns Hopkins Bloomberg School of Public Health demonstrated the impact of state laws requiring a permit—and background check—before an individual can purchase a handgun. When Connecticut implemented this requirement, gun-related homicides in the state fell 40 percent; when Missouri eliminated this requirement, gun homicides increased 26 percent.⁴ And research conducted by Everytown for Gun Safety, a nonprofit gun violence prevention advocacy group, found that states that require universal background checks for all handgun sales have significantly lower rates of intimate partner gun homicides of women, law enforcement officers killed by handguns, and gun-related suicides.⁵

In 2013, the Center for American Progress conducted a study to assess the correlation between the relative strength or weakness of a state's gun laws, as measured by the Law Center to Prevent Gun Violence, and rates of gun violence in the state across 10 categories of gun violence or gun-related crimes. Consistent with the research cited above, the CAP study found a strong correlation between strong gun laws and lower rates of gun violence.⁶

In the 3.5 years since that study, a number of things have changed that warrant revisiting that research. Many states have acted to strengthen their gun laws: Since the mass shooting at Sandy Hook Elementary School, eight states have enacted laws to require universal background checks—bringing the total number of states that have enacted such laws to 18—and 20 states have strengthened their laws to help keep guns out of the hands of domestic abusers.⁷ Unfortunately, other states have taken the opposite approach, loosening laws regarding where guns may be carried and weakening or eliminating concealed carry permit requirements.⁸ In addition, improvements made in the collection of data relating to gun violence now allow more precise tracking of events such as mass shootings and fatal shootings by law enforcement officers.

In this report, the authors revisit CAP's 2013 analysis with a revised methodology, some new categories of gun violence, and updated state grades from the Law Center to Prevent Gun Violence. The report provides a state ranking across 10 key indicators of gun violence, then uses these rankings to calculate an overall Gun Violence Index score for each state. Using this score, the authors assessed the correlation between the rate of overall gun violence in the state and the relative strength or weakness of each state's gun laws. Once again, CAP finds a strong and significant link between weak gun laws and high rates of gun violence. The 10 states with the weakest gun laws collectively have an aggregate level of gun violence that is 3.2 times higher than the 10 states with the strongest gun laws. And while this correlation does not prove a causal relationship between stronger gun laws and fewer gun deaths, the link between stronger gun laws and lower rates of gun violence cannot be ignored. As the gun debate continues to churn, policymakers at all levels of government must take action to close dangerous loopholes and enact strong gun laws to protect all of the nation's communities from this national disgrace.

10 indicators of gun violence and the Gun Violence Index

In order to measure levels of gun violence for each state, CAP analyzed data relating to 10 different types of gun violence:

- Rate of overall gun deaths per every 100,000 people, 2005-2014
- Rate of gun suicides per every 100,000 people, 2005-2014
- Rate of gun homicides per every 100,000 people, 2005-2014
- Rate of fatal gun accidents per every 1 million people, 2005-2014
- Rate of mass shootings per every 1 million people, 2006-2015
- Rate of intimate partner gun homicides of women per every 1 million women, 2005-2014
- Rate of gun deaths among people younger than age 21 per every 100,000 people younger than age 21, 2005-2014
- Rate of law enforcement officers feloniously killed with a firearm per every 1 million people, 2005-2014
- Rate of fatal shootings by police per every 1 million people, 2015-2016
- Crime gun export rates per every 100,000 people, 2010-2015

For each of these indicators, the authors ranked the states from zero, defined as the state with the lowest level of gun violence, to 100, defined as the state with the highest level of gun violence. The remaining states were given values in between depending on their place in the range. The authors then averaged the scores of the 10 indicators to calculate a final overall Gun Violence Index score for each state.

TABLE 1 Gun Violence Index ranking

Ranking	State	Gun Violence Index	Ranking	State	Gun Violence Index
1	Louisiana	75	26	Colorado	33
2	Alaska	66	27	Florida	33
3	Mississippi	61	28	Pennsylvania	32
4	West Virginia	60	29	Delaware	30
5	Alabama	59	30	Oregon	29
6	South Carolina	57	31	Vermont	29
7	Wyoming	56	32	Utah	29
8	Arizona	53	33	Michigan	28
9	Montana	51	34	Maryland	28
10	Oklahoma	51	35	Ohio	28
11	Nevada	50	36	Maine	27
12	New Mexico	50	37	Washington	26
13	Tennessee	49	38	California	26
14	Arkansas	47	39	Nebraska	26
15	Missouri	47	40	Illinois	23
16	Kentucky	46	41	Wisconsin	23
17	Georgia	44	42	New Hampshire	21
18	Kansas	40	43	Minnesota	17
19	South Dakota	39	44	lowa	16
20	Indiana	38	45	Connecticut	12
21	North Carolina	38	46	New Jersey	12
22	Idaho	36	47	New York	11
23	Virginia	36	48	Rhode Island	9
24	North Dakota	35	49	Hawaii	6
25	Texas	34	50	Massachusetts	6

States in **red** indicate the 10 states with the highest levels of gun violence. States in **green** indicate the 10 states with the lowest levels of gun violence.

Source: For full source information, please see the Methodology section of Chelsea Parsons and Eugenio Weigend, "America Under Fire: An Analysis of Gun Violence in the United States and the Link to Weak Gun Laws" (Washington: Center for American Progress, 2016).

Table 1 presents the results of the Gun Violence Index for each state according to their placement in the national ranking. States with a higher score, closer to 100, have higher overall rates of gun violence than states with a lower score, closer to zero. The 10 states with the highest level of gun violence are Louisiana, Alaska, Mississippi, West Virginia, Alabama, South Carolina, Wyoming, Arizona, Montana, and Oklahoma. The 10 states with the lowest levels of gun violence are Massachusetts, Hawaii, Rhode Island, New York, New Jersey, Connecticut, Iowa, Minnesota, New Hampshire, and Wisconsin.



Overall gun deaths

The overall scope of gun violence in America is truly staggering. In 2014, more than 33,000 people were killed with guns in the United States, amounting to 92 people killed with guns every day.⁹ The Centers for Disease Control and Prevention, or CDC, separates gun-related deaths into three broad categories based on the intent of the shooter: intentional violence-related, accidental, and suicide. There is also a small category for gun deaths for which the intent of the shooter cannot be determined. Aggregating these categories gives a total picture of overall gun deaths in the state. As illustrated in table 2, the rate of overall gun deaths from 2005 to 2014 vary widely across the states and were particularly high in Louisiana, Alaska, Mississippi, Alabama, and Wyoming. These states presented rates higher than 16 gun deaths per every 100,000 residents. In contrast, Hawaii, Massachusetts, Rhode Island, New York, Connecticut, and New Jersey presented rates lower than six gun deaths per every 100,000 residents.

TABLE 2 Rate of overall gun deaths, 2005–2014

National average rate: 10.24 per every 100,000 people

Ranking	State	Rate per every 100,000 people	Score	Ranking	State	Rate per every 100,000 people	Score
1	Louisiana	18.78	100	26	Texas	10.73	49
2	Alaska	18.20	96	27	Pennsylvania	10.69	49
3	Mississippi	17.49	92	28	Oregon	10.62	49
4	Alabama	16.79	87	29	Maryland	10.45	48
5	Wyoming	16.27	84	30	Virginia	10.42	47
6	Arkansas	15.78	81	31	Ohio	9.96	45
7	Montana	15.58	80	32	Delaware	9.62	42
8	Tennessee	15.08	77	33	North Dakota	9.40	41
9	New Mexico	14.91	76	34	South Dakota	9.32	41
10	Nevada	14.74	75	35	Vermont	9.04	39
11	Oklahoma	14.71	74	36	Washington	8.90	38
12	Arizona	14.60	74	37	Maine	8.59	36
13	South Carolina	14.22	71	38	Illinois	8.41	35
14	West Virginia	13.94	70	39	Nebraska	8.35	34
15	Missouri	13.84	69	40	Wisconsin	8.28	34
16	Kentucky	13.44	66	41	California	8.25	34
17	Idaho	12.91	63	42	New Hampshire	6.94	26
18	Georgia	12.76	62	43	Minnesota	6.82	25
19	North Carolina	12.02	57	44	Iowa	6.78	25
20	Florida	11.60	55	45	New Jersey	5.26	15
21	Indiana	11.39	54	46	Connecticut	5.25	15
22	Michigan	11.33	53	47	New York	4.82	12
23	Utah	11.28	53	48	Rhode Island	4.00	7
24	Colorado	11.22	52	49	Massachusetts	3.39	3
25	Kansas	10.82	50	50	Hawaii	2.88	0

States in **red** indicate the 10 states with the highest rates. States in **green** indicate the 10 states with the lowest rates.

Source: Center for American Progress analysis of Centers for Disease Control and Prevention, "Injury Prevention & Control: Data & Statistics (WISQARS): Fatal Injury Data," available at http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html (last accessed June 2016).

Gun suicides

The largest category of gun deaths in the United States are gun-related suicides: Roughly two-thirds of all gun deaths in this country are suicides. Access to firearms significantly increases the risk that a suicide attempt will be fatal. While suicide attempts involving methods other than guns have a 5 percent fatality rate, 85 percent of suicide attempts with a firearm are fatal.¹⁰ People complete suicide more often with a gun than with any other method: Of the more than 375,000 people who died by suicide in the U.S. from 2005 to 2014, roughly half used a gun.¹¹ A person dies by gun-related suicide in the United States approximately every 30 minutes.¹²

Table 3 ranks the states based on the rate of gun suicides from 2005 to 2014, which vary widely from state to state. While Alaska, Wyoming, Montana, Idaho, and Nevada presented rates higher than 10 gun suicides per every 100,000 people from 2005 to 2014, 10 states presented rates lower than five gun suicides per every 100,000 people.

TABLE 3 Rate of gun suicides, 2005–2014

National average rate: 5.99 per every 100,000 people

Ranking	State	Rate per every 100,000 people	Score	Ranking	State	Rate per every 100,000 people	Scor
1	Alaska	14.21	100	26	Maine	7.25	44
2	Wyoming	14.11	99	27	North Carolina	7.11	43
3	Montana	13.26	92	28	Indiana	6.97	42
4	Idaho	11.02	75	29	Florida	6.74	40
5	Nevada	10.33	69	30	Virginia	6.72	40
6	New Mexico	9.99	66	31	Washington	6.68	40
7	West Virginia	9.98	66	32	Texas	6.57	39
8	Oklahoma	9.87	65	33	New Hampshire	6.01	35
9	Utah	9.62	63	34	Pennsylvania	5.97	34
10	Arkansas	9.57	63	35	Wisconsin	5.96	34
11	Kentucky	9.47	62	36	Michigan	5.86	33
12	Arizona	9.36	61	37	Ohio	5.82	33
13	Alabama	9.03	59	38	Nebraska	5.74	32
14	Tennessee	9.01	58	39	lowa	5.52	31
15	Mississippi	8.95	58	40	Minnesota	5.31	29
16	Colorado	8.70	56	41	Delaware	4.95	26
17	Oregon	8.68	56	42	Maryland	4.14	20
18	North Dakota	8.21	52	43	California	3.96	18
19	Louisiana	8.06	51	44	Illinois	3.40	14
19	South Carolina	8.06	51	45	Connecticut	2.68	8
21	South Dakota	8.03	51	46	Rhode Island	2.37	5
22	Missouri	7.95	50	47	New York	2.23	4
23	Vermont	7.82	49	48	Hawaii	2.20	4
24	Kansas	7.67	48	49	New Jersey	1.86	1
25	Georgia	7.32	45	50	Massachusetts	1.69	0

States in **red** indicate the 10 states with the highest rates. States in **green** indicate the 10 states with the lowest rates.

Source: Center for American Progress analysis of Centers for Disease Control and Prevention, "Injury Prevention & Control: Data & Statistics (WISQARS): Fatal Injury Data," available at http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html (last accessed June 2016).

Gun homicides

More than 30 people are murdered with a gun every day in the United States, which amounts to a person being murdered with a gun every 48 minutes.¹³ Moreover, according to information from the CDC, close to 69 percent of all homicides from 2005 to 2014 were committed with a gun, placing firearms as the number one tool for homicides.¹⁴ The United States is an outlier among peer nations when it comes to gun murders: The U.S. gun murder rate is 25 times higher than the average rate of other high-income countries.¹⁵

Gun homicides have a disproportionate impact on communities of color in the United States.¹⁶ While African Americans make up 14 percent of the national population, they account for 56 percent of gun homicides.¹⁷ This discrepancy is even more acute in a number of states. For example, while African Americans make up 15 percent of the population in Michigan and New Jersey, they represent 80 percent and 75 percent of gun homicide victims in those states, respectively. The Hispanic population in some states also experiences disproportionate rates of gun violence. For example while Hispanics represent 29 percent and 12 percent of the state population in Arizona and Rhode Island, they account for 49 percent and 39 percent of gun homicide victims in those states, respectively.¹⁸

Among states, the disparity in terms of rates of gun homicides is significant. The average of the five states with the highest rates—7.14 per every 100,000 population—is 10 times higher than the average of the five states with the lowest rates, 0.72 per every 100,000 population. Louisiana's gun homicide rate alone is more than two times higher than the national average rate and 29 percent higher than Mississippi's rate, the state that ranks second. In contrast, five states presented rates lower than one gun homicide per every 100,000 people.

TABLE 4 Rate of gun homicides, 2005–2014

National average rate: 3.85 per every 100,000 people

Ranking	State	Rate per every 100,000 people	Score	Ranking	State	Rate per every 100,000 people	Scor
1	Louisiana	9.75	100	26	New Jersey	3.29	30
2	Mississippi	7.53	76	27	West Virginia	3.04	27
3	Alabama	6.90	69	28	Alaska	2.95	26
4	Maryland	5.96	59	29	Kansas	2.67	23
5	South Carolina	5.56	55	30	Connecticut	2.46	21
6	Arkansas	5.44	53	30	New York	2.46	21
7	Missouri	5.36	52	32	Nebraska	2.25	19
8	Michigan	5.22	51	33	Wisconsin	2.07	17
8	Tennessee	5.22	51	34	Colorado	2.06	17
10	Georgia	4.94	48	35	Washington	1.79	14
11	Illinois	4.72	45	36	Massachusetts	1.55	11
12	Arizona	4.69	45	36	Montana	1.55	11
13	Florida	4.57	44	38	Rhode Island	1.49	10
14	North Carolina	4.50	43	39	Wyoming	1.48	10
15	Delaware	4.44	42	40	Oregon	1.43	10
16	Pennsylvania	4.33	41	41	Minnesota	1.28	8
17	Oklahoma	4.25	40	42	Idaho	1.23	7
18	New Mexico	4.04	38	43	Utah	1.16	7
19	Indiana	3.92	37	44	Maine	1.01	5
20	California	3.91	37	45	lowa	1.00	5
21	Nevada	3.87	36	46	Vermont	0.95	4
22	Ohio	3.81	36	47	South Dakota	0.75	2
23	Texas	3.78	35	48	North Dakota	0.74	2
24	Kentucky	3.31	30	49	New Hampshire	0.63	1
24	Virginia	3.31	30	50	Hawaii	0.54	0

States in **red** indicate the 10 states with the highest rates. States in **green** indicate the 10 states with the lowest rates.

Source: Center for American Progress analysis of Centers for Disease Control and Prevention, "Injury Prevention & Control: Data & Statistics (WISQARS): Fatal Injury Data," available at http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html (last accessed June 2016).

Fatal gun accidents

A person is accidentally killed with a gun every 15 hours in the United States.¹⁹ While accidental gun deaths account for the smallest portion of overall gun deaths, making up around 2 percent of annual gun deaths in the United States, they often occur in the most tragic of circumstances and involve young children who gain access to loaded guns that were improperly stored.²⁰ And although these numbers are small when compared to gun homicides or suicides, they are significant when placed in other contexts. For example, in 2015, more people were fatally shot in the United States by toddlers with guns than by terrorists.²¹

Assessing the full scope of accidental gun deaths across states is a challenge, as there are inconsistences in how the states code and report these deaths.²² However, the best available data come from the CDC; these data demonstrate that Louisiana, Mississippi, Alabama, West Virginia, and Tennessee had the highest rates of accidental gun deaths from 2005 to 2014, with rates above five per every 1 million people, while seven states had rates lower than one fatal gun accident per every 1 million people.²³

TABLE 5 Rate of fatal gun accidents, 2005–2014

National average rate: 1.9 per every 1 million people

Ranking	State	Rate per every one million people	Score	Ranking	State	Rate per every one million people	Score
1	Louisiana	7.6	100	25	Nevada	1.5	14
2	Mississippi	6.3	82	27	Colorado	1.4	13
3	Alabama	6.1	79	27	Illinois	1.4	13
4	West Virginia	5.7	73	27	Ohio	1.4	13
5	Tennessee	5.3	68	27	Virginia	1.4	13
6	Wyoming	4.7	59	31	Oregon	1.3	11
7	Arkansas	4.6	58	32	California	1.2	10
8	Kentucky	4.2	52	32	Florida	1.2	10
8	Montana	4.2	52	32	lowa	1.2	10
10	South Carolina	4.1	51	32	New Hampshire	1.2	10
11	Oklahoma	3.9	48	36	Michigan	1.1	8
12	Alaska	3.7	45	36	Utah	1.1	8
13	Idaho	3.4	41	36	Washington	1.1	8
14	Missouri	3.3	39	39	Wisconsin	0.9	6
15	South Dakota	3.2	38	40	Minnesota	0.8	4
16	Georgia	2.9	34	41	Connecticut	0.7	3
17	North Carolina	2.8	32	41	Massachusetts	0.7	3
18	Indiana	2.5	28	43	New Jersey	0.6	1
18	North Dakota	2.5	28	43	New York	0.6	1
20	Nebraska	2.3	25	45	Maryland	0.5	0
20	Pennsylvania	2.3	25	-	Delaware	-	-
22	Kansas	2.2	24	-	Hawaii	-	-
23	Texas	2.1	23	-	Maine	-	-
24	New Mexico	1.8	18	-	Rhode Island	-	-
25	Arizona	1.5	14	-	Vermont	-	-

States in **red** indicate the 10 states with the highest rates. States in **green** indicate the 10 states with the lowest rates.

Source: Center for American Progress analysis of Centers for Disease Control and Prevention, "Injury Prevention & Control: Data & Statistics (WISQARS): Fatal Injury Data," available at http://www.cdc.gov/injury/wisqars/fatal_injury_reports.html (last accessed June 2016). The CDC does not provide data for states that reported fewer than 10 deaths during this period.

Mass shootings

While mass shootings constitute a very small part of gun violence in the United States, they often receive the most attention from the media and policymakers and tend to grip the nation. These incidents are generally not representative of the daily toll of gun violence experienced in many communities, yet they have a substantial impact on the gun debate. Recent research also suggests that, while infrequent, mass shootings have increased in the United States: One study found that public mass shootings that resulted in four or more fatalities have tripled since 2011.²⁴

In recent years, increased efforts have been made to track mass shootings in real time—not only the episodes of random, public shootings, but also incidents in which multiple people are shot in the context of domestic violence or other interpersonal disputes. There are a few different ways to measure mass shootings in the United States. Some sources count all incidents where four or more people are shot, regardless of the number of fatalities, while other sources—including the Federal Bureau of Investigation, or FBI—include only those incidents in which four or more people are killed.

This report uses the data collected by *USA Today*, which tracks all mass shootings that result in the death of four or more people. According to these data, six states did not have any mass shooting incidents in which four or more people were killed from 2006 to 2015. The remaining states presented at least one such mass shooting during this period.²⁵ North Dakota, West Virginia, Kansas, Wyoming, Louisiana, and South Carolina presented rates that were more than two times higher than the national average. Meanwhile, Massachusetts, New Jersey, and Pennsylvania had rates lower than 0.025 mass shootings per every million people.

TABLE 6 Rate of mass shootings, 2006–2015

National average rate: 0.083 per every one million people

Ranking	State	Rate per every one million people	Score	Ranking	State	Rate per every one million people	Score
1	North Dakota	0.294	100	25	Utah	0.073	25
2	West Virginia	0.217	74	27	Texas	0.072	25
3	Kansas	0.212	72	28	California	0.070	24
4	Wyoming	0.180	61	29	Maryland	0.069	24
5	Louisiana	0.177	60	30	Georgia	0.062	21
6	South Carolina	0.175	59	31	Michigan	0.060	21
7	Vermont	0.160	54	32	Connecticut	0.056	19
8	Arizona	0.158	54	33	North Carolina	0.053	18
9	Maine	0.151	51	34	Oregon	0.053	18
10	Missouri	0.134	46	35	New Mexico	0.049	17
11	South Dakota	0.123	42	36	Colorado	0.040	14
12	Washington	0.120	41	37	Minnesota	0.038	13
13	Nebraska	0.110	37	38	Arkansas	0.035	12
14	Oklahoma	0.107	36	39	lowa	0.033	11
15	Wisconsin	0.106	36	40	New York	0.031	11
16	Alabama	0.105	36	41	Pennsylvania	0.024	8
17	Montana	0.102	34	42	New Jersey	0.023	8
18	Indiana	0.093	32	43	Massachusetts	0.015	5
19	Kentucky	0.093	31	50	Alaska	0.000	0
20	Illinois	0.086	29	50	Delaware	0.000	0
21	Tennessee	0.079	27	50	Hawaii	0.000	0
22	Ohio	0.078	27	50	Idaho	0.000	0
23	Virginia	0.075	26	50	Mississippi	0.000	0
24	Nevada	0.075	25	50	New Hampshire	0.000	0
25	Florida	0.074	25	50	Rhode Island	0.000	0

States in **red** indicate the 10 states with the highest rates. States in **green** indicate the 10 states with the lowest rates.

Source: Center of American Progress analysis of USA Today, "Behind the Bloodshed," available at http://www.gannett-cdn.com/GDContent/mass-killings/index.html#title (last accessed June 2016). According to this source, seven states did not report any mass shootings during the 2006–2015 period.

Intimate partner gun homicides of women

The deadly intersection between domestic violence and gun violence has been well established. When domestic abusers have easy access to guns, the risk that a woman will be murdered increases exponentially: When a gun is present in the home, the risk of lethal violence against women by a relative or an intimate partner is eight times higher than in homes without a gun and is 20 times greater when there is a previous history of domestic violence.²⁶ A previous CAP analysis found that, from 2005 to 2014, roughly one-third of murders of American women were committed by an intimate partner and half of those homicides were committed with a gun.²⁷

Review of the FBI *Supplemental Homicide Data* reveals that South Carolina, Louisiana, Nevada, Tennessee, and Oklahoma have the highest rates of intimate partner gun homicides against women from 2005 to 2014. In contrast, Illinois and Massachusetts present rates lower than one case per every 1 million women.

TABLE 7 Rate of intimate partner gun homicides of women, 2005–2014

National average rate: 3.71 per every one million women

Ranking	State	Rate per every one million women	Score	-	Ranking	State	Rate per every one million women	Score
1	South Carolina	7.69	100		26	Indiana	3.57	43
2	Louisiana	6.93	89		27	Kansas	3.50	42
3	Nevada	6.43	83		28	Vermont	3.47	41
4	Tennessee	6.07	77		29	South Dakota	3.45	41
5	Oklahoma	6.00	77		30	Delaware	3.26	39
6	Georgia	5.70	72		31	California	3.05	36
7	Arizona	5.64	72		32	Maryland	2.89	33
8	Kentucky	5.42	69		33	Washington	2.72	31
9	Alaska	5.33	67		34	Michigan	2.67	30
10	Texas	5.32	67		35	Ohio	2.61	30
11	West Virginia	5.24	66		36	Utah	2.51	28
12	Missouri	5.00	63		37	Nebraska	2.40	27
13	Alabama	4.67	58		38	Minnesota	2.25	25
14	Virginia	4.64	58		39	Connecticut	2.13	23
15	North Carolina	4.49	56		40	Wisconsin	2.10	23
16	Montana	4.48	56		41	New Hampshire	1.95	20
17	Mississippi	4.41	54		42	New York	1.83	19
18	New Mexico	4.38	54		43	North Dakota	1.79	18
19	Oregon	4.16	51		44	New Jersey	1.73	17
20	Arkansas	4.14	51		45	Hawaii	1.63	16
21	Wyoming	4.04	49		46	lowa	1.56	15
22	Pennsylvania	4.02	49		47	Rhode Island	1.47	14
23	Idaho	4.01	49		48	Massachusetts	0.80	4
24	Colorado	3.93	48		49	Illinois	0.48	0
25	Maine	3.84	47		-	Florida	-	-

States in **red** indicate the 10 states with the highest rates. States in **green** indicate the 10 states with the lowest rates.

Source: Center of American Progress analysis of Federal Bureau of Investigation, Supplemental Homicide Data (U.S. Department of Justice, 2005–2014). "Intimate partner" includes boyfriends, girlfriends, husbands, wives, ex-wives, ex-husbands, common-law wives, and common law husbands. The state of Florida does not report information to the FBI and therefore is not included in this ranking.

Gun deaths among people younger than age 21

The impact of gun violence falls disproportionately on young people in the United States. In 2015, gun violence surpassed car accidents as the leading cause of death of Millennials in this country.²⁸ Once again, America is an outlier when it comes to gun violence: The rate of gun-related homicides among young people in the United States is 49 times higher than peer nations.²⁹

Louisiana tops the states for having the highest rate of gun deaths of people younger than age 21 with a rate that is more than twice as high as the national average. Hawaii presents less than one gun death per every 100,000 people younger than age 21.

TABLE 8 Rate of gun deaths among people younger than age 21, 2005–2014

National average rate: 4.13 per every 100,000 people under 21

Ranking	State	Rate per every 100,000 people younger than age 21	Score	Ranki	ing	State	Rate per every 100,000 people younger than age 21	Sco
1	Louisiana	9.24	100	26		Idaho	4.08	4 1
2	Alaska	8.06	86	27		Ohio	4.00	40
3	Mississippi	6.17	65	28		Kansas	3.88	39
4	Missouri	6.08	64	29		Virginia	3.84	38
5	Alabama	6.07	64	30		West Virginia	3.80	38
6	New Mexico	5.56	58	31		Kentucky	3.68	36
7	Montana	5.55	58	32		Texas	3.65	36
7	Wyoming	5.55	58	33		South Dakota	3.64	36
9	Illinois	5.30	55	34		Nebraska	3.43	33
10	Oklahoma	5.22	54	35		Colorado	3.38	33
11	South Carolina	5.17	53	36		Wisconsin	3.22	31
12	Tennessee	5.15	53	37		Washington	2.80	26
13	Arkansas	5.14	53	38		Oregon	2.73	25
14	Maryland	5.12	53	39		New Jersey	2.66	25
15	Arizona	5.00	51	40		Vermont	2.65	25
15	Michigan	5.00	51	41		Utah	2.60	24
17	Pennsylvania	4.77	49	42		Minnesota	2.47	22
18	Nevada	4.67	48	43		lowa	2.41	22
19	North Dakota	4.56	46	44		New York	2.31	21
20	Delaware	4.50	46	45		Connecticut	2.22	20
21	Florida	4.40	45	46		Maine	2.10	18
22	California	4.31	44	46		Rhode Island	2.10	18
23	Georgia	4.28	43	48		Massachusetts	1.77	14
24	Indiana	4.25	43	49		New Hampshire	1.70	14
25	North Carolina	4.20	42	50		Hawaii	0.51	C

States in **red** indicate the 10 states with the highest rates. States in **green** indicate the 10 states with the lowest rates.

Source: Center for American Progress analysis of Centers for Disease Control and Prevention, "Injury Prevention & Control: Data & Statistics (WISQARS): Fatal Injury Data," available at http://www.cdc.gov/ injury/wisqars/fatal_injury_reports.html (last accessed June 2016).

Law enforcement officers feloniously killed with a firearm

There are approximately 900,000 sworn law-enforcement officers in the United States who often face substantial risks in the performance of their duties to protect community safety.³⁰ According to the National Law Enforcement Officers Memorial Fund, from 2006 to 2015, 1,439 officers were killed in the line of duty, both as a result of attacks on officers and accidents.³¹ According to the FBI, more than 90 percent of officers who were fatally assaulted in the line of duty from 2005 to 2014 were killed with guns.³² The risks faced by officers were tragically highlighted in a number of recent incidents, including and the murder of a police officers were responding to a domestic violence call, and the ambush attacks of police officers in Dallas and Baton Rouge in July 2016.³³

Alaska, Louisiana, Mississippi, South Dakota, New Hampshire, Kansas, and West Virginia presented the highest rates of law enforcement officers being killed with a gun while Wyoming, Vermont, Nebraska, Maine, and Connecticut did not have any such incidents during this time period.

TABLE 9 Rate of law enforcement officers feloniously killed with a firearm, 2005–2014

National average rate: 0.16 officers per every one million people

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Ranking	State	Rate per every one million people	Score	-	Ranking	State	Rate per every one million people	Score
1	Alaska	0.568	100		26	North Dakota	0.147	26
2	Louisiana	0.376	66		27	Minnesota	0.132	23
3	Mississippi	0.372	66		28	Tennessee	0.127	22
4	South Dakota	0.369	65		29	Kentucky	0.116	20
5	New Hampshire	0.304	54		30	Ohio	0.113	20
6	Kansas	0.282	50		31	Delaware	0.112	20
7	West Virginia	0.271	48		32	Michigan	0.111	19
8	Arizona	0.268	47		33	California	0.110	19
9	Alabama	0.211	37		34	Illinois	0.110	19
10	Georgia	0.208	37		35	Rhode Island	0.095	17
11	Arkansas	0.207	37		36	New York	0.088	15
12	Montana	0.203	36		37	Maryland	0.087	15
13	New Mexico	0.197	35		38	Oklahoma	0.081	14
14	South Carolina	0.196	35		39	Hawaii	0.074	13
15	Nevada	0.187	33		40	New Jersey	0.068	12
16	Missouri	0.185	33		41	lowa	0.066	12
17	Utah	0.184	32		42	Idaho	0.065	11
18	Pennsylvania	0.182	32		43	Massachusetts	0.061	11
19	Virginia	0.176	31		44	Wisconsin	0.053	9
20	Florida	0.175	31		45	Oregon	0.053	9
21	North Carolina	0.170	30		50	Connecticut	0.000	0
22	Washington	0.165	29		50	Maine	0.000	0
23	Texas	0.160	28		50	Nebraska	0.000	0
24	Colorado	0.160	28		50	Vermont	0.000	0
25	Indiana	0.155	27		50	Wyoming	0.000	0

States in **red** indicate the 10 states with the highest rates. States in **green** indicate the 10 states with the lowest rates.

Source: Center for American Progress analysis of Federal Bureau of Investigation, "Uniform Crime Reports: Law Enforcement Officers Killed & Assaulted," available at https:// www.fbi.gov/about-us/cjis/ucr/leoka (last accessed June 2016). Connecticut, Maine, Nebraska, Vermont, and Wyoming did not present any cases from 2005 to 2014.

Fatal shootings by police

The use of lethal force by police officers has been a top concern in many communities for decades—particularly communities of color that have a deep and complicated history with police—and has been part of a larger conversation about police-community relations in cities across the country.³⁴ This issue gained new national attention after the shooting death of Michael Brown by police in Ferguson, Missouri, in August 2014 and a number of other unarmed black men in the two years since. One of the most troubling revelations in the wake of Brown's death was the lack of reliable, complete, and timely data on how frequently police officers use lethal force in the course of their duties. While the FBI has purported to collect this information as part of the Uniform Crime Reporting program, those data have been notoriously incomplete.³⁵ In 2015, two news organizations, The Guardian and The Washington Post attempted to fill this gap by launching real-time data collection projects that track incidents involving use of lethal force by police officers.³⁶ These efforts have created a much more robust source of data to measure the frequency with which officers use deadly force and the circumstances of those incidents. This has allowed numerous journalists and researchers to study these incidents and has resulted in a new body of research about use of lethal force by police.³⁷

These new data on shootings by police allowed the authors of this report to assess both sides of fatal encounters between police and the community—not just the rates at which officers are shot and killed, which was one of the indicators considered in the 2013 report—but also the frequency of fatal shootings by police. Many of these fatal shootings by police will be deemed justified by the criminal justice system as a lawful use of force; however, they still represent part of the full picture of what gun violence looks like in many communities.

Using data from *The Guardian*, the authors were able to measure fatal shootings by police in every state from January 2015 through July 2016. The table below shows that New Mexico is by far the state with the highest rate of police officers fatally shooting individuals, which is more than three times higher than the national average. On the other hand, Rhode Island, New York, and Connecticut have rates lower than one per every 1 million people.

TABLE 10 Rate of fatal shootings by police, 2015–2016

National average rate: 2.79 per every one million people

Ranking	State	Rate per every one million people	Score	Ranking	State	Rate per every one million people	Score
1	New Mexico	8.87	100	26	Georgia	2.34	20
2	Wyoming	6.85	75	27	Wisconsin	2.26	19
3	Alaska	6.11	66	28	Kansas	2.24	19
4	Oklahoma	6.08	66	29	Arkansas	2.19	18
5	Arizona	5.09	54	30	Delaware	2.15	18
6	Nevada	4.80	50	31	North Carolina	2.07	17
7	Colorado	4.42	46	32	Indiana	2.05	17
8	Louisiana	4.20	43	33	Maryland	2.01	16
9	South Dakota	4.12	42	34	Washington	1.99	16
10	Montana	3.92	40	35	Ohio	1.90	15
11	West Virginia	3.78	38	36	Virginia	1.87	14
12	Alabama	3.61	36	37	Minnesota	1.75	13
13	California	3.56	35	38	Vermont	1.60	11
14	Oregon	3.29	32	39	Illinois	1.55	10
15	Nebraska	3.20	31	40	New Hampshire	1.51	10
16	Missouri	2.97	28	41	North Dakota	1.37	8
17	South Carolina	2.92	27	42	lowa	1.29	7
18	Kentucky	2.84	26	43	New Jersey	1.29	7
19	Texas	2.81	26	44	Massachusetts	1.26	7
20	Idaho	2.77	25	45	Pennsylvania	1.21	6
21	Mississippi	2.67	24	46	Michigan	1.21	6
22	Tennessee	2.61	23	47	Maine	1.13	5
23	Florida	2.56	23	48	Rhode Island	0.95	3
24	Hawaii	2.47	22	49	New York	0.91	3
25	Utah	2.39	21	50	Connecticut	0.69	0

States in **red** indicate the 10 states with the highest rates. States in **green** indicate the 10 states with the lowest rates.

Source: Center for American Progress analysis of The Guardian, "The Counted: People killed by police in the US," available at http://www.theguardian.com/us-news/nginteractive/2015/jun/01/the-counted-police-killings-us-database (last accessed August 2016). For 2016, this report only considers those cases between January and July.

Crime gun export rates

Guns do not respect state boundaries; the patchwork of inconsistent gun laws from state to state has contributed to a dynamic in which crime guns often move from states with weak gun laws to states with stronger gun laws. State and local law enforcement can submit all guns recovered in connection with crime to the U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives, or ATF, to determine the first point of sale and the first legal purchaser of that gun. ATF then aggregates information about crime guns recovered in each state in annual trace data reports, which allows for an analysis of the movement of crime guns from state to state.

From 2010 to 2015 nearly 30 percent of all crime guns submitted for tracing crossed state lines before being used in connection with a crime.³⁸ Previous research has demonstrated that states are not equal opportunity exports of crime guns: A 2010 study by Mayors Against Illegal Guns found that just 10 states were responsible for selling nearly half of the crime guns that had crossed state lines.³⁹

According to ATF data, from 2010 to 2015, West Virginia and Mississippi had rates of crime guns exported to other states that were more than twice the national average. New York, Hawaii, and New Jersey had the lowest rate of crime gun exports with rates lower than three crime guns per every 100,000 people.

TABLE 11 Crime gun export rates, 2010–2015

National average rate: 19.8 per every 100,000 people

Ranking	State	Rate per every 100,000 people	Score	Ranking	State	Rate per every 100,000 people	Score
1	West Virginia	52.1	100	26	Oregon	18.6	32
2	Mississippi	49.6	95	27	South Dakota	16.7	29
3	Alaska	39.0	74	28	North Dakota	16.6	28
4	Nevada	37.0	69	29	Ohio	15.7	27
5	South Carolina	36.1	68	30	Utah	15.3	26
6	Wyoming	34.2	64	31	Pennsylvania	14.9	25
7	Alabama	33.3	62	32	Colorado	14.1	23
8	Kentucky	33.1	62	33	Missouri	14.0	23
9	Virginia	31.6	59	34	Washington	13.2	21
10	Indiana	31.5	58	35	Florida	13.1	21
11	Arizona	30.3	56	36	Nebraska	11.8	19
12	Georgia	30.1	56	37	lowa	11.7	19
13	Montana	29.7	55	38	Wisconsin	11.0	17
14	Arkansas	26.6	49	39	Maryland	10.9	17
15	Idaho	25.0	45	40	Texas	10.2	15
16	New Hampshire	23.7	43	41	Michigan	7.6	10
17	Louisiana	23.5	42	42	Illinois	6.8	9
18	Delaware	23.1	41	43	Connecticut	6.8	9
19	New Mexico	22.4	40	44	Minnesota	6.4	8
20	Vermont	21.6	39	45	Rhode Island	4.9	5
21	Oklahoma	20.9	37	46	California	4.5	4
22	North Carolina	20.7	37	47	Massachusetts	3.6	2
23	Kansas	20.3	36	48	New York	2.9	1
24	Tennessee	19.7	35	49	Hawaii	2.8	1
25	Maine	19.1	33	50	New Jersey	2.5	0

States in **red** indicate the 10 states with the highest rates. States in **green** indicate the 10 states with the lowest rates.

Source: Center for American Progress analysis of Bureau of Alcohol, Tobacco, Firearms and Explosives, Firearms Trace Data (2010–2015), available at https://www.atf.gov/resource-center/data-statistics.

The link between high levels of gun violence and weak state gun laws

As discussed above, there are numerous factors that influence rates of gun violence in any community and that could account for variations in the frequency of different types of gun deaths from state to state. In this report, CAP seeks to zero-in on one such factor and assess whether there is a relationship between the strength of a state's gun laws and the levels of gun violence in the state. In doing so, this report does not discount the importance of those other factors, but rather seeks to address one of the key questions in the national gun debate: whether gun laws have an impact on reducing gun violence. In addition, the level of gun violence may vary widely within a state and increased rates in some cities may drive up the statewide rates. In this report, the authors only consider statewide rates of gun violence and the relationship to statewide gun laws.

To conduct this analysis, the authors used the "2015 Gun Law State Scorecard" prepared by the Law Center to Prevent Gun Violence, or Law Center, which ranks each state according to its gun laws and assigns each state a corresponding grade. In the "Scorecard," states received points for having enacted strong gun laws designed to help keep communities safe by keeping guns out of the wrong hands, such as laws requiring universal background checks; prohibiting domestic abusers from possessing guns; limiting bulk gun purchases; and banning assault weapons and high-capacity magazines. States lost points for having enacted laws that jeopardize public safety, such as eliminating the permit requirement for carrying concealed guns; expansive self-defense laws; and allowing guns in sensitive locations, such as schools and bars.⁴⁰

The 10 states rated as having the weakest gun laws in 2015 are as follows:

- Kansas
- Mississippi
- Wyoming
- Arizona
- Alaska
- Idaho
- Louisiana
- Kentucky
- Vermont
- Missouri

The 10 states rated as having the strongest gun laws in 2015 are as follows:

- California
- Connecticut
- New Jersey
- Maryland
- Massachusetts
- New York
- Hawaii
- Illinois
- Rhode Island
- Delaware

Weak gun laws, bad results

Comparing the Gun Violence Index score for each state with the Law Center's scorecard, the authors found that there is a significant correlation between the strength of a state's gun laws and the levels of gun violence in the state: The 10 states with the weakest gun laws collectively have an aggregate level of gun violence that is 3.2 times higher than the average of the 10 states with the strongest gun laws.⁴¹



Additionally, in each individual category of gun violence analyzed, the 10 states with the weakest gun laws have collectively higher levels of gun violence than the 10 states with the strongest gun laws and collectively present higher rates in comparison to national average rates. These disparities are particularly clear on fatal gun-related accidents, gun suicides, rates of crime guns exported to other states, rates of law enforcement officers feloniously killed with a gun and overall gun deaths. On the other hand, the 10 states with the strongest gun laws present average rates that are lower than the national average rates across all 10 indicators.



web/ncip/dataPestriction_injhtml (last accessed June 2016); *LBX Today*, "Behind the Bloodshed," available at http://www.gannett-cdn.com/GDCOntent/mass-killings/index.html#title (last accessed June 2016); *LBX Today*, "Behind the Bloodshed," available at http://www.gannett-cdn.com/GDCOntent/mass-killings/index.html#title (last accessed June 2016); *LBX Today*, "Behind the Bloodshed," available at http://www.gannett-cdn.com/GDCOntent/mass-killings/index.html#title (last accessed June 2016); *LBX Today*, "Behind the Bloodshed," available at http://www.gannett-cdn.com/GDCOntent/mass-killings/index.html#title (last accessed June 2016); *LBX Today*, "Behind the Bloodshed," available at http://www.gannett-cdn.com/GDCOntent/mass-killings/index.html#title (last accessed June 2016); *LBX Coday*, "Behind the Bloodshed," available at http://www.gannett-cdn.com/GDCOntent/mass-killings/index.html#title (last accessed June 2016); *LBX Coday*, "Behind the Bloodshed," available at http://www.ganiable at http://www.theguardian.com/us-news/ng-interactive/2015/Jun/01/the-counted-police-killings-us-database (last accessed June 2016); *Bureau* of Alcohol, Tobacco, Firearms Trace Data (2012–2015), available at http://www.stf.gov/resource-center/data-statistics (last accessed July 2016); Law Center to Prevent Gun Violence, "2015 Gun Law State Scorecard" (2015), available at http://gunlawscorecat.org/.

Of the 10 states with the weakest gun laws, nine are among the top-25 states with the highest levels of gun violence in the country. In contrast, of the 10 states with the strongest gun laws, all are among the 25 states with the lowest levels of gun violence in the country, including the six states with the overall lowest levels of gun violence in our index.

TABLE 12 Gun Violence Index ranking

States with the weakest and strongest gun laws

Ranking	State	Gun Violence Index	_	Ranking	State	Gun Violence Index
1	Louisiana	75		26	Colorado	33
2	Alaska	66		27	Florida	33
3	Mississippi	61		28	Pennsylvania	32
4	West Virginia	60		29	Delaware	30
5	Alabama	59		30	Oregon	29
6	South Carolina	57		31	Vermont	29
7	Wyoming	56		32	Utah	29
8	Arizona	53		33	Michigan	28
9	Montana	51		34	Maryland	28
10	Oklahoma	51		35	Ohio	28
11	Nevada	50		36	Maine	27
12	New Mexico	50		37	Washington	26
13	Tennessee	49		38	California	26
14	Arkansas	47		39	Nebraska	26
15	Missouri	47		40	Illinois	23
16	Kentucky	46		41	Wisconsin	23
17	Georgia	44		42	New Hampshire	21
18	Kansas	40		43	Minnesota	17
19	South Dakota	39		44	lowa	16
20	Indiana	38		45	Connecticut	12
21	North Carolina	38		46	New Jersey	12
22	Idaho	36		47	New York	11
23	Virginia	36		48	Rhode Island	9
24	North Dakota	35		49	Hawaii	6
25	Texas	34		50	Massachusetts	6

States in **red** indicate the 10 states with the weakest gun laws. States in **green** indicate the 10 states with the strongest gun laws.

Source: For full source information, please see the Methodology section of Chelsea Parsons and Eugenio Weigend, "America Under Fire: An Analysis of Gun Violence in the United States and the Link to Weak Gun Laws" (Washington: Center for American Progress, 2016).

Finally, by plotting the Gun Violence Index score for each state and the strength each state's gun laws, the authors find a clear correlation between these two variables. With a correlation coefficient of 0.71, this link is statistically significant and visually apparent as shown on Figure 2. This means that states with stronger gun laws tend to have lower levels of gun violence and, vice versa, states with weaker gun laws tend to have higher levels of gun violence.⁴²



Source: For full source information, please see the Methodology section of Chelsea Parsons and Eugenio Weigend, America Under Fire: An Analysis of Gun Violence in the United States and the Link to Weak Gun Laws" (Washington: Center for American Progress, 2016); Center for American Progress analysis of information from Law Center to Prevent Gun Violence, "2015 Gun Law State Scorecard" (2015), available at http://gunlawscorecard.org/; Personal communication from Garrett McDonough, communications director, Law Center to Prevent Gun Violence, December 21, 2015.

Conclusion

The United States of America is not the only country on Earth with violent or dangerous people. We are not inherently more prone to violence. But we are the only advanced country on Earth that sees this kind of mass violence erupt with this kind of frequency. It doesn't happen in other advanced countries. It's not even close. And as I've said before, somehow we've become numb to it and we start thinking that this is normal.

—President Barack Obama, January 5, 2016⁴³

Gun violence is a uniquely American problem, and the intensely polarized politics surrounding it can make it seem like an intractable one. But looking across the vastly different experiences of the states reveals that high rates of gun deaths are not inevitable and that there are policy options available to begin to stem the tide of gun violence in many communities. While there are many factors that contribute to high rates of gun deaths and gun laws alone are not a panacea, CAP's research in this report and the finding of a strong correlation between strong gun laws and fewer gun deaths in the states sends a powerful message to lawmakers to take a serious look at a number of smart laws that can have an impact on reducing gun violence. Some of those policies include:

- Closing the private-sale loophole and requiring background checks for all gun sales
- Banning or more strictly regulating the sale and possession of assault weapons and high-capacity magazines
- Prohibiting domestic abusers and stalkers from gun possession
- Investing in community-based programs designed to address underlying root causes of violence in impacted communities

- Strengthening the federal law to penalize gun traffickers who flood vulnerable communities with illegal guns
- Increasing oversight of the gun industry
- Requiring a permit to carry concealed, loaded guns in the community
- Banning gun possession at certain sensitive locations, such as bars, houses of worship, and schools

Methodology

Selecting the 10 measures

There are many different ways to measure gun violence and gun crime on the state level. For this report the authors looked at 22 total possible indicators and ultimately chose 10. One of the reasons these measures were selected was the fact that these indicators came from reliable sources such as the National Center for Injury Prevention at the Centers for Disease Control and Prevention, the Federal Bureau of Investigation, the Bureau of Alcohol, Tobacco, Firearms and Explosives, and several news outlets. The authors also selected these indicators because data were available in each category for at least 45 states, allowing the authors to access data for at least 90 percent of the states in each category. There were also some types of gun violence that the authors were unable to measure in a sufficient number of states and therefore chose not to include. In addition, the authors could not include nonfatal gun injuries because the CDC does not provide this information broken down by state.

The authors selected five indicators of gun violence that affect the overall population: overall gun deaths, gun suicides, gun homicides, accidental gun deaths and mass shootings, defined as incidents in which four or more people were killed in a single incident. They chose four categories of gun violence because of their particular impact on vulnerable groups: rates of intimate partner gun homicides against women, rates of gun deaths for people younger than age 21, rates of police officers feloniously killed with a gun and rates of fatal shootings by police officers. Finally, the authors include a measurement of illegal movement of guns across states: the rate of crime guns exported to other states from 2010-2015.

Calculating the Gun Violence Index

Rates of overall gun deaths, gun suicides, gun homicides, fatal gun accidents and gun deaths for people younger than age 21 were obtained directly from the CDC. While age-adjusted rates do not apply for the latter indicator, the authors used age-adjusted rates for the first four indicators to allow for a fairer comparison between states with different age distributions.

Information regarding intimate partner gun homicides of women was obtained from the FBI *Supplementary Homicide Report*, using cases with one victim and one aggressor. Information on mass shootings was obtained from *USA TODAY*, which maintains a real-time database of these incidents beginning in 2006 that has been used by other researchers.⁴⁴ Data on police feloniously killed with a firearm were obtained from the FBI *Law Enforcement Officers Killed and Assaulted* reports. Finally, data on fatal shootings by police were obtained from *The Guardian*, which since 2015 has maintained a real-time database of these incidents. While *The Washington Post* also monitors and collects real time information regarding these incidents, the authors relied on *The Guardian's* project because it presented broader information.⁴⁵ Data on crime-gun exports was drawn from the ATF annual trace data reports.

With respect to calculating rates, the authors obtained the rate directly from the CDC for the following categories: overall gun deaths, gun suicides, gun homicides, fatal gun accidents, and gun deaths among people younger than age 21. For the remaining categories, the authors calculated the rates using population data available from the CDC through 2014, which is consistent with population data available from the U.S. Census Bureau. Because the CDC does not provide population data for 2015 or 2016, for those categories that include data from those years, the authors used the population data available from previous years. In order to obtain the rate of mass shootings from 2006 to 2015, the authors used the population from 2005 to 2014. Similarly, to obtain the rate of fatal shootings by police from 2015 to 2016, the authors used the 2013 and 2014 population. Finally, for the rate of crime guns from 2010 to 2015, the authors used the 2014 population from the CDC as an approximation of the 2015 population. The authors are confident that year-to-year variations in population do not significantly change rates based on constant raw numbers.

The authors recognized that the rates of police officers feloniously killed with a firearm and mass shootings are based on a small number of cases. However, given the impact that these forms of gun violence have on the community, the authors decided to include them as key indicators of gun violence.

To create the Gun Violence Index, the authors ranked each state according to their rate of each indicator of gun violence. The state with the lowest level of gun violence per indicator was given a zero and the state with the highest level was given a 100. All remaining states that fall in between were given numbers between 0 and 100 in proportion to their placement within the range. The result for each state in each category was then averaged to obtain one aggregate Gun Violence Index number for each state.

For those states that did not present data for a particular indicator, the authors calculated the overall Gun Violence Index score by averaging the other nine indicators without considering that particular category. For example, data were not available on the rate of intimate partner gun homicides of women in Florida or for the rate of accidental gun deaths in Delaware, Hawaii, Maine, Rhode Island, and Vermont. Therefore, the authors did not consider these particular indicators when calculating the final Gun Violence Index number for these states. Moreover, if a source indicated that a state presented zero cases on a particular indicator, the state was scored with a zero, indicating the lowest level of gun violence. For example, according to the FBI data, there were no reported cases of police officers feloniously killed with a gun in Wyoming, Vermont, Nebraska, Maine, and Connecticut. Therefore, these states were scored with a zero.

This ranking presents a relative comparison among states. This report does not suggest that states with lower scores on the Gun Violence Index cannot improve their gun violence outcomes.

The majority of the indicators in this report are presented per every 100,000 people. However, indicators such as mass shootings, police officers feloniously killed with a gun, fatal shootings by police, and accidental gun deaths involved relatively low raw numbers and were instead presented per every 1 million people. The rate of intimate partner gun homicides against women was presented per every 1 million women. Additionally, the rate of gun deaths for people younger than age 21 was estimated per every 100,000 people younger than age 21.

National rates or averages were obtained directly from the CDC for gun deaths, gun suicides, gun homicides, fatal gun accidents, and gun deaths for people younger than age 21. However, as other sources did not provide national rates for the remaining categories, these were obtained by averaging the rates of the 50 states.

If states presented the same rate in a particular indicator, they were ranked equally. This is why some states present the same ranking number. Some differences in rates may not be illustrated due to decimal rounding.

Finally, it is important to note that some of the indicators may be underreported. For example, crime gun trace data obtained from the ATF does not account for all crime guns. This is because not all crime guns are recovered and not all those that are recovered are later traced. Information on intimate partner gun homicides against women is obtained from the FBI *Supplementary Homicide Report*, however, many states report partial information into this dataset. Despite this limitation, this indicator is the best source for intimate partner gun homicides against women for a state-level analysis. Data on fatal gun accidents, categorized by the CDC as "unintentional" gun deaths, suffer from inconsistent coding across states, making it difficult to compare states on this measure.

Measuring the strength of state gun laws

To assess the strength of each state's laws, this report relies on the 2015 annual "Gun Law State Scorecard" prepared by the Law Center to Prevent Gun Violence.⁴⁶ This organization considers 34 different categories of state laws and awards points to states for enacting strong policies, such as requiring background checks for all gun sales, prohibiting individuals who pose an increased risk to public safety from buying or possessing guns, and regulating gun dealers. It also deducts points for laws that weaken public safety, such as allowing concealed carry of guns without a permit, expansive self-defense laws that eliminate any duty to retreat, and allowing guns to be carried in sensitive locations, including schools, bars, and houses of worship.⁴⁷ The scores range from zero being the weakest gun laws to 100 being the strongest gun laws.⁴⁸ However, for the purpose of presenting a positive association, this report will use the inverse of these scores.⁴⁹ Consequently, gun law scores used in this report will range from zero, indicating the strongest gun laws.

The Law Center to Prevent Gun Violence also provides a state ranking, as well as an alphabetical grading system ranging from F to A+ that can be transformed into a grade point average, or GPA. For this analysis, the authors chose to rely on the inverse of the number of points awarded to a state, rather than the grade, because doing so yields a more precise measure of the strength of a state's gun laws and allows one to observe variations in a state's score that are not apparent from its letter grade. For example, 26 states were awarded an F, yet the points awarded to these states ranged from 2 to 17.⁵⁰

In conducting the analysis in this report, the authors did not include the District of Columbia, primarily because the Law Center to Prevent Gun Violence does not provide a score for the strength of gun laws in the District of Columbia. Additionally many state-level reports exclude the District of Columbia because it is more comparable to metropolitan areas or cities than to states.⁵¹

Correlation analysis

A correlation coefficient presents a measurement of the strength of the linear relationship between two variables. It also measures the direction of this relation. If it is a positive association, both variables would tend to decrease or increase at the same time. However, a negative association means that while one variable increases, the other variable tends to decrease, or that while one variable decreases, the other tends to increase. Correlation coefficients are always presented with values between -1 and 1. In this regard, correlation does not prove causation and this report does not conclude that gun violence is solely explained by weak gun laws. Nonetheless, a strong association, measured by the correlation coefficient, does suggest a potential causal relationship.

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