

CHALLENGING THE INEVITABILITY OF SUICIDE:

THE EFFECT OF GUN REGULATION ON OVERALL SUICIDE RATES AND PORTFOLIO OF PREVENTATIVE MEASURES

Key Points

Question: Do measures that reduce firearm suicide rates increase suicide rates by other methods?

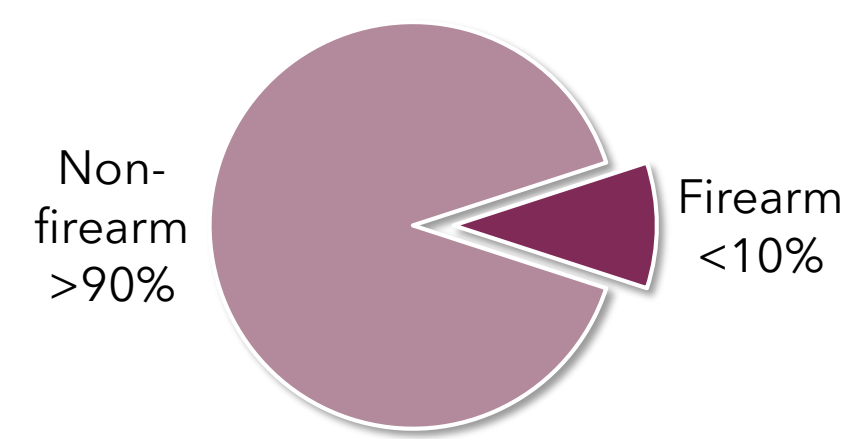
Findings: In a state-wide assessment of the relationship between the number of gun laws and suicides rates by firearms, non-firearm methods, and all methods, we found the following results:

- ❖ There is a strong negative correlation between number of gun laws and firearm suicides;
- ❖ There is no correlation between number of gun laws and suicides by non-firearm methods;
- ❖ There is a strong negative correlation between number of gun laws and suicides by all methods.

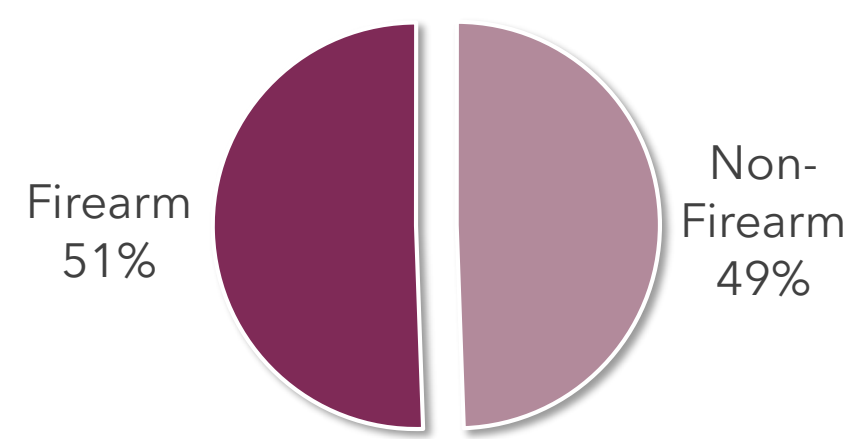
Meaning: Measures that reduce suicides by one method (firearms) do not exacerbate suicides by other means, thus reducing overall suicide rates. This opens the door to a host of *preventative measures* against firearm-suicides that might one day contribute towards suicide prevention.

Burden of Firearm Suicides

Est. Suicide Attempts



Suicide Fatalities

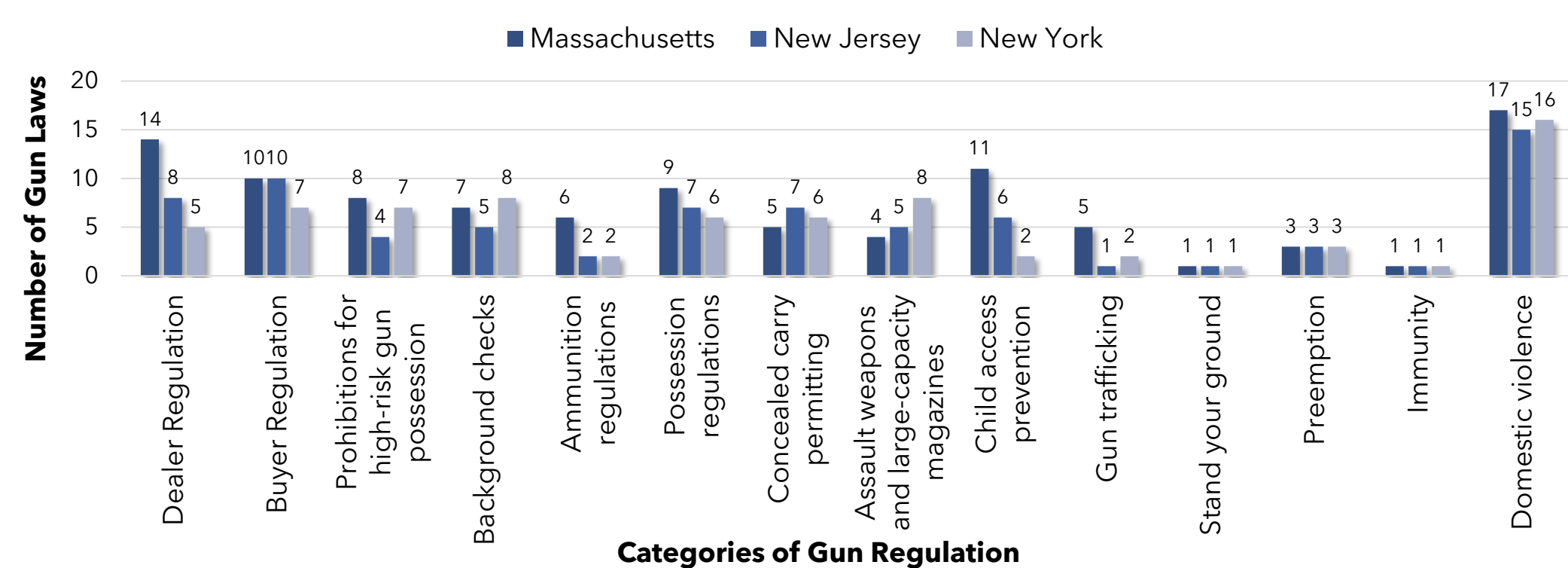
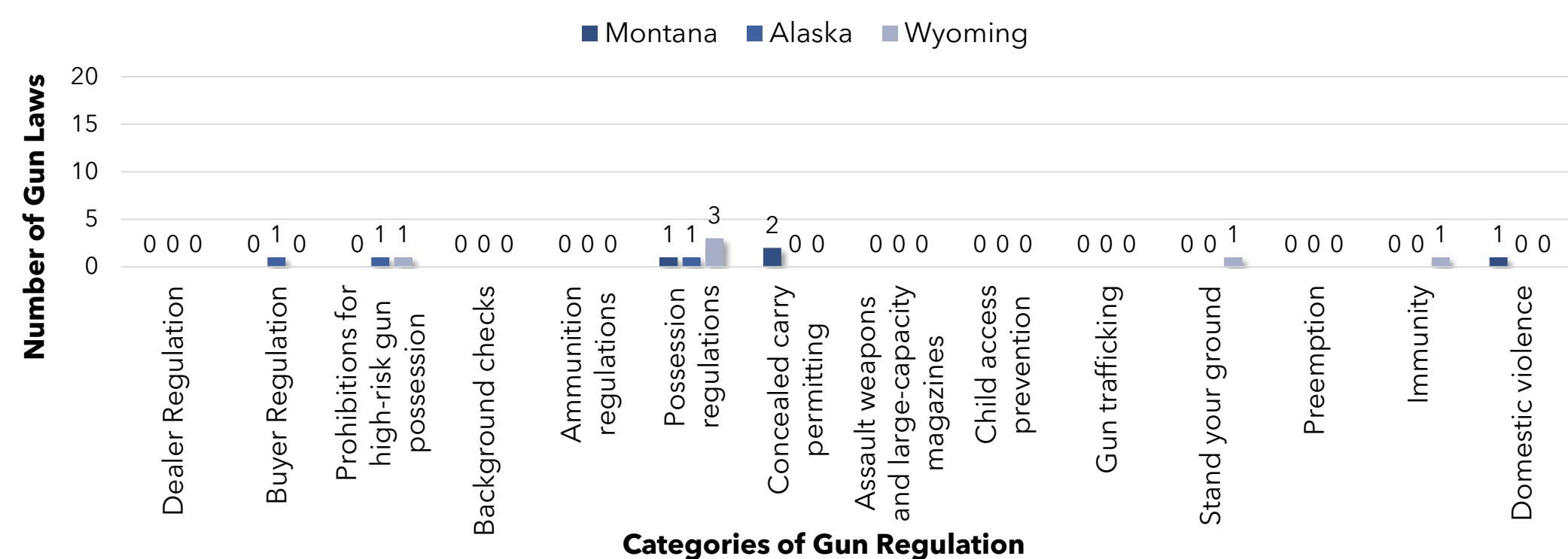


Est. number of suicide attempts in 2017 = 1.4m

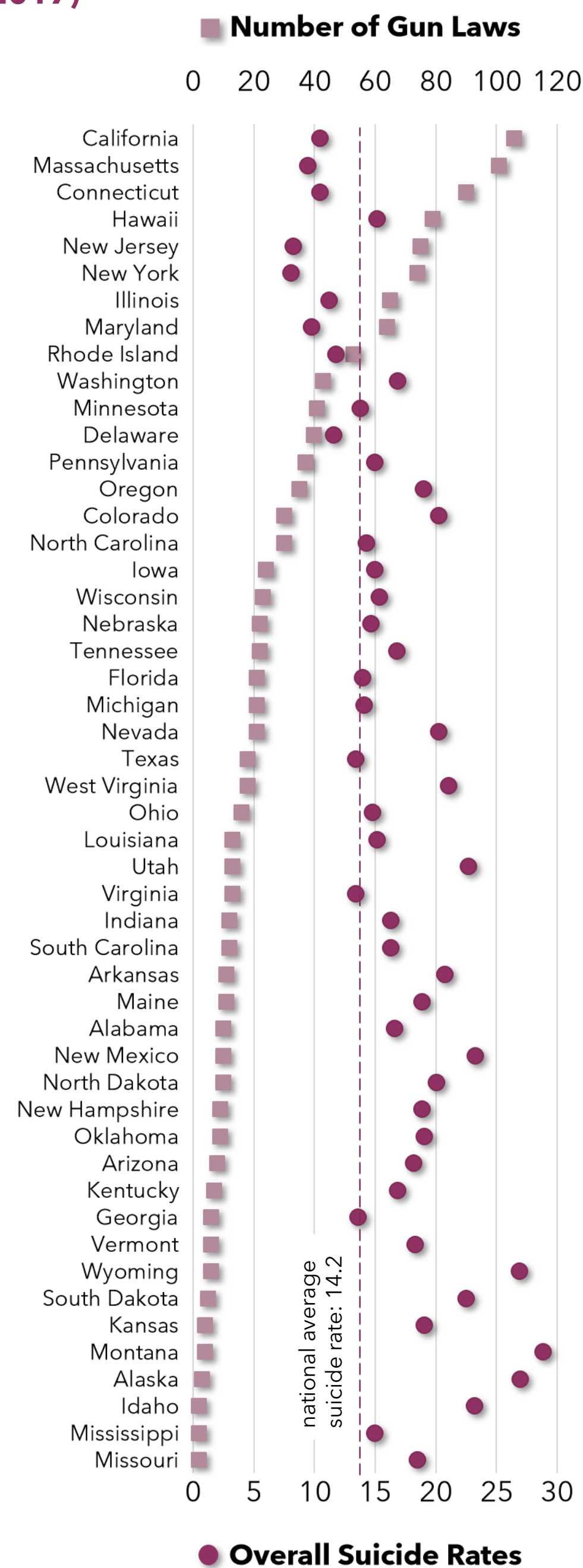
Number of suicides in 2017 = 47,173

- ❖ The vast majority of suicide attempts are committed using non-firearm methods (e.g., suffocation, poisoning, cutting etc.); **only about 10% of attempters use a gun.** However, firearm-suicides account for over half of all suicide fatalities—nearly than 24,000 in 2017.

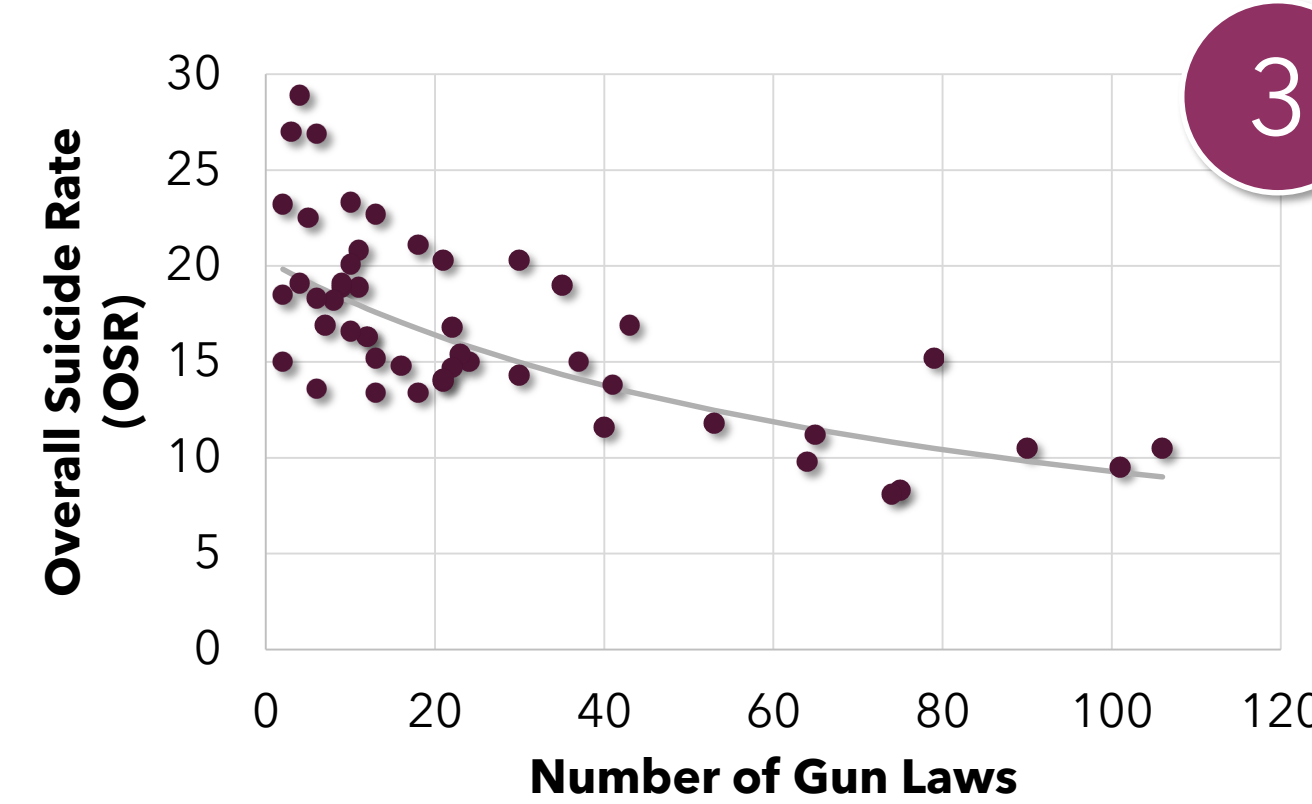
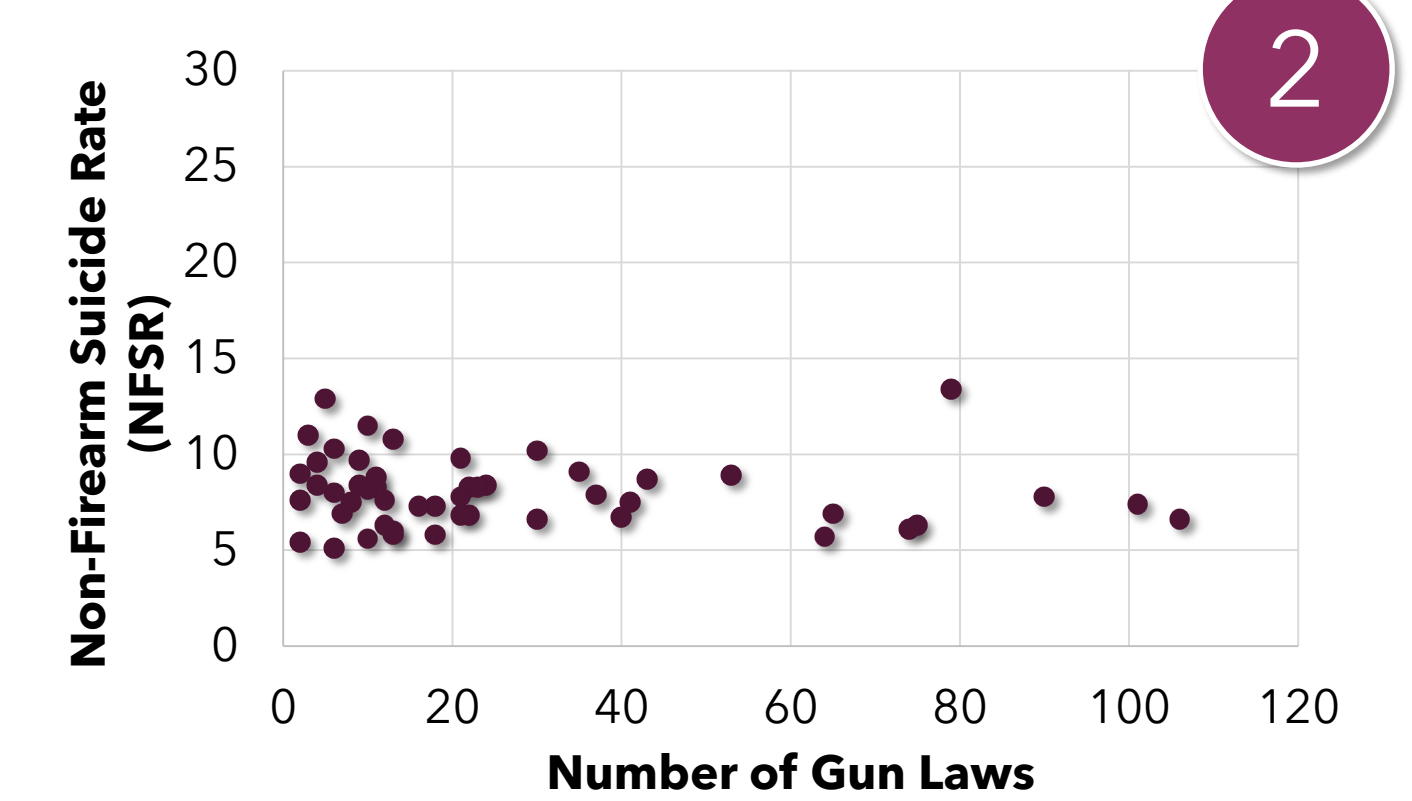
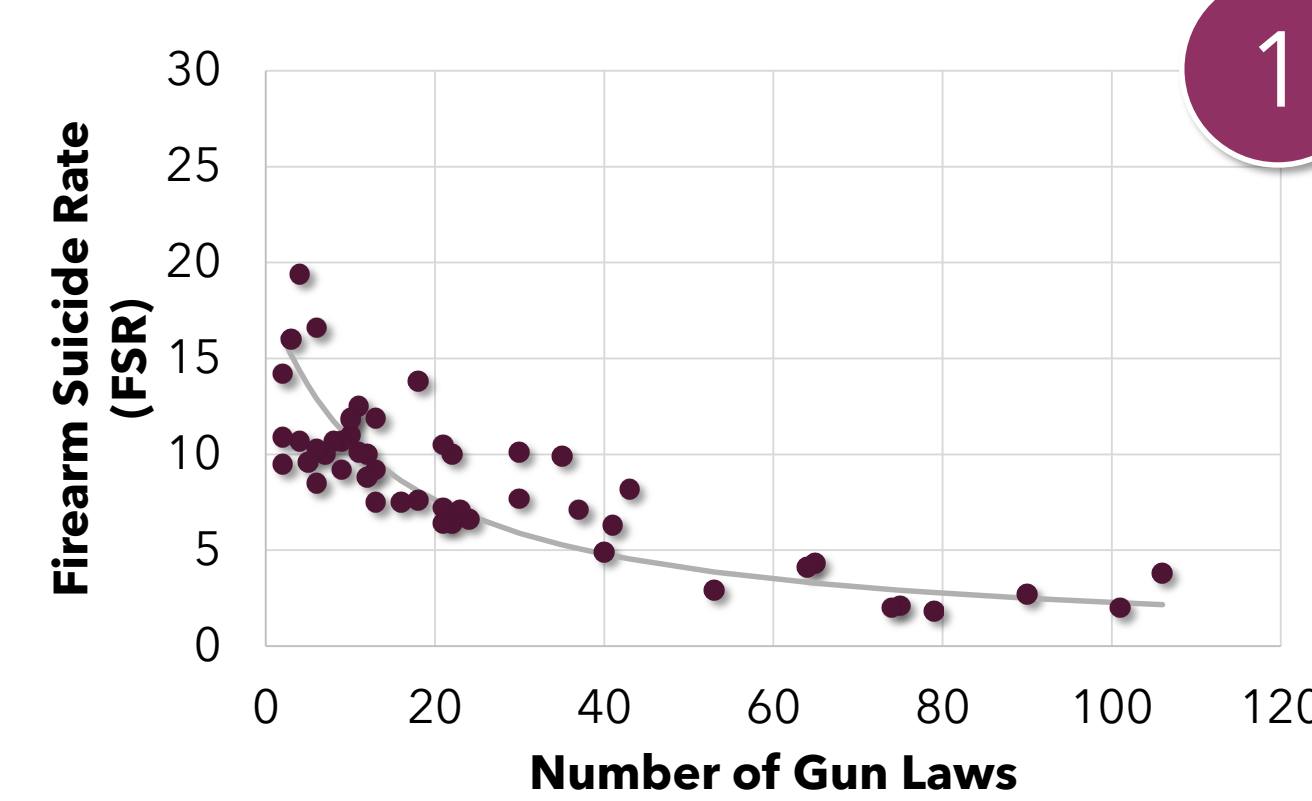
Gun Law Distribution for Top 3 States with Highest and Lowest Suicide Rates



Gun Laws and Suicides Rates Across the US (2017)



Regression Analyses of Suicide Rates (by Method) and Number of Gun Laws (NGL)



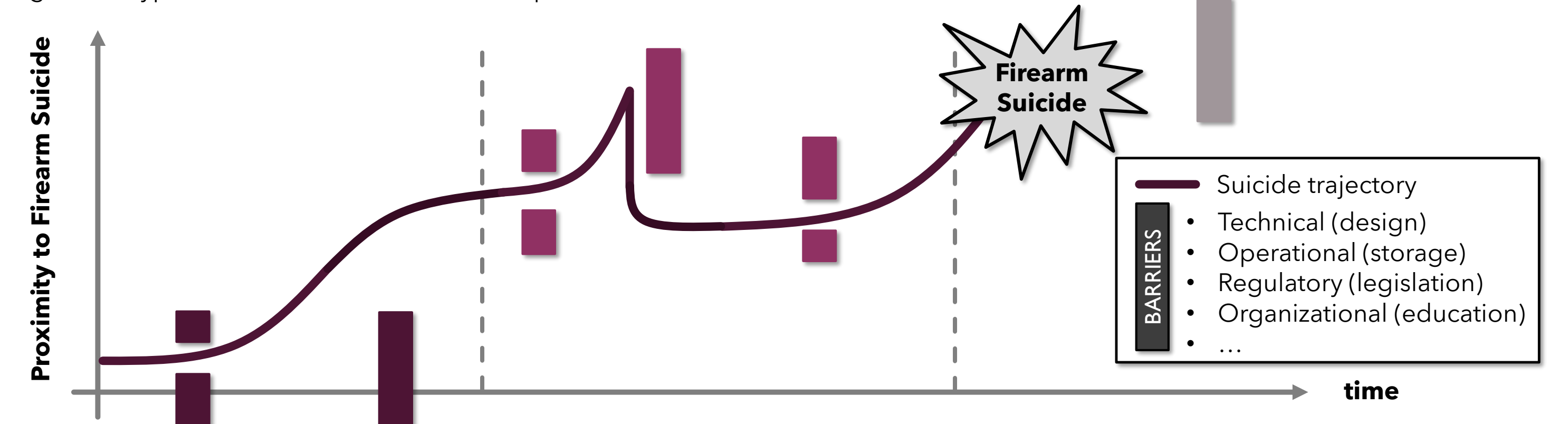
Key Statistical Results:

- 1) Over 74% of the variability in firearm-suicide rates across the United States is explained by the number of gun laws alone.
- 2) There is no statistically meaningful association between the number of gun laws and suicides by non-firearms.
- 3) Over 62% of the variability in suicide rates by any method across the US is explained by the number of gun laws alone.

Model	$\hat{\beta}_1$	$\hat{\beta}_0$	F(1,48)	Prob > F	R ²
$FSR = \frac{1}{\hat{\beta}_0 + \hat{\beta}_1(NGL)}$	0.0038	0.0543	139.04	0.0000	0.7434
$NFSR = \hat{\beta}_0 + \hat{\beta}_1(NGL)$	-0.0078	8.2347	0.65	0.4230	0.0134
$OSR = \frac{1}{\hat{\beta}_0 + \hat{\beta}_1(NGL)}$	0.0006	0.0493	79.99	0.0000	0.6250

Defense-in-Depth Against Firearm Suicide and Portfolio of Preventative Measures

- ❖ Defense-in-depth is marked by multiple lines of defense or safety barriers placed along the suicide sequence. The safety barriers should be diverse in nature and should not stand alone (hence the “depth” qualifier). The figure below illustrates the defense-in-depth principle against a hypothetical individual’s suicide sequence.



- ❖ The various safety barriers have different objectives and perform different functions—namely (i) preventing the suicide sequence from initiating, (ii) blocking further escalation of suicide sequence, and (iii) mitigating the consequences. We aggregate these solutions into a portfolio of preventative measures, included in the accompanying paper.

Prevention functions

Prevent the suicide sequence from initiating

- Mental health screening
- Prohibitions for high-risk gun possession
- Emotional-/self-awareness
- ...

Blocking functions

Block escalation of suicide sequence

- Secure gun storage
- Authorized user identification
- Suicide support lifelines
- ...

Mitigation functions

Mitigate the consequences of suicide

- Reducing the lethality of the firearm
- Support for victim’s friends and family
- ...