No. 20-843

IN THE

Supreme Court of the United States

NEW YORK STATE RIFLE &
PISTOL ASSOCIATION, INC., et al.,

Petitioners,

v.

KEVIN P. BRUEN, IN HIS OFFICIAL
CAPACITY AS SUPERINTENDENT OF
NEW YORK STATE POLICE, et al.,

Respondents.

On Writ Of Certiorari To The United States Court Of Appeals For The Second Circuit

BRIEF OF *AMICI CURIAE* WILLIAM ENGLISH, PH.D. AND THE CENTER FOR HUMAN LIBERTY IN SUPPORT OF PETITIONERS

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INTEREST OF THE *AMICI CURIAE*[1]

William English, Ph.D. ("English") is a political economist and Assistant Professor of Strategy, Economics, Ethics, and Public Policy at the McDonough School of Business, Georgetown University, where he has taught since 2016. In 2021, English conducted the largest-ever nationally representative survey of firearms owners in order to estimate reliably the frequency of firearm carriage and use for self-defense. William English, *2021 National Firearms Survey* (July 14, 2021), *available at* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3887145 (the "English Survey"). English also recently authored the first statistical study utilizing estimates of state carry permits issued each year in order to accurately assess the effects of shall-issue laws—also known as right-to-carry laws—on violent crime and murder rates. William English, *The Right to Carry Has Not Increased Crime: Improving an Old Debate Through Better Data on Permit Growth Over Time* (July 14, 2021), *available at* https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3887151 (the "English Study"). As a scholar committed to data-driven firearms policy research, English has an interest in ensuring the Court's accurate understanding of social science evidence.

The Center for Human Liberty is a non-profit organization dedicated to defending and advancing individual liberty and freedom, including the

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[1] All parties received timely notice and consented to the filing of this brief. No counsel for any party authored the brief in whole or in part. Only *amici curiae* funded its preparation and submission.

rights and liberties protected by the Constitution. Consistent with this purpose, The Center for Human Liberty promotes the publication of unbiased social science research relating to rights and society, and thus shares English's interest in ensuring that the Court is presented with the most objective and accurate social science evidence and analysis available.

SUMMARY OF ARGUMENT

Based on a comprehensive online survey of 16,708 adult firearms owners—an unprecedented sample size in the area of scholarly firearms policy research—amicus English recently and reliably concluded that lawful carriage of firearms for self-defense and defensive gun use are statistically common phenomena. English Survey at 1-3. In fact, a majority of the over 80 million adult firearms owners in the United States carry a handgun for self-defense under at least some circumstances. More than a quarter of those owners carry handguns for self-defense under right-to-carry laws. And there are, conservatively, an average of 1.67 million defensive gun use incidents per year—an average of over 4,500 every single day—most of which do not occur inside the home. English Survey at 1, 7, 8, 9, 10, 14, 15.

Moreover, right-to-carry laws and associated growth in carry permits have no statistically significant effect on murder rates, firearm murder rates, non-firearm murder rates, or overall violent crime rates.[2] English Study at 2, 4, 10, 11, 16, 31, 34, 36.

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[2] The FBI defines the violent crime category as composed of four offenses: murder and nonnegligent manslaughter, rape, robbery,

Right-to-carry ("RTC") laws, which have been enacted by a majority of states over the past 30 years, entitle adults without a disqualifying criminal record to obtain a permit to, or otherwise lawfully carry, loaded, operable firearms in public. English Study at 2, 25; Gary Kleck, *The Effect of Right-to-Carry Laws on Crime Rates: A Critique of the Research of Donohue et al.*, 3 (Mar. 23, 2021), *available at* https://ssrn.com/abstract=3810840.

The overwhelming weight of statistical analysis of the effects of RTC laws on violent crime concludes that RTC laws do not result in any statistically significant increase in violent crimes rates. Indeed, last year, the RAND Corporation ("RAND"),a nonprofit, nonpartisan research organization committed to the public interest, published an extensive survey of firearms research. RAND, *The Science of Gun Policy: A Critical Synthesis of Research Evidence on the Effects of Gun Policies in the United States*, ii (2d ed. 2020). Having examined the major studies on the topic of concealed carry laws that met rigorous "guidelines for conducting systematic reviews of scientific literature," RAND found that "the best available studies provide *inconclusive evidence for the effect of shall-issue laws on total homicide*." *Id*. at xv, 19, 300 (emphasis in original). RAND reached identical conclusions as to the effect of shall-issue laws on firearm homicides, robberies, assaults, rapes, and mass shootings. *Id*. at 301-302, 307. Before RAND's review, the National Research Council conducted an exhaustive

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and aggravated assault. FBI, *2019 Crime in the United States*, (Sep. 28, 2020), *available at* https://ucr.fbi.gov/crime-in-the-u.s/2019/crime-in-the-u.s.-2019/topic-pages/violent-crime.

survey of the scientific literature on firearms regulations and concluded "that with the current evidence, it is not possible to determine that there is a causal link between the passage of right-to-carry laws and crime rates." National Research Council, *Firearms and Violence: A Critical Review*, The National Academies Press, 150 (2005). Similarly, in 2003, the Centers for Disease Control and Prevention ("CDC")—having assembled a Task Force to conduct "a systematic review of scientific evidence regarding the effectiveness of firearms laws in preventing violence . . ."—concluded that "evidence was insufficient to determine the effect of shall issue laws on violent outcomes." Centers for Disease Control and Prevention, *First Reports Evaluating the Effectiveness of Strategies for Preventing Violence: Firearms Laws,* 52 Morbidity & Mortality Weekly Report, 11, 17 (Oct. 3, 2003), *available at* https://www.cdc.gov/mmwr/PDF/rr/rr5214.pdf.

This consensus conclusion was recently affirmed by English, who was the first researcher to use decades of voluminous state-level data on the *growth of carry permits over time*—the most direct measure of the actual behavior that RTC laws produce—to investigate the relationship between RTC laws and violent crime rates. English examined the real-world changes in behavior over time rather than utilizing simple "before-after" modeling of a one-time change to the law. English Study at 2-4, 7-9.

While English's Study is consistent with other credible previous studies that analyzed the effects of RTC laws on violent crime rates, there are several outlier studies that reach different conclusions based

on unsound methodological approaches. These outlier studies are almost all co-authored by Law Professor John J. Donohue III ("Donohue"), whose research is perhaps most often cited by critics of RTC laws. In 2019, Donohue co-authored a study devoid of data on the growth of carry permits over time. Abhay Aneja, John J. Donohue III & Kyle D. Weber ("Donohue et al."), *Right-to-Carry Laws and Violent Crime: A Comprehensive Assessment Using Panel Data and a State-Level Synthetic Control Analysis*, 16 J. Empirical Legal Studies 198, 202 (2019) (the "Donohue Study"). The Donohue Study, which opined that RTC laws "increase overall violent crime" and that defensive gun use "is a statistically rare phenomenon," despite significant evidence to the contrary, suffers from multiple methodological problems that undermine its credibility. Donohue Study at 198, 202, 217. Donohue's "belief in a crime-increasing effect of RTC laws remains the view of a tiny minority of scholars who have researched this topic." Gary Kleck, *The Effect of Right-to-Carry Laws on Crime Rates: A Critique of the Research of Donohue et al.* at 15.

There are five bases for the superior reliability of English's conclusions.

First, whereas English established that defensive gun use is statistically common by conducting a nationally representative survey of unprecedented scope, Donohue et al. offered scant support for their contrary claim. English Survey at 1-4; Donohue Study at 202.

Second, although both English and Donohue et al. used "panel models" (analysis using multiple

variables measured over time across all states), only the English Study incorporated the most important variable—the number of carry permits issued by RTC states. English Study at 2-4, 7-9.

Third, the Donohue Study uses "analytic weights"—*i.e.*, it assigns greater weight to data and patterns from more populous states (including violent crime rates), wrongly inflating the impact of those states in a manner that is statistically indefensible. Donohue Study at 216 n. 37; English Study at 9-12, 14-16. State-by-state violent crime rate data, and data for other relevant variables, are already denominated on a per capita basis rather than as a series of raw event counts; thus, such data require no further population-based adjustment. English Study at 9-11.

Fourth, Donohue et al. relied on a second form of modeling, known as "synthetic control analysis," whereby actual RTC states were compared to a companion hypothetical (synthetic) state composed of multiple actual states (*e.g.*, California, Michigan, and New York) stitched together and weighted in different proportions based on purported similarities to the RTC state. They then inferred the impact of RTC laws on violent crime rates by projecting violent crime rates in the synthetic states to serve as a counterfactual and comparing these rates to the actual RTC state. Donohue Study at 198, 200, 201, 224-230. English and others have identified several serious problems with the Donohue Study's deployment of these imaginary, stitched-together "Frankenstein" states, including use of an arbitrarily short analysis period, exclusion of Washington, D.C. from the estimating process, and failure to allow covariates (covariates are

independent variables, such as incarceration rates or poverty rates, that can impact the violent crime rate dependent variable) to influence the modeling of the synthetic control. Experts in synthetic control analysis have specifically criticized this practice as erroneous. English Study at 16-22. When these issues are corrected, synthetic control analysis indicates that RTC laws have no statistically significant effect on violent crime rates. *Id*. at 20-22.

Fifth, whereas English presented comprehensive data and systematic analysis, the Donohue Study relies heavily on anecdotes, generalizations and cherry-picked accounts of firearms violence. *Id*. at 203-213. While these accounts may make for compelling storytelling, the point of scientific analysis is to assess the entire range of available data rather than draw inferences from selective anecdotes that engage cognitive biases.

Carry permit holders are so disproportionately law-abiding that any statistically significant link between growth in carry permits and increased violent crime is implausible. "The available data about permit holders also imply that they are at fairly low risk of misusing guns, consistent with the relatively low arrest rates observed to date for permit holders." Adam M. Samaha, Jens Ludwig & Philip J. Cook, *Gun Control After Heller: Threats and Sideshows from a Social Welfare Perspective*, 56 UCLA L. Rev. 1041, 1082 (2009); *see also* Kleck, *The Effect of Right-to-Carry Laws on Crime Rates: A Critique of the Research of Donohue et al.* at 8 ("[G]un crimes committed by carry permit holders are so extremely rare that it

is virtually impossible that they could exert a measurable effect on rates of violent crimes.").

Sound social science has demonstrated that RTC laws, and associated growth in firearms carriage outside the home have no statistically significant effect on violent crime rates and may even decrease violent crime rates. From 1977 to 2014, "[s]tates without concealed carry have considerably higher violent crime rates in every year and in some years, nearly double the rate of states with concealed carry." English Study at 12-13. In *Heller*, this Court held that the textual elements of the Second Amendment's operative clause "guarantee the individual right to possess *and carry* weapons in case of confrontation." *District of Columbia v. Heller*, 554 U.S. 570, 592 (2008) (emphasis added). Accurate empirical research, including English's, shows that there is no sound basis for New York's refusal to respect the right of law-abiding citizens to exercise their fundamental right to carry loaded, operable firearms outside the home, as protected by the Second Amendment and recognized by *Heller*.

Accordingly, *amici curiae* respectfully urge the Court to reaffirm its prior holding and clarify that the Second Amendment guarantees the individual right to possess and carry weapons in case of confrontation both in the home and in public.

ARGUMENT

I. Lawful Carriage of Firearms for Self-Defense and Defensive Gun Use are Statistically Common Phenomena

A. The Results of the Nationally Representative English Survey

Through an unprecedented sampling of adult firearms owners, the English Survey demonstrates that lawful carriage of firearms for self-defense and defensive gun use are statistically common phenomena. The Survey, approved by Georgetown University's Institutional Review Board, was conducted online between February 17 and March 23, 2021 using the professional survey research firm Centiment. The Survey aims to provide the most comprehensive assessment of firearms ownership and use patterns in the U.S. to date. English Survey at 1-4.

While a 1996 telephonic survey by Ludwig and Cook sought to be nationally representative, their sample was limited to approximately 2,500 respondents, of whom only about 600 (24.6%) said they owned a firearm. Jens Ludwig & Philip J. Cook, *Guns in America: National Survey on Private Ownership and Use of Firearms*, Police Foundation, 1, 12, 46 (1996). Similarly, the telephonic "National Self Defense Survey" conducted by Kleck and Gertz in 1993, long the state-of-the-art survey on this subject and finding that there were between 2.2 million and 2.5 million defensive gun uses per year, only had 4,977 respondents. Gary Kleck & Marc Gertz, *Armed Resistance to Crime: The Prevalence and Nature of Self-Defense*

with a Gun, 86 J. Crim. L. & Criminol. 160 n. 42, 164 (1995).

By comparison, the English Survey was presented to a nationally representative sample of 54,244 individuals over the age of 18 residing in Washington, D.C. and 49 states (excluding Vermont, which had been the subject of a pilot survey). English Survey at 3. These individuals completed a pre-survey questionnaire, which included an indirectly phrased initial "teaser" question to determine whether each respondent owned a firearm.[3] *Id*. at 6. This question identified 16,708 individuals as firearms owners, who were then transferred to the main Survey, which asked in-depth questions about their ownership and use of firearms. *Id*. at 1, 3. Overall, 92.5% (15,450 individuals) completed the Survey. *Id*. at 4. The Survey also employed several other important devices to encourage more truthful responses, including phrasing questions "so as to not suggest animus toward gun owners or ignorance of firearms-related technology," assuring anonymity, and using a "disqualifying" attention-check question embedded around the halfway mark of the Survey. *Id*. at 6.

The Survey estimates that 32.5% of U.S. adults age 21 and over own firearms and 31.9% of U.S. adults age 18 and over own firearms, which suggests that there are approximately 81.4 million adult

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[3] The "teaser" question presented the survey as concerned with "recreational opportunities and related public policies" and asked respondents if they own a: "Bicycle, Canoe or Kayak, Firearm, Rock Climbing Equipment, None of the Above." English Survey at 6. Only those who selected "Firearm" were then presented the full Survey. *Id*.

firearms owners in the U.S. (based on a 2019 U.S. Census population estimate of 255,200,373 individuals over the age of 18). *Id.* at 7, 8. Of these firearms owners, 9.1% carry a handgun for self-defense "always or almost always," 6.9% "often," 19% "sometimes," and 21.2% "only in particularly dangerous circumstances." *Id.* at 1, 14, 15. Thus, 56.2% of firearms owners carry a handgun for self-defense under at least some circumstances, including situations in which no permit is legally required. *Id.* An estimated 34.9% of firearms owners have on one or more occasions wanted to carry a handgun for self-defense but were barred by local laws, and approximately 26.3% of firearms owners (20.7 million) carry handguns for self-defense pursuant to RTC laws. *Id.* Moreover, 31.1% of firearms owners have defended themselves or their property through the discharge, display, or mention of a firearm (excluding military service, police work, or work as a security guard) in approximately 50 million defensive firearm use incidents, averaging approximately 1.67 million defensive gun use incidents per year. *Id.* at 1, 9, 10.

Notably, only 25.2% of defensive gun use incidents occurred within the home. And in 81.9% of defensive incidents, the individual acting in self-defense did not fire the gun. *Id.* at 1, 9, 10. The figure of approximately 1.67 million defensive gun uses per year was calculated by taking the total number of defensive gun use incidents represented by the Survey responses (50 million) and dividing by the number of adult years of the average respondent, which is 30. *Id.* at 9-10 n. 8. According to U.S. Census data, the average age of U.S. adults (those 18 and over) is 48, which also matches the Survey data. *Id.* Thus, the average

respondent in the Survey had 30 years of adult experience. *Id*.

B. The Donohue Study: A Thinly Sourced and Misleading Claim that Defensive Gun Use is Statistically Rare

Contrary to the English Survey and multiple other reliable sources, including the National Self Defense Survey, Donohue et al. contend that "the use of a gun by a concealed carry permit holder to thwart a crime is a statistically rare phenomenon." Donohue Study at 202. Their only citation in support of this claim is a report by the U.S. Department of Justice which, according to Donohue et al. "found that victims [of violent crime] reported failing to defend or threaten the criminal with a gun 99.2 percent of the time . . . ." *Id*. (citing Jennifer Truman & Michael Planty, *Firearm Violence, 1993–2011*, Dept. of Justice, Bureau of Justice Statistics Special Report 241730 (2013), *available at* https://bjs.ojp.gov/content/pub/pdf/fv9311.pdf (the "DOJ Report").

Donohue et al.'s depiction of the DOJ Report is grossly misleading, however, since it does not indicate what percentage of violent crime victims were carrying a firearm when they were victimized and does not contain any data whatsoever about concealed carry permit holders. What the DOJ Report actually states is that from 2007 to 2011, there were 235,700 nonfatal violent crime victimizations in which the victim responded with the threat or use of a firearm, representing 0.8% of total violent crime incidents. DOJ Report at 12. For the remaining 99.2% of violent crime incidents, there is no indication whether the victim was

carrying a firearm. The DOJ Report also does not indicate whether these incidents occurred in residential or public settings. Moreover, according to the DOJ Report, from 2007 to 2011 there were 103,000 instances of firearm use to defend against property crime, which increases the total defensive gun use incidents from 235,700 to over 338,000, for an average of 67,440 defensive gun uses per year during that five-year period—a point that Donohue et al. fail to mention.

In reality, the DOJ Report findings are understated. Conveniently left unmentioned by Donohue et al., a 2013 study funded by the CDC found that although exact numbers remained disputed, with estimates ranging from 500,000 to over 3,000,000, "[d]efensive use of guns by crime victims is a common occurrence. . . . " Institute of Medicine & National Research Council, *Priorities for research to reduce the threat of firearm-related violence*, The National Academies Press, 15 (2013). Donohue et al. also ignore the National Defense Survey. Kleck & Gertz, *Armed Resistance to Crime: The Prevalence and Nature of Self-Defense with a Gun.*

II. There is No Compelling Empirical Basis for Concluding that Right-to-Carry Laws Increase Crime

A. The Growth of Carry Permits Over Time is the Most Direct Measure of the Real-World Effects of Right-to-Carry Laws

i. The English Study: Panel Analysis that Incorporates Carry Permit Data Measures Real-World Behavior

As English observes, if RTC laws impact crime in large part by enabling individuals to legally carry a firearm, then the effects of RTC laws will take time to develop. English Study at 3-4, 6-7. This is because few people are licensed immediately after a law goes into effect, but the number of individuals licensed increases dramatically over time:

> The number of concealed carry permits issued the year an RTC law goes into effect is generally small, comprising only a fraction of a percent of a state's population. However, in many states, the number of permit holders has grown to around 10% of the adult population over time. If the mechanism through which RTC laws affect crime involves the actual ability to carry a handgun, then the mere passage of a law is a poor proxy for this. Rather, what needs to be evaluated is how the growth of the number of people permitted to carry over time affects crime. *Id.* at 4.

State-level data illustrates English's point that RTC laws gradually impact real-world behavior as measured by the growth of carry permits over time. For example, Florida adopted an RTC law in 1987. *Id.* at 7. By 1990, less than half a percent of the adult population was licensed to carry. *Id.* However, by 2018 this

number grew to over 10% of the adult population. *Id*. Likewise, Michigan, which did not adopt an RTC law until 2001, saw less than a half a percent of the adult population obtain a carry permit in the first year, but by 2018 nearly 9% of the adult population was licensed to carry. *Id*.

English's panel analysis incorporates complete permit data "from 12 states that report the number of carry permits issued every year that their RTC has been in effect" and partial data for the remaining states, which consists of permit data from 10 states that have "near perfect reporting of permit records for the last decade" and permit data for 21 states assembled from various sources, including but not limited to official state data and a 2012 report prepared by the United States Government Accountability Office. *Id*. at 25. Thus, both theoretically and econometrically, English's 1977-2014 panel analysis is far more powerful and accurate than the Donohue Study, which only tracks one-time changes in the law. *Id*. at 2, 4, 34.

Utilizing real-world data of actual permit holders (and removing methodologically unsound population-based weights used by Donohue et al. and discussed *infra*), English concludes that the higher rates of carry made possible by RTC laws have no statistically significant effect on violent crime rates, including murder rates (with or without firearms) for the period of 1977-2014. *Id*. at 2, 4, 10, 11, 16, 31, 34, 36. English reaches this conclusion using two independent models to estimate missing permit data for his panel analysis. The first model is the Logistic Growth Model (the "LGM Model"), which models the expected

growth of permits based on the fact that permit growth "follows a similar pattern across all states," as evidenced by growth patterns in the six states with the longest complete reporting records through 2018. *Id*. at 2, 27. The second model is the Amelia Model, which uses a statistical program known as Amelia II that "impute[s] missing data" for time-series models.[4] *Id*. at 2, 27, 31.

Moreover, not only do English's results indicate that there is no statistically significant relationship between carry permit rates and crime rates, they show that the coefficients for the estimated effects are small in size and in many cases negative (suggesting that increased carry rates may lead to lower crime rates). For example, using the Donohue Study's covariates, English's estimated coefficients indicate that higher carry permit rates on average trend towards being associated with a small decrease in murder rates, firearm murder rates, and non-firearm murder rates under the LGM model and a small decrease in non-firearm murder rates and violent crime rates under the Amelia Model. *Id*. at 31, 34.

ii. The Donohue Study Uses an Inferior "Binary Dummy Variable" Approach Instead of Actual Carry Permit Data in Its Panel Analysis

[4] *See* James Honaker, Gary King, Matthew Blackwell, et al., *Amelia II: A program for missing data*, 45 J. Statistical Software 1 (2011).

Donohue et al.'s failure to examine actual permit data undercuts their conclusions regarding the effects of RTC laws. The Donohue Study's 1977-2014 panel analysis is a "difference-in-differences" analysis—meaning that it is a "before-after" study examining how crime rates change before and after an RTC law is enacted compared to crime rates in states without RTC laws. Donohue Study at 214 n. 6, App. at 2; English Study at 3, 8-9; *see also* National Research Council, *Firearms and Violence: A Critical Review* at 17. In order to execute this before-after approach, the Donohue Study utilizes the common method of coding a "dummy variable," which assigns states a value of 0 before an RTC law is adopted and a value of 1 once an RTC law is in effect (a fractional value between 0 and 1 is assigned when an RTC law first goes into effect for a portion of a year). Donohue Study at 214 n. 6, App. at 2; English Study at 2-3, 8. However, this is a crude approach that does not capture changes in the effects of these laws as more people acquire permits over time. English Study at 3, 8-9.

Donohue et al. rigidly break down every state that has an RTC law into two simplistic worlds, with enactment of a RTC law analogous to the instant change that occurs when one flicks on a light switch in a dark room. However, enactment of an RTC law, in and of itself, is unlikely to have any immediate impact on violent crime rates. Rather, it is more likely the *real-world change in behaviors* that stem from RTC laws, which take time to develop, that impact violent crime rates. *Id.* at 3-4. Indeed, econometric literature calls attention to how variations in the timing and intensity of treatment effects can lead binary models to yield incorrect results. *Id.*; Justin Wolfers,

Did unilateral divorce laws raise divorce rates? A reconciliation and new results, 96 Am. Econ. Rev. 1802 (2006); Andrew Goodman-Bacon, *Difference-in-differences with variation in treatment timing*, Nat. Bureau of Econ. Research (2018), *available at* https://www.nber.org/system/files/working_papers/w25018/w25018.pdf.

Since the real-world effects of RTC laws are complex and time-dependent, rather than binary, properly measuring the impact of an RTC law on violent crime rates requires more than the simplistic lens of a pre-versus post-RTC law period. English Study at 3-4. This is especially important considering the typical time lag between enactment of RTC laws and large numbers of RTC permit applications and issuances, as indicated by the examples of Florida and Michigan, *supra*. While Donohue has experimented with "spline" and "hybrid" approaches to model time trends, these are speculative and untethered to carry permit data. *Id*. at 8-9.

As explained *infra,* when properly executed (by removing population-based "analytic weights"), even the binary dummy variable approach of the Donohue Study results in no statistically significant relationship between RTC laws and violent crime. English Study at 10-11. However, since the growth of carry permit holders over time is the most obvious and directly measurable consequence of RTC laws, Donohue et al. lack critical "empirical evidence that higher rates of gun carrying or permit holding cause higher [violent crime rates]." Kleck, *The Effect of Right-to-Carry Laws on Crime Rates: A Critique of the Research of Donohue et al* at 27. Ultimately, using

permit data to assess the impact of RTC laws on violent crime rates is unambiguously superior to the binary dummy variable approach from both an econometric and theoretical perspective. English Study at 2, 4, 34.

B. Use of "Analytic Weights" Distorts Panel Analysis of the Relationship Between Right-to-Carry Laws and Crime Rates

The Donohue Study also employs unsound and data-distorting "analytic weights," which affords greater weight to data and patterns from more populous states, thus inflating the impact of those states in a manner that is statistically indefensible. Donohue Study at 216 n. 37; English Study at 9-12, 14-16. Donohue et al. confirm that "[a]ll the regressions presented in this article are weighted by state population." Donohue Study at 216 n. 37. However, the dependent variable being assessed (state-by-state violent crime rates) is already denominated on a per capita basis rather than as a raw event count. Thus, crime rates require no further population-based adjustment, nor do other covariates that are likewise denominated on a per capita basis. English Study at 9-12. Other statistical justifications for using analytic weights in this context also fail, as demonstrated by numerous critics of Donohue's approach. *Id*. at 9-12, 14-16. "The net effect of using analytic weights in this context is to greatly inflate the impact of large states in Donohue et al.'s analysis." *Id*. at 10. Donohue et al. have recently argued that this is appropriate given that large states affect more people, but this misconstrues the aim of this analysis, which is to evaluate

the effects of policy changes across different states. *Id*. The use of analytic weights effectively requires small RTC states to show much larger drops in crime in order to be judged equivalent to large non-RTC states that experience small drops in crime. *Id*.

When analytic weights are removed from the Donohue et al. panel analysis, the supposed statistically significant correlation between RTC laws and increased violent crime rates completely disappears and the supposed positive correlation between RTC laws and firearm murder rates becomes negative. *Id*. at 10-11. Using *identical* data—*i.e*., making no change to Donohue's analysis other than removing analytic weights—English reveals dramatically different results, including, most starkly, a statistically insignificant coefficient of 0.65 versus the 9.02 coefficient that Donohue et al. estimate as the effect of RTC laws on violent crime rates. *Id*.; Donohue Study at 217.

English is not alone in criticizing the use of population-based analytic weights to analyze the relationship between RTC laws and crime rates. A 2016 examination of how different modeling assumptions affect the results of studies on the impact of RTC laws on crime found that "the use of population weights will overweight observations from more populous counties, leading to invalid confidence intervals, and potentially misleading point estimates." David A. Rivers, Salvador Navarro & Steven N. Durlauf, *Model uncertainty and the effect of shall-issue right-to-carry laws on crime*, 81 European Econ. Rev. 32, 40 (2016). Another recent study examining precisely the kind of model that Donohue et al. employ found "that standard error bias increases with greater regression

weight." Carlisle E. Moody & Thomas B. Marvell, *Clustering and Standard Error Bias in Fixed Effect Panel Data Regressions,* 36 J. Quant. Crimonol. 347, 365 (2020).

While scholars may have reasonable disagreements about how to model their RTC studies, "all panel models suggest that, when corrected to remove analytic weights, there is no significant relationship between RTC laws and murder rates or violent crime rates." English Study at 16 (bold in original removed). This is consistent with the Seventh Circuit's skepticism about any positive relationship between RTC laws and increased crime. *Moore v. Madigan*, 702 F.3d 933, 939 (7th Cir. 2012) (doubting scholarly findings of increased crime resulting from concealed carriage) (emphasis added). As even Donohue admitted in a previous study, "data and modeling problems *prevent* a strong claim that" RTC laws increase crime. *Id.* (citing Ian Ayres & John J. Donohue III, *Shooting Down the More Guns, Less Crime Hypothesis*, 55 Stan. L. Rev. 1193, 1281-1282, 1286-1287 (2003); Ian Ayres & John J. Donohue III, *More Guns, Less Crime Fails Again: The Latest Evidence from 1977-2006*, 6 Econ. J. Watch 218, 230-231 (2009)).

C. The Pitfalls of Biased Synthetic Control Analysis

i. The Donohue Study's Stitched-Together "Frankenstein" States

The Donohue Study synthetic control analysis examines 33 states that Donohue et al. classify as

having adopted RTC laws from 1981-2007. Donohue Study at 198, 200-201, 224-230. For each actual state that adopted an RTC law (a "treated" state), the Donohue Study creates a companion hypothetical state (a "synthetic" state) "designed to serve as a good counterfactual for the impact of RTC laws because it had a pattern of crime similar to that of the adopting state prior to RTC adoption." *Id*. at 225. The synthetic states are "Frankenstein" creations—imaginary states composed of multiple stitched-together real states weighted in different proportions by a synthetic control analysis software package called "*synth*." *Id*. For example, in order to create "synthetic" Texas (real Texas adopted RTC in 1996) *synth* identifies "three states that generate a good fit for the pattern of crime experienced by Texas in the pre-1996 period." *Id*. The package then assigns percentage weights to each of the three states used to create synthetic Texas—California (57.7%), Nebraska (9.7%), and Wisconsin (32.6%). *Id*. By way of additional example, synthetic Pennsylvania is comprised of *eight* stitched-together states. *Id*. at 229.

Using the Frankenstein states assembled by *synth*, the Donohue Study compares "what actually happened to crime after RTC adoption to the crime performance of the synthetic control over the same period" in order to "generate estimates of the causal impact of RTC laws on crime." *Id*. at 225. Based on the crime performances of these Frankenstein states, the Donohue Study dubiously concludes "that RTC laws are associated with 13-15 percent *higher* aggregate violent crime rates 10 years after adoption." *Id*. at 198 (emphasis in original).

In theory, the synthetic control method could be "a potentially useful method for evaluating the impact of a policy" in certain circumstances, as even Kleck, one of Donohue's fiercest critics, concedes. Kleck, *The Effect of Right-to-Carry Laws on Crime Rates: A Critique of the Research of Donohue et al* at 28. However, "[s]ynthetic control methods are relatively new, and especially when controls are made up of just a few states . . . their usefulness for identifying the causal effects may be compromised." RAND, *The Science of Gun Policy: A Critical Synthesis of Research Evidence on the Effects of Gun Policies in the United States* at 291-292. This is the case here—Donohue et al. make multiple critical mistakes in execution that render their model unreliable for accurately evaluating the impact of RTC laws on violent crime rates.

ii. Use of an Arbitrarily Short Analysis Period Distorts Synthetic Control Results

The results of a particular synthetic control model can vary wildly depending on the length of time each synthetic state is analyzed. Donohue et al. confine their analysis of each synthetic state to a period that ends "10 years after adoption" of each real state's RTC law. Donohue Study at 198, 232, 240. But for real states that have had RTC laws in effect for longer periods of time, there is a tradeoff in limiting analysis to the 10-year mark. This makes more states available to be considered as counterfactuals, but it ignores valuable, informative data that can be incorporated beyond the 10-year period. There is no valid reason to only report analysis from short time periods when longer periods are available and their analysis yields

dramatically different results. English Study at 20-22. The Seventh Circuit has also recognized the skewing impact that arbitrarily abbreviated post-RTC time horizons can have on social science modeling:

> A few studies find that states that allow concealed carriage of guns outside the home and impose minimal restrictions on obtaining a gun permit have experienced increases in assault rates, though not in homicide rates. But it has not been shown that those increases persist. Of another, similar paper by Ayres and Donohue . . . . it has been said that if they "had extended their analysis by one more year, they would have concluded that these laws [laws allowing concealed handguns to be carried in public] reduce crime."

Moore, 702 F.3d at 938-939 (internal citations omitted) (quoting Carlisle E. Moody & Thomas B. Marvell, *The Debate on Shall-Issue Laws*?, 5 Econ. J. Watch 269, 291 (2008)).

As English demonstrates using the example of Florida (discussed *infra*), which adopted an RTC law in late 1987, extension of the post-RTC analysis period from 10 years to 26 years leads to drastic differences in the synthetic control outcome. English Study at 20-22; *see also* Donohue Study, App. At 6.

iii. Exclusion of Washington, D.C. Data Distorts Synthetic Control Results

The Donohue Study's implementation of *synth* excludes Washington, D.C. as an option for the composition of synthetic states. Donohue Study at 235 n. 63, App. at 33-34. Donohue et al. justify their modeling choice by stating D.C. is a "clear outlier whose characteristics are less likely to be meaningfully predictive for other geographic areas." *Id*., App. at 33-34. But this modeling choice is unpersuasive and is contradicted by the Donohue Study's inclusion of D.C. data for its own panel analysis. English Study at 20. D.C. has a population similar in size to Alaska, North Dakota, South Dakota, and Delaware, and there have been years in which D.C.'s violent crime rate has been comparable to certain states. *Id*. As also demonstrated using the example of Florida (*infra*), inclusion of D.C. as an option for synthetic modeling also leads to significant differences in outcome. *Id*. at 20-22. When D.C. data supports the desired outcome sought by Donohue et al., they include it, and when it does not, they exclude it.

iv. Inclusion of Outcome "Lags" Distorts Synthetic Control Results

Although covariates are supposedly included in the Donohue Study's synthetic control analysis, the covariates are not able "to exert predictive influence on the crime rate estimates generated for the synthetic control" because of the Donohue Study's use of so-called outcome "lags" of the dependent variable (violent crime rates) in fitting their synthetic control models. English Study at 16-20; Donohue Study, App. at 71-73. A lag in the context of synthetic control

models—including the Donohue et al. model—uses actual yearly past data (crime data) for the pre-treatment (pre-RTC) period to help generate the model of predicted future crime rates for the synthetic version of that state. Donohue Study, App. at 71-73.

The problem with using lags of the dependent variable for every year in the pre-treatment period in order to develop the model for the synthetic state is that this effectively discards the influence of all other covariates in the model. English Study at 16-20. This occurs because "using all outcome lags as separate predictors renders all other covariates irrelevant." Ashok Kaul, Stefan Klößner, Gregor Pfeifer & Manuel Schieler, *Synthetic control methods: Never use all pre-intervention outcomes together with covariates*, MPRA Paper 83790, 1 (Jul. 29, 2017), *available at* https://www.gregor-pfeifer.net/files/SCM_Predictors.pdf.

v. The Pitfalls of Biased Synthetic Control Analysis as Demonstrated by Changes to Synthetic Florida and Other States

Using Florida—which adopted its RTC law in late 1987—as an example, English demonstrates the drastic differences that can result when a post-RTC analysis period greater than 10 years is used, Washington, D.C. data is included, and covariates are allowed to exert influence on the Donohue Study's modeling. English Study at 20-22. According to Donohue et al., 10 years after RTC adoption (1998), Florida's violent crime rate was an astounding 34.8% greater

than the counterfactual synthetic Florida—which was comprised of California (22.3%), Michigan (11%), and New York (66.7%). Donohue Study, App. at 40; English Study at 20-22.

However, when English adds D.C. as a potential synthetic control state, the *synth* algorithm includes D.C. as a 4% component of synthetic Florida and Florida's 10-year violent crime rate increase drops to 22.9%. When D.C., covariates and a *26-year* post-adoption time period is added (up to 2014) to the Donohue Study's synthetic Florida, the result is an 8.5% *decrease* in the violent crime rate. English Study at 22. Similarly, violent crime rates in North Carolina and South Carolina, which Donohue et al. found to increase 10 years after RTC adoption by 8.6% and 22.5%, respectively, change to a 2.7% *decrease* and 1.1% increase, respectively, when D.C. and covariates are introduced to the model. *Id*. at 21.

As English demonstrates using examples such as Florida, North Carolina, and South Carolina, synthetic control analysis of the impact of RTC laws on crime is highly sensitive to slight changes in parameters, and Donohue et al. make self-serving methodological choices that are mistaken or unpersuasive. Indeed, results can change dramatically when covariates are properly incorporated, D.C. is included as a candidate control state, or a longer post-RTC analysis period is used. Ultimately, comprehensive synthetic control analysis of eligible states suggests that RTC laws have no significant effect on crime. *Id*. at 20-22, 24, 36.

D. Systematic Empirical Analysis is Superior to Generalizations and Anecdotes

i. The Donohue Study: Improper Reliance on Unscientific Generalizations

Donohue et al. concede that "[v]iolent crime can fall if criminals are deterred by the prospect of meeting armed resistance, and potential victims or armed bystanders may thwart or terminate attacks by either brandishing weapons or actually firing on the potential assailants." Donohue Study at 201. However, they temper this concession with multiple generalizations and caution that "[s]ome defensive gun uses can be socially costly and contentious even if they do avoid a robbery or assault." *Id*. at 201. Based on a single survey of fewer than 5,000 individuals, they also argue that "Americans tend to overestimate their gun-related abilities." *Id*. at 203 (citing Daniel Sachau & Emily Stark, *Lake Wobegon's Guns: Overestimating Our Gun-Related Competences*, 4 J. of Social & Political Psychology 8 (2016). They then speculate that this results in "overconfidence . . . that could well lead to an array of socially harmful consequences ranging from criminal misconduct and gun accidents to lost or stolen guns." Donohue Study at 203. Finally, Donohue et al. blame "the gun culture" for perceived social ills. *Id*. at 203, 205. These assertions are all generalized matters of opinion, however, untethered to any valid set of data and analysis.

ii. The Donohue Study: Improper Reliance on Anecdotal Evidence

The use of anecdotal evidence has no bearing on legal analyses of a Constitutional right. Anecdotal evidence is information presented in an informal manner that relies on storytelling and personal accounts.[5] However, since this type of information is, by definition, not the product of systematic empirical analysis, it can be unreliable as a basis for understanding or predicting outcomes. Judy Irwig, Les Irwig, Lyndal Trevena & Melissa Sweet, *Smart Health Choices: making sense of health advice*, 17 (2008).

> Anecdotal evidence can sound compelling, but it is not a valid guide for decision-making, whether it comes from the experience of your next-door neighbor or a personal testimony published in an advertisement. *Id*.

Thus, information extracted from anecdotes fuels the process of cognitive bias, by "which human cognition reliably produces representations that are systematically distorted compared to some aspect of objective reality." Damian R. Murray, Daniel Nettle & Martie G. Haselton, *The Evolution of Cognitive Bias*, Handbook of Evolutionary Psychology, Second Ed., 968 (2016); *see also* Steven Pinker, *One thing to change: Anecdotes aren't data*, The Harvard Gazette (June 21, 2019), *available* at

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[5] *See* Merriam-Webster, *Anecdotal Evidence*, *available at* https://www.merriam webster.com/dictionary/anecdotal%20evidence.

https://news.harvard.edu/gazette/story/2019/06/focal-point-harvard-professor-steven-pinker-says-the-truth-lies-in-the-data/ ("Too many leaders and influencers . . . surrender to the cognitive bias of assessing the world through anecdotes and images rather than data and facts.")

The Donohue Study contains multiple pages of anecdotal evidence about various "well-publicized cases" such as separate road rage incidents resulting in the deaths of NFL players Joe McKnight and Will Smith. Donohue Study at 203-213. This approach is sensationalistic and antithetical to the goal of any serious social science study, which is to understand human relations through systematic *scientific* methods—not anecdotal storytelling.

For every nationally publicized incident cherry-picked for inclusion in the Donohue Study, one can easily find instances (often less publicized) of armed citizens saving themselves or others. One noteworthy such instance occurred in 2019 when a man opened fire during a church service near Fort Worth, Texas, killing two. Jack Wilson, a 71-year-old former reserve deputy sheriff and volunteer member of the Church's security team, fired a single shot from his handgun and killed the assailant. Bill Hutchinson and Josh Margolin, *Armed parishioner says he's 'no hero' as new details emerge about the Texas church shooter*, ABC NEWS (Dec. 31, 2019). According to officials, Wilson likely "saved the lives of a number of the 240 people in the sanctuary." Laura Kusisto, *Gun-Rights Advocates See Lessons in Texas Church Shooting*, THE WALL STREET JOURNAL (Dec. 21, 2019).

iii. Systematic Empirical Analysis Demonstrates that the Costs of Lawful Carriage of Firearms and Defensive Gun Use Do Not Outweigh The Benefits

It is a simple fact of reality that police usually are not around when a person encounters a criminal. The police simply cannot be everywhere at once. Moreover, there is nothing that requires the "State to protect the life, liberty, and property of its citizens against invasion by private actors." *Deshaney v. Winnebago Cty. Dep't of Social Services*, 489 U.S. 189, 195 (1989); *see also Town of Castle Rock v. Gonzales*, 545 U.S. 748 (2005). Therefore, law-abiding citizens are their own first responders, and, like the police, must have access to the self-defense value afforded by firearms carried with them in their homes or in public. This practical need is evidenced by the 1,203,808 instances in 2019 in which Americans were murdered, raped, robbed, or assaulted because the police cannot be omnipresent. FBI, *2019 Crime in the United States*, Table 1 (Sep. 28, 2020), *available at* https://ucr.fbi.gov/crime-in-the-u.s./2019/topic-pages/tables/table-1.

In fact, law enforcement officers and police departments nationwide strongly support the issuance of carry permits to qualified, law-abiding citizens. A 2013 nationwide survey of more than 15,595 current and former "verified police professionals across all ranks and department sizes" posed the question: "Do you support the concealed carry of firearms by civilians who have not been convicted of a felony and/or

not deemed psychologically/medically incapable? 91.3% of respondents answered: "[y]es, without question and without further restrictions." PoliceOne, *Gun Policy & Law Enforcement Survey* (2013), *available at* https://media.cdn.lexipol.com/p1_gunsurveysummary_2013.pdf. This support is not limited to the rank and file. A recent survey of "a broad cross section of professional command officers involving every state and every size department" reported 79% "yes" responses to the question "[i]in your opinion, can qualified, law-abiding armed citizens help law enforcement reduce violent crime? National Association of Chiefs of Police, *31st Annual National Survey Results* (2018), *available at* https://www.nacoponline.org/surveyresults.

Criminals agree with law enforcement about the efficacy of law-abiding citizens carrying firearms. An opinion survey of imprisoned felons demonstrated that criminals were deterred by the prospect of facing armed resistance, reporting, *inter alia*, that 81% of respondents agreed that a "smart criminal always tries to find out if his potential victim is armed" and avoids that victim if so, and 57% agreed that they were "more worried about meeting an armed victim than they were about running into the police." James D. Wright & Peter H. Rossi, *Armed and Considered Dangerous: A Survey of Felons and Their Firearms*, 145-146 (2d ed. 2008).

After 14 students and three staff members were fatally shot and seven others wounded at the Marjory Stoneman Douglas High School in Parkland, Florida in 2018, the bipartisan Marjory Stoneman Douglas High School Public Safety Commission (the

"Commission") recommended a "Guardian Program" that would allow personnel who volunteer and are properly selected, thoroughly trained, and extensively screened to carry concealed firearms on campuses for self-defense and protection of other staff and students. Marjory Stoneman Douglas High School Public Safety Commission, *Initial Report Submitted to the Governor, Speaker of the House of Representatives and Senate President*, 104 (Jan. 2, 2019), *available at* http://www.fdle.state.fl.us/msdhs/commission-report.pdf. The bipartisan Commission recognized that the value of armed law-abiding citizens outweighs the social cost, which is consistent with the overwhelming weight of social science research on the subject, including most recently the English Study and the English Survey.

Some have argued that stricter gun control laws are responsible for lower crime rates in other developed countries compared to the United States. But when comparing countries with different cultures and characteristics, a facile two-factor analysis (strictness of gun control and crime rates) has essentially zero explanatory value. To the extent the argument is that allowance of widespread gun ownership itself drives crime rates higher, that would not speak to the question of whether allowing law-abiding citizens to *carry* firearms in a society where widespread gun ownership is allowed causes crime to increase. It is the latter question that is implicated by this case. And as the evidence overwhelmingly demonstrates, there is no compelling empirical basis for the proposition that restricting the carriage of firearms by non-prohibited citizens promotes public safety in the United States.

CONCLUSION

Everyday people frequently carry guns to defend their lives, their families, and their communities. Regardless of how many lives are saved by citizens who carry firearms for self-defense outside the home, statistics are not required to justify this exercise of the fundamental right to self-defense. However, social science provides valuable empirical confirmation that exercise of this right does not exact the social costs claimed by Donohue and others who share his policy preferences.

The decision below should be reversed.

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Respectfully submitted,

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