TITLE

Transmitting Desire: An Experiment on a Novel Measure of Gun Desirability in a Pandemic

ACKNOWLEDGEMENTS

I am deeply grateful to Bryan Sykes for his mentorship, good humor, and belief in this project. I appreciate the constructive comments on theory, writing, and research design rendered by Jilisa Snyder, Swethaa Ballakrishnen, George Tita, Emily Owens, Joanne Decaro, Juan Sandoval, Nicholas Scurich, Ana Muñiz, John Hipp, Mona Lynch, Steven Sola, Socio-Legal Studies workshop participants, and the UC Irvine Criminology, Law & Society department at large.

I want to acknowledge Bryan Sykes, the UC Irvine Center for Psychology and Law, and the UC Irvine Criminology, Law & Society department for their help funding this project. I wish to thank the special issue editors – Andrew Davis, Terrence Hill, and Simone Rambotti – and three anonymous reviewers for their help improving this paper.

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ABSTRACT

The COVID-19 pandemic, and protests, have marked an unprecedented increase in US gun sales. But America has long been an outlier; the stockpile of private guns climbed to almost 300 million in 2017. Scholars use multiple theories to explain why gun sales have tripled since the early 2000s, and why disruptions like the pandemic might cause gun sales. However, scholars have difficulty evaluating these theories with existing retrospective estimates of gun sales and other measures, limiting their ability to test theory or suggest policy changes.

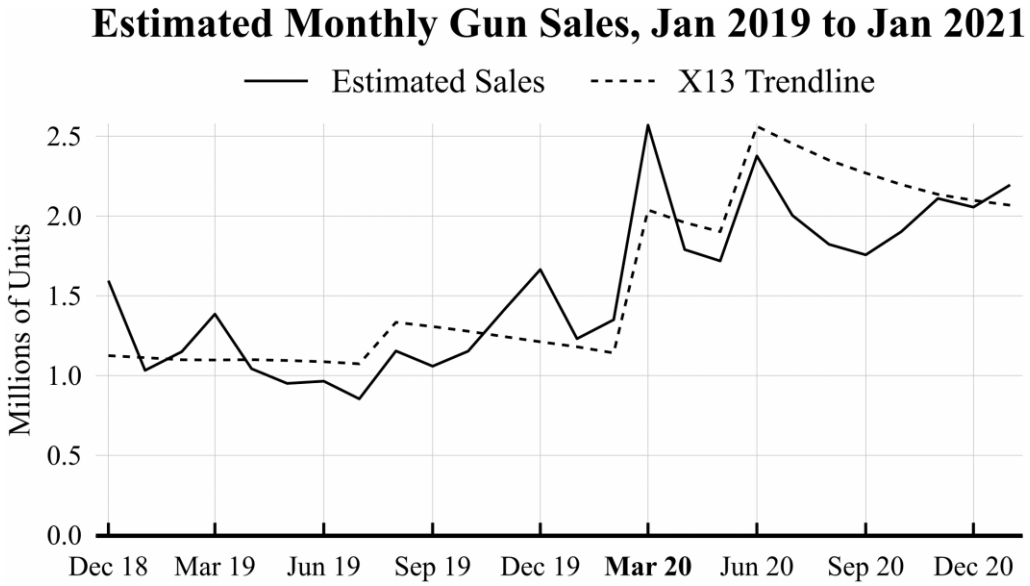
This study uses the known increase in gun sales during the COVID-19 pandemic to introduce and experimentally validate a novel measure of gun desirability. With a sample of 4,240 US residents, this project demonstrates that gun desirability is a valid measure of inclination towards gun ownership, and that a pandemic video vignette significantly increases overall gun desirability relative to a control video vignette. These results serve as a foundation for future scholarship to (1) discern gun desirability trends, (2) evaluate theorized causes of gun desirability, and (3) consider interventions on those conditions that arouse desire for gun ownership.

INTRODUCTION

> "[H]e knows there be laws and public officers, armed, to revenge all injuries shall be done him; what opinion he has of his fellow subjects, when he rides armed; of his fellow citizens, when he locks his doors; and of his children, and servants, when he locks his chests. Does he not there as much accuse mankind by his actions as I do by my words? But neither of us accuse man's nature in it. The desires, and other passions of man, are in themselves no sin." (Hobbes 1651: 78)

The COVID-19 pandemic and protests have marked an unprecedented increase in US gun acquisition (Arnold 2020; Yamane 2020) by residents of every political persuasion and in every state (Lang and Lang 2020). Of the five highest months of estimated gun sales, three have elapsed since the March 2020 pandemic declaration (ATF 2021b; Brauer 2013).

Figure 1 – Estimated Monthly Gun Sales and X13 ARIMA trendline, Jan 2019 to Jan 2021



Note: Author's calculation from NICS checks (ATF 2021b) with adjustments (Brauer 2013) and usage of X13 ARIMA-SEATS (Sax 2018; US Census Bureau 2017) – see endnote 1.

America has long been an outlier of gun ownership. In 1970, Hofstadter declared America to be "the only modern industrial urban nation that persists in maintaining a gun culture" (4), and in recent years the stockpile of guns in private hands has climbed to almost 300 million (Azrael et al. 2017). The COVID-19 pandemic is not the first event to spur purchases; social, economic, and political disruptions often precipitate gun sales in the US. Scholars argue that disruptions (1) renew fears that new gun regulations will decrease availability (Depetris-

Chauvin 2015; Studdert et al. 2017), (2) increase consumer desire for self-protection, in the context of a gun culture that increasingly emphasizes using guns for protection (Lizotte and Bordua 1980; Yamane, Yamane, and Ivory 2020), or (3) a synergistic combination thereof (Kelley and Ellison 2021; Porfiri, Barak-Ventura, and Marín 2020).

Yet, much like criminologists' struggle to explain the post-1990s decline in violent crime (Blumstein and Wallman 2006; Lauritsen, Rezey, and Heimer 2016; Tcherni-Buzzeo 2019; Zimring 2006), social scientists have yet to explain why gun sales per month have tripled since the early 2000s (ATF 2021b; Brauer 2013). With more than 10,000 homicides and more than 20,000 suicides annually commissioned with guns (Azrael et al. 2017), research that can distinguish the proximate causes of gun desirability is overdue. Recent scholarship explores the emergence of self-defense oriented 'Gun Culture 2.0' (Yamane, Yamane, and Ivory 2020) and gun populism (Carlson 2019). A validated measure of gun desirability will enable scholars to evaluate these theories, discern trends in desire for guns, and suggest policy changes accordingly.

This study uses the known increase in gun sales during the COVID-19 pandemic as an opportunity to introduce and validate a measure of gun desirability. Drawing on an online sample of 4,240 US residents, this project asks the following research questions: first, how well does gun desirability serve as a measure of inclination towards gun ownership? Second, is gun desirability a tractable outcome measure in an experimental setting, so that exposure to a video vignette about the COVID-19 pandemic and related fears of social disorder would result in a significant increase in participants' gun desirability? To date, no other work has sought to measure and validate gun desirability, or measure how it changes in an experimental context.

This paper is composed of two studies to answer these two questions. Study one validates gun desirability against participants' gun ownership patterns and against the demographics US gun owners. Study two tests whether gun desirability is affected by a short TV news segment

(NBC 2020) that details how the COVID-19 pandemic drives fears of social disorder and grocery, liquor, and gun sales. After randomized exposure to this treatment or a control video, participants reported their desirability for three guns: a handgun (Glock), an AR-15 pattern semiautomatic rifle, and a bolt-action hunting rifle. Results demonstrate that gun desirability is a valid measure of inclination towards gun ownership, and that the pandemic vignette significantly increases overall gun desirability relative to the control. These results are a foundation to (1) discern gun desirability trends, (2) evaluate theorized causes of gun desirability, and (3) consider interventions on those conditions that arouse the desire to 'ride armed' (Hobbes 1651: 78).

THEORY AND LITERATURE

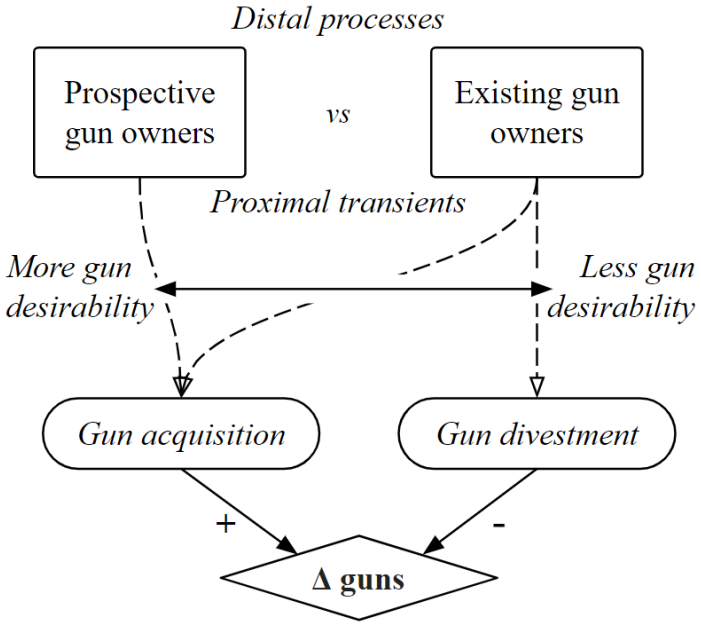
Introduction

Criminology and law scholars began to seriously consider gun ownership in the 1970s (Cook 1976; Zimring 1972), after the passage of Omnibus Crime Control and Safe Streets Act of 1968. This crime bill formed the basis for modern federal gun control measures (Zimring 1975). Following this legislation, public opinion surveys (e.g. NORC and Gallup) began measuring gun ownership, enabling the demographic analysis of gun owners in the US.

At the present time there is no social theory or empirical research specific to the relationship of pandemics to gun desire. Instead, sociological, criminological, and psychological literatures broadly examine and theorize how longer-running *processes* (like shifts in gun culture towards self-defense) affect the consumption of guns in the US, while economic and public health literatures estimate the effects of delimited *transients* (like mass shootings, elections, or new gun controls). Explanations range from a national trend of neoliberal 'responsibilization' of security, individual propensity to believe that the world is dangerous, to media-driven reactions to events such as Obama's re-election. None of these approaches suffice if gun desirability and

acquisition are contextualized and affected by both *processes* and *transients*, as Figure 2 displays below:

Figure 2 – Framework of Gun Desirability



Note: Figure proceeds top to bottom. At a point in time gun desirability is (1) affected by both processes and transients, and (2) in turn affects the probability of gun acquisition and gun divestment (among existing owners).

At the top of Figure 2 a population is dichotomized into prospective gun owners and existing gun owners at a point in time. At this time point there are accumulated processes (such as neoliberalism in the US) and transients (now the US COVID-19 pandemic) that affect both gun availability (held constant here) and desirability. Gun desirability refers to an affinity for guns that is necessary, but not sufficient, to catalyze or maintain gun ownership. More gun desirability increases the probability (represented by dashed lines) of *acquiring* guns, while less desirability increases the probability that existing gun owners *divest* guns. Habitus formation differentially affects how gun owners interpret transients (see Shapira and Simon 2018). Thus gun owners may differ from non-gun owners in their resulting gun desirability and decisions. Acquisition minus divestment (solid lines) yields a rate of change (Δ) of gun ownership. This momentary rate, when accumulated (integrated) over a time period, can then yield the change in privately held guns.

Scholars theorizing from a distal process (such as neoliberalism), or retrospectively examining a transient (like an election), currently wrestle with pernicious sampling error and/or causal heterogeneity when interrogating the causes of gun ownership. For example, studies using interview data to find that economic decline has motivated men to become gun owners (Carlson 2015a: 40; Carlson 2015b) might not fully consider that women are similarly affected by economic duress (Mencken and Froese 2017: 14). Gun desirability is better suited to test the predictions of prevailing theories. Furthermore, a gun desirability framework elevates gun divestment – typically the provenance of studies on government-mandated or funded buybacks (e.g. Bartos et al. 2020; Hazeltine et al. 2019) – as a sociologically tractable research question: what processes and transients decrease gun desirability so that gun owners are more likely to divest their guns? Recent scholarship calls for precisely this research "on owners that might relinquish their guns in the future" (Kelley and Ellison 2021: 23). The *Outcome Measurement* subsection of the Data Collection & Experimental Design section features a full discussion of gun desirability measurement.

COVID-19 Context

A sociocultural shift, such as towards neoliberal responsibilization, may affect peoples' gun desirability "not by shaping the ends they pursue, but by providing the characteristic repertoire from which they build lines of action" (Swidler 1986: 284). However, a pandemic likely shifts this repertoire of norms. The US COVID-19 pandemic (and responses thereof) has (1) caused shortages of foods, masks, and other crucial items, (2) overburdened critical infrastructure like government services and hospitals, (3) plunged the economy into a recession amidst widespread unemployment, (4) upended the social norms of everyday life, and (5) resulted in hundreds of thousands of deaths. During the study's data collection period, the US COVID-19 death toll surpassed 100,000 (The Atlantic 2020). Fear and worry increase as

people's perception of control (and repertoire of action) diminishes and consequences (like illness and death) increase in severity, even "when they view victimization to be relatively unlikely" (Jackson 2011: 531).

These deeply 'unsettled' times in turn distend our repertoires of action, requiring research "analyzing the structural constraints and historical circumstances" (Swidler 1986: 280). Unsettled times therefore present an opportunity to study theorized effects on an outcome of interest (gun desirability). Specifically, the precarity caused by the pandemic may *testably* exacerbate latent trends in US gun desirability. This study introduces a measurement and a dataset well-suited to study trends and interactions, and is a response to Lamont and Swidler's call for research that moves "beyond the street corners so celebrated by classical ethnographers, to consider causality and/or historicity in a wide-ranging set of enabling and constraining factors" (2014: 166).

In the following subsections I review various theoretical, historical, and empirical work that contribute to our understanding of gun desirability, especially during unsettled times. Note that this study evaluates gun desirability as a measure, and does not test how well the following literature fits the known increase in pandemic gun sales (see Figure 1).

Shifts in US Gun Culture

Gun culture in America has shifted significantly in recent decades. Handgun manufacture and sales (ATF 2021a; ATF 2021b) and military-pattern rifle manufacture and sales (Eger 2018) have vastly increased, while interest in hunting has waned (Gallup 2019a). Gun culture divergence was noted in the 1980s (Lizotte and Bordua 1980), and defense-oriented gun ownership has since eclipsed hunting and sporting gun cultures (Pew 2013). Yamane describes the current gun "culture of armed citizenship" as a modern 'gun culture 2.0' (2017). Specifically, the justification of gun ownership for defensive purposes has increased from 26% in 1998 to

63% in 2016, even as the risk of both violent and property crime has decreased in that period (Yamane 2017: 5). Accompanying this significant change in gun culture are shifts in the demographics of US gun owners.

While gun owners largely remain white, middle-class, male, and protestant relative to the US population (Gallup 2019b; Legault and Lizotte 2009; Yamane, DeDeyne, and Méndez 2021), their demographics are shifting. Fewer new owners grew up with guns; new gun owners more often own handguns and identify as liberal, women, and non-white (Wertz et al. 2018: 873). Approximately 12 million, or 1 out of every 5, gun owners identify as liberal. Liberal gun owners prefer less punitive social policies, suggesting that researchers who analyze gun owners as a unitary conservative block may miss important sources of heterogeneity (Yamane, DeDeyne, and Méndez 2021). Gun owners support laws restricting access to firearms (such as barring those convicted of felonies from purchase) and support background checks, but are averse to most other gun controls (Gallup 2019b; Smith 2003: 11).

The stock of civilian guns in the US approaches 300 million (Azrael et al. 2017). As ~35% of households in the US are gun-owning, such households often have three or more guns (Gallup 2019b). In the 2000s Americans typically purchased 3-6+ million new firearms per year (ATF 2021a; Legault and Lizotte 2009), but this number has steadily increased; 13 million new guns were sold during 2019 (ATF 2021b; Brauer 2013). Newly purchased guns augment the total stock because guns are highly durable; firearms produced in the early 20th century remain functional (Diaz 2005). Gun acquisition theories are therefore critical to help scholars situate both US gun ownership and downstream health outcomes.

Responsibilization Theory

Neoliberal responsibilization is theorized as a sociocultural and political movement that opposes state hegemony of responsibility for order and welfare. Such a counter movement can be

traced back to Hobbes' caveat that, despite the hegemony of state violence, there are "some rights which no man can be understood by any words, or other signs, to have abandoned.... A covenant not to defend myself from force, by force, is always void" (1651: 82). Weber's lasting definition of the modern state specified its "monopoly on the legitimate use of physical force" within its territory; the state was thus the "sole source of the 'right' to use violence" (1946 [1919]: 4). Rising levels of gun sales, just like rising levels of violent crime, would in turn delegitimize a state's claim on the right of force. Therefore, events that destabilize the state – such as a novel and serious pandemic – cause residents to perceive that the state has diminished capacity, delegitimizing the state monopoly on force and in turn increasing interest in gun ownership.

Recent theory brings this interplay of responsibility between state and citizens into the American context. Garland introduced 'responsibilization' to describe citizen assumption of crime control functions previously associated with the state (1996: 452). Garland's *Culture of Control* postulated that there were distinct sets of consumption decisions (e.g. Prius versus Hummer drivers) that mapped to demographics and beliefs, constituting 'communities of choice' (2001: 89). Gun acquisition might congruent with a community belief in personal responsibility for safety, while gun abstention would imply a greater reliance on the arms and adjudication of the state.

In *Governing Through Crime* Simon extended this lens of consumer 'security' culture (2007: 200-204). Specifically, Simon proposes a set of sociopolitical and legal practices that, "channel responsibility for managing crime risks… into the family itself" (Simon 2007: 200). Guns fit into the many consumable 'solutions' to risk that lead to a modern family "[l]ocked inside SUVs, parked in a secure garage, locked inside a 'gated' and privately policed

subdivision" (Simon 2007: 204). The privatization of risk may be part of a more general neoliberal agenda of deregulation and increased market control of the state (O'Malley 2009: 2).

Responsibilization and guns

Ethnographic work has found that American gun owners see guns as a tool to assert choice and avoid disempowerment, so that "if he's packing, you'd better ask his permission first" (Kohn 2004: 81). This partly substantiates Garland's security consumption argument (2001) as gun owners situated their ownership as a way to responsibilize themselves. Carlson extended responsibilization theory, showing how some gun owners assumed police-like roles (2012) and thereby 'exceeded the confines' of Weber's (1946 [1919]) state-monopolized force (Carlson 2014). Indeed, 'I don't dial 911' (Carlson 2012) is a common adage among gun owners.

Sovereign Subjects (Carlson 2014) have greater access to lethal force than other citizens via their gun ownership, yet are still subject to state laws. This responsibilization framework extends to gun populism (Carlson 2019) and police acceptance of gun ownership (Carlson 2020). Responsibilization can best be thought of as a *milieu* in which gun acquisition is normalized as a method to secure safety and well-being. This framework allows gun owners to dichotomize gun usage as 'responsible' and legitimate or irresponsible and illegitimate, excising illegitimate gun usage that is linked to racialized conceptions of criminality (Vila-Henninger 2021). While responsibilization frames a context that is conducive to gun acquisition, it is hard to distinguish between gun acquisition as a symptom of responsibilization versus gun acquisition as a result of neoliberalism. Beyond supporting the idea that state destabilization (for example, via the COVID-19 pandemic) may increase gun desirability, responsibilization is not well-suited to explain differences in gun acquisition (or non-acquisition) among prospective gun owners.

Masculinity and Racialization

Guns are a key semiotic to US coming of age stories, which often center white manhood in a quixotic 'wild suburb' featuring guns, hunting, fatherhood, and heritage (Messner 2011; see also Bass 1985: 73-77). The problem with these heritage masculinity accounts is that they no longer substantiate US gun culture, which, as discussed earlier, has shifted away from hunting and now centers self-defense.

Male concealed carry licensees often draw on a masculinity characterized by 'responsible' violence and whiteness (Carlson 2015b; Shapira, Jensen, and Lin 2018; Stroud 2016). This responsible violence is contrasted with criminal violence, which is nominally racially neutral; however, criminals are perceived as people of color a criminal and therefore legitimate targets of gun violence (Shapira 2017). Under this framework, where (white) men are responsible for security, gun ownership can allow women to "be alone by affording them extra safety…. The gun and the man appear interchangeable" (Carlson 2015a: 101). Carlson finds that when "socioeconomic insecurity undermines men's role as provider (even if all men do not experience this directly), guns provide a means for men to prove their utility and relevance outside the breadwinner role" (2015a: 405). The economic insecurity engendered by the pandemic should therefore increase gun desirability, particularly for guns which provide tangible protection in the home, like pistols, rather than those largely restricted to range and hunting uses, like hunting rifles.

Gun owners, particularly white males, now seek out handguns and semi-automatic rifles as "foundational sources of power and identity" in "unsettling economics times" (Mencken and Froese 2017: 21). This recent emphasis on semi-automatic guns and empowerment substantiates the previously discussed gun culture shift away from hunting. Therefore, I expect hunting rifle

desirability to experience the smallest desirability increase (if any) from exposure to the pandemic video vignette condition.

Transients: Risk of Victimization and Political Threat

Gun advocacy organizations and gun trainers incorporate victimization scenarios to motivate gun ownership and justify training. For example, "NRA course materials encourage students not just to actively imagine threats, but also to actively look for them," as an exhortation to be keenly aware of potential danger (Carlson 2015a: 78-79). These fears of crime, beyond reflecting the social norms of a community, speak to what communities "see as hostile to that social order" (Jackson 2006: 261). The best protection against hostile elements is the 'good guy with a gun', a concept promulgated by gun trainers, who "socialize people into constructing the world (and especially black men) as a threat" (Shapira 2017: 515-516).

The pithiest summation of this risk of victimization framework is a common NRA adage that "when seconds count, the police are only minutes away" (Awr 2018). Gun owners socialize to develop comfort with (1) the physical practice of carrying a gun and (2) the belief that killing with their guns is an acceptable outcome (Shapira and Simon 2018: 18). This account suggests that gun acquisition will increase in relation to socially-instilled fears of victimization. It is therefore no surprise that exposure to crime is positively correlated to gun carrying and suspicion of police efficacy (Smith 2003), and that crime risk appears to increase gun acquisition (Kleck et al. 2011).

This proposed relationship – that gun acquisition is motivated by the perceived risk of crime – is complicated by research showing that "although gun owners have consistently reported a belief that their guns make their homes safer, the arrival of a gun in the house apparently does not produce a lasting reduction in fear of crime" (Hauser and Kleck 2013: 287). Developing this concept, Dowd-Arrow, Hill, and Burdette (2019) find that fear may drive gun

ownership but that gun owners are less fearful than non-gun owners on a variety of axes - the "causal order of this association is uncertain, [as] it is likely characterized by a complex combination of fears" (6). Because of this complexity there is no a priori reason to expect that the pandemic vignette's effects should differ in valence between gun owners and non-gun owners.

Political 'victimization' is another aspect of this account – evidenced by the surge of gun sales coincident with Obama's election and re-election campaigns. Large spikes in gun sales in 2012 were "partially driven by fears of a future Obama gun-control policy" (Depetris-Chauvin 2015: 67). Changes in risk perception, and fear of impending gun controls, partially explain gun acquisition in the wake of the Orlando nightclub shooting (Stroebe, Leander, and Kruglanski 2017). Indeed, gun purchases rise in the aftermath of US mass shootings (Studdert et al. 2017) as media exposure arouses fear of gun controls (Porfiri et al. 2019; Porfiri, Barak-Ventura, and Marín 2020). The risk of quarantine impeding access to guns during the pandemic (via store closures and decreased supply) should increase in the overall gun desirability.

Prior Studies of Intent-to-Purchase

The design and hypotheses of this paper are influenced by several prior studies that utilized intent-to-purchase measures to understand US gun ownership. Kleck et al. (2011) found that perceived crime risk, along with actual robbery victimization (though not burglary) increases stated intentions to buy a gun. These results suggest that the prospect of social disorder stemming from the COVID-19 pandemic should increase gun desirability. However, as Kleck et al. did not "know how many of who stated that they planned to get a gun for self protection actually did so, and understand that the two are not the same" (2011: 319), this intent-to-purchase measure has limited external validity. Social desirability and other factors may bias participants' responses to intent-to-purchase questions, complicating interpretation. See the *Outcome Measurement*

subsection of the Data Collection & Experimental Design section for a complete discussion of the flaws inherent to intent-to-purchase measures.

Warner and Thrash (2020) use Pew survey data to demonstrate that the link between crime risk and gun ownership is complex, supporting a framing that both distal processes and transient events (crime victimization) influence gun desirability and acquisition trends. Warner (2020) elaborated on this finding with a survey (N = 954) of non-gun owning US MTurk participants, measuring openness to future gun ownership ("How likely are you to own a gun in the future?" – page 12) via a 5-level Likert scale. Warner (2020) found that participants who identified as men were significantly more open to future gun ownership, but only women had a significant association between perceived risk of crime and openness to gun ownership. This complexity partly confirms research (Mencken and Froese 2017; Yamane, DeDeyne, and Méndez 2021) that different groups of gun owners have different underlying reasons for their gun ownership.

Kelley and Ellison (2021) use survey data to trifurcate participants (N = 3,103) into (1) gun owners, (2) non-owners who express openness to future gun ownership ('maybes'), and (3) non-owners who do not express openness to future gun ownership ('nevers'). They find that preparedness – including securitization through alarm systems, socialization among other gun owners, and other factors – and a highly complex set of other characteristics differentiate 'maybes' from 'nevers'. Recognizing this complexity, Kelly and Ellison advocate for research that (1) moves "beyond the owner/non-owner dichotomy" and (2) that offers a serious exploration of gun divestment (2021: 23). The gun desirability measure tested in this paper helps address these two calls to action.

The present paper contrasts with Kleck et al. (2011), Warner (2020), Warner and Thrash (2020), and Kelley and Ellison (2021) by using an experimental design, including both gun

owners and non-gun owners in the participant pool, and by testing gun desirability rather than intent-to-purchase. An important distinction is that the purpose of this paper is to validate the measure of gun desirability. This validation will allow researchers to test the *causal impacts* of theorized motivations of gun ownership, while the cross-sectional and non-experimental designs common with intent-to-purchase studies reveal the *correlations* of theorized motivations.

DATA COLLECTION & EXPERIMENTAL DESIGN

Preregistration and Participant Recruitment

Data collection, experimental design, hypotheses, and general analytic strategy were preregistered with the Open Science Foundation on May 15th, 2020 (see Sola 2020 for a link to the preregistration). There are three significant departures from the preregistration plan, which was registered prior to piloting or data collection. First, editors suggested focusing on the pandemic video vignette; therefore, two other video vignettes and sexual identity interactions will be analyzed in future work. Second, in study one Bonferroni-corrected t-tests are more sensical than the initially proposed ANOVA tests. Third, the bimodal distribution (see Figure 4) and interval nature of the gun desirability outcome variable necessitated a more thorough analysis than the proposed ANOVA and OLS regression models. Hypotheses, model functional forms, and assumptions are addressed in the Hypotheses & Methods section, with further discussion for study two in Appendix B.

Participants were recruited from May 26th to June 18th, 2020 to complete a survey experiment via MTurk for a small monetary fee, where it was advertised as a "5 min survey containing a 1 min video and attention check". The participant pool consisted of a nationwide sample of US residents age 21 or older. Such samples recruited via MTurk are well-suited for survey experimental designs if data quality standards are both measured and incentivized (Crump, McDonnell, and Gureckis 2013; Hunzaker and Mann 2020; Shank 2016). Beyond age

and US residency, two further restrictions were applied to the sample pool. First, an approval rating of 95% or above was required on prior MTurk tasks (known as HITs), which is a standard data quality measure (Peer, Vosgerau, and Acquisti 2013; Pickett, Roche, and Pogarsky 2018). Second, participants who had done prior work on my surveys (or who had taken this survey once already) were prohibited from (re)taking the survey to avoid treatment contamination (Barnum and Solomon 2019).

Video Vignettes

Participants first completed a brief screening questionnaire to verify that they could play and understand media files, met the 21+ age requirement of the study, and resided in the US. Next, participants were randomly assigned to one of two conditions containing video vignettes. Video vignettes were chosen, as opposed to alternative treatments, because a different set of participants had frequently failed attention checks during a 2019 pilot of text vignettes.

In the control condition, participants viewed a one-minute video excerpt introducing the 'Deflategate' American football controversy of 2015 (Buzzfeed 2018). This control condition was designed to arouse participants while being orthogonal (unrelated) to gun ownership and desirability. Deflategate was a cheating controversy stemming from a 2015 New England Patriots vs. Indianapolis Colts football game. The Patriots, and specifically quarterback Tom Brady, were sanctioned by the National Football League for allegedly underinflating their footballs. Without the inclusion of a control video, any analysis of treatment effects would be confounded by the possibility that watching a video independently influences viewer's gun desirability. The video first introduces the two hosts of the show, who hold differing views about the Deflategate football controversy, and then begins a narration of pertinent events during the New England Patriots vs. Indianapolis Colts football game in question. The video is cut to end on a mild cliffhanger.

The treatment condition was a one-minute news video excerpt about increased grocery, liquor, and gun sales due to the COVID-19 pandemic and related fears of social disorder (NBC 2020). This vignette was selected specifically because it features the pandemic in conjunction with several theorized causes of gun desirability: fears of social disorder, increased gun sales, lack of gun availability, perceived utility of guns for self-defense, and a lack of effective government responses. Amidst other videos that addressed such themes, this video was selected because it (1) described several national contexts and concerns aroused by the COVID-19 pandemic and (2) addressed these topics within a one-minute time span.

During the video a narrator explains that the ongoing COVID-19 pandemic is causing 'long lines' and supply shortages at grocery, pharmacy, liquor, and gun stores. In the first of two interview segments a white woman outside of a grocery store nervously expresses her hope that supplies will persist "until who knows how long this'll last" (NBC 2020). In the second and longer interview segment a white man is interviewed while waiting in line outside of a gun shop, explaining that he has decided to buy a gun because "I'm afraid that, if stuff gets worse, people are – people are gonna try to loot you, and I want my protection". The narrator then reports similar lines 'coast-to-coast', driving dwindling supplies of guns and ammunition (NBC 2020).

As previously noted, the pandemic video vignette features several theorized causes of gun desirability. This vignette is not well-suited for disaggregating *which* aspect(s) of the COVID-19 pandemic contributed to the *known* increase in pandemic gun sales (see Figure 1). As the purpose of study two is to validate the novel measure of gun desirability against this known increase in gun sales during the pandemic, the video vignette's inclusion of several theorized causes of gun desirability buttresses external validity.

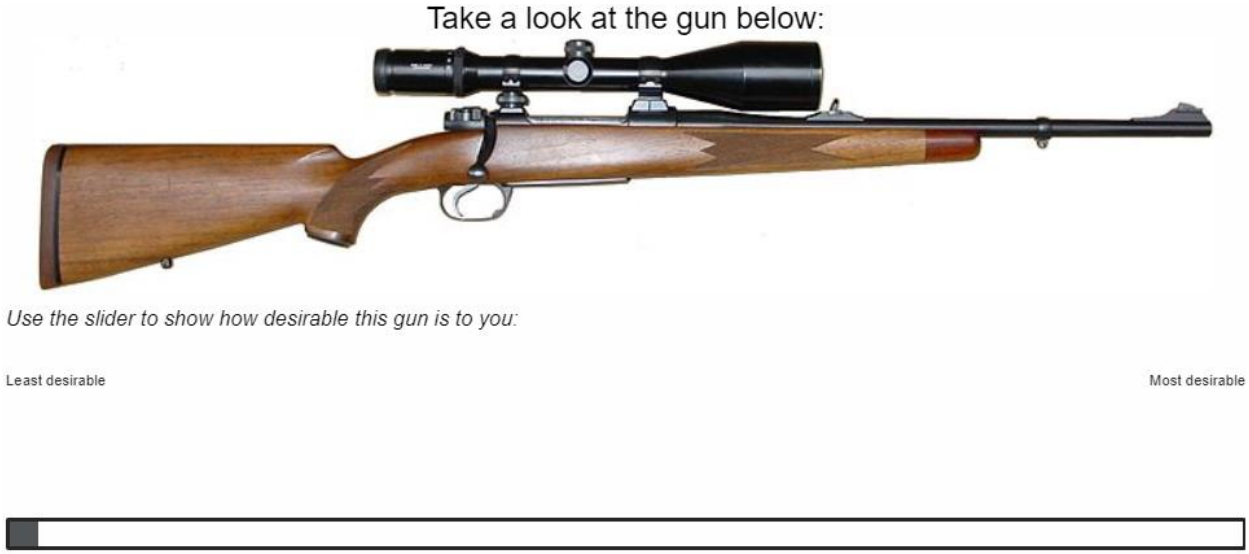
A multiple-choice attention check question was presented immediately after participants viewed either the control or pandemic video vignette. As advertised in the MTurk recruitment, participants who failed the attention check were not able to complete or retake the survey.

Outcome Measurement

Immediately after vignette exposure, participants filled out the outcome measures: horizontal sliding-scales of gun desirability accompanying pictures of a Glock pistol, an AR-15-pattern semi-automatic rifle, and a bolt-action hunting rifle. All three outcome measures were presented in random order on the same page, immediately after the video vignette (control or treatment) and attention check. Presenting all three on the same page prevents attenuation by limiting the number of actions (clicks and page changes) and elapsed time participants had to traverse between the vignette and outcome measures. To complete the outcome measure, participants had to click on the sliding-scale and drag to their desired point. Requiring participant input helps mitigate the potential for anchoring on an initial point of a measure (Maineri, Bison, and Luijkx 2019).

The outcome question directed participants to “Take a look at the gun below”, displayed the referenced gun, and asked participants to “Use the slider to show how desirable this gun is to you”. The left-hand side of each sliding scale was labeled as 'least desirable', while the right-hand side was labeled as 'most desirable'. The response was recorded on the interval of [00.00,100.00], with 0.00 corresponding to ‘least desirable’ and 100.00 to ‘most desirable’. Participants saw the graphical position of their slider selection rather than this numerical record. For review, see the hunting rifle sliding scale outcome measure below:

Figure 3 – Hunting Rifle Outcome Measure Example



Note: For full set of outcome measure pictures and implementation instructions, please contact the author.

A sliding-scale, rather than a Likert scale, was chosen for two reasons. First, there is no reason to believe that desire manifests at the discrete levels of an ordinal Likert scale, and therefore measuring on a continuous scale may have less measurement error. Second, a continuous scale avoids the problem of participants fixating on a 'neutral' middle position with odd Likert scales, while also avoiding the opposite problem of neutral participants unable to express a genuine neutral preference with even Likert scales (Bishop 1987; Guy and Norvell 1977; Kalton, Roberts, and Holt 1980; Nowlis, Kahn, and Dhar 2002).

An alternative approach would be to directly ask participants about their intention, or lack thereof, to purchase a gun – also known as an 'intent-to-purchase' measure (often time-bound: *'Will you purchase a gun within the next 3 months?'*). However, there are two major impediments to such a measurement: intentions have low external validity, and direct questioning on a partisan topic may deter truthfulness. First, intent-to-purchase questions measure *accounts* of prospective behavior, rather than participant's actual future behavior. Our accounts of our future behavior are fallible; 'talk is cheap' and is not a reliable indicator of future behavior in ethnographic (Jerolmack and Khan 2014), survey, or experimental contexts (Eifler

and Petzold 2019). Intent-to-purchase questions may also catalyze purchases, resulting in 'self-generated validity' (Chandon, Morwitz, and Reinartz 2018), which is of concern when administering a large survey experiment such as this study (N = 4,240).

Second, an intent-to-purchase question may be interpreted in a partisan context. Conservatives are more apt to non-response when participating in a survey, particularly when answering questions about personal gun ownership (Urbatsch 2018). However, gun owners do answer questions about their gun ownership *behavior* accurately (Smith 2003). Eliciting gun desirability on a sliding scale is thus less likely to result in an outcome afflicted by responses that are missing in non-random ways (as a result of 'gun-question-shy' participants). An outcome variable with data missing in non-random ways, also known as 'endogenous sample selection' (Wooldridge 2018: 315-6), is a problematic violation because the missing data cannot be corrected by imputing outcome values or by dropping non-responses.

A willingness to pay outcome measurement ('*How much money would you pay for this gun?*'), while potentially increasing external validity, is confounded by market conditions. Regardless of how desirable a participant may or may not find a gun, their willingness to pay ceiling and floor may be constrained by local and temporal market conditions that this study cannot control for. For example, a participant could easily ascertain the local price and availability of any gun through a search engine. Furthermore, a willingness to pay outcome measure would tread close to marketing research. The benefit of gun desirability is that it measures participants' disposition rather than their economic resources and gun market knowledge.

Survey Questions and Sample Characteristics

After the outcome measures, participants completed a set of up to 9 questions including gun ownership, thought(s) since January 1st, 2020 of buying a gun or completed purchase(s),

beliefs about the origins of COVID-19 (natural, unsure, released unintentionally from a laboratory, and released intentionally from a laboratory), and whether the participants had encountered significant pandemic impacts (health, financial, and /or quality of life). The COVID-19 beliefs and pandemic impacts questions acts as a robustness check on the measurement of gun desirability.

In the last stage of the survey data collection, participants completed up to 19 demographic questions (see Table 2 for sample characteristics). After completing the survey questions, participants were served a completion notice with a redemption code for input on the MTurk website. Finally, all participants (including those who failed the attention check) were shown the contact information and institutional affiliation of the principal investigator. Survey completion time was measured from opening the survey window in Qualtrics to viewing the contact information. Among participants who successfully completed the survey, median time to completion was five minutes and five seconds. See Appendix C for variable definitions.

Table 1. Participant Attention Check and Subsequent Survey Completion Rates

	Attention check completion		**Subsequent survey completion**	
Condition	Success	Failure	Complete	Incomplete
Pandemic Vignette	89.5% (2,275)	10.5% (266)	94.6% (2,152)	5.4% (123)
Control Vignette	86.3% (2,195)	13.8% (350)	95.1% (2,088)	4.9% (107)
Total	87.9% (4,470)	12.1% (616)	94.9% (4,240)	5.1% (230)

Note: Absolute counts in parentheses. The denominator for survey completion and failure is the attention check success count. Rounding may cause percentages to sum outside 100%.

Reasons for survey failure and data exclusion were: (1) participants re-attempting the survey despite failing an attention check, (2) multiple survey attempts resulting in the exclusion of subsequent responses (if a user took the survey more than once, despite MTurk and Qualtrics-based efforts to prevent this), (3) timing out of the survey or other reason for incompletion, and 4) missing responses (N = 10) to pandemic questions. No significant differences in sample characteristics, pairwise correlations, and OLS multiple regression estimators were observed

when excluding missing responses. Finally, one participant reported problems viewing videos when using the Microsoft Edge browser. This participant was compensated but their data were dropped from the analysis. Table 2 displays the descriptive statistics of the final sample:

Table 2 – Participant Characteristics, N = 4240

Variable	Percent or Mean	SD	Min	Max
Sex identity	.	.	.	.
Female	54.4%	.	.	.
Male	45.0%	.	.	.
Other	0.6%	.	.	.
Racial identity	.	.	.	.
White	72.9%	.	.	.
American Indian or Alaska Native	0.9%	.	.	.
Asian	9.1%	.	.	.
Black or African American	9.7%	.	.	.
Multiple	3.8%	.	.	.
Native Hawaiian or Pacific Islander	0.3%	.	.	.
Other	3.2%	.	.	.
Latinx	11%	.	.	.
Survey duration (seconds)	372	415	127	11772
Age	36.3	12.2	21	91
Urbanicity	.	.	.	.
Rural	19.5%	.	.	.
Suburban	52.3%	.	.	.
Urban	28.3%	.	.	.
Marital status	.	.	.	.
Never married	45.1%	.	.	.
Divorced	7.5%	.	.	.
Separated	1.3%	.	.	.
Widowed	1.1%	.	.	.
Married	45%	.	.	.
Household size	3.15	6.26	1	200
Household children	.71	1.22	0	31
Political view	.	.	.	.
Liberal	37.2%	.	.	.
Moderate	39.2%	.	.	.
Conservative	23.6%	.	.	.
Party affiliation	.	.	.	.
Democrat	40.5%	.	.	.
Independent or other	36.8%	.	.	.
Republican	22.7%	.	.	.
Education	.	.	.	.
Less than high school	0.6%	.	.	.
High school graduate	8.3%	.	.	.
Some college	20.4%	.	.	.
2-year degree	10.9%	.	.	.
4-year degree	41.7%	.	.	.
Professional degree	15.8%	.	.	.
Doctorate	2.4%	.	.	.
2019 annual income*	.	.	.	.
Personal income	3.73 ($30k-$40k)	3.03	0	10
Household income	5.78 ($50k-$60k)	3.16	0	10
Employment	.	.	.	.

Unemployed not looking for work	4.8%	.	.	.
Unemployed looking for work	12.7%	.	.	.
Retired	4.1%	.	.	.
Employed part time	15.6%	.	.	.
Employed full time	55.4%	.	.	.
Stay at home caregiver / homemaker	7.4%	.	.	.
Religious identity	.	.	.	.
Atheist	11.9%	.	.	.
Agnostic	18.1%	.	.	.
Buddhist	1.6%	.	.	.
Hindu	1.4%	.	.	.
Jewish	1.7%	.	.	.
Mormon	1.4%	.	.	.
Muslim	1.2%	.	.	.
Orthodox	1.0%	.	.	.
Other	23.4%	.	.	.
Protestant	20.3%	.	.	.
Roman Catholic	18.0%	.	.	.
Evangelical	17.2%	.	.	.
Religious service frequency**	1.90 (Rarely or never)	1.51	0	6
Pandemic impact count***	1.25	.79	0	3
Financial impacts	47.5%	.	.	.
Health impacts	8.2%	.	.	.
Quality of life impacts	69.5%	.	.	.
Government assistance count***	.641	1.02	0	7
Medical assistance	13.6%	.	.	.
Cash assistance	5.5%	.	.	.
Food assistance	13.2%	.	.	.
Social security assistance	5.5%	.	.	.
Unemployment assistance	17.1%	.	.	.
Housing assistance	2.9%	.	.	.
Other assistance	6.3%	.	.	.
COVID-19 pandemic origin beliefs	.	.	.	.
Came about naturally	45.5%	.	.	.
Unsure	21.2%	.	.	.
Was released accidentally from a lab	17.3%	.	.	.
Was released intentionally from a lab	16.1%	.	.	.
Gun control organization membership	3.4%	.	.	.
Personal gun ownership	19.6%	.	.	.
Other household gun owners	.	.	.	.
No other gun owners	82.7%	.	.	.
1+ other household gun owners	17.3%	.	.	.
Number of guns in household	.	.	.	.
None	63.1%	.	.	.
Unsure	2.8%	.	.	.
One	12.5%	.	.	.
Two	8.1%	.	.	.
Three	4.2%	.	.	.
Four or more	9.3%	.	.	.
Type(s) of guns in household	.	.	.	.
Handgun(s)	28.9%	.	.	.
Bolt- or lever-action rifle(s)	12.0%	.	.	.
Semi-automatic rifle(s)	9.4%	.	.	.
Shotgun(s)	17.4%	.	.	.
Other gun(s)	1.7%	.	.	.
Recent gun thoughts and purchases****	.	.	.	.
None	62.8%	.	.	.

Handgun(s)	.	.	.	.
I thought about purchasing	27.9%	.	.	.
I purchased	3.4%	.	.	.
Bolt- or lever-action rifle(s)	.	.	.	.
I thought about purchasing	4.8%	.	.	.
I purchased	0.7%	.	.	.
Semi-automatic rifle(s)	.	.	.	.
I thought about purchasing	8.1%	.	.	.
I purchased	1.1%	.	.	.
Shotgun(s)	.	.	.	.
I thought about purchasing	9.5%	.	.	.
I purchased	0.9%	.	.	.
Other gun(s)	.	.	.	.
I thought about purchasing	0.5%	.	.	.
I purchased	<0.1%	.	.	.

Note: Rounding may cause percentages to sum outside 100%.
***** Income in $10k buckets, starting at 0 = $0 to $10,000 and ending at 10 = $100,000 or more.
****** Religious service frequency scaled as follows: 1 = "Rarely or never", 2 = "On holidays", 3 = "Once or twice a month", 4 = "Once a week", 5 = "Several times each week", and 6 = "Daily". 0 was reserved for participants who reported their religious identity as atheist.
******* Participants were able to select multiple options.
******** Participants could select multiple options in either thinking about purchasing or purchasing. Question specified recently as "since January 1st 2020."

As is common in MTurk samples, participants were relatively more educated, more liberal, less religious, and younger than the US population as a whole (Barnum and Solomon 2019; Hunzaker and Mann 2020; Pickett, Roche, and Pogarsky 2018; Shank 2016). Unusually, the racial composition of the sample was similar to the US population; whites are often overrepresented in MTurk samples. Gun ownership was consistent with US estimates (Gallup 2019b) of 30-35% household gun ownership (~35 % in sample) and 15-20% individual gun ownership (~20% in sample). There is no reason to expect systematic bias as a consequence of sample bias, particularly as the experimental procedure is randomly assigned.

HYPOTHESES & METHODS

Study One: Gun Desirability Measure Validation

H_1 – *As gun desirability measures inclination towards gun ownership, the covariates of participants with higher gun desirability and the covariates of gun-owning participants should correlate*

In study one, gun desirability is validated against the demographic characteristics and beliefs of gun owners. Specifically, study one compares mean differentials derived from t-tests – a variant of a difference-in-differences design. Non-gun owners are compared to gun owners on a variety of demographic characteristics, drawn national surveys of gun ownership and behavior (Gallup 2019b; Legault and Lizotte 2009; Parker et al. 2017; Smith 2003). Participants with above the median overall gun desirability (*above-median desirers*) are compared to those with below or equal to the median overall gun desirability (*below-median desirers*) on the same characteristics. I predict that significant differences in demographics within each dichotomous pairing – gun owners and non-gun owners, above-median desirers and below-median desirers – will be *mirrored*. For example, if Evangelical Christianity is significantly more common among gun owners than non-gun owners, Evangelical Christianity should also be significantly more common among above-median desirers than below-median desirers.

As desirability measures inclination towards gun ownership, rather than gun ownership itself, I do not expect perfect parity between above-median desirers and gun owners. First, the demographic differentials of gun owners versus non-gun owners should often be larger in magnitude than differentials of above-median desirers versus below-median desirers, as gun ownership is a more significant demarcation than a dichotomization of gun desirability. Second, gun desirers are not always able to acquire guns – inclination is not action.

Demographic covariates of interest include sex (male associated with greater gun ownership), urbanicity (rural associated with greater gun ownership), political and party affiliations (conservative affiliation and Republican party associated with greater gun ownership), age (increased age associated with greater gun ownership), racial identity (white associated with greater gun ownership), and evangelical identity (associated with greater gun

ownership than non-evangelical – see Whitehead, Schnabel, and Perry 2018; Yamane 2016), among other covariates of sociological significance (e.g. household income, marital status, etc.).

Gun owners (N = 831, 19.6%) and non-gun owners (N = 3409, 80.4%), as well as above-median desirer and below-median desirer (N = 2120 in each group), are t-tested on the set of covariates. This procedure results in two mean differentials for each covariate: a differential for gun owners versus non-gun owners, and a differential for above-median desirers versus below-median desirers. Finally, these two differentials are compared for each covariate, examining the significance and direction. Welch's approximation (1947) is used to account unequal sample sizes (between gun owners and non-gun owners) and the possibility of unequal variances among both groups (Ruxton 2006). Creating a dummy variable based on median values of a continuous variable, and then using a t-test with unequal variances, is non-parametric and highly resilient to measurement errors (Wald 1940).

Study Two: Pandemic Vignette Effects on Gun Desirability

H_{2a} – *the pandemic video vignette will increase overall gun desirability relative to the control video vignette*

H_{2b} – *the pandemic vignette's effects on pistol and AR-15 desirability will be greater in magnitude than effects on hunting rifle desirability*

Formally, gun desirability is a function of video vignette exposure and covariates, and the coefficient for pandemic video vignette exposure is positive. In equation form:

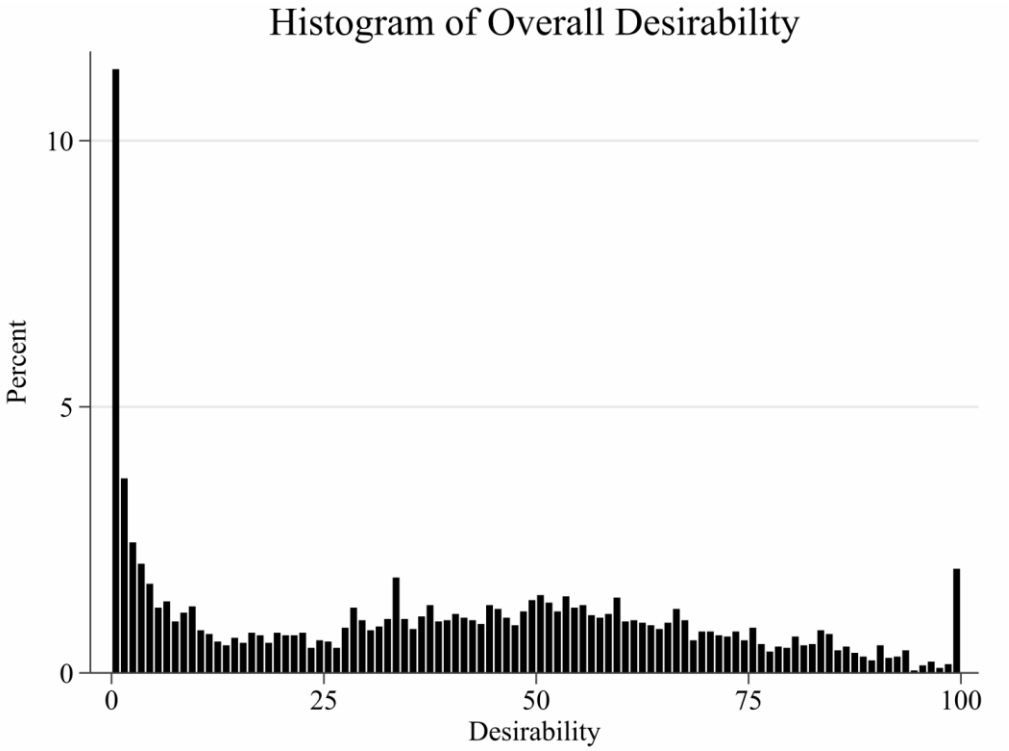
$$y_i = \beta_0 + \beta_1 Vignette_p + \beta_2 x_2 + \cdots + \beta_k x_k + \mu_i, \qquad \beta_1 Vignette_p > 0$$

Where y_i represents gun desirability, β_0 a constant, β_1 the coefficient for pandemic video vignette condition $Vignette_p$, $\beta_k x_k$ a vector of coefficients and covariates, and μ_i the unobserved random error (residual) term. The subscript i ranges from 1 to *N* (4,240), the number of participants in the study. Therefore, the analytic strategy depends on the estimation of

exposure effects for the pandemic condition ($\hat{\beta}_1 Vignette_p$) relative to the control vignette, controlling for covariates in multiple explanatory variable models. Note that the usage of μ_i rather than ϵ_i indicates that errors may not be spherical (identically distributed regardless of explanatory variables) (Abadir and Magnus 2002).

Ordinary least squares (OLS) multiple regression is usually suited to causal inference in randomly-assigned experimental contexts (Shadish, Cook, and Campbell 2002; West and Thoemmes 2010), such as the design utilized here. Gun desirability is measured on the closed interval [0, 100], *least desirable* [0] to *most desirable* [100], and is therefore bounded, rather than censored or truncated, to that interval. This distinction is meaningful when considering model selection. Some models (like the two-limit Tobit) are ideal for censored or truncated data but less so for natural boundaries (like participants' indications of least desirable and most desirable), whereas other models (like the Probit) assume a Gaussian outcome distribution (Wooldridge 2010: 748-749). The distribution of all three outcome measures was bimodal, with responses massed at *least desirable* [0] and *most desirable* [100]. Figure 4 displays the distribution of overall desirability, an average of all three desirability measures (see Appendix A for individual outcome distributions):

Figure 4 – Histogram of Overall Desirability from 0 (*least desirable*) to 100 (*most desirable*)



Note: Observe the massing at 0 and 100 relative to the more uniform (0,100) interval distribution. Overall desirability is calculated as the mean of handgun, AR-15, and hunting desirability outcome measures.

OLS may yield accurate coefficient estimates for mean values, but may not yield sensical results as combinations of covariates are considered. Such combinations of OLS estimators might exceed the [0,100] interval or feature greater magnitudes of error at the interval boundaries (heteroscedasticity). The usage of a large sample helps to mitigate model concerns that stem from the non-normal distribution of outcomes (Lumley et al. 2002), but does not necessarily mitigate concerns that stem from the interval scale of the outcome.

There are numerous classes of models that may be appropriate for such a 'fractional' outcome variable (Papke and Wooldridge 1996; Ramalho, Ramalho, and Murteira 2011; Wooldridge 2010). Given that there is considerable massing (see Figure 1) at the boundaries of 0 (*least desirable*) and 100 (*most desirable*), the most appropriate models are fractional logit regressions and zero- and one-inflated beta regressions. Fractional logit regressions are a generalized linear model that predict the expected value (also known as conditional mean) of a

bounded but continuous outcome given a vector of explanatory variables (Papke and Wooldridge 1996; Wedderburn 1974). Note that these regressions predict an expected value rather than an estimator that is linear and unbiased throughout the full range of outcome variables (which OLS attempts). As such, fractional logit regressions treat the difference between boundary (here *least desirable* and *most desirable*) and interval outcomes as due to a 'gradual' process "rather than a completely different process" (Buis 2020: 13). As quasi-maximum likelihood estimators they are also quasi-parametric, meaning that fractional logit regressions do not necessitate any particular probability distribution function of the outcome variable (Gourieroux, Monfort, and Trognon 1984). Furthermore, quasi-maximum likelihood estimators are 'strongly consistent' and resilient even when the functional form of explanatory variables are misspecified (White 1982: 4). Fractional logit regression complements OLS regression because of its robustness to non-normal errors and better fit to the fractional outcome variables.

The pandemic video vignette may affect desirability differently for participants who find guns most desirable [100], least desirable [0], or in the interval between (0,100) (Ospina and Ferrari 2012). ZOIB regressions test for this causal heterogeneity by simultaneously estimating equations for each of these three outcome intervals: two logit regressions for outcome values of [0] and [100], and a beta regression for the (0,100) interval. This simultaneous estimation is computationally intensive and results in three estimators for each covariate – one for each of the three outcome interval models.

Because participants likely vary in the plasticity of their gun desirability, as well as how covariates affect their desirability, I relax the independent and identically distributed error assumption and calculate robust standard errors in all three (OLS, Fractional Logit, and ZOIB) regressions. Appendix B includes further discussion of model selection, specification, and assumption testing for study two.

RESULTS

Study One

Table 3 presents group mean t-test differentials between (1) gun-owners and non-gun owners and (2) above- and below-median desirers:

Table 3 – T-Test Mean Differentials on Gun Ownership and Above Median Gun Desirability

	Personal gun ownership, means			**Overall gun desirability, means**		
Variables	Yes	No	Differentials (absolute)	Above median	Below median	Differentials (absolute)
N	831	3409	.	2120	2120	.
Male identification	57.0%	42.0%	*+15.1%***	56.3%	33.7%	*+22.6%***
Age	38.4	35.8	**+2.7*** **	35.5	37.1	**-1.62*** **
Urban area	21.3%	30.0%	-8.7%***	28.8%	27.8%	-1.1
White	83.9%	70.3%	13.6%***	72.9%	73.1%	-0.3
Liberal political views	20.8%	41.2%	*-20.4%***	23.9%	50.4%	*-26.5%***
Democratic party	24.7%	44.4%	*-19.8%***	28.5%	52.7%	*-24.2%***
Married	59.7%	41.5%	*+18.3***	46.7%	43.4%	*+3.4%***
Bachelors or higher education	55.4%	61.0%	*-5.6%***	54.7%	65.0%	*-10.4%***
Employed part- or full-time	13.4%	23.7%	*-10.3%***	19.5%	23.8%	*-4.3%***
Personal income in 2019	4.42	3.57	*+0.86***	3.89	3.59	*+0.29**
Household income in 2019	6.04	5.72	+0.33	5.71	5.85	-0.13
Christian	55.7%	45.1%	*+10.7%***	53.5%	40.9%	*+12.6%***
Evangelical Christian	25.7%	15.0%	*+10.7%***	20.4%	13.7%	*+6.8%***
Religious service frequency	2.03	1.86	+0.17	2.07	1.72	+0.34***
COVID-19 released from a lab	45.2%	30.5%	*+14.7%***	42.8%	23.9%	*+18.9%***
Personal gun ownership	.	.	.	33.3%	5.9%	*+27.4%***
Pistol desirability	73.4	44.2	*+29.2%***	74.8	25.0	+49.8***
AR-15 desirability	56.8	25.6	*+31.2***	57.5	5.9	*+51.5***
Hunting rifle desirability	57.5	26.7	*+30.9***	56.6	8.9	*+47.7***
Overall desirability	62.6	32.1	*+30.4***	62.9	13.3	*+49.7***

Notes: Divergence in significant differentials direction **bolded**, congruence in significant differentials *italicized*. Rounding may cause percentages to sum outside 100%. Income in $10k buckets, starting at 0 = $0 to $10,000 and ending at 10 = $100,000 or more. Religious service frequency scaled as follows: 1 = "Rarely or never", 2 = "On holidays", 3 = "Once or twice a month", 4 = "Once a week", 5 = "Several times each week", and 6 = "Daily". 0 was reserved for participants who reported their religious identity as atheist.
*p < .0026; **p < .00053; ***p < 0.00005 (two-tailed tests) due to Bonferroni correction for 19 simultaneous tests.

Differentials are largely consistent between the two mean comparisons. Promisingly, gun owners exhibit much higher gun desirability than non-gun owners. There is only one significant direction change: above-median desirers were significantly younger (-1.6 years mean difference) than below-median desirers, while gun owners were significantly older (+2.7 years mean difference) than those who did not report gun ownership.

Study Two

Table 4 – OLS Regressions of Gun Desirability on Video Vignette (Reference = Control)

Desirability type	**Handgun**		**AR-15 Rifle**		**Hunting Rifle**		**Overall**	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Model type	Simple OLS	Multiple OLS	Simple OLS	Multiple OLS	Simple OLS	Multiple OLS	Simple OLS	Multiple OLS
Pandemic Vignette	7.58***	8.00***	-0.37	-0.76	-2.67**	-2.71**	1.51	1.51*
S.E.	(1.10)	(0.90)	(1.09)	(0.83)	(1.01)	(0.83)	(0.89)	(0.65)
N	4240	4240	4240	4240	4240	4240	4240	4240
R-squared	0.01	0.36	<0.01	0.45	<0.01	0.35	<0.01	0.48
Covariates								
Demographic	No	Yes	No	Yes	No	Yes	No	Yes
Gun ownership	No	Yes	No	Yes	No	Yes	No	Yes
Pandemic	No	Yes	No	Yes	No	Yes	No	Yes

Notes: Robust standard errors in parentheses. Coefficients can be interpreted as the predicted effect on a [0,100] interval of desirability, holding covariates (if any) constant. See Appendix D for complete regression outputs, including detailed covariate information.
*p < .05; **p < .01; ***p < .001 (two-tailed tests).

The pandemic video vignette increases handgun desirability ~8.0 points on the [0,100] interval with a high degree of significance in both simple and multiple regression models. AR-15 desirability is not significantly affected by the pandemic vignette. Hunting rifle desirability is significantly decreased by ~2.7 points on the [0,100] interval. Lastly, overall desirability is increased by ~1.5 points on the [0,100] interval, without significance in the simple regression model but with significance in the multiple regression model. Coefficients point estimates are stable between simple and multiple regression models.

Table 5 – Fractional Logit (FL) Regressions of Gun Desirability on Video Vignette (Reference = Control)

Desirability type	**Handgun**		**AR-15 Rifle**		**Hunting Rifle**		**Overall**	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Model type	Simple FL	Multiple FL	Simple FL	Multiple FL	Simple FL	Multiple FL	Simple FL	Multiple FL
Pandemic Vignette	7.58***	7.88***	-0.37	-0.46	-2.67**	-2.73***	1.51	1.60*
S.E.	(1.10)	(0.88)	(1.09)	(0.82)	(1.01)	(0.82)	(0.89)	(0.65)
N	4240	4240	4240	4240	4240	4240	4240	4240
Covariates								
Demographic	No	Yes	No	Yes	No	Yes	No	Yes
Gun ownership	No	Yes	No	Yes	No	Yes	No	Yes
Pandemic	No	Yes	No	Yes	No	Yes	No	Yes

Notes: Robust delta standard errors in parentheses. Coefficients can be interpreted as the change in the expected value of desirability on a [0,100] interval, holding covariates (if any) constant. See Appendix E for complete regression outputs, including detailed covariate information.
*p < .05; **p < .01; ***p < .001 (two-tailed tests).

Results for the fractional logit models are similar to the OLS regression models, with some slight improvements to standard errors resulting in marginally increased significance for some coefficients. The pandemic video vignette increases the expected value of handgun desirability ~7.9 points on the [0,100] interval with a high degree of significance in both simple and multiple regression models. The expected value of AR-15 desirability is not significantly affected by the pandemic vignette. The expected value of hunting rifle desirability is decreased by ~2.7 points on the [0,100] interval with a high degree of significance. Lastly, the expected value of overall desirability is increased by ~1.6 points on the [0,100] interval, without significance in the simple regression model but with significance in the multiple regression model. Coefficients point estimates are stable between simple and multiple regression models.

Table 6 – Zero- and One-Inflated Beta (ZOIB) Regressions of Gun Desirability on Video Vignette (Reference = Control)

Desirability type	**Handgun**		**AR-15 Rifle**		**Hunting Rifle**		**Overall**	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Model type	Simple ZOIB	Multiple ZOIB	Simple ZOIB	Multiple ZOIB	Simple ZOIB	Multiple ZOIB	Simple ZOIB	Multiple ZOIB
(0,100) Beta Regression								
Pandemic Vignette	6.36***	6.34***	0.39	-0.61	-0.96	-1.57*	1.97*	1.45*
S.E.	(0.98)	(0.79)	(0.83)	(0.67)	(0.84)	(0.70)	(0.86)	(0.63)
[100] Logit Regression								
Pandemic Vignette	2.90**	2.98***	-0.74	-0.64	-1.03	-0.77	-0.26	-0.15
S.E.	(0.95)	(0.89)	(0.87)	(0.72)	(0.67)	(0.58)	(0.41)	(0.37)
[0] Logit Regression								
Pandemic Vignette	-0.88	-1.15	0.34	0.32	1.43	1.24	-0.54	-0.76
S.E.	(0.95)	(0.85)	(1.18)	(1.04)	(1.06)	(0.98)	(0.83)	(0.78)
N	4240	4240	4240	4240	4240	4240	4240	4240
Covariates								
Demographic	No	Yes	No	Yes	No	Yes	No	Yes
Gun ownership	No	Yes	No	Yes	No	Yes	No	Yes
Pandemic	No	Yes	No	Yes	No	Yes	No	Yes

Notes: Robust standard errors in parentheses. Coefficients for beta regression can be interpreted as the change in the expected value of desirability on a [0,100] interval, holding covariates (if any) constant. Coefficients for the zero-inflated and one-inflated logit regression sub-models are measured in absolute percentage points, and are interpreted

as expected difference in probability of a *least desirable* [0] or *most desirable* [100] outcome respectively, holding covariates (if any) constant. See Appendix F for complete regression outputs, including detailed covariate information.
*p < .05; **p < .01; ***p < .001 (two-tailed tests).

Beta regression results, representing the closed (0,100) interval of outcomes, for the zero- and one-inflated beta regression models are comparable to the OLS regression and fractional logit models. The pandemic video vignette increases the expected value of handgun desirability ~6.3 points on the (0,100) interval with a high degree of significance in both simple and multiple regression models. As per previous regressions, the expected value of AR-15 desirability is not significantly affected by the pandemic vignette. The expected value of hunting rifle desirability is decreased by ~1.6 points on the (0,100) interval, with significance in the multiple regression model only. Lastly, the expected value of overall desirability is increased by ~2.0 and ~1.5 points on the (0,100) interval in the simple and multiple regression models respectively, both with significance. Coefficient point estimates are stable between simple and multiple regression model types, but have less precision than in the OLS and fractional logit models.

For the zero- and one-inflated logit portions of the ZOIB models, interpretation is simpler because there is only one significant result. For handgun desirability, exposure to the pandemic video vignette results in a ~3.0 percentage points greater probability of a *most desirable* [100] rating, which is highly significant in both simple and multiple regression models.

DISCUSSION & LIMITATIONS

Interpretation of Results

Study one confirms the validity of gun desirability as a measure of inclination towards gun ownership. Deviations between gun owners and gun desirers are congruent with this definition and confirm that gun desirability is not a measure of gun ownership. Gun owners are older than non-gun owners, but gun desirers are slightly younger than participants with below-median gun desirability. Gun owners rarely divest guns, so gun ownership accumulates with age

while gun desirability is not so affected. Furthermore, interest in gun ownership requires resources (e.g. income, time, stable and independent living situation, perhaps licensure) to manifest as gun ownership. Older US residents have more of these prerequisite resources, which may explain why gun ownership is skewed towards older Americans while age itself is negatively associated with gun desirability in study two (see appendices D, E, and F for point estimates).

Study two confirms that exposure to the pandemic video vignette significantly increases overall gun desirability relative to the control. Handgun desirability is significantly increased by exposure to the pandemic video vignette. This should not surprise US gun researchers, given the known increase in gun sales (particularly of handguns) during the pandemic period. Within the zero- and one-inflated beta (ZOIB) regressions, the significant one-inflated logit coefficient for the pandemic video vignettes effect on handgun desirability buttresses the results of the OLS, fractional logit, and beta regression functional forms. The limited number of *least desirable* [0] and *most desirable* [100] responses (see Appendix A) may have impeded the significance of other possible zero- and one-inflated logit regression results.

However, AR-15 rifle desirability is not significantly affected, and hunting rifle desirability experiences a significant (though small in magnitude) decrease in desirability. This represents a shift of gun interest away from sporting and further towards self-defense rather than a uniform increase in gun desirability. The surprising lack of a significant effect on AR-15 desirability, and the small but significant decrement to hunting rifle desirability, are likely due to the *simultaneous* presentation of the gun desirability outcome measures. Because participants indicated their pistol, AR-15, and hunting rifle desirability on the same page of the survey, results should similarly be analyzed in concert as both (1) an overall increase in gun desirability due to the pandemic video vignette, and (2) a shift towards self-defense gun desirability (rather

than hunting) due to the pandemic video vignette. Had AR-15 desirability been measured alone, I expect that desirability would have increased relative to the control video vignette. Study two cannot estimate this effect; instead, study two demonstrates that the pandemic video vignette increases handgun desirability *more* than AR-15 desirability, a relative effect. Therefore, study two's non-significant AR-15 finding does not conflict with increased AR-15 sales associated with the COVID-19 pandemic.

OLS regressions with robust standard errors produced estimators consistent with estimators from the fractional logit regressions, as well as interval ZOIB regressions. Fractional logit regressions outperformed OLS regressions in point estimate precision and significance by a small margin. Researchers interested in participants who rated guns as *most desirable* or *least desirable* should consider the ZOIB regression's ability to produce estimators for the likelihood of these extreme outcomes.

Limitations of This Study

A key limitation of this study is that the novel gun desirability measure was not simultaneously tested with other measures. Future research could compare this interval measure of gun desirability to a more traditional (1) willingness-to-pay measure, as is common in economics, and (2) a Likert scale as is common in sociological and psychological research. A related limitation is that gun desirability does not replace estimates of gun sales. The relationship between shifts in gun desirability and shifts in gun sales is therefore open to future research.

The selection of video vignettes (both control and pandemic) may limit the external validity of study two. Indeed, an experiment featuring different vignettes could (and often should) have different outcomes. For example, a different scholar could have chosen a treatment video vignette that highlighted different aspects of the COVID-19 pandemic, such as its aerosol spread or other transmissibility characteristics. Rather than view vignette choice as a limitation, I

consider myriad vignette possibilities as an opportunity for researchers to (1) carefully consider how their selected vignette(s) relates to prior work and theory, and (2) foment research featuring alternative vignette selections, leading to a more thoroughly tested body of theory. A clear (ideally pre-registered) discussion of vignette selection, experimental design, and hypothesis testing should protect against overbroad claims or interpretations.

This research requires a large sample size because vignettes account for a small proportion of variance in gun desirability. For example, the largest amount of variance explained by the pandemic video vignette was ~0.01 R^2 for handgun desirability within the simple OLS regression model. This is sensical as it would be surprising (and potentially alarming) if any short vignette accounted for a significant proportion of overall variance in gun desirability. This affects research scalability, as scholars must choose two of three desirable research traits: estimator precision, covariate diversity, and low cost per participant. This study, which featured screening questions, a 1-minute video vignette, an attention check, three outcome measures, and 28 covariates that required about five minutes to complete, cost nearly $1 per participant.

Discussion

This novel research demonstrates an experimental method to test theories of gun ownership, and prospective policy interventions, through a validated measure of gun desirability. Scholars are no longer limited to retrospective gun sales estimates, or intent-to-purchase measures of questionable validity, when investigating prospective changes in gun interest. This study also establishes a dataset analysis that enables the comparison of gun ownership, gun desirability, and a rich variety of covariates. My hope is that this research serves as a foundation for future scholarship to (1) discern trends of increasing and decreasing gun desirability, (2) test theorized causes and mechanisms of gun desirability, and (3) test prospective policy interventions' impact on gun desirability. One open question is whether white men in economic

duress, or exposed to a vignette of economic duress, desire guns significantly more than other groups (Carlson 2015a; Mencken and Froese 2017). Other inquiries might include the role of evangelical Christianity (Whitehead, Schnabel, and Perry 2018; Yamane 2016), racial threat (Shapira 2017), belief in 'protective' masculinity (Stroud 2016), and further theorized causes and mediators of gun ownership.

Research with participants from populations of interest – including the incarcerated, youth, and police – will enable fruitful comparisons to test causal heterogeneity of gun desirability (Harcourt 2006). For example, there is debate between 'palliative' (Dowd-Arrow, Hill, and Burdette 2019) and 'symptomatic' accounts (Hauser and Kleck 2013) of connection between gun ownership and various fears. Gun desirability is well-suited for comparing gun owners to non-gun owners, and to exploring how gun desirability is affected by the interaction of particular fears and gun ownership. With an increased ability to conduct empirical examinations, scholars can bridge the gap between 'epochal change' theories like neoliberalism (Sozzo 2019) and studies that contextualize the lived experience and social structure of gun ownership (Shapira and Simon 2018). Future researchers might also use this paper as an informative prior to Bayesian analyses of their research questions.

In conclusion, there are deeply pragmatic reasons why this research is important. Guns used in crime have overwhelmingly been legally purchased, with an ATF estimated 'time-to-crime' of less than a decade (2018). Despite polarization, policymakers and the public are receptive to research when considering policy decisions (Cook and Ludwig 2003). Moreover, gun owners are willing to change their minds in response to new information (Roberto et al. 2000). As approximately 500,000 guns are stolen per year (Azrael et al. 2017), discovering the social influences of gun desire and how to reduce leakage into illegal markets should be a scholarship priority.

We need to ask: why is it that we seek out guns during unsettled times? By testing a prospective measure (gun desirability) rather than a retrospective estimate (gun sales), scholars and policy-makers can study why we crave access to violence and evaluate the failures of our social institutions when considering prospective policy interventions. Then social policy can intervene on those conditions that arouse the desire to 'ride armed' (Hobbes 1651: 78), opening a different (and perhaps more fruitful) front than the narrow channel of gun controls.

REFERENCES

Abadir, Karim, and Jan Magnus. 2002. "Notation in Econometrics: A Proposal for a Standard." *The Econometrics Journal* 5(1):76–90.

Arnold, Chris. 2020. "Pandemic And Protests Spark Record Gun Sales." *NPR*, July 16.

ATF. 2018. *ATF Releases 2017 U.S. Firearms Trace Data Report*. Bureau of Alcohol, Tobacco, Firearms and Explosives.

ATF. 2021a. *Data & Statistics*. Bureau of Alcohol, Tobacco, Firearms and Explosives.

ATF. 2021b. *NICS Firearm Checks: Month/Year by State/Type (January 31st 2021 Update). File*. Bureau of Alcohol, Tobacco, Firearms and Explosives.

Awr, Hawkins. 2018. "NRA: 'When Seconds Count, the Police Are Only Minutes Away.'" *Breitbart News*, November 14.

Azrael, Deborah, Lisa Hepburn, David Hemenway, and Matthew Miller. 2017. "The Stock and Flow of U.S. Firearms: Results from the 2015 National Firearms Survey." *RSF* 3(5):38–57.

Barnum, Timothy C., and Starr J. Solomon. 2019. "Fight or Flight: Integral Emotions and Violent Intentions." *Criminology* 57(4):659–86.

Bartos, Bradley J., Richard McCleary, Lorraine Mazerolle, and Kelsy Luengen. 2020. "Controlling Gun Violence: Assessing the Impact of Australia's Gun Buyback Program Using a Synthetic Control Group Experiment." *Prevention Science* 21(1):131–36.

Bass, Rick. 1985. The Deer Pasture. College Station: Texas A & M University Press.

Bishop, George F. 1987. "Experiments With the Middle Response Alternative in Survey Questions." *The Public Opinion Quarterly* 51(2):220–32.

Blumstein, Alfred, and Joel Wallman. 2006. "The Crime Drop and Beyond." *Annual Review of Law and Social Science* 2(1):125–46.

Brauer, Jurgen. 2013. *The US Firearms Industry: Production and Supply*. Small Arms Survey.

Buis, Maarten. 2012. *ZOIB: Stata Module to Fit a Zero-One Inflated Beta Distribution by Maximum Likelihood*.

Buis, Maarten. 2020. "Analysis of Proportions." *SAGE Research Methods Foundations: An Encyclopedia* 1–22.

Buzzfeed. 2018. *Tom Brady's Infamous Football Cheating Scandal*. YouTube: https://www.youtube.com/watch?v=ycY8U9darow, accessed March 26, 2020.

Carlson, Jennifer D. 2012. "'I Don't Dial 911'American Gun Politics and the Problem of Policing." *The British Journal of Criminology* 52(6):1113–32.

Carlson, Jennifer D. 2014. "States, Subjects and Sovereign Power: Lessons from Global Gun Cultures." *Theoretical Criminology* 18(3):335–53.

Carlson, Jennifer D. 2015a. Citizen-Protectors: The Everyday Politics of Guns in an Age of Decline. London: Oxford University Press.

Carlson, Jennifer D. 2015b. "Mourning Mayberry: Guns, Masculinity, and Socioeconomic Decline." *Gender & Society* 29(3):386–409.

Carlson, Jennifer D. 2019. "Revisiting the Weberian Presumption: Gun Militarism, Gun Populism, and the Racial Politics of Legitimate Violence in Policing." *American Journal of Sociology* 125(3):633–82.

Carlson, Jennifer D. 2020. "Police Warriors and Police Guardians: Race, Masculinity, and the Construction of Gun Violence." *Social Problems* 67(3):399–417.

Chandon, Pierre, Vicki G. Morwitz, and Werner J. Reinartz. 2005. "Do Intentions Really Predict Behavior? Self-Generated Validity Effects in Survey Research:" *Journal of Marketing*. doi: 10.1509/jmkg.69.2.1.60755.

Cook, Philip J. 1976. "A Strategic Choice Analysis of Robbery." Pp. 173–87 in *Sample Surveys of the Victims of Crime*, edited by W. G. Skogan. Cambridge, MA: Ballinger.

Cook, Philip J., and Jens Ludwig. 2003. "Fact-Free Gun Policy?" *University of Pennsylvania Law Review* 151(4):1329–40.

Crump, Matthew J. C., John V. McDonnell, and Todd M. Gureckis. 2013. "Evaluating Amazon's Mechanical Turk as a Tool for Experimental Behavioral Research." *PLOS ONE* 8(3):e57410.

Depetris-Chauvin, Emilio. 2015. "Fear of Obama: An Empirical Study of the Demand for Guns and the U.S. 2008 Presidential Election." *Journal of Public Economics* 130:66–79.

Diaz, Tom. 2005. "Chapter 3 - The American Gun Industry: Designing & Marketing Increasingly Lethal Weapons." Pp. 84–104 in *Suing the Gun Industry*. University of Michigan Press.

Dowd-Arrow, Benjamin, Terrence D. Hill, and Amy M. Burdette. 2019. "Gun Ownership and Fear." *SSM - Population Health* 8:100463. doi: 10.1016/j.ssmph.2019.100463.

Eger, Chris. 2018. "NSSF: AR-15/AK Numbers Top 16 Million." *Guns.Com*, September 17.

Eifler, Stefanie, and Knut Petzold. 2019. "Validity Aspects of Vignette Experiments: Expected 'What-If' Differences Between Reports of Behavioral Intentions and Actual Behavior." Pp. 393–416 in *Experimental Methods in Survey Research*. John Wiley & Sons, Ltd.

Gallup Inc. 2019a. "Gallup Historical Trends: Guns." *Gallup.Com*. Retrieved March 21, 2019 (https://news.gallup.com/poll/1645/Guns.aspx).

Gallup Inc. 2019b. "Guns." *Gallup.Com*. Retrieved January 30, 2019 (https://news.gallup.com/poll/1645/Guns.aspx).

Garland, David. 1996. "The Limits of the Sovereign State: Strategies of Crime Control in Contemporary Society." *The British Journal of Criminology* 36(4):445–71.

Garland, David. 2001. *The Culture of Control: Crime and Social Order in Contemporary Society*. Chicago: University Of Chicago Press.

Gourieroux, C., A. Monfort, and A. Trognon. 1984. “Pseudo Maximum Likelihood Methods: Theory.” *Econometrica* 52(3):681–700.

Grolemund, Garrett and Hadley Wickham. 2011. *Dates and Times Made Easy with lubridate.* Journal of Statistical Software, 40(3), 1-25. (http://www.jstatsoft.org/v40/i03/).

Guy, Rebecca F., and Melissa Norvell. 1977. “The Neutral Point on a Likert Scale.” *The Journal of Psychology* 95(2):199–204.

Harcourt, Bernard E. 2006. *Language of the Gun: Youth, Crime, and Public Policy*. Chicago: University of Chicago Press.

Hauser, Will, and Gary Kleck. 2013. “Guns and Fear: A One-Way Street?” *Crime & Delinquency* 59(2):271–91.

Hazeltine, Max D., Jonathan Green, Muriel A. Cleary, Jeremy T. Aidlen, and Michael P. Hirsh. 2019. “A Review of Gun Buybacks.” *Current Trauma Reports* 5(4):174–77.

Hobbes, Thomas. 1651. *Leviathan, or, The Matter, Forme, and Power of a Common-Wealth, Ecclesiasticall and Civill*.

Hofstadter, Richard. 1970. “America as a Gun Culture.” *American Heritage*, October, 4–10, 82–85.

Hunzaker, M. B. Fallin, and Marcus Mann. 2020. “Sharing Stories, Sharing Bias: How Descriptions of Context Shape Negative Stereotype Use in Response to Accounts of Economic Adversity.” *Social Problems.*

Jackson, Jonathan. 2006. “Introducing Fear of Crime to Risk Research.” *Risk Analysis* 26(1):253–64. doi: 10.1111/j.1539-6924.2006.00715.x.

Jackson, Jonathan. 2011. “Revisiting Risk Sensitivity in the Fear of Crime.” *Journal of Research in Crime and Delinquency* 48(4):513–37. doi: 10.1177/0022427810395146.

Jerolmack, Colin, and Shamus Khan. 2014. “Talk Is Cheap: Ethnography and the Attitudinal Fallacy.” *Sociological Methods & Research* 43(2):178–209. doi: 10.1177/0049124114523396.

Kalton, G., Julie Roberts, and D. Holt. 1980. “The Effects of Offering a Middle Response Option with Opinion Questions.” *Journal of the Royal Statistical Society. Series D (The Statistician)* 29(1):65–78.

Kelley, Margaret S., and Christopher G. Ellison. 2021. “Who Might Buy a Gun? Results from the Guns in American Life Survey.” *Sociological Inquiry* (Guns and Society Special Issue). doi: https://doi.org/10.1111/soin.12410.

Kleck, Gary, Tomislav Kovandzic, Mark Saber, and Will Hauser. 2011. “The Effect of Perceived Risk and Victimization on Plans to Purchase a Gun for Self-Protection.” *Journal of Criminal Justice* 39(4):312–19. doi: 10.1016/j.jcrimjus.2011.03.002.

Kohn, Abigail A. 2004. *Shooters: Myths and Realities of America’s Gun Cultures*. First Edition, 2nd Printing edition. New York: Oxford University Press.

Lamont, Michèle, and Ann Swidler. 2014. "Methodological Pluralism and the Possibilities and Limits of Interviewing." *Qualitative Sociology* 37(2):153–71.

Lang, Bree J., and Matthew Lang. 2020. *Pandemics, Protests and Firearms*. *SSRN Scholarly Paper*. ID 3593956. Rochester, NY: Social Science Research Network.

Lauritsen, Janet L., Maribeth L. Rezey, and Karen Heimer. 2016. "When Choice of Data Matters: Analyses of U.S. Crime Trends, 1973–2012." *Journal of Quantitative Criminology* 32(3):335–55.

Legault, Richard L., and Alan J. Lizotte. 2009. "Caught in a Crossfire: Legal and Illegal Gun Ownership in America." Pp. 469–91 in Handbook on Crime and Deviance, Handbooks of Sociology and Social Research, edited by M. D. Krohn, A. J. Lizotte, and G. P. Hall. New York, NY: Springer New York.

Lizotte, Alan J., and David J. Bordua. 1980. "Firearms Ownership for Sport and Protection: Two Divergent Models." *American Sociological Review* 45(2):229–44.

Lumley, Thomas, Paula Diehr, Scott Emerson, and Lu Chen. 2002. "The Importance of the Normality Assumption in Large Public Health Data Sets." *Annual Review of Public Health* 23(1):151–69.

Maineri, Angelica M., Ivano Bison, and Ruud Luijkx. 2019. "Slider Bars in Multi-Device Web Surveys." *Social Science Computer Review*, (October 2019), (doi:10.1177/0894439319879132).

Mencken, F. Carson, and Paul Froese. 2017. "Gun Culture in Action." *Social Problems* 66(1):3–27.

Messner, Michael A. 2011. King of the Wild Suburb: A Memoir of Fathers, Sons and Guns. Austin: Plain View Press.

NBC. March 17th, 2020. *The Rush for Liquor and Guns Amid Coronavirus Shutdown*. Philadelphia: NBC10. YouTube: https://www.youtube.com/watch?v=rLU6KRDicIo, accessed March 26, 2020.

Nowlis, Stephen M., Barbara E. Kahn, and Ravi Dhar. 2002. "Coping with Ambivalence: The Effect of Removing a Neutral Option on Consumer Attitude and Preference Judgments." *Journal of Consumer Research* 29(3):319–34.

O'Malley, Pat. 2009. *Risk, Crime and Prudentialism Revisited*. *SSRN Scholarly Paper*. ID 1492477. Rochester, NY: Social Science Research Network.

Ospina, Raydonal, and Silvia L. P. Ferrari. 2012. "A General Class of Zero-or-One Inflated Beta Regression Models." *Computational Statistics & Data Analysis* 56(6):1609–23.

Papke, Leslie E., and Jeffrey M. Wooldridge. 1996. "Econometric Methods for Fractional Response Variables with an Application to 401(k) Plan Participation Rates." *Journal of Applied Econometrics* 11(6):619–32.

Parker, Kim, Juliana Horowitz, Ruth Igielnik, Baxter Oliphant, and Anna Brown. 2017. *America's Complex Relationship with Guns*. Pew Research Center. Retrieved December 12, 2018 (http://www.pewsocialtrends.org/2017/06/22/americas-complex-relationship-with-guns/).

Peer, Eyal, Joachim Vosgerau, and Alessandro Acquisti. 2014. "Reputation as a Sufficient Condition for Data Quality on Amazon Mechanical Turk." *Behavior Research Methods* 46(4):1023–31. doi: 10.3758/s13428-013-0434-y.

Pew. 2013. "Why Own a Gun? Protection Is Now Top Reason." *Pew Research Center*. Retrieved December 12, 2018 (http://www.people-press.org/2013/03/12/why-own-a-gun-protection-is-now-top-reason/).

Pickett, Justin T., Sean Patrick Roche, and Greg Pogarsky. 2018. "Toward a Bifurcated Theory of Emotional Deterrence." *Criminology* 56(1):27–58.

Porfiri, Maurizio, Roni Barak-Ventura, and Manuel Ruiz Marín. 2020. "Self-Protection versus Fear of Stricter Firearm Regulations: Examining the Drivers of Firearm Acquisitions in the Aftermath of a Mass Shooting." *Patterns*.

Porfiri, Maurizio, Raghu Ram Sattanapalle, Shinnosuke Nakayama, James Macinko, and Rifat Sipahi. 2019. "Media Coverage and Firearm Acquisition in the Aftermath of a Mass Shooting." *Nature Human Behaviour* 3(9):913–21.

R Core Team. 2019. "R: A language and environment for statistical computing." R Foundation for Statistical Computing, Vienna, Austria. (https://www.R-project.org/).

Ramalho, Esmeralda A., Joaquim J. S. Ramalho, and José M. R. Murteira. 2011. "Alternative Estimating and Testing Empirical Strategies for Fractional Regression Models." *Journal of Economic Surveys* 25(1):19–68. doi: 10.1111/j.1467-6419.2009.00602.x.

Roberto, Anthony J., Gary Meyer, Amy Janan Johnson, and Charles K. Atkin. 2000. "Using the Parallel Process Model to Prevent Firearm Injury and Death: Field Experiment Results of a Video-Based Intervention." *Journal of Communication* 50(4):157–75.

Ruxton, Graeme D. 2006. "The Unequal Variance T-Test Is an Underused Alternative to Student's t-Test and the Mann–Whitney U Test." *Behavioral Ecology* 17(4):688–90. doi: 10.1093/beheco/ark016.

Sax C, Eddelbuettel D. 2018. "Seasonal Adjustment by X-13ARIMA-SEATS in R." *Journal of Statistical Software*, 87(11), 1–17. (doi:10.18637/jss.v087.i11).

Shank, Daniel B. 2016. "Using Crowdsourcing Websites for Sociological Research: The Case of Amazon Mechanical Turk." *The American Sociologist* 47(1):47–55.

Shadish, William R., Thomas D. Cook, and Donald Thomas Campbell. 2002. *Experimental and Quasi-Experimental Designs for Generalized Causal Inference*. 3rd ed. Houghton Mifflin.

Shah, Attaullah. 2018. "ASDOC: Stata module to create high-quality tables in MS Word from Stata output." Statistical Software Components S458466, Boston College Department of Economics.

Shank, Daniel B. 2016. "Using Crowdsourcing Websites for Sociological Research: The Case of Amazon Mechanical Turk." *The American Sociologist* 47(1):47–55.

Shapira, Harel. 2017. "Calvin's Problem: Racial Identity and Gun Ownership." *Public Culture* 29(2 (82)):221–26.

Shapira, Harel, Katherine Jensen, and Ken-Hou Lin. 2018. "Trends and Patterns of Concealed Handgun License Applications: A Multistate Analysis." *Social Currents* 5(1):3–14.

Shapira, Harel, and Samantha J. Simon. 2018. "Learning to Need a Gun." *Qualitative Sociology* 41(1):1–20.

Simon, Jonathan. 2007. *Governing Through Crime: How the War on Crime Transformed American Democracy and Created a Culture of Fear*. Oxford, New York: Oxford University Press.

Smith, Tom W. 2003. "A Seeded Sample of Concealed-Carry Permit Holders." *Journal of Quantitative Criminology* 19(4):441–45.

Sola, Justin L. 2020. *Preregistration*. Hosted by the *Open Science Foundation*, submitted May 15th 2020, (https://osf.io/g74bq).

Sozzo, Máximo. 2019. "Beyond the Image of an Epochal Change? Thinking about Penalty in Contemporary Societies across the Global North and South." *American Society of Criminology Annual Conference 2019*: San Francisco.

StataCorp. 2019. "Stata Statistical Software: Release 16." College Station, TX: StataCorp LLC.

Stroebe, Wolfgang, N. Pontus Leander, and Arie W. Kruglanski. 2017. "Is It a Dangerous World Out There? The Motivational Bases of American Gun Ownership." *Personality and Social Psychology Bulletin* 43(8):1071–85.

Stroud, Angela. 2016. *Good Guys with Guns: The Appeal and Consequences of Concealed Carry*. Chapel Hill: The University of North Carolina Press.

Studdert, David M., Yifan Zhang, Jonathan A. Rodden, Rob J. Hyndman, and Garen J. Wintemute. 2017. "Handgun Acquisitions in California After Two Mass Shootings." *Annals of Internal Medicine* 166(10):698.

Swidler, Ann. 1986. "Culture in Action: Symbols and Strategies." *American Sociological Review* 51(2):273–86. doi: 10.2307/2095521.

Tcherni-Buzzeo, Maria. 2019. "The 'Great American Crime Decline': Possible Explanations." Pp. 309–35 in Handbook on Crime and Deviance, Handbooks of Sociology and Social Research, edited by M. D. Krohn, N. Hendrix, G. Penly Hall, and A. J. Lizotte. Cham: Springer International Publishing.

The Atlantic. 2020. "US Historical Data." *The COVID Tracking Project*. Retrieved November 21, 2020 (https://covidtracking.com/data/national).

Urbatsch, R. 2018. "Gun-Shy: Refusal to Answer Questions about Firearm Ownership." *The Social Science Journal*. doi: 10.1016/j.soscij.2018.04.003.

US Census Bureau. 2017. "X-13ARIMA-SEATS Seasonal Adjustment Program." *X-13ARIMA-SEATS Seasonal Adjustment Program*. Retrieved August 11th, 2020 (https://www.census.gov/srd/www/x13as/).

Vila-Henninger, Luis. 2021. "The Popular Basis of the State's Monopoly on Legitimate Violence: How American Voters Use Political Values to (De)Legitimate Gun Rights."

Sociological Inquiry (Guns and Society Special Issue). doi: https://doi.org/10.1111/soin.12404.

Wald, Abraham. 1940. "The Fitting of Straight Lines If Both Variables Are Subject to Error." *The Annals of Mathematical Statistics* 11(3):284–300.

Warner, Tara D. 2020. "Fear, Anxiety, and Expectation: Gender Differences in Openness to Future Gun Ownership." *Violence and Gender* 7(1):11–18. doi: 10.1089/vio.2019.0025.

Warner, Tara D., and Courtney R. Thrash. 2020. "A Matter of Degree? Fear, Anxiety, and Protective Gun Ownership in the United States." *Social Science Quarterly* 101(1):285–308. doi: 10.1111/ssqu.12735.

Weber, Max. 1946 [1919]. "Politics as a Vocation." in *Max Weber: Essays in Sociology*, edited by H. H. Gerth and C. W. Mills. doi: 10.1057/9781137365866.0009

Wedderburn, R. W. M. 1974. "Quasi-Likelihood Functions, Generalized Linear Models, and the Gauss-Newton Method." *Biometrika* 61(3):439–47.

Welch, B. L. 1947. "The Generalisation of Student's Problems When Several Different Population Variances Are Involved." *Biometrika* 34(1–2):28–35. doi: 10.1093/biomet/34.1-2.28.

Wertz, Joseph, Deborah Azrael, David Hemenway, Susan Sorenson, and Matthew Miller. 2018. "Differences Between New and Long-Standing US Gun Owners: Results From a National Survey." American Journal of Public Health 108(7):871–77.

West, Stephen G., and Felix Thoemmes. 2010. "Campbell's and Rubin's Perspectives on Causal Inference." *Psychological Methods* 15(1):18–37.

White, Halbert. 1982. "Maximum Likelihood Estimation of Misspecified Models." *Econometrica* 50(1):1–25.

Whitehead, Andrew L., Landon Schnabel, and Samuel L. Perry. 2018. "Gun Control in the Crosshairs: Christian Nationalism and Opposition to Stricter Gun Laws." *Socius* 4:2378023118790189.

Wickham, Hadley. 2016. *ggplot2: Elegant Graphics for Data Analysis*. Springer-Verlag New York. https://ggplot2.tidyverse.org.

Wickham et al. 2019. "Welcome to the tidyverse". *Journal of Open Source Software* 4(43), 1686, (doi:10.21105/joss.01686).

Wickham, Hadley, Lionel Henry, Thomas Lin Pedersen, T Jake Luciani, Matthieu Decorde and Vaudor Lise. 2020. "svglite: An 'SVG' Graphics Device." R package version 1.2.3.2. (https://CRAN.R-project.org/package=svglite).

Wooldridge, Jeffrey M. 2010. *Econometric Analysis of Cross Section and Panel Data*. 2nd edition. Cambridge, Mass: The MIT Press.

Wooldridge, Jeffrey M. 2018. *Introductory Econometrics: A Modern Approach*. 7th edition. Boston, MA: Cengage Learning.

Yamane, David. 2016. “Awash in a Sea of Faith and Firearms: Rediscovering the Connection Between Religion and Gun Ownership in America.” *Journal for the Scientific Study of Religion* 55(3):622–36. doi: 10.1111/jssr.12282.

Yamane, David. 2017. “The Sociology of U.S. Gun Culture.” *Sociology Compass* 11:e12497. doi: 10.1111/soc4.12497.

Yamane, David. 2020. “Great Gun Buying Spree of 2020: Collected Works About.” *Gun Curious*. Retrieved January 1, 2021 (https://guncurious.wordpress.com/2020/11/13/great-gun-buying-spree-of-2020-collected-works-about/).

Yamane, David, Jesse DeDeyne, and Alonso Octavio Aravena Méndez. 2021. “Who Are the Liberal Gun Owners?” *Sociological Inquiry* (Guns and Society Special Issue). doi: https://doi.org/10.1111/soin.12406.

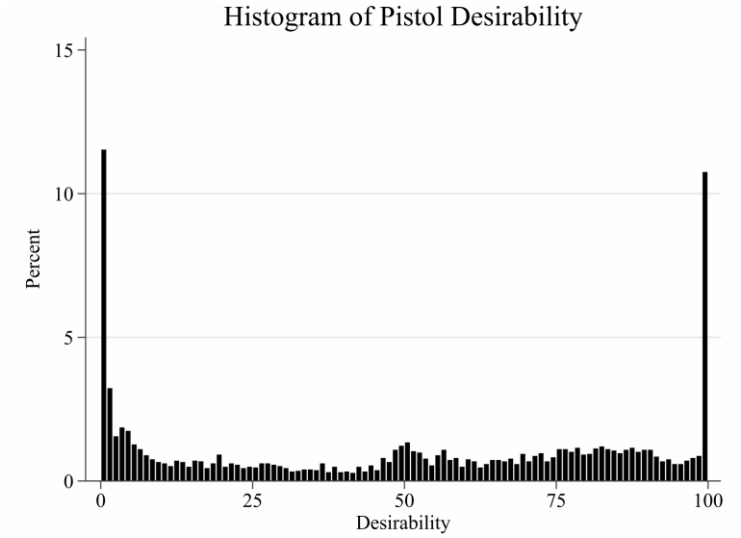
Yamane, David, Paul Yamane, and Sebastian L. Ivory. 2020. “Targeted Advertising: Documenting the Emergence of Gun Culture 2.0 in Guns Magazine, 1955–2019.” *Palgrave Communications* 6(1):1–9. doi: 10.1057/s41599-020-0437-0.

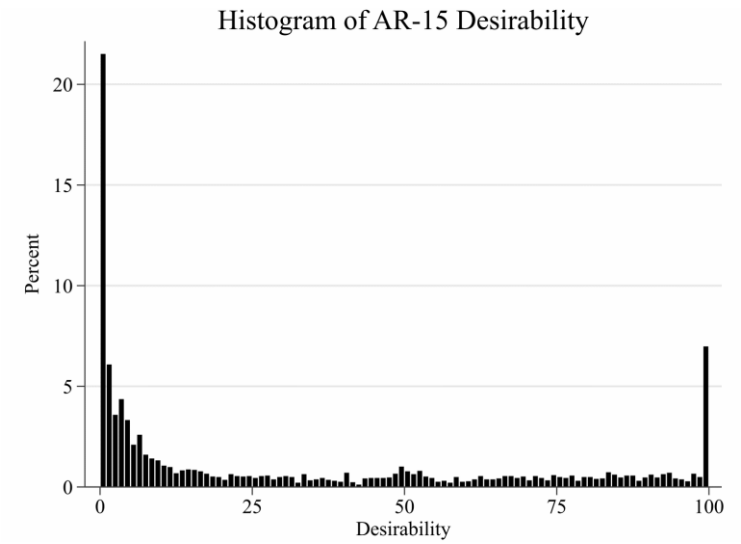
Zimring, Franklin E. 1972. “The Medium Is the Message: Firearm Caliber as a Determinant of Death from Assault.” *The Journal of Legal Studies* 1(1):97–123.

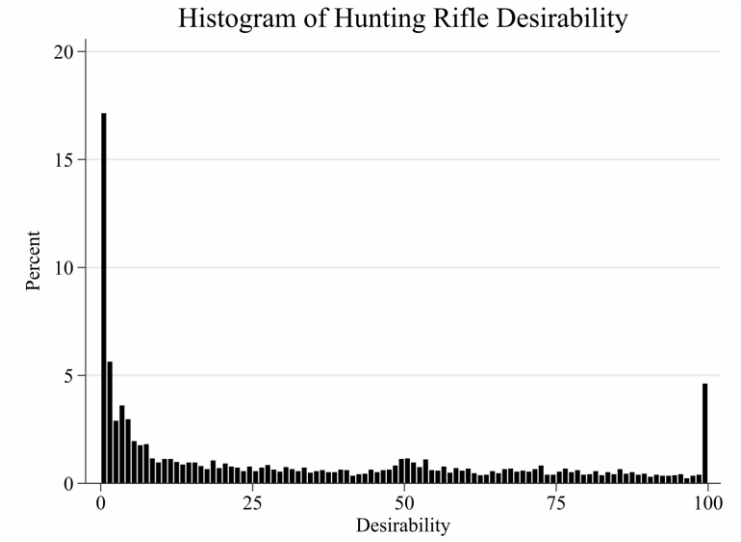
Zimring, Franklin E. 1975. “Firearms and Federal Law: The Gun Control Act of 1968.” *The Journal of Legal Studies* 4(1):133–98.

Zimring, Franklin E. 2006. *The Great American Crime Decline*. New York: Oxford University Press.

Appendix A. Gun Desirability Distributions, 0 (Least Desirable) to 100 (Most Desirable)[1]

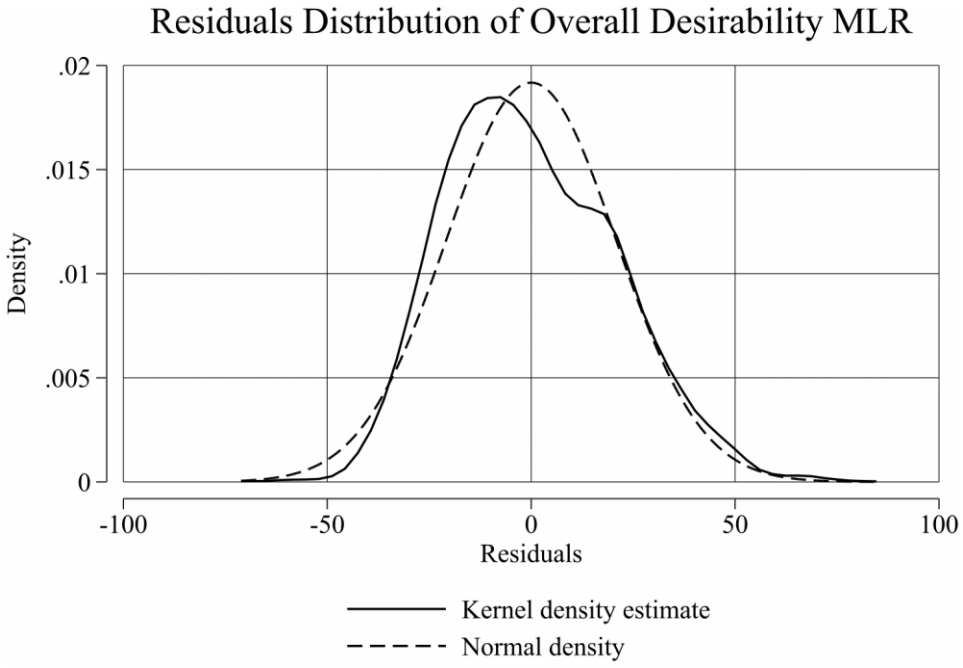






Appendix B. Further Discussion of Study Two Model Specification and Selection[1]

The Breusch-Pagan test for heteroskedasticity reports no significant violations for OLS multiple linear regression models. However, the OLS models violate the classical linear model assumption of normality of residuals (also referred to as MLR.6, see Wooldridge 2018). Specifically, errors are distended and therefore skew the residual distribution. The residual distribution clearly displays this non-normality below (standardized normal plot of residuals available upon request):



Non-normal residuals are problematic because the normality of residuals is sufficient to prove that OLS estimators have a Gaussian distribution around the true population value. This violation thus raises the specter of estimator bias. Estimator uncertainty in turn may undermine the inferential utility of coefficients (via t-statistics) and overall model validity (via F-statistics) (Wooldridge 2018: 118-120). There is good evidence that linear regression, beta regression, and fractional logit regression all can produce good estimators with data on an open interval of (0,1) (Meaney and Moineddin 2014). However, estimator quality is not assured when there is bimodal massing at boundaries (*most desirable* and *least desirable*) as found in this study's dataset.

Reassuringly, “t and F statistics have approximately t and F distributions, at least in large sample sizes,” (Wooldridge 2018: 164). The cutoff of such an acceptably ‘large sample size’ in turn depends on both the number and sampling distribution of explanatory variables. Because of this uncertainty I report the results of all three regressions approaches rather than assuming that the N (4,240) is sufficient for OLS; better to be redundant than wrong.

Appendix C. Variable Names and Definitions

1. **duration** – Total time participant spent on the survey on the survey in seconds
2. **age** – Participant's age, in years (integer entry between 0 and 115)
3. **state** – Participant's US state of residence, selected from a list
4. **transient_check** – Participant's response to the attention check question for the transient event video (if exposed) – one correct answer and two incorrect answers
5. **control_check** – Participant's response to the attention check question for the control video (if exposed) – one correct answer and two incorrect answers
6. **outcome_pistol** – Participant's rating of a pistol's desirability on a horizontal slider, measured from 0.00 to 100.00 with 0 labeled as 'least desirable' and 100 as 'most desirable'
7. **outcome_ar15** – Participant's rating of an AR-15 pattern semiautomatic rifle's desirability on a horizontal slider, measured from 0.00 to 100.00 with 0 labeled as 'least desirable' and 100 as 'most desirable'
8. **outcome_rifle** – Participant's rating of a hunting rifle's desirability on a horizontal slider, measured from 0.00 to 100.00 with 0 labeled as 'least desirable' and 100 as 'most desirable'
9. **gun_thoughts** – Whether the participant had purchased or thoughts about purchasing a gun since January 1st, 2020:
    0. Yes, I thought about purchasing a gun
    1. Yes, I purchased a gun
    2. No
10. **recent_gun_thoughts** – If the participant responded that they had thoughts about purchasing a gun since January 1st 2020, they are asked which gun(s) they had thought about purchasing (multiple selections enabled):
    a. Pistol(s) or revolver(s)
    b. Bolt or lever-action rifle(s)
    c. Shotgun(s)
    d. Semi-automatic rifle(s)
    e. Other
11. **recent_gun_buys** – If the participant responded that they had purchased a gun since January 1st 2020, they are asked which gun(s) they had thought about purchasing (multiple selections enabled):
    a. Pistol(s) or revolver(s)
    b. Bolt or lever-action rifle(s)
    c. Shotgun(s)
    d. Semi-automatic rifle(s)
    e. Other
12. **gun_control_member** – Binary question of whether the participant is a member of a gun control advocacy organization
13. **gun_owner** – Multiple choice question:
    a. Yes, I am a gun owner
    b. Yes, at least one member of my household is a gun owner
    c. No, no one in my household is a gun owner
14. **household_guns** – How many guns are in the participant's household (displayed if the participant responds affirmatively to gun_owner question above)
    0. 0 (imputed if respondent says that no one in the household is a gun owner)
    1. Unsure
    2. 1
    3. 2
    4. 3
    5. 4+
15. **household_gun_types** – If the participant responds affirmatively to gun_owner question above, they are asked the list the gun type(s):
    a. Pistol(s) or revolver(s)
    b. Bolt or lever-action rifle(s)
    c. Shotgun(s)
    d. Semi-automatic rifle(s)
    e. Other(s)
16. **covid19_conspiracy** – Participant is asked if it is most likely the current strain of the coronavirus:

    0. Came about naturally
    1. Was released intentionally from a lab
    2. Was released accidentally from a lab
    3. Unsure
17. **sex** – Sex identification of participant
    0. Female
    1. Male
    2. Other
18. **racial_identity** – racial identity of participant
    a. White
    b. Black or African American
    c. American Indian or Alaska Native
    d. Asian
    e. Native Hawaiian or Pacific Islander
    f. Multiple
    g. Other
19. **latinx** – binary question of latinx or hispanic ethnicity of participant
    0. Non-latinx
    1. Latinx
20. **marital_status** – marital status of participant
    a. Married
    b. Widowed
    c. Divorced
    d. Separated
    e. Never married
21. **education** – highest level of completed education for the participant
    0. Less than high school
    1. High school graduate
    2. Some college
    3. 2-year degree
    4. 4-year degree
    5. Professional degree
    6. Doctorate
22. **employment** – employment status of participant
    a. Employed full time
    b. Employed part time
    c. Unemployed looking for work
    d. Unemployed not looking for work
    e. Retired
    f. Stay at home caregiver / homemaker
23. **urbanicity** – participant's perception of urbanicity / rurality
    0. Rural
    1. Suburban
    2. Urban
24. **pandemic_impacts** – "Has the COVID-19 Pandemic significantly impacted your life in any of the following areas? (Check all that apply)"
    a. Financial impacts (for example, job loss or hours lost)
    b. Health impacts (for example, infection)
    c. Quality of life impacts (for example, anxiety or social distancing)
    d. No significant impacts
25. **public_assistance** – whether the participant has ever received the following forms of public assistance (multiple selections enabled)
    a. No, I have not received any form of public assistance
    b. Yes, I have received unemployment assistance
    c. Yes, I have received welfare/cash assistance
    d. Yes, I have received Social Security/Disability assistance
    e. Yes, I have received Medicare/Medicaid assistance

f. Yes, I have received housing assistance
g. Yes, I have received TANF/food stamp assistance
h. Yes, I have received other assistance
i. No, I have not received any form of public assistance - will disable other selections

26. **household_size** – number of people in participant's household
    - Integer input with allowed range from 1 to 200
27. **household_children** – number of children under the age of 18 in participant's household
    - Integer input with allowed range from 0 to 200
28. **income_personal** – 2019 personal income of the participant
    0. Less than $10,000
    1. $10,000 - $19,999
    2. $20,000 - $29,999
    3. $30,000 - $39,999
    4. $40,000 - $49,999
    5. $50,000 - $59,999
    6. $60,000 - $69,999
    7. $70,000 - $79,999
    8. $80,000 - $89,999
    9. $90,000 - $99,999
    10. $100,000 or more
29. **income_household** – 2019 household income of the participant
    0. Less than $10,000
    1. $10,000 - $19,999
    2. $20,000 - $29,999
    3. $30,000 - $39,999
    4. $40,000 - $49,999
    5. $50,000 - $59,999
    6. $60,000 - $69,999
    7. $70,000 - $79,999
    8. $80,000 - $89,999
    9. $90,000 - $99,999
    10. $100,000 or more
30. **political_view** – political views of the participant
    0. Liberal
    1. Moderate
    2. Conservative
31. **party_affiliation** – political party affiliation of the participant
    0. Democratic
    1. Independent or other
    2. Republican
32. **religious_identity** – religious practice of the participant
    a. Agnostic
    b. Atheist
    c. Buddhist
    d. Hindu
    e. Jewish
    f. Mormon
    g. Muslim
    h. Orthodox
    i. Protestant
    j. Roman Catholic
    k. Other
33. **evangelical** – If the participant selected Protestant or Other in their religion, they are asked the binary question of whether they are an evangelical or born-again Christian
    0. Non-evangelical (imputed if participants are non-Christian or select 'no')
    1. Evangelical

34. **religious_services** – If the participant did not select Atheist, they are asked how often they attend religious services over the past year
    0. Imputed if participant identifies as atheist
    1. Rarely or never
    2. On holidays
    3. Once or twice a month
    4. Once a week
    5. Several times each week
    6. Daily

Transformations

- A 'total_desirability' variable (described as *overall desirability* in text) created by averaging all three outcome measures such that *total_desirability* = (*pistol_desirability + ar15_desirability + rifle_desirability) / 3*
- A 'log_duration' variable created by taking the natural log of *duration*

Appendix D. Full OLS Regression Results[1]

	Handgun	AR-15	Hunting Rifle	Overall Desirability
Pandemic vignette	8.0033***	-0.7615	-2.7069**	1.5116*
	(0.9015)	(0.8264)	(0.8268)	(0.6517)
Sex identity (versus Female)	.	.	.	.
Male	3.9620***	15.4484***	10.8767***	10.0957***
	(1.0118)	(0.9597)	(0.9424)	(0.7425)
Other	9.4142	11.6871*	13.5689*	11.5567*
	(5.8709)	(5.4143)	(5.8602)	(4.7693)
Racial identity (versus white)	.	.	.	.
American Indian or Alaska Native	1.9889	3.7042	2.4515	2.7149
	(4.8705)	(4.8626)	(4.7497)	(3.5653)
Asian	4.1453*	6.6538***	2.7338	4.5110***
	(1.7661)	(1.7049)	(1.5869)	(1.3070)
Black or African American	4.8727**	2.6480	-2.5017	1.6730
	(1.8093)	(1.6881)	(1.5882)	(1.2975)
Multiple	1.2773	-1.9501	-0.0516	-0.2415
	(2.6462)	(2.3338)	(2.4090)	(1.8722)
Native Hawaiian or Pacific Islander	16.4979	10.5175	3.4720	10.1625
	(8.6316)	(8.0487)	(5.3752)	(5.7062)
Other	0.5856	-0.3390	-3.9266	-1.2267
	(2.9633)	(2.8139)	(2.7211)	(2.2311)
Latinx	0.4016	3.8782*	0.5217	1.6005
	(1.6688)	(1.5929)	(1.5954)	(1.2590)
Age	-0.1836***	-0.2940***	-0.0691	-0.1822***
	(0.0498)	(0.0444)	(0.0457)	(0.0363)
Urbanicity (versus rural)	.	.	.	.
Suburban	-3.0374*	-0.3813	-6.0817***	-3.1668***
	(1.2783)	(1.1478)	(1.2054)	(0.9126)
Urban	-1.9907	2.7565*	-2.9803*	-0.7381
	(1.4365)	(1.3218)	(1.3312)	(1.0245)
Marital status (versus single)	.	.	.	.
Divorced	4.2917*	-1.7886	0.9271	1.1434
	(1.9990)	(1.7229)	(1.8271)	(1.3928)
Separated	-6.7318	1.9859	2.5701	-0.7253
	(3.9907)	(3.7536)	(4.2798)	(3.0537)
Widowed	-4.4497	-5.1100	-4.9808	-4.8468
	(5.0942)	(3.3879)	(4.3126)	(3.1472)
Married	-1.6822	-1.7188	-0.9075	-1.4362
	(1.2097)	(1.1393)	(1.1324)	(0.8953)
Household size	-0.0139	0.0385	0.1030*	0.0425
	(0.0509)	(0.0510)	(0.0478)	(0.0432)
Household children	1.4299***	0.8076*	0.7415*	0.9930***
	(0.3980)	(0.3529)	(0.3522)	(0.2716)
Political views (versus liberal)	.	.	.	.
Moderate	6.4532***	4.6766***	2.5256*	4.5518***
	(1.2621)	(1.1366)	(1.1082)	(0.9025)
Conservative	10.6269***	10.0279***	5.1191**	8.5913***
	(1.7475)	(1.6682)	(1.6316)	(1.2855)
Party affiliation (versus Democrat)	.	.	.	.
Independent or other	3.3283**	3.7580***	3.0362**	3.3742***
	(1.2189)	(1.0879)	(1.0830)	(0.8747)
Republican	6.5076***	4.0185*	4.9751**	5.1670***
	(1.6722)	(1.5941)	(1.6007)	(1.2456)
Education	-1.2990**	-1.4478***	-0.8398*	-1.1955***

	(0.4034)	(0.3738)	(0.3669)	(0.2902)
Household income	0.0126	-0.1718	-0.3124	-0.1572
	(0.1776)	(0.1645)	(0.1632)	(0.1296)
Employment (versus full time)	.	.	.	.
Unemployed not looking for work	-3.2030	-6.0807**	-5.4531**	-4.9123**
	(2.2751)	(1.8947)	(2.0513)	(1.5911)
Unemployed looking for work	-0.3255	0.2511	-0.9045	-0.3263
	(1.5480)	(1.5008)	(1.4210)	(1.1574)
Retired	-0.2766	-4.1392	-0.7832	-1.7330
	(2.7453)	(2.2464)	(2.5246)	(1.9088)
Employed part time	-5.0359***	-3.0209*	-1.9336	-3.3301***
	(1.3545)	(1.1725)	(1.2297)	(0.9530)
Stay at home caregiver / homemaker	-5.5411**	-6.0890***	-4.2178*	-5.2827***
	(1.9238)	(1.6568)	(1.6682)	(1.3145)
Pandemic impacts	.	.	.	.
Pandemic financial impacts	1.4836	0.6692	1.2592	1.1373
	(0.9691)	(0.9045)	(0.8885)	(0.7010)
Pandemic health impacts	-1.2986	0.4521	3.7778*	0.9771
	(1.6600)	(1.5611)	(1.5940)	(1.1923)
Pandemic quality of life impacts	-2.5378*	-2.2272*	-4.3237***	-3.0296***
	(1.0203)	(0.9491)	(0.9527)	(0.7433)
Government assistance	.	.	.	.
Medical assistance	1.4806	0.6912	0.5257	0.8992
	(1.5249)	(1.3520)	(1.3924)	(1.0592)
Cash assistance	1.4308	1.7731	1.4483	1.5507
	(2.1674)	(2.0578)	(2.0504)	(1.6276)
Food assistance	1.0900	-1.6580	-1.2004	-0.5895
	(1.6210)	(1.4899)	(1.4813)	(1.1624)
Social security assistance	-3.4577	3.7770*	2.5439	0.9544
	(2.1153)	(1.8584)	(2.1073)	(1.5139)
Unemployment assistance	-1.5941	-1.3680	-1.1166	-1.3595
	(1.2466)	(1.1263)	(1.1147)	(0.8758)
Housing assistance	2.7381	2.6701	4.7603	3.3895
	(3.0126)	(2.7960)	(2.8103)	(2.1716)
Other assistance	1.1355	-0.5297	2.4985	1.0348
	(1.8984)	(1.8233)	(1.8429)	(1.4135)
COVID-19 origin beliefs (versus "came about naturally")	.	.	.	.
Unsure	1.5211	4.5860***	2.4883*	2.8651**
	(1.2560)	(1.1391)	(1.1499)	(0.9166)
Released accidentally from a lab	6.0311***	7.2716***	3.8486**	5.7171***
	(1.3392)	(1.2709)	(1.2741)	(0.9782)
Released intentionally from a lab	5.0261***	9.6557***	4.2186**	6.3001***
	(1.4985)	(1.4589)	(1.3939)	(1.0952)
Religious identity (versus atheist)	.	.	.	.
Agnostic	3.8574*	0.8572	0.9550	1.8898
	(1.7204)	(1.5237)	(1.5339)	(1.2203)
Buddhist	7.9637*	-1.2155	-0.4973	2.0836
	(4.0292)	(3.8605)	(3.5185)	(2.8176)
Hindu	7.4736	-1.4894	-4.8674	0.3723
	(4.5864)	(3.8665)	(3.6693)	(3.0839)
Jewish	3.3565	1.8125	4.5619	3.2437
	(3.6701)	(3.3793)	(3.5154)	(2.8607)
Mormon	5.9458	-0.1396	7.9334	4.5798
	(4.1601)	(4.4576)	(4.2089)	(3.2391)
Muslin	8.5172	1.3934	1.2516	3.7208
	(4.7984)	(4.6728)	(4.6574)	(3.6161)

Orthodox	10.7985*	1.9232	-2.2945	3.4757
	(4.7977)	(4.1677)	(4.2887)	(3.4978)
Other	4.5742*	0.8971	1.0693	2.1802
	(1.8555)	(1.6509)	(1.6906)	(1.3265)
Protestant	5.1821*	0.5482	4.1005*	3.2770*
	(2.0364)	(1.8322)	(1.8425)	(1.4550)
Roman Catholic	8.5033***	3.3891	4.7728*	5.5551***
	(2.0443)	(1.8884)	(1.8598)	(1.4726)
Evangelical	1.2644	-0.4836	-0.6878	0.0310
	(1.6037)	(1.4499)	(1.4254)	(1.1304)
Religious service frequency	-0.6968	0.4364	0.7235	0.1543
	(0.4361)	(0.4063)	(0.4057)	(0.3254)
Gun control organization membership	-3.7999	5.7865*	3.0709	1.6859
	(2.6707)	(2.4734)	(2.3378)	(1.9345)
Personal gun ownership	11.2900***	12.2384***	12.2461***	11.9249***
	(1.5681)	(1.5408)	(1.6200)	(1.1602)
Total household guns (versus none)	.	.	.	.
Unsure	2.9589	5.1977	8.8715*	5.6760*
	(4.0455)	(3.5252)	(3.8089)	(2.8313)
One	5.2758*	-0.7311	6.2852**	3.6100*
	(2.2051)	(2.0634)	(2.1991)	(1.5985)
Two	4.3964	-1.1737	6.7299*	3.3175
	(2.8712)	(2.6055)	(2.6721)	(2.0304)
Three	7.8430*	-2.3294	4.7504	3.4213
	(3.5640)	(3.4065)	(3.4365)	(2.5660)
Four or more	9.3105*	1.8569	10.1963**	7.1212*
	(4.0234)	(3.8469)	(3.9497)	(2.8907)
Recent handgun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	25.8379***	7.5084***	6.5441***	13.2968***
	(1.0682)	(1.0993)	(1.0631)	(0.7780)
I purchased	14.7624***	10.5697***	5.3859	10.2393***
	(2.6096)	(3.0152)	(3.0693)	(2.1251)
Recent lever or bolt action rifle thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	1.2208	3.2283	19.5953***	8.0148***
	(2.0624)	(2.2247)	(2.1442)	(1.5340)
I purchased	-2.5149	6.9669	8.8196*	4.4239
	(5.4606)	(5.0583)	(4.2487)	(3.7812)
Recent semi-automatic rifle thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	-0.9969	32.8859***	4.1069*	11.9987***
	(1.7242)	(1.7717)	(1.9156)	(1.2804)
I purchased	10.1849**	16.2342***	10.2526*	12.2239***
	(3.8886)	(4.1930)	(4.9178)	(3.2016)
Recent shotgun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	3.7736*	5.2381**	9.4767***	6.1628***
	(1.6615)	(1.6873)	(1.6954)	(1.1900)
I purchased	5.5660	17.4911***	14.8041**	12.6204***
	(4.7601)	(4.0829)	(4.6935)	(3.3458)
Recent other gun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	13.3751	-3.5378	-4.3015	1.8453
	(8.5359)	(4.4604)	(5.4589)	(4.5372)
I purchased	21.1469**	22.6130	19.2055	20.9885
	(6.4863)	(14.3712)	(15.8384)	(11.5301)

Handgun ownership	5.9722**	3.4761	-3.5948	1.9512
	(2.0387)	(1.9414)	(2.0068)	(1.4752)
Lever or bolt-action rifle ownership	-3.0635	-2.7746	5.7637**	-0.0248
	(1.7890)	(1.7728)	(1.8804)	(1.3030)
Semi-automatic rifle ownership	-1.8378	11.3456***	-0.3821	3.0419*
	(1.9826)	(1.9435)	(2.0351)	(1.4762)
Shotgun ownership	-0.9061	0.4008	3.9396*	1.1448
	(1.7451)	(1.7105)	(1.8520)	(1.3108)
Other gun ownership	-4.4403	-6.5029	-2.1780	-4.3738
	(4.1551)	(3.5015)	(3.3652)	(2.7453)
Log of survey duration in seconds	4.0186**	2.7344*	2.9152**	3.2227***
	(1.2692)	(1.1333)	(1.0648)	(0.8889)
Constant	7.5814	4.1778	6.1018	5.9537
	(7.5475)	(6.6496)	(6.3624)	(5.1846)
Observations	4240	4240	4240	4240
R-squared	0.3574	0.4503	0.3478	0.4837

Notes: Robust standard errors in parentheses. Coefficients can be interpreted as the predicted effect on a [0,100] interval of desirability, holding covariates (if any) constant. Coefficients are rounded to four (4) decimal places. *p < .05; **p < .01; ***p < .001 (two-tailed tests).

Appendix E. Full Fractional Logit Regression Results[1]

	Handgun	AR-15	Hunting Rifle	Overall Desirability
Pandemic vignette	7.8804***	-0.4564	-2.7259***	1.6045*
	(0.8849)	(0.8176)	(0.8203)	(0.6471)
Sex identity (versus Female)	.	.	.	.
Male	3.9215***	15.429***	10.951***	10.112***
	(0.9917)	(0.9604)	(0.9528)	(0.7455)
Other	9.3260	11.740*	14.116*	11.721*
	(5.3234)	(5.5386)	(6.2452)	(4.8279)
Racial identity (versus white)	.	.	.	.
American Indian or Alaska Native	2.1079	3.4078	2.2395	2.5687
	(5.0832)	(4.3344)	(4.4243)	(3.4005)
Asian	4.2720*	6.8665***	2.9042	4.7327***
	(1.6697)	(1.6603)	(1.6515)	(1.2961)
Black or African American	4.8941**	3.0345	-2.2503	1.9252
	(1.7238)	(1.6155)	(1.5322)	(1.2527)
Multiple	1.4692	-1.6076	0.2126	-0.1617
	(2.6164)	(2.2460)	(2.3754)	(1.8302)
Native Hawaiian or Pacific Islander	19.597*	9.7315	4.3230	10.822
	(8.3582)	(8.5113)	(5.7610)	(6.3009)
Other	0.7088	-0.3313	-4.1474	-1.3609
	(2.8608)	(2.5937)	(2.5847)	(2.1623)
Latinx	0.4611	3.5826*	0.5625	1.6171
	(1.6219)	(1.4409)	(1.5346)	(1.2105)
Age	-0.1864***	-0.3204***	-0.07089	-0.1927***
	(0.04955)	(0.04624)	(0.04604)	(0.03705)
Urbanicity (versus rural)	.	.	.	.
Suburban	-3.1418*	-0.3718	-5.8261***	-3.0890***
	(1.2704)	(1.1272)	(1.1708)	(0.8999)
Urban	-2.1196	2.8417*	-2.7354*	-0.6744
	(1.4211)	(1.2865)	(1.3048)	(1.0075)
Marital status (versus single)	.	.	.	.
Divorced	4.2247*	-1.8156	1.0037	1.2678
	(1.9779)	(1.8168)	(1.8251)	(1.4125)
Separated	-6.3381	2.2456	1.9016	-0.7995
	(4.0025)	(4.0307)	(4.1389)	(3.0646)
Widowed	-4.1144	-5.4041	-4.1235	-4.1839
	(4.9329)	(4.3207)	(4.0769)	(3.2458)
Married	-1.5489	-1.6716	-1.0205	-1.3905
	(1.1994)	(1.1273)	(1.1384)	(0.8973)
Household size	-0.02420	0.03542	0.08187	0.03666
	(0.04675)	(0.04342)	(0.04402)	(0.03882)
Household children	1.3349**	0.7321*	0.7139*	0.9307***
	(0.4280)	(0.3108)	(0.3501)	(0.2746)
Political views (versus liberal)	.	.	.	.
Moderate	6.2513***	4.8589***	2.7015*	4.7052***
	(1.2363)	(1.1215)	(1.1248)	(0.9004)
Conservative	10.500***	9.8689***	4.9985**	8.4835***
	(1.7474)	(1.5896)	(1.5637)	(1.2617)
Party affiliation (versus Democrat)	.	.	.	.
Independent or other	3.0858**	4.2568***	3.4376**	3.5847***
	(1.1834)	(1.0774)	(1.0957)	(0.8711)
Republican	6.4919***	4.3968**	4.9447**	5.1392***
	(1.6636)	(1.4725)	(1.5193)	(1.2025)
Education	-1.2901**	-1.4299***	-0.8972*	-1.2141***

	(0.3942)	(0.3660)	(0.3610)	(0.2864)
Household income	0.001199	-0.1524	-0.3123	-0.1613
	(0.1738)	(0.1591)	(0.1623)	(0.1279)
Employment (versus full time)	.	.	.	.
Unemployed not looking for work	-3.1776	-6.1224**	-5.3242*	-4.8520**
	(2.2059)	(1.8721)	(2.1429)	(1.6024)
Unemployed looking for work	-0.2678	0.4373	-0.8916	-0.2951
	(1.5065)	(1.4593)	(1.4169)	(1.1445)
Retired	-0.4560	-5.4207*	-0.5650	-1.7836
	(2.7611)	(2.6574)	(2.5097)	(2.0301)
Employed part time	-4.8741***	-3.0564**	-1.9832	-3.3043***
	(1.3357)	(1.1693)	(1.2373)	(0.9548)
Stay at home caregiver / homemaker	-5.4816**	-5.8341***	-3.9218*	-5.0294***
	(1.8664)	(1.6851)	(1.6672)	(1.2924)
Pandemic impacts				
Pandemic financial impacts	1.4380	0.7020	1.3313	1.1515
	(0.9489)	(0.8812)	(0.8753)	(0.6908)
Pandemic health impacts	-1.5084	0.1537	3.3869*	0.7136
	(1.6346)	(1.4260)	(1.4569)	(1.1326)
Pandemic quality of life impacts	-2.4183*	-2.0939*	-4.0883***	-2.8496***
	(1.0006)	(0.8881)	(0.8971)	(0.7152)
Government assistance				
Medical assistance	1.6191	0.6939	0.4479	0.7819
	(1.5093)	(1.3693)	(1.3647)	(1.0563)
Cash assistance	1.1910	1.6729	1.5305	1.5909
	(2.0967)	(1.8684)	(1.9262)	(1.5497)
Food assistance	1.2725	-1.1840	-1.1625	-0.4305
	(1.6120)	(1.5017)	(1.4621)	(1.1542)
Social security assistance	-3.4503	3.9672*	2.5432	1.0460
	(2.1273)	(1.7722)	(2.0015)	(1.4900)
Unemployment assistance	-1.5256	-1.3225	-1.0379	-1.3340
	(1.2459)	(1.1403)	(1.1091)	(0.8849)
Housing assistance	2.8689	2.3821	4.6145	3.3769
	(2.8887)	(2.5019)	(2.5026)	(1.9980)
Other assistance	1.0325	-0.07494	2.5342	1.2024
	(1.8363)	(1.7817)	(1.7344)	(1.3764)
COVID-19 origin beliefs (versus "came about naturally")	.	.	.	.
Unsure	1.4758	4.7331***	2.4556*	2.9031**
	(1.2220)	(1.1392)	(1.1557)	(0.9155)
Released accidentally from a lab	5.7989***	7.4951***	3.7461**	5.7241***
	(1.3162)	(1.2158)	(1.2211)	(0.9473)
Released intentionally from a lab	5.1117***	9.4295***	4.1492**	6.1792***
	(1.4881)	(1.3928)	(1.3310)	(1.0584)
Religious identity (versus atheist)	.	.	.	.
Agnostic	3.8519*	0.7523	1.0942	1.9044
	(1.7098)	(1.6248)	(1.6222)	(1.2761)
Buddhist	7.7795*	-1.0088	-0.1155	2.1801
	(3.8386)	(3.8130)	(3.6427)	(2.8284)
Hindu	7.6048	-1.1905	-4.6588	0.6419
	(4.2708)	(3.4779)	(3.7262)	(3.0190)
Jewish	3.5116	1.0684	4.7894	3.0449
	(3.8571)	(3.8173)	(3.7093)	(3.1172)
Mormon	5.6235	-0.1124	7.4889	4.3789
	(4.0580)	(4.2624)	(3.9752)	(3.1252)
Muslin	8.9635*	2.2330	1.9256	4.2269
	(4.4724)	(4.5131)	(4.6583)	(3.5760)

Orthodox	10.396*	2.5645	-1.5118	4.0040
	(4.5339)	(3.8930)	(4.2294)	(3.3591)
Other	4.5562*	0.6355	1.3709	2.1777
	(1.8334)	(1.7263)	(1.7324)	(1.3535)
Protestant	5.3606**	0.2571	4.4019*	3.3586*
	(2.0271)	(1.9010)	(1.8837)	(1.4820)
Roman Catholic	8.5472***	3.3855	5.0624**	5.6971***
	(2.0132)	(1.9215)	(1.8888)	(1.4879)
Evangelical	1.1805	0.3387	-0.6165	0.2794
	(1.5767)	(1.3953)	(1.3601)	(1.0873)
Religious service frequency	-0.6909	0.4462	0.7339	0.1927
	(0.4259)	(0.3831)	(0.3870)	(0.3142)
Gun control organization membership	-4.4220	2.8492	1.8499	0.5174
	(2.8667)	(2.2857)	(2.3029)	(1.9566)
Personal gun ownership	11.601***	10.675***	9.8262***	10.477***
	(1.5623)	(1.3561)	(1.3854)	(1.0535)
Total household guns (versus none)	.	.	.	.
Unsure	1.9808	3.5015	8.0881*	4.8022
	(4.0717)	(3.4345)	(3.7047)	(2.7447)
One	4.4298	-1.6463	6.0189**	3.0272
	(2.2639)	(1.9636)	(2.1040)	(1.5650)
Two	3.3374	-2.1520	6.2323*	2.5132
	(2.9766)	(2.4157)	(2.5773)	(1.9744)
Three	7.5836*	-3.2518	4.6063	2.9410
	(3.7372)	(3.0185)	(3.2553)	(2.5062)
Four or more	8.8991*	0.1058	9.2292*	6.0903*
	(4.3170)	(3.7538)	(3.9311)	(2.9413)
Recent handgun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	25.431***	7.0758***	6.4287***	12.800***
	(1.0547)	(1.0211)	(1.0220)	(0.7539)
I purchased	14.957***	7.5824**	4.5837	9.0407***
	(3.2498)	(2.6808)	(2.6663)	(2.1262)
Recent lever or bolt action rifle thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	1.8769	3.2867	19.274***	8.4501***
	(2.2150)	(2.0494)	(2.3250)	(1.5641)
I purchased	-2.4225	8.0079	9.7697	5.8168
	(5.7347)	(5.7140)	(5.1732)	(4.1612)
Recent semi-automatic rifle thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	-0.004651	31.665***	3.3036	11.502***
	(1.8693)	(2.1240)	(1.7208)	(1.3351)
I purchased	10.140*	15.891**	9.6603*	12.382***
	(4.4462)	(5.4117)	(4.8306)	(3.6242)
Recent shotgun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	4.1976*	4.9114**	8.4743***	5.8520***
	(1.7748)	(1.5884)	(1.6149)	(1.1540)
I purchased	5.4638	17.099***	15.026**	13.532***
	(5.3641)	(4.7751)	(5.3048)	(3.7927)
Recent other gun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	12.774	-2.9412	-4.5364	2.2130
	(7.4045)	(4.2629)	(5.2906)	(4.3291)
I purchased	30.547***	39.731***	44.439***	39.664***
	(5.4672)	(4.4916)	(3.1257)	(3.0722)

Handgun ownership	6.2206**	4.3122*	-2.7451	2.3351
	(2.0171)	(1.8217)	(1.7636)	(1.3771)
Lever or bolt-action rifle ownership	-3.1069	-2.3011	5.3110**	0.2705
	(1.8746)	(1.6656)	(1.6607)	(1.2458)
Semi-automatic rifle ownership	-1.8280	10.186***	-0.5326	3.0005*
	(2.0714)	(1.7421)	(1.7622)	(1.3916)
Shotgun ownership	-0.7924	0.9659	3.7955*	1.5269
	(1.7883)	(1.5898)	(1.6349)	(1.2325)
Other gun ownership	-4.0129	-4.4037	-1.2255	-3.1070
	(4.1876)	(3.5915)	(3.0637)	(2.6321)
Log of survey duration in seconds	3.7137**	2.5223*	2.6708**	3.0098***
	(1.2416)	(1.0199)	(0.9961)	(0.8438)
Observations	4240	4240	4240	4240

Notes: Robust delta standard errors in parentheses. Coefficients can be interpreted as the change in the expected value of desirability on a [0,100] interval, holding covariates (if any) constant. Covariates treated as continuous (e.g. age) are interpreted as *dydx* partial differentials (known as marginal effects), so that a one-unit change in the covariate is predicted to have coefficient number of units change in expected value of the outcome, holding covariates (if any) constant. For factor variables, margins for the discrete change are reported. Coefficients cannot be interpreted jointly by simple addition.
*p < .05; **p < .01; ***p < .001 (two-tailed tests).

Appendix F. Full Zero- and One-Inflated Beta Regression Results[1]

(0,100) Beta Regression Sub-Model

	Handgun	AR-15	Hunting Rifle	Overall Desirability
Pandemic vignette	6.3440***	-0.6084	-1.5674*	1.4501*
	(0.7922)	(0.6708)	(0.6962)	(0.6274)
Sex identity (versus Female)	.	.	.	.
Male	3.6669***	11.720***	8.9446***	9.2912***
	(0.8930)	(0.8244)	(0.8062)	(0.7375)
Other	11.207*	14.427*	13.399*	14.518**
	(4.5584)	(7.1599)	(6.1790)	(5.2796)
Racial identity (versus white)	.	.	.	.
American Indian or Alaska Native	-0.1353	3.2733	-0.06684	3.4317
	(3.7956)	(4.2584)	(3.9447)	(3.6973)
Asian	2.2821	2.8440*	0.9823	2.8815*
	(1.5715)	(1.3570)	(1.3338)	(1.2578)
Black or African American	3.1006	2.1922	-2.6117*	1.4248
	(1.6247)	(1.3582)	(1.2415)	(1.2184)
Multiple	-1.4819	-0.8283	0.4019	0.4352
	(2.2740)	(1.7510)	(2.1190)	(1.8053)
Native Hawaiian or Pacific Islander	8.9237	3.4908	4.1868	6.1657
	(8.1899)	(5.7174)	(4.7781)	(6.8404)
Other	-1.6734	0.2138	-2.5279	-1.0528
	(2.6135)	(2.2236)	(2.4005)	(2.1137)
Latinx	-0.9236	2.2626	-0.2118	0.3634
	(1.5079)	(1.2167)	(1.3824)	(1.1850)
Age	-0.2198***	-0.3000***	-0.1377***	-0.2269***
	(0.04374)	(0.03439)	(0.03954)	(0.03543)
Urbanicity (versus rural)	.	.	.	.
Suburban	-1.2725	0.1531	-5.2051***	-3.0870***
	(1.0989)	(0.8984)	(1.0608)	(0.8822)
Urban	-0.6193	3.0742**	-3.1222**	-1.0221
	(1.2522)	(1.0550)	(1.1438)	(0.9913)
Marital status (versus single)	.	.	.	.
Divorced	2.8982	-0.5801	0.4969	0.6488
	(1.8436)	(1.3141)	(1.5551)	(1.4197)
Separated	-5.8937	4.2858	4.6789	-0.9792
	(3.5004)	(3.4586)	(3.8273)	(2.8672)
Widowed	-4.5956	-0.8116	-1.5097	-3.4469
	(3.9255)	(2.6673)	(3.7827)	(2.8838)
Married	-2.6644*	-0.1277	-0.04001	-1.3468
	(1.0625)	(0.8989)	(0.9552)	(0.8675)
Household size	-0.02657	0.03209	0.07836*	0.03292
	(0.03256)	(0.03294)	(0.03535)	(0.03168)
Household children	1.0466**	0.4573	0.6231*	0.9595***
	(0.3428)	(0.2411)	(0.2917)	(0.2667)
Political views (versus liberal)	.	.	.	.
Moderate	4.3151***	3.4956***	1.8905*	3.7503***
	(1.0924)	(0.8846)	(0.8969)	(0.8630)
Conservative	8.0201***	6.0116***	3.1436*	7.6333***
	(1.5238)	(1.3522)	(1.3223)	(1.2154)
Party affiliation (versus Democrat)	.	.	.	.
Independent or other	2.8291**	2.7017**	2.4169**	3.0880***
	(1.0779)	(0.8674)	(0.8836)	(0.8509)

Republican	4.4091**	3.4956**	4.4988***	4.5681***
	(1.4537)	(1.2670)	(1.3515)	(1.1755)
Education	-0.7289*	-0.7359*	-0.2996	-0.9215**
	(0.3591)	(0.3012)	(0.3082)	(0.2816)
Household income	0.02577	-0.1179	-0.2026	-0.06863
	(0.1568)	(0.1285)	(0.1350)	(0.1241)
Employment (versus full time)	.	.	.	.
Unemployed not looking for work	-3.7516	-3.6606*	-4.9820**	-4.3304**
	(1.9621)	(1.4753)	(1.5970)	(1.4523)
Unemployed looking for work	-2.0866	-0.5118	-2.3787*	-1.3843
	(1.4151)	(1.2166)	(1.1610)	(1.1664)
Retired	-2.5250	-4.0193*	-1.6202	-1.5596
	(2.2951)	(1.6927)	(2.1984)	(1.7923)
Employed part time	-4.1569***	-1.7159	-1.9022	-3.0402***
	(1.1994)	(0.9379)	(1.0236)	(0.9067)
Stay at home caregiver / homemaker	-4.6019**	-3.0443*	-2.6170*	-3.9361**
	(1.6075)	(1.2674)	(1.3304)	(1.2014)
Pandemic impacts	.	.	.	.
Pandemic financial impacts	0.3626	-0.1977	0.1549	0.5222
	(0.8381)	(0.7245)	(0.7431)	(0.6685)
Pandemic health impacts	-0.8535	0.01015	3.4749**	0.9301
	(1.4554)	(1.1901)	(1.3227)	(1.1290)
Pandemic quality of life impacts	-1.2798	-0.8440	-2.5455**	-2.5840***
	(0.8944)	(0.7529)	(0.7963)	(0.7086)
Government assistance	.	.	.	.
Medical assistance	1.9489	0.7964	0.4882	1.1935
	(1.3698)	(1.0644)	(1.1498)	(0.9999)
Cash assistance	1.2216	0.9249	2.0319	1.9782
	(1.8717)	(1.4867)	(1.6651)	(1.4860)
Food assistance	0.9064	-0.7434	0.2619	-1.0683
	(1.4790)	(1.1884)	(1.2931)	(1.1132)
Social security assistance	-2.6793	3.6173*	2.1160	0.4162
	(1.7949)	(1.4482)	(1.7318)	(1.3979)
Unemployment assistance	-0.6899	-0.7142	-0.5954	-0.8029
	(1.1315)	(0.8903)	(0.9205)	(0.8370)
Housing assistance	4.3761	1.7184	3.7510	3.1799
	(2.8455)	(2.0514)	(2.2776)	(2.0455)
Other assistance	0.3925	0.7493	1.8405	0.03675
	(1.7374)	(1.5483)	(1.5844)	(1.3842)
COVID-19 origin beliefs (versus "came about naturally")	.	.	.	.
Unsure	1.0265	1.9959*	1.7925	2.5982**
	(1.1525)	(0.9324)	(0.9812)	(0.8945)
Released accidentally from a lab	5.1464***	4.0258***	2.3389*	5.2559***
	(1.1543)	(1.0102)	(1.0191)	(0.9328)
Released intentionally from a lab	4.2356**	5.1646***	2.7777*	4.9528***
	(1.3201)	(1.1119)	(1.1778)	(1.0399)
Religious identity (versus atheist)	.	.	.	.
Agnostic	2.9515	-0.7467	0.5851	1.6818
	(1.5077)	(1.3275)	(1.3447)	(1.1917)
Buddhist	2.6619	-4.0933	-2.7601	0.8311
	(3.5028)	(2.6316)	(2.7707)	(2.5825)
Hindu	4.6763	-1.3940	-4.4824	2.0204
	(4.2076)	(3.1595)	(2.8577)	(3.2940)
Jewish	-0.5588	-3.0219	0.5335	1.2169
	(2.8486)	(2.7368)	(2.8350)	(2.6671)
Mormon	8.4683*	-0.6907	4.7420	4.0506

	(3.4301)	(3.8777)	(3.4605)	(3.5094)
Muslin	7.2554	-0.4408	-1.3015	3.7081
	(4.5337)	(3.6294)	(3.2349)	(3.5079)
Orthodox	5.0285	-0.8147	-1.9298	3.5322
	(4.0717)	(3.3102)	(3.5015)	(3.3598)
Other	3.0254	-1.9106	-0.3367	1.2032
	(1.6633)	(1.4160)	(1.4612)	(1.2811)
Protestant	3.6691*	-1.9395	1.8763	2.5032
	(1.7742)	(1.5800)	(1.6223)	(1.4291)
Roman Catholic	6.7741***	1.2259	3.0987	4.7089***
	(1.8020)	(1.6209)	(1.6382)	(1.4245)
Evangelical	1.2555	0.4146	0.3631	0.5078
	(1.4489)	(1.1330)	(1.2157)	(1.0638)
Religious service frequency	-0.7676*	0.2686	0.3224	-0.2336
	(0.3753)	(0.3160)	(0.3346)	(0.3004)
Gun control organization membership	-0.9581	4.4341*	4.4603*	1.6824
	(2.4389)	(2.0386)	(2.0272)	(1.8369)
Personal gun ownership	8.6888***	6.8234***	8.8555***	10.585***
	(1.3796)	(1.1849)	(1.2910)	(1.0306)
Total household guns (versus none)	.	.	.	.
Unsure	3.2068	2.7349	3.9454	2.8923
	(3.8338)	(2.7475)	(3.0690)	(2.6510)
One	5.5709**	-0.4848	3.8993*	2.7617
	(1.9384)	(1.5654)	(1.8913)	(1.5247)
Two	5.5826*	1.4085	5.4055*	2.8999
	(2.5425)	(2.0641)	(2.3197)	(1.9111)
Three	9.0701**	-1.6631	1.6937	1.9444
	(3.0561)	(2.4732)	(2.7896)	(2.3438)
Four or more	9.9617**	3.0907	6.6650	5.3492
	(3.5197)	(3.1618)	(3.5249)	(2.7803)
Recent handgun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	19.900***	5.8633***	5.3002***	12.476***
	(0.9549)	(0.8760)	(0.8868)	(0.7450)
I purchased	12.153***	6.7430*	2.3104	9.3447***
	(2.5837)	(2.7010)	(2.5384)	(2.1487)
Recent lever or bolt action rifle thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	0.7879	4.2036*	14.274***	7.1661***
	(1.8023)	(1.9493)	(2.0833)	(1.5326)
I purchased	-1.3951	6.7657	2.0257	4.2108
	(4.4608)	(4.6707)	(3.5274)	(3.7409)
Recent semi-automatic rifle thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	-1.2597	24.656***	2.9240	9.4299***
	(1.4677)	(1.7968)	(1.5448)	(1.2502)
I purchased	8.1538*	9.7150*	7.4779	11.195**
	(3.6509)	(4.5395)	(4.5215)	(3.4494)
Recent shotgun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	1.5707	4.1628**	6.9488***	4.2707***
	(1.4781)	(1.4473)	(1.4585)	(1.1068)
I purchased	2.5351	18.937***	10.156*	9.4953**
	(4.1361)	(4.4175)	(4.2775)	(3.2005)
Recent other gun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	12.822	0.06880	2.2617	5.9251

	(7.9036)	(3.2866)	(3.9660)	(4.0226)
I purchased	24.297***	35.649***	25.166***	25.609***
	(5.0638)	(3.4831)	(5.8269)	(3.8120)
Handgun ownership	4.0076*	2.8094	-2.2416	2.4710
	(1.7552)	(1.4910)	(1.6391)	(1.3338)
Lever or bolt-action rifle ownership	-3.5202*	-2.3340	4.1020**	0.1881
	(1.5508)	(1.4602)	(1.5698)	(1.2193)
Semi-automatic rifle ownership	-3.2511	6.4513***	-0.2623	2.4034
	(1.7134)	(1.5270)	(1.6893)	(1.3478)
Shotgun ownership	-0.5505	0.2573	3.0647*	1.2489
	(1.5419)	(1.3094)	(1.5277)	(1.1928)
Other gun ownership	-5.8554	-2.6958	-2.8398	-4.9689
	(3.7068)	(2.7200)	(2.6544)	(2.6219)
Log of survey duration in seconds	3.5002**	1.7893*	2.6020**	2.3043**
	(1.1538)	(0.8926)	(0.9188)	(0.8476)
Observations	4240	4240	4240	4240

Notes: Robust standard errors in parentheses. Coefficients for beta regression can be interpreted as the change in the expected value of desirability on a [0,100] interval, holding covariates (if any) constant.

*p < .05; **p < .01; ***p < .001 (two-tailed tests).

[100] (Most Desirable) Logit Regression Sub-Model

	Handgun	AR-15	Hunting Rifle	Overall Desirability
Pandemic vignette	2.9813***	-0.6361	-0.7725	-0.1501
	(0.8931)	(0.7185)	(0.5824)	(0.3739)
Sex identity (versus Female)	.	.	.	.
Male	0.9707	4.9359***	2.8172***	1.1312*
	(1.0296)	(0.8461)	(0.7299)	(0.4529)
Other	-3.0388	-0.2219	0.2675	-0.9413***
	(5.6835)	(2.3039)	(3.3710)	(0.2588)
Racial identity (versus white)	.	.	.	.
American Indian or Alaska Native	0.8745	1.5987	3.3947	0.6876
	(4.0246)	(2.7589)	(3.4570)	(1.3914)
Asian	1.4243	4.0371*	1.2624	0.8139
	(1.9766)	(1.9428)	(1.5149)	(1.2204)
Black or African American	1.6609	-0.4884	0.5342	0.06993
	(1.7255)	(1.3329)	(1.3162)	(0.8762)
Multiple	3.6627	1.5625	1.4361	-0.6619
	(2.6180)	(2.0976)	(1.8366)	(0.7048)
Native Hawaiian or Pacific Islander	-3.2889	9.1619	-3.7455***	-1.6130***
	(6.1969)	(9.0485)	(0.3279)	(0.2139)
Other	1.2192	1.1890	0.7497	-0.4557
	(2.7826)	(2.0403)	(1.8134)	(0.8939)
Latinx	2.9637	1.8983	1.1925	1.3256*
	(1.5364)	(1.2630)	(0.9711)	(0.6332)
Age	0.02638	-0.04104	0.04417	0.04241
	(0.04911)	(0.04253)	(0.03199)	(0.02295)
Urbanicity (versus rural)	.	.	.	.
Suburban	-1.1679	-0.5532	-0.4490	-0.3022
	(1.2222)	(1.0043)	(0.7680)	(0.5187)
Urban	-1.4365	-1.2758	0.4574	-0.1663
	(1.3549)	(1.0984)	(0.9342)	(0.5568)
Marital status (versus single)	.	.	.	.
Divorced	0.08462	-1.7230	0.1036	-1.0941
	(1.8200)	(1.6294)	(1.2146)	(0.5847)
Separated	-1.6567	-3.1156	-1.8560	-1.7535***
	(3.2649)	(2.2291)	(2.1918)	(0.4073)
Widowed	0.2017	-7.3445***	-1.0814	-1.7535***
	(5.2950)	(0.6950)	(2.6933)	(0.4073)
Married	0.06391	-1.4295	0.2081	-0.02276
	(1.1942)	(1.0483)	(0.8881)	(0.6701)
Household size	-0.04314	-0.3564	-0.4108	-0.07285
	(0.04150)	(0.2758)	(0.2850)	(0.1348)
Household children	0.3945	0.4337*	-0.03713	0.1520
	(0.3053)	(0.2128)	(0.2408)	(0.1021)
Political views (versus liberal)	.	.	.	.
Moderate	1.2687	1.0237	0.02000	0.05103
	(1.2078)	(0.9875)	(0.8889)	(0.5094)
Conservative	2.2527	3.0837*	1.2062	0.5710
	(1.6817)	(1.3413)	(1.1676)	(0.6891)
Party affiliation (versus Democrat)	.	.	.	.
Independent or other	1.7271	0.3666	1.4282	0.2094
	(1.1895)	(1.0461)	(0.9152)	(0.5015)
Republican	1.7723	0.9353	0.3958	0.7656
	(1.6034)	(1.2334)	(0.9599)	(0.6349)
Education	-0.9448*	-0.6962*	-0.4809	-0.09361

	(0.3805)	(0.3240)	(0.2658)	(0.1936)
Household income	0.1462	0.1122	-0.1092	-0.07729
	(0.1764)	(0.1586)	(0.1283)	(0.08430)
Employment (versus full time)	.	.	.	.
Unemployed not looking for work	1.3880	-2.3272	0.8834	-0.2239
	(2.3234)	(1.7922)	(1.8904)	(1.2730)
Unemployed looking for work	2.9598	1.5764	2.0371	1.3234
	(1.5576)	(1.4136)	(1.1773)	(0.8435)
Retired	1.6649	0.4240	0.6044	-0.06858
	(3.0983)	(2.6895)	(1.6431)	(1.1501)
Employed part time	-0.3583	-2.1694*	0.2466	-0.2211
	(1.2779)	(0.9860)	(0.8488)	(0.4918)
Stay at home caregiver / homemaker	0.1668	-2.1125	-0.5181	-0.8646
	(1.7929)	(1.4568)	(1.3836)	(0.6253)
Pandemic impacts	.	.	.	.
Pandemic financial impacts	1.6743	0.6731	0.5765	0.09948
	(0.9503)	(0.7865)	(0.6422)	(0.3875)
Pandemic health impacts	-2.9464	-0.8739	0.01024	-0.4328
	(1.8160)	(1.3092)	(1.0883)	(0.7197)
Pandemic quality of life impacts	-1.5541	-0.2054	-0.5929	-0.1653
	(0.9547)	(0.7809)	(0.6556)	(0.4149)
Government assistance	.	.	.	.
Medical assistance	0.2523	-0.8741	-0.7493	0.2459
	(1.4943)	(1.2788)	(1.0020)	(0.5514)
Cash assistance	-3.0073	0.7299	-3.2961	-0.7005
	(2.3648)	(1.7507)	(1.8947)	(0.8181)
Food assistance	1.4308	1.8652	0.6595	0.5897
	(1.4684)	(1.2918)	(0.9785)	(0.6276)
Social security assistance	-2.4131	-4.0042	-2.8186	-2.1975
	(2.3431)	(2.1100)	(1.8659)	(1.5616)
Unemployment assistance	-0.4798	-0.06393	-0.1921	-0.2424
	(1.1783)	(0.9730)	(0.7711)	(0.4993)
Housing assistance	-0.4698	0.8394	0.4863	1.0963
	(3.1723)	(2.1869)	(2.1629)	(1.1275)
Other assistance	0.6199	-0.2780	0.08579	0.009821
	(1.8391)	(1.5268)	(1.2356)	(0.7500)
COVID-19 origin beliefs (versus "came about naturally")	.	.	.	.
Unsure	1.8377	2.2734*	0.1716	0.6049
	(1.2620)	(0.9867)	(0.8307)	(0.5648)
Released accidentally from a lab	0.4448	2.1656*	0.9461	-0.04867
	(1.2530)	(0.9974)	(0.9084)	(0.4610)
Released intentionally from a lab	0.5400	3.3999**	1.5312	0.9746
	(1.3342)	(1.1947)	(1.0394)	(0.6709)
Religious identity (versus atheist)	.	.	.	.
Agnostic	-2.6815	1.3705	-0.3889	-0.2532
	(1.6615)	(1.2963)	(1.1461)	(0.7889)
Buddhist	0.7974	1.0209	0.4606	-1.8760*
	(4.2974)	(3.4729)	(3.1836)	(0.7440)
Hindu	8.1266	1.8811	-1.4631	-1.8760*
	(5.7780)	(2.9075)	(2.6995)	(0.7440)
Jewish	1.7939	2.9328	1.2765	-0.6926
	(4.6502)	(4.1036)	(3.3517)	(1.8902)
Mormon	-3.5793	1.4800	0.3990	-0.4622
	(3.3677)	(2.9634)	(2.5594)	(1.4030)
Muslin	4.2040	0.2985	4.4683	0.2929
	(6.3515)	(3.9051)	(4.7861)	(2.4531)

Orthodox	11.491	3.6747	-1.4340	0.1916
	(6.4714)	(4.1115)	(2.4129)	(1.7638)
Other	1.3217	3.7062**	0.5370	0.1316
	(1.8355)	(1.4147)	(1.2924)	(0.8586)
Protestant	0.1874	1.2161	-0.03385	-0.4165
	(1.9743)	(1.4552)	(1.3365)	(0.8729)
Roman Catholic	0.1149	1.8660	-0.9558	-0.8117
	(2.0416)	(1.5383)	(1.3636)	(0.9660)
Evangelical	0.6401	-1.4192	-1.9579*	-0.6301
	(1.3754)	(1.2080)	(0.9983)	(0.6066)
Religious service frequency	-0.6444	0.1061	0.1742	0.004654
	(0.4042)	(0.3661)	(0.2994)	(0.2220)
Gun control organization membership	-5.7357	-6.9015*	-4.2142	-2.6124
	(3.5951)	(3.4849)	(2.1617)	(1.8907)
Personal gun ownership	5.9670***	4.9599***	3.3332**	1.8609*
	(1.4618)	(1.2572)	(1.0798)	(0.8357)
Total household guns (versus none)	.	.	.	.
Unsure	-2.9119	-0.9964	2.2328	0.2048
	(3.2804)	(2.6609)	(2.6847)	(1.9939)
One	-3.0316	-2.9614	-0.2598	-1.2234
	(2.1711)	(1.6701)	(1.2538)	(1.0292)
Two	-3.4002	-3.5269	0.06691	-0.8517
	(2.5588)	(1.8757)	(1.3785)	(1.1347)
Three	-4.4362	-2.8911	1.0085	-1.0581
	(2.8227)	(2.3114)	(2.2275)	(1.2356)
Four or more	-2.1445	-3.2607	2.1815	-0.8742
	(3.4285)	(2.3381)	(2.5166)	(1.3919)
Recent handgun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	5.2860***	-2.0914*	-0.7024	-0.09383
	(1.1874)	(0.8372)	(0.7176)	(0.3833)
I purchased	8.4389**	3.4007	2.6186	2.0876
	(3.1615)	(2.2244)	(1.9350)	(1.4733)
Recent lever or bolt action rifle thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	2.4627	2.5889	7.5945***	3.1052**
	(1.9899)	(1.5514)	(1.9681)	(1.0430)
I purchased	-2.3470	-1.6370	4.0315	0.4199
	(3.8681)	(2.5720)	(3.8527)	(1.3782)
Recent semi-automatic rifle thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	2.6879	13.180***	1.5575	2.0852*
	(1.6529)	(2.3108)	(1.1416)	(0.8341)
I purchased	3.6562	6.3917	0.8751	1.0598
	(4.6954)	(3.8457)	(2.1486)	(1.4212)
Recent shotgun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	3.3285*	1.0067	1.3174	0.8063
	(1.5746)	(1.0986)	(1.0379)	(0.5815)
I purchased	-0.02068	2.1496	4.2095	2.0921
	(3.8707)	(3.0760)	(3.4095)	(2.1612)
Recent other gun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	9.4150	-2.7103	-4.0074***	-1.6186***
	(9.4090)	(2.2275)	(0.2943)	(0.1833)
I purchased	-9.2487***	5.3407	-4.0074***	-1.6186***
	(0.4357)	(9.9789)	(0.2943)	(0.1833)

Handgun ownership	4.0329*	2.2676	-0.9220	0.1449
	(1.9421)	(1.3872)	(1.1159)	(0.6725)
Lever or bolt-action rifle ownership	-0.006218	0.2157	1.4712	0.4692
	(1.6019)	(1.1761)	(0.8822)	(0.5451)
Semi-automatic rifle ownership	0.8940	2.8786*	0.1069	0.5340
	(1.6560)	(1.1800)	(0.9638)	(0.5367)
Shotgun ownership	-0.6399	0.4784	-0.4662	-0.4262
	(1.4921)	(1.1487)	(0.9497)	(0.6167)
Other gun ownership	-0.3479	0.7193	0.05914	0.03197
	(3.4879)	(1.9422)	(1.6823)	(0.8953)
Log of survey duration in seconds	0.06204	-0.06152	-0.2944	-0.05957
	(1.0821)	(1.0601)	(0.6375)	(0.3939)
Observations	4240	4240	4240	4240

Notes: Robust standard errors in parentheses. Coefficients for the one-inflated logit regression sub-model are measured in absolute percentage points, and are interpreted as expected difference in probability of a *least desirable* [0] or *most desirable* [100] outcome respectively, holding covariates (if any) constant.

*p < .05; **p < .01; ***p < .001 (two-tailed tests).

[0] (Least Desirable) Logit Regression Sub-Model

	Handgun	AR-15	Hunting Rifle	Overall Desirability
Pandemic vignette	-1.1497	0.3198	1.2435	-0.7567
	(0.8518)	(1.0436)	(0.9797)	(0.7790)
Sex identity (versus Female)	.	.	.	.
Male	-1.6568	-3.3978**	-2.8737**	-1.7674*
	(0.8976)	(1.1280)	(1.0568)	(0.8119)
Other	0.3821	3.6662	0.9134	0.8998
	(4.5859)	(6.3455)	(5.4001)	(4.1865)
Racial identity (versus white)	.	.	.	.
American Indian or Alaska Native	-3.9204	-16.473***	-3.9395	-8.4009***
	(5.8272)	(0.6269)	(6.2304)	(0.4810)
Asian	-3.2764*	-4.7497**	-2.5840	-2.9273*
	(1.2890)	(1.6252)	(1.5356)	(1.1646)
Black or African American	-3.2505*	0.1935	-0.07089	-2.3911
	(1.5392)	(2.1704)	(1.9241)	(1.4782)
Multiple	-3.4624	0.8099	-0.5549	-2.3865
	(1.9974)	(3.1221)	(2.6929)	(1.8662)
Native Hawaiian or Pacific Islander	-9.8925***	-8.5882	-5.7581	-8.4009***
	(0.5195)	(5.8890)	(6.0888)	(0.4810)
Other	-0.9954	1.2008	1.4753	-2.1087
	(2.5797)	(3.3005)	(3.0684)	(2.2258)
Latinx	-1.2103	0.01981	0.3006	-1.1367
	(1.6278)	(1.9438)	(1.7405)	(1.5017)
Age	0.04152	0.03387	0.003948	0.05917
	(0.04564)	(0.05638)	(0.05422)	(0.04259)
Urbanicity (versus rural)	.	.	.	.
Suburban	2.5007*	1.4317	4.1153**	1.6982
	(1.1770)	(1.5250)	(1.3767)	(1.0918)
Urban	1.8397	0.7654	1.8798	1.1484
	(1.3072)	(1.7128)	(1.5243)	(1.2183)
Marital status (versus single)	.	.	.	.
Divorced	-0.9334	0.03448	0.2866	-2.7757
	(1.8470)	(2.2332)	(2.1214)	(1.4543)
Separated	-4.7658	-0.9379	-6.1107	-5.8427*
	(2.8987)	(4.7434)	(3.6911)	(2.2975)
Widowed	-2.2894	-0.4023	4.5136	-1.0123
	(4.3355)	(5.5832)	(6.1064)	(4.3989)
Married	-0.2078	0.9576	1.2031	-0.4815
	(1.0793)	(1.3836)	(1.2981)	(1.0026)
Household size	-0.04400	-0.09415	-0.07667	-0.009623
	(0.1426)	(0.1904)	(0.1284)	(0.08137)
Household children	-0.1768	-0.2376	-0.1650	0.01143
	(0.4667)	(0.5345)	(0.5301)	(0.4314)
Political views (versus liberal)	.	.	.	.
Moderate	-5.1444***	-6.6528***	-4.4639***	-4.4589***
	(1.1183)	(1.4092)	(1.2864)	(1.0088)
Conservative	-7.3404***	-10.836***	-6.5938***	-5.9515***
	(1.4175)	(2.0056)	(1.9699)	(1.2938)
Party affiliation (versus Democrat)	.	.	.	.
Independent or other	1.9018	1.0212	2.4487*	1.8138
	(1.0515)	(1.3072)	(1.2407)	(0.9818)
Republican	-1.3693	-1.6580	-2.8497	-1.5268
	(1.6509)	(2.2011)	(1.8847)	(1.4396)
Education	0.2143	0.9212	0.6424	0.2715

	(0.3819)	(0.4766)	(0.4481)	(0.3582)
Household income	0.08484	0.4620*	0.1096	0.07709
	(0.1609)	(0.2052)	(0.1893)	(0.1480)
Employment (versus full time)	.	.	.	.
Unemployed not looking for work	-0.7866	0.2012	0.8798	-1.2280
	(1.8421)	(2.3959)	(2.2447)	(1.6467)
Unemployed looking for work	-0.06933	0.4934	0.7569	-0.4813
	(1.3379)	(1.7624)	(1.6322)	(1.2555)
Retired	-0.2460	0.7852	-0.1840	-2.0583
	(2.3885)	(3.0487)	(2.8398)	(1.9695)
Employed part time	1.5918	-0.1232	0.9392	0.2399
	(1.2927)	(1.5520)	(1.4757)	(1.1532)
Stay at home caregiver / homemaker	2.5331	7.8145**	4.0780	1.4113
	(2.0345)	(2.4915)	(2.2882)	(1.8295)
Pandemic impacts	.	.	.	.
Pandemic financial impacts	-1.0089	-2.2524*	-2.6947*	-1.4686
	(0.9100)	(1.1453)	(1.0527)	(0.8291)
Pandemic health impacts	0.08652	-2.1637	0.5361	0.05112
	(1.7506)	(2.2382)	(1.9931)	(1.6224)
Pandemic quality of life impacts	1.8976	2.5882*	1.9919	1.2139
	(0.9991)	(1.2403)	(1.1371)	(0.9104)
Government assistance	.	.	.	.
Medical assistance	1.6202	-0.1189	0.8922	2.6786*
	(1.3917)	(1.7999)	(1.6328)	(1.2409)
Cash assistance	-5.7249*	-3.6738	-3.1555	-3.5414
	(2.7862)	(3.0170)	(2.7756)	(2.4362)
Food assistance	0.1730	2.6026	1.6143	-0.7763
	(1.4734)	(1.9605)	(1.7417)	(1.3896)
Social security assistance	-4.0326	-3.3576	-7.2862*	-5.4089*
	(2.5536)	(2.8135)	(3.0533)	(2.6751)
Unemployment assistance	-0.4265	-0.6215	-0.6288	-0.2372
	(1.1630)	(1.4623)	(1.3822)	(1.0844)
Housing assistance	-2.6776	-8.7290	-1.4437	-2.5791
	(3.7240)	(4.9976)	(3.9988)	(3.5626)
Other assistance	-3.0580	2.2061	-2.8339	-3.6242
	(2.0115)	(2.1370)	(2.2461)	(1.9923)
COVID-19 origin beliefs (versus "came about naturally")	.	.	.	.
Unsure	-1.0026	-4.3910**	-2.9997*	-0.4575
	(1.1784)	(1.4348)	(1.3288)	(1.0956)
Released accidentally from a lab	-4.2982***	-6.7782***	-2.8365	-3.3597**
	(1.2543)	(1.6052)	(1.5824)	(1.1669)
Released intentionally from a lab	-3.1715*	-6.7632***	-5.5691***	-3.9203**
	(1.5287)	(1.8499)	(1.6522)	(1.3083)
Religious identity (versus atheist)	.	.	.	.
Agnostic	-5.7103***	-5.1004*	-5.8713**	-4.2992**
	(1.6677)	(1.9915)	(2.0064)	(1.5389)
Buddhist	-10.038***	-6.0865	-4.7865	-8.1645**
	(2.7955)	(4.4890)	(4.3562)	(2.6083)
Hindu	-1.5070	-2.2030	-6.6131	0.2723
	(4.3385)	(5.2772)	(4.3590)	(4.2026)
Jewish	-6.1967*	-5.1548	-4.7856	-4.4866
	(2.7228)	(3.7672)	(3.8505)	(2.5366)
Mormon	-3.6431	-4.8924	-7.9426	-6.4743
	(5.0349)	(5.7355)	(5.1679)	(3.6196)
Muslin	-5.5219	-6.5524	-2.7801	-3.1660
	(4.0003)	(5.2539)	(5.4762)	(4.1699)

Orthodox	-4.4980	-7.5222	-6.2879	-2.8700
	(4.8158)	(5.6007)	(5.3210)	(4.7078)
Other	-3.2402	-4.1121	-5.6317*	-3.1358
	(1.8953)	(2.2142)	(2.2263)	(1.7525)
Protestant	-5.7869**	-5.7834*	-9.4349***	-5.3496**
	(2.0673)	(2.4596)	(2.3657)	(1.8902)
Roman Catholic	-5.8522**	-5.8368*	-7.8796**	-5.0623**
	(2.0171)	(2.4890)	(2.4017)	(1.8475)
Evangelical	-0.6493	-1.7668	-0.1202	-0.2080
	(1.7188)	(2.0693)	(1.8994)	(1.5821)
Religious service frequency	0.04655	-0.3306	-0.06625	0.08846
	(0.4436)	(0.5430)	(0.4986)	(0.4195)
Gun control organization membership	0.5776	-1.4285	-3.9852	-0.5811
	(2.6907)	(3.8714)	(3.6581)	(2.6156)
Personal gun ownership	-6.4956*	-8.3321**	-8.0146**	-5.8759*
	(2.7159)	(2.7959)	(2.7984)	(2.6338)
Total household guns (versus none)	.	.	.	.
Unsure	-9.2696***	-14.017***	-11.058***	-8.3870***
	(0.7422)	(2.9514)	(3.0782)	(0.9099)
One	-3.6251	-9.0517**	-7.4334**	-4.6880*
	(2.4085)	(2.9641)	(2.7150)	(2.0951)
Two	1.8185	-5.7546	-4.9726	-1.9924
	(5.3544)	(4.6218)	(4.1783)	(4.1709)
Three	-3.3326	-12.994***	-9.7048**	-6.3223*
	(4.7001)	(3.7189)	(3.4740)	(2.4703)
Four or more	4.3843	-5.8094	-4.1045	-2.0265
	(8.6630)	(6.4995)	(5.7271)	(6.0791)
Recent handgun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	-10.146***	-10.727***	-10.211***	-8.4607***
	(0.5921)	(1.1601)	(0.9516)	(0.5318)
I purchased	2.4698	-1.9786	0.7962	2.7908
	(7.8398)	(5.9036)	(5.9532)	(6.9914)
Recent lever or bolt action rifle thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	-5.5395	-0.3492	-13.106***	-7.6687***
	(3.1345)	(4.2627)	(0.4908)	(0.3795)
I purchased	-9.0800***	-15.921***	-13.106***	-7.6687***
	(0.4172)	(0.5214)	(0.4908)	(0.3795)
Recent semi-automatic rifle thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	-9.1176***	-14.505***	-3.1616	-7.6762***
	(0.4188)	(1.7395)	(3.3469)	(0.3799)
I purchased	-9.1176***	-16.248***	3.3980	-7.6762***
	(0.4188)	(0.5331)	(11.846)	(0.3799)
Recent shotgun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	-4.3162	-3.8905	-5.4084*	-7.7521***
	(2.6765)	(2.6390)	(2.4190)	(0.3835)
I purchased	-9.1276***	-16.072***	-13.126***	-7.7521***
	(0.4197)	(0.5314)	(0.4945)	(0.3835)
Recent other gun thoughts or purchases (versus none)	.	.	.	.
I thought about purchasing	4.0342	-6.9850	3.4704	1.2928
	(9.4085)	(6.5598)	(8.2509)	(6.5737)
I purchased	22.113	-15.937***	-12.905***	16.081
	(19.027)	(0.5189)	(0.4822)	(18.709)

Handgun ownership	-3.4332	5.1253	4.1973	-0.6571
	(3.3312)	(3.7996)	(3.6082)	(3.3135)
Lever or bolt-action rifle ownership	-3.5507	0.3668	-3.5311	-1.0490
	(3.3148)	(3.2468)	(3.2726)	(3.1793)
Semi-automatic rifle ownership	-3.1841	-7.0619	-7.3288	-3.1294
	(3.4235)	(3.8333)	(3.8505)	(3.5080)
Shotgun ownership	-0.5681	-0.5192	-0.6977	0.1387
	(2.6985)	(2.9567)	(2.8099)	(2.6939)
Other gun ownership	-4.1079	7.0025	-0.4460	-0.6081
	(7.3670)	(6.1027)	(6.7378)	(6.1166)
Log of survey duration in seconds	-2.9393	-4.7629**	-2.5896	-3.7167*
	(1.5634)	(1.8106)	(1.6249)	(1.6250)
Observations	4240	4240	4240	4240

Notes: Robust standard errors in parentheses. Coefficients for the zero-inflated logit regression sub-model are measured in absolute percentage points, and are interpreted as expected difference in probability of a *least desirable* [0] or *most desirable* [100] outcome respectively, holding covariates (if any) constant.

*p < .05; **p < .01; ***p < .001 (two-tailed tests).

Endnotes

1 – Tables formatted with the help of ASDOC (Shah 2018). Analyses conducted and figures created in Stata 16 (StataCorp 2019) and R (R Core Team 2019), with additional packages used including tidyverse (Wickham et al. 2019), lubridate (Grolemund & Wickham 2011), and X13 ARIMA-SEATS (Sax 2018; US Census Bureau 2017) in R and ZOIB (Buis 2012) in Stata. Estimated gun sales figure produced with tidyverse, ggplot2 (Wickham 2016), and svglite (Wickham et al. 2020). X13 ARIMA trendline based on December 1998 to January 2021 range of estimated gun sales, omitting the anomalously low November 1998 NICS ATF data. Data, code, and further information available upon request; large portions of these will be hosted by the author for distribution after publication on a personal webpage (www.jlsola.com).