The Universal Pursuit of Safety and the Demand for (Lethal, Non-Lethal or No) Guns*

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Abstract

Personal lethal firearm ownership has for several decades been a hot button political issue in the United States. This article aims to explore the motivations and beliefs underlying sharply different views on the subject through an original large-scale survey of lethal firearm owners (LFAO) and non-owners and experimental information interventions. We start by documenting several facts: First, LFAO and non-owners appear to be driven by a common objective—to be safe. Both groups list protection of family or self as the top rationale for owning or potentially acquiring a lethal firearm (LFA). Second, among non-owners, there are those who are interested in purchasing a lethal firearm (NO-I) and those who are not (NO-UI). NO-I feel the least safe in their daily lives. Third, there are differences in emotional responses to possession of a LFA. LFAO report feeling unsafe and less confident if they *did not* own the product whereas NO-U report similar feelings if they *did* own it. Fourth, LFAO are much less concerned about the possibility of personal and social costs associated with lethal firearm possession, a finding heightened across partisan lines. Taken together, these facts motivate three experimental treatments that randomly provide respondents with information on either (1) the personal legal and medical risks of ownership or (2) a non-lethal firearm (NLFA), provided with or without a conservative pundit's endorsement. The first treatment increases concerns about harms associated with lethal firearm ownership among all respondents, but these results are generally short-lived and do not affect policy views. The second treatment, however, increases respondents' willingness to pay for a NLFA and their self-reported preference for firearms that incapacitate but do not kill. Moreover, these treatment effects are more persistent than those of the cost treatment, especially when coupled with an endorsement, and affect the support of policies aimed at encouraging NLFA. Importantly, we do *not* find that exposure to information on NLFA makes current owners want to give up their (lethal) guns. We interpret these findings through an organizing framework in which every household has a demand for safety but differs in how they use firearms or other tools to produce it, due to different perceptions of the safety possibilities frontier (SPF, views about the least harmful ways to achieve protection benefits) or different preferences and incentives influencing the tradeoff over protective benefits vs. harms. Our results suggest that a substantial share of LFAO perceive the SPF differently than non-owners, and that there is a potential demand for less-lethal tools to be and feel safe.

Keywords: safety, lethal firearms, non-lethal firearms, information, perceptions.

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1 Introduction

Lethal firearms have for decades been a hot-button political issue in the United States (US), where such firearms are legal. There are passionate gun rights activists, but also passionate gun-control advocates who, for example, highlight that they are a leading cause of death among children in the US. Despite such polarization, there is limited understanding of why people hold such different views about the relative benefits and harms of personal lethal firearm ownership, and even less so about what might help change their views.

In this article, we design and run original large-scale surveys of both current lethal firearm owners (LFAO) and non-owners (NO) to provide an in-depth account of the motivations and beliefs behind LFA ownership or the absence of it and to experimentally study whether providing information can shift people's views. We provide two types of information treatments, one focusing on the personal costs of lethal firearms – via increased risk of legal liability and harm to others – and the other centering around an option for personal protection previously unknown or neglected by most survey respondents: a non-lethal firearm (NLFA).

Beginning with the landmark report entitled *Guns in America*, by Cook and Ludwig (1996), several papers have sought to describe America's gun owners and their motivations. Using General Social Survey (GSS) data, for instance, Glaeser and Glendon (1998) note: "Gun ownership appears to become a social norm when there is mistrust of public justice or where there is a tradition of private retribution." One limitation of surveys such as GSS and Gallup is that they typically only include a handful of questions about firearms. There is also a small set of dedicated surveys on the subject (e.g., The National Lawful Use of Gun) that include policy views (English, 2022). We build on these studies and the literature in five important ways.

First, we contribute through the scale of our study. We include nearly 6,000 LFAO and non-owners together in a large-scale survey. We determined lethal firearm ownership using obfuscated recruitment and verified ownership status with a validation survey that included a timed gun part naming game and specific lethal firearm-related swag. After large purchasing upticks with COVID-19, in particular, it is important to update our understanding of who *currently* owns firearms (Lopez, 2016; Helmore, 2021; De Visé, 2023; Hicks et al., 2023). Second, we expand the scope of questions covered in the "whys" behind gun ownership: we include not only questions on sociodemographics, family traditions, sports, and crime, but add new modules on social networks, externalities, internalities, and – importantly – emotional responses to lethal firearm ownership and use of deadly force. Third, by including to the fullest extent possible similar modules for non-owners, we can identify those who are on the cusp of purchasing (non-owners interested, NO-I) and those who are uninterested (NO-UI). Fourth, we include real-stakes and incentive-compatible questions that provide assurance on the quality of our responses. Fifth, we identify and test the importance of differences in knowledge about the personal costs of LFAO and a fairly new NLFA on gun-related attitudes and behaviors. How people view and think about NLFA has not been explored so far but offers a potentially important avenue for policy.

We find that lethal firearm owners and non-owners appear to be driven by a common objective: to be safe. Both LFAO and non-owners listed protection of family or self as the top rationale for owning (in the case of LFAO) or why they would acquire (in the case of NO) a lethal firearm. However, while some non-owners could imagine acquiring a gun, there are sharp differences across ownership groups in how firearms make them feel: many LFAO feel safe, confident and valuable by owning a lethal firearm. Many non-owners, on the other hand, feel the opposite: the top emotions related to firearms for non-owners who are uninterested in acquiring a firearm are unsafe, nervous, scared, and irresponsible. These differences do not appear to be driven by respondents feeling very different about the current safety threats they face. LFAO and NO-UI in

acquiring a firearm report feeling similarly safe in their daily lives.[1] However, respondents appear to have very different views about whether gun ownership will make them safer. Non-owners who are interested in acquiring a firearm (NO-I) report feeling significantly less safe in their daily lives than LFAO and NO-UI. Indeed, LFAO are much more likely to report that carrying a gun reduces their likelihood of being victimized or hurt. Similarly, the top emotional responses that LFAO report to imagining their guns being taken away include feeling insecure and vulnerable, alongside feeling angry and frustrated.

In addition to assessing the emotional response to lethal firearm ownership, we asked a series of questions to reveal people's views on potential benefits and harms associated with LFA. We find that LFAO, NO-I, and NO-UI would feel similarly upset about accidentally harming or killing another person in self defense or otherwise. However, there is a large gap across groups in how worried they are that a child could use their gun to hurt themselves or others, and in being arrested or sued if someone took their gun and caused harm: NO-UI are the most worried and LFAO the least, with NO-I falling in the middle. There are similarly large differences between groups in their perceptions of externalities associated with lethal firearm ownership, with NO-UI being most likely, NO-I the second most likely, and LFAO the least likely to believe that firearm ownership increases crime, murders, suicides, school shootings, and serious accidents.

Given that personal safety is the most prominent rationale provided for lethal firearm ownership and yet many individuals who currently own or are strongly considering owning lethal firearms are less concerned with the potential risks of firearms and seemed in general unaware of alternatives to lethal force, we devised information treatments that targeted these beliefs. For all respondents, we randomly provided information on the personal costs of ownership, including the heightened risk of suicides and accidents among households that possess a lethal firearm, as well as the legal liability that families might face if their children use a lethal firearm to commit a crime (as had been recently decided in a case in Michigan). We call this the *Personal Costs of Firearms* treatment. For current owners, we also randomized information about a fairly new non-lethal firearm alterantive commercially known as the Byrna Gun. The product had been on the market since 2019 and is the first firearm to be specifically marketed as "an alternative to lethal force" among the U.S. civilian population. All treatments included a narrated video, and the Byrna treatment was further divided into a pure information treatment (the *Non-Lethal Alternative Information* treatment) vs. a treatment that combined information with an endorsement from the conservative TV personality, Sean Hannity (the *Non-Lethal Alternative Information and Endorsement* treatment).

We find that the *Personal Costs of Firearms* treatment increases concerns about legal firearm usage among LFAO and Non-Owners. But these changes are ephemeral and do not generally affect policy views, nor interest in a non-lethal option. In contrast, information about NLFA affects both the willingness to view Byrna as an alternative to a lethal firearm, and agreement with the sentiment that they prefer a firearm to incapacitate and not kill a person. We find increases in willingness to pay for a NLFA, and willingness to support policies that promote non-lethal guns. In general, the effects of the information vs. information and endorsement are indistinguishable in the short-term, but the endorsement leads to greater persistence in the follow-up. Despite this, LFAO were not willing to "give up their (lethal) guns" in response to information on the NLFA. Qualitative responses probing this reluctance revealed that the treatments favorably shifted people's assessments about the suitability of NLFA for self-defense but some continued to imagine circumstances where only lethal force could be appropriate.

These descriptive and empirical findings can be interpreted through our organizing framework in which

[1] Interestingly, there are also **not** large differences between LFAO and NO-UI in trusting the police. See Section 3 for more details.

every household has a demand for safety but differs in how they think about producing it. Specifically, households produce safety by purchasing various tools in the market—tools that vary in their net safety benefits (protective benefits minus harms). People differ in their choices about which tools to purchase for several reasons. For example, because of heterogeneity in underlying needs or preferences, they might differentially trade off protective benefits against harms. More unique to our approach, and consistent with the empirical analysis, they might have different beliefs, perceptions, and visions for which tools deliver the most net safety: they could imagine more frequent or intense encounters in which lethal force would be required, neglect harms and focus on protective benefits, and/or differ in knowledge or beliefs of readily available options such as NLFA. Such heterogeneity leads them to hold different views about the safety-possibilities frontier (the highest expected protective benefit for any given amount of expected harm) and stands in contrast to fundamentally disagreeing about the correct point to be on the true frontier. While fundamental preference disagreement suggests few levers, if any, could resolve the disagreement, heterogeneity in views about the safety-possibilities frontier suggests that levers that draw attention to otherwise neglected information relevant to the frontier could influence beliefs and behavior. Our framework then provides a lens for understanding why our experimental treatments could have any impact at all on firearm-related beliefs and behavior.

Our focus on safety contributes to a broad literature in economics. Viscusi (1983) pioneered methods to reveal people's willingness to pay (WTP) to reduce risks to life and health. Work by Spence (1977), Shavell (1984), and others illustrate reasons (including consumer misperceptions) why unregulated markets may not produce efficient levels of product safety. But these exercises assume individuals broadly *agree* on what factors reduce or increase personal safety. We innovate on this literature by empirically unpacking reasons people could agree on a goal but starkly disagree on how to achieve it.

Social scientists within and outside of economics have examined America's gun owners. Cook and Ludwig (1996) detailed the landscape of ownership and use of lethal firearms in the mid-nineties.[2] Many key features of the American lethal firearm landscape were established therein, including that lethal firearms were acquired primarily for safety. The authors also noted an important tension: "Americans are ambivalent about guns: they fear them and at the same time they feel safer possessing them." As we show, this ambivalence largely stems from different views *across* individuals. With increasing sophistication of text analysis, many studies confirmed Cook and Ludwig (1996) initial findings. Boine et al. (2022), using latent class analysis, described six different types of owners, with a large share concerned for safety (further subset into concerns about family, self, or general protection) and residual groups prioritizing the second amendment or sport. Yamane (2022) documented a gradual increase in the diversity of lethal firearm owners over the last four decades — becoming less rural, less white, and less male. Past victimization and fear of violent crime have consistently been found to be important predictors of gun ownership (Kelley and Ellison, 2021; Kleck and Kovandzic, 2009; Warner and Steidley, 2022; Kleck et al., 2011; Warner and Ratcliff, 2021), especially for women (Warner, 2020). Yamane et al. (2018) noted a rise in self-protection topics in NRA-affiliated magazines over the last century (1917-2016). See also Yamane et al. (2020). Yamane (2022) interprets this and other findings as evidence gun culture has shifted from so-called 1.0 (recreational hunters) to 2.0 (armed citizens), with an increasing emphasis on the Constitution (Burton et al., 2021). Shapira et al. (2022) discuss how experience in childhood and young adulthood influences views on lethal firearms, and Warner and Ratcliff (2021) delve into feelings associated with ownership.

[2] As noted by the study's funder, Police Foundation, "For the nation's police, the nexus of drugs and guns creates daily and deadly challenges to their ability to control crime and ensure public safety."

Several studies assess citizen views on gun regulation, including survey experiments that randomize respondents to clips of school shooting coverage or documentaries on the subject (Dixon et al., 2020; Robbers, 2005; Parker et al., 2017a,b). Treatments targeting misconceptions regarding other gun-owners' support for regulation has been shown to be mildly effective at increasing support for stricter policies among those harboring misperceptions (Dixon et al., 2020; Susmann et al., 2022). Policies that lower the health costs of gun violence appear to be highly desirable. Using a contingent valuation approach, Cook et al. (2025) find U.S. households would pay on average $744 annually for a 20% reduction in gun violence (or nearly $100 billion per year) and Rosenberg (2024) provides causal estimates of the health externalities (increased lethal firearm related homicide during deer-hunting season).

A smaller literature in economics has estimated the demand for lethal firearms. The experimental exercises are limited in realism since researchers are ethically unable to provide respondents with a real firearm. Despite these limitations, Moshary et al. (2025) provide a rigorous estimate of the price elasticity for lethal firearms using a stated conjoint analysis. Respondents who expressed interest in purchasing a firearm were screened in, and attributes of lethal firearms and prices were cross-randomized. The reduced-form results found that would-be new owners were more price sensitive than those in the market for another lethal firearm. An accompanying structural model that allowed for substitution across handgun and long-gun types, with a no-gun outside option, demonstrated more substitutability from the latter to the former—with implications for long gun bans. Armona and Rosenberg (2024) build a structural model of the firearms market, finding substantial heterogeneity in preferences for lethal firearm characteristics across consumers, and derive the optimal (tax) policy under political constraints. Rosenberg (2025) uses gun store entries to identify the effects of increased LFA purchases in a given area, finding increases in associated fatalities that are driven by adversely selected marginal consumers. Our approach builds on this important reduced form and structural research by introducing a less-lethal firearm alternative.

The remainder of the article proceeds as follows. Section 2 describes the survey sample including the experimental components. Section 3 provides descriptive results as to why people do and do not own lethal firearms. Section 4 presents our organizing framework for interpreting the aforementioned patterns and formalizes the potential role of drawing attention to non-lethal firearm alternatives. Section 5 describes the experimental findings and Section 6 concludes.

2 Survey and Sample

2.1 Data collection and sample

Participants were recruited via Prolific. A representative sample relative to the U.S. population of gun owners and non-gun owners was obtained through an obfuscated recruitment methodology. Respondents were pre-screened using a list-based approach, where they were presented with various characteristics (e.g., owning a cat, traveling abroad last year, owning a gun). Thus, participants did not select in or out of the survey based on the topic of gun ownership. Those who selected or did not select the gun ownership option were then directed to our main survey as either gun owners or non-gun owners, respectively.

The main survey targeted a total sample size of 6,000 U.S. residents aged 18 to 64, with 60% lethal firearm owners and 40% non-owners. We imposed quotas within each group to obtain a nationally representative group of lethal firearm owners and non-owners. The targeted dimensions included gender, race, age, income, census region, and political affiliation.

A follow-up survey was administered two weeks after participation in the main survey to all respondents. The validation survey served as a cross-validation study for firearm ownership status, recruiting a new set of participants and employing the same obfuscated recruitment method. All participants were required to be at least 18 years old and residents of the United States.

As can be seen in Table 1 our recruitment was fairly successful vis-a-vis meeting the required quotas. We obtained appropriate representativeness in a number of key dimensions including Republican party membership, Southern region, and White men. However, we had difficulty recruiting high-income gun owners on the platform and the sample skews younger overall. Therefore, our main estimates are reweighted to be representative. An advantage of the Prolific platform is the relatively high rate of follow-up, nearly 85%.[3]

Table 1: Sample Representativity

	Gun owners		Non-Gun owners	
	Survey	Quota	Survey	Quota
Male	68%	73%	47%	41%
Female	32%	27%	51%	59%
White	85%	87%	68%	66%
Non-white	15%	13%	32%	34%
Age 18-29	15%	13.1%	27%	34%
Age 30-49	50%	51.5%	38%	39%
Age 50-64	35%	35.4%	35%	27%
Income 0-40,000	14%	10.9%	33%	34%
Income 40,000 - 100,000	44%	37.6%	34%	30%
Income 100,000+	42%	51.5%	33%	36%
Midwest	24%	28%	20%	20.2%
East/Northeast	12%	8%	22%	19.2%
South	46%	45%	36%	34.3%
West	18%	19%	22%	26.3%
Republican	45%	42.2%	21%	16.8%
Democrat	20%	17.8%	36%	32.6%
Independent	32%	40%	36%	50.5%

Notes: The table presents the demographic representativeness benchmark comparison between GSS 2022 data, and our sample (pre-reweight), divided by gun ownership status. The percentages shown for each category are based on the respective groups of gun owners and non-gun owners.

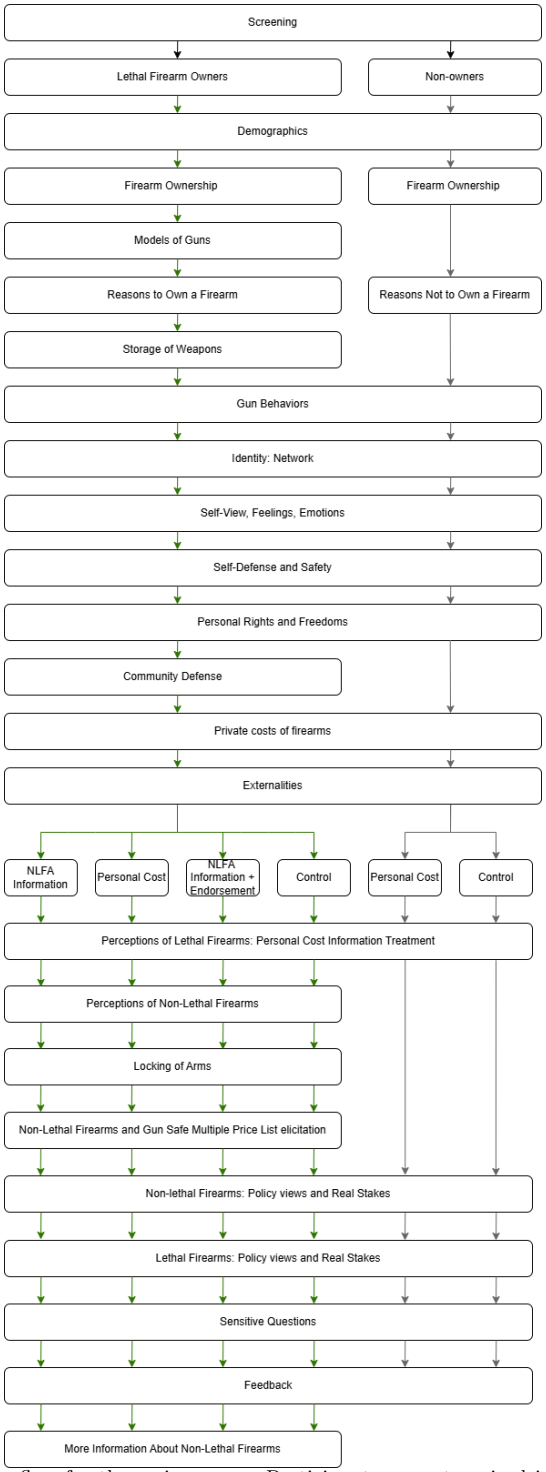
2.2 The main survey

We now briefly describe the blocks and contents of the main survey, which are illustrated in Figure 1. The survey can be visited at the link https://harvard.az1.qualtrics.com/jfe/form/SV_0ktTzJEjMqyaGUK and the Full Questionnaire can be found at https://socialeconomicslab.org/gun_ownership_q/

The survey also contains multiple attention check questions – a verification mechanism to ensure respondents were paying attention to the survey. This included questions designed to detect inattentive or disengaged participants. Some sensitive questions asked at the very end to not influence earlier answers included voting behavior in the previous elections and a question on the interpretation of the Second Amendment.

[3]We considered adding another platform but given the requirement for obfuscated recruitment and follow-up we elected to use one platform and reweight.

Figure 1: Main Survey and Experimental Design



Notes: This figure presents the survey flow for the main survey. Participants are categorized into two groups: lethal firearm owners and non-owners. Owners were randomized to receive one of the following: a video treatment on personal costs associated with lethal firearm ownership, information on a legal non-lethal firearm (Byrna), the non-lethal firearm information combined with an endorsement by conservative Fox News talk show host Sean Hannity, or a pure control. Non-lethal firearm owners were randomly assigned to either receive the cost information treatment or to a pure control.

Lethal Firearm Ownership. This block included questions about lethal firearm possession, duration of ownership, and types of lethal firearms owned (including the brand and model). Respondents also provided details about whether they intend to acquire more lethal firearms in the future. After this block, all questions were asked both of lethal firearm owners and non-owners. For those who did not endorse lethal firearm ownership, the questions were worded slightly differently to reflect the possibility of owning or not owning a lethal firearm.

Reasons for Owning or Not Owning a Lethal Firearm. This section explored motivations for lethal firearm ownership or reasons for non-ownership at a high-level (subsequent blocks probe rationles in more detail). These included but were not limited to: personal protection, hunting, constitutional rights, monetary and non-monetary cost concerns, and ethical considerations.

Current Storage of Weapons. This survey block examined storage practices, including the use of locked storage devices and ease of accessibility of lethal firearms. We viewed the ease of accessibility as a check on the stated consistent use of safe storage devices.

Lethal Firearm Behaviors. This block covered the frequency of lethal firearm use (e.g., shooting and hunting), collecting, and engagement in gun rights activism. For instance, respondents were asked about their participation in shooting sports, lethal firearm training, membership in lethal firearm advocacy groups (e.g., National Rifle Association (NRA), Gun Owners of America etc.) and donations to support those groups.

Identity and Social Network. This section assessed the role of lethal firearm ownership in fostering one's identity and social network (including whether the respondent participated in Future Farmers of America or Boy Scouts of America).[4] The section included questions on family traditions, peer influence, perceived second order beliefs, and whether individuals used "we" or "they" statements when referring to lethal firearm owners.

Self-View, Feelings, and Emotions. This block was designed to assess the emotional and psychological effects of lethal firearm ownership. Participants reflected on how owning (or not owning) a lethal firearm made them feel and, importantly, how taking away a lethal firearm would make them feel.

Self-Defense and Safety. This section explored perceptions of threat, past experiences of violence, and trust in law enforcement.

Personal Rights and Freedoms. This block examined beliefs about how many other Americans own lethal firearms, Constitutional and Divine rights for ownership of lethal firearms, and whether carrying a lethal firearm made the respondents feel more vs. less safe *and* whether it would make the respondent more or less likely to be attacked or victimized.

Community Defense. This section identifies participation in organized community defense initiatives.

[4]Now formally known as Scouting America.

Private Costs of Lethal Firearms. This block assessed emotional, legal, and familial concerns associated with lethal firearm ownership. Specifically, the section included questions exploring how upset the respondent would feel if they accidentally shot someone used their lethal firearm inappropriately including for suicide. The block also probed questions on feelings if children harmed themselves.

Externalities. This block covered public safety concerns, including accidents, crime, and school shootings.

Experimental Treatment Section. Randomly selected subsamples of lethal firearm owner respondents were shown video treatments providing information about the personal costs of lethal or non-lethal firearm alternatives. We describe these in more detail below.

Non-Lethal Firearm Alternatives. This block examines willingness to adopt non-lethal alternatives like Byrna guns.

Locking of Arms and Safe Storage. This section explores whether respondents were more inclined to store their lethal firearms safely.

Non-Lethal Firearms and Gun Safe Multiple Prince List Elicitation. This section elicits respondents' willingness to pay for a gun safe and a Byrna non-lethal firearm using a multiple price list (for screenshots and the exact structure of the MPL, see the full questionnaire). We also included a practice MPL to ensure that respondents understood how these types of questions worked.

Policy Views on Lethal Firearms and Non-Lethal Fiream Alternatives. This includes questions on lethal firearm regulations, concealed carry, and gun buyback programs, as well as real-stakes questions such as support for petitions and allocating donations related to lethal firearm policies.

2.3 The validation survey

The validation survey recruited lethal firearm owners and non-owners in the obfuscated method developed above. Respondents were then presented with a timed game where they had to identify various parts of a revolver and then decide on swag that is more or less related to lethal firearm culture. Results demonstrated in our pilot survey demonstrate that those identified as LFAO through our screening method are substantially faster on the game and are much more likely to select firearm-related swag.

2.4 The follow-up survey

The follow-up survey includes a subset of sections from the main survey. Specifically, it retains the Storage of Weapons section and all questions following the treatments, including Non-Lethal Firearms as Alternatives, Locking of Arms, Byrna and Gun Safe Multiple Price List Elicitation, Non-Lethal Policy Views and Real-Stakes, Lethal Policy Views and Real-Stakes, Sensitive Questions, and Feedback.

Among respondents who completed the main survey, 84% started the follow-up survey and 98% out of those that started completed it. Appendix Table A-3 shows the correlates of starting the follow up

survey. Male and white respondents were less likely to complete the follow-up survey (-17pp and -6.1pp, respectively), while completion increased with age, by 5.7pp for those aged 30-49 and 17.9pp for those 50-64. East/Northeast respondents were 11.3pp more likely to complete the follow-up. We also find a small negative effect for lethal firearm owners exposed to the Personal Cost treatment.

2.5 Experimental Treatments

Guided by our organizing framework and descriptive empirical findings, we introduced three information treatments in the form of short videos. Figures 2-4 show screenshots from these videos.

The Personal Costs of Firearms Treatment As we will show, there are prominent differences between lethal firearm owners and non-owners in terms of the psychic and perceived safety benefits of firearm ownership, as well as ownership costs (see Section 3). When considering an information treatment then, accurate information on the pecuniary or non-pecuniary costs of ownership, either born by the individual owner's family or broader society, are both plausible options. We focused on private costs (borne by the individual or his family) because we conjectured that they would be more consistently internalized by individuals, yet perceived differently across gun-ownership status. Indeed, as shown in Figure 12, there are large gaps in how lethal firearm owners vs. non-owners view the personal costs of ownership. Specifically, the two groups differ in the degree to which they are concerned about their children using a lethal firearm to hurt themselves or others – 27% among current LFAO vs. 71% among non-owners who are also not interested in ownership, and 53% among those who are current non-owners yet interested in lethal firearm ownership. Our *lethal firearm personal cost information treatment*, summarized in Figure 2 was 1.6 mins long and highlighted the financial, legal, and psychic costs associated with such ownership with an emphasis on child safety. It explained that owners can face severe legal consequences, including criminal charges or lawsuits, if their firearm was involved in an accident – especially if a child gained access to it. The video also discussed legal requirements for safe storage and permits, emphasizing that failure to comply can result in fines or imprisonment. The video explained that even in self-defense situations, the use of a lethal firearm may lead to legal scrutiny if deemed excessive. A recent case study was provided: Jennifer and James Crumbley of Michigan were sentenced to up to 15 years in prison after their son used the gun they had given him in a school shooting. The video observed that while owners can be found liable, lethal firearm manufacturers are largely shielded from any liability. Lastly, the video cites recent statistics on increased suicides in households with a lethal firearm.

Treatments Providing Information on Non-Lethal Alternatives Our non-lethal firearm information treatments were motivated by evidence suggesting that many people do not consider such firearms in their firearm purchase decisions, perhaps because they are not well informed about such options. Consistent with this idea, Figure 17 displays responses from the control group of lethal firearm owners. In the absence of the treatment, only a handful of owners own a non-lethal product (4%) and only about a third have ever considered purchasing one. In addition, at the end of the survey, we queried lethal firearm owners if they had ever heard of Byrna prior to the survey - and only 20% responded affirmatively.

The *Non-lethal Firearm Information treatment* video aimed to fill these potential information gaps, as summarized in Figure 3, describing the Byrna SD, a non-lethal self-defense firearm. Using a combination of researcher and manufacturer content, the treatment accurately portrays Byrna as a lightweight launcher that "uses an easy-to-load five-round magazine and is powered by an 8-gram CO_2 cartridge. Byrna launchers fire a .68 caliber chemical-filled projectile using a patented pull-pierce technology where the CO_2 canister is only

punctured on the first trigger pull, meaning your launcher is always at the ready." Byrna fires .68 caliber projectiles capable of incapacitating an attacker for over 30 minutes, with range of more than 60 feet. The intervention noted that the non-lethal firearm did not require permits or background checks. Additionally, its use by over 300 police departments nationwide and high consumer ratings. A security guard testimonial noted that while lethal firearms remain an option, Byrna serves as a preferred first line of defense: "I still have a handgun in my safe in my house and I've still got my rifle ready at any time [at home], but Byrna will always be my first resort."

The third and final treatment – the *Non-Lethal Firearm Endorsement and Information Treatment*– was motivated by a conjectured partisan split in views on the acceptability of non-lethal firearm alternatives. Figure 18 shows that only 14% of Republicans view non-lethal firearms as a ''good replacement" compared to 26% of Democrats. Further there is almost a 20 percentage point divide in agreeing with the statement the respondent prefers a firearm that incapacitatess but does not kill. Given these conjectured divides, and other research on the importance of trusted messengers, we augmented the Non-lethal firearm information treatment video with an endorsement from Fox News host Sean Hannity. The video includes Hannity training with and using the product, stating he has purchased it himself and integrates them into his "personal security strategy".

Importantly, the non-lethal firearm alternative treatments were only randomized among verified lethal firearm owners. This was motivated by a few different considerations. First was an ethical concern – by drawing more attention to non-lethal alternatives with a willingness to pay elicitation, we'd potentially encourage arming a previously unarmed group, with risks of harmful unintended consequences. Second, a policy-relevant question is whether to target lethal firearm owners in particular (e.g., at gun shows) with messaging about non-lethal firearms. Third, we were unsure about the size of the non-gun owner population that is interested in acquiring firearms—if we anticipated that the interested population is as large as we show in Section 3, we may have reached a different conclusion on how to weigh the first ethical consideration.

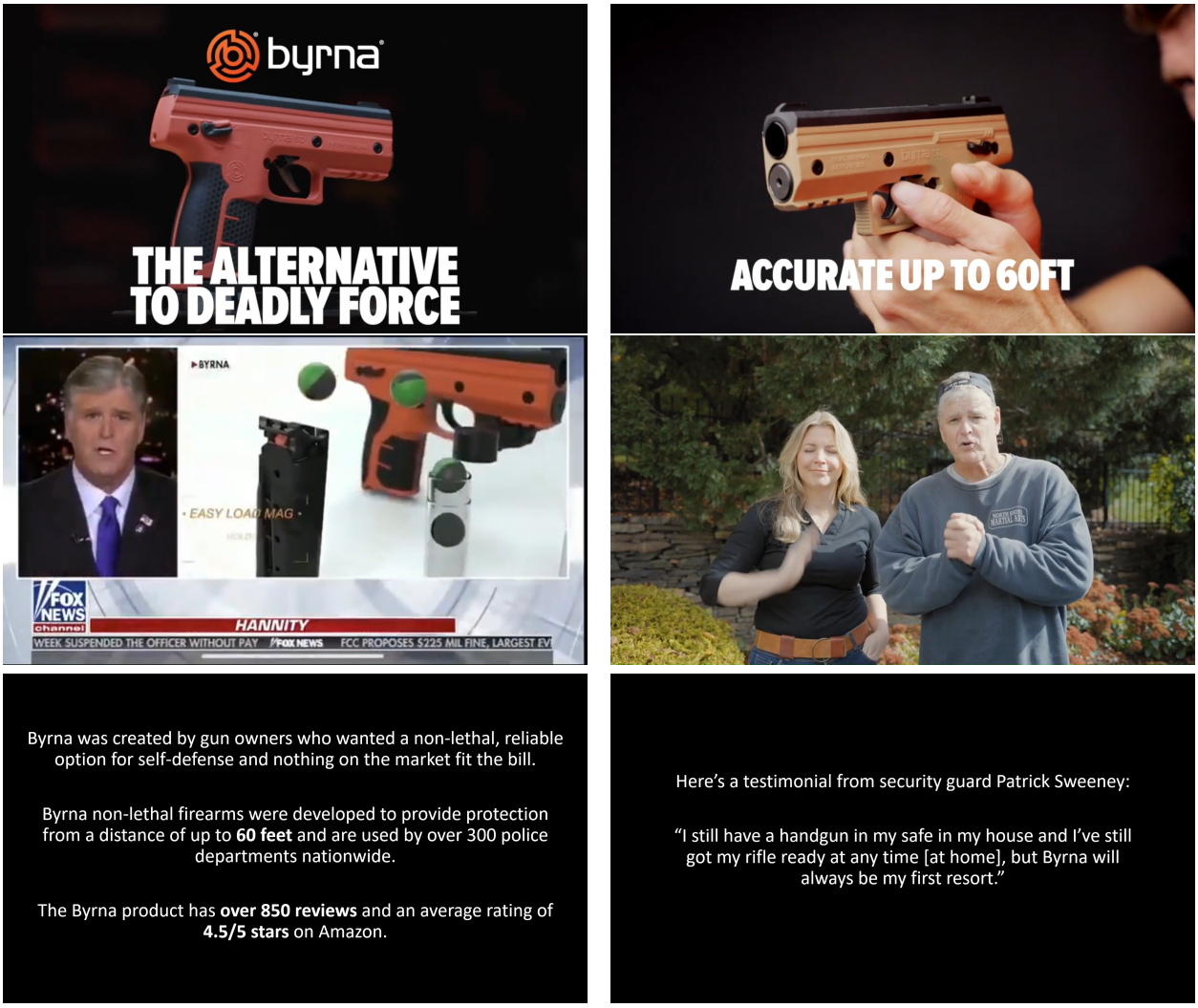
FIGURE 2: PERSONAL COST OF LETHAL FIREARM OWNERSHIP – INFORMATION TREATMENT

Notes: This figure summarizes the Personal Cost treatment, which presents legal and health risks associated with lethal firearm ownership. The treatment outlines potential legal consequences, including criminal charges and lawsuits, if a firearm is involved in an accident, particularly when accessed by a child. It also addresses legal requirements for firearm storage and permits, as well as the possibility of legal scrutiny in self-defense cases. Additionally, the treatment highlights that firearm manufacturers are legally protected from liability related to unintentional harm, presents data on firearm-related deaths among young people, and discusses the increased suicide risk associated with household gun ownership. A legal case in Michigan is referenced, where parents were held accountable for their child's use of a firearm in a school shooting.

FIGURE 3: NON-LETHAL FIRERAM – INFORMATION TREATMENT

Notes: This figure summarizes the non-lethal firearm information treatment, which presents the Byrna SD as a non-lethal self-defense option. The treatment describes the Byrna launcher as a lightweight, CO_2-powered device that fires chemical-filled projectiles with an effective range of up to 60 feet. It highlights that Byrna products do not require permits or background checks and are used by over 300 police departments nationwide. The treatment also emphasizes consumer satisfaction, noting that Byrna has received over 850 reviews with an average rating of 4.5 out of 5 stars on Amazon.

Figure 4: Non-Lethal Firearm Endorsement and Information Treatment



Notes: This figure summarizes the non-lethal firearm information and endorsement treatment, which presents the Byrna SD as a non-lethal self-defense option with an endorsement from Fox News host Sean Hannity. The treatment describes the Byrna launcher's features, including its CO_2-powered mechanism and its effective range of up to 60 feet. It highlights that Byrna products do not require permits or background checks and are used by over 300 police departments nationwide. The endorsement segment features Hannity discussing Byrna as part of his security strategy. Similar to the Byrna information treatment, it also includes a testimonial from a security guard emphasizing Byrna as a preferred first-line defense over lethal firearms. Additionally, consumer satisfaction is highlighted, noting Byrna's high customer ratings.

2.6 Data Quality

We took multiple steps to ensure high data quality. First, we provided several attention-check questions to screen inattentive or careless respondents. Among eligible participants who consented to the firearm survey, 6.3% failed the attention check (see Table A-1).

Second, we used an obfuscated recruitment to avoid selecting respondents based on their views or habits related to guns (as described above). Tables A-1 and A-2 show that we have relatively low attrition and little differential attrition based on the treatment branch or individual characteristics.

Correlation between self-reported views and real-stakes questions. We also used real-stakes questions to establish that respondents' answers tend to reflect their views and behaviors when measured via

more objective methods. We analyze two real-stakes tasks: a donation decision, where participants allocated a $90 prize between a gun safety charity and a Second Amendment rights charity; and petition signing, where participants chose whether to support a petition either supporting restrictions on lethal firearms ownership and a petition upholding the right to lethal firearm ownership. Table 2 reports the correlation between each policy views index on lethal firearms and these real-stakes outcomes, estimated separately. The results confirm that participants' policy views align with their real-stakes behavior. For instance, in Panel (A), LFAOs that say they support safe storage or more regulations of concealed carry are also more likely to donate to gun safety than 2nd Amendment activities, and sign petitions advocating for limiting and restricting lethal firearm ownership. Responses among non-owners also agree with the more objective measures: those who oppose concealed carry and carry in school policies are also found to sign petitions limiting lethal firearm ownership, for example. Table 3 demonstrates similar results for NLFAs: Among both LFAO and Non-Owners we find high correlation between support for NLFA and petitions in support of policies that promote them over LFAs.

Perceived survey bias. We asked respondents whether they thought the survey was biased. Appendix Table A-6 shows that three-quarter of respondents did not think the survey was either left- or right-wing biased and around one-fifth considered it to be left-wing biased, with this share being a little higher for the treatment branch *Personal Cost of Lethal Firearms*. Fifth, we also included an open-ended feedback box and analyzed respondents' responses. Overall, around 10% of respondents left a negative rather than positive feedback, but mainly related to the length of the survey.

Attrition Tables A-1 and A-2 provide details on attrition and where respondents drop out in the survey. We have overall little attrition during the survey (98.1% of those who give consent and start finish the survey among non-owners and 97.5% among LFAO). There are only small differences by socioeconomic characteristics or by firearm ownership.

Table 2: Correlation between Self-Reported policy views and Real-stakes questions on Lethal Firearms

	Donations		Petitions	
	Gun Safety	2nd Amendment	Limit LF	Uphold LF right
Panel A: Lethal firearm owners	(1)	(2)	(3)	(4)
Prohibiting Purchases Index	3.958***	-3.594***	0.238***	-0.152***
	(1.211)	(1.262)	(0.032)	(0.033)
Support for Rules for Buying Index	14.217***	-2.317*	0.609***	-0.246***
	(0.968)	(1.391)	(0.025)	(0.032)
Support for Storage and Safety Index	13.870***	1.081	0.593***	-0.124***
	(0.963)	(1.028)	(0.022)	(0.028)
Opposition to Carry in Schools	6.932***	-2.987***	0.319***	-0.275***
	(0.958)	(0.889)	(0.024)	(0.026)
Support for Concealed Carry Regulations Index	11.174***	-3.623***	0.549***	-0.418***
	(1.206)	(1.269)	(0.029)	(0.033)
Support for Restrictions on High-Capacity LF	7.406***	-1.048	0.371***	-0.247***
	(0.879)	(0.828)	(0.022)	(0.024)
Observations	3061	3047	3061	3061
Panel B: Non-owners				
Prohibiting Purchases Index	-0.163	-5.447***	0.234***	-0.120***
	(1.564)	(1.119)	(0.037)	(0.038)
Support for Rules for Buying Index	10.422***	-7.705***	0.915***	-0.304***
	(1.877)	(2.090)	(0.049)	(0.063)
Support for Storage and Safety Index	7.319***	-1.940	0.675***	-0.153***
	(1.816)	(1.473)	(0.040)	(0.049)
Opposition to Carry in Schools	5.266***	-3.871***	0.349***	-0.337***
	(1.340)	(0.966)	(0.033)	(0.033)
Support for Concealed Carry Regulations Index	5.830***	-6.533***	0.538***	-0.435***
	(1.713)	(1.205)	(0.037)	(0.039)
Support for Restrictions on High-Capacity LF	4.615***	-6.667***	0.341***	-0.264***
	(1.235)	(1.039)	(0.032)	(0.034)
Observations	2108	2085	2107	2106

Notes: This table presents the correlations between participants' real-stakes behaviors (donations and petitions) and each policy views index on lethal firearms, estimated one at a time. Donations: Correlations with amounts allocated to Gun Safety and Second Amendment organizations. Petitions: Correlations with responses to petitions supporting limiting lethal firearms ownership (Limit LF) and upholding firearms rights (Uphold LF right). Regressions include controls for age, income, education, political affiliation, race, and gender. Estimates were obtained using a weighted sample to ensure a representative sample of the U.S. gun owner and non-gun owner populations. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 3: Correlation between Self-Reported policy views and Real-stakes questions on Non-Lethal Firearms

	Petition promote NLF	Petition swap LF for NLF
Panel A: Lethal firearm owners		
Support for Non-Lethal Alternatives Index	1.077***	1.092***
	(0.033)	(0.033)
Observations	3060	3061
Panel B: Non-owners		
Support for Non-Lethal Alternatives Index	0.765***	0.774***
	(0.048)	(0.049)
Observations	2107	2107

Notes: This table reports the results of linear regressions estimating the correlation between the support for non-lethal firearm alternatives index and willingness to sign two real-stakes petitions to support NLFs. Panel A presents results for lethal firearm owners and Panel B for non-owners. The first column "Petition promote NLF" measures support for a petition encouraging the promotion by the Federal Government of non-lethal self-defense tools. The second column "Petition swap LF for NLF" captures support for a petition to promote a swap program of lethal firearms for non-lethal alternatives. Petition responses are binary (1 = Yes, 0 = No). The Support for Non-Lethal Alternatives Index aggregates normalized responses to three policy questions on NLF support. Regressions include controls for age, income, education, political affiliation, race, and gender. Estimates were obtained using a weighted sample to ensure a representative sample of the U.S. gun owner and non-gun owner populations. Robust standard errors in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

3 Demand for Safety and Non-Lethal Firearms

In this section, we provide some descriptive findings from our survey related to why people own or would want to own guns and how they view non-lethal alternatives. To ease the notation we will refer to lethal firearm owners as LFAO; to non-owners who are uninterested in purchasing a lethal firearm as NO-UI; and to non-owners who are interested as NO-I. In our sample, 28% of respondents are NO-I, 13% are NO-UI, and 59% are LFAO.

3.1 Why Do People Own or Would Want to Own Lethal Firearms?

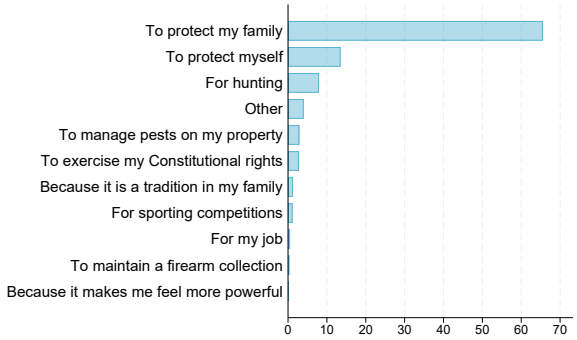
We asked respondents about their reasons for owning a lethal firearm, not owning one, giving up lethal firearms, or considering purchasing lethal firearms using both closed-ended and open-ended questions.

Reasons for owning firearms Consider first the reasons for owning and considering acquiring lethal firearms.

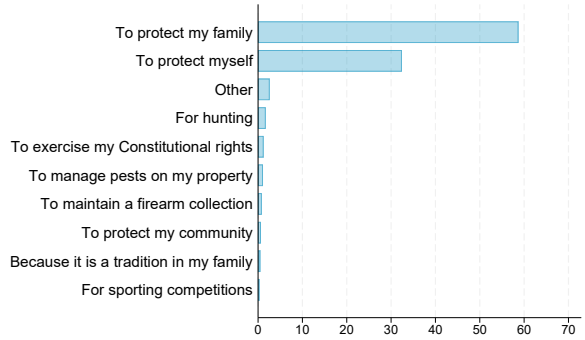
Figure 5 shows that, by far the most important reason for owning a lethal firearm is personal or family safety – 66% of current LFAO say that protecting their family is their main reason for ownership; 14% say so about protecting themselves. There is barely any heterogeneity by gender or political leaning (see Appendix Figure A-2). Among non-owners, safety is also cited as the key reason why respondents would consider purchasing a lethal firearm. 59% of non-owners cite family protection and 32% indicate self-protection as the key reasons why they would want to own a lethal firearm. Women are more likely to say they are looking to protect themselves than men, and men are more likely to say they want to protect their family (see Appendix Figure A-3).

Figure 5: Reasons for Owning and Acquiring a Lethal Firearm

(a) Reasons to Own a Lethal Firearm among Owners



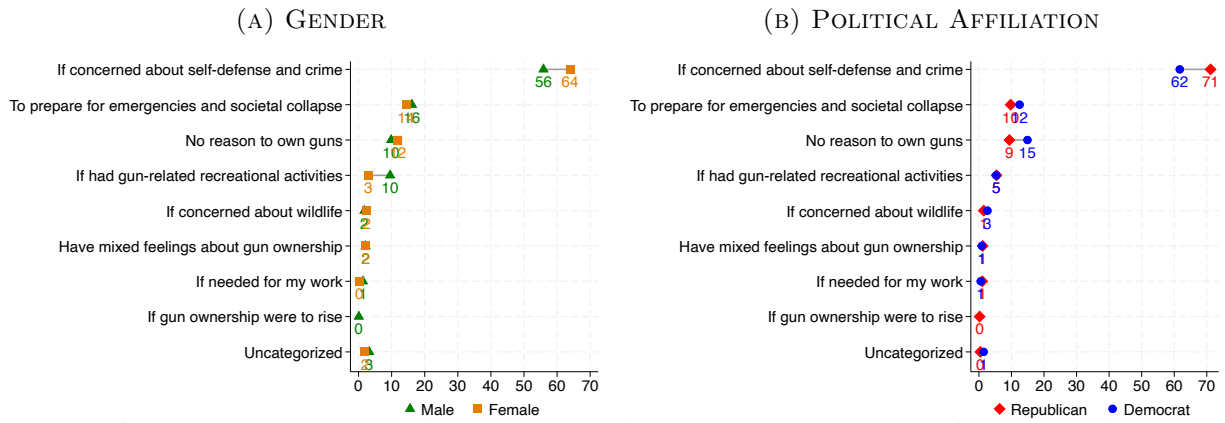
(b) Reasons to Acquire a Lethal Firearm among Non-Owners



Notes: Panel A shows the share of LFAO who rated each reason for owning a gun as the "Most important". Panel B shows the share among non-owners who rated each reason as the most important for why they might want to own a lethal firearm.

When would non-owners consider buying a gun? We also asked non-owners an open-ended question about if and when they might consider acquiring a lethal firearm (Figure 6). The primary motivation that appears in the open-ended answers is again personal protection, closely aligning with the motivations of current gun owners and the answers in the closed-ended questions. Nearly 60% of respondents cited personal protection as a potential reason to acquire a firearm, particularly in response to local crime rates and concerns

FIGURE 6: CAN YOU THINK OF ANY REASON OR SITUATION FOR YOU TO START OWNING A GUN? [OPEN ENDED]



Notes: This figure displays the distribution of topics in responses from non-owners to the question: "Can you think of any reason or situation for you to start owning a gun? Please list them here." The topic descriptions can be found in Table A-7. Panel A illustrates these shares for men vs. women. Panel B shows these shares for Democrats and Republicans.

about personal safety (e.g., "Relocation to a high crime area"). Furthermore, 16% of respondents indicated that they might consider lethal firearm ownership as a precautionary measure in the event of emergencies or societal collapse. These respondents mentioned extreme scenarios, such as civil unrest or societal breakdown (e.g., "America is a house divided. It is only time before civil war comes again").

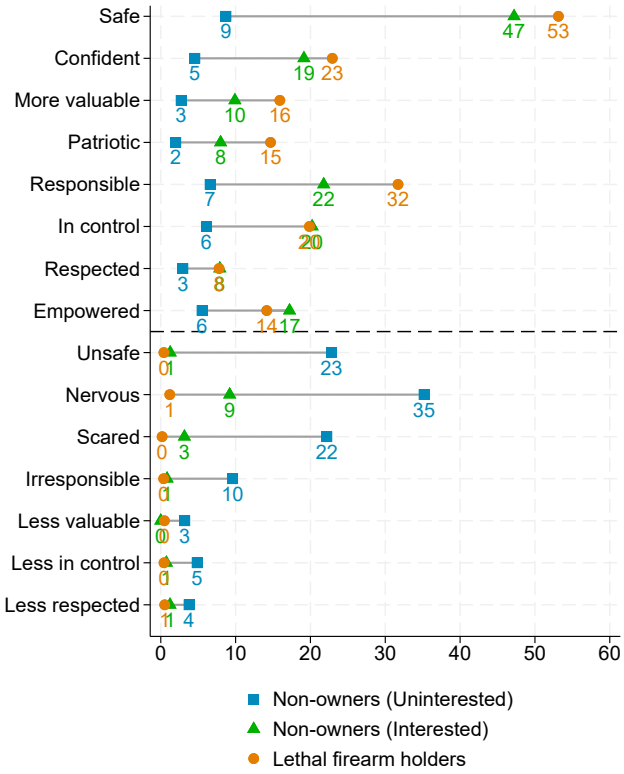
At the same time, a segment of non-owners expressed strong opposition to firearm ownership. Approximately 11% of respondents stated that they saw no reason to own a lethal firearm, with some emphasizing a preference for resolving conflicts using other methods (e.g., "I don't think there would ever be a reason that I would have any desire to own a gun. I think a large number of people are too 'gun happy'. I am 52 years old and have never wanted to own a gun"). This view was more common among Democratic non-owners (15%) than among their Republican counterparts (9%) (Figure 6).

A smaller proportion of respondents cited recreational and practical reasons for potential gun ownership. About 6% indicated that they might own a firearm if they participated in recreational activities such as target shooting or hunting (e.g., "Learning marksmanship."). A very small subset (1%) mentioned that they would consider owning a gun if required for their career or profession (e.g., "if I maybe took a job as a security guard or I am receiving threats from people")

How does or would owning a gun make you feel? An important aspect of gun ownership relates to the feelings LFAOs experience. Figure 7 shows the distribution of answers to the closed-ended question "How does owning a gun make you feel?" (for LFAO) and "How would owning a gun make you feel?" (for non-owners). LFAO express feelings of safety, confidence, and responsibility. NO who are interested in purchasing a gun express similar feelings. NO-UI, on the other hand, express the opposite feelings, namely nervousness, fear, and lack of safety. Appendix Figure A-4 shows that feelings of safety and confidence with guns are systematically more widespread among Republican gun owners relative to Democrat gun owners. Female LFAOs are more likely to say that they feel safe with a gun.

Safety concerns and perceptions. Given that safety concerns are so prevalent, Figure 8 dives deeper into how safe people feel in their life. Interestingly, the share of LFAO and NO-UI who feel safe in their

FIGURE 7: HOW DOES OWNING A GUN MAKE YOU FEEL?



Notes: The figure illustrates respondents' attitudes toward owning or potentially owning a lethal firearm, by firearm ownership status. The survey question asked: "To what extent does/would owning a gun make you feel:" with response options: No extent, Some extent, A moderate extent, and A great extent. The figure presents the share of respondents who answered "A great extent."

daily lives is very similar, with NO-I feeling less safe. Similarly, NO-I assign higher probability to being the victim of a crime in the next year and trust the police less to keep them safe. In line with the feelings expressed about carrying guns, a much higher share of NO (16% versus 4%) say that if they carry a gun, they are more likely to be the victim of a violent crime and be hurt if attacked (24% versus 7%), as well as that, if they are the victim of a crime in the next year, it is more likely to be caused by guns. LFAO and NO-I are somewhat more likely to have been the victim of a past violent crime.

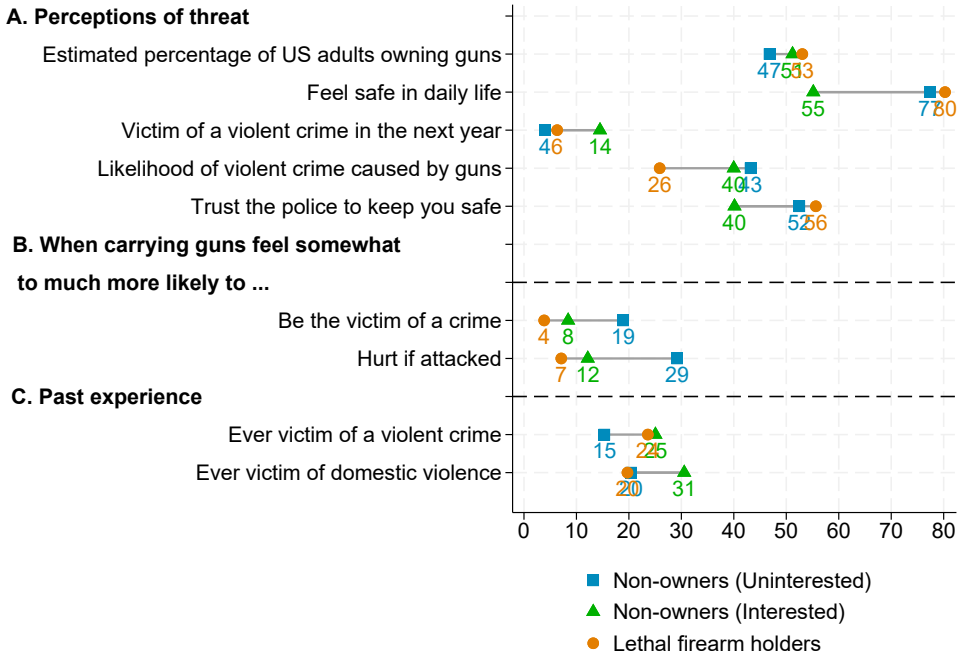
To summarize these findings, safety concerns are common and are the major reason for wanting to own a gun or already owning one. However, what makes people feel safe differs. Owning a gun makes some gun owners feel safer, and non-gun owners feel less safe.

3.2 Why Do People Not Want To Own Lethal Firearms or Why Would They Want to Give them Up?

We now turn to the mirror image – namely, reasons for and feelings about not owning lethal firearms among non-owners and potentially giving up firearms among LFAOs.

Reasons for not owning lethal firearms. Figure 9 shows that the key reason for not owning a gun is concerns about others misusing their guns to harm themselves or others, as well as concerns about acciden-

Figure 8: Safety Concerns and Perceptions



Notes: This figure shows the share of respondents who hold specific beliefs/perceptions or have past experiences related to the items listed in the rows, by firearm ownership status. *Estimated percentage of U.S. adults who own guns* is the average perceived percentage of U.S. adults who own a gun based on respondents' self-reported estimates. *Feel safe in daily life* is an indicator for respondents who feel somewhat safe or very safe in their daily life. *Victim of violent crime in the next year* is an indicator for respondents who believe they are somewhat or very likely to be a victim of violent crime within the next year. *Likelihood of violent crime caused by guns* is an indicator for responders who believe a violent crime they may experience in the next year is somewhat or very likely to be caused by guns. *Trust the police to keep you safe* is an indicator for respondents who somewhat trust or completely trust the policy to keep them safe. *Be the victim of crime* is an indicator for respondents who feel somewhat more likely or much more likely to be attacked or become a victim of crime when carrying a gun, or if they were to carry a gun. *Be hurt if attacked* is an indicator for respondents who feel somewhat more likely or much more likely to be hurt if attacked when carrying a gun, or if they were to carry a gun. *Ever victim of a violent crime* is an indicator for respondents who have ever been a victim of a violent crime. *Ever victim of domestic violence* is an indicator for respondents who have ever been a victim of domestic violence.

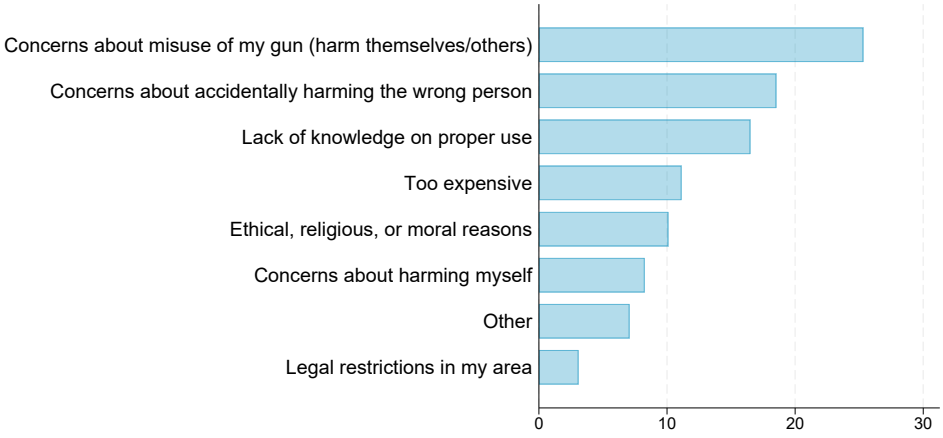
tally harming the wrong person. Other common reasons are lack of knowledge on proper use (much more widespread among female non-owners), the price of firearms, and ethical, moral, or religious reasons.

What would prompt lethal firearm holders to no longer own guns? We also asked LFAOs an open-ended question "What specific factors, if any, would prompt you to consider no longer owning guns?"

Figure 10 shows that nearly 40% stated that they had no reason to do so (e.g., "There is no reason that could arise to prompt me to stop owning a gun."). This finding highlights a strong reluctance among current LFAOs to disarm. Notably, Republican LFAOs were significantly more likely than Democrats to hold this view, with 44% of Republican respondents compared to 18% of Democratic respondents stating that they had no reason to relinquish their firearms.

Safety-related concerns emerged as a key reason for potentially giving up firearms. Approximately 16% of LFAOs indicated that they might reconsider lethal firearm ownership due to safety risks at home, particularly citing concerns about children or individuals with mental health conditions (e.g., "kids getting a hold of it"). Additionally, 3% of respondents stated that they would give up their firearms if they were physically or mentally unable to handle them safely (e.g., "Unable to shoot due to old age."). About 11% of respondents reported that they might consider giving up their guns if crime rates were significantly lower.

Figure 9: Reasons for Not Owning a Lethal Firearm

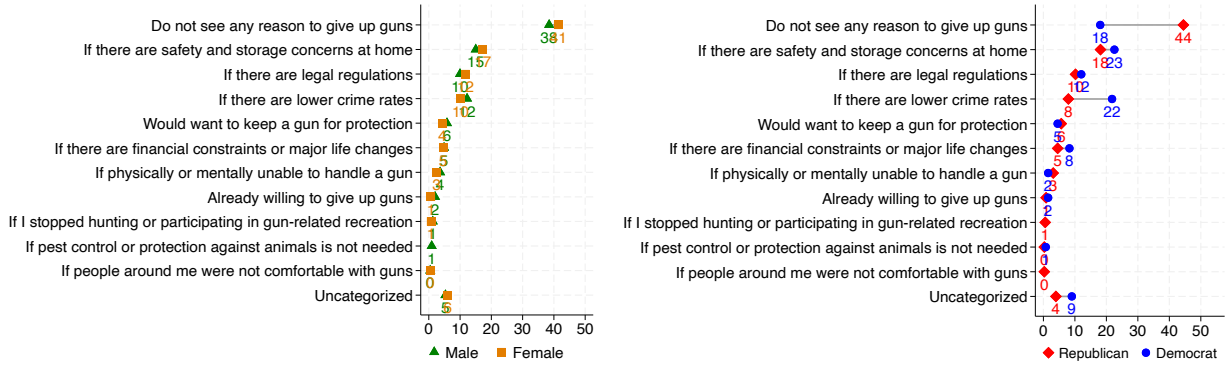


Notes: This figure shows the share among non-owners who rated each reason as the most important for why they do not own a lethal firearm.

Figure 10: What specific factors, if any, would prompt you to consider no longer owning guns?

(a) Gender

(b) Political Affiliation



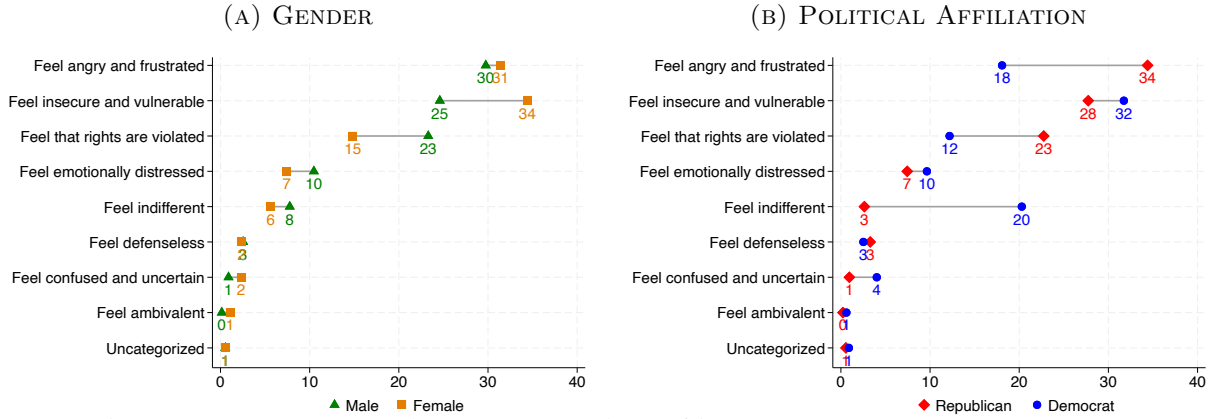
Notes: This figure displays the distribution of topics in responses from LFAOs to the question: "What specific factors, if any, would prompt you to consider no longer owning guns?" The topic descriptions can be found in Table A-8. Panel A illustrates these shares for men vs. women. Panel B shows these shares for Democrats and Republicans.

Feelings about having guns taken away. Relatedly, we also asked LFAOs the open-ended question of how they would feel if their "guns were taken away." Figure 11 shows that 30% of respondents expressed frustration or outrage at the prospect of having their guns confiscated (e.g., "Angry. Livid."). Approximately one-fifth of respondents stated that they would perceive the removal of their firearms as a violation of their personal liberties (e.g., "Like my rights as a U.S. citizen were violated."). Partisan differences also emerged in the responses. Republican LFAOs are more likely to express anger and perceive the taking away of their firearms as a violation of their rights.

Another prominent response was insecurity and vulnerability, 31% expressing such feelings (e.g., "at risk"), further reinforcing protection as a primary motivation for lethal firearm ownership. This sentiment was more pronounced among female LFAOs (34%) than male LFAOs (25%).

Perceived personal risks of lethal firearms. People might perceive both private and social costs

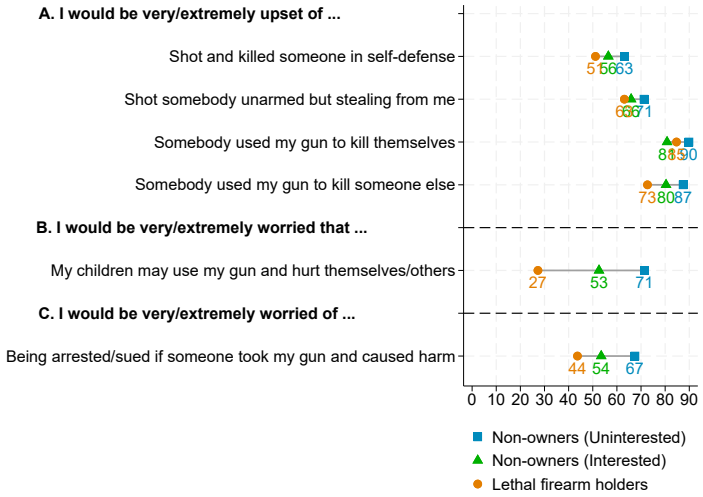
FIGURE 11: IN ONE OR TWO WORDS, HOW WOULD YOU FEEL IF YOUR GUN WAS TAKEN AWAY?



Notes: This figure displays the distribution of topics in responses from LFAOs to the question: "In one or two words, how would you feel if your gun was taken away?" The topic descriptions can be found in Table A-9. Panel A illustrates these shares for male and female LFAOs. Panel B shows these shares for Democrat and Republican LFAOs.

(externalities) from owning lethal firearms. Diving deeper into the personal costs, Figure 12 shows that most people across all groups of ownership would feel very or extremely upset if they shot and killed someone in self-defense, or an unarmed robber, or if someone used their gun to kill themselves or hurt others. However, they assess the risks of these events occurring quite differently. Only 27% of LFAO worry that their children or other family members would use their gun to hurt themselves or others, as compared to 53% among NO-I and 71% among NO-UI. Similarly, 44% of LFAO are concerned about being legally liable if someone took their gun and caused harm, but this share is 54% among NO-I and 67% among NO-UI. Thus, these key differences in perceived private risks of guns can explain why LFAO feel safer with a lethal firearm, while non-owners feel less safe with one.

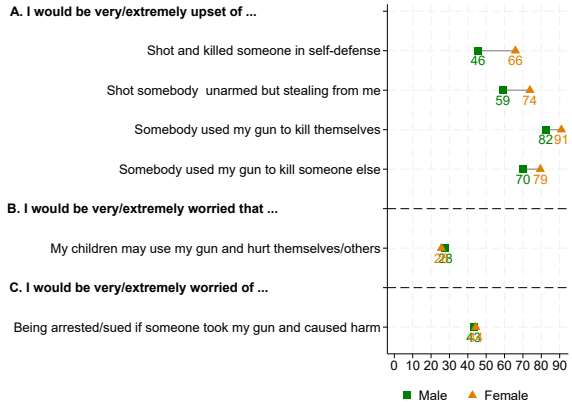
FIGURE 12: PERCEIVED PRIVATE COSTS ASSOCIATED WITH LETHAL FIREARM OWNERSHIP



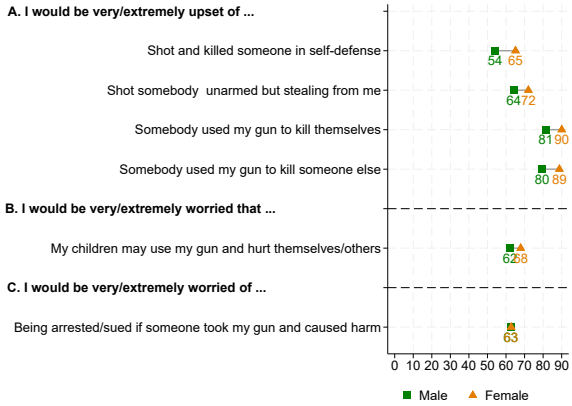
Notes: This figure displays the share of respondents who reported feeling very upset or extremely upset and very worried or extremely worried about various scenarios involving the private costs of firearms, by firearm ownership status. Each scenario was rated on a 4-point scale, from 1 (Not upset at all/Not worried at all) to 4 (Extremely upset/Extremely worried).

FIGURE 13: PERCEIVED PRIVATE COSTS ASSOCIATED WITH LETHAL FIREARM OWNERSHIP BY PERSONAL CHARACTERISTICS

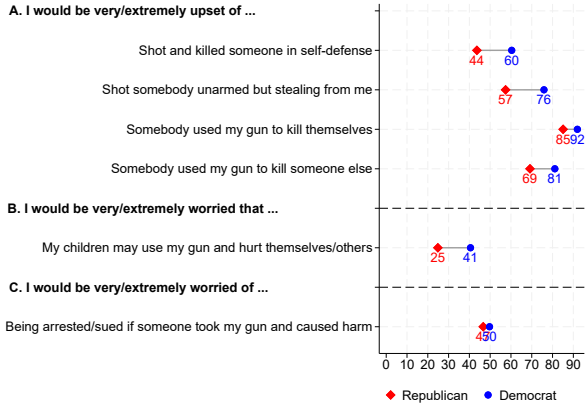
(A) GENDER - LFAOS



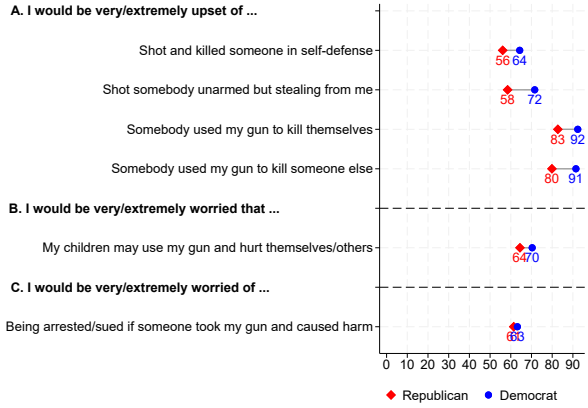
(B) GENDER - NON-OWNERS



(C) POLITICAL AFFILIATION - LFAOS



(D) POLITICAL AFFILIATION - NON-OWNERS



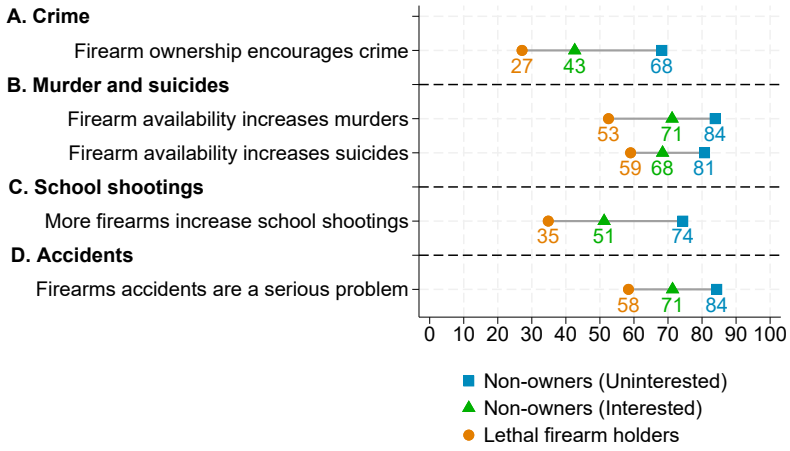
Notes: This figure displays the share of respondents who reported feeling very upset or extremely upset and very worried or extremely worried about various scenarios involving the private costs of firearms, by personal characteristics and firearm ownership status. Panel A shows these shares for male and female LFAOs. Panel B shows these shares for male and female non-owners. Panel C shows these shares for Republican and Democrat LFAOs. Panel D shows these shares for Republican and Democrat non-owners.

Figure 13 shows that there are heterogeneities in the perceived costs by gender and political leaning. Among both LFAO and non-owners, female respondents are more likely to say that they would be very worried or upset if someone used their guns to hurt themselves or others; the same goes for Democrat respondents. However, female and male respondents are equally likely to worry about their children misusing their gun or about legal implications. Democrat respondents are only somewhat more likely to worry about their children misusing their gun, but equally worried about legal implications.

Perceived externalities of lethal firearms. Figure 14 focuses on the perceived externalities from lethal firearms. Here too we see large differences between LFAO and non-owners. Non-owners are significantly more likely to say that firearm ownership encourages crime, increases murder and suicide and school shootings, and that firearm accidents are a serious issue. NO-UI are much more likely to hold these views than NO-I. Figure 15 shows that both among LFAO and non-owners, Republican respondents are much less likely to think that firearm ownership entails these types of externalities, with the largest partisan gap being on school

shootings.

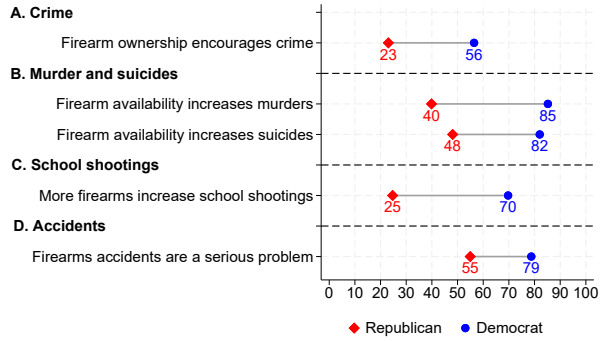
Figure 14: Perceived Externalities of Lethal Firearms



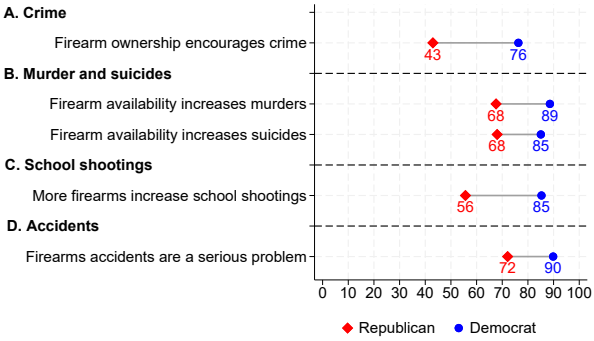
Notes: This figure displays the share of respondents who hold specific perceptions on the items listed in the rows, by firearm ownership status. *Firearm ownership encourages crime* is an indicator for respondents who believe that firearm ownership in the U.S. somewhat encourages or encourages a lot crime. *Firearm availability increases murders* is an indicator for respondents who believe that easy access to firearms somewhat increases or increases a lot the number of murders. *Firearm availability increases suicides* is an indicator for respondents who believe that easy access to firearms somewhat increases or increases a lot the number of suicides. *More firearms increase school shootings* is an indicator for respondents who believe that if firearm ownership were to increase, school shootings would somewhat increase or increase a lot. *Firearms accidents are a serious problem* is an indicator for respondents who perceive accidents from owning a gun as a very serious or extremely serious problem.

Figure 15: Perceived Externalities by Political Affiliation

(a) Political Affiliation - LFAO



(b) Political Affiliation - Non-Owners

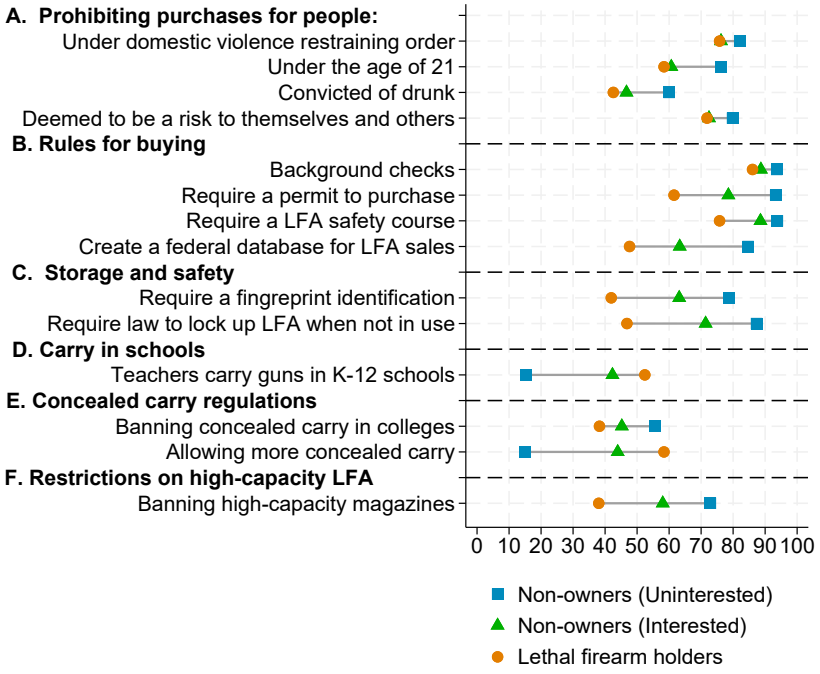


Notes: This figure displays the share of respondents who hold specific perceptions on the items listed in the rows, by political affiliation and firearm ownership status. Panel A shows these shares for Republican and Democrat LFAOs. Panel B shows these shares for Republican and Democrat non-owners. *Firearm ownership encourages crime* is an indicator for respondents who believe that firearm ownership in the U.S. somewhat encourages or encourages a lot crime. *Firearm availability increases murders* is an indicator for respondents who believe that easy access to firearms somewhat increases or increases a lot the number of murders. *Firearm availability increases suicides* is an indicator for respondents who believe that easy access to firearms somewhat increases or increases a lot the number of suicides. *More firearms increase school shootings* is an indicator for respondents who believe that if firearm ownership were to increase, school shootings would somewhat increase or increase a lot. *Firearms accidents are a serious problem* is an indicator for respondents who perceive accidents from owning a gun as a very serious or extremely serious problem.

Policy views related to lethal firearms. Our experimental treatment has implications for policy views related to lethal firearms, so we provide some brief descriptives here. It is not surprising that given the different feelings and rationales behind private ownership and the differently perceived private costs and externalities, LFAO and non-owners support very different policies. There is, however, interesting variation depending on the policy under consideration. Figure 16 shows that there is, for instance, widespread agree-

ment related to prohibiting gun purchases for people at risk or to domestic violence offenders, and, to a lesser extent to people under 21. There is also widespread agreement about the need for background checks and requiring a firearm safety courses for gun purchasers. However, there are large disagreements about concealed carry, letting teachers carry guns in schools, databases or fingerprint identification for gun sales, permits to purchase firearms, or bans on assault weapons. Appendix Figure A-5 further shows that among LFAO, female respondents are more likely to support restrictive policies on lethal firearms. The same holds for Democrat LFAO, both among both LFAO and non-owners. In fact, partisan gaps in these policy views are very large relative to the differences between LFAO and non-owners. For instance, Democrat LFAO are only slightly more supportive of lenient gun rules than Democrat non-owners.

FIGURE 16: SHARE OF RESPONDENTS WHO SUPPORT SPECIFIC POLICIES ON LETHAL FIREARMS



Notes: This figure illustrates respondents' views on policies related to lethal firearms, by firearm ownership status. Support for each policy was measured on a 5-point scale ranging from 1 ("Strongly oppose") to 5 ("Strongly support"). The figure displays the share of respondents who expressed "Somewhat support" and "Strongly support" to each policy.

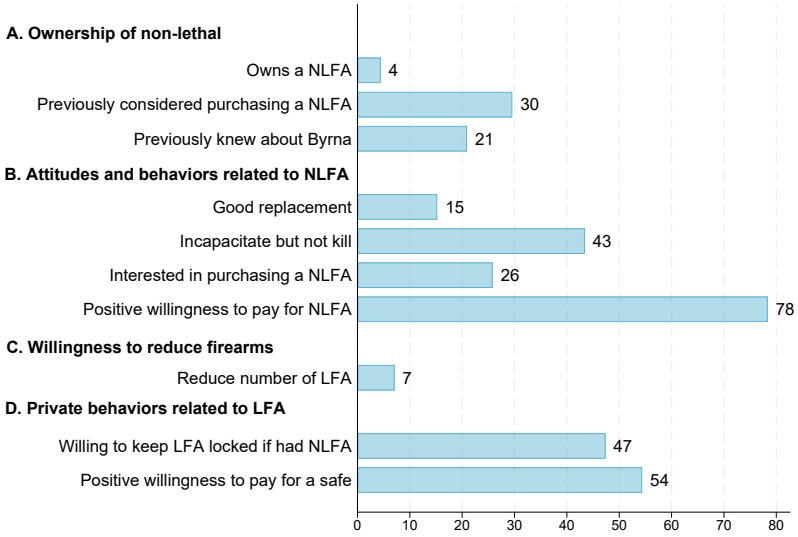
3.3 Demand for Non-lethal Alternatives

The previous sections documented a widespread demand for safety. Non-lethal firearms (NLFA) are a potential way to fulfill the need for safety, while minimizing safety concerns stemming from lethal firearms themselves. Figure 17 shows that very few LFAO (4%) also own a non-lethal alternative and only one-third have previously considered purchasing one. Just 15% consider a NLFA to be a good replacement for a LFA and 7% would consider reducing the number of lethal firearms if they had a non-lethal alternative. Thus, there is little current ownership or demand and a lack of agreement that NLFAs are good replacements for lethal arms. However, 43% of respondents say that they would prefer to have a firearm that's capable of incapacitating rather than killing someone, suggesting some unmet demand.

Importantly, we add an indicator for a positive willingness to pay for a Byrna using our multiple price list (MPL) experiment described in Section 2. These MPL results are limited to participants who successfully answered practice questions and demonstrated understanding of the method (approximately 93% of LFAO, see Appendix Table **??**).

There are some significant heterogeneities in the perceptions of NLFA. Figure 18 shows that Democrat LFAO are more likely to consider a NLFA to be a good replacement, to want to keep their guns locked if they had one, and to seek to incapacitate rather than kill. Panel A of Figure 19 shows that female gun owners are more likely to express willigness to purchase a NLFA and a wish to be able to incapacitate rather than kill. Panel B indicates that college-educated respondents are significantly more likely to view non-lethal firearms favorably across all these dimensions. To a lesser extent, this also holds for higher-income respondents (Panel E). There are also some racial differences, with Black and non-White respondents generally being more open to and in favor of NLFA.

Figure 17: Attitudes Towards NLFA among all LFAO

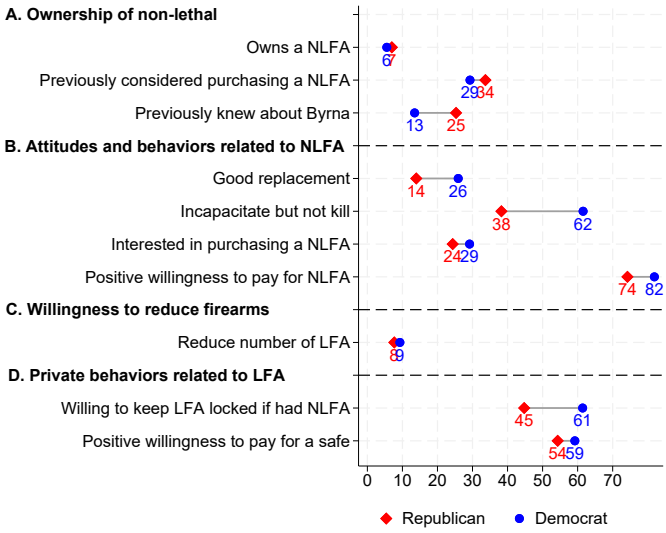


Notes: This figure displays the distribution of LFAO's responses to the items listed in the rows. *Owns a NLFA* is an indicator for respondents who reported owning a Byrna or another NLFA. *Previously considered purchasing a NLFA* is an indicator for respondents without a NLFA who reported having briefly or seriously considered buying one in the past. *Previously knew about Byrna* is an indicator for respondents who reported having heard about Byrna NLFA before the survey. *Good replacement* is an indicator for responders who consider NLFA as a good or complete replacement for a standard, lethal firearm. *Incapacitate but not kill* is an indicator for respondents who agree or strongly agree that they prefer a firearm capable of temporarily incapacitating without killing. *Willingness to pay for NLFA* is an indicator for respondents who showed high willingness to purchase a NLFA non-lethal firearm by selecting 6 or 7 on a 1 to 7 scale. *Positive willingness to pay for NLFA* is a dummy variable. *Reduce number of LFA* is an indicator for respondents who would either no longer own any firearms or substantially reduce their current number of lethal firearms if they purchased the Byrna legal non-lethal firearm. *Willing to keep LFA locked if had NLFA* is an indicator for respondents who would definitely or probably keep their lethal firearms locked if they had a Byrna non-lethal firearm. *Positive willingness to pay for a safe* is a dummy variable.

Why are NLFA considered good or bad substitutes for LFA? To disentangle the reasons why LFAO consider NLFA good or bad substitutes for LFA, we asked them a follow-up open-ended question. For those that answered that a NLFA would be a bad substitute, we inquired why they thought so, and symmetrically for those that thought a NLFA was a good substitute.

Among those who thought that a NLFA is a good substitute, Figure 20 shows that 48% of respondents cited self-defense and deterrence as key reasons (e.g., "If you don't want to kill someone but just scare them away, it's a good option."). Additionally, 10% mentioned that NLFAs reduce the psychological burden of

Figure 18: Attitudes Towards NLFA by Political Affiliation



Notes: This figure displays the distribution of LFAO's responses to the items listed in the rows, grouped by Democrats and Republicans. *Owns a NLFA* is an indicator for respondents who reported owning a Byrna or another NLFA. *Previously considered purchasing a NLFA* is an indicator for respondents without a NLFA who reported having briefly or seriously considered buying one in the past. *Previously knew about Byrna* is an indicator for respondents who reported having heard about Byrna NLFA before the survey. *Good replacement* is an indicator for responders who consider NLFA as a good or complete replacement for a standard, lethal firearm. *Incapacitate but not kill* is an indicator for respondents who agree or strongly agree that they prefer a firearm capable of temporarily incapacitating without killing. *Willingness to pay for NLFA* is an indicator for respondents who showed high willingness to purchase a NLFA non-lethal firearm by selecting 6 or 7 on a 1 to 7 scale. *Positive willingness to pay for NLFA* is a dummy variable. *Reduce number of LFA* is an indicator for respondents who would either no longer own any firearms or substantially reduce their current number of lethal firearms if they purchased the Byrna legal non-lethal firearm. *Willing to keep LFA locked if had NLFA* is an indicator for respondents who would definitely or probably keep their lethal firearms locked if they had a Byrna non-lethal firearm. *Positive willingness to pay for a safe* is a dummy variable.

owning or using a lethal firearm (e.g., "I'd be less worried about the consequences of using my gun and killing someone. As long as it still hurts them and stops them, it's a better alternative."). Female LFAO were more likely to express these views compared to men.

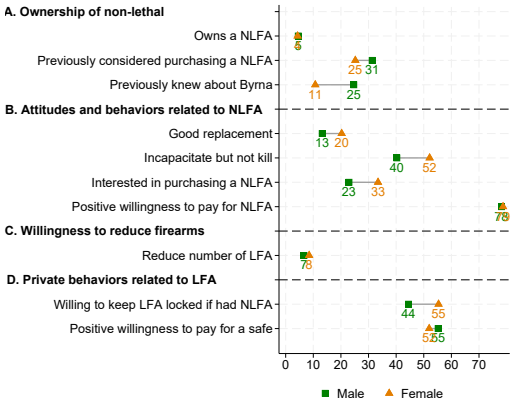
On the other hand, 26% of respondents were skeptical, believing that while NLFAs might be useful in some situations, they could not fully replace firearms in all scenarios (e.g., "It would be nice to know that a non-lethal firearm could offer the protection you need, but in a truly dangerous situation, it might not be enough."). Similarly, 8% stated that they would consider using NLFAs but needed more evidence of their reliability. Male LFAOs were more likely to express these concerns.

Among those who consider an NLFA to be a poor replacement, Figure 21 shows that the majority (57%) of respondents doubted that NLFAs would be effective in high-stakes situations, highlighting that a lethal response is often the only way to stop an attacker (e.g., "A lethal response to murderous intent is probably the only effective option. A non-lethal response that doesn't stop the attacker is both useless and dangerous."). Men (60%) were more likely than women (47%) to share this concern.

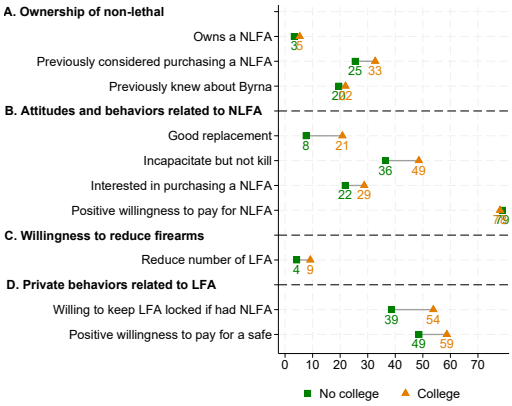
Additionally, 14% of respondents stated that they prioritize safety and are unwilling to take risks with NLFAs (e.g., "I'm not convinced of their effectiveness, and I honestly don't care if the person I'm protecting myself from dies from lethal force."). Another 9% shared that they were uncertain about NLFAs (e.g., "I don't know much about them. I'd need to see if they can incapacitate someone long enough for law enforcement to arrive. I've worked as a psych nurse, and I've seen people on PCP—completely out of their minds and difficult for multiple officers to control.").

Figure 19: Attitudes Towards NLFA by Personal Characteristics

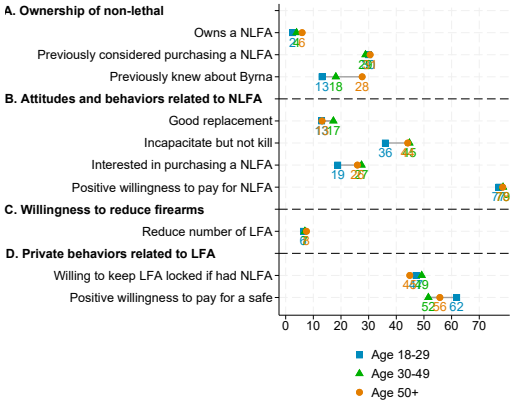
(a) Gender



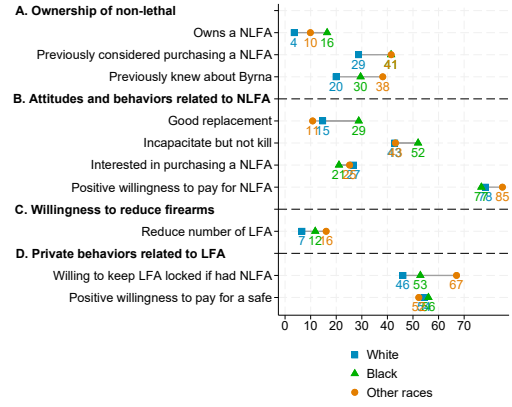
(b) Higher Education



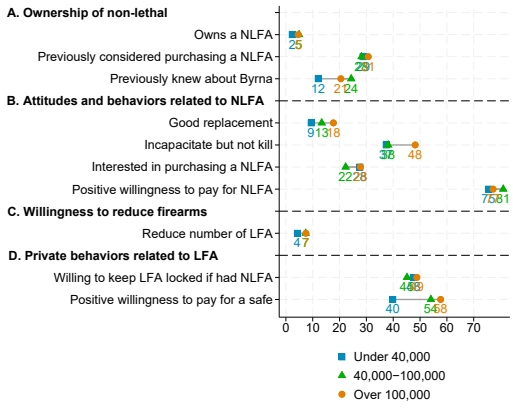
(c) Age



(d) Race



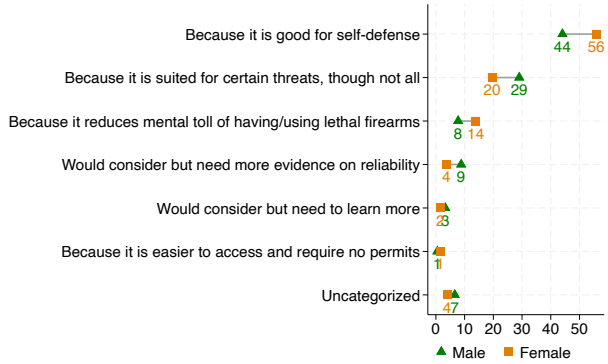
(e) Income



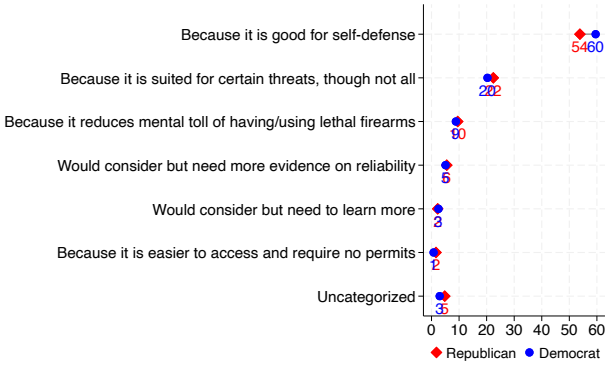
Notes: This figure displays the distribution of LFAO's responses to the items about non-lethal firearms listed in the rows, by personal characteristics. Panel A shows these shares by gender (male vs. female), Panel B by education level (college vs. non-college), Panel C by age group (18-29 vs. 30-49 vs. 50 to more), Panel D by race (White vs. Black vs. Other races) and Panel E by household income (under 40,000 vs. 40,000-100,000 vs. over 100,000). *Owns a NLFA* is an indicator for respondents who reported owning a Byrna or another NLFA. *Previously considered purchasing a NLFA* is an indicator for respondents without a NLFA who reported having briefly or seriously considered buying one in the past. *Previously knew about Byrna* is an indicator for respondents who reported having heard about Byrna NLFA before the survey. *Good replacement* is an indicator for responders who consider NLFA as a good or complete replacement for a standard, lethal firearm. *Incapacitate but not kill* is an indicator for respondents who agree or strongly agree that they prefer a firearm capable of temporarily incapacitating without killing. *Willingness to pay for NLFA* is an indicator for respondents who showed high willingness to purchase a NLFA non-lethal firearm by selecting 6 or 7 on a 1 to 7 scale. *Positive willingness to pay for NLFA* is a dummy variable. *Reduce number of LFA* is an indicator for respondents who would either no longer own any firearms or substantially reduce their current number of lethal firearms if they purchased the Byrna legal non-lethal firearm. *Willing to keep LFA locked if had NLFA* is an indicator for respondents who would definitely or probably keep their lethal firearms locked if they had a Byrna non-lethal firearm. *Positive willingness to pay for a safe* is a dummy variable.

Figure 20: Why do you consider nonlethal firearms like Byrna a replacement?

(a) Gender



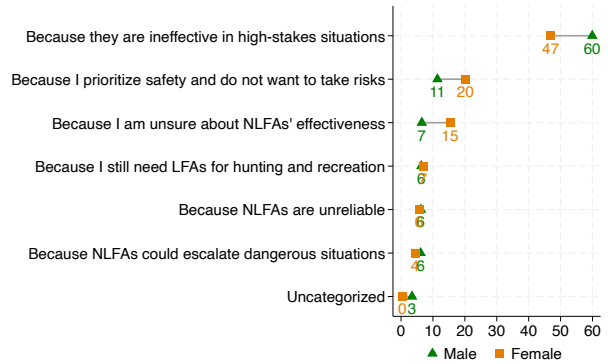
(b) Political Affiliation



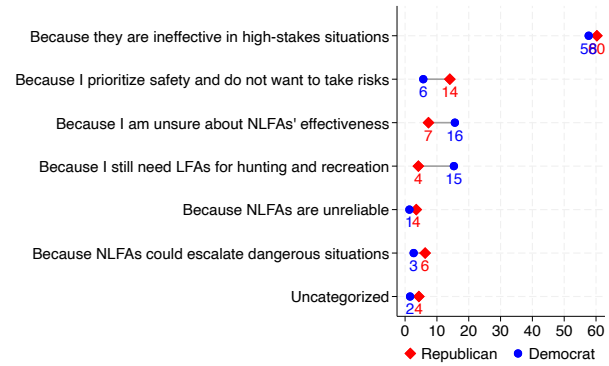
Notes: This figure displays the distribution of topics in responses from LFAOs to the follow-up open-ended question: "Why do you consider non-lethal firearms like Byrna to be a decent/good/complete replacement?" (The exact wording varied based on their response to the previous question.) Participants first answered a closed-ended question on whether they viewed Byrna as a replacement, selecting from five options: "A complete replacement," "A good replacement," "A decent replacement," "Not much of a replacement," and "Not a replacement at all" We then grouped those who selected "A complete replacement," "A good replacement," or "A decent replacement" and analyzed their open-ended explanations. The full topic descriptions can be found in Table A-10. Panel A illustrates topic shares by gender (male vs. female LFAOs), while Panel B presents the distribution by political affiliation (Democrat vs. Republican LFAOs).

Figure 21: Why do you consider nonlethal firearms like Byrna a replacement?

(a) Gender

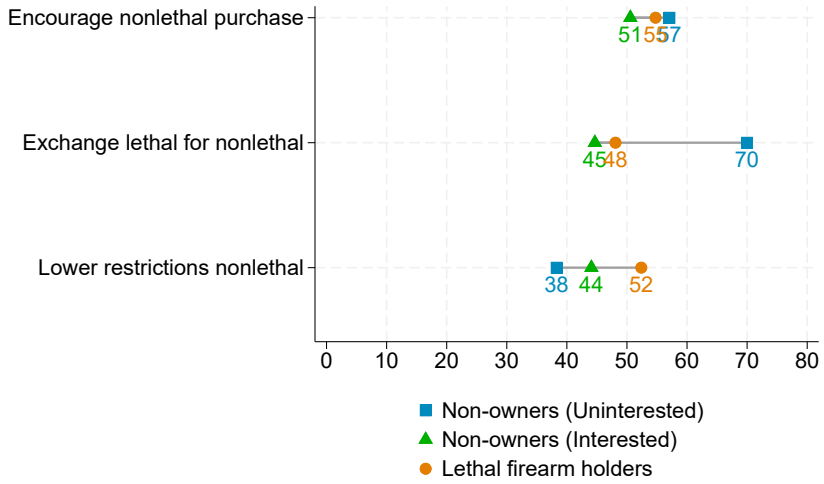


(b) Political Affiliation



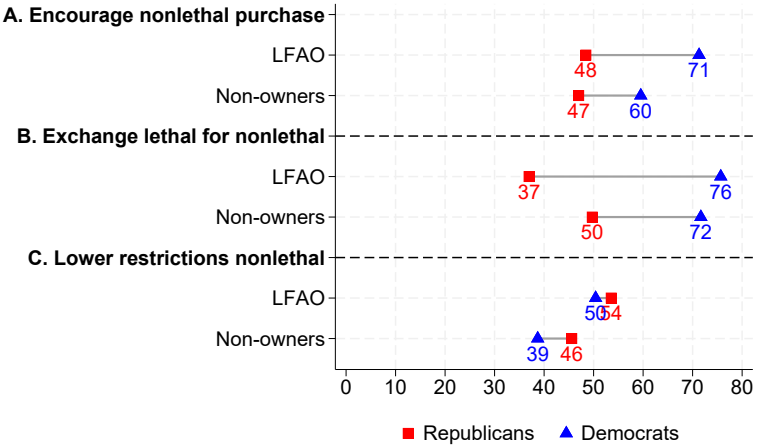
Notes: This figure displays the distribution of topics in responses from LFAOs to the follow-up open-ended question: "Why do you consider non-lethal firearms like Byrna to be not much of a replacement/not a replacement at all?" (The exact wording varied based on their response to the previous question.) Participants first answered a closed-ended question on whether they viewed Byrna as a replacement, selecting from five options: "A complete replacement," "A good replacement," "A decent replacement," "Not much of a replacement," and "Not a replacement at all" We then grouped those who selected "Not much of a replacement," and "Not a replacement at all" and analyzed their open-ended explanations. The full topic descriptions can be found in Table A-11. Panel A illustrates topic shares by gender (male vs. female LFAOs), while Panel B presents the distribution by political affiliation (Democrat vs. Republican LFAOs).

Figure 22: Policy Views on Non-lethal Firearms



Notes: This figure illustrates respondent's views on policies related to non-lethal firearms, by firearm ownership status. *Encourage nonlethal purchase* is an indicator for respondents who somewhat support or strongly support an information campaign encouraging the purchase of non-lethal firearms instead of lethal firearms. *Exchange lethal for nonlethal* is an indicator for respondents who somewhat support or strongly support a program that would allow gun LFAOs to exchange their lethal firearms for non-lethal firearms. *Lower restrictions nonlethal* is an indicator for respondents who somewhat support or strongly support lower restrictions and fewer regulations on non-lethal firearms compared to lethal firearms.

Figure 23: Policy Views on Non-Lethal Firearms by Political Leaning



Notes: This figure illustrates LFAO and non-owners' views on policies related to non-lethal firearms, by political leaning. *Encourage nonlethal purchase* is an indicator for respondents who somewhat support or strongly support an information campaign encouraging the purchase of non-lethal firearms instead of lethal firearms. *Exchange lethal for nonlethal* is an indicator for respondents who somewhat support or strongly support a program that would allow LFAOs to exchange their lethal firearms for non-lethal firearms. *Lower restrictions nonlethal* is an indicator for respondents who somewhat support or strongly support lower restrictions and fewer regulations on non-lethal firearms compared to lethal firearms.

4 Organizing Framework

The descriptive results suggest that LFAO and non-owners share a common demand for safety: they differ in their knowledge, beliefs, and thinking about the safest ways to be safe. This section outlines a simple model of safety-driven lethal firearm demand and a framework for analyzing our experimental manipulations in light of this finding.

Our framework abstracts from objectives beyond safety for why a person might own guns, such as hunting or continuing an important family tradition. A person i decides to add a lethal or non-lethal firearm f to his collection if and only if he believes it produces a sufficient amount of safety—utility value of protective benefits net of harms—to be worth its price:

$$\sum_{s} \underbrace{\hat{\pi}_{if}(s)}_{\text{weight on situation } s} \times \underbrace{\left(w_{bif} \cdot \hat{b}_{if}(s) - w_{hif} \cdot \hat{h}_{if}(s)\right)}_{\text{weighted net safety benefits in situation } s} - P_f \geq 0. \tag{1}$$

Here $\hat{\cdot}$ represent perceptions/beliefs relative to objective values and:

- $\hat{\pi}_{if}(s)$ equals the weight person i attaches to situation s at the time he makes a decision of whether to add firearm f;
- $w_{bif} \in [0, 1]$ equals the extent to which person i weights the safety benefits of firearm f;
- $\hat{b}_{if}(s)$ equals the protective benefit he assigns to having access to firearm f in situation s;
- $w_{hif} \in [0, 1]$ equals the extent to which person i weights the safety costs of firearm f;
- $\hat{h}_{if}(s)$ equals the non-pecuniary and pecuniary harm (private and social) he assigns to having access to firearm f in situation s;
- P_f equals the price of firearm f.

It is sometimes convenient to use more compact notation that aggregates across situations s: $\hat{B}_{if} \equiv \sum_s \hat{\pi}_{if}(s) \times \hat{b}_{if}(s)$ and $\hat{H}_{if} \equiv \sum_s \hat{\pi}_{if}(s) \times \hat{h}_{if}(s)$. Given this notation, person i adds firearm f to his collection if and only if $w_{bif} \cdot \hat{B}_{if} - w_{hif} \cdot \hat{H}_{if} - P_f \geq 0$.[5]

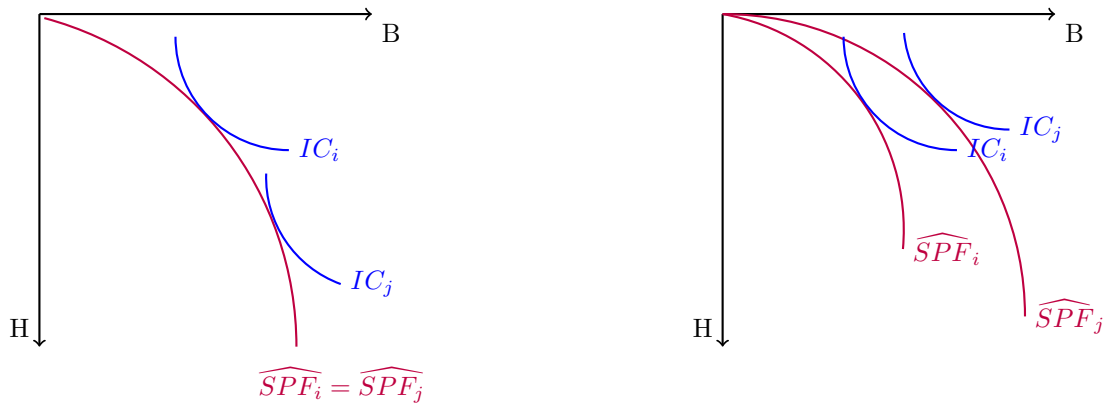
Important for our analysis is the person's perception of how to best be safe: the *perceived safety possibilities frontier*. Define this frontier in the following way. Let F be the set of firearms available to the person (including no firearm) and simplify by assuming the person can choose at most one option from this set. Say that f^e is *perceived safety efficient* if there does not exist another firearm $f \in F$ such that $\hat{B}_f \geq \hat{B}_{f^e}$ and $\hat{H}_f \leq \hat{H}_{f^e}$ with one inequality strict. The *perceived safety possibilities frontier* traces out the set of perceived safety efficient solutions in (H, B) space: The perceived safety possibilities frontier equals

$$\widehat{SPF} = \left\{(\hat{H}_f, \hat{B}_f) \text{ for perceived safety efficient } f\right\}.$$

A straightforward observation is that a person will only choose a firearm (including none at all) if it falls on the perceived safety possibilities frontier. Given that there are potentially many options along this

[5] As we saw in the descriptive analysis, the person may not be aware of all options that he would consider buying if made salient, such as non-lethal firearms. In our framework, the lack of awareness of an option f' is captured by setting $\hat{B}_{if'} = 0$.

FIGURE 24



(A) PREFERENCE-DRIVEN DEMAND FOR GUNS

(B) BELIEFS/PERCEPTION-DRIVEN DEMAND FOR GUNS

Notes: This figure illustrates ways that two people i and j may arrive at different firearm-related decisions. Panel A illustrates a situation where the two people share the same view of the safety-possibilities frontier, but have different preferences. Panel B illustrates a situation where the two people share the same preferences, but have different beliefs or perceptions of the safety-possibilities frontier.

frontier, even with this observation there is in principle significant heterogeneity in people's decisions on which firearm to purchase and whether to have a firearm at all.

To clarify this point, consider two instructive extreme cases (our descriptive analysis suggests reality falls between these extremes): demand is driven purely by preferences/values vs. purely by beliefs/perceptions about guns. The former case, which we label *pure preference-driven demand for guns*, is implicitly followed by many of the social science papers on the demand for guns, outlined in the related literature section above. This literature, for example, views different gun owners as falling into different preference "types" (hunters, instrumental owners, cultural owners, etc.). In such frameworks, demand reveals preferences or values: people share the same beliefs and representations about guns, so demand reflects variation in whether internalized true benefits (B_{if}) net of internalized true harms (H_{if}) exceeds the price, i.e., in whether $B_{if} - H_{if} - P_f \geq 0$ across i. In the pure preference-driven demand for guns framework, gun owners differ from non-gun owners because they have a greater need for firearms (greater B_{if}), internalize less of the societal harms (lower H_{if}), are able to use guns more effectively or safely, and so on. In this framework, people share the same perceived safety possibilities frontier and differ in which point along that frontier maximizes their preferences (Panel A of Figure 24).

We contrast this with another extreme but instructive case of *pure beliefs/perceptions-driven demand for guns* where everyone shares the same underlying preferences and incentives to have guns: in this case, true benefits of firearm f satisfy $B_{if} = B_f$ for all i, true harms satisfy $H_{if} = H_f$ for all i, and everyone *should* decide to purchase f according to whether $B_f - H_f - P_f \geq 0$.[6] In this case, rather than revealing preferences

[6]Our framework connects to more general approaches to incorporating systematically biased beliefs and coarse representations in demand analyses (e.g., Mullainathan et al. (2012), Allcott and Taubinsky (2015), Handel and Schwartzstein (2018), Farhi

or values, heterogeneity in firearm purchase decisions reflects heterogeneity in beliefs (perceptions about benefits and harms) and representations (focus on benefits or harms) about guns. In this framework, people share the same underlying preferences but differ in their perceived safety possibilities frontiers (Panel B of Figure 24).

Even if people similarly demand and value safety, then, they may for a variety of reasons end up with very different ideas on how to best be safe (Panel B of Figure 24). First, the weights $\hat{\pi}_{if}(s)$ people assign to situation s can vary. For example, as the descriptive analysis shows, some people are more concerned about situations where a child or other family member might harm themselves with a gun than others. Such differential weights may reflect different probabilistic assessments, or differing degrees to which situations are top of mind.

Second, the benefits $\hat{b}_{if}(s)$ people assign to having access to a firearm in a given situation can vary. For example, people differ in the degree to which they believe having a firearm (lethal or otherwise) reduces the chances of getting hurt if attacked.

Third, the harms $\hat{h}_{if}(s)$ people assign to having access to a firearm in a given situation can vary. For example, some people may anticipate a greater risk than others of being arrested or sued if someone took their gun and killed or hurt someone else, or of someone using their gun in this way. Even if people anticipate such harms, they may not be top of mind during purchase decisions—an idea that goes back at least to Spence (1977).

Fourth, the extent to which the person focuses on safety benefits, w_{bif}, versus safety harms, w_{hif}, can vary. For example, some people primarily feel more safe and confident carrying guns (high w_{bif}/w_{hif}) while others primarily feel more nervous and threatened carrying guns (low w_{bif}/w_{hif}). This differential focus may be true across people who share the same underlying beliefs about guns — and whether a person focuses on benefits or harms may even be unstable within a person across time (Bordalo et al. (2023)).

Fifth, the extent to which a person considers available non-lethal firearm options may vary. In our framework, non-lethal firearms are differentiated from lethal firearms by delivering protective benefits $B > 0$ with reduced harms H relative to lethal firearms. Some people may neglect non-lethal firearm options entirely in making firearm-related decisions, acting as if they place a very low protective-benefit value $\hat{B}_{if} \approx 0$ on them, while others may consider them as potential substitutes for lethal firearms.

Under the preferences-driven model, our treatments should have little impact on beliefs or behavior. Under the beliefs/perceptions-driven model, on the other hand, beliefs about guns are predictable from gun ownership status and treatments targeting gaps in beliefs across owners and non-owners could impact both firearm-related beliefs and behavior.

Our treatments are intended to fill these gaps. Under the beliefs/perceptions-driven model, we predict the following ways our treatments lead people to re-view the safety-possibilities frontier —i.e., the safest ways to be safe:

1. *Impact of the personal cost of lethal firearm ownership information treatment.* In our framework, this treatment alerts people and makes salient that lethal-firearm protective safety benefits are associated with harms that are weakly larger than $\hat{H}_{if}$. In more detail, our framework predicts:

    - This treatment weakly raises beliefs about harms $\hat{h}_{if}(s')$ for some s' (e.g., alerting people to the possibility of being arrested or sued if their gun hurts someone), weakly raises weight $\pi_{if}(s')$ on such situations s', and weakly raises focus w_{hif} on gun harms in making firearm-related decisions.

and Gabaix (2020), and Bordalo et al. (2025)).

- By alerting people to harms in such a way, this treatment should weakly increase demand for safe storage.
- Absent the introduction of a NLFA, which could cause gun owners to significantly revise their view of the perceived safety-possibilities frontier, this treatment might impact beliefs without much impact on gun-related behavior:
  - First, many gun owners might be far from the margin given their understanding of the safety-possibilities frontier. Indeed, many gun owners have made repeated decisions to own firearms. For example, most lethal firearm owners in our sample own more than one lethal firearm.
  - Second, being a gun owner might reflect that owners focus more on guns' protective benefits than their harms—i.e., that w_{bif}/w_{hif} is large. If the treatment influences perceptions of harm $\hat{H}$ without influencing how much harms factor into gun owners' decisions $w_{hif} \cdot \hat{H}$, then even a sizable shift in $\hat{H}$ may result in little shift in behavior.

2. *Impact of the non-lethal firearm information treatment.* In our framework, this treatment alerts people and makes salient that non-lethal firearms exist and are associated with protective safety benefits weakly larger than $\hat{B}_{if}$. That is, this treatment could cause gun owners to significantly alter their view of the perceived safety-possibilities frontier. In more detail, our framework predicts:
   - This treatment weakly raises beliefs about protective safety benefits of non-lethal firearms $\hat{b}_{if}(s')$ for some s' (e.g., alerting people that options that are effective in some situations of interest exist).
   - By raising such beliefs, this treatment should increase the chances that gun owners view non-lethal firearms as effective substitutes and should increase their willingness to pay for non-lethal firearms.[7]

3. *Impact of the non-lethal firearm endorsement and information treatment.* In our framework, the impact of this treatment should be weakly larger than the information treatment alone because it further unpacks and makes salient situations where NLFA could be beneficial (it arguably has a weakly higher dosage than the information treatment alone). Outside the framework, we conjectured it would also have weakly larger effect sizes for Republican gun owners because Sean Hannity is a prominent and trusted conservative media personality.

5 Informing Respondents about the Cost of Lethal Firearms or Non-Lethal Alternatives: Experimental Effects

We now turn to our experimental findings, leveraging two types of treatments. The first treatment focuses on the costs of LFA and is shown to both LFAO and Non-owners; the other two treatments provide information about NLFA with and without an endorsement and are only shown to LFAO. Appendix Tables A-4 and A-5 demonstrate that the sample is well-balanced across all treatment arms.

[7] Even if gun owners' willingness to pay for non-lethal alternatives like Byrna increases—and even if they go on and purchase a non-lethal firearm—they may still see value to owning lethal firearms. In the framework, lethal firearm owners might envision and place weight on situations where lethal firearms are beneficial relative to non-lethal firearms, as well as other situations where non-lethal firearms are similarly beneficial with lower associated harms than lethal firearms. That is, non-lethal firearms and lethal firearms may be viewed by some lethal gun owners as complements, not substitutes.

Our main specifications are regressions of the outcomes of interest on indicators for treatment. Equation 2 estimates the effect of the *Personal costs of lethal firearms* treatment on all non-owner respondents. Equation 3 estimates the treatment effects on LFAO. We present results reweighted for representativeness but they are very similar to the unweighted version in the Appendix.

$$y_i = \alpha + \mu_1 \text{Personal Cost of Lethal Firearm}_i + \varepsilon_i \tag{2}$$

$$y_i = \alpha + \beta_1 \text{Personal Cost of Lethal Firearm}_i + \beta_2 \text{Information on Non-Lethal Firearm}_i + \beta_3 \text{Endorsement and Information of Non-Lethal Firearm}_i + \varepsilon_i \tag{3}$$

Our results are summarized in two key tables, where variables are grouped in rows by type and topic. For policy views, we create indices that summarize these views following Kling et al. (2007). Each underlying variable is normalized prior to aggregation, and the index is computed as the mean of these normalized components. The variables are oriented such that higher values of the indices indicate greater support for NLFA or more restrictive policies toward LFA. Panel A includes outcomes related to the personal cost of firearm ownership, i.e., whether the respondent is worried that they would be arrested or sued if someone used a lethal firearm they owned to hurt or kill another or that their children would use their LFA. Panel B reports beliefs and behaviors with respect to NLFA that were explored in Section 3, such as whether a NLFA is a "good replacement" for a LFA and whether the respondent would prefer a firearm that can incapacitate but not kill.

Panel C includes whether ownership of an NLFA would lead to a reduction in the number of LFA owned. Panel D is focused on safe storage and whether the respondent would be more willing keep lethal firearms locked if they had access to a NLFA and their willingness to pay for a safe storage unit elicited in our MPL, willingness to purchase another lethal firearm and to participate in a lethal firearm buyback. Panel E is a policy index for non-lethal firearm alternatives which includes answers to the three policy questions shown in Section 3. Panel F includes policy views on lethal firearms including the prohibiting purchases index, which encompasses questions on restricting purchasing along several margins (i.e., domestic violence, age under 21, convicted of drunk, and people deemed to be a risk to themselves and others), a support for rules for buying index (e.g., background checks, permits, etc.), a support for storage and safety index (e.g., requiring fingerprint identification and locking up the lethal firearms when not in use), a opposition to carry in schools policy (e.g., arming teachers), a support for more concealed carry regulations index (e.g., banning concealed carry on campus and other places), and support for restrictions on high capacity magazines. Panels G and H include the real stakes questions related to NLFA and LFA espectively.

5.1 Causal Effects of Informing Respondents about the Personal Costs of Lethal Firearms

Table 4 shows the results of the personal cost of lethal firearms treatment on LFAO (Columns 1-3, β_1 from Equation 3) and non-owners (Columns 4-6, μ_1 from Equation 2). Columns 1 and 4 represent the treatment effects in the main survey. Columns 2 and 5 report the findings for the main survey but restricted to those respondents who also participated in the follow-up survey. Columns 3 and 6 show the treatment effects in the follow-up survey. A comparison of Columns 1 vs. 2 and Columns 4 vs. 5 reveals that the immediate treatment effects in the sample overall and for those respondents who answered the follow-up survey two

weeks later are quite similar. A comparison between Columns 2-3 and 5-6 gives a sense of whether and to what extent the treatment effects persist over time.

The key takeaways from Table 4 are as follows: LFAO and Non-Owners both increase concerns about the legal ramifications of lethal firearm use compared to their respective control treatment. The increase in concern represents around 10% of the average (on a four point scale) relative to the control group for either group. While the baseline effects are not different across LFAO and non-owners, the treatment effect is only persistent among the LFAO.[8] We also find in unreported results, when estimating Equation 3 that the effects on perceived legal risks are unique to this treatment, and are not found in either of the treatments related to NLFA.

As noted in Section 3, LFAO are less worried about children or family members using their firearm inappropriately. The *Personal Cost of Lethal Firearm Ownership* treatment is not able to shift that view by a lot (approximately a 3-4% increase, or about 0.06 relative to the control group mean of 1.7), yet the point estimate remains positive and elevated over time. Non-owners, on the other hand, show a statistically significant response (0.15 off a base of about 3 or 5%) despite being more worried to begin with. However, the response dissipates in the follow-up. We are unable to reject the null that the effects for LFAO and Non-owners are similar.

Turning to personal actions and policy views, several findings are worth noting. Among LFAO, there is an increase in expressed willingness to safely store LFA and changes in policy views as well: Indeed, LFAO are more willing to support a petition restricting lethal firearm rights for safety purposes in Panel H. Among non-owners, there are significant treatment effects on policy views, both in terms of more restrictive policies related to LFA and more support for NLFA. However, these effects do not persist.

All in all, making respondents more worried about the private costs of guns without offering an alternative to their concern about safety is not effective in deeply changing their private behavior or policy views related to LFA. There are many potential reasons for this, including those outlined towards the end of Section 4. We now turn to our other treatments, which attempt to offer lethal firearm owners compelling alternatives to LFA and could thereby shift their views of the safety-possibilities frontier.

5.2 Causal Effects of Providing Information on and Endorsement of Non-Lethal Firearms

Table 5 presents the results of the Non-Lethal Information and Endorsement interventions relative to the control group. The table is limited to LFAO only for reasons described above.

Attitudes and Behaviors Related to NLFA. Both treatments have strong positive effects on the array of outcomes related to a willingness to view NLFA as an alternative to LFA, but the *Non-Lethal Firearm Information and Endorsement* treatment has consistently larger and more persistent effects. The *Non-Lethal Firearm Information* treatment significantly increases the belief that NLFA are good replacements for LFA: increasing agreement with the statement by about 0.3 on a base in the control group of 3.5, or 8-9%. Both treatments also significantly increase the respondents' likelihood of saying that they prefer to incapacitate rather than kill, and their self-reported and actual willingness to pay for a NLFA. Thus, we find a positive and significant effect of both treatments, which is meaningful – approximately 20 to 25% of the control mean on self-reported willingness to pay. For this outcome, we can reject the null that the NLF treatments

[8]Note, too, that the LFA who participated in the follow-up appear to have similar immediate treatment effects when comparing Columns 1 and 2.

Table 4: Treatment Effects of the Personal Cost of Lethal Firearm Ownership Treatment on All Respondents

	Lethal firearm owners			Non-owners		
	Main (all)	Main (FU only)	Follow-up (all)	Main (all)	Main (FU only)	Follow-up (all)
Panel A. Internality concerns						
Worried about arrest	0.232	0.201	0.181	0.248	0.194	0.007
	(0.058)	(0.072)	(0.066)	(0.048)	(0.054)	(0.052)
Worried family use	0.058	0.089	0.078	0.155	0.109	0.008
	(0.055)	(0.066)	(0.061)	(0.051)	(0.059)	(0.056)
Panel B. Attitudes and behaviors related to NLFA						
Good Replacement	0.075	0.067	-0.032	-	-	-
	(0.057)	(0.070)	(0.070)	-	-	-
Incapacitate but not kill	0.012	0.015	-0.040	-	-	-
	(0.066)	(0.080)	(0.078)	-	-	-
Interested in purchasing a NLFA	-0.107	-0.090	-0.107	-	-	-
	(0.109)	(0.132)	(0.125)	-	-	-
Positive Willingness to Pay for NLFA	-0.023	-0.033	-0.003	-	-	-
	(0.022)	(0.028)	(0.025)	-	-	-
Panel C. Willingness to reduce firearms						
Reduce Number of Guns	-0.054	-0.053	0.015	-	-	-
	(0.054)	(0.067)	(0.067)	-	-	-
Panel D. Private behaviors related to LFA						
Willing to keep LFA locked if had NLFA	0.161	0.208	0.076	-	-	-
	(0.074)	(0.089)	(0.089)	-	-	-
Positive Willingness to Pay for a Safe	0.012	0.003	0.012	-	-	-
	(0.027)	(0.033)	(0.031)	-	-	-
Willing to purchase another LFA	0.034	0.033	0.006	-0.001	-0.013	-0.010
	(0.018)	(0.022)	(0.021)	(0.016)	(0.018)	(0.018)
Willing to participate in a gun buyback program	-0.020	-0.005	-0.010	-	-	-
	(0.016)	(0.020)	(0.020)	-	-	-
Panel E. Policy views on non-lethal						
Support for NLFA Alternatives Index	0.007	0.005	-0.003	0.033	0.028	0.014
	(0.012)	(0.014)	(0.015)	(0.010)	(0.011)	(0.010)
Panel F. Policy views on lethal						
Prohibiting Purchases Index	0.012	0.009	-0.012	0.025	0.024	0.006
	(0.014)	(0.018)	(0.019)	(0.014)	(0.016)	(0.016)
Support for Rules for Buying Index	0.018	0.022	0.020	0.013	0.006	-0.007
	(0.015)	(0.019)	(0.019)	(0.008)	(0.009)	(0.009)
Support for Storage and Safety Index	0.051	0.055	0.040	0.023	0.010	0.010
	(0.018)	(0.022)	(0.022)	(0.011)	(0.012)	(0.013)
Opposition to Carry in Schools	0.005	0.003	-0.006	0.002	-0.000	-0.012
	(0.020)	(0.024)	(0.023)	(0.016)	(0.018)	(0.018)
Support for Concealed Carry Regulations Index	0.019	0.044	0.029	0.013	0.014	0.016
	(0.015)	(0.018)	(0.016)	(0.013)	(0.014)	(0.014)
Support for Restrictions on High-Capacity LF	-0.001	0.026	0.031	0.007	0.009	-0.004
	(0.021)	(0.026)	(0.025)	(0.016)	(0.018)	(0.018)
Panel G. Real stakes on non-lethal						
Real Stakes NLFA Index	0.001	0.013	.	0.033	0.028	.
	(0.025)	(0.030)	(.)	(0.021)	(0.023)	(.)
Panel H. Real stakes on lethal						
Real Stakes Lethal Index	0.027	0.033	.	0.007	0.008	.
	(0.010)	(0.012)	(.)	(0.009)	(0.010)	(.)

Notes: This table presents the results of Equations 3 and 2 respectively. Owners of both types (interested and uninterested). Each treatment group is reported under three cases: Main: Results based on responses from all participants of the main survey. Main (FU only): Results based on main survey data using responses from participants who took the follow-up survey. Follow-up: Results based on responses from the follow-up survey. Coefficients represent the estimated effects of the respective treatments on the specified outcomes. The following variables are normalized: Opposition to Carry in Schools, Support for Restrictions on High-Capacity LF, Willing to purchase another LFA, and Willing to participate in a gun buyback program. Positive Willingness to Pay for Byrna and Positive Willingness to Pay for a Safe are binary variables. Robust standard errors are reported in parentheses.

are similar ($\beta_2 = \beta_3$, with p-value = 0.042). Again, the endorsement and information treatment has more persistence than information alone. Similarly, having a positive WTP for Byrna as measured by the multiple price list experiment is raised by three to four percentage points (5-6%) and persistent. Specifically for the endorsement treatment, $\beta_3 = 0.044$ (s.e. 0.021, N=2807) in the initial sample and 0.037 (s.e. 0.023, N=1787) in the follow-up sample. These effects are persistent for the treatment that also includes the endorsement, and the WTP for NLFA is marginally persistent for the treatment with information only.

Willingness to reduce and safely store LFA. Both these treatments also positively affect willingness to keep LFA locked if respondents were to obtain a NLFA. However, there is no effect on the willingness to reduce the number of LFA owned or the willingness to pay for a gun safe (perhaps because respondents already own safe storage devices). We come back to these effects below.

Policy views related to NLFA. Both treatments significantly increase respondents' willingness to support policies that encourage the use of NLFA over LFA (Panel E). The treatment with endorsement is again both stronger and more persistent for policy views. That treatment has positive but insignificant effects on the real-stakes policy questions.

Policy views related to LFA. Interestingly, the Non-Lethal Firearm Information and Endorsement treatment also has significant "spillover" effects on policy views related to LFA – both self-reported and real-stakes ones. For instance, it increases the support for more stringent rules for buying LFA, support for policies enforcing safe storage and safety measures, and the likelihood of signing a petition to support more restrictions on LFA.

Mechanisms. We can also consider the treatments effects on the answers to the open-ended questions described in Section 3 that ask people why or why not they consider NLFA to be good substitutes for LFA. This can shed light on the specific mechanisms of action of our treatments, i.e., on the perceptions and beliefs that were affected by it. Table 5 shows these results, with a similar format to the previous tables. Both NLFA treatments significantly increase the likelihood of respondents saying that Byrna is a good replacement because it is easier to access and requires no permit, and because it is good for self-defense. The endorsement treatment shifts respondents' belief that the NLFA is suitable for certain threats, though not all and makes them more likely to say that they would consider it but need more evidence on reliability. On the flip side, these treatments make respondents less likely to say that they are unsure about NLFAs effectiveness and that they are ineffective in high-stakes situations.

However, we might still wonder why respondents are not willing to reduce the number of LFA they own after seeing these treatments. The answers to these open-ended questions provide suggestive evidence: respondents need more evidence that a NLFA can be useful against *all* threats they worry about. There are still situations where LFAO consider LFAs to be the only suitable alternative.

Discussion. Given the fairly universal concern for safety among respondents, providing information about a non-lethal alternative seems to strike a chord. Our descriptives in Section 3 suggest that many people lack knowledge of or otherwise neglect NLFA and providing salient information on these alternatives might fill this gap. When layered with an endorsement by someone who shares concerns for safety and a professed love for LFA (Sean Hannity), this information seems to be even more effective. Many gun owners appear to want to be safe and open to safer ways to be safe.[9]

[9]Consistent with this overall desire to be safe, none of the treatments generated backlash, even by political leaning. This can be better understood in light of the statistics mentioned in Section 2, namely that participants were not significantly more likely to perceive the survey as being biased as a function of the treatment arm they were randomized in.

Table 5: Treatment Effects of Providing Information on Non-Lethal Firearms on LFAO, With and Without Endorsement

	NLFA Information			NLFA Information + Endorsement		
	Main (all)	Main (FU only)	Follow-up (all)	Main (all)	Main (FU only)	Follow-up (all)
Panel A. Internality concerns						
Worried about arrest	0.005	0.038	0.022	-0.010	-0.041	0.035
	(0.058)	(0.072)	(0.064)	(0.057)	(0.070)	(0.064)
Worried family use	0.054	0.101	-0.002	0.101	0.118	0.026
	(0.055)	(0.068)	(0.059)	(0.055)	(0.066)	(0.059)
Panel B. Attitudes and behaviors related to NLFA						
Good Replacement	0.284	0.263	0.022	0.324	0.331	0.099
	(0.058)	(0.071)	(0.068)	(0.056)	(0.069)	(0.068)
Incapacitate but not kill	0.236	0.185	-0.001	0.310	0.331	0.163
	(0.064)	(0.080)	(0.079)	(0.063)	(0.076)	(0.075)
Interested in purchasing a NLFA	0.749	0.737	0.246	0.967	0.997	0.514
	(0.108)	(0.133)	(0.129)	(0.108)	(0.131)	(0.126)
Positive Willingness to Pay for NLFA	0.044	0.034	0.022	0.053	0.054	0.043
	(0.021)	(0.026)	(0.024)	(0.021)	(0.025)	(0.024)
Panel C. Willingness to reduce firearms						
Reduce Number of Guns	-0.000	0.039	0.015	0.004	-0.010	-0.006
	(0.052)	(0.064)	(0.066)	(0.051)	(0.065)	(0.065)
Panel D. Private behaviors related to LFA						
Willing to keep LFA locked if had NLFA	0.176	0.130	-0.000	0.174	0.199	0.104
	(0.072)	(0.088)	(0.088)	(0.072)	(0.086)	(0.086)
Positive Willingness to Pay for a Safe	0.010	0.001	-0.002	-0.020	-0.024	0.009
	(0.027)	(0.032)	(0.030)	(0.027)	(0.032)	(0.030)
Willing to purchase another LFA	0.029	0.019	0.007	0.012	0.001	0.003
	(0.018)	(0.023)	(0.021)	(0.018)	(0.022)	(0.021)
Willing to participate in a gun buyback program	-0.035	-0.030	-0.029	-0.001	0.011	0.012
	(0.016)	(0.019)	(0.019)	(0.017)	(0.020)	(0.020)
Panel E. Policy views on non-lethal						
Support for NLFA Alternatives Index	0.028	0.027	0.014	0.048	0.056	0.037
	(0.012)	(0.014)	(0.015)	(0.011)	(0.014)	(0.014)
Panel F. Policy views on lethal						
Prohibiting Purchases Index	0.000	0.006	-0.022	0.013	0.023	0.012
	(0.015)	(0.018)	(0.019)	(0.015)	(0.018)	(0.018)
Support for Rules for Buying Index	-0.004	0.003	0.003	0.032	0.046	0.044
	(0.016)	(0.019)	(0.019)	(0.015)	(0.018)	(0.018)
Support for Storage and Safety Index	0.014	0.006	0.008	0.036	0.042	0.032
	(0.018)	(0.022)	(0.022)	(0.018)	(0.022)	(0.022)
Opposition to Carry in Schools	-0.004	-0.009	-0.028	0.024	0.025	0.009
	(0.019)	(0.023)	(0.023)	(0.020)	(0.023)	(0.023)
Support for Concealed Carry Regulations Index	0.003	0.010	0.000	0.007	0.015	0.021
	(0.014)	(0.017)	(0.016)	(0.015)	(0.018)	(0.016)
Support for Restrictions on High-Capacity LF	-0.015	-0.019	-0.005	-0.014	0.012	0.038
	(0.021)	(0.025)	(0.025)	(0.021)	(0.025)	(0.025)
Panel G. Real stakes on non-lethal						
Real Stakes NLFA Index	0.002	-0.003	.	0.027	0.038	.
	(0.024)	(0.029)	(.)	(0.024)	(0.029)	(.)
Panel H. Real stakes on lethal						
Real Stakes Lethal Index	0.000	0.005	.	0.022	0.031	.
	(0.010)	(0.012)	(.)	(0.010)	(0.012)	(.)

Notes: This table presents the results of Equation 3. Owners of both types (interested and uninterested). Each treatment group is reported under three cases: Main: Results based on responses from all participants of the main survey. Main (FU only): Results based on main survey data using responses from participants who took the follow-up survey. Follow-up: Results based on responses from the follow-up survey. Coefficients represent the estimated effects of the respective treatments on the specified outcomes. The following variables are normalized: Opposition to Carry in Schools, Support for Restrictions on High-Capacity LF, Willing to purchase another LFA, and Willing to participate in a gun buyback program. Positive Willingness to Pay for Byrna and Positive Willingness to Pay for a Safe are binary variables. Robust standard errors are reported in parentheses.

Table 6: Effect of the NLFA Information and Endorsement Treatments on Open-ended Answers about NLFAs

	NLFA Information			NLFA Information + Endorsement		
	Main (all)	Main (FU only)	Follow-up (all)	Main (all)	Main (FU only)	Follow-up (all)
Because it is easier to access and require no permits	0.012	0.012	-0.005	0.019	0.020	-0.002
	(0.005)	(0.007)	(0.005)	(0.006)	(0.008)	(0.006)
Would consider but need to learn more	0.008	0.009	-0.007	0.009	0.013	-0.000
	(0.007)	(0.007)	(0.006)	(0.007)	(0.008)	(0.007)
Would consider but need more evidence on reliability	0.016	0.023	-0.001	0.021	0.018	-0.007
	(0.011)	(0.012)	(0.011)	(0.011)	(0.012)	(0.011)
Because it reduces mental toll of having/using lethal firearms	0.017	0.028	0.006	0.019	0.020	0.003
	(0.012)	(0.015)	(0.015)	(0.012)	(0.014)	(0.015)
Because it is suited for certain threats, though not all	0.020	0.014	0.034	0.072	0.068	0.051
	(0.018)	(0.022)	(0.022)	(0.020)	(0.023)	(0.023)
Because it is good for self-defense	0.054	0.020	-0.024	0.032	0.014	0.012
	(0.023)	(0.028)	(0.027)	(0.022)	(0.028)	(0.028)
Because NLFAs are unreliable	-0.009	0.003	-0.002	-0.014	-0.014	-0.002
	(0.009)	(0.012)	(0.009)	(0.009)	(0.009)	(0.009)
Because I still need LFAs for hunting and recreation	-0.017	-0.012	0.013	-0.014	-0.011	-0.012
	(0.009)	(0.011)	(0.012)	(0.009)	(0.011)	(0.010)
Because NLFAs could escalate dangerous situations	0.005	0.015	-0.010	-0.010	-0.013	-0.003
	(0.009)	(0.012)	(0.012)	(0.009)	(0.010)	(0.013)
Because I am unsure about NLFAs' effectiveness	-0.017	-0.028	0.002	-0.027	-0.024	0.007
	(0.010)	(0.012)	(0.011)	(0.010)	(0.013)	(0.012)
Because I prioritize safety and do not want to take risks	-0.016	-0.002	-0.015	-0.002	0.021	-0.016
	(0.013)	(0.015)	(0.017)	(0.014)	(0.016)	(0.017)
Because they are ineffective in high-stakes situations	-0.070	-0.081	-0.006	-0.094	-0.091	-0.030
	(0.024)	(0.029)	(0.030)	(0.024)	(0.029)	(0.030)

Notes: This table presents the results of Equations 3 and 2, analyzing responses to the open-ended question about why respondents would or would not consider Byrna as a replacement. The outcome variable is a binary indicator equal to 1 if the LFAO's open-ended response includes the corresponding reason and 0 otherwise. Each row reports the estimated treatment effect of the NLFA information treatment and NLFA information treatment + Endorsement, with results presented under three cases: Main: Results based on responses from all participants of the main survey. Main (FU only): Results based on main survey data using responses from participants who took the follow-up survey. Follow-up: Results based on responses from the follow-up survey.

6 Conclusion

Personal ownership of firearms that have the capacity to kill others is a hotly-debated political issue. It can even be difficult for a person who would never consider personal ownership to understand the motivations and views of a person that owns several such weapons and vice-versa. In this project, we've endeavored to delve deeper into the rationales members of each group have for their choices. The descriptive findings pointed to a simple but nevertheless suprising finding: safety is at the core of the majority of these ownership decisions.

After establishing this key result, the question becomes how does an individual *produce* safety for himself and his family? Our framework describes a universal pursuit of safety with a derived demand for firearms. Differences across people in the perceived benefits and harms from ownership are therefore important for understanding consumer behavior. Our experimental findings, which randomize lethal firearm owners to information on the personal costs of ownership or to information on non-lethal firearm alternatives, suggest that at least part of the well-documented divide across Americans is related to differences in weighing the safety benefits and costs of lethal firearms. Moreover, the causal effects of information provided via a trusted conservative messenger on non-lethal firearm alternatives suggest an openness to options that shoot but don't kill.

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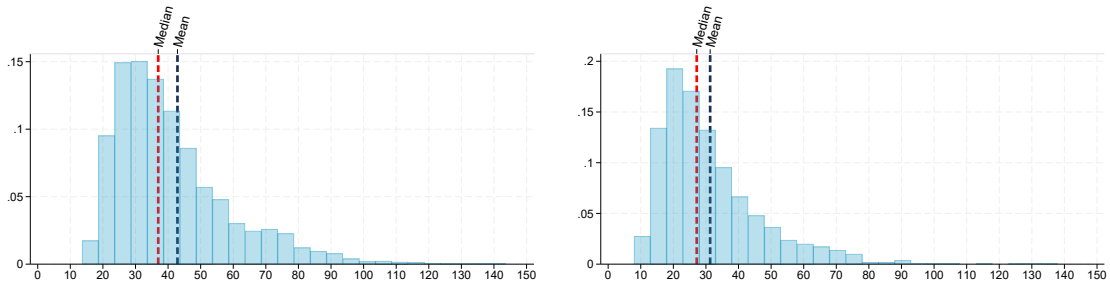
Online Appendix

A-1 Survey and Sample Information

Figure A-1: Survey Duration in Minutes

(a) Survey Duration for Lethal firearm owners

(b) Survey Duration for Non-owners



Notes: Panel A displays the distribution of survey completion times among Lethal firearm owners. The x-axis represents the survey duration in minutes, while the y-axis indicates the fraction of Lethal firearm owners who completed the main survey within each time interval. The figure includes vertical dashed lines marking the mean (red) and median (blue) survey durations. Panel B presents the distribution of survey completion times for Non-owners. The x-axis represents the survey duration in minutes, and the y-axis shows the fraction of Non-owners who completed the main survey within each interval. As in Panel A, the mean and median survey durations are highlighted with red and blue dashed lines, respectively.

Table A-1: Survey Participants Attrition (I)

	Lethal firearm owners	Non-owners	Total
Participants Who Started	3,448	2,701	6,313
Don't agree to take firearm survey	3.51%	13.99%	9.71%
Attention Check	5.34%	6.37%	5.64%
Drop out voluntarily			
Before Treatment	1.83%	1.33%	2.36%
After Treatment	0.55%	0.26%	0.41%
Total Completion	88.78%	78.05%	81.88%

Notes: This table presents participant completion rates for Lethal firearm owners and Non-owners throughout the survey process. It details the number of participants who started the survey and the different reasons for exclusion or dropout at various stages. Don't agree to take firearm survey : Participants who did not provide consent at a later stage, where they are informed of the survey topic. Attention Check: Participants removed due to failing the attention check. Drop out voluntarily: Before Treatment: Participants who left the survey voluntarily before receiving any treatment. After Treatment: Participants who dropped out voluntarily after being randomly assigned to a treatment arm. Total Completion: The percentage of participants who fully completed the survey after passing all checks. The difference of 164 observations between the total number of participants who started the survey and the sum of Lethal firearm owners and Non-owners is due to individuals who dropped out before answering any of the questions used to determine gun ownership status.

Table A-2: Survey Participants Attrition (II)

	Don't consent	Attention Check	Drop out voluntarily		Completes
			Before treat.	After treat.	
	(1)	(2)	(3)	(4)	(5)
Lethal firearm owner	-0.107***	-0.007	0.008*	0.003*	0.103***
	(0.009)	(0.007)	(0.004)	(0.002)	(0.011)
Male	0.027***	-0.001	-0.007*	0.001	-0.021*
	(0.007)	(0.006)	(0.004)	(0.002)	(0.010)
White	-0.041***	0.009	-0.004	-0.007**	0.043***
	(0.010)	(0.007)	(0.004)	(0.003)	(0.012)
Age 30-49	-0.003	-0.027**	-0.004	0.002	0.031*
	(0.010)	(0.009)	(0.005)	(0.002)	(0.014)
Age 50-64	-0.020*	-0.039***	-0.005	0.003	0.060***
	(0.010)	(0.009)	(0.005)	(0.002)	(0.014)
Income 40,000 - 100,000	0.019*	-0.016	-0.004	0.001	0.000
	(0.009)	(0.009)	(0.005)	(0.002)	(0.013)
Income 100,000+	0.041***	-0.019*	-0.003	-0.000	-0.018
	(0.010)	(0.009)	(0.005)	(0.002)	(0.013)
East/Northeast	0.037**	-0.006	0.004	0.004	-0.038*
	(0.013)	(0.009)	(0.005)	(0.003)	(0.016)
South	-0.007	-0.003	-0.003	0.003	0.011
	(0.009)	(0.008)	(0.004)	(0.002)	(0.012)
West	-0.029**	-0.001	0.000	0.000	0.029*
	(0.010)	(0.010)	(0.005)	(0.002)	(0.014)
Democrat	-0.017	-0.013	-0.007	-0.003	0.040***
	(0.010)	(0.007)	(0.004)	(0.002)	(0.012)
Independent	-0.047***	0.003	-0.004	-0.003	0.051***
	(0.008)	(0.007)	(0.004)	(0.002)	(0.011)
Observations	6149	6149	6149	6149	6149

Notes: This table presents the results of a regression model analyzing the relationship between individual characteristics and survey drop out at different stages. The dependent variables include: Don't Consent (Column 1): Participants who did not provide consent at a later stage, where they are informed of the survey topic. Attention Check (Column 2): Indicator for participants who failed the attention check. Dropped out voluntarily before treatment (Column 3): Indicator for participants who dropped out before reaching the treatment stage. Dropped out voluntarily after treatment (Column 4): Indicator for participants who dropped out after being randomly assigned to a treatment. Completed Survey (Column 5): Indicator for participants who successfully completed the entire survey. Each column reports the coefficient estimates from separate regressions, where the dependent variable corresponds to each drop out stage, and the independent variables include demographic and socioeconomic characteristics, with the following baseline categories: Race/Ethnicity: Non-white (baseline), White. Gender: Female (baseline), Male. Age Group: 18-29 (baseline), 30-49, 50-64. Household Income: Below $40,000 (baseline), $40,000–$100,000, Over $100,000. Region: Midwest (baseline), East/Northeast, South, West. Political Affiliation: Republican (baseline), Democrat, Independent. Personal Gun Ownership Status: Non-owner (baseline), Lethal firearm owner. Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A-3: Follow-up Survey Participants Attrition

	Follow-up Complete
	(1)
Personal Cost Non-Owners	0.019
	(0.016)
Personal Cost Lethal firearm owners	-0.044*
	(0.019)
NLFA Information	-0.021
	(0.019)
NLFA Information + Endorsement	-0.025
	(0.019)
Male	-0.170***
	(0.012)
White	-0.061***
	(0.015)
Age 30-49	0.057***
	(0.017)
Age 50-64	0.179***
	(0.017)
Income 40,000 - 100,000	-0.000
	(0.016)
Income 100,000+	-0.035*
	(0.016)
East/Northeast	0.113***
	(0.018)
South	-0.024
	(0.016)
West	-0.019
	(0.019)
Democrat	0.014
	(0.015)
Independent	0.030*
	(0.014)
Observations	5169

Notes: This table presents the results of a regression model analyzing the relationship between individual characteristics and follow-up survey completion. The dependent variable is an indicator for participants who completed the follow-up survey. The independent variables include demographic, socioeconomic and experimental characteristics, with the following baseline categories: Race/Ethnicity: Non-white (baseline), White. Gender: Female (baseline), Male. Age Group: 18-29 (baseline), 30-49, 50-64. Household Income: Below $40,000 (baseline), $40,000–$100,000, Over $100,000. Region: Midwest (baseline), East/Northeast, South, West. Political Affiliation: Republican (baseline), Democrat, Independent. The model also controls for the experimental group assigned in the main survey. Robust standard errors are reported in parentheses. * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table A-4: Balance Table LFAOs

	Mean	Cost info	Byrna info	Endorsement	p-values		
	(1)	(2)	(3)	(4)	(2)-(3)	(2)-(4)	(3)-(4)
Male	0.679	0.010	0.002	-0.012	0.715	0.360	0.579
		(0.024)	(0.024)	(0.024)			
Female	0.317	-0.013	-0.002	0.010	0.630	0.330	0.619
		(0.024)	(0.024)	(0.024)			
White	0.862	-0.020	-0.014	-0.023	0.744	0.871	0.624
		(0.018)	(0.018)	(0.018)			
Non-white	0.138	0.020	0.014	0.023	0.744	0.871	0.624
		(0.018)	(0.018)	(0.018)			
Age 18-29	0.142	0.008	0.003	0.010	0.746	0.926	0.676
		(0.018)	(0.018)	(0.018)			
Age 30-49	0.510	-0.010	-0.010	-0.020	0.979	0.719	0.698
		(0.026)	(0.025)	(0.026)			
Age 50-64	0.349	0.002	0.007	0.009	0.831	0.759	0.924
		(0.024)	(0.024)	(0.024)			
Income 0-40,000	0.139	0.026	-0.018	-0.014	0.015	0.030	0.795
		(0.018)	(0.017)	(0.017)			
Income 40,000 - 100,000	0.420	0.029	0.030	0.023	0.985	0.792	0.777
		(0.025)	(0.025)	(0.025)			
Income 100,000+	0.441	-0.055	-0.012	-0.009	0.086	0.069	0.911
		(0.025)	(0.025)	(0.025)			
Midwest	0.251	-0.013	-0.033	-0.012	0.335	0.977	0.321
		(0.022)	(0.022)	(0.022)			
East/Northeast	0.113	0.023	0.003	0.007	0.244	0.367	0.798
		(0.017)	(0.016)	(0.016)			
South	0.456	0.003	0.027	-0.010	0.358	0.603	0.149
		(0.026)	(0.025)	(0.025)			
West	0.179	-0.013	0.004	0.015	0.381	0.154	0.576
		(0.019)	(0.020)	(0.020)			
Republican	0.479	-0.038	-0.039	-0.045	0.981	0.791	0.809
		(0.025)	(0.025)	(0.025)			
Democrat	0.192	0.014	0.014	0.010	0.974	0.819	0.843
		(0.020)	(0.020)	(0.020)			
Independent	0.294	0.030	0.017	0.048	0.569	0.457	0.188
		(0.024)	(0.023)	(0.024)			
Number of firearms	3.157	-0.055	0.041	0.083	0.185	0.059	0.575
		(0.070)	(0.072)	(0.073)			
Have safe/cabinet	0.744	-0.034	-0.048	-0.027	0.541	0.758	0.357
		(0.023)	(0.023)	(0.023)			

Notes: This table presents a balance check across demographic characteristics for Lethal firearm owners, comparing the control and treatment groups (Cost information, Byrna information, and Endorsement information). The demographic variables include: Gender: Male, Female. Race: White, Non-white. Age groups: 18-29, 30-49, 50-64. Income levels: Under $40,000, $40,000–$100,000, Over $100,000. Regions: Midwest, East/Northeast, South, West. Political affiliation: Republican, Democrat, Independent. Additionally, firearm-related characteristics include: Number of firearms owned, and Ownership of a gun safe or cabinet. Column (1) reports the mean values for each characteristic within the LFAO control group, while Columns (2) - (4) display the coefficients from regressions of each characteristic on the treatment indicators. The final three Columns present p-values for pairwise comparisons between treatment groups: Cost information vs. Byrna information, Cost information vs. Endorsement information, and Byrna information vs. Endorsement information. Robust standard errors are reported in parentheses below the coefficients.

Table A-5: Balance Table Non-Owners

	Mean (1)	Coefficient (2)	SE (3)
Male	0.450	0.034	(0.022)
Female	0.532	-0.035	(0.022)
White	0.671	0.015	(0.020)
Non-white	0.329	-0.015	(0.020)
Age 18-29	0.273	-0.004	(0.019)
Age 30-49	0.384	-0.007	(0.021)
Age 50-64	0.343	0.011	(0.021)
Income 0-40,000	0.333	-0.006	(0.020)
Income 40,000 - 100,000	0.329	0.028	(0.021)
Income 100,000+	0.337	-0.021	(0.020)
Midwest	0.193	0.023	(0.018)
East/Northeast	0.229	-0.015	(0.018)
South	0.346	0.020	(0.021)
West	0.232	-0.028	(0.018)
Republican	0.217	-0.023	(0.018)
Democrat	0.353	0.014	(0.021)
Independent	0.364	-0.000	(0.021)

Notes: This table presents a balance check across demographic characteristics for non-owners, comparing the control (baseline) and the treatment group (Cost information). Demographic and regional variables include: Gender: Male, Female. Race: White, Non-white. Age groups: 18-29, 30-49, 50-64. Income levels: Under $40,000, $40,000–$100,000, Over $100,000. Regions: Midwest, East/Northeast, South, West. Political affiliation: Republican, Democrat, Independent. Column (1) reports the mean values for each characteristic within the non-owners control group, while Column (2) displays the coefficient from regressions of each characteristic on the cost treatment indicator. Robust standard errors are reported in parentheses in Column (3).

A-2 Data Quality

Table A-6: Do you feel that this survey was biased?

	Control group	Cost info	Byrna info	Endorsement info
Not biased	73%	69%	77%	78%
Left-wing biased	25%	29%	21%	18%
Right-wing biased	2%	2%	2%	4%
Observations	769	759	776	757

Notes: This table presents respondents' perceptions of the survey's political bias. Each column reports the percentage of participants with the treatment branch who viewed the survey as left-biased, right-biased, or not biased.

A-3 Additional Results

Table A-7: Can you think of any reason or situation for you to start owning a gun? Please list them here.

Topic	Description	Share
If concerned about self-defense and crime	This topic encompasses the desire for personal protection against potential threats, such as home invasions and violent crime, particularly in response to local crime rates and personal safety concerns (e.g., "Relocation to a high crime area" and "If threats in my area became more likely").	60.2%
To prepare for emergencies and societal collapse	This topic captures the belief that gun ownership may be necessary for preparing for extreme situations, such as significant increases in crime, societal breakdown, or civil unrest that threaten personal safety or survival (e.g., "If total societal collapse happens then it could be necessary to have one, though I would be at too much of a disadvantage against local militias for it to matter much." and "America is a house divided. It is only time before civil war comes again")	15.5%
No reason to own guns	This topic reflects strong opposition to gun ownership, with some individuals expressing a belief in resolving conflicts without firearms and stating they see no reason to own a gun (e.g., "none" and "I don't think there would ever be a reason that I would have any desire to own a gun. I think a large number of people are too 'gun happy'. I am 52 years old and have never wanted to own a gun.")	11.4%
If had gun-related recreational activities	This topic captures the motivations for gun ownership related to recreational activities, such as target shooting or hunting, reflecting a desire for enjoyment rather than self-defense (e.g., "Learning marksmanship" and "If I lived in a rural area or got into hunting")	5.5%
If concerned about wildlife	This topic addresses specific concerns about wildlife threats that may influence an individual's desire for gun ownership, particularly in rural or semi-rural settings (e.g., "My biggest concern is when I move I worry about coyotes on my property." and "If I lived in a very secluded place, perhaps to protect myself from wild animals.")	2.1%
Have mixed feelings about gun ownership	This topic captures the mixed feelings individuals may have about gun ownership, reflecting uncertainty and the influence of changing circumstances on their views (e.g., "I do think with the instability of the world, currently, having a method of self-defense might become increasingly important. However, I have zero experience with guns and it would be a big expense and commitment to get up to speed." and "I hope to never need a reason to own one, I'd rather have one just to be on the safe side. I'd need to learn more about them and practice with them before I'd be comfortable with having one in my house.")	2.1%
If needed for my work	This topic emphasizes the consideration of gun ownership as a requirement for certain careers or professions that necessitate having a firearm, reflecting practical motivations for ownership (e.g., "The only reason I would ever own a gun would be if I were to change careers to something that required me to have a firearm." and "if i maybe took a job as a security guard or i am receiving threats from people")	0.7%
If gun ownership were to rise	This topic includes responses suggesting that the respondents would consider having a gun if people around them start to own a gun (e.g., "If I move to a state where there are less restrictions , and gun ownership is more common , i would consider owning one.")	0.0%
Uncategorized	This topic refers to responses which do not belong to any of the other categories	2.4%

Notes: The table above presents the topic analysis of responses from non-owners to the question: "Can you think of any reason or situation for you to start owning a gun? Please list them here." We used ChatGPT to identify key themes within the responses and systematically classify them. The table summarizes the extracted topics, provides a brief description of each, and reports the proportion of responses associated with each category.

Table A-8: What specific factors, if any, would prompt you to consider no longer owning guns?

Topic	Description	Share
Do not see any reason to give up guns	This topic reflects the strong conviction among some individuals that nothing would convince them to give up their firearms but did not specify exactly why they want to keep their weapons (e.g., "nothing" and "I can not think of a reason to not own a gun")	39.3%
If there are safety and storage concerns at home	This topic includes responses from individuals who would consider giving up their guns due to safety and storage concerns, particularly in households with children or individuals with mental health issues (e.g., "If it made anyone I love feel unsafe, if I experienced mental health decline, if the government intervened and limited gun ownership" and "Kids getting a hold of it")	15.6%
If there are legal restrictions	This topic includes responses from individuals who would consider giving up their guns due to legal restrictions, including those who indicate they would comply only if required by law. (e.g., "A law banning me from owning one." and "I guess the only thing would be if it became against the law.")	11.6%
If there are lower crime rates	This topic reflects how perceptions of safety and crime rates can influence decisions about gun ownership, including the belief that personal security needs justify ownership (e.g., "I lived in a very safe area." and "No crime.")	10.7%
Would want to keep a gun for protection	This topic focuses on the belief in the necessity of firearms for self-defense and the conviction that ownership is essential for personal safety (e.g., "nothing, i would always like to protect myself and my family" and "Nothing would stop me from owning a gun, not now a days where everything is getting worse. More and more violence is happening.")	5.4%
If there are financial constraints or major life changes	This topic addresses how respondents could give up their guns due to changes in living situations, such as living abroad, as well as personal circumstances like financial constraints (e.g., "moving overseas" and "The inability to afford them")	4.8%
If physically or mentally unable to handle a gun	This topic includes responses from people who cited physical and mental limitations, including loss in vision, old age and dementia, could encourage respondents to give up gun ownership (e.g., "If I went blind or started suffering from mental decline or disorder." and "If I were physically or mentally incapable of using one safely.")	3.3%
Already willing to give up guns	This topic reflects a willingness to dispose of firearms if incentivized, including the possibility of selling firearms for a fair price (e.g., "If I could easily sell them." and "I am not attached to my guns. If I can sell them legally at a decent price, I probably would")	1.6%
If I stopped hunting or participating in gun-related recreation	This topic reflects how they might give up their weapons if they stopped hunting or no longer partake in gun-related recreational activities (e.g., "if hunting was banned" and "Just not going target shooting anymore. I'm not a hunter and I live in a safe neighborhood so if target shooting was no more then there would be no need for me to have a gun.")	1.1%
If pest control or protection against animals is not needed	This topic addresses willingness to not own guns if there is no need for it, in terms of pest control or protection against natural predators (e.g., "Moving to a safe urban area with no natural pests requiring a firearm" and "if all animal pests were eliminated from the woods")	0.7%
If people around me were not comfortable with guns	This topic addresses how personal relationships, such as a partner's discomfort with guns, can influence an individual's perspective on gun ownership and their decisions regarding firearms (e.g., "Threat of loss of relationship if I continue ownership." and "someone close have a really bad interaction")	0.5%
Uncategorized	These are responses which do not belong to any of the other categories	5.5%

Notes: The table above presents the topic analysis of responses from LFAOs to the question: "What specific factors, if any, would prompt you to consider no longer owning guns?" We used ChatGPT to identify key themes within the responses and systematically classify them. The table summarizes the extracted topics, provides a brief description of each, and reports the proportion of responses associated with each category.

Table A-9: In one or two words, how would you feel if your gun was taken away?

Topic	Description	Share
Feel angry and frustrated	This topic includes responses among respondents that expressed anger, with many feeling enraged, upset, or frustrated about the possibility of their gun being taken away (e.g., "Angry" and "enraged")	30.1%
Feel insecure and vulnerable	This topic contains responses that indicate feelings of insecurity and vulnerability without a gun, with individuals expressing concerns about their safety and the potential dangers they might face (e.g., "at risk" and "Nervous")	27.3%
Feel that rights are violated	This topic contains responses among respondents who were angry and frustrated over the perceived infringement of their rights to own a firearm, viewing the removal of their gun as a violation of their personal liberties (e.g., "Violated" and "Like my rights of a US citizen was violated.")	21.0%
Feel emotionally distressed	This topic contains responses from individuals who mentioned feelings of sadness, disappointment, and loneliness, indicating that the loss of their gun would have a profound emotional impact on them (e.g., "alone, sad" and "If my gun was taken away i would be extremely upset.")	9.6%
Feel indifferent	This topic contains responses from individuals who expressed indifference or a willingness to accept the situation, suggesting that while they may be upset, they believe they could adapt or find alternative means of protection (e.g., "Meh" and "indifferent")	7.3%
Feel defenseless	This topic contains responses from individuals who expressed a desire for personal protection, with individuals feeling that without their gun, they would be defenseless or at risk, emphasizing the role of firearms in their sense of security (e.g., "Less protected" and "I would feel that a part of my security measure was taken away")	2.5%
Feel confused and uncertain	This topic contains responses from individuals who expressed confusion or uncertainty about the implications of gun removal, indicating a lack of clarity regarding the situation (e.g., "COnfused and disappointed" and "Confused")	1.3%
Feel ambivalent	This topic contains responses from individuals who expressed ambivalence towards gun ownership, indicating that while they may not be passionate about owning a gun, they appreciate its role in personal protection. This includes feelings of nervousness about having a gun but recognizing its importance for safety (e.g., "Ambivalent" and "I wouldn't like it if it were taken by force, but if the country actually changed and guns were discouraged, it wouldn't bother me to be rid of them")	0.4%
Uncategorized	These are responses which do not belong to any of the other categories	0.5%

Notes: The table above presents the topic analysis of responses from non-owners to the question: "In one or two words, how would you feel if your gun was taken away?" We used ChatGPT to identify key themes within the responses and systematically classify them. The table summarizes the extracted topics, provides a brief description of each, and reports the proportion of responses associated with each category.

Figure A-2: Reasons for Owning a Gun by Personal Characteristics

(a) Gender

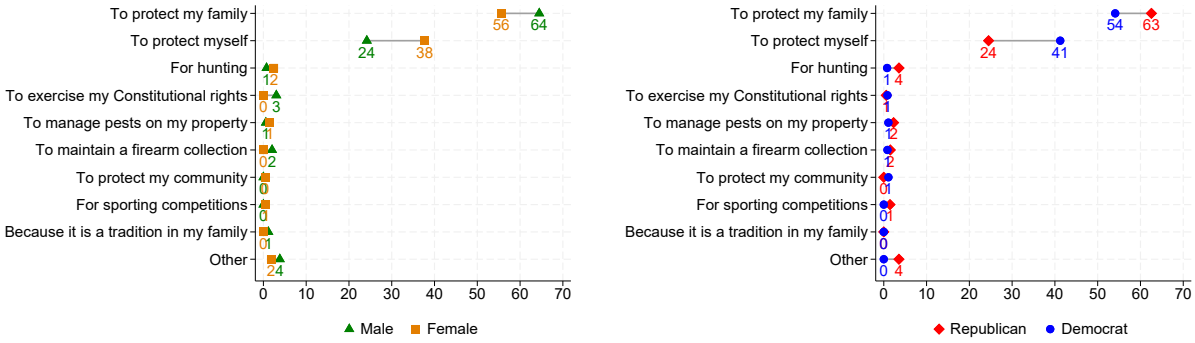
(b) Political Affiliation

Notes: This figure displays the share of LFAO who rated each reason as the most important for why they might want to own a lethal firearm. Panel A illustrates these shares for men and women. Panel B shows these shares for Democrats and Republicans.

Figure A-3: Reasons for Acquiring a Gun by Personal Characteristics

(a) Gender

(b) Political Affiliation



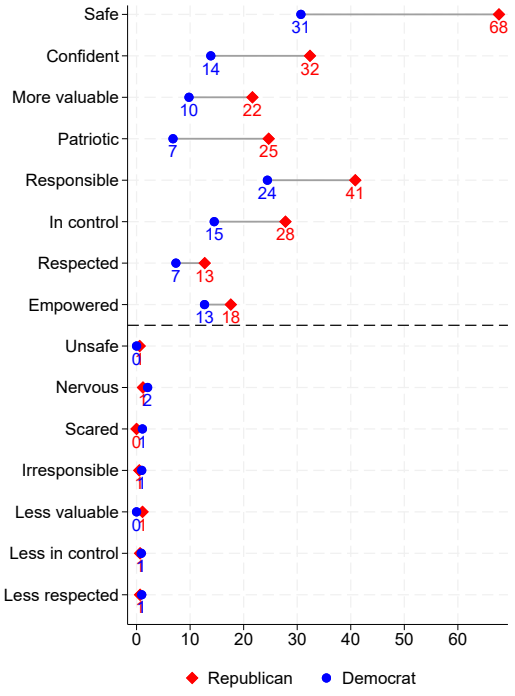
Notes: This figure displays the share of non-owners who rated each reason as the most important for why they might want to own a lethal firearm. Panel A illustrates these shares for men and women. Panel B shows these shares for Democrats and Republicans.

Figure A-4: How Does Owning a Gun Make You Feel? By Personal Characteristics

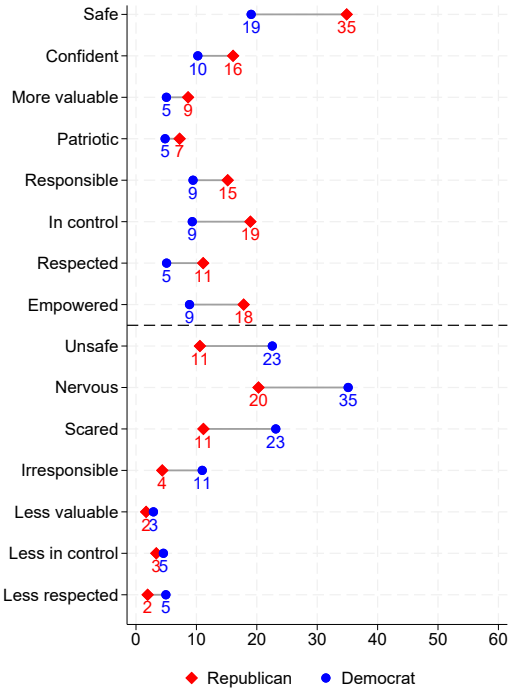
(a) By Gender - LFAOs

(b) By Gender - Non-Owners

(c) By Political Affiliation - LFAOs



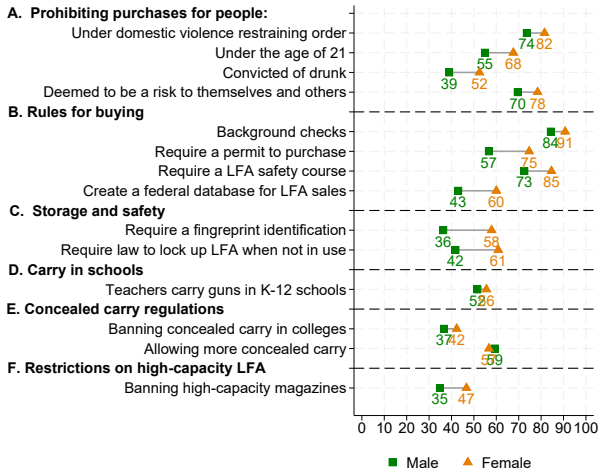
(d) Political Affiliation - Non-Owners



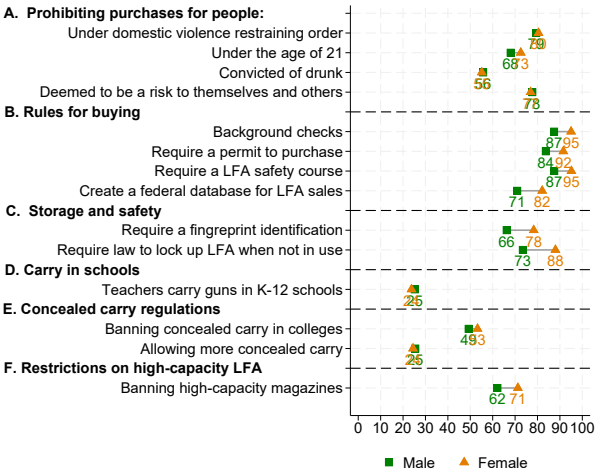
Notes: The figure illustrates respondents' attitudes toward owning or potentially owning a lethal firearm, by respondents' personal characteristics. The survey question asked: "To what extent does/would owning a gun make you feel:" with response options: No extent, Some extent, A moderate extent, and A great extent. The figure presents the share of respondents who answered "A great extent." Panel A illustrates these shares for men and women among LFAO. Panel B illustrates these shares for men and women among non-owners. Panel C shows these shares for Democrats and Republicans among LFAO. Panel C shows these shares for Democrats and Republicans among non-owners.

Figure A-5: Share of Respondents Who Support Specific Policies on Lethal Firearms by Personal Characteristics

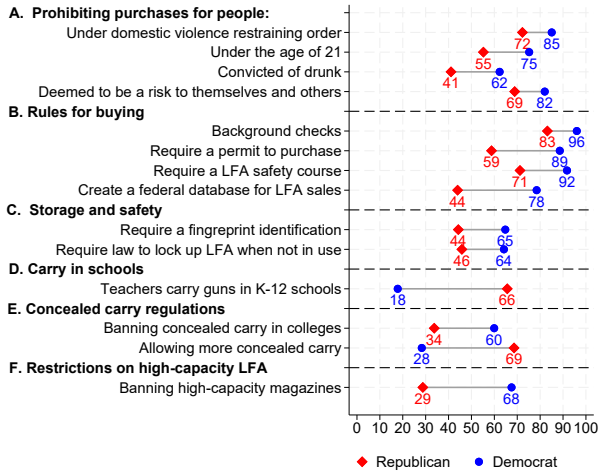
(a) Gender - LFAOs



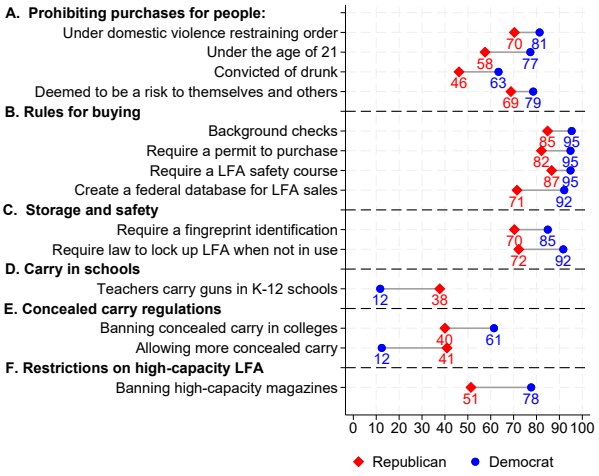
(b) Gender - Non-Owners



(c) Political Affiliation - LFAOs



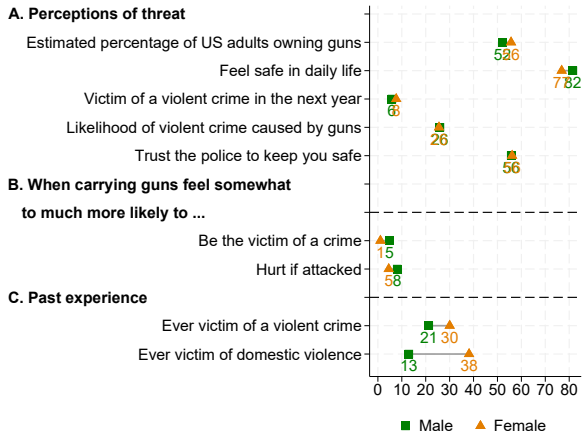
(d) Political Affiliation - Non-Owners



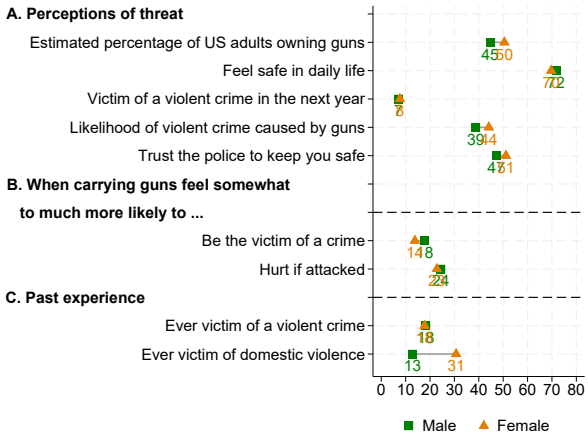
Notes: This figure illustrates respondents' views on policies related to lethal firearms, by firearm ownership status. Support for each policy was measured on a 5-point scale ranging from 1 ("Strongly oppose") to 5 ("Strongly support"). The figure displays the share of respondents who expressed "Somewhat support" and "Strongly support" to each policy. Panel A shows these shares for male and female LFAOs. Panel B shows these shares for male and female non-owners. Panel C shows these shares for Republican and Democrat LFAO. Panel D shows these shares for Republican and Democrat non-owners.

Figure A-6: Safety Concerns by Personal Characteristics

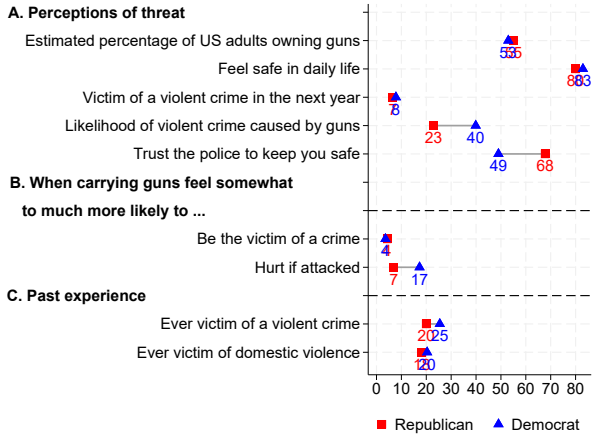
(a) Gender - LFAOs



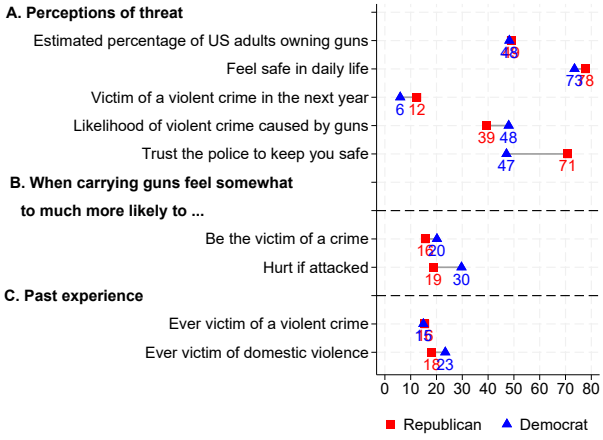
(b) Gender - Non-Owners



(c) Political Affiliation - LFAOs

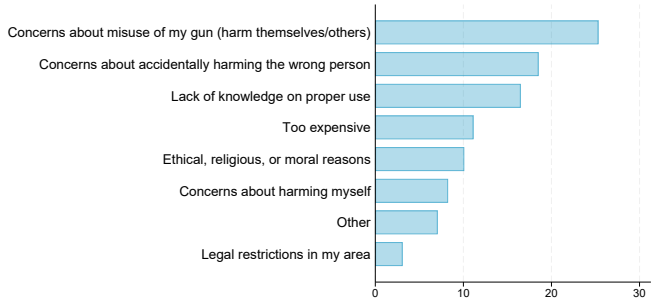


(d) Political Affiliation - Non-Owners



Notes: This figure shows the share of respondents who hold specific beliefs/perceptions or have past experiences related to the items listed in the rows, by respondents' personal characteristics. Panel A illustrates these shares for men and women among LFAO. Panel B illustrates these shares for men and women among non-owners. Panel C shows these shares for Democrats and Republicans among LFAO. Panel C shows these shares for Democrats and Republicans among non-owners. *Estimated percentage of U.S. adults who own guns* is the average perceived percentage of U.S. adults who own a gun based on respondents' self-reported estimates. *Feel safe in daily life* is an indicator for respondents who feel somewhat safe or very safe in their daily life. *Victim of violent crime in the next year* is an indicator for respondents who believe they are somewhat or very likely to be a victim of violent crime within the next year. *Likelihood of violent crime caused by guns* is an indicator for responders who believe a violent crime they may experience in the next year is somewhat or very likely to be caused by guns. *Trust the police to keep you safe* is an indicator for respondents who somewhat trust or completely trust the policy to keep them safe. *Be the victim of crime* is an indicator for respondents who feel somewhat more likely or much more likely to be attacked or become a victim of crime when carrying a gun, or if they were to carry a gun. *Be hurt if attacked* is an indicator for respondents who feel somewhat more likely or much more likely to be hurt if attacked when carrying a gun, or if they were to carry a gun. *Ever victim of a violent crime* is an indicator for respondents who have ever been a vitim of a violent crime. *Ever victim of domestic violence* is an indicator for respondents who have ever been a vitim of domestic violence.

Figure A-7: Reasons for Not Owning a Lethal Firearm

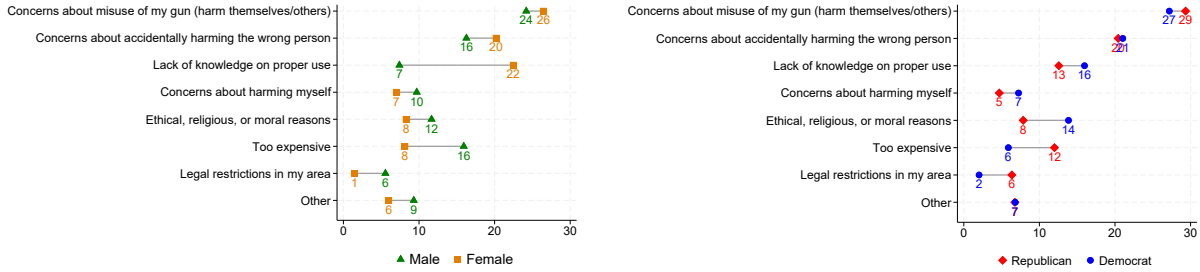


Notes: This figure displays the share of non-owners who rated each reason as the most important for why they do not own a lethal firearm.

Figure A-8: Reasons for Not Owning a Lethal Firearm by Personal Characteristics

(a) Gender

(b) Political Affiliation

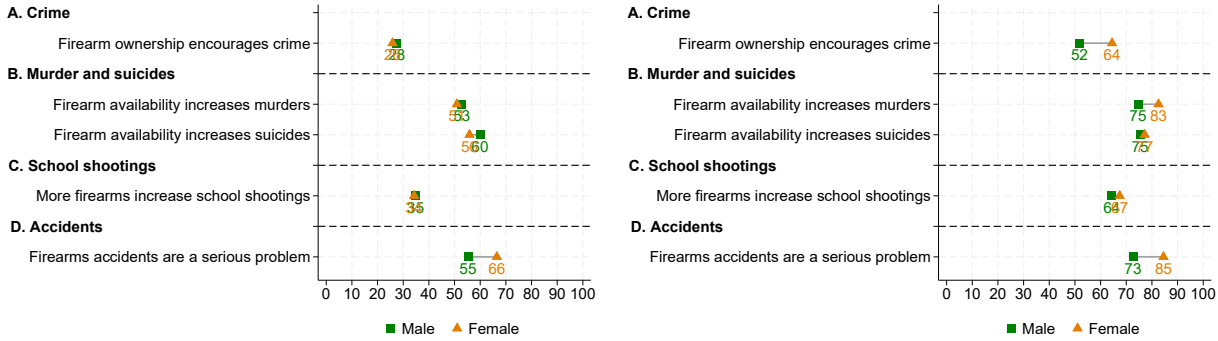


Notes: This figure displays the share of non-owners who rated each reason as the most important for why they do not own a lethal firearm, by personal characteristics. Panel A illustrates these shares for men and women. Panel B shows these shares for Democrats and Republicans.

Figure A-9: Perceived Externalities by Gender

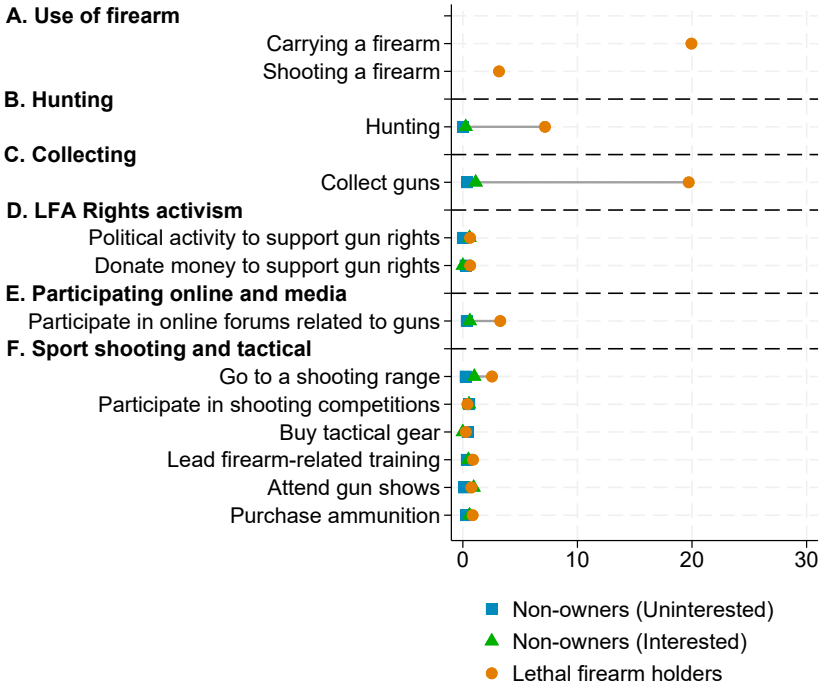
(a) LFAOs

(b) Non-Owners



Notes: This figure displays the share of respondents who hold specific perceptions on the items listed in the rows, by gender and firearm ownership status. Panel A shows these shares for male and female LFAOs. Panel B shows these shares for male and female non-owners. *Firearm ownership encourages crime* is an indicator for respondents who believe that firearm ownership in the U.S. somewhat encourages or encourages a lot crime. *Firearm availability increases murders* is an indicator for respondents who believe that easy access to firearm somewhat increases or increases a lot de number of murders. *Firearm availability increases suicides* is an indicator for respondents who believe that easy access to firearm somewhat increases or increases a lot the number of suicides. *More firearms increase school shootings* is an indicator for respondents who believe that if firearm ownership were to increase, school shootings would somewhat increase or increase a lot. *Firearms accidents are a serious problem* is an indicator for respondents who perceive accidents from owning a gun as a very serious or extremely serious problem.

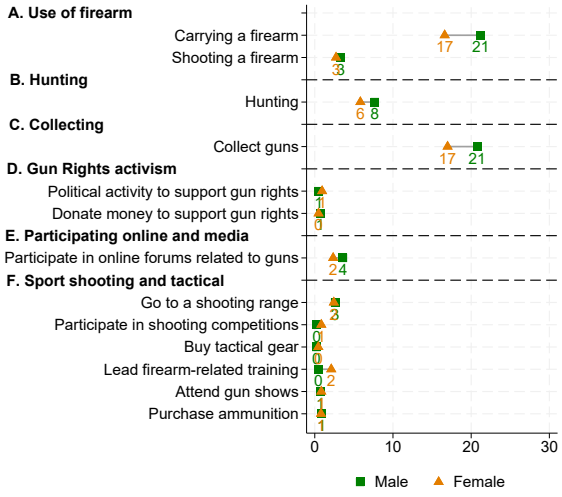
Figure A-10: Gun Behaviors



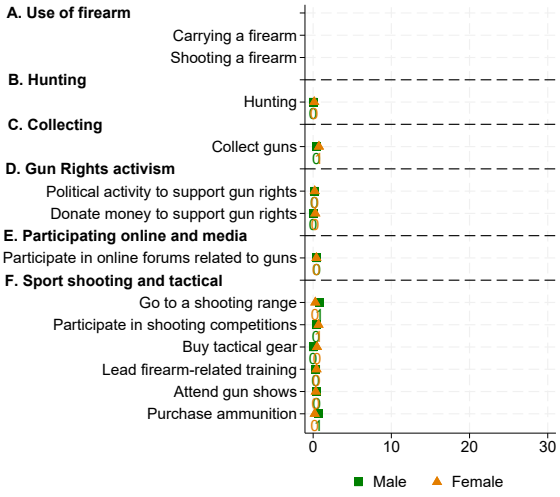
Notes: This figure illustrates the frequency of gun-related behaviors listed in the rows, by firearm ownership status. Sections A, C, and D show the share of individuals who engage in each behavior "about every week or more". Behaviors include activities such as hunting, participating in political activity to support gun rights, donating money to support gun rights, engaging in online forums related to guns, attending shooting ranges, participating in shooting competitions, buying tactical gear, participating in firearm-related training, attending gun shows, and purchasing ammunition. Section B displays the share of respondents who reported collecting guns.

Figure A-11: Gun Behaviors by Personal Characteristics

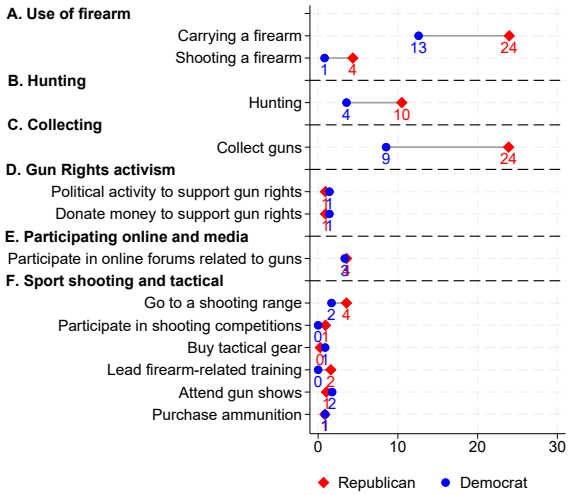
(a) Gender - LFAOs



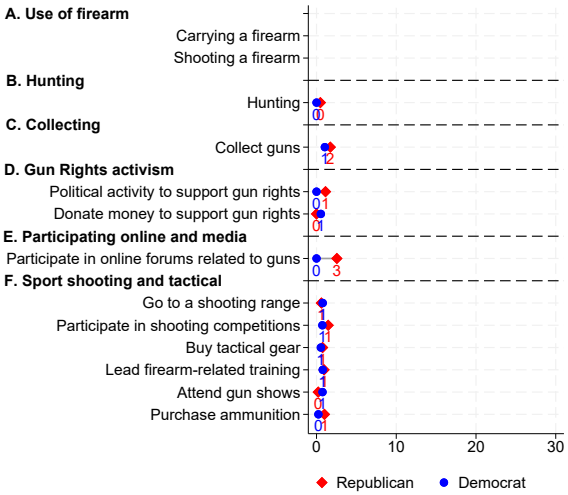
(b) Gender - Non-Owners



(c) Political Affiliation - LFAOs

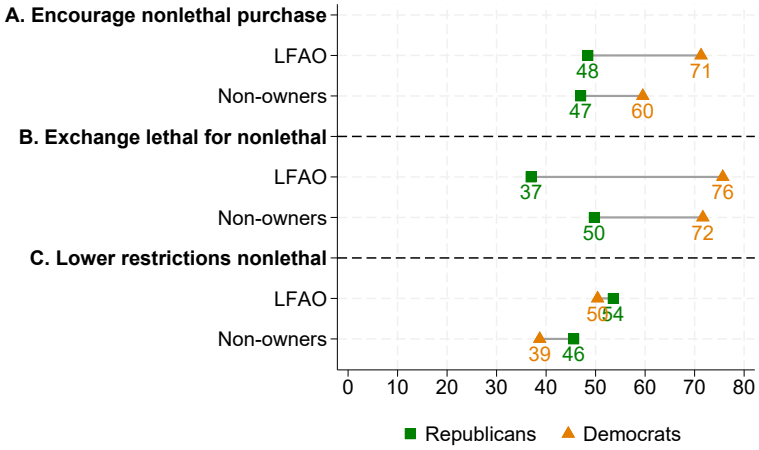


(d) Political Affiliation - Non-Owners



Notes: This figure illustrates the frequency of gun-related behaviors listed in the rows, by firearm ownership status. Sections A, C, and D show the share of individuals who engage in each behavior "about every week or more." Section B displays the share of respondents who reported collecting guns. Panel A shows these shares for male and female LFAO. Panel B shows these shares for male and female non-owners. Panel C shows these shares for Republican and Democrat LFAO. Panel D shows these shares for male and female non-owners.

Figure A-12: Policy Views on Non-Lethal Firearms by Gender



Notes: This figure illustrates respondent's views on policies related to non-lethal firearms, by firearm ownership status and gender. Panel A shows these shares for male and female LFAO. Panel B shows these shares for male and female non-owners. *Encourage nonlethal purchase* is an indicator for respondents who somewhat support or strongly support an information campaign encouraging the purchase of non-lethal firearms instead of lethal firearms. *Exchange lethal for nonlethal* is an indicator for respondents who somewhat support or strongly support a program that would allow LFAOs to exchange their lethal fitrearms for non-lethal firearms. *Lower restrictions nonlethal* is an indicator for respondents who somewhat support or strongly support lower restrictions and fewer regulations on non-lethal firearms compared to lethal firearms.

Table A-10: Why do you consider Byrna a replacement for lethal firearm?

Topic	Description	Share
Because it is good for self-defense	Respondents express the belief that non-lethal firearms like Byrna could enhance safety by reducing fatalities and injuries associated with traditional firearms. Some respondents highlight that the presence of a non-lethal firearm could act as a deterrent, potentially preventing confrontations without resorting to lethal force. Relatedly, some respondents emphasize it could prevent the attacker from dying (e.g., "If you don't want to kill someone, but scare them away, it's a good option." and "They allow self defense without the possibility of ending a life.")	47.7%
Because it is suited for certain threats, though not all	Respondents highlight while it is suitable against certain threats, they explicitly acknowledge that it does not replace lethal firearms in all situations, particularly when facing an armed attacker or determined attackers, as well as in high-risk situations where immediate incapacitation is critical (e.g., "I think it could be a good alternative replacement in situations that a gun serves as a deterrent or assists in helping someone escape a dangerous situation. It does not replace a gun if needed to eliminate the threat entirely or quickly in times of extreme danger, attack harm of myself or others I care about." and "It would be nice if you knew that a non-lethal firearm would give you the protection you needed when you needed it but in that really bad situation it might not do the job.")	26.0%
Because it reduces mental toll of having/using lethal firearms	Respondents are drawn to Byrna as a self-defense tool specifically because it reduces the mental toll of using a lethal weapon while still providing protection. Many appreciate that Byrna offers a way to deter or disable attackers without the mental and emotional burden associated with using a lethal weapon. Some express greater comfort and confidence in using Byrna, knowing that it allows for self-defense without the risk of taking a life (e.g., "lI never want to take someone's life...but if I am in danger I want to be able to protect myself. A non-lethal firearm would give me both of those things." and "I'd be less worried of implications of having to use my gun and killing someone. As long as it will still hurt them and stop them.")	9.8%
Would consider but need more evidence on reliability	Respondents emphasize the importance of additional research and testing to confirm Byrna's effectiveness. Some express skepticism due to Byrna's relatively recent entry into the market, noting that long-term reliability and performance remain uncertain. Concerns include whether existing studies or real-world evidence are sufficient to validate its effectiveness (e.g., "i have not tested it to know how effective it is" and "I would have to learn more to make a fully educated decision.")	7.2%
Would consider but need to learn more	Respondents express an interest in Byrna among individuals but highlighted the need for more training regarding the use of Byrna. These includes those who were already looking non-lethal options (e.g., "I would only use my gun in a life or death situation. That said, I'd much rather have resolution without killing someone. I like the idea of a Byrna but have never seen one in person and do not know a lot about them" and "I honestly didn't know these options existed. I think having something that can provide protection in a non-lethal way is a good option but would need to know more about what they are, how they operate etc.")	2.7%
Because it is easier to access and require no permits	Respondents highlight the practical aspects of owning and using Byrna, including cost, ease of access, and the absence of permit requirements. It reflects the interest of potential users in understanding the financial implications and logistical considerations of choosing a non-lethal firearm for self-defense (e.g., "Because its a self-defense weapon and it is also legal to own and carry in most states without permit" and "Using lethal force has a lot of legal issues!")	0.8%
Uncategorized	These are responses that do not fit into any of the other topics	5.7%

Notes: This table above displays the topic analysis of responses from LFAOs to the follow-up open-ended question: "Why do you consider non-lethal firearms like Byrna to be a decent/good/complete replacement?" (The exact wording varied based on their response to the previous question.) Participants first answered a closed-ended question on whether they viewed Byrna as a replacement, selecting from five options: "A complete replacement," "A good replacement," "A decent replacement," "Not much of a replacement," and "Not a replacement at all" We then grouped those who selected "A complete replacement," "A good replacement," or "A decent replacement" and analyzed their open-ended explanations.

Table A-11: Why do you not consider Byrna to be a replacement for lethal firearm?

Topic	Description	Share
Because they are ineffective in high-stakes situations	Respondents express concerns that less-than-lethal weapons lack the necessary stopping power to neutralize determined adversaries, as well as in high-risk scenarios such as those involving individuals under the influence of drugs or in a state of aggression. There is a strong preference for lethal force to ensure immediate incapacitation of threats, with many citing examples of lethal firearms' effectiveness in real-life scenarios (e.g., "The Byrna product is very cool and would be very helpful in self defense but not when the other person is armed with a real gun." and "Because a lethal response to murderous intent is probably the only successful response possible. A non-lethal response that doesn't stop the attacker is useless and dangerous.")	56.9%
Because I prioritize safety and do not want to take risks with NLFAs	Respondents emphasize that they would opt for lethal force in dangerous situations to ensure the safety of themselves or their families rather than risk using non-lethal alternatives (e.g., "Im not convinced on how effective they are and I honestly don't care if the person I am protecting myself from dies from lethal force." and "Because there is no guarantee that this weapon will stop an intruder from harming me or my family, I like knowing that my gun can completely eliminate the threat.")	13.6%
Because I am unsure about NLFAs' effectiveness	Many respondents express uncertainty about the effectiveness and reliability of non-lethal weapons, indicating a lack of knowledge that influences their decision-making. This skepticism leads to a preference for lethal firearms, as they are perceived as more reliable and effective (e.g., "I don't know much about them. I would have to see if they could incapacitate someone long enough for law enforcement to arrive. I've seen people on PCP (I was a Psych nurse) and they are out of their minds and difficult for multiple police officers to safely control." and "I think people committing crimes would know and it would be less effective.")	8.5%
Because I still need LFAs for hunting and recreation	Respondents highlight that the need for lethal weapons for hunting and recreational use (e.g., "cannot satisfy my need for target shooting and blastung things around the property" and "It does not fit all situations that I own a fire arm for. I cant hunt with a non lethal firearm.")	6.5%
Because NLFAs are not reliable	Respondents highlight that non-lethal weapons like Byrna are unreliable, specifically citing potential malfunctions (e.g., "they don't always work as intended. if they don't hit properly or if the person is on something they might be able to fight through it and harm you anyway." and "they don't always offer the same level of protection or reliability")	6.1%
Because NLFAs could escalate dangerous situations	Respondents believe that the presence of non-lethal weapon, even if it is not lethal, could escalate situations to a lethal level, highlighting that having a non-lethal might be counterproductive in protecting the individual (e.g., "It could cause someone to fire on you first, if they thought you were going to kill them because they didn't know it was non lethal" and "It's going to piss your attacker off and get you killed")	5.7%
Uncategorized	These are responses that do not fit into any of the other topics	2.8%

Notes: This table above displays the topic analysis of responses from LFAOs to the follow-up open-ended question: "Why do you consider non-lethal firearms like Byrna to be not much of a replacement/not a replacement at all?" (The exact wording varied based on their response to the previous question.) Participants first answered a closed-ended question on whether they viewed Byrna as a replacement, selecting from five options: "A complete replacement," "A good replacement," "A decent replacement," "Not much of a replacement," and "Not a replacement at all" We then grouped those who selected "Not much of a replacement," and "Not a replacement at all" and analyzed their open-ended explanations.

Table A-12: Personal Cost of Lethal Firearm Ownership: Nonlethal Firearms as Replacement (Or Not)

	Lethal firearm owners		
	Main (all)	Main (FU only)	Follow-up (all)
Because it is easier to access and require no permits	0.007	0.006	-0.005
	(0.004)	(0.005)	(0.005)
Would consider but need to learn more	0.011	0.027	0.004
	(0.007)	(0.010)	(0.008)
Would consider but need more evidence on reliability	-0.010	-0.005	-0.010
	(0.009)	(0.009)	(0.011)
Because it reduces mental toll of having/using lethal firearms	0.010	0.011	-0.015
	(0.011)	(0.014)	(0.014)
Because it is suited for certain threats, though not all	0.011	0.004	0.027
	(0.018)	(0.022)	(0.022)
Because it is good for self-defense	-0.003	-0.035	-0.019
	(0.022)	(0.027)	(0.027)
Because NLFAs are unreliable	-0.017	-0.008	-0.001
	(0.009)	(0.010)	(0.017)
Because I still need LFAs for hunting and recreation	-0.010	-0.008	-0.011
	(0.009)	(0.011)	(0.020)
Because NLFAs could escalate dangerous situations	0.005	-0.001	-0.017
	(0.010)	(0.012)	(0.022)
Because I am unsure about NLFAs' effectiveness	0.007	0.013	0.020
	(0.012)	(0.015)	(0.022)
Because I prioritize safety and do not want to take risks	0.017	0.010	0.020
	(0.015)	(0.016)	(0.033)
Because they are ineffective in high-stakes situations	-0.024	-0.022	-0.013
	(0.025)	(0.030)	(0.044)

Notes: This table presents the results of Equations 3 and 2, analyzing responses to the open-ended question about why respondents would or would not consider Byrna as a replacement. The outcome variable is a binary indicator equal to 1 if the LFAO's open-ended response includes the corresponding reason and 0 otherwise. Each row reports the estimated treatment effect of the personal cost of LFA ownership treatment, with results presented under three cases: Main: Results based on responses from all participants of the main survey. Main (FU only): Results based on main survey data using responses from participants who took the follow-up survey. Follow-up: Results based on responses from the follow-up survey.