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Full Length Article

How does gun violence affect Americans' trust in each other?☆,☆☆

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ABSTRACT

This article examines how Americans' actual experience of gun victimization affects their trust in others and how this further connects to the widely-discussed association between gun crime and trust at the place level. Analyzing data from the U.S. General Social Survey (GSS), I find that, regardless when it occurred in life, Americans who were victimized by guns trust much less in others than those who had no such experience. In terms of the size of the effect, repeated gun victimization has the strongest effect, followed by adulthood victimization, and then childhood victimization. I also find that individuals who later achieve higher socioeconomic status are better able to recover from the psychological effect of childhood gun victimization, lending support for the experiential theory of trust that people can update their trust according to changing experiences later in life. Finally, combing the GSS data with data from the U.S. Centers for Disease Control and Prevention (CDC), I also show that higher percentages of nonfatal and fatal gun violence victims lead to lower levels of trust both across and within the U.S. census divisions over time. Findings of this study demonstrate that America's gun violence affects not only just those killed, injured, or present during gunfire, but it can also sabotage the social and psychological well-being of all Americans.

1. Introduction

When people trust in each other, they hold a general belief in the benevolence of human nature (Uslaner, 2002; Yamagishi, 2013). This generalized trust in "a wider circle of unfamiliar others" (Delhey et al., 2011: 786) can explain why some places are more violent than others (e.g., Sampson et al., 1997; Kawachi et al., 1999; Lederman et al., 2002; Roh and Lee, 2013; Moore and Recker, 2016). Indeed, this place level association that lower trust leads to higher rates of violence and crime has been established at various levels ranging from countries, to states, metropolitan areas, counties, and also down to neighborhoods (see also Takagi et al., 2012; Medina, 2015). In fact, scholars in this line of research also agree that a simple unidirectional effect is not sufficient to describe this trust and crime association, suggesting that crime and violence can also in turn lead to lower trust (e.g., Galea et al., 2002; Lederman et al., 2002; Akçomak and Weel, 2012). Putnam (2000: 317), for example, has long pointed out that places with low trust may become trapped in a "vicious circle in which low levels of trust and cohesion lead to higher levels of crime, which lead to even lower levels of trust and

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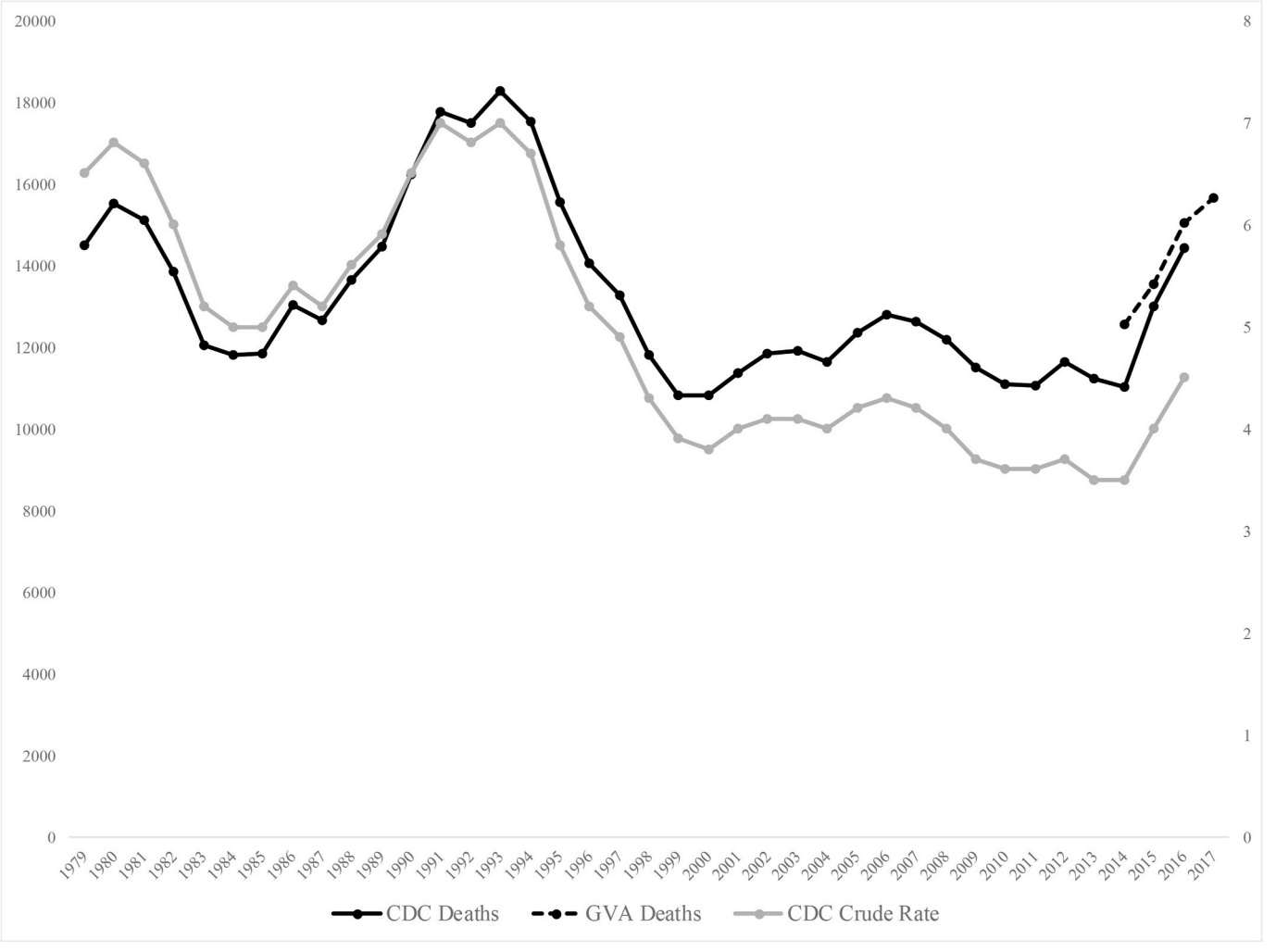

Fig. 1. Number of deaths and crude rate of homicide due to firearms in the U.S., 1979–2017. *Source:* Centers for Disease Control and Prevention, National Center for Health Statistics. Multiple Cause of Death 1999–2018 on CDC WONDER Online Database, released in 2020 (Accessed at http://wonder.cdc.gov/mcd-icd10.html). Gun Violence Archive (GVA: http://www.gunviolencearchive.org/). About 22,000 annual suicides with guns are not included.

cohesion" (see also Rosenfeld et al., 2007).

However, not only has far less attention been dedicated to how crime and violence might affect trust (see also Saegert and Winkel, 2004), conclusions from the limited literature are also mixed (see also Moore and Recker, 2016, 2017). Some argue that higher rates of crime increase people's fear of crime and decrease their willingness to interact and to form ties with others thereby generating lower trust (Leverentz et al., 2018; Ross and Mirowsky, 2009; Sampson, 2011; Sampson et al., 2002). Others suggest that violence and crime can also lead to heightened solidarity and higher trust among members of a community (Collins, 2004; Hawdon and Ryan, 2011; Hawdon et al., 2010, 2012). Further is that scholars have largely focused on trust and crime association at the place level, overlooking the primary basis at the individual level. This is partially because trust is widely conceptualized as a component of social capital and therefore a characteristic of place (see also Sampson et al., 1997; Galea et al., 2002; Kawachi, 2018) and also because sociological and criminological research has a long tradition of focusing on neighborhood context to explain varying rates of crime across places (e.g., Shaw and McKay, 1969; Sampson et al., 1997). However, as trust is essentially an individual-level phenomenon, understanding how violence and crime might directly affect trust will require examining the corresponding processes at the individual level (see also Coleman, 1990).

Gun violence is widespread in the United States. Joining a small but growing body of literature on the social and psychological consequences of gun violence and gun culture (Diener and Kerber, 1979; Stroebe et al., 2017a, 2017b; Conley and Higgins, 2018; Shepherd and Kay, 2018; Buttrick, 2020; see also Finkelhor et al., 2009; Collins and Swoveland, 2013), in this article I consider how Americans' actual experience of gun victimization affects their trust in others and how this individual level association further connects to the widely observed dynamic association between gun crime and trust at the place level (e.g., Kennedy et al., 1998; Kawachi et al., 1999; Rosenfeld et al., 2007). I engage closely with theories of trust and in particular the long-standing debate about whether trust is learned through socialization early in life and learned trust remains stable (Uslaner, 2002, 2008; Dawson, 2017; Wu, 2020), or whether trust is not rigid but open to change, reflecting people's contemporary life experiences (Hardin, 2002; Glanville et al., 2013; Paxton and Glanville, 2016). To address this debate, scholars have considered how life experiences might affect trust (e.g., Bauer, 2015), but they largely overlook the fact that similar life experiences could affect individuals in different ways depending on when they occurred along the life course (George, 1993; Elder et al., 2003; see also Wu, 2020). Taking time seriously, I therefore adopt a life course approach to study *when* gun victimization occurred in the life course and how that might affect trust differently across different points in time.

Analyzing data from the U.S. General Social Survey (GSS), I find that, regardless when it occurred in life, Americans who were victimized by guns trust much less in others than those who had no such experience. In terms of the size of the effect, repeated gun victimization has the strongest effect, followed by adulthood victimization, then childhood victimization. I also find that individuals who later achieve higher socioeconomic status are better able to recover from the psychological effect of childhood gun victimization. This lends support for the experiential theory of trust that people can update their trust according to changing experiences later in life. Finally, combing the GSS data with data from the U.S. Centers for Disease Control and Prevention (CDC), I also show that higher percentages of nonfatal and fatal gun violence victims lead to lower levels of trust both across and within the U.S. census divisions over time. Taken together, this study demonstrates that America's gun violence affects not only just those killed, injured, or present during gunfire, but it can also sabotage the social and psychological well-being of all Americans.

Ultimately, this study makes several contributions. This is the first study that rigorously investigates how and why personal gun victimization affects people's trust in others. It contributes to the on-going debate over whether trust is stabilized early in life or if it changes constantly in responding to life experiences (see Uslaner, 2008; Paxton and Glanville, 2015; Dinesen and Sønderskov, 2017). The finding that people's low trust from childhood victimization seems to recover from achieving a higher socioeconomic status later in life suggests that people can update their trust according to new life experiences. This study also provides some new insights on the durable trust inequality between black and white Americans (see e.g., Wilkes, 2011). Compared to whites, not only are blacks much more likely to experience gun victimization (Parker et al., 2017; the GSS data shows that blacks have about 60% more odds to experience gun victimization than whites), they are also less likely to get ahead in terms of socioeconomic achievements. Together, they can help explain the gap in trust between black and white Americans. Finally, this study offers an alternative explanation for America's low and declining social trust (see also Putnam, 2000). Indeed, during the 1960s to the 1990s the likelihood of being threatened or shot with guns was very high in the U.S. (see also McCall et al., 2008), and it was that period of time when America's half-century decline in social trust started.

2. Gun violence and trust

America has an enormous gun violence problem. Data from the U.S. Centers for Disease Control and Prevention (CDC) shows that a total of more than 240, 000 Americans have been murdered with guns in the last two decades (see also Behrman et al., 2018). This means that over 12,000 Americans are killed annually since 1999 (see Fig. 1), a rate that is 25 times higher than that of other high-income countries (Grinshteyn and Hemenway, 2019). In fact, besides those who were killed, many more have also been physically or psychologically hurt by guns. For example, Brady's key gun violence statistics show that every day, 313 people are shot in the United States, and among those 103 are shot and killed, while 210 survive gunshot injuries (see more https://www.bradyunited.org/key-statistics/?mkwid=c). Kalesan et al. (2016) estimate that, over the course of the lifetime, nearly all Americans are likely to know a victim of gun violence in their social network.

American society is also currently facing a crisis of trust. Nationally, data from the most recent wave of the U.S. General Social Survey (2018) shows that only about 33 percent of Americans say they have trust in their fellow citizens. The proportion fell by almost half from 1960 when 59 percent of American citizens would say that most people can be trusted (see also Paxton, 1999; Putnam, 2000;

Robinson and Jackson, 2001; Clark and Eisenstein, 2013). Explaining the low and declining trust, scholars have considered factors including the erosion of associational life, the rise of social inequality, the inflow of large-scale immigrant populations, and the growing diversity and ethnic segregation (Putnam, 1995, 2000, 2007; Rahn and Transue, 1998; Paxton, 2005; Uslaner, 2002, 2012; Abascal and Baldassarri, 2015). In particular, Putnam (2000) has suggested that the low and declining trust in the U.S. could also be a result of the increasing crime and violence in the 1960s.

How does America's enormous gun violence problem affect trust? Would they form a "vicious circle" in which low trust leads to more gun violence, which in turn leads to even lower trust (see also Putnam, 2000:317)? In fact, scholars have established that places with lower levels of trust tend to have higher rates of gun crime (e.g., Kennedy et al., 1998; Kawachi et al., 1999; Rosenfeld et al., 2007; Riley et al., 2017). Kennedy et al. (1998), for example, find that trust and firearm violent crime are strongly and negatively associated with each other across the 50 U.S. states. This inverse relationship remains significant after controlling poverty as well as firearms prevalence. Rosenfeld et al. (2007) also find that lower trust predicts higher gun homicide rates. While Rosenfeld et al. (2007) also point out that because areas with lower trust have higher gun homicide rates, people are more likely to arm themselves in response, and then the increase firearm prevalence leads further to higher rates of gun crime, which in turn lower trust, there is scant evidence to empirically support that gun violence (or crime in general) could in turn lead to lower trust and how (see also Saegert and Winkel, 2004; Moore and Recker, 2016, 2017).

One major limitation of current studies on trust and gun crime is that scholars have considered the association mainly at the place level and used contextual level theories such as collective efficacy and social disorganization to explain the association (e.g., Kawachi et al., 1999; Kawachi et al., 1999; Rosenfeld et al., 2007; see also Medina, 2015), overlooking the corresponding process at the individual level. As trust is essentially an individual-level phenomenon, to study how gun violence can directly affect trust will require an individual level analysis. However, individual level data that directly connects gun violence and trust can be rarely found. This is especially true after the Dickey Amendment enacted in 1996 as a "ban" on gun violence research (see Rostron, 2018; Behrman et al., 2017). Since then, funding support for gun research and data collection has been severely affected. For example, since 1996 the U.S. General Social Survey has stopped asking questions about Americans' personal experience of gun victimization which had been asked for 15 years previously. Consequently, little research has investigated at the individual level how Americans' personal gun violence might affect their health, well-being, and social and political outlooks.

Still, to have an understanding of the gun crime and trust association at the place level, it is essential to study the corresponding processes at the micro level (see also Coleman, 1990). In this study, I consider how personal experience of gun victimization might directly affect trust. As America is facing a high rate of gun victimization, exploring how individuals' past of experience of gun victimization shapes their trust can also provide the primary basis for whether gun violence can *causally* explain lower trust at the place level.

3. A life course approach to the effect of gun victimization on trust

Before hypothesizing how personal gun victimization might affect trust, let us discuss first the rich literature on the origins of trust. Indeed, since trust can explain a wide range of social outcomes, there has been a growing interest across social sciences in asking where does trust come from (e.g., Abascal and Baldassarri, 2015; Alesina and La Ferrara, 2002; Delhey and Newton, 2003; Dinesen and Sønderskov, 2015; Glanville and Paxton, 2007; Robbins, 2017; Uslaner, 2018; Wu and Wilkes, 2016; Wilkes and Wu, 2018; Wu and Shi, 2020). Decades of research have provided two competing perspectives, a cultural theory and an experiential theory (see also Uslaner, 2008; Paxton and Glanville, 2016; Dawson, 2017; Wu, 2020). Scholars of the cultural theory widely consider trust is a relatively stable and persistent human trait (Uslaner, 2008; Dawson, 2017; Wu, 2020). In this perspective, life experiences have little impact on people's trust. Alternatively, scholars from the experiential perspective argue that throughout life trust is not rigid but open to environmental influences (Glanville and Paxton, 2007; Paxton and Glanville, 2015; Dinesen and Sønderskov, 2018). In this view, people will constantly update their trust according to changing life experiences. In order to make a distinction between these two perspectives, trust scholars have tested how experience of victimization might affect trust. Conclusions however are often mixed. For example, in the U.S., while Smith (1997) reported that trust was lower among people who experienced victimization such as robbery, burglary, and being hit, Uslaner (2002) found no effect from being a victim of a crime on trust. Similarly, in Europe, while Salmi et al. (2007) found that personal experiences of bullying, robbery, theft, violence, or threat of violence are all strongly and negatively associated with trust, Bauer (2015) found no significant effect of negative experiences on trust.

In fact, at its core the cultural and experiential debate is about *time*. It is about when people learn to trust and whether learned trust changes over time. On the cultural side, scholars hold that people learn to trust early in life from their parents, within the families and communities through human psychosocial development or early age socialization (Erikson, 1950; Wrightsman, 1992; Uslaner, 2002; Stolle and Hooghe, 2004). Our learned trust does not change much or changes very slowly later in their adult life (Stolle and Hooghe, 2004; Uslaner, 2008; Dawson, 2017). Day-to-day life experiences as an adult such as losing job, getting divorced, and even being victimized are not relevant to trust (Uslaner, 2002; Bauer, 2014). In contrast, scholars on the experiential side argue that trust is dynamic and the result of a social learning process. Over time, trust might not be stable, is fragile, and could be easily broken (Hardin, 2002). Accordingly, life experiences such as participation in associations, social contacts, migration, and experience of victimization are likely to affect trust (Glanville and Paxton, 2007; Paxton, 2007; Bauer, 2015; Dinesen and Sønderskov, 2015).

Accordingly, in order to distinguish the merits of the cultural and experiential arguments it is essential to consider time. For example, to test the experiential theory of trust, scholars need to not only consider *whether* certain life experiences matter for trust, but also consider *when* such life experiences occurred in the life course. This is because, depending on when they occurred, similar life experiences may affect individuals differently at different time points in the life course (George, 1993; Elder et al., 2003). In particular,

there is a need to distinguish between childhood life experience and adult life experience. Childhood life experience is part of growing up and socialization, and therefore its effect could be considered as evidence for the cultural theory. This is to say the same life experience could have different meanings if it occurred in pre-adulthood than if it occurred in adulthood.

Taking time seriously, I adopt a life course approach to address this trust debate. The life course approach elaborates the importance of time and provides a framework for studying how the way that people live their lives from childhood to old age affects the development of trust. Specifically, I consider whether trust is developed in early childhood and relatively unaffected by contemporary life experiences or whether trust is a product of social learning from on-going events.

While time is central to the discussion of the formation of trust, gun victimization as a traumatic life event could affect trust regardless when it occurred. In fact, Smith (1997) has reported that Americans who were threatened or shot at by guns tend to have lower trust. Hence, my first hypothesis is that gun victimization has a long lasting traumatic effect on trust regardless when it occurred:

H1. *Individuals who were ever threatened or shot at by guns in either their childhood or adulthood would trust significantly less than those who had no such experience.*

Next, I consider how, in a life course perspective, childhood gun victimization, adulthood gun victimization, and repeated gun victimization during both childhood and adulthood might affect trust differently. Specifically, the intensity of gun victimization might moderate the size of its effect. For example, in their research on bullying experience, Salmi et al. (2007) show that there is a more robust association between persistent victimization and the level of trust than is the case with occasional victimization. They find that the risk of being mistrusting is three times higher for adolescents with persistent bullying experience when compared with adolescents with no bullying victimization (Salmi et al., 2007). It is also reasonable to argue that a more recent experience of a traumatic event will have a stronger effect than an old experience. Accordingly, in terms of the size of the effect of gun victimization, I have the following hypothesis:

H2. *Repeated gun victimization has the strongest effect, followed by adulthood victimization, while the effect of childhood victimization is the smallest in size.*

Experiencing gun threat or shot at is traumatic. While scholars from the cultural perspective believe that trust is learned early in life and learned trust tends to be stable through the life, they also stress that recent traumatic experiences (but not everyday experiences) can lower people's trust (e.g., Uslaner, 2002). Hence, the finding of a significant effect of gun victimization is not enough to support the experiential theory of trust. Still, separating between childhood victimization and adulthood victimization can tell us more about the processes underlying the effect of gun victimization on trust. Gun victimization during childhood can have a lasting traumatic effect on people's trust in others, but do those who later achieve higher socioeconomic status are better able to recover from the psychological trauma? An answer to this question can be used to address the long-standing debate between the cultural and the experiential explanations for trust.

The cultural theory suggests that trust is stabilized early in life. Therefore, an individual's lower trust from childhood victimization can persist into adulthood regardless the socioeconomic achievement later in life. Accordingly, to test the cultural theory, I hypothesize:

H3a. *Regardless of life experiences an individual's lower trust from childhood gun victimization persists into adulthood.*

Alternatively, an experiential theory suggests that people can update their trust in others from their life experiences throughout the life. This means that, individuals who later achieve higher socioeconomic status might be able to recover from the psychological effect of childhood gun victimization. To test the experiential theory, I hypothesize that:

H3b. *Individuals who later achieve higher socioeconomic status can recover from the psychological effect of childhood gun victimization.*

Testing these last two hypotheses will require further controlling individuals' childhood environment. It is possible that individuals from lower socioeconomic backgrounds and living in disadvantaged neighborhoods could suffer more severely and more frequently from childhood gun victimization, and they also tend to achieve less later in life. To control this potential confounding effect, I take into account respondents' family income when they were at 16 years old and whether they live in a mixed neighborhood or not.

Personal gun victimization at the aggregate level can be considered as a form of neighborhood disamenity. When communities have higher percentages of people who were victimized by guns, their withdrawal from community life, their higher sense of powerlessness, and lower trust could affect everyone living in these communities (Ross et al., 2001). At the aggregate level, therefore, one would expect that places with higher percentages of people who were victimized by guns tend to have lower trust, and over time trust would be lower when the chance of being victimized by guns is high. Therefore, my final hypothesis is the following:

H4. *Gun victimization and trust are inversely related across and within regions over time.*

Taken together, the aim of this study is twofold. First, it explores how Americans' personal experience of gun victimization affects their trust in others and why. Second, it also attempts to test whether personal gun victimization has an aggregate effect on social trust at the place level. In particular, it seeks to provide an empirical test for Putnam's (2000) long-standing argument on the potential formation of the dynamic vicious circle between gun homicide and low trust in others.

4. Data and methods

4.1. Data

The data for this study comes from two major sources. The first dataset that I draw from is the U.S. General Social Survey (GSS)

where I obtain nationally representative information about Americans' trust, their experience of gun victimization, as well as their socioeconomic and demographic backgrounds. The GSS included questions in its 1973 to 1994 surveys (15 years) asking a nationally representative sample of Americans whether they have experienced gun victimization (*have you ever been threatened with a gun, or shot at?)*, as well as when they experienced it *(Did this happen to you as a child or as an adult?)*. These questions were discontinued in 1996 and onwards. This is likely due to the Dickey Amendment which was enacted in 1996 to ban on federal funding for gun violence research (see Rostron, 2018). After the ban, the amount of gun violence data available to researchers in America has been severely affected (Behrman et al., 2017). While the GSS has been widely used for trust research, only Smith (1997), the director of the GSS, has once reported that misanthropy (measured by low trust) is higher among those who have been threatened with a gun or shot at.

Based on the individual level data, I further calculate the percentages of Americans who experienced gun victimization and who trusted across all the U.S. Census Bureau subdivisions including *New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain*, and *Pacific* for each of the 15 years. I use this aggregate level data for place level analysis. To replicate the estimations at the place level, I use the data from the U.S. Centers for Disease Control and Prevention's (CDC) Multiple Cause of Death Files from 1999 to 2016. I obtain the data on homicides due to firearms from its Multiple Cause of Death Files for 1999–2016. Combining trust data from the GSS and the firearm homicide data from the CDC, I create a subdivision-year panel data across nine years from 2000 to 2016. In so doing, I am able to estimate the association between gun violence and trust not only across but also within these subdivisions over time (for full dataset see Appendix 7).

At the individual level, I retain a total analytic sample of 17,480 individuals across 15 years from 1973 to 1994 who have completed data on all independent variables from the GSS. At the place level, aggregating the GSS data yields a total analytic sample of 135 subdivisions-years across 15 years from 1973 to 1994. Combining the GSS and the CDC data yields another analytic sample of 198 subdivision-years across 22 years from 1980 to 2016.

4.2. Measures

Generalized trust: I use three questions from the GSS to measure the dependent variable (see also Wilkes, 2011; Fairbrother and Martin, 2013; Mewes and Giordano, 2017). They include 1) *Generally speaking, would you say that most people can be trusted or that you can't be too careful in dealing with people*, 2) *Would you say that most of the time people try to be helpful, or that they are mostly just looking out for themselves*, and 3) *Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair.* At the individual level, all three questions are coded in a binary manner with 1 corresponding to a positive response, and 0 to a negative one. At the place level, trust is measured using the mean score (percentage) of individuals' response to each question across the U.S. Census Divisions across different years. At the individual level, three measures of trust reach a Cronbach's α value of 0.67, while at the regional level the Cronbach's α is 0.88 (see also Galea et al., 2002).

Gun victimization and gun violence: To measure individuals' actual experience with gun violence, I make use of two questions asked in the GSS. First is the question of *Have you ever been threatened with a gun or shot at.* Individual responses are coded between 1 = yes and 0 = no. Using the question of *Did this happen to you as a child, or an adult, or both,* we are able to specify the *time* when

Table 1
Summary statistics of key variables in analysis.

	Have you erver been threatened with gun or shot at?				Total
	No (n = 13,386)	Yes, as an adult (n = 2738)	Yes, as a child (n = 444)	Yes, both (n = 153)	
Generalized Trust					
Can people be trusted? (0 = no, 1 = yes)	43.07	35.68	34.68	23.53	41.46
People helpful or looking out for selves (0 = not helpful, 1 = helpful)	53.97	43.21	41.98	29.38	51.69
People fair or try to take advantage (0 = not fair, 1 = fair)	63.13	48.86	49.34	33.54	60.18
Family and neighborhood background					
Family income when 16 years old (scale, 1–5)	2.79	2.76	2.75	2.64	2.78
Living in mixed neighborhood (0 = no, 1 = yes)	49.05	56.67	59.31	67.70	50.88
Socioeconomic achievemnt					
Education (in years, 0–20)	12.35	12.25	12.44	12.44	12.83
Family income in constant dollars (inflation-adjusted)	41267	41716	42486	41142	41371
Financial_satisfied (0 = no, 1 = yes)	31.1	23.36	22.39	18.13	29.50
Financial_more or less (0 = no, 1 = yes)	45.27	39.79	40	31.87	44.12
Financial_not at all satisfied (0 = no, 1 = yes)	23.63	36.86	37.61	50.00	26.38
Demographics					
Female (0 = male, 1 = female)	62.50	29.68	27.61	11.88	55.81
Age (in years, 18–89 or older)	45.03	42.70	35.94	37.51	45.99
White (0 = no, 1 = yes)	85.7	82.93	78.48	71.88	85.30
Black (0 = no, 1 = yes)	11.53	14.95	18.91	26.88	12.41
Other (0 = no, 1 = yes)	2.32	2.12	2.61	1.25	2.28
Never married (0 = no, 1 = yes)	17.01	15.48	26.74	21.25	17.05
Married (0 = no, 1 = yes)	60.4	58.13	59.35	50.63	59.91
Widowed (0 = no, 1 = yes)	10.79	5.87	1.94	1.88	9.68
Divorced/separated (0 = no, 1 = yes)	11.8	20.53	11.96	26.25	13.35

individuals experienced the gun violence if any. Combing these two questions, I create a new categorical variable of experience with gun violence that consists of four categories, namely, no experience with gun violence, experienced gun shot or threat as an adult, experienced gun shot or threat as a child, experienced gun shot or thereat repeatedly both during childhood and during adulthood. At the place level, I measure gun violence for each of the U.S. Census Bureau subdivisions using percentages of those who were ever threatened with a gun or shot at calculated from the GSS data, as well as the homicide deaths due to firearms (crude rate of homicide due to firearms) for each subdivision.

Family and neighborhood background: I use family income when 16 years old and to measure an individual's background when growing up. The variable is coded in 5 categories, namely, *1 = far below average, 2 = below average, 3 = average, 4 = above average,* and *5 = far above average*. To measure neighborhood background, I use the item asking whether the respondent is living in a mixed neighborhood (*any opposite race in neighborhood*).

Socioeconomic achievement: I use two objective variables and one subjective variable to capture socioeconomic achievement. Objective variables include both income and education. Income is measured using the inflation-adjusted family income in constant dollars (in thousands), and education is measured using actual years in school. The subjective variable is financial satisfaction, which is coded categorically with *satisfied*, *more or less satisfied*, and *not at all satisfied* three groups.

Demographic controls: Gun victimization is common in the United States. However, this trauma exposure varies considerably according to demographic characteristics. For example, blacks and low-income Americans are much more likely to experience gun victimization (Parker et al., 2017). Young adolescents are much more likely to experience gun victimization than people from other age groups (Turner et al., 2013). Regional variations are also significant. People from the South are more likely to exposure to gun violence (Felson and Pare, 2010). Hence, I include demographic controls such as race (1 = white, 2 = black, and 3 = other), gender (1 = female, 0 = male), age (in years), and marital status (1 = never married, 2 = married, 3 = widowed, and 4 = divorced or separated). At the individual level, I control regional variations including dummies of the U.S. Census Bureau divisions with the reference group of *New England*. I also include year as the continuous variable. At the place level, I estimate how gun violence affects trust in these regions across years. Region division in each year is the unit of analysis. Hence, I only include year as one control in analysis. Table 1 shows the descriptive statistics of key variables in analysis at the individual level.

4.3. Methods

Because all my three measures of trust are coded in a binary manner, I use logistic regressions to estimate how actual experience of gun violence affects Americans' trust at the individual level. The major predictor at the individual level is a categorical variable that denotes whether an individual has ever been threatened with a gun or shot at as an adult, as a child, or both, with the reference group of those who have no such experience. To take into consideration of demographic variations in trust as well as the likelihood of gun victimization, I include gender, race, age, marital status, region, and year as controls across estimations. To explore whether an individual who later achieve higher socioeconomic status are better able to recover from the psychological trauma of gun victimization, I also include measures of socioeconomic achievement such as educational attainment, family income, and satisfaction with financial

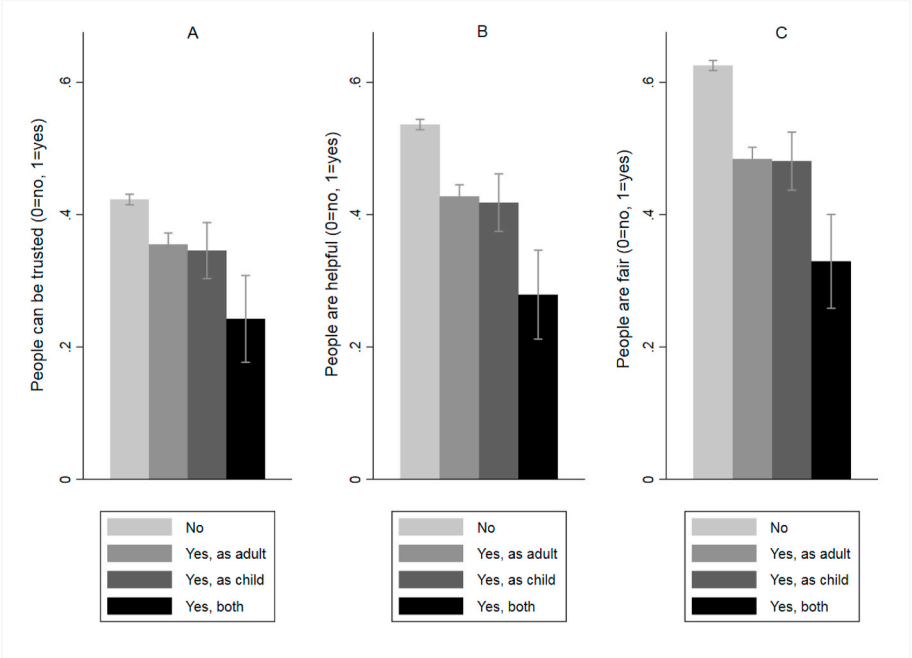

Fig. 2. Gun victimization and trust in the United States, 1973–1994.

Table 2
Logistic regression predicting effects of gun victimization on trust.

	Most people can be trusted				People are helpful				People are fair			
	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)	Model (9)	Model (10)	Model (11)	Model (12)
Ever threatened with gun or shot at?												
Yes, as adult	−0.312***	−0.315***	−0.252***	−0.254***	−0.296***	−0.294***	−0.238***	−0.236***	−0.479***	−0.475***	−0.410***	−0.406***
	(-6.44)	(-6.46)	(-4.96)	(-4.99)	(-6.46)	(-6.39)	(-5.05)	(-5.01)	(-10.33)	(-10.20)	(-8.56)	(-8.48)
Yes, as child	−0.250*	−0.242*	−0.133	−0.134	−0.272**	−0.260*	−0.182	−0.179	−0.321**	−0.303**	−0.213*	−0.205
	(-2.28)	(-2.20)	(-1.17)	(-1.17)	(-2.61)	(-2.49)	(-1.71)	(-1.68)	(-3.08)	(-2.90)	(-1.99)	(-1.93)
Yes, both	−0.728***	−0.703***	−0.628**	−0.620**	−0.664***	−0.645***	−0.578**	−0.570**	−0.951***	−0.926***	−0.853***	−0.838***
	(-3.61)	(-3.48)	(-3.01)	(-2.97)	(-3.62)	(-3.51)	(-3.09)	(-3.05)	(-5.22)	(-5.07)	(-4.57)	(-4.49)
Family and neighborhood background												
Family income when 16 years old		0.220***		0.0678**		0.162***		0.0482*		0.203***		0.0824***
		(10.55)		(3.07)		(8.16)		(2.32)		(9.88)		(3.81)
Living in mixed neighborhood		0.0716*		0.0243		−0.00106		−0.0359		−0.0476		−0.0835*
		(2.05)		(0.67)		(-0.03)		(-1.05)		(-1.36)		(-2.33)
Socioeconomic achievemnt												
Education in years			0.172***	0.168***			0.114***	0.112***			0.126***	0.122***
			(24.79)	(23.94)			(17.90)	(17.27)			(18.89)	(18.08)
Family income in constant dollars (inflation-adjusted, in thousands)			0.00478***	0.00466***			0.00371***	0.00365***			0.00253***	0.00242***
			(6.97)	(6.80)			(5.64)	(5.54)			(3.63)	(3.47)
Financial satisfaction(ref. satisfied)												
More or less			−0.0899*	−0.0843*			−0.125**	−0.120**			−0.151***	−0.142***
			(-2.16)	(-2.02)			(-3.12)	(-2.98)			(-3.54)	(-3.32)
Not at all satisfied			−0.407***	−0.397***			−0.374***	−0.364***			−0.539***	−0.522***
			(-7.85)	(-7.65)			(-7.74)	(-7.52)			(-10.81)	(-10.43)
Demographic controls	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Region	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year (1973–1994)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	19.58***	20.60***	49.03***	48.71***	−4.857	−4.963	13.65*	12.73*	10.82	10.15	30.31***	28.50***
	(3.65)	(3.81)	(8.64)	(8.55)	(-0.91)	(-0.93)	(2.48)	(2.30)	(1.95)	(1.81)	(5.25)	(4.91)
N	15553	15553	15553	15553	16199	16199	16199	16199	16161	16161	16161	16161
Pseudo R-sq	0.050	0.056	0.104	0.105	0.036	0.039	0.065	0.066	0.057	0.062	0.091	0.092
AIC	20144.2	20031.3	19010.5	19004.6	21651.8	21588.9	21010.8	21008.3	20431.6	20335.5	19711.8	19695.8

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)	Model (9)	Model (10)	Model (11)	Model (12)
	Most people can be trusted				People are helpful				People are fair			
Ever threatened with gun or shot at?												
Yes, as adult	−0.312***	−0.315***	−0.252***	−0.254***	−0.296***	−0.294***	−0.238***	−0.236***	−0.479***	−0.475***	−0.410***	−0.406***
	(-6.44)	(-6.46)	(-4.96)	(-4.99)	(-6.46)	(-6.39)	(-5.05)	(-5.01)	(-10.33)	(-10.20)	(-8.56)	(-8.48)
Yes, as child	−0.250*	−0.242*	−0.133	−0.134	−0.272**	−0.260*	−0.182	−0.179	−0.321**	−0.303**	−0.213*	−0.205
	(-2.28)	(-2.20)	(-1.17)	(-1.17)	(-2.61)	(-2.49)	(-1.71)	(-1.68)	(-3.08)	(-2.90)	(-1.99)	(-1.93)
Yes, both	−0.728***	−0.703***	−0.628**	−0.620**	−0.664***	−0.645***	−0.578**	−0.570**	−0.951***	−0.926***	−0.853***	−0.838***
	(-3.61)	(-3.48)	(-3.01)	(-2.97)	(-3.62)	(-3.51)	(-3.09)	(-3.05)	(-5.22)	(-5.07)	(-4.57)	(-4.49)
Family and neighborhood background												
Family income when 16 years old		0.220***		0.0678**		0.162***		0.0482*		0.203***		0.0824***
		(10.55)		(3.07)		(8.16)		(2.32)		(9.88)		(3.81)
Living in mixed neighborhood		0.0716*		0.0243		−0.00106		−0.0359		−0.0476		−0.0835*
		(2.05)		(0.67)		(-0.03)		(-1.05)		(-1.36)		(-2.33)
Socioeconomic achievemnt												

(*continued on next page*)

Table 2 (*continued*)

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)	Model (7)	Model (8)	Model (9)	Model (10)	Model (11)	Model (12)
	Most people can be trusted				People are helpful				People are fair			
Education in years			0.172***	0.168***			0.114***	0.112***			0.126***	0.122***
			(24.79)	(23.94)			(17.90)	(17.27)			(18.89)	(18.08)
Family income in constant dollars (inflation-adjusted, in thousands)			0.00478***	0.00466***			0.00371***	0.00365***			0.00253***	0.00242***
			(6.97)	(6.80)			(5.64)	(5.54)			(3.63)	(3.47)
Financial satisfaction(ref. satisfied)												
More or less			−0.0899*	−0.0843*			−0.125**	−0.120**			−0.151***	−0.142***
			(-2.16)	(-2.02)			(-3.12)	(-2.98)			(-3.54)	(-3.32)
Not at all satisfied			−0.407***	−0.397***			−0.374***	−0.364***			−0.539***	−0.522***
			(-7.85)	(-7.65)			(-7.74)	(-7.52)			(-10.81)	(-10.43)
Demographic controls												
Female	−0.211***	−0.212***	−0.138***	−0.140***	0.246***	0.248***	0.311***	0.311***	0.110**	0.112**	0.168***	0.168***
	(-5.85)	(-5.84)	(-3.68)	(-3.73)	(7.08)	(7.12)	(8.74)	(8.72)	(3.04)	(3.09)	(4.53)	(4.51)
Age in years	0.00698***	0.00875***	0.0143***	0.0147***	0.0101***	0.0113***	0.0148***	0.0150***	0.0160***	0.0175***	0.0206***	0.0210***
	(6.03)	(7.45)	(11.24)	(11.49)	(8.94)	(9.89)	(12.16)	(12.27)	(13.33)	(14.35)	(15.98)	(16.15)
Race (ref. white)												
Black	−1.300***	−1.230***	−1.114***	−1.096***	−0.943***	−0.873***	−0.787***	−0.759***	−1.120***	−1.020***	−0.956***	−0.903***
	(-17.69)	(-16.43)	(-14.73)	(-14.26)	(-16.14)	(-14.58)	(-13.19)	(-12.45)	(-19.42)	(-17.24)	(-16.19)	(-14.93)
Other	−0.585***	−0.497***	−0.420***	−0.397**	−0.627***	−0.556***	−0.494***	−0.474***	−0.435***	−0.339**	−0.279*	−0.240*
	(-4.96)	(-4.18)	(-3.36)	(-3.17)	(-5.68)	(-5.02)	(-4.35)	(-4.16)	(-3.97)	(-3.07)	(-2.46)	(-2.11)
Marital status (ref. never married)												
Married	0.146**	0.184***	0.104	0.117*	0.0808	0.102*	0.0370	0.0414	0.0434	0.0678	0.0242	0.0305
	(2.93)	(3.66)	(1.95)	(2.18)	(1.70)	(2.14)	(0.74)	(0.83)	(0.89)	(1.38)	(0.47)	(0.59)
Widowed	−0.134	−0.116	0.0491	0.0515	−0.0244	−0.0130	0.119	0.117	−0.266**	−0.256**	−0.111	−0.116
	(-1.61)	(-1.38)	(0.57)	(0.59)	(-0.31)	(-0.16)	(1.46)	(1.43)	(-3.17)	(-3.04)	(-1.28)	(-1.35)
Divorced/separated	−0.166*	−0.142*	−0.0259	−0.0213	−0.170**	−0.152*	−0.0668	−0.0637	−0.261***	−0.239***	−0.132*	−0.127
	(-2.49)	(-2.11)	(-0.37)	(-0.31)	(-2.73)	(-2.44)	(-1.05)	(-1.00)	(-4.10)	(-3.74)	(-2.02)	(-1.93)
Region	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Year (1973–1994)	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Constant	19.58***	20.60***	49.03***	48.71***	−4.857	−4.963	13.65*	12.73*	10.82	10.15	30.31***	28.50***
	(3.65)	(3.81)	(8.64)	(8.55)	(-0.91)	(-0.93)	(2.48)	(2.30)	(1.95)	(1.81)	(5.25)	(4.91)
N	15553	15553	15553	15553	16199	16199	16199	16199	16161	16161	16161	16161
Pseudo R-sq	0.050	0.056	0.104	0.105	0.036	0.039	0.065	0.066	0.057	0.062	0.091	0.092
AIC	20144.2	20031.3	19010.5	19004.6	21651.8	21588.9	21010.8	21008.3	20431.6	20335.5	19711.8	19695.8

t statistics in parentheses.
*p < 0.05, **p < 0.01, ***p < 0.001.
t statistics in parentheses.
*p < 0.05, **p < 0.01, ***p < 0.001.

situation in analyses. Equation (1) indicates the foundational of the logistic regression models adopted here.

$$\pi_i = \log\left(\frac{Trust_i}{1 - Trust_i}\right) = \beta x_i + \alpha + \varepsilon_i \quad (1)$$

$$\gamma_{it} = \beta x_{it} + \alpha + u_i + \varepsilon_{it} \quad (2)$$

At the place level, I estimate how level of gun crime and level of trust are related across subdivisions and over time. I use random effects for the TSCS (panel structure) data because within regions over time there is association between gun violence and trust, certain region characteristics could potentially affect trust. For example, in the U.S., people from the South trust significantly less overall than people from other regions (Wu, 2020). Therefore, I focus on the average effect of gun violence on trust when level of gun violence changes across time and between regions by one unit. I also include year dummies to control the aggregate trends over years that might influence the estimation. Because individuals' past experience of gun victimization is a clearly defined independent variable (occurred before the survey of trust), at the aggregate level we can also argue with confidence for the causal inference from gun violence on trust. Both the Breusch and Pagan Lagrangian multiplier test and the LM test confirm that random effects models are a better option over both fixed effects models and simple OLS regression models. Equation (2) indicates the foundational of the random effects regression models where u_i captures the between-subdivision error and ε_{it} captures the within-subdivision error.

5. Findings

To begin with, Fig. 2A–C provide a visualization comparing trust levels (the probability of saying *most people can be trusted, people are helpful,* and *people are fair*) across four groups in focus: those who reported no experience of gun threat and gun-shot during their course of life so far (reference group), those who experienced gun threat or gun-shot as an adult (adult victimization), those who experienced gun threat or gun-shot as a child (childhood victimization), and those who repeatedly experienced gun threat or gun-shot during both their childhood and adulthood (repeated victimization).

Consistently, these figures show that compared to the reference group, those who had experience of being threatened by a gun or receiving a gunshot wound are significantly less likely to say that most people can be trusted (Fig. 2A), to say that people are helpful (Fig. 2B), and to say that people are fair (Fig. 2C). Within the three groups that reported gun victimization experiences, while the trust gap between the adult group and the child group does not seem to be substantial, those who had the experience of a gun threat and had been shot by a gun during both their childhood and their adulthood, show much lower trust than all other groups. Specifically, while about 42 percent of Americans who reported no experience of gun victimization said that most people can be trusted, 36 percent said that most people can be trusted if they experienced gun victimization as an adult, 35 percent if they experienced gun victimization as a child, and only 24 percent for those who has repeated gun victimization during both their childhood and adulthood. The pattern is consistent regardless how trust is measured (Fig. 2B & C). These descriptive patterns show that gun victimization significantly and negatively affects Americans' trust in others and that repeated gun victimization (in both childhood and adulthood) has the strongest effect.

Table 2 reports a series of logistic regression models that estimate how gun victimization as an adult, as a child, and during both childhood and adulthood might shape people's trust. The coefficients for the adult group, the child group, and the combined group from the logistic regression models denote the gaps in log odds of saying *people can be trusted* (Model 1–4), saying *people are helpful* (Model 5–8), and saying *people are fair* (Model 9–12) in comparison to the reference group. The baseline model, Model 1 includes a list of demographic controls, including race, gender, age and marital status, as well as region and year to ensure that these gaps are not a function of demographic variations in gun violence and trust. Model 2 adds family and neighborhood background to control the potential confounding effect of these factors with gun victimization and socioeconomic achievement on trust. Model 3 adds socio-economic achievement factors. Finally, the full model Model 4 include all variables in analysis. Model 5–8 repeat the analysis using the measure of whether people are helpful and Model 9–12 repeat the analysis using the measure of whether people are fair.

To facilitate the interpretation of the overall findings, Fig. 3A–C provide the visualization of the odds ratios from the modelling results in Table 2. On average, compared to the reference group, Americans who experienced gun victimization as an adult are about 30 percent less likely to trust, Americans who experienced gun victimization as a child are 24 percent less likely to trust, and Americans who experienced gun victimization repeatedly during both childhood and adulthood are 54 percent less likely to trust after controlling demographic factors.[1] Clearly, these results lend empirical support for both the first hypothesis (H1*: Individuals who were ever threatened or shot at by guns in either their childhood or adulthood would trust significantly less than those who had no such experience)* and also the second hypothesis (H2*: Repeated gun victimization has the strongest effect, followed by adulthood victimization, while the effect of childhood victimization is the smallest in size*).

Next, I consider whether family and neighborhood background confounds the effects of gun victimization and childhood gun victimization in particular. Model 2, 6, and10 in SI Table 2 show that adding both family income when the respondent was 16 years old and whether the respondent lives in a mixed neighborhood changes the effects of gun victimization very little. Compared to the reference group, Americans who experienced gun victimization as an adult are about 30 percent less likely to trust, Americans who experienced gun victimization as a child are 25 percent less likely to trust, and Americans who experienced gun victimization

[1] Percentages are calculated from the means across three models using different trust measures. For example, for the baseline models, the mean odds ratio is calculated by averaging the odds ratios for Model 1 (0.73), Model 5 (0.74), and Model 9 (e.g., 0.3 = 100*(1-(0.73 + 0.74+0.62)/3)).

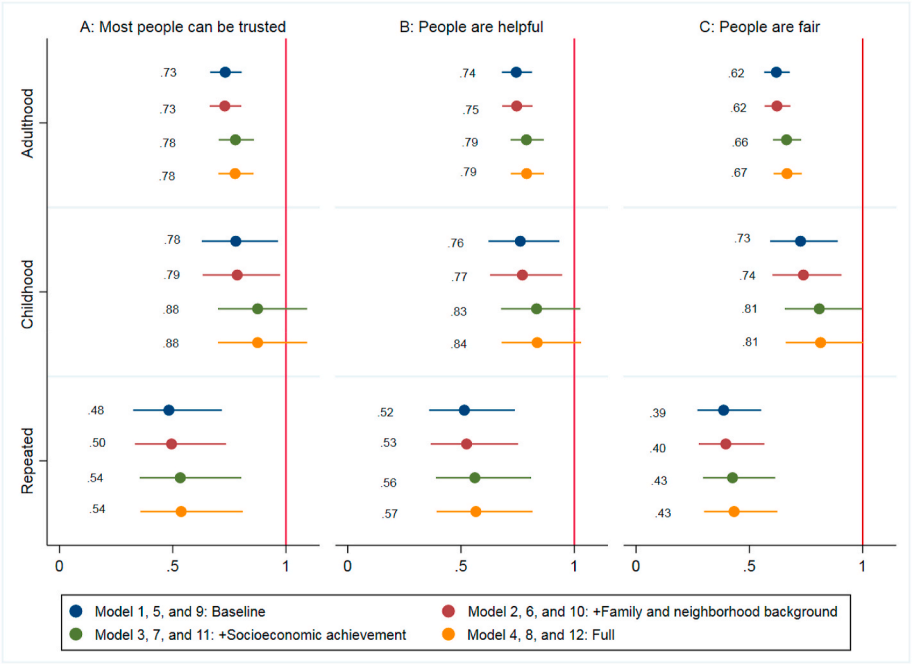

Fig. 3. A-3C: Logistic Regression Estimating Effects of Gun Victimization on Trust in Others (GSS, 1973–1994, odds ratios).

repeatedly during both childhood and adulthood are 52 percent less likely to trust. These findings confirm that gun victimization can really have a major impact on people's trust in others.

Finally, I consider whether an individual who later achieve higher socioeconomic status are better able to recover from the psychological trauma of gun victimization. Model 3, 7, and 11 includes measures of socioeconomic achievement such as educational attainment, family income, and satisfaction with financial situation. Consequently, compared to the reference group, Americans who experienced gun victimization as an adult are about 26 percent less likely to trust, Americans who experienced gun victimization as a child are 16 percent less likely to trust, and Americans who experienced gun victimization repeatedly during both childhood and adulthood are 49 percent less likely to trust. These findings suggest that socioeconomic achievement can strongly moderate the effect of gun victimization. More specifically, people with low SES are more vulnerable to gun violence and this scar effect also lasts longer. In particular, after considering socioeconomic achievement later in life, the negative effect of childhood victimization becomes much smaller (average odds ratio increased from 0.77 to 0.84) and non-significant. Including all variables in the full models Model 4, 8, and 12, the pattern remains consistent. This finding provides empirical support for the experiential theory hypothesis that *H3b: Individuals who later achieve higher socioeconomic status can recover from the psychological effect of childhood gun victimization.*

Thus far, I have shown that Americans' personal experience of gun victimization affects their trust in others. This individual level association can be potentially used as direct evidence to support the place level association that gun violence can have a negative impact on social trust, creating a "vicious circle" between gun violence and low trust (Putnam, 2000:317; Rosenfeld et al., 2007). In what follows, I further test whether personal gun victimization has an aggregate effect on trust at the place level.

Specifically, at the aggregate level, I explore whether higher levels of gun victimization will lead to lower levels of trust both across the U.S. Census Bureau subdivisions and over time. The unit of analysis in this place association is *subdivision-year* (9 subdivisions*15 years from 1973 to 1994 = 135 data observations). Using the GSS data, Fig. 5A–C shows the scatter plot between the probability of people who were threatened with gun or shot at (x-axis) and the probability of people who trust (y-axis) by Midwest, Northeast, South, and West regions. Each circle, or plus, triangle, and square, represents one subdivision in a particular year (e.g., New England-1975, Mountain-1994). Clearly, they show that a higher probability for a subdivision in a particular year leads to a lower level of trust for that particular subdivision and year. The pattern is consistent across the four higher levels of regions irrespective of how we measure trust.

Similarly, using the data from CDC's Multiple Cause of Death Files from 1999 to 2016 and combing with the GSS trust data, Fig. 4D–F shows the scatter plot between the crude rate of homicide due to firearms (x-axis) and the probability of people who trust (y-axis) by Midwest, Northeast, South, and West regions. Similarly, the unit of analysis in this association is also *subdivision-year* (9 subdivisions*22 years from 1980 to 2016 = 198 data observations). Overall, these figures suggest that, regardless how we measure trust, higher crude rates of homicide due to firearms lead to lower levels of trust.

Fig. 5 shows the gun crime and trust pattern within each of the U.S. Census Bureau subdivisions across 15 years using the aggregated GSS data. The general pattern is that within each subdivision, years with higher percentages of gun victimization are also years with lower levels of trust. The pattern remains consistent when we replicate the analysis using different trust measures and data from the CDC (1980–2016). The pattern suggests that gun crime is also associated with lower trust over time.

Finally, I estimate whether percentages of people who experienced gun victimization from the GSS (1973–1994), or crude rates of

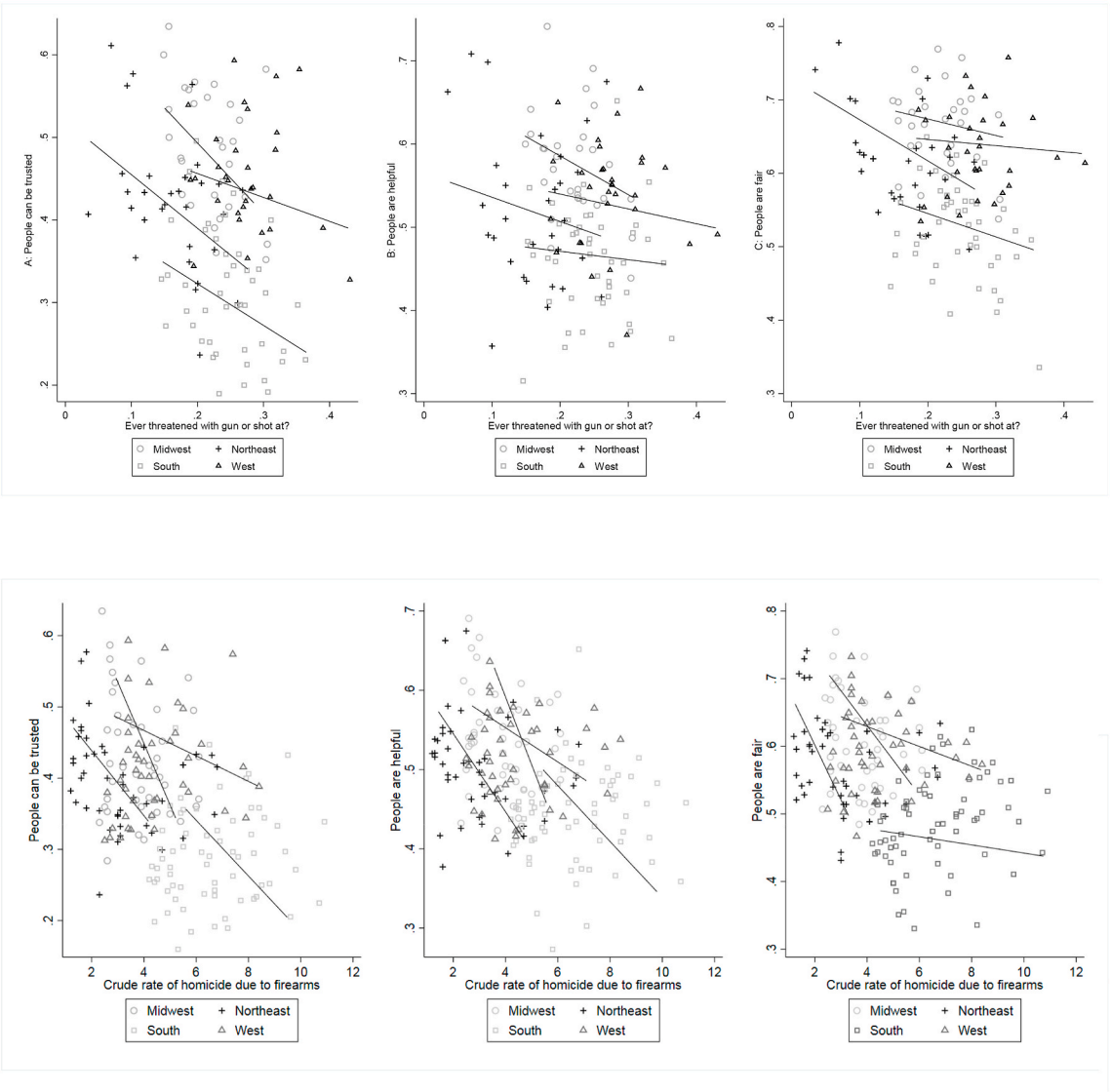

Fig. 4. A-4C: Gun victimization and social trust across regions, 1973–1994. D-4F: Gun homicides and social trust across regions, 1980–2016.

homicide due to guns from the CDC (1980–2016), is associated with the aggregated levels of trust from the GSS both across and within the U.S. subdivisions over time. Table 3 shows the estimation results.

Specifically, with the inclusion year dummies, Model 1 shows that one-unit increase in the probability of gun victimization leads to an average of 0.289 units decrease in the probability of saying *most people can be trusted* within the U.S. subdivisions and over time. Model 2 shows that one-unit increase in the probability of gun victimization leads to an average of 0.104 units decrease in the probability of saying *people are helpful* within the U.S. subdivisions and over time, and Model 3 shows an average of 0.174 units decrease in the probability of saying *people are fair* the U.S. subdivisions and over time. While Model 3 shows that the effect on people saying *most people are helpful* is not significant, the general negative direction is consistent.

When I replace the aggregated percentages of people who were ever threatened by guns or shot at from the GSS with the crude rates of homicide due to gun violence from the CDC, Models 4–6 show an identical pattern. For example, Model (4) shows that with one-unit increase in the crude rates of homicide due to guns leads to an average of 0.016 units decrease in the probability of people saying *most people can be trusted* within the U.S. subdivisions and over time. Taken together, the overall results demonstrate that gun violence significantly decreases trust within regions and over time (Hypothesis 4). The found association between gun violence and trust at the place level can be causal for two reasons. First, the effect meets the causal rule of temporal order. Individuals' retrospective experience of gun victimization occurred before the survey of trust, therefore the aggregated effect is more likely to go from gun violence to trust. Second, the use of panel-structured data is capturing how within changes in gun violence at the place level affect the changes in trust.

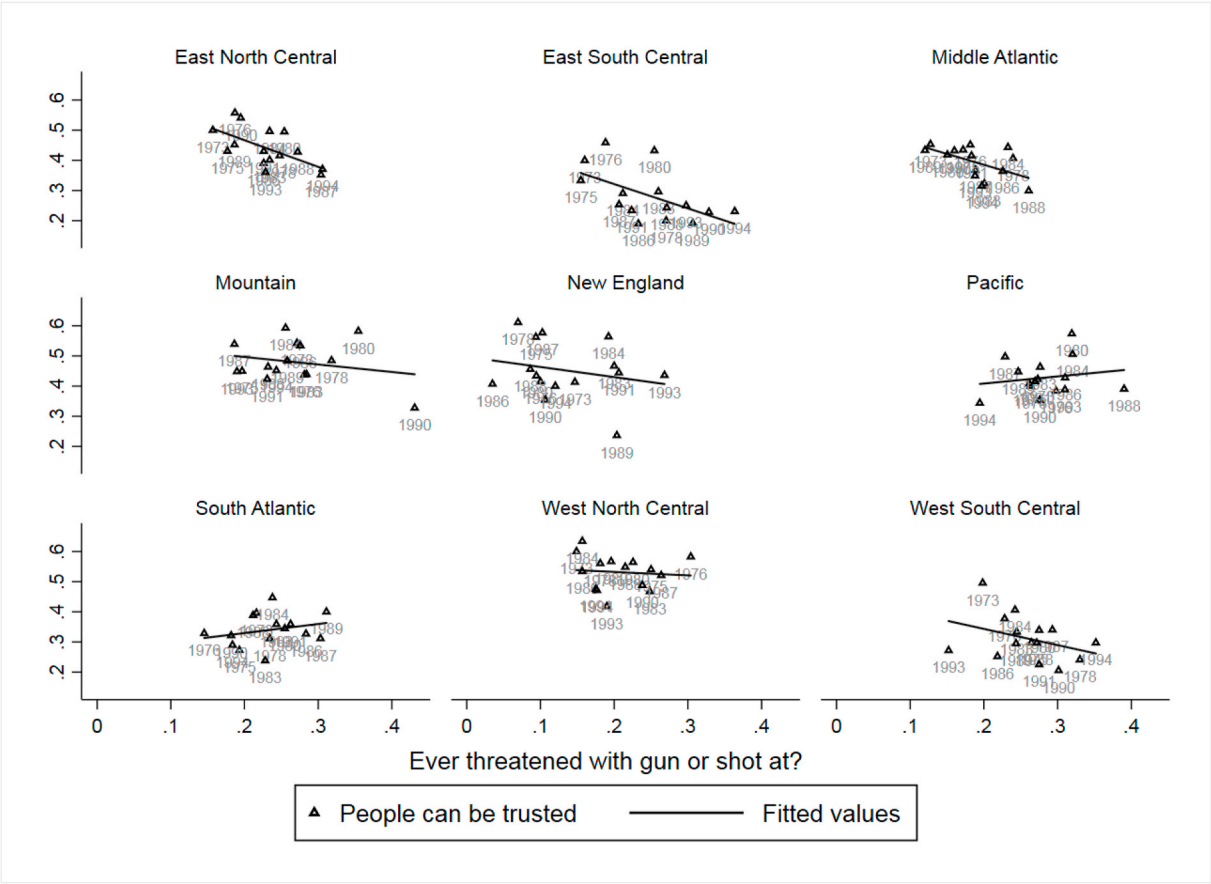

Fig. 5. Gun violence and trust within the U.S. Census divisions, 1972–1994.

Table 3
Place-level random effects of gun violence on trust.

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
	People can be trusted	People are helpful	People are fair	People can be trusted	People are helpful	People are fair
Gun violence						
% who ever threatened with gun or shot at	−0.289**	−0.104	−0.174**			
	(-2.79)	(-1.10)	(-2.02)			
Crude rate of homicide due to firearms				−0.016***	−0.014**	−0.012***
				(-3.55)	(-4.15)	(-3.01)
Year dummies	yes	yes	yes	yes	yes	yes
Constant	0.539***	0.520***	0.651***	0.481***	0.535***	0.660***
	(0.034)	(0.026)	(0.027)	(0.024)	(0.026)	(0.030)
N	135	135	135	198	198	198
Chi-sq	74.53	94.84	62.50	105.1	104.8	121.6
Sigma_u	0.083	0.052	0.067	0.031	0.021	0.028
Sigma_e	0.674	0.054	0.048	0.058	0.050	0.050

t statistics in parentheses.
*p < 0.05, **p < 0.01, ***p < 0.001.
Note: Model 1–3, gun victimization; Model 4–6, CDC crude rate of homicide due to firearms.

6. Conclusion

Gun violence is widespread in the U.S. In fact, data from both CDC and Gun Violence Archive (GVA) has shown a recent increase in the annual number of deaths due to gun-related homicides. According to GVA, for example, the total number of gun-related deaths was 12,556 in 2014, and it rose to 13,532 in 2015, to 15,104 in 2016, and to 15,632 in 2017 (see also Fig. 1). The GSS data (1972–1994) also shows that over 19 percent of Americans indicated that they were threatened with a gun or shot at either as a child or as an adult. The widespread gun violence affects not only just those killed, injured, or present during gunfire, but all Americans (Collins and Swoveland, 2013).

In this article, I have considered how gun violence might affect American's trust in others. There are several motivations. First, while scholars have associated crime with trust (and social capital), they tend to dominantly focus on the place level association investigating how trust explains why some places are more violent than others (e.g., Kennedy et al., 1998; Kawachi et al., 1999; Rosenfeld et al., 2007). Largely overlooked is how crime and violence may also destroy people's trust in others. To empirically establish the dynamic association between crime and trust, or what Putnam (2000:317) referred as "vicious circle", there is still a need to test whether crime can lower people's trust. Second, trust is essentially an individual level phenomenon. Therefore, a better understanding of how crime affects trust requires an individual analysis. Exploring how personal victimization might affect people's trust in others can provide the primary basis for the place level association. Finally, there also has been a long-standing debate over whether trust is learned early in life and learned trust remains stable, or whether people can update their trust according to changing life experiences. This research studying whether people's low trust from childhood victimization can recover from achieving a higher socioeconomic status later in life provides a direct test of this debate.

This study yields several important findings. First, Americans who were victimized by guns trust much less in others than those who had no such experience regardless when it occurred in life. Second, the size of the effect can vary depending on the intensity of the victimization as well as when it occurred. Repeated gun victimization has the strongest effect, followed by adulthood victimization, while the effect of childhood victimization is relatively smaller in size. Third, I also find that individuals who later achieve higher socioeconomic status are better able to recover from the psychological effect of childhood gun victimization. This finding lends support for the experiential theory of trust that people can update their trust according to changing experiences later in life. Finally, combing the GSS data with data from, I also show that higher percentages of nonfatal and fatal gun violence victims lead to lower levels of trust both across and within the U.S. census divisions over time. This finding complements the empirical evidence for the dynamic association between gun violence and trust.

One major limitation of this research is that the GSS data I used for this research is relatively old (1973–1994). Because of the Dickey Amendment, both data collection and research on gun violence has been rare (see Rostron, 2018; Behrman et al., 2017). Nonetheless, the old data does not necessarily undermine the overall findings since the social and psychological consequences of gun violence could be very much the same today, if not worse. I also want to stress that to understand how gun violence affects Americans' everyday life, more data needs to be collected and more research needs to be conducted. Another limitation is the geographical unit of analysis. Ideally, it would be better if I have data at lower geographical levels for analyzing the place level association between gun violence and trust. Nonetheless, I should note that gun crime and trust are negatively related to each has been largely demonstrated already at a variety of geographical levels (e.g., Kennedy et al., 1998; Kawachi et al., 1999; Rosenfeld et al., 2007; Riley et al., 2017; see also Medina, 2015). I focus on the subdivision level also because the GSS has a relatively small sample size for each year (usually less than 1500). Focusing on each subdivision-year allows me to ensure that I have at least a total of 30 individual observations at my current place level for my estimations. Since my focus here is more on within than between regions variances, the number of regions in the analysis is less important as long as the analysis is based on a good number of time point (year) observations. In fact, focusing the nine U.S. divisions over time allows us to minimize the cross-sectional errors in my longitudinal estimations. That said, my additional analysis combing data from the U.S. Congress Joint Economic Committee's Social Capital Project and the CDC state-level gun homicides confirms that gun violence has a negative effect on trust even after controlling factors such as poverty rate, incarcerated rate, and alcohol/drug abuser.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.ssresearch.2020.102449.

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