Trauma and Personal Finance: Evidence from Mass Shootings*

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Abstract

We study how poor mental health affects individual financial outcomes. We do this by examining the impact of mass shootings on financial distress and credit card borrowing. Using anonymized individual-level credit report data and a staggered difference-in-differences empirical strategy, we find that individuals living in counties that experienced a mass shooting have lower credit scores, increased financial distress, and increased credit card borrowing in the first two years following a mass shooting. These declines are transitory, however: outcomes return to their pre-event levels by the end of the fifth year. Our findings are consistent with individuals suffering a sudden, negative shock to mental well-being, which in turn impacts financial decision making.

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"Thousands of people ran for their lives that day. People who were uninjured saw the carnage. … Families were separated. Wailing screams could be heard at every corner of town."

"In the aftermath, many struggled to return to work. They couldn't pay their bills. Our bustling downtown square was guarded by shiny yellow caution tape for more than a week leaving restaurants and stores dark and empty. Our small community came to a screeching halt. Everyone moved slowly and carefully, nurturing unseeable wounds that may never heal."

From "The ripple effects of mass shootings" by Ashbey Beasley (survived July 4th 2022 Highland Park, IL shooting with her son)

1 Introduction

A growing number of people in the United States are exposed to gun violence in places such as churches, synagogues, schools, grocery stores, and workplaces, eroding a sense of safety and increasing mental distress. For every individual who dies by firearm, more than two survive (The Educational Fund to Stop Gun Violence, 2020), often enduring costly, long-term mental and physical injuries that can extend into their economic and financial lives. The burden of gun violence extends beyond the deceased, witnesses, and survivors. Friends and families, residents of local communities, and, in some cases, the entire nation share the cost. Exposure to gun violence can become a perpetual source of angst for directly affected individuals and communities as they undertake costly efforts such as seeking care for mental health and purchasing guns for protection to repair the damage done to their collective peace of mind (Cook and Ludwig, 2000). In addition to increased mental distress, those not directly affected also bear indirect cost through engagement in mitigation and prevention activities.

Exposure to gun violence is linked to a number of psychological disorders, including post-traumatic stress disorder, major depression, alcohol abuse and dependence, drug abuse and panic disorder (Lowe and Galea, 2017; Abba-Aji et al., 2024). Continuous use of mental health services for psychological distress such as post-traumatic stress disorder, major depression, alcohol abuse and dependence, drug abuse and panic disorder (Lowe and Galea, 2017), is also a source of financial burden. For the victims of these tragic events and their families, medical expenses related to their physical and emotional injuries can be significant. On average, overall medical spending and cost-sharing for survivors of gun violence increase by about $25,554 and $1,112 respectively, in the first month after injury (Song et al., 2022).

Medical bills for emergency care, surgeries, and long-term rehabilitation can quickly deplete savings, especially for those without adequate health insurance coverage.

Beyond medical expenses, exposure to mass shootings can disrupt attachment to the labor market. Survivors may require extended time off work to recover physically and emotionally, resulting in lost income. Some individuals may not return to the labor market, or face diminished productivity due to lingering trauma, further impacting their financial stability. This disruption can spill over to those not directly exposed to mass shootings, such as family members, if they take time off to care for injured loved ones or experience secondary trauma themselves. Local businesses may see a decline in customer foot traffic due to fear and increased security concerns (Chiong et al., 2024). In fact, research suggest earnings decrease slightly while the number of job and firms in communities that experience a mass shooting decrease modestly (Brodeur and Yousaf, 2022). This decline in business can lead to reduced revenues, layoffs, and even closures, exacerbating local economic distress.

Despite the growing prevalence of mass shootings in United States, little is known about its impact on the personal finance of individuals residing in communities exposed to these tragedies. With increased medical expenses, reduced productivity, and possible lost income, the financial burden of mass shooting on survivors, their families, and those exposed to the shooting could be substantial. Some individuals may resort to borrowing to cover bills. Credit card balances may increase due to reliance on credit to cover immediate needs with reduced productivity and lost income, leading to credit accounts going into collections because of late or missed payments.

In this paper, we examine the impact of mass shootings on the financial well-being of exposed individuals. To be consistent with the literature, we define a mass shooting as a shooting incident that results in at least four fatalities, excluding the shooter.[1] By limiting our sample in this way, we are able to to exploit the plausibly random nature of these events to estimate the causal effect of exposure to a mass shooting on financial outcomes. We link geographic information on mass shootings that occurred in counties in the United States to an anonymized, nationally representative five percent random sample of individuals with credit bureau records. We compare changes in financial outcomes of individuals who reside in counties that experienced a mass shooting with those in counties that did not experience a shooting before and after each mass shooting event. We find an immediate increase in the number of bankcards, bankcard balance, and bankcard limit in the aftermath of a mass shooting. Bankcard balance increases by an average of $163 (2.9 percent increase)

[1]This definition excludes homicides that are the result of a domestic dispute, gang-activity, drugs, or other criminal activity.

and bankcard limit increases by about $790 (3.6 percent). Not surprisingly, this increase in credit activity is accompanied by in increase in the amount of delinquent bankcard debt and a decline in credit score. We note that these changes are transitory and dissipates within three years after a mass shooting. The immediate changes in credit activity we estimate are consistent with individuals suffering from a negative shock to their mental health in the years immediately after a mass shooting impacting financial decision making.

Our paper makes a number of important contributions. First, we add to the growing body of literature that analyze the economic costs of mass shootings (see Section 2). We provide new evidence on the impact of mass shootings on personal financial outcomes, which are particularly salient for quantifying the overall cost of mass shooting on individuals and communities. Second, we add to the literature that has utilized geographic variation in negative shocks to estimate the effects on households' balance sheets (e.g., Gallagher and Hartley (2017), Gallagher et al. (2022), Gallagher et al. (2023), Braxton et al. (2024)). Most of these studies have used natural disasters as the negative shock; we are the first to use mass shootings. Finally, we contribute to the literature on understanding how mental health affects financial decision making (e.g., Babiarz and Yilmazer (2017), Urban and Swensen (2023)).[2] Many studies focus on older adults or individuals suffering from certain mental health disorders (e.g., Bogan and Fertig (2017), Nicholas et al. (2021), Liao (2021) Biasi et al. (2021).). A number of papers in the literature have also focused on how debt and spending affect mental health (e.g., Bridges and Disney (2013), Sweet et al. (2010)); we instead focus on how a negative shock to mental health affect financial outcomes.

The rest of our paper will proceed as follows: Section 2 reviews the literature on mass shootings. Section 3 describes our data, and Section 4 discusses our Methods. We present our results in Section 5 and discussion in Sections 6. We conclude in Section 7.

2 Related Research

The growing literature in economics that has documented adverse negative effects of gun violence has typically looked at mass shootings more broadly or school shooting specifically.

Shootings in public schools in the United States have increased in recent years with 302 deaths in 176 distinct school shootings between 1995 and 2019 (Levine and McKnight, 2020). Shootings at schools are linked to reductions test scores (Beland and Kim, 2016; Levine and McKnight, 2021), increased absenteeism and an increase in external cause mortality

[2]Related to issues around mental health are papers that study the role of non-cognitive abilities and financial outcomes. For example, see Kuhnen and Melzer (2018) and Parise and Peijnenburg (2019).

(including suicides and accidents) for students exposed to shootings with high number of fatalities (Levine and McKnight, 2021). In addition, students exposed to shooting at school are more likely to be absent from school and to repeat a grade and have lower levels of educational attainment (Cabral et al., 2021; Deb and Gangaram, 2024), worse labor market outcomes (Deb and Gangaram, 2024) lower early career earnings (Cabral et al., 2021). Fatal school shootings lead to increases (21.4 percent) in antidepressant prescriptions filled for surviving youth with the increase persisting for two years after a shooting incident (Rossin-Slater et al., 2020). In addition, individuals exposed to a school shooting have worse health and well-being, are more likely to engage in risky behaviors(Deb and Gangaram, 2024)

Mass shootings lead to significant decline in community well-being and emotional health Soni and Tekin (2023). Exposure to mass shooting in the second trimester of pregnancy leads to a 7.7 percent increase in the birth of infants with low birth weight (birth weight less than 1500 grams) and a 6.9 percent increase in premature births (gestation less than 34 weeks) (Dursun, 2019). Mass shootings also lead to a reduction in the number of jobs in a county by about 1.8% and a decrease in total earnings and earnings per job (Brodeur and Yousaf, 2022). Finally, high fatality (seven or more deaths) mass shootings is linked to significant declines in consumer confidence for up to 12 to 15 months (Lagerborg et al., 2023)

3 Data

3.1 Shooting Data

Mass shooting data comes from data collected by Brodeur and Yousaf (2022). The authors use information from the Supplementary Homicide Reports (SHR) and USA Today mass shooting database. The SHR contains monthly incident-based data reported by local enforcement agencies to the Federal Bureau of Investigation (FBI). Each homicide incident has information about the location (county and city), the number of people killed and injured, the weapon used, and the possible motives. The SHR does not provide information on the exact date of homicide incidents so the authors manually search for local media coverage for the precise date of these shootings. The USA Today data use information from local news reports, documents from local courts and law enforcement agencies to identify mass shootings not reported in the SHR. The USA Today data includes the exact date and location of the shootings, the number of victims, and the type of shooting. The authors use the FBI definition of mass shooting: four or more people excluding the shooter killed by firearm. In

total, the dataset has 225 mass shootings in 173 counties from 2000 to 2013.

3.2 Credit Bureau Data

To examine the effects of mass shootings on person financial outcomes, we use the Federal Reserve Bank of New York Consumer Credit Panel/Equifax (CCP) dataset. The CCP is an anonymized, nationally representative 5 percent random sample of individuals with credit bureau records. To be included in the CCP, an individual must have a social security number and at least one credit account or public record on their credit history (Lee and van der Klaauw, 2010). The dataset contains information on all credit accounts that an individual may have, including mortgages, auto loans, student loans, and credit card accounts, and information on public records, such as bankruptcy records or tax liens. The CCP is updated every quarter and is available from the first quarter of 1999 to the present. Individuals in the panel are followed every quarter until they die, change their social security number, or are removed due to a long period of credit market inactivity. It is important to note that the only demographic information we observe in the CCP is year of birth and census geography for each individual; we do not observe any information on race, gender, or income.

To construct our analysis sample, we first start with individuals living in our treatment and control counties from 1999 to 2018. We drop any individuals that are reported as deceased in the credit bureau and any individuals that fewer than four total observations across the sample period. Dropping these "fragment files" reduces the probability that we include duplicate or fraudulent observations. We also restrict our sample to include individuals at or under the age of 90 to mitigate any issues related to the persistence of credit accounts after an individual becomes deceased (Gibbs et al., 2024). Because our data on mass shootings is at the yearly level, we restrict our sample to the fourth quarter of each year. Applying these restrictions results in an unbalanced panel of yearly observation from 1999-2018 containing approximately 43.6 million observations on 3.6 million unique individuals.

We consider a number of variables to measure the impact of mass shootings on individual's financial outcomes. To examine financial health, we follow the literature and focus on credit score,[3] number of accounts in collections, and debt amount in collections (Keys et al., 2023). We also examine if individuals change their use of credit by examining number of bankcards, bankcard balance, bankcard credit limit, and the amount of delinquent bankcard debt. We define delinquent bankcard debt as any bankcard debt that is 30 days late or later. Tables

[3]The credit score we use is the Equifax Risk Score.

1 and 2 present summary statistics for our sample of individuals.

Table 1 presents summary statistics for the overall sample. The average Risk Score for individuals in our sample is 689 and the average individual in our sample has about two bankcards with a balance of about $5600 and a credit limit close to $22,000. Individuals have approximately $411 in delinquent bankcard debt and 0.26 accounts in collection. The average debt in collections is about $570.69. In Table 2, we present summary statistics by treatment and control group for our preferred specification, which compares counties that experienced a mass shooting to all other counties. For our measure of financial distress, we can see that average Risk Score in mass shooting counties is lower than in other counties by 10 points (683 vs. 693), the amount of delinquent bankcard debt is higher by about $70 higher ($447 vs $378), and the number of collections and debt in collections are slightly higher in counties that experienced a mass shooting. For our credit card variables, we see that the average number of bankcards, bank balance and bankcard limit are similar between mass shooting counties and all other counties.[4]

4 Methods

The goal of our paper is to identify the causal effect of mass shootings on individuals' financial outcomes by comparing the financial outcomes of individuals living in counties that experienced a mass shooting to individuals living in counties that did not experience a mass shooting. The standard empirical design to identify these effects in a setting with staggering timing is the difference-in-differences (DID) model using the two-way fixed effect (TWFE) regression specification. The typical event-study estimating equation in this situation would look as follows:

$$Y_{it} = \alpha + \sum_{k=-5}^{5} \beta_k Treatment_{ik} + \tau_t + \delta_c + X_{it} + \epsilon_{it} \tag{1}$$

where Y_{it} is financial outcome for individual i in time t, δ_c is county fixed effect, and τ_t is time fixed effect. X_{it} contains individual fixed effects and age fixed effects. However, it is

[4]When calculating summary statistics, it is important to note that the number of observations for each variable can vary because of a number of factors. For example, values of some variables are reported under specific conditions while for other variables, they may have non-missing values conditional on having another variable in a specific state (e.g., having a debt balance owed to a third-party debt collector is conditional on having an account sent to a debt collector in the first place). Missing values for certain variables can arise from not having enough information to estimate a value. Finally, there is significant heterogeneity in the reporting behavior of data furnishers that provide data to credit bureaus. We do not impose any additional sample restrictions based on any specific variable. For more information, see https://files.consumerfinance.gov/f/201212_cfpb_credit-reporting-white-paper.pdf.

now well known that TWFE may deliver inconsistent results if there is heterogeneity in the treatment effects (see Roth et al. (2023) for an overview). Given the distribution of shootings across geographies and time in our sample, we may expect to see heterogeneous effects of different shootings.

To allow for this heterogeneity in a staggered treatment setting, we implement the estimator developed by Gardner et al. (2024), who proposed an intuitive two-step estimator. Under the normal parallel trends assumption, this estimator identifies average treatment effect on the treated (ATT). The two-stage estimation procedure proceeds as follows, using notation from Butts and Gardner (2022). In the first stage, we regress our financial variable of interest Y_{it} on county and time dummy variables as well as individual and age fixed effects for all *untreated* units.

$$Y_{it} = \delta_c + \tau_t + X_{it} + u_{it} \tag{2}$$

We retain the estimated $\hat{\delta}_c$ and $\hat{\tau}_t$ from this first stage regression (Equation 2) and then, in the second stage (Equation 3), we regress $\tilde{Y_{it}} \equiv Y_{it} - \hat{\delta}_c - \hat{\tau}_t$ on our event-time dummy variables in the *full sample* of both treated and untreated individuals:

$$\tilde{Y_{it}} = \sum_{k=-5}^{5} \beta_k D_{ik} + \epsilon_{it} \tag{3}$$

where $D_{i,k}$ is a vector of event-time dummy variables that equal to one for each period that is k away from the shooting. We use five years of data before and after each mass shooting and omit the year before each shooting as reference. We cluster standard errors by county.

To capture the aggregate effect of mass shootings, we also estimate the following traditional DID model in the second stage:

$$\tilde{Y_{it}} = \beta_1 D_{it} + \epsilon_{it} \tag{4}$$

where D_{it} is equal to one if an individual lives in a shooting county during or after the shooting.

We follow Brodeur and Yousaf (2022) by estimating four different specifications to test the robustness of our choice of control group: comparing counties that experienced a mass shootings to: all other counties that did not experience a mass shooting (our main comparison group), counties that experienced a "failed" mass shooting [5], matched counties, and neighboring counties. We use the same matched counties as in Brodeur and Yousaf (2022), who use propensity scores to match mass shooting counties to control counties using infor-

[5] A failed mass shooting is defined as an active shooting event with less than four deaths.

mation on lagged population, employment, earnings, and establishments per capita, crime, and geography. Neighboring counties are those counties that are defined as neighbors by the U.S. Census Bureau.[6] For the failed shooting sample, there are 239 counties, for the matched county sample, there are 503 counties, and for the neighboring counties sample, there are 901 counties. By using these different comparison counties, we aim to show that our estimates are not driven by the choice of a specific control group.

5 Results

Table 3 presents our DID results from estimating the traditional DID model with a single post-period dummy variable (Equation 4); our main results are presented in panel A and the results from the three alternative control groups are presented in panels B through D. In panel A, we estimate a -0.046 point decline in Risk Score for individuals living in mass shooting counties up to five years after a mass shooting. The estimate is, however, small and not statistically significant from zero. Estimates using the matched sample and neighbor sample as controls also show Risk Score changes that are not statistically significant. For our sample that compares compare mass shooting counties with failed mass shooting counties, we find a statistically significant decline (-1.31) in Risk Score. Overall, all our specifications point to a negligible impact of mass shooting on Risk Scores when we compare scores five year before and after the mass shooting event.

We also show event study estimates for Risk Score in Figure 1 to show the dynamic changes in scores before and after mass shootings. Visual inspection of Figure 1 show no discernible differences in the Risk Score trend between treated and control counties for all four specifications before a mass shooting. In panel A, our main results show an immediate decline in Risk Score of 1 point in the first two years after a shooting that gradually recovers with time. Estimates for Risk Score remain negative up to four years after a mass shooting though large standard errors in later years render the estimates imprecise. The three alternative samples also show an immediate decline after a mass shooting that gradually recovers starting the second year after a mass shooting. We note that in the failed shooting specification the decline in Risk Score, is more persistent over the five years after a shooting. Overall, the immediate jump and rapid recovery of Risk Score explains why our DID estimate in 3 are close to zero and imprecisely estimated.

In the second column in Table 3 we find that mass shooting does not have a statistically

[6]For more information, see https://www.census.gov/geographies/reference-files/time-series/geo/county-adjacency.html.

significant effect on the number bankcards held by individuals in a county. This null effect is evidence across all four sample specifications reported in Table 3. As with Risk Score, event study estimates in 2 for the number of bankcards show a small but statistically significant increase of 0.02 accounts (a relative one percent increase) the year of a mass shooting and the year after. This increase is generally sustained in subsequent years but with wide confidence intervals. Just as with our Risk Score results, the dynamics we estimate in the event study explain why the DID estimate is close to zero in 3.

In columns 3 and 4 of Table 3 we estimate a statistically significant increase in bankcard balance and bankcard limit after a mass shooting. Bankcard balance increases on average by about $163 (a relative 2.9 percent increase) and bankcard limit increase by about $790 (a relative 3.6 percent increase) in the five years after a mass shooting. Our results using the matched and neighbor samples are consistent with our main results. For the failed shooting sample, we estimate a statistically significant *decline* in bankcard balance of close to $75 and a statistically insignificant increase in bankcard limit. Our event study results in Figure 3 for all four specifications show immediate increase in bankcard balance that persists for up to four years after a mass shooting event. Our event study estimates before the shooting, however, shows a clear upward trend in bankcard balance which suggest that increase precedes the shooting event. For the bankcard balance results from the failed shooting sample in panel B of Figure 3, we can see that the points are negative in the fourth and fifth years after a shooting, which explains why our DID coefficient in Table 3 for bankcard balance was negative.

Table 4 presents our DID estimates for our financial distress variables. In column A, we can see that delinquent bankcard debt was higher in the years after a mass shooting, though none of the estimates from the specifications are statistically significant. Examining the event study results in Figure 4 show why this is the case: similar to our Risk Score and number of bankcard results, we see an immediate jump of $50 in the amount of delinquent bankcard debt in the first few years after a shooting, but these effects diminish over time, with point estimates near zero or negative by the fourth and fifth years after a shooting. We see similar estimates and patterns for our number of collections variables in the second column of Table 4 and in Figures 5. The estimate for the main DID analysis in Table 4 is negative and imprecisely estimated while the event study estimates show an immediate jump of 0.007 accounts in collections (a relative three percent increase) in the year of the shooting that quickly dissipates by the second year.

We report our results for amount of debt in collections in column C of Table 4 and in Figure 6. Points estimates for the DID coefficient vary across the four specifications, with

some point estimates being positive and some being negative. This lack of consistency in the DID coefficient is explained by the dynamics of the event study coefficients reported in panels A, C, and D of Figure 6: along with the existence of pre-trends in the years prior to the shooting, our event study figures show that debt in collections *declined* in the first 2 years after the shooting before starting to increase. This trend is logical, given that it often takes years for delinquent debt to be sent to third-party debt collections.[7] Similar to some of our other results, the event study results for the failed shooting specification in panel B display different trends than the other specifications.

6 Discussion

6.1 Mechanisms

Our results show a decline in financial outcomes immediately after a mass shooting, but these effects are transitory. Financial distress and credit card borrowing return to their pre-shooting levels within five years after the event. We point to poor mental health and earnings decline as mechanisms underlying the transitory adverse financial outcomes we estimate in this paper.

First, multiple studies that have examined the mental health impacts of mass shootings have shown that the declines in mental health are large and immediate for individuals exposed the event. Soni and Tekin (2023) show that the likelihood an exposed individual reports their community's well-being as being "excellent" declines by 27 percentage points and there is 13 percentage point decline in the likelihood an individual reports have "excellent" emotional health. Brodeur and Yousaf (2022) shows that affected individuals report having 0.3 more days in the past month of poor mental health (a 10 percent increase). Rossin-Slater et al. (2020) find that mental health outcomes of youths that experience a school shooting decline, leading to a 21.4 percent increase in antidepressant use. This immediate trauma and precipitous decline in mental health from experiencing a mass shooting likely has a significant impact on financial decision-making. In a literature review, Lowe and Galea (2017) examine 49 different papers and identify the most common psychiatric disorders reported after a mass shooting: post-traumatic stress disorder (PTSD), major depression, anxiety disorders, and alcohol-related conditions. All of these disorders can affect cognition, memory, focus, and

[7]There is significant heterogeneity in the amount of time it takes different kinds of debt to be sent to a third-party debt collector. For credit card debt, it make take less than a year, while medical debt can take multiple years. See for more details on the variability in collection reporting times, see Consumer Financial Protection Bureau (2014).

risk preferences. Therefore, it is very likely that exposed individuals may make budgeting mistakes, accumulate additional debt, forget to pay their bills on time, or may become less likely to take precautionary actions that would prevent negative financial outcomes from occurring.

Second, mass shootings may be associated with an immediate increase in unexpected expenses, such as medical bills, funeral expenses, or even impulse buying. Individuals and families may need to borrow to cover these unexpected expenses, which could result in both increases in credit card accounts and balances and more delinquent credit card debt.

In addition to the mental health effects, some of the financial effects that we document are likely driven, in part, by the income channel documented by Brodeur and Yousaf (2022), who finds a 1 to 2 percent decline in wages in the first two years after a mass shooting. Declines in income, especially due to health reasons, can lead to increased borrowing and financial distress (Dobkin et al., 2018). However, as we discuss in the next section, the declines in earnings and employment likely play a smaller role in explaining the immediate changes in financial outcomes, given that the employment and earnings effects are relatively small in the first two years after a mass shooting.

6.2 Short- and Long-run Effects

It is important to note that the earnings and employment declines that Brodeur and Yousaf (2022) document are both persistent and grow increasingly larger over time: the magnitude of the earnings decline grows from a 1 percent decline one year after the shooting up to almost 4 percent at the end of five years while employment declines from 0.5 percent to 1.8 percent. These dynamics differ from our financial outcome estimates, which return to their pre-event levels within three years after a shooting. If earnings and employment are important determinants of financial health, it may be surprising to see that financial distress does not increase as employment and earnings decline.

We argue that these results are not inconsistent with each other; rather, the driver of the results likely changes over time. In the immediate aftermath of a mass shooting, there is a spike in psychological distress experienced by those exposed and, as documented in the literature, it persists for one to two years, dissipating over time (Soni and Tekin (2023); Rossin-Slater et al. (2020)). Given that the decline in employment and earnings is relatively small in the first few years after a mass shooting, it is reasonable to assume that the declines in mental health play a larger role in explaining the changes in financial outcomes than the decline in earnings in the short-run.

However, given that earnings and employment continuously decline up to five years in the post-event period, it is possible that the persistent decrease in mental health that Brodeur and Yousaf (2022) report is due to the deterioration of local economic conditions in the post-event period for affected communities.

7 Conclusion

We study how mass shootings affect the financial outcomes of those who reside in the local area where the event happened. We find a notable increase in credit card borrowing, as measured by the rise in bankcard balances and limits. Bankcard balances increase by an average of $163 (a 2.9% increase), while bankcard limits rise by approximately $790 (a 3.6% increase) within the five years following the incident. We also find a corresponding modest decrease in credit scores. Delinquent bankcard debt also increases after mass shootings. The changes in credit activity diminish over time, highlighting the temporal nature of these financial disruptions.

Our findings suggests that exposure to mass shootings induces a negative mental health shock, which in turn affects financial decision-making. Though we do not have data on individuals' health outcomes, the declines in mental health likely lead to financial mistakes, increased unexpected expenses, and potential decreases in income due to time off or diminished productivity. However, the financial effects observed are largely temporary, with most indicators showing a return to pre-shooting levels within a few years.

Our study underscores the broader economic implications of mass shootings, which extend beyond direct victims to affect the financial well-being of entire communities. The observed increases in credit card debt and delinquency suggest that mass shootings can lead households to overextend themselves financially. These findings contribute to the growing body of literature on the economic costs of gun violence, emphasizing the need for policies that address not only the immediate physical and psychological aftermath of such events but also their financial repercussions.

Table 1: **Summary Statistics, Full Sample**

Variable	Mean	Std Dev
Risk Score	688.86	107.768
Number of Bankcards	2.132	2.235
Bankcard Balance ($)	5,557.34	12,693.02
Bankcard Limit	21,819.6	30786.01
Delinquent Bankcard Debt ($)	410.56	334.416
Number of Collections	0.256	0.974
Debt in Collections ($)	570.69	2997.97

Notes: Based on authors' calculations using the FRBNY Consumer Credit Panel/Equifax (CCP). Risk Score is the Equifax Risk Score. Data on mass shootings from Brodeur and Yousaf (2022).

Table 2: **Summary Statistics, by Treatment and Control Group**

	Treatment		Control	
Variable	Mean	Std Dev	Mean	Std Dev
Risk Score	683.39	108.74	693.59	106.69
Number of Bankcards	2.159	2.250	2.11	2.222
Bankcard Balance ($)	5,660.61	12,850.88	5,467.22	12,553.92
Bankcard Limit	21,696.56	30,757.4	21,927.69	30,812.66
Delinquent Bankcard Debt ($)	447.69	3,632.23	378.74	3,055.78
Number of Collections	0.261	0.954	0.252	0.99
Debt in Collections ($)	580.50	3,247.49	561.47	2,743.482

Notes: Based on authors' calculations using the FRBNY Consumer Credit Panel/Equifax (CCP). Risk Score is the Equifax Risk Score. Data on mass shootings from Brodeur and Yousaf (2022).

Table 3: **Effect of Mass Shootings on Financial Outcomes**

	Risk Score	Number of Bankcards	Bankcard Balance	Bankcard Limit
Panel A: All Counties				
Treatment	-0.04593	0.016	162.55***	789.65***
	(0.548)	(0.015)	(39.11)	(173.87)
Panel B: Failed Shooting Sample Control				
Treatment	-1.313**	0.01	-74.40**	119.40
	0.531	(0.15)	(36.86)	(160.07)
Panel C: Matched Sample Control				
Treatment	-0.1665	0.021	50.240	587.66***
	(0.5331)	(0.0155)	(38.904)	(164.64)
Panel D: Neighbor Sample Control				
Treatment	0.0043	0.016	147.48***	708.91***
	(0.5378)	(0.0154)	(39.199)	(171.434)

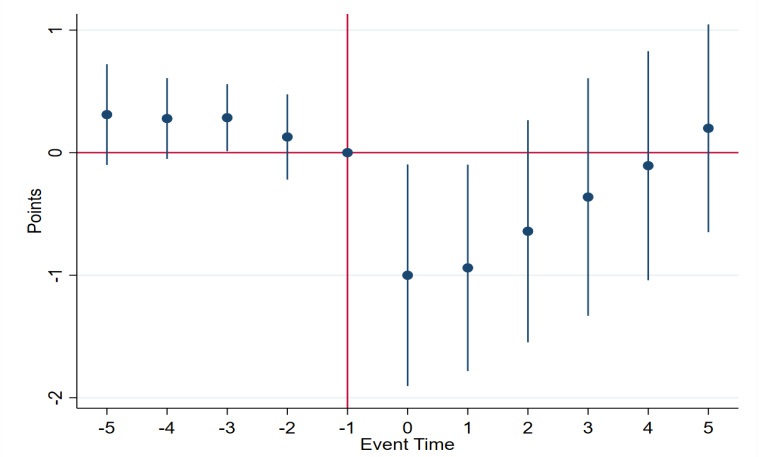
Notes: Based on authors' calculations using the FRBNY Consumer Credit Panel/Equifax (CCP). Risk Score is the Equifax Risk Score. Data on mass shootings from Brodeur and Yousaf (2022). Standard errors in parentheses. * indicates $p < 0.10$,** indicates $p < 0.05$, and *** indicates $p < 0.01$. Includes individual, age, year, and county fixed effects.

Table 4: **Effect of Mass Shootings on Financial Distress**

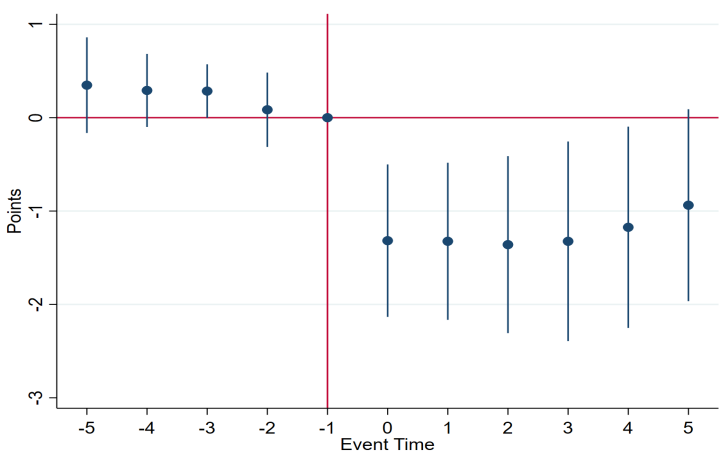
	Delinquent Bankcard Debt	Number of Collections	Collection Balance
Panel A: All Counties			
Treatment	23.370	-0.002	-19.648
	(17.196)	(0.007)	(16.864)
Panel B: Failed Shooting Sample Control			
Treatment	2.334	0.016**	95.07***
	(16.938)	(0.007)	(16.64)
Panel C: Matched Sample Control			
Treatment	6.2066	0.0031	29.253
	(17.05)	(0.007)	(17.89)
Panel D: Neighbor Sample Control			
Treatment	15.601	-0.0016	-12.752
	(17.082)	(0.007)	(16.874)

Notes: Based on authors' calculations using the FRBNY Consumer Credit Panel/Equifax (CCP). Risk Score is the Equifax Risk Score. Data on mass shootings from Brodeur and Yousaf (2022). Standard errors in parentheses. * indicates $p < 0.10$,** indicates $p < 0.05$, and *** indicates $p < 0.01$. Includes individual, age, year, and county fixed effects.

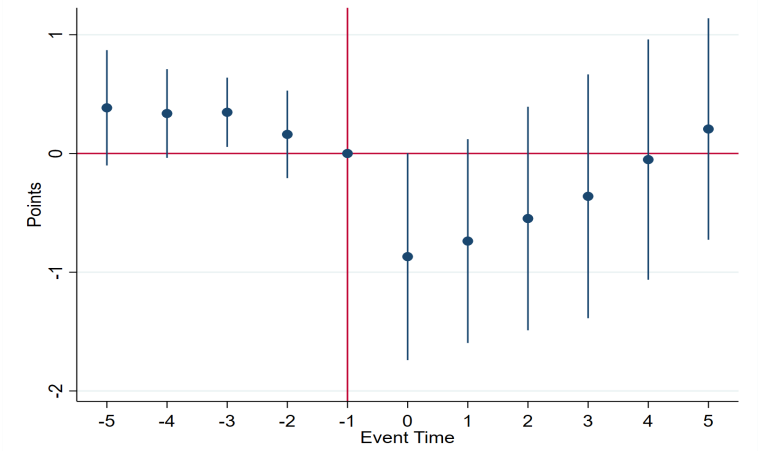
Figure 1: **Effect of Mass Shootings on Risk Score**



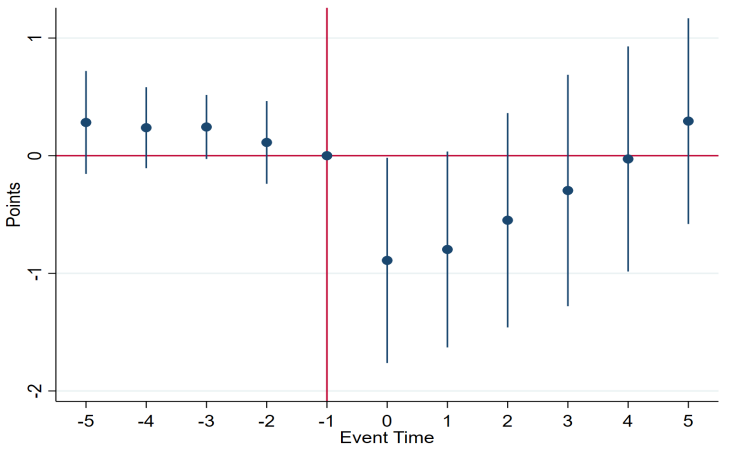
(a) Main



(b) Failed



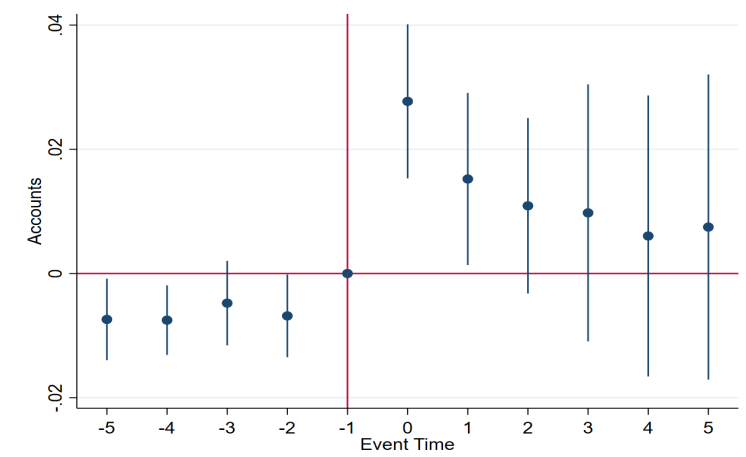
(c) Matched



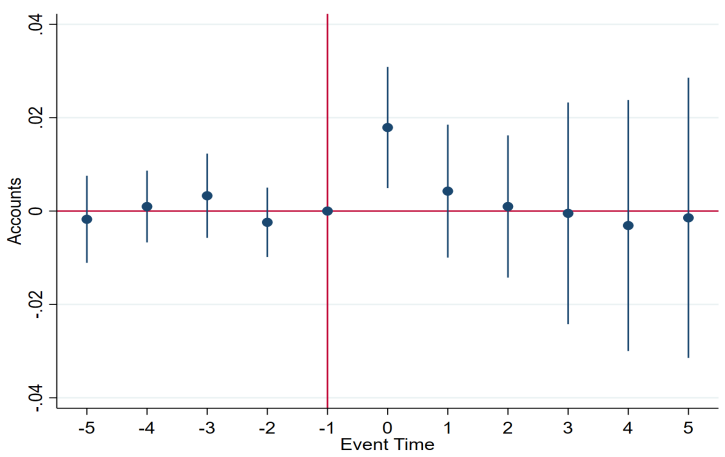
(d) Neighbor

Notes: Based on authors' calculations using the FRBNY Consumer Credit Panel/Equifax (CCP). Risk Score is the Equifax Risk Score. Data on mass shootings from Brodeur and Yousaf (2022).

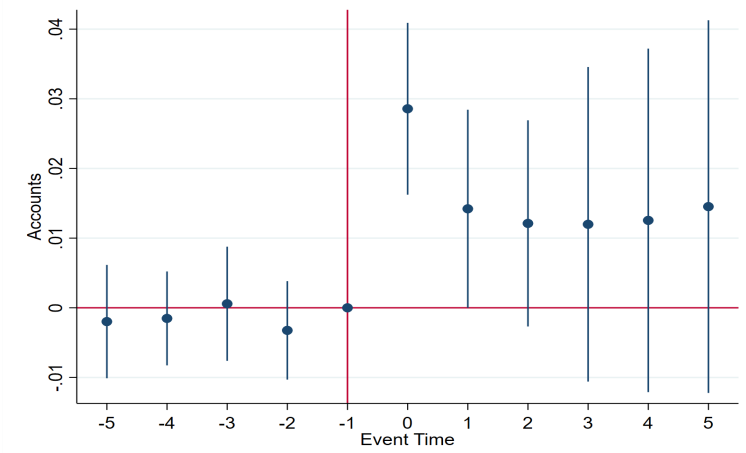
Figure 2: **Effect of Mass Shootings on Bankcard Accounts**



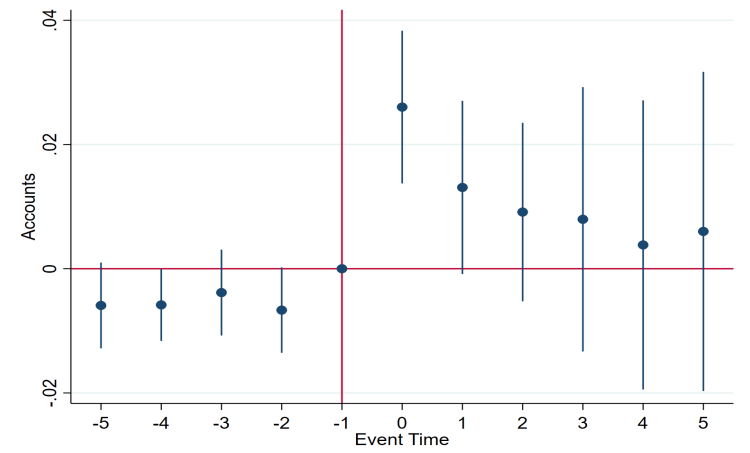
(a) Main



(b) Failed



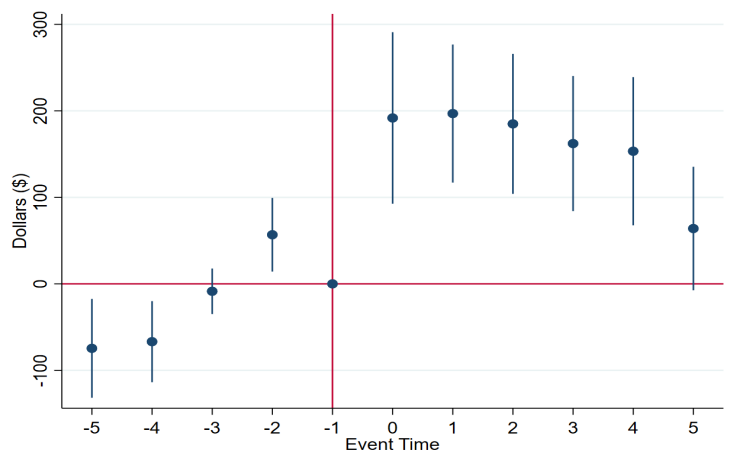
(c) Matched



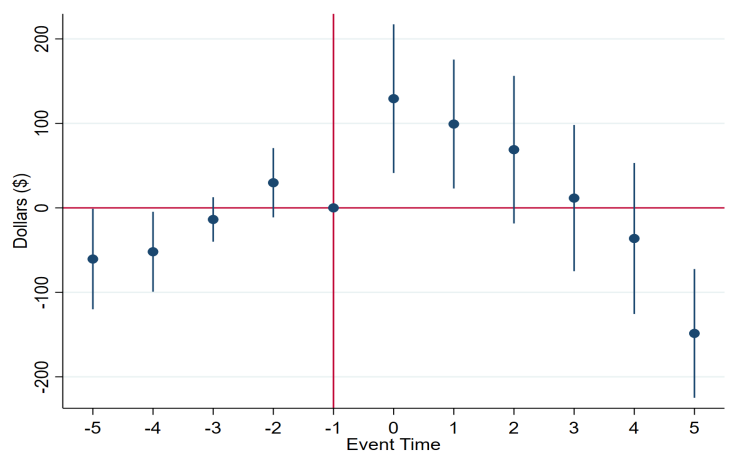
(d) Neighbor

Notes: Based on authors' calculations using the FRBNY Consumer Credit Panel/Equifax (CCP). Data on mass shootings from Brodeur and Yousaf (2022).

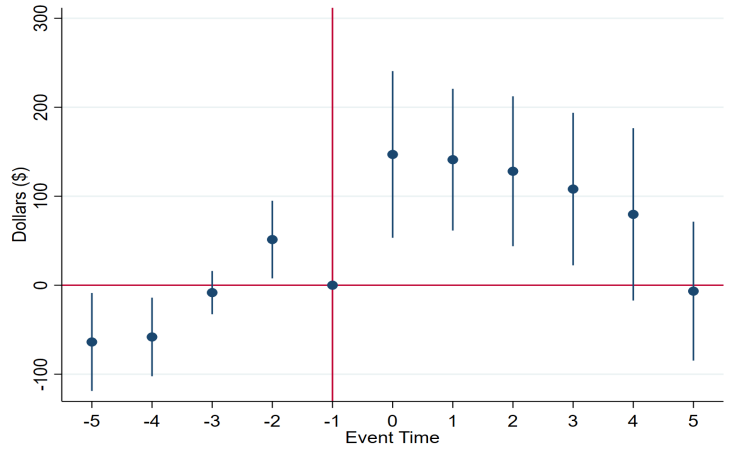
Figure 3: **Effect of Mass Shootings on Bankcard Balance**



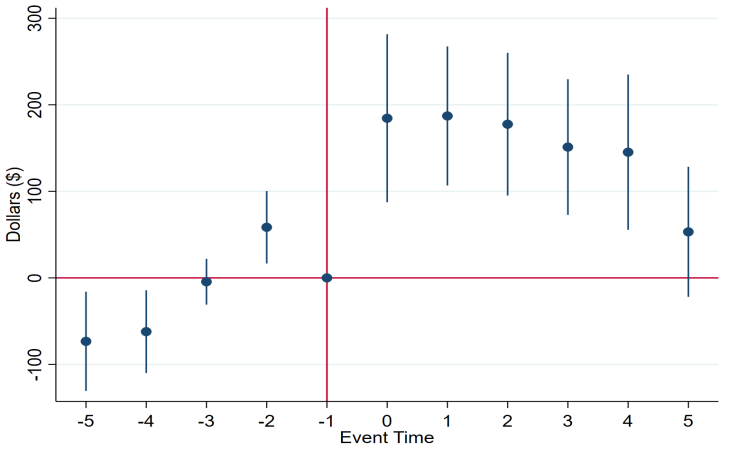
(a) Main



(b) Failed



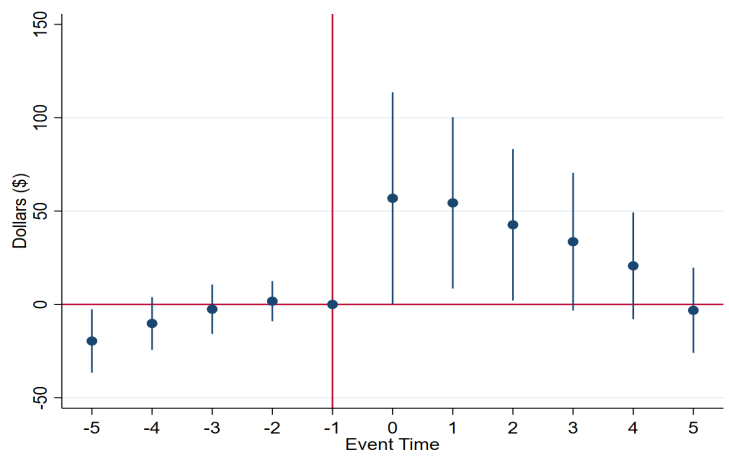
(c) Matched



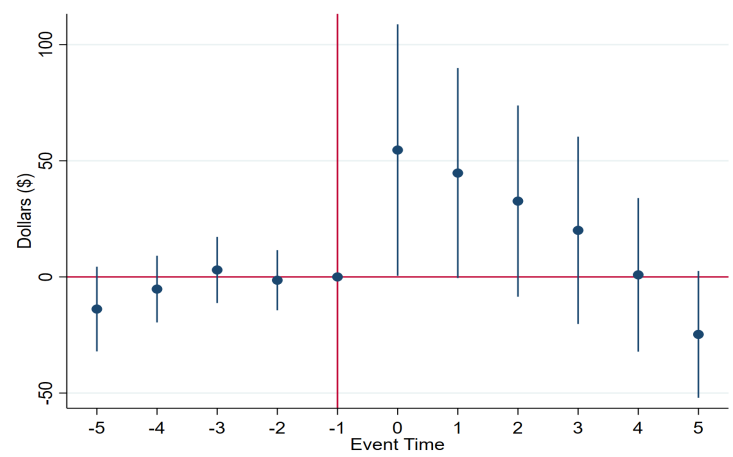
(d) Neighbor

Notes: Based on authors' calculations using the FRBNY Consumer Credit Panel/Equifax (CCP). Data on mass shootings from Brodeur and Yousaf (2022).

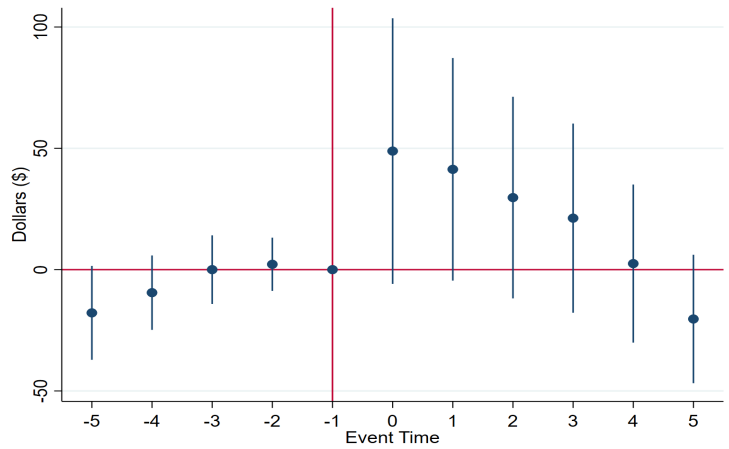
Figure 4: **Effect of Mass Shootings on Delinquent Bankcard Debt**



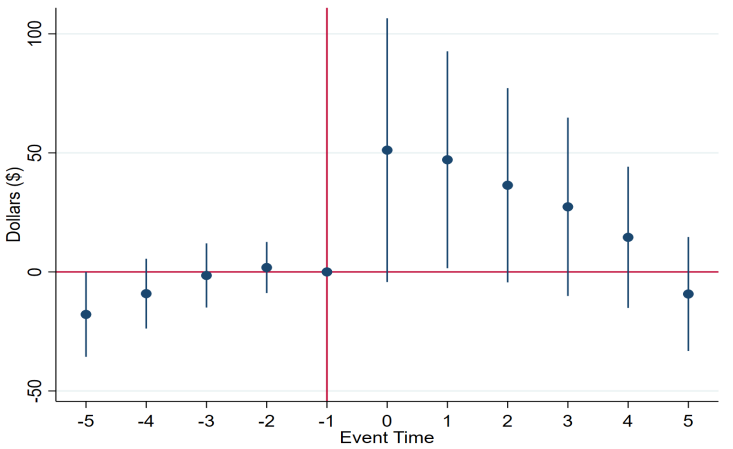
(a) Main



(b) Failed



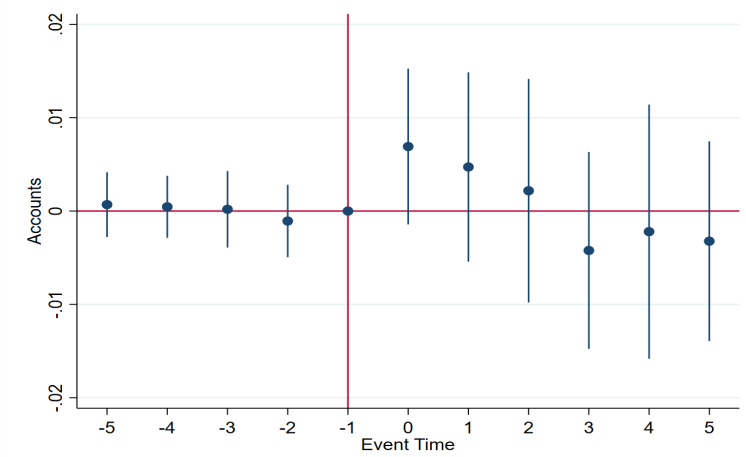
(c) Matched



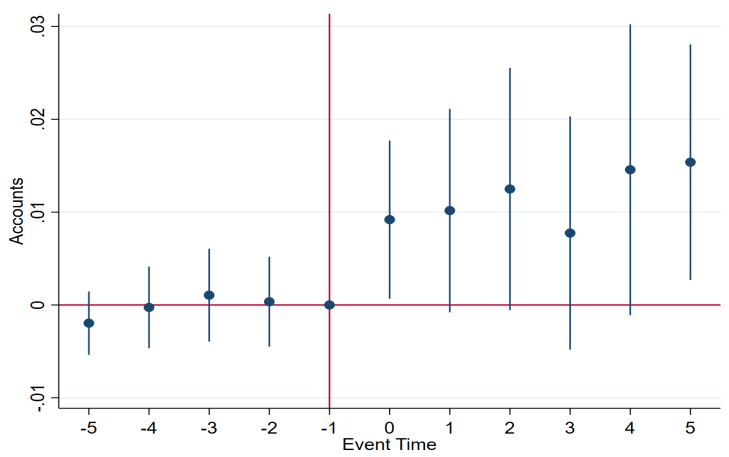
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Notes: Based on authors' calculations using the FRBNY Consumer Credit Panel/Equifax (CCP). Data on mass shootings from Brodeur and Yousaf (2022).

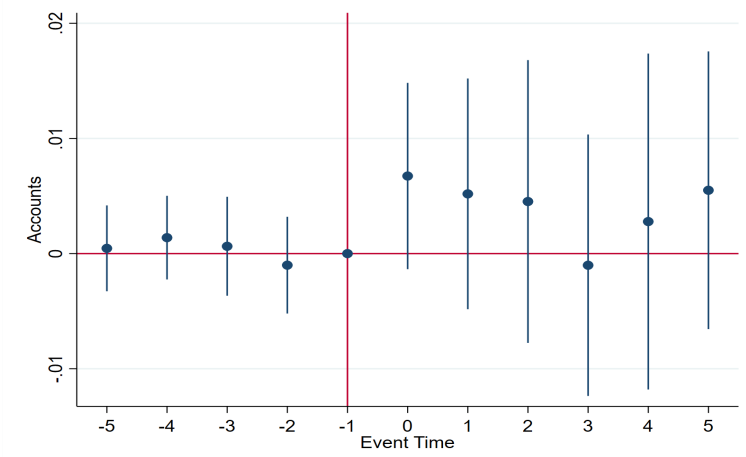
Figure 5: **Effect of Mass Shootings on Number of 3rd Party Collections**



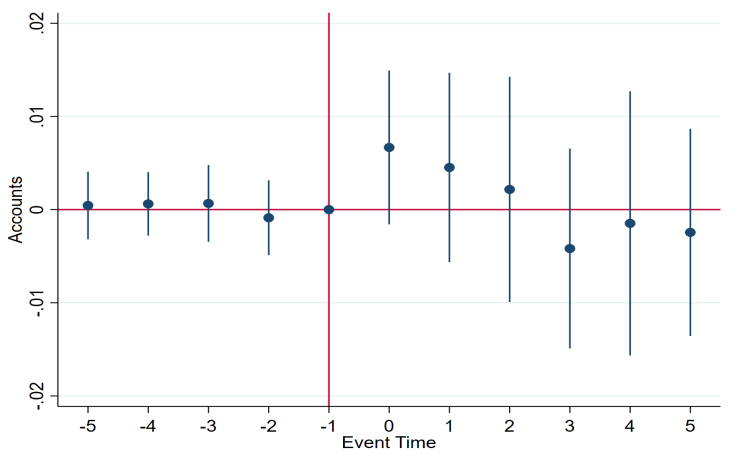
(a) Main



(b) Failed



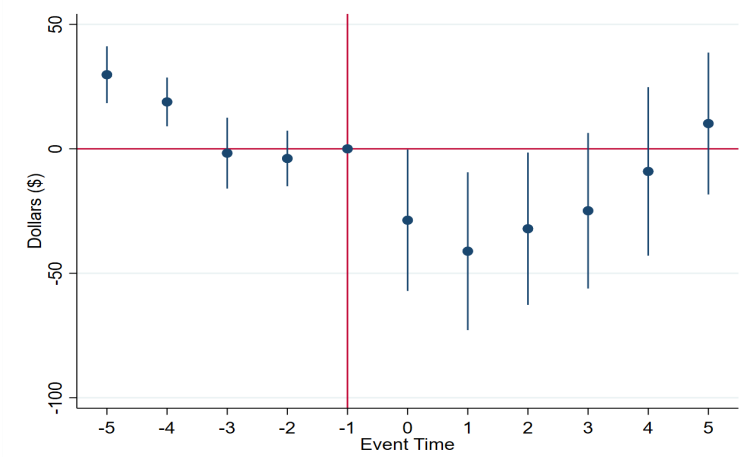
(c) Matched



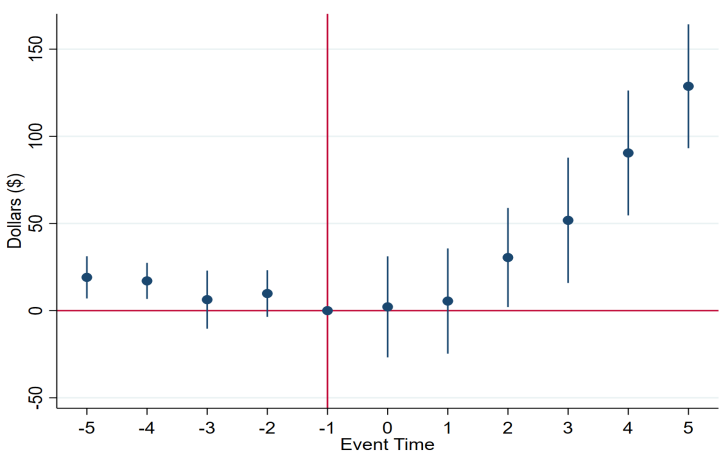
(d) Neighbor

Notes: Based on authors' calculations using the FRBNY Consumer Credit Panel/Equifax (CCP). Data on mass shootings from Brodeur and Yousaf (2022).

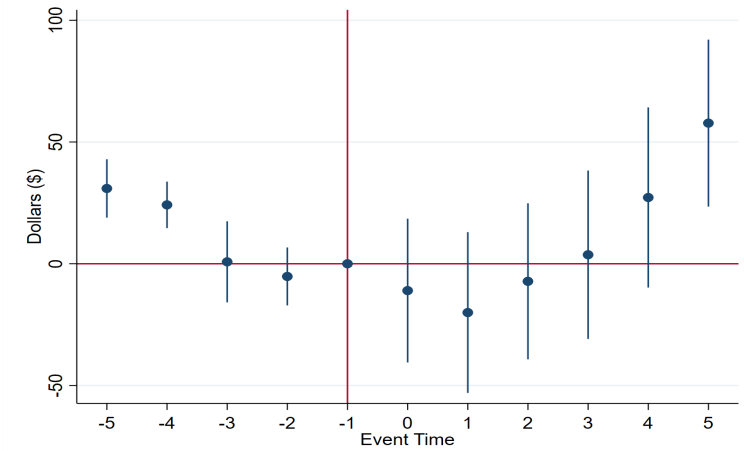
Figure 6: **Effect of Mass Shootings on Amount of Debt in 3rd Party Collections**



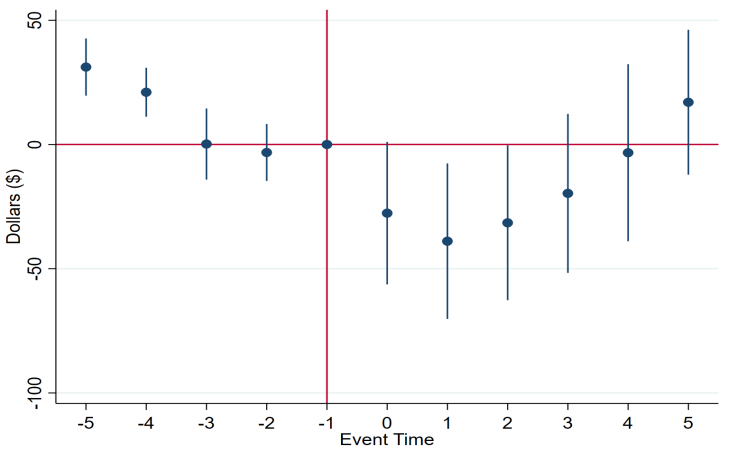
(a) Main



(b) Failed



(c) Matched



(d) Neighbor

Notes: Based on authors' calculations using the FRBNY Consumer Credit Panel/Equifax (CCP). Data on mass shootings from Brodeur and Yousaf (2022).

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