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Do crime victims lose trust in others? Evidence from Germany

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A B S T R A C T

This paper analyzes the empirical relationship between crime victimization and interpersonal trust. Using German data from a victimization survey of the German Federal Criminal Police Office, we find a robust and economically meaningful negative association between trust level and exposure to the crime types considered (robbery, burglary, theft, and physical violence). The finding suggests additional repercussions from crime and may motivate law enforcement reform to remedy the adverse effects of lower trust.

1. Introduction

Crime is among the most pressing social ills and creates immense economic costs (e.g., Chalfin, 2015). For example, Anderson (1999) estimates an annual crime burden for the United States at about 10 percent of GDP, using a comprehensive approach including expenses of the legal system and crime-prevention agencies, victim losses, opportunity costs of time, the fear of being victimized, and the cost of private deterrence. We want to highlight one of the less visible repercussions of crime. Against the background of recent literature documenting the long-lasting effect of individual experiences (e.g., Friehe & Pannenberg, 2020; Kettlewell, 2019), we explore how crime victimization changes whether people trust others in their daily interactions.

Trust permeates all human relationships. Trust in others is crucial for the functioning of societies and an important driver of individual success and well-being. According to Alesina and La Ferrara (2002), greater trust reduces transaction costs of economic activities, improves the functionality of large organizations and governments, and speeds up financial development.[1] More recently, Falk et al. (2018) present evidence about the influence of trust on economic development. At the level of the individual, Becker et al. (2012), for example, argue that trusting individuals attain better life outcomes.

Uslaner (2015) distinguishes between *general* and *particularized* trust, where the latter describes trust in people who are similar to the person at hand, meaning that our study addresses general trust in his terminology. He emphasizes that general trust is generally a stable concept rooted in the individual's belief that the world is a good place and that the individual controls outcomes. Intuitively, crime victimization can negatively affect both foundations of general trust. What Uslaner (2015) calls *strategic* trust responds more directly to experiences with others. This represents another way in which victimization may bear on trust. In this vein, using experimental data, Schwerter and Zimmermann (2020) provide evidence for the intuition that negative social experiences decrease the willingness to trust others. Our survey-based approach complements their research.

This paper shows that crime victimization is associated with lower interpersonal trust, using German data from a victimization survey of the *Federal Criminal Police Office* (Bundeskriminalamt, 2021). We find a robust relationship for victims of all the considered crime types (namely robbery, house burglary, theft, and violence). The association is economically meaningful and robust across our approaches (ordinary least squares, ordered probit regressions, propensity score matching). Our key findings are in all likelihood not explained by reverse causality because greater interpersonal trust means fewer precautions against crime which increases the victimization probability.[2] In addition, by considering instances within the last 12 months and the previous five years, we argue that more recent crime victimization experiences tend to produce a larger effect on trust.

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[1] Trust is often considered to be an essential component of *social capital* (e.g., Putnam et al., 1993). Alesina and La Ferrara (2002) argue that this is one of the reasons why economists are interested in trust. A recent contribution to how the concepts relate stems from Son and Feng (2019).

[2] Indeed, in our data, we find that trusting individuals spend less on precautions against crime, such as accepting detours and the like. Results are available upon request from the authors.

The adverse impact of crime victimization on trust is important. For example, when considering robbery, the effect size is almost 40 percent of the standard deviation of trust in our data. Thus, at the level of the individual, victims of crime can be expected to suffer seriously from the repercussions of lower trust (as trust is associated with income, for example; see, e.g., (Butler et al., 2016)) in addition to the more direct crime consequences. Significantly, on a social level, the social costs of crime must be broadened to include the implications of lower trust, such as reducing cooperative behavior and growth (e.g., Algan & Cahuc, 2010; Horvath, 2013). The fact that our results regarding how victimization experience and trust relate to each other rely on German data may limit their relevance. However, at least concerning the level of trust, Germany is similar to many large countries in the European Union (e.g., France, Italy, and Poland) and the world average (see Fig. A.1 in our appendix based on Falk et al. (2018)).

2. Literature

The social importance of trust explains why it has attracted much attention in recent literature. While researchers increasingly understand the implications of trust in various economic domains (e.g., Knack & Keefer, 1997; La Porta et al., 1997), less is known about the determinants of interpersonal trust. It is commonly believed that community characteristics, personality traits, and individual experiences influence how much people trust others (e.g., Bjornskov, 2021; Dang & Dang, 2021; Dohmen et al., 2012; Kosse et al., 2020; Mislin et al., 2015; Sabater-Grande et al., 2022). Along these lines, using data from the US General Social Survey, Alesina and La Ferrara (2002) find a significant association between trust and the aggregate measure "traumatic events in the past year", where the relevant survey item aggregates unemployment, deaths, divorces, and hospitalizations/disabilities into the trauma measure. Using data from the German Socio-Economic Panel, Friehe and Marcus (2021) show that involuntary job loss, an outcome often associated with feeling exploited or betrayed by others, reduces the willingness to trust others. We use data from the only large-scale victimization survey in Germany to focus on crime victimization as a very negative social experience and to study its association with interpersonal trust. We test our hypothesis that personal crime victimization lowers trust in others. This hypothesis is backed by the literature cited above (e.g., Uslaner, 2015).

The nexus of crime victimization and interpersonal trust has been considered before, but only with data from Latin America and often with no possibility to discriminate the effect according to the kind of crime or the time that has passed since the victimization. The results regarding the empirical relationship were quite mixed in the previous literature. Blanco and Ruiz (2013) rely on cross-sectional data from the Latin American Public Option Project surveys and find no significant effect on interpersonal trust. Similarly, Corbacho et al. (2015) find no robust effect when utilizing data from the World Gallup Survey 2007.[3] In contrast, using data from the Latin American Public Opinion Project surveys from 2004 until 2012, Pazzona (2020) explores how crime affects social capital and reports a significant negative effect on interpersonal trust. Our paper uses data from Germany that allows us (i) to distinguish between different kinds of crime victimization, (ii) to consider the effects of being victimized either within the previous five years or the last 12 months, and (iii) to control for detailed information about respondents. In contrast to previous papers, we can exploit a fine-grained and standard trust survey item.[4] While most previous studies are based on survey data, Bogliacino et al. (2022) conduct incentivized experiments. Among other findings less related to our research, they report the following (marginally) significant effect: trust-game senders who not only have been prompted to think about an adverse event (e.g., getting sick, experiencing violence, losing a job) but also self-report having experienced violence in the post-experimental questionnaire send more resources to their trust-game receivers than subjects who were not primed or who have no recent violence experience (where some observations stem from a treatment with third-party punishment). Their paper contributes to the literature about how exposure to violence and prosocial behavior are related (e.g., Bauer et al., 2016; Littman et al., 2019). Many other studies focus on the implications of victimization on trust in institutions such as the police. See, for example, the papers by Blanco (2013) and Cozzubo et al. (2021) and the literature they refer to. These contributions usually report negative effects. Trust in institutions is very different from trust in others (e.g., Uslaner, 2015), which makes these contributions less relevant to our project.

3. Data and empirical strategy

3.1. Data

We use the *German Victimization Survey*, conducted on behalf of the Federal Criminal Police Office (Bundeskriminalamt, 2021), to collect comprehensive information about fear of crime, victim experiences, and reporting behavior in Germany. The study was designed as a cross-sectional survey conducted in 2012 and 2017. We will pool the data in our empirical analysis. The survey data is representative of the German population aged 16 and over and was collected in computer-assisted telephone interviews. We apply the survey weights to ensure representativeness (see Bundeskriminalamt (2021)).[5]

Our measure of trust depends on the respondents' extent of (dis)agreement with the statement "In general, one can trust people" on an 11-point Likert scale, where 0 represents "not at all' and 10 means "entirely". Our measure of trust is thus similar, for example, to that used by Alesina and La Ferrara (2002) and that used by Dohmen et al. (2008, 2012)), which was also experimentally validated (Fehr et al., 2003). In our working samples, social trust has a mean (standard deviation) of about 5.91 (1.87).

Our central variable is a dummy variable equal to one if the subject was a victim of a robbery, house burglary, theft, or physical violence within the previous five years. In addition, we use a follow-up question inquiring about any incidents within the last 12 months. When considering this follow-up question, we exclude subjects victimized more than 12 months but less than 60 months before from the working sample. Table 1 illustrates the share of treated survey respondents across crime categories. Note that individuals were overwhelmingly victims of at most one kind of crime.[6]

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[3] The relevant questions from the surveys that were used as trust measures ("If you were in trouble, do you have relatives or friends you can count on to help?", "Other than your family members, is there someone you trust enough to make them your partner to start a business?") do not match the items used elsewhere for trust.

[4] Whereas we focus on the association of victimization and trust, previous papers have considered, for example, beliefs, mental health, and labor market outcomes as well as subsequent avoidance investments (see, e.g., Bindler & Ketel, 2022; Bindler et al., 2020; Braakmann, 2012; Di Tella et al., 2008; Velasquez, 2020).

[5] Several analyses for the first cross-section from 2012 are included in Birkel et al. (2016).

[6] Accordingly, our results presented below are robust to considering subjects with exactly one victimization from the different crime categories and comparing them to respondents without any experience in the last five years. See Table S.5 in our Supplementary Material.

Table 1

Number of control and treated observations across crimes (Pooled Data from 2012 and 2017).

	Robbery		House Burglary		Theft		Physical Violence	
	5 years	12 months	5 years	12 months	5 years	12 months	5 years	12 months
N	33,025	32,306	33,017	32,214	32,958	30,078	33,011	31,336
Treated	954	235	1013	210	3985	1105	2507	832
Control	32,071	32,071	32,004	32,004	28,973	28,973	30,504	30,504

Notes: We use pooled data from the 2012 and 2017 editions of the *German Victimization Survey* conducted on behalf of the Federal Criminal Police Office. We apply survey weights to ensure representativeness. A subject is "treated" when it self-reports that it was a subject of a robbery, house burglary, theft, or physical violence. When considering the treatment "last 12 months", we exclude subjects who were victimized more than 12 months but less than 60 months before from the working sample.

In addition, we include several control variables relating to demographics (containing the individual variables age, gender, migration background, marital status, inhabitants in place of residence, federal state), employment status (distinguishing the categories full-time employment, part-time employment, training/internship/military service, maternity/paternity leave, retired, unemployed, and average monthly income), and information about the respondent's education (distinguishing the categories basic school, middle school, high school, university degree). Tables A.5–A.6 in the appendix inform about descriptive statistics.[7]

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[7] These tables are represented by crime category as there are minuscule differences in sample size due to a few missing values.

3.2. Empirical strategy

Our variable of interest, the willingness to trust others, is measured on an 11-point Likert scale. For ease of interpretation, we start our empirical analysis using pooled ordinary least-squares regressions. Our baseline equation is:

$$\text{Trust}_{it} = \alpha + \beta \text{Victimization}_{it} + \gamma X_{it} + \varepsilon_{it}$$

where it denotes respondent i observed in t, t = 2012, 2017, X_{it} contains both controls at the individual level and state and time dummy variables, and ε_{it} is the error term. Our parameter of interest is β.

In addition to our results from pooled ordinary least-squares regressions, we present findings from ordered-probit regressions and propensity-score matching (PSM). The latter procedure balances observable differences in characteristics, focusing on the differences

Table 2

Victimization and trust: OLS results using the willingness to trust others measured on an 11-point Likert scale as the dependent variable.

	(1)	(2)	(3)	(4)	(5)	(6)
Robbery						
Last 5 Years? Yes	−0.630***		−0.886***		−0.887***	
	(−5.33)		(−7.57)		(−7.60)	
Last 12 Months? Yes		−0.621**		−1.027***		−1.028***
		(−2.87)		(−4.34)		(−4.37)
N	33,025	32,306	32,531	31,829	32,531	31,829
R^2	.89671	.89823	.90435	.90568	.90443	.90576
House Burglary						
Last 5 Years? Yes	−0.182+		−0.205*		−0.203*	
	(−1.91)		(−2.14)		(−2.12)	
Last 12 Months? Yes		−0.341+		−0.433*		−0.432*
		(−1.72)		(−2.20)		(−2.19)
N	33,017	32,214	32,524	31,738	32,524	31,738
R^2	.89659	.89662	.90377	.90392	.90385	.90401
Theft						
Last 5 Years? Yes	−0.178***		−0.287***		−0.289***	
	(−3.36)		(−5.59)		(−5.63)	
Last 12 Months? Yes		−0.223**		−0.322***		−0.321***
		(−2.62)		(−3.93)		(−3.93)
N	32,958	30,078	32,469	29,641	32,469	29,641
R^2	.89651	.89767	.904	.90517	.90409	.90528
Physical Violence						
Last 5 Years? Yes	−0.261***		−0.560***		−0.561***	
	(−3.58)		(−8.12)		(−8.15)	
Last 12 Months? Yes		−0.459***		−0.723***		−0.728***
		(−3.79)		(−6.47)		(−6.55)
N	33,011	31,336	32,518	30,876	32,518	30,876
R^2	.89655	.89899	.90435	.90649	.90443	.90658
Time Dummy	No	No	Yes	Yes	Yes	Yes
State Dummy	No	No	Yes	Yes	Yes	Yes
Interacted Dummies	No	No	No	No	Yes	Yes

Notes: We report results from ordinary-least-squares regressions where the dependent variable is the subject's response on the 11-item Likert scale for trust. When we test for the effect of 12 months, we exclude subjects who had an experience more than one but less than five years ago. We report full results in our Supplementary Material. We employ Stata's SVY commands such that standard errors are computed using the linearized variance estimator. t statistics in parentheses + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 3
Victimization and Trust: Ordered probit results using the willingness to trust others measured on an 11-point Likert scale as the dependent variable.

	Robbery		House burglary		Theft		Physical Violence	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Last 5 years? Yes	−0.427***		−0.109*		−0.152***		−0.286***	
	(−7.57)		(−2.29)		(−5.79)		(−8.22)	
Last 12 Months? Yes		−0.464***		−0.207*		−0.179***		−0.383***
		(−4.20)		(−2.10)		(−4.31)		(−6.50)
N	33,025	32,306	33,017	32,214	32,958	30,078	33,011	31,336
F	39.07	36.201	37.409	35.767	38.05	34.859	39.039	34.708

Notes: We report results from ordered probit regressions where the categories are the 11 items from the trust survey item. When we test for the effect of 12 months, we exclude subjects who had an experience more than one but less than five years ago. We always include our control variables and report full results in our Supplementary Material. t statistics in parentheses. $+ \ p < 0.10$, $* \ p < 0.05$, $** \ p < 0.01$, $*** \ p < 0.001$.

Table 4
Victimization and Trust: Marginal effects after ordered probit regressions.

	Robbery		House burglary		Theft		Physical Violence	
	5 years	12 months	5 years	12 months	5 years	12 months	5 years	12 months
Trust = 0	0.031***	0.035**	0.006*	0.012	0.008***	0.010***	0.018***	0.026***
	(5.31)	(2.89)	(2.07)	(1.75)	(4.99)	(3.62)	(6.36)	(4.66)
Trust = 1	0.012***	0.013**	0.002*	0.005	0.003***	0.004***	0.007***	0.009***
	(5.61)	(3.25)	(2.11)	(1.83)	(4.98)	(3.72)	(6.08)	(4.85)
Trust = 2	0.025***	0.028***	0.006*	0.011	0.008***	0.010***	0.016***	0.022***
	(6.33)	(3.59)	(2.17)	(1.91)	(5.32)	(3.93)	(7.08)	(5.50)
Trust = 3	0.032***	0.034***	0.008*	0.015*	0.011***	0.013***	0.021***	0.028***
	(7.06)	(4.03)	(2.22)	(2.01)	(5.54)	(4.11)	(7.59)	(6.09)
Trust = 4	0.029***	0.031***	0.008*	0.015*	0.011***	0.013***	0.020***	0.027***
	(8.07)	(4.71)	(2.29)	(2.13)	(5.71)	(4.29)	(8.17)	(6.79)
Trust = 5	0.035***	0.036***	0.012*	0.022**	0.017***	0.020***	0.029***	0.035***
	(16.25)	(13.75)	(2.51)	(2.66)	(6.41)	(5.08)	(10.72)	(11.53)
Trust = 6	−0.017***	−0.020*	−0.002	−0.006	−0.003***	−0.004**	−0.008***	−0.014***
	(−4.63)	(−2.56)	(−1.67)	(−1.38)	(−4.03)	(−2.86)	(−5.13)	(−3.88)
Trust = 7	−0.056***	−0.062***	−0.013*	−0.026	−0.018***	−0.022***	−0.036***	−0.050***
	(−7.04)	(−3.94)	(−2.19)	(−1.96)	(−5.50)	(−4.05)	(−7.58)	(−5.99)
Trust = 8	−0.060***	−0.065***	−0.017*	−0.031*	−0.024***	−0.028***	−0.043***	−0.056***
	(−8.86)	(−5.09)	(−2.35)	(−2.23)	(−5.93)	(−4.50)	(−8.83)	(−7.43)
Trust = 9	−0.016***	−0.016***	−0.005*	−0.009*	−0.007***	−0.008***	−0.012***	−0.015***
	(−9.62)	(−5.97)	(−2.44)	(−2.43)	(−6.05)	(−4.73)	(−9.13)	(−8.15)
Trust = 10	−0.014***	−0.014***	−0.005*	−0.008**	−0.006***	−0.007***	−0.011***	−0.013***
	(−10.03)	(−6.73)	(−2.51)	(−2.58)	(−6.23)	(−4.93)	(−9.21)	(−8.56)
N	33025	32306	33017	32214	32958	30078	33011	31336

Notes: We report marginal effects obtained from ordered-probit regressions where the categories are the 11 items from the trust survey item. When we test for the effect of 12 months, we exclude subjects who had an experience more than one but less than five years ago. t statistics in parentheses. $+ \ p < 0.10$, $* \ p < 0.05$, $** \ p < 0.01$, $*** \ p < 0.001$.

emerging from crime victimization alone. Tables A.1 to A.4 in our appendix show that the population with crime victimization experience is younger, more likely to be male, less likely to be married, more urban, and more likely to be unemployed, for example, which is consistent with results regarding victimization determinants in Bindler et al. (2020) and Pazzona (2020). Therefore, we believe that showing our results' robustness is very important. PSM is also used by Corbacho et al. (2015) and Pazzona (2020). We cannot control for unobservable individual fixed effects, given that we use cross-sections from 2012 and 2017.[8] The matching cannot control for bias if unobservables simultaneously influence the victimization probability and trust. We discuss the procedure's robustness in greater detail at the end of Section 4.3.

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[8] Using exceptional data, Bindler and Ketel (2022) can compare victims to other individuals who are victimized at different times, thereby avoiding selection bias.

4. Results

4.1. Victimization and trust: Results from ordinary least squares

Table 2 presents our results from pooled ordinary least-squares regressions. The coefficient of the victimization dummy variable is significant and negative, and the effect size is economically meaningful. The coefficients for robbery indicate a willingness to trust others that is lower by more than 10 percent of the mean of trust, an effect size of almost 40 percent of the standard deviation of trust in our data. Intuitively, the coefficients for robbery are larger than for house burglary or theft. When something of value is taken from the victim through the use or threat of physical force, this represents a very impressive negative social experience. Resick (1987), for example, finds that the psychological symptomology after a robbery is similar to that after rape (i.e., it is very severe). This experience compares to theft and house burglary, where social interaction with the perpetrator is usually absent. Consistent with this argument, the effect size for physical violence is similar to that of robbery when we include our battery of dummy variables in Columns (3)-(6).

Table 5
Victimization and Trust: Propensity score matching.

	Robbery		House burglary		Theft		Physical Violence	
	5 years	12 months	5 years	12 months	5 years	12 months	5 years	12 months
Average Treatment Effect								
Nearest Neighbor(1)	−0.835***	−0.586**	−0.267**	−0.209	−0.213***	−0.230**	−0.570***	−0.939***
	(0.095)	(0.212)	(0.083)	(0.137)	(0.042)	(0.078)	(0.069)	(0.195)
Nearest Neighbor(100)	−0.764***	−0.804***	−0.189**	−0.427*	−0.226***	−0.237***	−0.621***	−0.901***
	(0.080)	(0.183)	(0.064)	(0.168)	(0.034)	(0.064)	(0.064)	(0.111)
Radius (r = 0.2)	−0.835***	−0.586**	−0.267**	−0.209	−0.213***	−0.230**	−0.570***	−0.939***
	(0.095)	(0.212)	(0.083)	(0.137)	(0.042)	(0.078)	(0.069)	(0.195)
Average Treatment Effect on the Treated								
Nearest Neighbor(1)	−0.811***	−1.002***	−0.154*	−0.323	−0.268***	−0.286***	−0.600***	−0.945***
	(0.090)	(0.188)	(0.078)	(0.192)	(0.042)	(0.076)	(0.059)	(0.097)
Nearest Neighbor(100)	−0.857***	−0.956***	−0.196**	−0.372*	−0.243***	−0.295***	−0.630***	−0.872***
	(0.074)	(0.150)	(0.064)	(0.159)	(0.033)	(0.060)	(0.047)	(0.076)
Radius (r = 0.2)	−0.811***	−1.002***	−0.154*	−0.323	−0.268***	−0.286***	−0.600***	−0.945***
	(0.090)	(0.188)	(0.078)	(0.192)	(0.042)	(0.076)	(0.059)	(0.097)
# of Treated	954	235	1,013	210	3,985	1,105	2,507	832
N	33,025	32,306	33,017	32,214	32,958	30,078	33,011	31,336

Notes: We report results from propensity score matching exercises. When we test for the effect of 12 months, we exclude subjects who had an experience more than one but less than five years ago. *t* statistics in parentheses. + $p < 0.10$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Our results contrast sharply with those presented in Corbacho et al. (2015) and Blanco and Ruiz (2013) as they do not find a robust association between interpersonal trust and victimization. However, our results are similar to Pazzona (2020) findings. He considers victimization as "having been the victim of any type of crime in the last 12 months". He condenses the responses from a seven-item trust variable to a dummy variable where 5–7 are interpreted as trusting other people. He reports that a victim of any crime is about 7% less likely to trust other people, which is also about 10% of the mean in his data. Moreover, behavioral adaptations after crime victimization, as reported by Braakmann (2012) regarding time allocation and by Hansen et al. (2010) regarding the level of social interactions, for example, also seem generally consistent with our significant trust results.

Whereas the related literature usually relies on victimization in the last 12 months, we can consider the effect for people victimized in the previous five years and compare it to that for people victimized in the last 12 months. Although the coefficient magnitudes are ranked as expected, it is noteworthy that the effect remains relatively stable in our data. This is consistent with the argumentation put forth by Resick (1987), for example, but differs from findings regarding victimization and life satisfaction which appear to be more short-lived (e.g., Bindler et al., 2020).

4.2. Victimization and trust: Results from ordered probit regressions

We provide results from ordered probit regressions to address concerns about the assumed linearity of the outcome variable (e.g., Liddell & Kruschke, 2018). The results are illustrated in Table 3 and are consistent with those presented above.

We present the marginal effects in Table 4 to allow for a straightforward interpretation of our ordered probit results. Except for house burglary, we always find significant differences such that victims of crime are more (less) likely to select lower (higher) response items than individuals without crime experience. For example, considering individuals who have been robbery victims within the last five years, we find that they are 3.1 percentage points *more* likely than non-victims to choose "not at all" (i.e., select zero on the 11-item Likert scale) and about 1.4 percentage points *less* likely to select "entirely" (i.e., to select ten on the scale). As explained above, the effect is most important for victims of robbery.

4.3. Victimization and trust: Results from propensity score matching

Next, we turn to PSM to estimate the effect of victimization on the willingness to trust. Similar to Corbacho et al. (2015) and Pazzona (2020), we implement three different specifications: (i) a single-nearest neighbor match with replacement (Nearest Neighbor (1)), (ii) the 100 nearest neighbor matches with replacement, and (iii) a radius within 0.2 of the propensity score.[9] We find that the matching exercise works well. In our appendix, we report test results showing that the covariates are quite balanced after matching. Table 5 shows results for the *Average Treatment Effect* and the *Average Treatment Effect on the Treated*. Except for the case of house burglary, where the number of treated subjects drops to 210 for the 12-months time horizon, we find that our main results are robust. The robustness also applies to the finding that robbery and physical violence produce higher coefficients.

In our Supplementary Material, we report the results from the bounding approach proposed by Rosenbaum (2002) to check whether unobserved factors may alter inference about treatment effects. When considering $\Gamma \in [1, 1.5]$, we find that all of our results remain robust.[10] In other words, even if significant hidden bias exists, it is unlikely to question our main results.

4.4. Victimization and trust: Effect heterogeneity

After showing the robustness of the association between crime victimization and interpersonal trust, we briefly explore the potential effect heterogeneity in two important socio-demographic dimensions, namely gender, and education. In Fig. 1, we show differences between predictive margins across subgroups for trust items 8, 9, and 10. Using $P(i)$ to denote the probability of choosing trust item $i = 8, 9, 10$, we represent in the figure the result of

$$P_1^{\text{Victim}}(i) - P_1^{\text{No Victim}}(i) - (P_2^{\text{Victim}}(i) - P_2^{\text{No Victim}}(i))$$

where we use as subgroups either $1 = $ male and $2 = $ female or $1 = $ basic schooling and $2 = $ university degree.

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[9] The width of the radius represents the size of the local neighborhood around the propensity score within which counterfactual observations are matched.

[10] See, for example, Becker and Caliendo (2007) and Peel and Makepeace (2012) for an elaborate discussion of this sensitivity analysis.
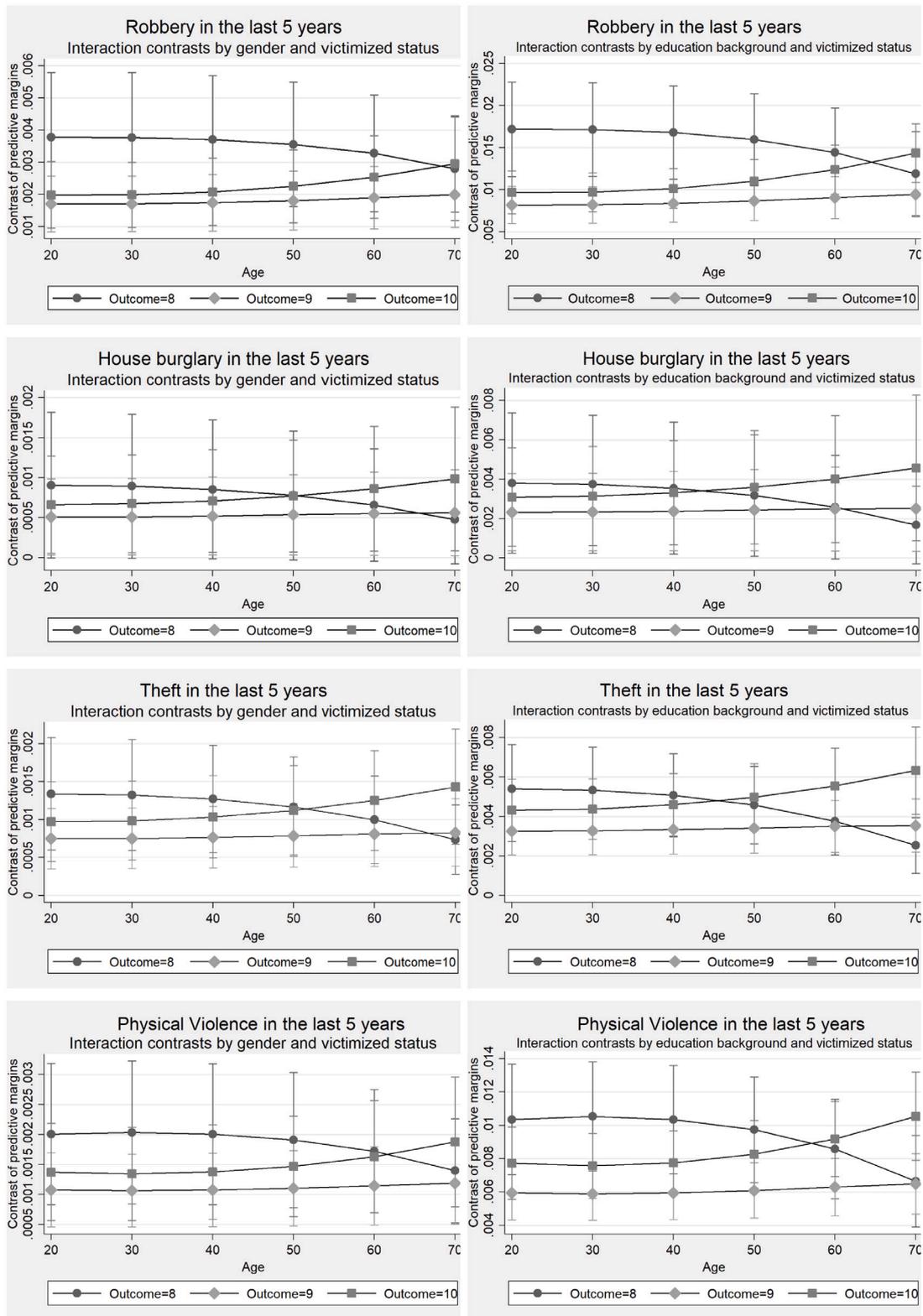
Fig. 1. Differential impact of victimization across subgroups (95% confidence intervals are displayed).

Considering the top left panel in Fig. 1 as an example, we find that the probability of choosing 8/9/10 is reduced more strongly for female victims of robbery than male ones since the probability of choosing 8/9/10 is lower for victimized individuals in both groups. This connotes that the victimization effect is relatively stronger for women at high levels of trust toward strangers. The pattern for robbery also holds for the other crimes considered, except for house burglary, where the confidence interval includes zero for some age groups.

Using the same procedure, we find that individuals with a university degree are relatively more likely to shift away from trust items 8/9/10 after a robbery (top-right panel). This pattern is again robust across the different crime categories except for house burglary, where the

confidence interval includes zero for some age groups. In addition to the results reported here, we find that migration background and marital status induce differential responses.

5. Discussion and conclusion

Trust is critical for success at the social and individual levels. Previous research shows that social experiences can influence trust in others. This paper provides evidence that a negative and economically meaningful association exists between crime victimization and the willingness to trust others. Using data from Germany, we show robust results across different methodological approaches.

Our finding is relevant for policymaking. When being victimized implies that the willingness to trust others decreases, crime imposes enormous additional social costs as trust is such an essential lubricant for transactions (e.g., Fukuyama, 1995). This may be particularly important for crime-ridden neighborhoods. Based on our evidence, high crime rates may contribute to lower trust in others. The resulting lack of social cohesion and social capital at the neighborhood level may make crime more likely, creating a vicious circle. In addition, the relationship between victimization and trust could also have implications for law enforcement policy. First, the greater social cost of crime suggests that using more resources for the fight against crime may be advised. Regarding the structure of enforcement, our results present arguments favoring *preventive* enforcement instead of ex-post investigations to avoid victimizing people. For example, officers on patrol can physically prevent crimes in progress, such as thefts or assaults (e.g., Friehe & Tabbach, 2013). In addition, should victimizations occur, insisting on victim-offender mediation may help to remedy the adverse consequences of crime victimization on the willingness to trust others (e.g., Hansen & Umbreit, 2018).

This paper contributes to the literature but has its limitations. Our study provides evidence from Germany, a very developed industrialized country. We believe reverse causality is rather unlikely and have employed propensity score matching to offset bias. However, the cross-sectional design and low frequency of the victimization survey make very clean causal inferences difficult. The previous literature implements survey designs similar to ours, leaving the task of running closely monitored event studies for future research.

Data availability

The authors do not have permission to share data.

Acknowledgments

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Appendix

See Table A.1, Table A.2, Table A.3.

Appendix B. Supplementary data

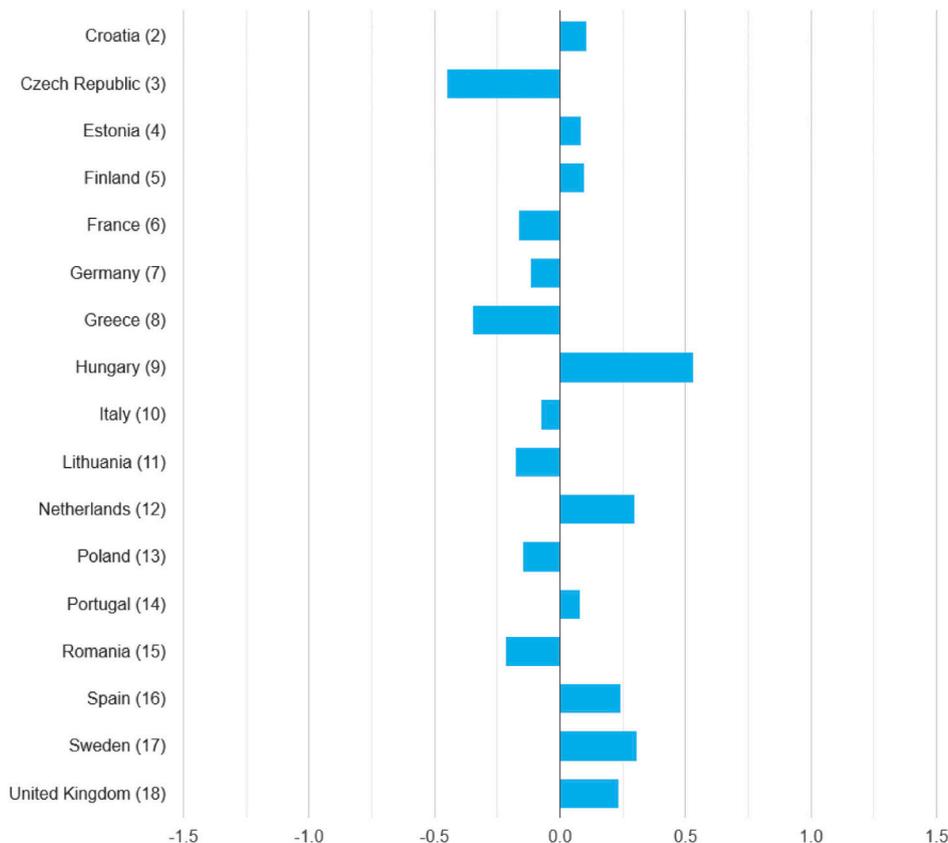Supplementary material related to this article can be found online at https://doi.org/10.1016/j.socec.2023.102027.

Fig. A.1. Difference to the world mean of trust in EU Countries (in standard deviation; (Falk et al., 2018)).

Table A.1
Matched and unmatched covariates: Robbery victimization in the last 5 years.

Sample	Pseudo R^2		LR χ^2				p> χ^2
Unmatched	0.062		539.180				0.000
Matched	0.006		15.740				0.784

Variable		Mean Treated	Mean Control	%bias	% reduction |bias|	t	p|t|
Male	Unmatched	0.575	0.481	19.1		5.780	0.000
	Matched	0.575	0.593	−3.6	81.2	−0.790	0.430
Migration background	Unmatched	0.233	0.167	16.4		5.320	0.000
	Matched	0.233	0.198	8.7	47.2	1.840	0.066
1,000 < Average monthly income < 2,000	Unmatched	0.334	0.299	7.5		2.320	0.020
	Matched	0.334	0.348	−2.9	61	−0.630	0.530
2,000 < Average monthly income < 3,000	Unmatched	0.243	0.288	−10.1		−2.990	0.003
	Matched	0.243	0.216	6.2	38.7	1.420	0.157
Average monthly income > 3,000	Unmatched	0.269	0.322	−11.6		−3.430	0.001
	Matched	0.269	0.290	−4.6	60.2	−1.020	0.308
Age	Unmatched	42.136	51.464	−55.9		−17.270	0.000
	Matched	42.136	41.983	0.9	98.4	0.200	0.844
Age × Age	Unmatched	2061.9	2918.2	−52		−15.340	0.000
	Matched	2061.9	2055	0.4	99.2	0.090	0.925
Middle School	Unmatched	0.329	0.304	5.3		1.630	0.102
	Matched	0.329	0.340	−2.3	57.6	−0.490	0.628
High School	Unmatched	0.219	0.169	12.7		4.070	0.000
	Matched	0.219	0.221	−0.5	95.8	−0.110	0.912
University Degree	Unmatched	0.276	0.315	−8.6		−2.570	0.010
	Matched	0.276	0.282	−1.4	84	−0.310	0.760
Married	Unmatched	0.327	0.571	−50.6		−15.030	0.000
	Matched	0.327	0.347	−4.1	91.8	−0.920	0.358
Divorced	Unmatched	0.152	0.102	15.2		5.040	0.000
	Matched	0.152	0.132	6	60.5	1.250	0.213
Widowed	Unmatched	0.049	0.084	−13.9		−3.810	0.000
	Matched	0.049	0.043	2.5	81.8	0.650	0.513
Small Town	Unmatched	0.305	0.346	−8.8		−2.650	0.008
	Matched	0.305	0.320	−3.1	64.5	−0.690	0.489
Intermediate Town	Unmatched	0.222	0.176	11.6		3.690	0.000
	Matched	0.222	0.220	0.5	95.5	0.110	0.912
Large Town	Unmatched	0.191	0.126	18		5.960	0.000
	Matched	0.191	0.190	0.3	98.4	0.060	0.954
Part-time Employment	Unmatched	0.123	0.145	−6.5		−1.920	0.055
	Matched	0.123	0.110	3.7	43.2	0.860	0.392
Training, Internship, Military Service	Unmatched	0.157	0.071	27.2		10.010	0.000
	Matched	0.157	0.156	0.3	98.8	0.060	0.950
Maternity/Paternity Leave	Unmatched	0.042	0.059	−7.9		−2.240	0.025
	Matched	0.042	0.040	1	87.9	0.230	0.817
Retired	Unmatched	0.148	0.279	−32.4		−8.940	0.000
	Matched	0.148	0.130	4.4	86.4	1.130	0.261
Unemployed	Unmatched	0.087	0.045	16.9		6.060	0.000
	Matched	0.087	0.093	−2.5	85	−0.480	0.632

Table A.2
Matched and unmatched covariates: House burglary victimization in the last 5 years.

Sample	Pseudo R^2	LR χ^2	p> χ^2
Unmatched	0.013	119.070	0.000
Matched	0.006	16.310	0.752

Variable		Mean Treated	Mean Control	%bias	% reduction |bias|	t	p|t|
Male	Unmatched	0.516	0.482	6.8		2.13	0.033
	Matched	0.516	0.535	−3.8	44.8	−0.85	0.398
Migration background	Unmatched	0.206	0.168	9.8		3.21	0.001
	Matched	0.206	0.176	7.9	20.2	1.75	0.080
1,000 < Average monthly income < 2,000	Unmatched	0.256	0.302	−10.3		−3.16	0.002
	Matched	0.256	0.244	2.6	74.3	0.62	0.538
2,000 < Average monthly income < 3,000	Unmatched	0.268	0.287	−4.3		−1.35	0.178
	Matched	0.268	0.276	−2	54.2	−0.45	0.653
Average monthly income > 3,000	Unmatched	0.400	0.318	17.1		5.49	0.000
	Matched	0.400	0.421	−4.3	74.6	−0.95	0.343
Age	Unmatched	51.159	51.195	−0.2		0.946	
	Matched	51.159	51.572	−2.5	−1052.9	−0.57	0.570
Age × Age	Unmatched	2886.400	2893.700	−0.4		−0.13	0.893
	Matched	2886.400	2924.800	−2.3	−424.8	−0.51	0.608
Middle School	Unmatched	0.281	0.306	−5.4		−1.67	0.095
	Matched	0.281	0.281	0	100	0	1.000
High School	Unmatched	0.180	0.170	2.5		0.81	0.419
	Matched	0.180	0.166	3.6	−42.7	0.82	0.411
University Degree	Unmatched	0.365	0.312	11.2		3.59	0.000
	Matched	0.365	0.383	−3.8	66.6	−0.83	0.409
Married	Unmatched	0.547	0.565	−3.6		−1.13	0.260
	Matched	0.547	0.562	−3	16.9	−0.67	0.503
Divorced	Unmatched	0.110	0.103	2.2		0.7	0.483
	Matched	0.110	0.112	−0.6	71	−0.14	0.887
Widowed	Unmatched	0.087	0.083	1.5		0.48	0.634
	Matched	0.087	0.090	−1.1	29.4	−0.23	0.814
Small Town	Unmatched	0.301	0.347	−9.7		−2.99	0.003
	Matched	0.301	0.298	0.6	93.5	0.15	0.884
Intermediate Town	Unmatched	0.243	0.175	16.7		5.56	0.000
	Matched	0.243	0.236	1.7	89.8	0.36	0.716
Large Town	Unmatched	0.180	0.126	15		5.07	0.000
	Matched	0.180	0.188	−2.2	85.3	−0.46	0.646
Part-time Employment	Unmatched	0.141	0.144	−0.9		−0.27	0.786
	Matched	0.141	0.143	−0.6	35	−0.13	0.899
Training, Internship, Military Service	Unmatched	0.072	0.074	−0.7		−0.23	0.820
	Matched	0.072	0.067	1.9	−160.3	0.44	0.663
Maternity/Paternity Leave	Unmatched	0.052	0.059	−2.9		−0.9	0.370
	Matched	0.052	0.038	6.5	−119.8	1.61	0.108
Retired	Unmatched	0.253	0.276	−5.2		−1.62	0.106
	Matched	0.253	0.278	−5.8	−11.3	−1.31	0.191
Unemployed	Unmatched	0.051	0.046	2.4		0.77	0.443
	Matched	0.051	0.030	10.1	−321.6	2.48	0.013

Table A.3
Matched and unmatched covariates: Theft victimization in the last 5 years.

Sample	Pseudo R^2		LR χ^2			p> χ^2
Unmatched	0.030		722.250			0.000
Matched	0.003		35.950			0.022

Variable		Mean Treated	Mean Control	%bias	% reduction |bias|	t	p|t|
Male	Unmatched	0.456	0.487	−6.1		−3.61	0.000
	Matched	0.456	0.471	−2.9	52.3	−1.3	0.193
Migration background	Unmatched	0.187	0.166	5.5		3.29	0.001
	Matched	0.187	0.169	4.7	13.2	2.11	0.035
1,000 < Average monthly income < 2,000	Unmatched	0.276	0.304	−6.1		−3.56	0.000
	Matched	0.276	0.254	5	18	2.28	0.022
2,000 < Average monthly income < 3,000	Unmatched	0.278	0.287	−2.2		−1.3	0.195
	Matched	0.278	0.279	−0.3	87.3	−0.12	0.901
Average monthly income > 3,000	Unmatched	0.352	0.316	7.7		4.58	0.000
	Matched	0.352	0.386	−7.2	6.2	−3.13	0.002
Age	Unmatched	47.437	51.716	−25.5		−15.39	0.000
	Matched	47.437	47.186	1.5	94.1	0.66	0.511
Age × Age	Unmatched	2546.500	2941.600	−23.2		−13.75	0.000
	Matched	2546.500	2514.900	1.9	92	0.84	0.403
Middle School	Unmatched	0.275	0.309	−7.6		−4.46	0.000
	Matched	0.275	0.272	0.6	92.8	0.25	0.802
High School	Unmatched	0.221	0.163	14.6		9.07	0.000
	Matched	0.221	0.215	1.6	89.1	0.68	0.497
University degree	Unmatched	0.368	0.306	13.2		7.95	0.000
	Matched	0.368	0.394	−5.5	58.1	−2.4	0.016
Married	Unmatched	0.470	0.577	−21.7		−12.92	0.000
	Matched	0.470	0.496	−5.3	75.6	−2.35	0.019
Divorced	Unmatched	0.112	0.102	3.3		1.98	0.048
	Matched	0.112	0.097	4.9	−48.1	2.2	0.028
Widowed	Unmatched	0.074	0.084	−3.6		−2.08	0.038
	Matched	0.074	0.068	2.2	37.7	1.04	0.296
Small Town	Unmatched	0.322	0.348	−5.5		−3.23	0.001
	Matched	0.322	0.326	−0.7	86.5	−0.33	0.738
Intermediate Town	Unmatched	0.211	0.172	9.7		5.91	0.000
	Matched	0.211	0.218	−1.9	80.9	−0.79	0.429
Large Town	Unmatched	0.194	0.118	21.1		13.58	0.000
	Matched	0.194	0.183	3.2	84.9	1.32	0.188
Part-time Employment	Unmatched	0.148	0.144	1.3		0.8	0.423
	Matched	0.148	0.136	3.4	−153.1	1.54	0.124
Training, Internship, Military Service	Unmatched	0.115	0.068	16.4		10.71	0.000
	Matched	0.115	0.114	0.3	97.9	0.14	0.888
Maternity/Paternity Leave	Unmatched	0.058	0.059	−0.6		−0.35	0.724
	Matched	0.058	0.052	2.5	−310	1.13	0.258
Retired	Unmatched	0.214	0.283	−16		−9.17	0.000
	Matched	0.214	0.210	1	93.5	0.49	0.622
Unemployed	Unmatched	0.049	0.046	1.6		0.95	0.340
	Matched	0.049	0.040	4.5	−181.1	2.06	0.039

Table A.4

Matched and unmatched covariates: Physical violence victimization in the last 5 years.

Sample	Pseudo R^2		LR χ^2				p> χ^2
Unmatched	0.146		2591.470				0.000
Matched	0.003		21.510				0.428

Variable		Mean Treated	Mean Control	%bias	% reduction |bias|	t	p|t|
Male	Unmatched	0.649	0.470	36.6		17.32	0.000
	Matched	0.649	0.656	−1.6	95.8	−0.56	0.573
Migration background	Unmatched	0.236	0.164	18.2		9.33	0.000
	Matched	0.236	0.222	3.5	80.8	1.18	0.240
1,000 < Average monthly income < 2,000	Unmatched	0.322	0.299	4.9		2.4	0.016
	Matched	0.322	0.321	0.1	98.3	0.03	0.976
2,000 < Average monthly income < 3,000	Unmatched	0.256	0.289	−7.5		−3.53	0.000
	Matched	0.256	0.253	0.5	92.8	0.19	0.846
Average monthly income > 3,000	Unmatched	0.284	0.324	−8.7		−4.13	0.000
	Matched	0.284	0.290	−1.4	84.1	−0.5	0.617
Age	Unmatched	37.720	52.302	−94.2		−43.72	0.000
	Matched	37.720	37.501	1.4	98.5	0.52	0.601
Age × Age	Unmatched	1641.400	2996.400	−90.4		−39.13	0.000
	Matched	1641.400	1626.100	1	98.9	0.42	0.672
Middle School	Unmatched	0.326	0.303	4.8		2.35	0.019
	Matched	0.326	0.341	−3.3	32.7	−1.14	0.255
High School	Unmatched	0.259	0.163	23.7		12.35	0.000
	Matched	0.259	0.246	3.3	85.9	1.11	0.269
University Degree	Unmatched	0.252	0.319	−14.7		−6.89	0.000
	Matched	0.252	0.263	−2.4	83.8	−0.87	0.384
Married	Unmatched	0.300	0.586	−60.2		−28.12	0.000
	Matched	0.300	0.313	−2.9	95.3	−1.04	0.298
Divorced	Unmatched	0.132	0.101	9.8		4.97	0.000
	Matched	0.132	0.112	6.4	35.2	2.2	0.028
Widowed	Unmatched	0.022	0.088	−29.2		−11.52	0.000
	Matched	0.022	0.016	2.7	90.9	1.55	0.120
Small Town	Unmatched	0.339	0.346	−1.4		−0.66	0.508
	Matched	0.339	0.332	1.5	−9.7	0.54	0.590
Intermediate Town	Unmatched	0.204	0.175	7.3		3.62	0.000
	Matched	0.204	0.199	1.2	83.3	0.42	0.673
Large Town	Unmatched	0.166	0.124	12		6.09	0.000
	Matched	0.166	0.176	−2.7	77.3	−0.9	0.368
Part-time Employment	Unmatched	0.110	0.147	−11.2		−5.11	0.000
	Matched	0.110	0.094	4.7	58.2	1.82	0.069
Training, Internship, Military Service	Unmatched	0.201	0.063	41.5		25.57	0.000
	Matched	0.201	0.205	−1.3	96.8	−0.39	0.700
Maternity/Paternity Leave	Unmatched	0.043	0.060	−7.7		−3.49	0.000
	Matched	0.043	0.038	2.2	72	0.86	0.391
Retired	Unmatched	0.076	0.291	−57.9		−23.39	0.000
	Matched	0.076	0.073	0.8	98.7	0.38	0.707
Unemployed	Unmatched	0.093	0.043	20		11.47	0.000
	Matched	0.093	0.085	3	84.8	0.94	0.346

Table A.5

Descriptive Statistics: Robbery and house burglary.

	Robbery				House burglary			
	(1)		(2)		(3)		(4)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Robbery: Last 5 Years	0.0289	0.167						
Robbery: Last 12 Months			0.0073	0.085				
House burglary: Last 5 Years					0.0307	0.172		
House burglary: Last 12 Months							0.0065	0.080
Gender	0.4833	0.500	0.4814	0.500	0.4833	0.500	0.4825	0.500
Migration background	0.1691	0.375	0.1677	0.374	0.1691	0.375	0.1682	0.374
Average monthly income	2.8347	0.982	2.8389	0.981	2.8348	0.982	2.8303	0.982
Age	51.1945	16.511	51.3810	16.459	51.1936	16.513	51.1815	16.518
Education background	2.5871	1.136	2.5867	1.138	2.5869	1.137	2.5833	1.136
Marital status	1.7046	0.954	1.6998	0.956	1.7044	0.954	1.7036	0.954
No. residence in the neighborhood	2.0818	1.015	2.0771	1.013	2.0817	1.015	2.0752	1.013
Employment status	2.8004	1.813	2.8062	1.814	2.8004	1.813	2.8021	1.813
Social trust	5.9088	1.873	5.9288	1.859	5.9090	1.873	5.9107	1.871
Observations	33,025		32,306		33,017		32,214	

Table A.6
Descriptive Statistics: Theft and physical violence.

	Theft				Physical Violence			
	(1)		(2)		(3)		(4)	
	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.	Mean	Std. Dev.
Theft: last 5 years	0.1209	0.326						
Theft: last 12 months vs No experience			0.0367	0.188				
Physical Violence: last 5 years					0.0759	0.265		
Physical violence: last 12 months vs No experience							0.0266	0.161
Gender	0.4833	0.500	0.4866	0.500	0.4832	0.500	0.4754	0.499
Migration background	0.1689	0.375	0.1678	0.374	0.1691	0.375	0.1658	0.372
Average monthly income	2.8347	0.982	2.8308	0.980	2.8350	0.982	2.8443	0.978
Age	51.1985	16.510	51.4687	16.407	51.1949	16.511	51.8765	16.317
Education background	2.5866	1.137	2.5663	1.139	2.5873	1.136	2.5870	1.141
Marital status	1.7041	0.954	1.6947	0.956	1.7045	0.954	1.6944	0.964
No. residence in the neighborhood	2.0810	1.015	2.0577	1.006	2.0818	1.015	2.0726	1.013
Employment status	2.8013	1.813	2.8113	1.818	2.8007	1.813	2.8197	1.816
Social trust	5.9077	1.873	5.9207	1.865	5.9092	1.873	5.9407	1.854
Observations	32,958		30,078		33,011		31,336	

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