Effects of Childhood Conflict Exposure on Attitudes Toward Democracy, Trust in State Institutions, and Political Participation in Colombia

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Abstract

This study utilizes differing levels of conflict intensity across Colombia in order to identify the effects of childhood exposure to violence. It analyzes how such exposure to violence influences an individual's opinions toward democracy, their level of trust in state institutions, and their level of political participation. Results indicate that exposure to conflict during childhood reduces an individual's appreciation of democracy and state institutions while its effects on their level of political participation are ambiguous. These results, though small in magnitude, are robust throughout a wide range of different regression specifications. This analysis is based on datasets from Colombia's statistical agency (DANE) and the Conflict Analysis Resource Center (CERAC), and controls for municipality, cohort, survey wave, and department-fixed effects to exclude potential sources of endogeneity. The results hold under different indicators of conflict intensity.

1 Introduction

1.1 Research Question

War and civil conflict, prevalent in many developing and middle income countries, often have wide implications for economic and social development. This paper aims to analyze the effects that exposure to conflict during different stages of life has on citizens' political beliefs and participation. Exposure to conflict may affect political attitudes in various, and sometimes polar, ways. On one hand, it may reduce trust in the functional abilities of the state and its representatives. On the other, exposure to violence could sensitize citizens to the importance of a well-functioning state, yielding increased trust and support for democracy and state institutions.

How such exposure to conflict affects the individual might also depend on the age at which this exposure occurred. An adolescent experiencing conflict might develop very different attitudes toward government and institutions than a newborn child growing up surrounded by violence. This paper aims to provide empirical evidence for these effects using the case of Colombia's civil war and seeks to identify whether childhood conflict exposure at different ages has had an impact on various indicators of opinion toward democracy, trust in state institutions, and political participation.

1.2 Outline

This paper adheres to the following structure: Section two outlines the motivations behind this analysis. Section three describes the empirical strategy used to isolate the effects of conflict exposure on political attitudes and describes the data and the robustness checks used. Results are presented in section four. Section five concludes with the possible underlying driving mechanisms, the limitations of this analysis, and the potential for further inquiry.

2 Motivation, Existing Literature, and Political Context

2.1 Motivation

A vast array of literature in economics and political science demonstrates how an institution's form and quality can affect economic growth, inequality, political stability, and other welfare indicators.[1] Institutions such as the structure of political representation, the ways in which elections are held, and the rules governing the policy process have a strong influence on various policy decisions.[2]

An institution's form and quality are not only formed by history, but are shaped by the active views of its citizenry. Citizens may affect the institutional framework such as the electoral system, the extent of power separation, and the overall role and strength of the state in society.[3] Aghion et al. argue that institutional rules can be driven by citizens' demands, and that institutions are endogenous since they are partly chosen by members of the polity.[4] Political preferences and trust in institutions thus influence the role of government, the institutional setting, and even specific policies.

Multiple factors influence citizens' political beliefs, their political participation, and their level of trust in state institutions. One such factor might be a citizen's exposure to conflict during

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[1] See for example Acemoglu, Johnson, and Robinson, "Geography and Institutions in the Making of the Modern World Income Distribution," 1269-1278.
[2] Besley and Case, "Political Institutions and Policy Choices," 22-36.
[3] Barro, "The Control of Politicians: An Economic Model," 35-40.
[4] Aghion, Alesina, and Trebbi, "Endogenous Political Institutions," 582-601.

certain periods of life, since such experiences have the potential to substantially impact living circumstances and subsequently the formation of personal values and opinions. If conflict and violence can affect political beliefs, this in turn implies that they may influence the quality and form of institutions, and ultimately socio-economic welfare. Thus the potential causality between childhood conflict exposure and political beliefs is highly relevant, and provides the motivation for this paper.

The data at hand displays a wide divergence across the 33 Colombian departments for violence levels, as well as attitudes toward democracy and political participation.[5] Figure 1 below reveals that the number of clashes in the Colombian conflict varied between 0 and 1,864 across departments during the time period from 1988 until 2005 with an average of 527 clashes per department. Likewise, casualties ranged from 0 to 8,634 per department during the same time range with an average value of 1,594 per department.[6]

Figure 1: Variation across Colombia's departments
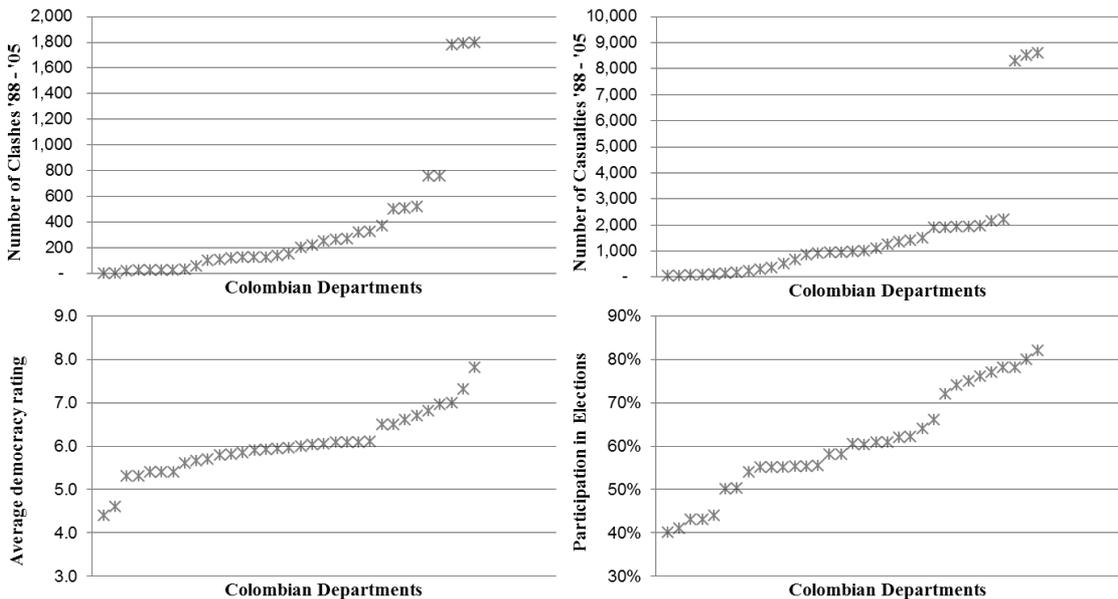
As shown in Figure 1, the average rating of how democratic each department considers Colombia to be on a scale from zero to ten also reveals great heterogeneity, with some considering Colombia to be very democratic and others considering Colombia to be fairly undemocratic. The same holds for the distribution of voting turnout across departments. Since Colombia is ethnically and culturally a relatively homogeneous country, these vast differences are puzzling. This paper aims to identify whether the diverse extent to which Colombian departments were affected by civil conflict could be a partial explanation.

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[5] Colombia is divided into 32 departments and one capital district.
[6] Conflict Analysis Resource Center (CERAC), "Colombia Civil War Dataset."

2.2   Literature Review

The existing literature provides ambiguous insights into the relationship between exposure to conflict and political beliefs. Adhvaryu and Fenske have analyzed post-1945 data on conflicts and political attitudes in 17 sub-Saharan African countries. Their results, based on individuals who experienced conflict exposure between the ages of one and fourteen, suggest that exposure to conflict does not alter political beliefs. Only cases of extreme exposure led to "large, lasting effects."[7]

On the other hand, Grosjean uses data from 35 mainly European countries to show the negative and enduring legacy of war-related violence on political trust and perceived effectiveness of national institutions. Her results show heterogeneous effects across different types and outcomes of conflict.[8]

In terms of political participation, Bellows and Miguel demonstrate that individuals in Sierra Leone whose households directly experienced intense war violence are more likely to engage in different forms of political participation (such as joining local political groups or voting) than those who did not. They use a cross-sectional data set based on household surveys. However, due to the lack of a nation-wide counterfactual, their results remain limited to certain regions of Sierra Leone.[9]

Similarly, Blattman's use of quasi-experimental variation in rebel recruitment in Northern Uganda provides evidence for a link between past violence and increased political engagement among ex-combatants. Interestingly, the results do not hold for non-political civic engagement.[10]

Jaeger et al. examine how violence during the Second Intifada influenced Palestinian public opinion. They find that exposure to violence led Palestinians to develop more radical attitudes toward the conflict with Israel and temporarily support more radical factions. However, in the long run the same exposure led to increased disaffection and a lack of support for any faction. Further, they found that geographically proximate fatalities have a larger effect than those that are distant.[11]

Blattman and Miguel summarize the existing research on civil conflict and argue that beyond the trends revealed by cross-country evidence, there is little consensus on causes, conduct, and consequences of civil conflict. Consequently, they argue that there is a need for case studies and micro-level analysis to take into account the heterogeneity of effects.[12] The aim of this paper is to follow and expand on this argument. Since there appears to be no study as of yet on the Colombian conflict experience and its effect on political opinions, trust, and participation, this paper seeks to address that gap in the literature.

2.3   Country Specific Context - The Colombian Civil War

The launch of a communist insurgency in the 1960s marked the beginning of Colombian civil conflict.[13] This insurgency was motivated by extreme inequality, rural poverty, and the example set by the Cuban revolution. The primary actors on the insurgency side consisted of left-wing guerrillas, mainly the Colombian Armed Revolutionary Forces (FARC) and the

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[7] Adhvaryu and Fenske, "Political Beliefs in Africa," 1.
[8] Grosjean, "Conflict and Social and Political Preferences," 443-448.
[9] Bellows and Miguel, "War and local collective action in Sierra Leone," 1150-1154.
[10] Blattman, "From Violence to Voting," 235-236.
[11] Jaeger et al., "Violence and Public Opinion in the Second Intifada," 360-362.
[12] Blattman and Miguel, "Civil War," 45-46.
[13] Dube and Vargas, "Commodity Price Shocks and Civil Conflict," 1387.

National Liberation Army (ELN). Both factions were aiming to overthrow the country's political and economic system.[14]

Until the 1990s, the conflict effectively served as a low-intensity Cold War proxy.[15] Violence levels increased sharply with the emergence of paramilitary groups in the late 1980s. These groups were organized by rural landowners and drug barons in response to growing guerrilla extortions. In 1997, various paramilitary factions collectively formed the United Self-Defense Groups of Colombia (AUC) which concentrated their forces and increased their military strength.[16] Paramilitary groups often targeted civilians perceived to be allied with guerrillas, which often led to severe human rights violations.[17] Both paramilitaries and guerrillas financed their activities through narco-trafficking, kidnappings, extortions, theft of natural resources, and predation of public funds.[18]

While officially all three groups—guerrillas, paramilitaries, and the Colombian army—were fighting each other during the 1990s, there is extensive evidence of cooperation between paramilitary groups and the Colombian government forces in countering guerrilla factions.[19] Politicians' involvement with paramilitary groups was exposed through several scandals revealing how paramilitary groups had supported certain politicians through voter coercion and forcible elimination of opponents.[20] One could argue that the occurrence of such scandals had the potential to persistently erode citizens' trust toward their government and institutions. In 2003, parts of the AUC demobilized, leading to a gradual decrease in violence.[21] Nevertheless, the human rights situation was and is, especially in rural Colombia, still tenuous with frequent attacks on social activists such as trade unionists or community organizers. The 2016 peace agreement between the Colombian government and the FARC followed a four year negotiation process and initial rejection by referendum, but was subsequently modified and ratified by Congress. In the agreement, various proposals for a post-conflict Colombia have been detailed, such as demobilization plans, a transitional justice system, a substitution program for illicit crops, and an extensive plan for rural infrastructural and economic development. Alongside the implementation of these proposals, peace talks between the Colombian government and the ELN are currently expected to result in a similar peace agreement.

Given decades of extreme levels of violence and human rights violations, it is likely that these activities have had psychological effects on large parts of the Colombian population. This paper may provide valuable insights into how war has affected Colombians' political opinions, a factor that has contemporary relevance as the success of the peace deal's implementation depends heavily on Colombian citizens' attitudes.

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[14] Richani, "The Political Economy of Violence," 38-40.
[15] Dube and Vargas, "Commodity Price Shocks and Civil Conflict," 1388.
[16] Ibid.
[17] Restrepo, Spagat, and Vargas, "The Dynamics of the Colombian Civil Conflict," 400.
[18] Dube and Vargas, "Commodity Price Shocks and Civil Conflict," 1388.
[19] Ibid., 1387.
[20] Acemoglu, Robinson, and Santos, "The Monopoly of Violence: Evidence from Colombia," 9.
[21] Dube and Vargas, "Commodity Price Shocks and Civil Conflict," 1388.

3 Analysis Approach

3.1 Empirical Strategy

The identification strategy uses geographical and temporal variation in incidences of the Colombian conflict, as well as the exogenous difference in people's year of birth. Moreover, municipality and time-fixed effects are used as well as department-specific time trends. The main specification is:

$$Y_{imcT} = \alpha + \sum_{s=1}^{4} \beta_s \ Exposure_{sm} + \gamma X_i + \delta_m + \rho_c + \theta_T + \pi_d(t) + \varepsilon_{imcT}$$

Y_{imcT} is a measure of political opinion, trust, or participation for an individual, i, living in municipality, m, member of the cohort, c, born in the same year, and surveyed in survey wave, T.

The coefficient of interest is β_s, which measures the average effect of exposure to conflict for an individual, i, during life stage, s, on the respective outcome variable. The treatment variable, *Exposure*, measures the intensity of fighting in individual, i's, municipality during life stage, s. The considered life stages are early childhood (zero until two years old), preschool (three to five years old), primary school age (six to eight years old), and early secondary school age (nine to eleven years old). These ranges are broad in order to work with potential errors in reported age. The coefficient of the treatment variable shows how, on average, political beliefs and participation change for a person who experienced violence during a given life stage compared to a person who did not have exposure to violence during that same life stage. The survey respondents without exposure to violence at the same age (within the same and in other municipalities) thus form the control group.

X_i is a vector of multiple individual specific characteristics such as gender, ethnicity, literacy, level of education, employment status, marital status, and income. δ_m covers municipality fixed effects to control for any specific characteristics of all respondents in the same municipality which are time-invariant. ρ_c, the cohort fixed effect, captures any common shock that affects all respondents of the same cohort in a similar manner. θ_T is a control for common shocks for respondents in the same survey wave. $\pi_d(t)$ is a department trend controlling for department-specific divergences over time, such as varying economic development. ε_{imcT} is a random error term.

Since the used outcome variables are nominal with few possible survey answers, the answer possibilities are ranked, and results are estimated using Ordinary Least Squares (OLS) and Ordered Logit regressions (or a normal Logit regression in the case of binary outcome variables).

Using the Breusch-Pagan test,[22] heteroscedasticity was detected in some of the OLS specifications. Therefore, robust standard errors clustered at the municipality level are used in order to account for the likely case that violence exposure, at any given year, varies at the

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[22] Test which indicates whether the regression errors' variances are dependent on the values of the explanatory variables which would yield heteroscedasticity such that estimators would no longer have the lowest variance possible.

municipality level.[23] Moreover, the Ramsey Reset test[24] was undertaken for the OLS specifications to test for potential model mis-specifications such as omitted variables.

The model thus addresses concerns of endogeneity in various ways. Through the use of municipality fixed effects, the analysis controls for time-invariant municipality characteristics that may be correlated with conflict occurrence and the outcome variables. The same holds for the cohort fixed effects.

There is, however, a small potential for reverse causality, given the possibility that certain municipalities experienced more violence than others due to their residents already being more anti-democratic, less trustful toward state institutions, and less politically active. This is unlikely, however, since the people affecting the violence would be from the survey respondents' parents' generation, and not the respondents' generation themselves. Since the violence measured and the public opinion measured occurred at different moments in time, the risk for reverse causality is reduced significantly, especially since violence measured occurred only at life stages during which a respondent could not have realistically influenced violence levels. Thus, the effects of violence experienced during childhood are unlikely to be contaminated by reverse causality.

Finally, a person's year of birth is likely to be exogenous to all relevant factors. After singling out department- and year-specific variations, it is thus assumed that the level of violence is not correlated with any determinant of opinions toward democracy, trust in state institutions, or political participation. These assumptions are tested in the results section of the paper.[25]

The coefficients of exposure during different life stages are also compared to see if the different β_s in adjacent age ranges are significantly different from one another. This will provide insights into which life stage is most influential in determining an individual's political opinions and participation.

3.2   Robustness Checks

Various robustness checks are performed to ensure that the results are not affected by misspecification, endogeneity, or measurement error. To avoid mistakes in the data on conflict, additional specifications are run in which one measure of conflict is instrumented with another (Number of Casualties with Number of Clashes or vice versa) in order to account for potential bias as well as attenuation.[26] Since the data shows that many conflict clashes occurred without casualties and since data for both variables is cross-checked against various different data sources, it is unlikely that a potential measurement error is correlated with the endogenous and instrumental variables (IV).[27] Hence, both variables provide valid instruments for each other. Robust standard errors are used for these IV specifications to account for heteroscedasticity (tested using the Breusch-Pagan test).[28] After testing the IV regressions for potential under-identification, no evidence is found of it occurring in the respective specifications.

Similar to Adhvaryu and Fenske, the data set only indicates an individual's current municipality, rather than the municipality of birth. Selective migration out of conflict zones by

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[23] This would lead to errors independent across municipalities but correlated within municipalities and over time, resulting in inefficient estimates.

[24] Test which indicates whether the assumed linear regression equation correctly matches the data at hand or whether additional, non-linear combinations of variables are needed to explain the outcome variable.

[25] It is further assumed that the attitudes measured in wave T are independent of the attitudes measured in previous waves, which is in line with approaches undertaken in the related literature.

[26] For instance, mistakes in the data collection process (measurement error) could cause the estimators to not display the true magnitude and direction of effects.

[27] In such a scenario, the estimated effect would still be biased.

[28] With heteroscedasticity, the variance of the regression error term is not constant across observations, which would cause the estimators to be inefficient, meaning that we do not have the estimator with the lowest possible variance.

the most strongly affected individuals would potentially alter the results. To avoid this, alternative regressions are run without municipalities that are likely destinations for migrants (typically major urban centers).[29]

3.3   Data for Opinion toward Democracy, Trust in Institutions, and Political Participation

Data for the outcome variables is taken from the 2011, 2013, and 2015 waves of the *Encuesta de Cultura Política*, a nationally representative household and individual survey by Colombia's National Administrative Department of Statistics (DANE).[30] The survey asks respondents questions regarding political preferences and participation. Various specifications of the model are tested using different indicators of opinion on democracy, trust in Colombia's institutions, and political participation as outcome variables.

The survey also captures information on various socio-economic indicators such as income, employment status, and educational attainment. Unfortunately, DANE, for reasons of privacy, does not publish the survey respondents' municipalities nor departments of residence. Therefore, the analysis could only be undertaken at DANE's research lab in Bogotá and only regression results, not the original data set, can be published.

Since it is not possible to compute childhood conflict exposure for individuals born prior to the beginning of the available conflict data, the analysis can be undertaken based on approximately 15,000 survey respondents out of the approximately 90,000 respondents in all three waves. Older cohorts cannot be considered, since it would not be clear as to which childhood years of violence exposure the results in the outcome variable could be attributed to. For older cohorts, reverse causality would be an issue since participants in the Colombian civil war, due to forced recruitment by paramilitaries and guerrillas, were often as young as twelve years old.[31]

As with any survey data, there may be errors in the reported age due to missing information of the month of birth or incorrect survey answers. This could lead to an erroneous assignment of violence exposure. To alleviate this potential problem, violence exposure is analyzed during relevant age ranges instead of specific years.

3.4   Data for Conflict Exposure

The spatial data on the Colombian conflict is taken from the Conflict Analysis Resource Center (CERAC)'s *Database of the Armed Conflict in Colombia*.[32] CERAC is a private and independent research center, specializing in the study of armed violence, conflict analysis, and resultant social and economic impacts. The database includes more than 21,000 war-related events in over 950 Colombian municipalities from 1988 to 2005. The conflict events are specified with their municipal location, date, and number of casualties.[33] The conflict data is merged with the survey data, which identifies the number of conflict events (denoted as clashes) or casualties that took place in an individual's municipality during any year.

Restrepo, Spagat, and Vargas provide a detailed description of the database and the data collection process.[34] The data set is based on media reports in 25 major newspapers and is

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[29] Adhvaryu and Fenske, "Political Beliefs in Africa," 15.

[30] DANE, "Encuesta de Cultura Política 2011, 2013 y 2015."

[31] *Child Combatants in Colombia*, 53.

[32] CERAC, "Colombia Civil War Dataset."

[33] Classified as either guerrilla attacks, paramilitary attacks, military attacks, or violent encounters between two parties.

[34] Restrepo, Spagat, and Vargas, "The Dynamics of the Colombian Civil Conflict," 402-407.

supplemented by reports from a network of Catholic priests, a group considered to be neutral toward all parties, thus reducing concerns of misreporting. The priests described incidents of political violence in nearly every municipality in the country. The events are also cross-checked against several other official sources.[35]

Two alternative measures of conflict exposure are used: the number of casualties and the number of conflict events occurring in a survey respondent's municipality in each age grouping. In alternative specifications, the exposure variables will be normalized by population size (using data from DANE's population census in 2005).[36]

Similar to Dube and Vargas, this study takes into account that 7.8 percent of Colombian municipalities in 1988 were later divided into multiple municipalities by adapting all variables to the 978 municipalities and corresponding departments of the 1988 boundaries.[37] Descriptive statistics of the data will be provided in the following section.

4   Results

4.1   *General Comments on the Results*

This section presents the results of the most relevant outcome variable for each of the three outcome categories: opinion toward democracy, trust in institutions, and political participation. For opinion toward democracy, the analyzed variable is a respondent's satisfaction with democracy while for trust in institutions, the variable is a respondent's stated belief on whether the vote counting process in Colombia is biased or not. For political participation, the variable is a respondent's stated likelihood to vote in elections. These outcome variables were selected since they are the most representative indicators available for their respective categories. Results of additional outcome variables in each category are presented in the appendix.[38]

Even though the three outcome categories are fairly diverse, the results show a common pattern of how exposure to violence at an early age affects a survey respondent's political attitude: On average, an increased exposure to violence has a negative impact on a respondent's opinion toward democracy, reduces their trust in state institutions, and reduces their likelihood to actively participate in politics across most analyzed age bands. These general takeaways hold for those variables presented in the main part of this paper and for those for which the regression results are presented in the appendix.

However, for all analyzed regressions, it is important to note that the magnitude of estimated effects should be interpreted carefully. While the results do provide a sense of the effects' directions, the coefficients' absolute numerical values do not provide much insight given inaccuracies resulting from survey respondents' varying interpretations of the different answer possibilities. For example, different respondents who are both similarly satisfied with democracy might have nevertheless responded with different answers due to varying interpretations of whether their opinion should be considered *very satisfied* or only *satisfied*.

The magnitude of coefficients for violence exposure measured by casualties in a municipality are for all analyzed outcome variables smaller than when exposure is measured by the number of clashes within a municipality. The reason is that the clashes considered in the CERAC database involved on average multiple casualties, so the impact of one marginal clash

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[35] Dube and Vargas, "Commodity Price Shocks and Civil Conflict," 1414.

[36] DANE, "Censo General 2005."

[37] Dube and Vargas, "Commodity Price Shocks and Civil Conflict," 1395.

[38] Categories include: whether respondents associate democracy with something good or bad for opinion toward democracy, whether respondents consider that Colombian congress represents different political tendencies for trust in institutions, and membership in political parties for political participation.

weighs stronger than the impact of one marginal casualty. This difference in magnitude of effects holds across all realized regressions and thus provides validity for the empirical strategy.

For some of the analyzed outcome variables, significant coefficients for the same violence exposure variable vary across the OLS, IV, and Ordered Logit specifications.[39] Most coefficients, if significant, are similar between the OLS and the IV specifications in terms of sign and magnitude. In the cases that these coefficients differ, there is likely a measurement error in the data. Under such circumstances, IV specifications provide a better estimate of the effect than OLS. Also under such circumstances, endogeneity due to measurement error impacts the Ordered Logit algorithm, thus making IV the specification that provides the highest degree of accuracy. When significant coefficients are very similar across OLS and IV specifications, there is likely no endogeneity due to measurement error. In such cases, the Ordered Logit coefficients are different from those of OLS/IV due to the Ordered Logit's ranking and assumption of discreteness. Overall, it is assumed that the significant coefficients are unbiased, since the empirical strategy used eliminates other potential sources of endogeneity.

4.2   *Opinion toward democracy*

The first analyzed outcome variable is respondents' answers concerning their general degree of satisfaction with democracy. Possible answer choices included being *very unsatisfied*, *unsatisfied*, *neither satisfied nor unsatisfied*, *satisfied* or *very satisfied* with democracy in Colombia.[40] The mean of all answers recorded was 2.68 on a scale from 1 (very unsatisfied) to 5 (very satisfied), indicating that on average survey respondents are slightly more unsatisfied than satisfied with democracy in Colombia. Results of answers to the survey question, "Do you associate the term *democracy* with something good or bad?" are presented in the appendix. As would be expected, results indicate that childhood exposure impacts respondents' association with the term *democracy* similarly to the effects on their general degree of satisfaction with democracy.

The various significant coefficients with a negative sign indicate that exposure to violence reduces respondents' satisfaction with democracy across all analyzed age ranges. However, the magnitude of these effects seems to be small, as could be expected due to the existing literature. For instance, based on the IV specification, an increase of 100 casualties during the age range of three to five years old would lead to a decrease in 0.332 points on the satisfaction scale when compared to the mean outcome. The significant coefficients' signs are negative regardless of whether we measure exposure to violence through casualties or clashes. As outlined above, the coefficients for the violence exposure variables measured by clashes are larger than for those measured by casualties due to the larger volume of casualties which occurred. All of the significant coefficients are significant at the one or five percent level.

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[39] Logit in the case of binary outcome variables.
[40] DANE, "Encuesta de Cultura Política 2011, 2013 y 2015."

			Satisfaction with Democracy			
	(1)	(2) Ordinal	(3)	(4)	(5) Ordinal	(6)
VARIABLES	OLS	Logit	IV	OLS	Logit	IV
Casualties Years 0-2	-0.00150	-0.00266***	0.00131			
	(0.00154)	(0.00070)	(0.00151)			
Casualties Years 3-5	-0.00032	-0.00041	-0.00332**			
	(0.00139)	(0.00095)	(0.00140)			
Casualties Years 6-8	0.00053	0.00093	-0.00173**			
	(0.00102)	(0.00062)	(0.00087)			
Casualties Years 9-11	-0.00081	-0.00126**	0.00089			
	(0.00081)	(0.00054)	(0.00089)			
Clashes Years 0-2				0.00410	0.00751	0.00301
				(0.00766)	(0.00492)	(0.00310)
Clashes Years 3-5				-0.00786	-0.0136***	-0.00994***
				(0.00701)	(0.00501)	(0.00319)
Clashes Years 6-8				-0.00930	-0.0153***	-0.00212
				(0.00885)	(0.00454)	(0.00452)
Clashes Years 9-11				0.00151	0.00312	-0.00196
				(0.00674)	(0.00296)	(0.00281)
Constant	2.682***		2.674***	2.677***		2.676***
	(0.03790)		(0.01380)	(0.04120)		(0.01330)
Observations	14,578	14,578	14,578	14,578	14,578	14,578
R-squared	0.004		-0.005	0.003		0.002
Fixed Effects	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses

*** $p<0.01$, ** $p<0.05$, * $p<0.1$

The results show that the magnitudes of the significant coefficients are in a broadly similar range for all analyzed age bands. However, the difference in significant coefficients of violence exposure must be tested. As it turns out, the coefficients are significantly different from each other at the five percent level. This result indicates that age difference seems to matter, even if the difference in magnitudes is not large.

4.3 Trust in institutions

In the second category of outcome variables, the effect which exposure to violence has had on people's trust in state institutions is analyzed. Results are presented and analyzed from the answers to the survey question, "Do you consider the vote counting process in Colombia to be unbiased?"[41] Results of answers to the survey question, "Do you think the Colombian congress represents different political tendencies?" are presented in the appendix and display effects with the same direction as those for trust in the vote counting process.

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[41] Ibid.

	(1)	(2)	(3)	(4)	(5)	(6)
			Trust in Vote Counting Process			
VARIABLES	OLS	Logit	IV	OLS	Logit	IV
Casualties Years 0-2	0.00040	0.00228**	0.00116*			
	(0.00054)	(0.00101)	(0.00064)			
Casualties Years 3-5	-0.00016	-0.00099	-0.00088			
	(0.00046)	(0.00129)	(0.00059)			
Casualties Years 6-8	0.000438**	0.00223**	0.00143***			
	(0.00021)	(0.00087)	(0.00037)			
Casualties Years 9-11	0.00036	0.00172**	-0.00029			
	(0.00030)	(0.00074)	(0.00039)			
Clashes Years 0-2				0.00451**	0.0224***	0.00439***
				(0.00183)	(0.00655)	(0.00135)
Clashes Years 3-5				-0.00005	-0.00096	-0.00018
				(0.00303)	(0.00663)	(0.00141)
Clashes Years 6-8				0.00399*	0.0204***	0.00489**
				(0.00206)	(0.00623)	(0.00193)
Clashes Years 9-11				0.00051	0.00243	-0.00014
				(0.00194)	(0.00410)	(0.00133)
Constant	1.677***		1.671***	1.669***		1.670***
	(0.01660)		(0.00630)	(0.01730)		(0.00609)
Observations	13,075	13,075	13,075	13,075	13,075	13,075
R-squared	0.004		0	0.005		0.005
Fixed Effects	YES	YES	YES	YES	YES	YES

Robust standard errors
in parentheses

ᶜ p<0.01, ** p<0.05, * p<0.1

While the vote counting indicator may not display general trust in all of the different government institutions, it nevertheless reveals how much people trust the state to execute a core democratic process, and thus how neutral they consider the election process to be. The question is binary and answers are ranked such that considering the process as unbiased is indicated by the numerical value one, while considering the process as biased is indicated by the numerical value two. The coefficient of the constant variable of 1.677 shows that on average survey respondents consider the vote counting process in Colombia to be rather biased. The various significant coefficients with a positive sign indicate that exposure to violence at most analyzed age ranges further increases respondents' likelihood to consider the vote counting process as biased.[42]

The magnitude of all significant coefficients is relatively small, as could be expected based on the existing literature. For instance, based on the OLS specification, an increase of exposure by 100 casualties during the age range of six to eight years old would lead to an increase

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[42] Due to the numeric ranking of possible answers, a positive coefficient actually implies a reduction in trust. This differs from the variable on satisfaction with democracy, where a positive coefficient implies an increase in satisfaction.

in 0.438 points on the likelihood to vote scale compared to the base outcome. The coefficients of exposure to clashes are, throughout, larger than coefficients of exposure to casualties, which confirms our expectations as previously outlined. The signs of significant coefficients of both measured types of violence exposure are consistent, which is in line with expectations and further indicates that the specifications identify the actual effect.

Also, for trust in the vote counting process, the different significant coefficients of conflict exposure (at different age ranges) are significantly different from each other at the five percent level. Thus, this finding confirms that conflict exposure affects trust in institutions differently depending on the age at which the exposure occurred, even if the difference in magnitudes is not large.

4.4 Political Participation

Survey respondents' propensity to vote in elections is the main outcome variable indicating political participation. In the appendix, results concerning survey respondents' likelihood to be a member of a political party are presented, displaying effects with the same direction as those identified for propensity to vote.

Regarding survey respondents' behavior in Colombian elections, possible answers were to *always vote, sometimes vote*, or *never vote*.[43] Given that the possible answers were ranked such that never voting has the highest numerical value, three, and always voting the lowest, one, the constant variable, 1.814, shows that on average, survey respondents vote slightly less often than sometimes. The various significant coefficients with a positive sign indicate that exposure to violence reduces a respondent's likelihood to vote across most analyzed age ranges. Nevertheless, this effect is not consistent for all age ranges. For violence exposure during ages three to five, a positive effect on voting turnout can be observed when measuring violence by casualties per municipality as well as by number of clashes per municipality.

The magnitude of all significant coefficients is relatively small. For instance, based on the IV specification, an increase of exposure by 100 casualties during the age range of zero to two years old would lead to an increase of 0.717 points on the likelihood to vote scale compared to the base outcome. The magnitude of the coefficients measuring violence exposure by clashes is, throughout, larger than the coefficients measuring exposure by casualties, which is in line with our expectations as previously outlined.

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[43] DANE, "Encuesta de Cultura Política 2011, 2013, y 2015."

	(1)	(2)	(3)	(4)	(5)	(6)
		Ordinal			Ordinal	
VARIABLES	OLS	Logit	IV	OLS	Logit	IV
Casualties Years 0-2	0.00131	0.00296***	0.00717***			
	(0.00089)	(0.00075)	(0.00127)			
Casualties Years 3-5	-0.00184	-0.00459***	-0.0131***			
	(0.00170)	(0.00102)	(0.00114)			
Casualties Years 6-8	0.00493*	0.0121***	0.00950***			
	(0.00219)	(0.00076)	(0.00067)			
Casualties Years 9-11	0.00011	-0.00011	-0.00091			
	(0.00119)	(0.00057)	(0.00076)			
Clashes Years 0-2				0.0337**	0.0729***	0.0295***
				(0.00808)	(0.00516)	(0.00243)
Clashes Years 3-5				-0.0279***	-0.0604***	-0.0351***
				(0.00522)	(0.00525)	(0.00249)
Clashes Years 6-8				0.02300	0.0514***	0.0566***
				(0.01120)	(0.00480)	(0.00344)
Clashes Years 9-11				0.00443	0.00968***	-0.0166***
				(0.00454)	(0.00311)	(0.00239)
Constant	1.814***		1.818***	1.801***		1.804***
	(0.03170)		(0.01140)	(0.03700)		(0.01060)
Observations	15,019	15,019	15,019	15,019	15,019	15,019
R-squared	0.029		-0.014	0.032		0.01
Fixed Effects	YES	YES	YES	YES	YES	YES

Voting in Elections

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Also for political participation, the significant coefficients of exposure at different age ranges are significantly different from each other at the five percent level. This confirms that exposure to violence affects opinions about democracy differently, depending on the age when the exposure occurred.

4.5   *Validation of Results via Robustness Checks*

Further alternative regressions have been run to verify the robustness and validity of the above described results. The empirical strategy used for the robustness checks, based on OLS, IV, and Ordered Logit regressions, is identical to the empirical strategy applied in the main regressions. Moreover, all specifications include exactly the same control variables. When analyzing the robustness checks' output, the focus has been on whether significant coefficients confirm or contradict the direction of the effects identified in the main regressions.

The first robustness check targets potential bias of the results due to selective migration out of conflict zones by the most strongly affected individuals. The Colombian civil conflict left more than seven million people displaced, the majority of whom had to leave their rural origins

to start a new life in Colombian cities.[44] Since the data set only indicates a survey respondent's municipality of residence but not the municipality of birth, individuals who live in municipalities with more than 50,000 inhabitants have been excluded. Such urban centers were the most likely destinations for conflict refugees and are therefore, possibly, no longer a valid comparison group (due to the municipality consisting of people of different violence exposures at an early age). For the modified data set, the same regressions have been run as those used for the main results. While the magnitude of the coefficients differs from those of the main regressions across most specifications, the signs and significance of the coefficients are mostly in line. Since the robustness check results are free of potential selective migration bias, these findings validate the results.

The second robustness check accounts for the varying population size of Colombian municipalities. The same number of casualties or clashes would represent a different violence level if they occurred in a municipality with a very large or a very small population size. Therefore, the violence exposure variables have been normalized by dividing the number of casualties and clashes by the population size of each municipality. These amended variables have been used in the otherwise unchanged regressions. Results show effects as having the same direction as those identified by the main regressions. Since the robustness check results are free of potential biases resulting from differing municipality population sizes, this validates the main regression results.

5   Conclusion

This study examines the impact of childhood exposure to the Colombian civil conflict on citizens' opinions toward democracy, trust in state institutions, and political participation. The results indicate that on average, survey respondents exposed to conflict during childhood have slightly more negative opinions toward democracy, a slightly reduced trust in state institutions, and are slightly less likely to participate actively in politics. That the results show long-lasting effects, despite the fact that surveys were conducted years (or, for some respondents, decades) after conflict exposure is remarkable. These results are evident for conflict exposure across most analyzed age ranges and across violence exposure measured by casualties and by clashes per municipality. Testing whether the relevant significant coefficients are statistically different from each other reveals that the effects differ according to the individual's age at the time of conflict exposure under all specifications. However, these differences appear to be small, which is indicated by the significant coefficients' limited range of magnitude. The coefficients are a good indicator for the effects' directions, but should be considered in relative terms since survey respondents may have interpreted scaled answers differently.[45] The conducted robustness checks concerning potential biases due to migration or due to errors in the conflict data confirm the validity of these results.

However, the results are not completely unambiguous. While exposure to violence generally reduces the likelihood of people to participate in elections, the effect appears to be reversed for survey respondents whose conflict exposure occurred between the ages of three and five. Nevertheless, for all other analyzed age ranges and for all analyzed outcome variables, the impact of exposure to violence on opinions toward democracy, trust in institutions, and political participation is clearly negative.

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[44] Internal Displacement Monitoring Centre and Norwegian Refugee Council, *Global Report on Internal Displacement,* 28.
[45] For example, different respondents who are both similarly satisfied with democracy might have nevertheless responded with different answers due to varying interpretations of whether their opinions should be considered *very satisfied* or only *satisfied*. Hence, the coefficients' absolute numerical value do not provide much insight.

Why conflict exposure at an early age has a negative impact on opinions toward democracy, trust in state institutions, and political participation requires further analysis. Several logical explanations are possible for this negative impact. Firstly, violence is likely to traumatize individuals leading them to have little trust in the state's ability to protect them. Since Colombia was a democracy during the civil conflict, these individuals could conclude from their personal experiences that democracy is a flawed system unable to prevent conflict or provide safety and is thus not the best system of societal organization. Such reasoning could explain why such individuals find lesser value in democracy, have less trust in state institutions, and participate less in elections. Especially in the case of Colombia, this explanation likely holds true as the state was the perpetrator of many human rights violations, for which, only in rare exceptions, has it been held accountable.[46] An additional possible explanation for the negative effect on trust in state institutions and on political participation could be the fear of further violence fortified by previous conflict exposure. Development in post-conflict Colombia illustrates this explanation. Social and political activists are frequently the target of assassinations and violent threats by successors of paramilitary groups. Moreover, such violent groups are particularly active in those Colombian municipalities where the conflict was most prevalent and where state institutions have little strength. Therefore, citizens who have had conflict exposure at an early age might have an increased fear that political activism or trust and reliance on state institutions could place them again in the focus of violence. This could provide a serious risk for the implementation of the Colombian peace process, which relies on citizens' active support.

There are also multiple possible reasons why violence exposure at certain age ranges increases the likelihood of citizens' political participation. For instance, individuals affected by violence at later stages of childhood might be more able to cope with violent events and interpret these experiences as motivation to participate in elections. Such individuals might think that violence can be more effectively prevented if citizens use their political influence to shape society in a way that strengthens non-violent solutions to political and social disputes. However, in order to validate the above-mentioned hypotheses, further investigations would be required to analyze what drives the reversal of effects at certain age ranges.

The results are mostly consistent with those in the existing literature. Other studies such as those by Grosjean, Adhvaryu and Fenske, and Jaeger et al. also find that conflict exposure during childhood has a negative effect on trust in political institutions, political beliefs, and perceived effectiveness of state institutions.[47] However, across all studies, the magnitude of detected effects is small when viewing the effect in relation to the amount of violence which has been measured. The ambiguity of effects (conflict exposure reduces opinions toward democracy and erodes trust in state institutions, but increases political participation if exposure occurred at certain age ranges) is also shown by the existing literature. For instance, Bellows and Miguel find that having been exposed to war in Sierra Leone increased the likelihood of a household's political engagement.[48]

Nevertheless, it is important to note that all of these studies cover very different cases and differ in their empirical strategy—thus they are only comparable to a limited degree. The fact that this study's results' direction of effect is consistent with other studies is therefore merely an indicator of the validity of these results and should not be interpreted as concrete evidence.

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[46] Richani, "The Political Economy of Violence," 50-55.

[47] Grosjean, "Conflict and Social and Political Preferences," 443-448; Adhvaryu and Fenske, "Political Beliefs in Africa," 11-18; Jaeger et al., "Violence and Public Opinion in the Second Intifada," 360-362.

[48] Bellows and Miguel, "War and local collective action in Sierra Leone," 1155.

As is the case with any analysis based on survey responses, a potential limitation of the analysis results from misreporting of survey answers. This is especially true for surveys used in this study, since these surveys cover political questions which can be potentially sensitive in Colombia. In a country rife with violence stemming from political cleavages that affect the people's willingness to publicly announce their political beliefs, the idea of peace is still a fragile condition. The resulting consequence is a potential statistical imprecision since survey responses might not accurately reflect actual political beliefs. Therefore, the magnitude of the detected effects must be considered with caution. Since DANE's *Encuesta de Cultura Política* survey is published in intervals of two years, the study at hand can naturally be extended in the future with an increased sample size to further increase the statistical precision of results.

An additional limitation of the analysis is that the identification strategy used does not allow for examining possible heterogeneous effects. For certain individuals, particularly those exposed to extreme violence, the detected effects could be much larger due to more severe traumatization. However, such effects are not identifiable in the given data at hand.

Concerning the external validity of the results, it is likely that the uniqueness of the Colombian civil conflict, with its close interlinkage to the American War on Drugs, is based on such specific circumstances that the inference of these results toward other scenarios would not be advisable. This is in line with Blattman and Miguel, who argue that civil conflict analyses should be undertaken on an individual conflict basis on account of the high amount of unique factors at play.[49]

Further studies could investigate the mechanisms through which exposure to violence might alter people's political beliefs and participation. For instance, drawing more heavily on psychological and medical research or on surveys collecting interviewees' reasoning for their answers concerning questions on political beliefs and participation could provide valuable insights. Such knowledge would provide useful guidelines for policies on how to limit the negative effects of violence exposure on political opinions, trust in state institutions, political participation, and the related risks for societal stability and development.

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[49] Blattman and Miguel, "Civil War," 46-49.

6 Appendix

	Associations with Term Democracy					
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	OLS	Ordinal Logit	IV	OLS	Ordinal Logit	IV
Casualties Years 0-2	-0.00001	-0.00253	-0.000130*			
	(0.00001)	(0.00651)	(0.00007)			
Casualties Years 3-5	0.00001	0.00210	0.00011			
	(0.00003)	(0.00838)	(0.00007)			
Casualties Years 6-8	-2.85e-05***	-0.00831	-0.00002			
	(0.00001)	(0.00698)	(0.00004)			
Casualties Years 9-11	0.00001	0.00224	0.00001			
	(0.00001)	(0.00452)	(0.00004)			
Clashes Years 0-2				-0.000338***	-0.0844*	-0.000315**
				(0.00008)	(0.04690)	(0.00015)
Clashes Years 3-5				0.00003	0.01080	0.00007
				(0.00012)	(0.04060)	(0.00017)
Clashes Years 6-8				0.00008	0.01740	-0.00010
				(0.00016)	(0.03520)	(0.00024)
Clashes Years 9-11				-0.00004	-0.00889	0.00008
				(0.00007)	(0.02720)	(0.00017)
Constant	0.00545***		0.00598***	0.00584***		0.00581***
	(0.00101)		(0.00090)	(0.00112)		(0.00088)
Observations	14,540	14,540	14,540	14,540	14,540	14,540
R-squared	0		-0.001	0		0
Fixed Effects	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

	Membership in Political Parties					
	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	OLS	Logit	IV	OLS	Logit	IV
Casualties Years 0-2	0.000258*	0.0220***	0.000438*			
	(0.00015)	(0.00357)	(0.00023)			
Casualties Years 3-5	-0.00009	-0.00743**	-0.00011			
	(0.00014)	(0.00316)	(0.00022)			
Casualties Years 6-8	0.000225***	0.00965***	0.000553***			
	(0.00006)	(0.00282)	(0.00011)			
Casualties Years 9-11	0.00006	-0.00114	-0.000265**			
	(0.00007)	(0.00191)	(0.00013)			
Clashes Years 0-2				0.00111**	0.0368**	0.00111**
				(0.00052)	(0.01720)	(0.00050)
Clashes Years 3-5				0.00072	0.01590	0.00075
				(0.00075)	(0.01730)	(0.00052)
Clashes Years 6-8				0.00164**	0.0650***	0.00195***
				(0.00070)	(0.01740)	(0.00064)
Clashes Years 9-11				-0.00013	-0.00640	-0.00050
				(0.00044)	(0.00932)	(0.00045)
Constant	1.952***		1.951***	1.951***		1.951***
	(0.00450)		(0.00253)	(0.00514)		(0.00245)
Observations	15,019	15,019	15,019	15,019	15,019	15,019
R-squared	0.005		0.001	0.004		0.004
Fixed Effects	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

	(1) OLS	(2) Logit	(3) IV	(4) OLS	(5) Logit	(6) IV
			Congress Considered to Represent Different Political Tendencies			
VARIABLES						
Casualties Years 0-2	0.00056	0.00266***	0.00185**			
	(0.00077)	(0.00098)	(0.00073)			
Casualties Years 3-5	-0.00031	-0.00145	-0.00066			
	(0.00056)	(0.00123)	(0.00064)			
Casualties Years 6-8	0.00015	0.00065	0.00190***			
	(0.00051)	(0.00080)	(0.00042)			
Casualties Years 9-11	0.00026	0.00111	-0.00166***			
	(0.00037)	(0.00071)	(0.00044)			
Clashes Years 0-2				0.00250	0.0112*	0.00267*
				(0.00264)	(0.00614)	(0.00141)
Clashes Years 3-5				0.00189	0.00790	0.00228
				(0.00293)	(0.00627)	(0.00145)
Clashes Years 6-8				0.00498	0.0224***	0.00429**
				(0.00303)	(0.00592)	(0.00211)
Clashes Years 9-11				-0.00285	-0.0125***	-0.00288**
				(0.00267)	(0.00385)	(0.00141)
Constant	1.625***		1.619***	1.619***		1.620***
	(0.01780)		(0.00659)	(0.01930)		(0.00631)
Observations	12,971	12,971	12,971	12,971	12,971	12,971
R-squared	0.002		-0.014	0.004		0.004
Fixed Effects	YES	YES	YES	YES	YES	YES

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

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