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# Class Warfare: Political Exclusion of the Poor and the Roots of Social-Revolutionary Terrorism, 1860-1950

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## ABSTRACT

We examine the effect of class cleavages on terrorist activity by anarchist and leftist terrorist groups in 99 countries over the 1860–1950 period. We find that higher levels of political exclusion of the poor, our main measure of class conflict, were associated with higher levels of social-revolutionary terrorist activity during this time period. This finding is robust to an instrumental-variable approach and further robustness checks. We argue that class cleavages – in the form of the monopolization of political power by the rich – perpetuated and exacerbated the socio-economic ordeal of the poor, while simultaneously curtailing their means to effect relief in the ordinary political process. Consistent with our expectations, this provoked terrorist violence by groups whose ideological orientation highlighted concerns over class conflict, economic equality and the political participation of the poor. Indeed, our empirical analysis also shows that terrorist groups motivated by other ideologies (e.g. extreme nationalism) did not respond to political exclusion of the poor in the same manner, which further emphasizes the role of ideological inclinations in the terrorist response to class antagonisms.

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## Introduction

Modern terrorism emerged in the second half of the 19th century.<sup>1</sup> For the first time, advances in military technology (e.g. the invention of dynamite and easy-to-use handguns) made it possible for military laymen to carry out spectacular terrorist attacks, while advances in communication and transportation (e.g. the invention of the telegraph and railroad as well as the emergence of mass media) multiplied the propagandistic reach of these attacks (e.g. Parker and Sitter 2016). At the same time, many parts of the world saw extensive social and economic upheavals, especially in the forms of rapid urbanization and industrialization (e.g. Lees and Lees 2007). These developments, in turn, involved the emergence of a new social class, the *working class*, engaged in waged labor in the new industrial centers (e.g. Neal and Cameron 2016).<sup>2</sup>

Following the classical account of the situation of the working class in England by Engels ([1845] 1987), the living conditions of the working class were – not only in England – usually seen as highly unfavorable, characterized by, e.g. low wages and poverty, exploitative working conditions and social alienation. Vast differences in living standards between different parts of the population prevailed, with substantial parts of the working class getting the short end of the stick (Lindert 1994).<sup>3</sup> These conditions gave rise to the emergence of new ideas and ideologies to explain the

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ordeal of the working class and offer solutions to its predicaments, the most important ones being *anarchism* and *Marxism*. Both ideological movements shared an opposition to the existing social hierarchy that privileged the rich over the poor but offered different solutions, either calling for an outright elimination of social hierarchies and the coercive state apparatus (anarchism) or a reversal of social hierarchies with the working class on top (Marxism).<sup>4</sup>

Over time, various groups that were inspired by anarchist or Marxist ideas resorted to terrorist violence to make their voices heard, win over new supporters, aggrieve the ruling class and, ultimately, spark a revolution to overthrow the existing social order and replace it with an anarchist or socialist one. For instance, one of the first groups to use terrorism – the ‘propaganda of the deed’ – as a strategy in their political fight was *Narodnaya Volya* (*People’s Will*), a Russian anarchist terrorist group behind the assassination of Tsar Alexander II in 1881 (Shughart 2006). Indeed, the activity of Russian revolutionary terrorist groups marked the beginning of the ‘first wave of terrorism’ (Rapoport 2001), eventually spreading to other parts of the world, including Western Europe, the United States and Latin America.

In this paper, we provide an empirical analysis of the causes of *social-revolutionary terrorism*, i.e., of terrorism by organizations with anarchist, Marxist or otherwise leftist leanings between 1860 and 1950. Given that these groups’ ideologies are intrinsically linked to the grievances of the poor and disenfranchised, our study focuses on the role of the *political exclusion of the poor* in the emergence of social revolutionary terrorism. Here, we hypothesize that higher levels of political exclusion of the poor result in more social-revolutionary terrorism for two reasons. First, the exclusion of the poor means that power is monopolized by the wealthy. This, in turn, means that the wealthy can use this power to implement policies and institutions that primarily serve their interests (e.g. Acemoglu and Robinson 2008). For instance, the power monopoly of the rich may result in lenient levels of taxation, low levels of public goods provision, weak social welfare policies and foreign policies that mainly benefit the commercial interests of the wealthy. Indeed, there is ample evidence that outsized political influence of the rich coincides with lower levels of education, poorer public health outcomes and lower levels of social spending (e.g. Easterly 2001; Loayza, Rigolini, and Llorente 2012). In other words, the political exclusion of the poor makes it less likely that the grievances of the poor are adequately addressed. Second, the same monopolization of political power also makes it less likely that political and economic change that would eventually benefit the poor can be effected through the ordinary political process, making it, in turn, more likely that some segments of society will instead resort to armed struggle to exact such changes. Here, terrorism was the preferred modus operandi of this armed struggle because larger parts of the working class could hardly be outright mobilized for large-scale civil wars, given the underlying collective-action problem (e.g. Olson 1965).<sup>5</sup>

Our main hypothesis and theoretical mechanisms are in line with the rational-economic model of terrorism which posits that terrorists are rational actors who resort to terrorism when it maximizes their utility compared to non-violence, given terrorism’s (opportunity) costs and benefits (e.g. Caplan 2006; Gaibullov and Sandler 2019; for a critical discussion of some of these assumptions, see Abrahms 2008). Here, it is rational to respond to political exclusion with terrorism because (1) political exclusion of the poor makes it less attractive to engage in the ordinary political process (which affects terrorism’s opportunity costs), while (2) potential benefits from terrorist success (e.g. the capture of resources or, ultimately, a redistribution of wealth and power) are especially high as the status quo primarily favors the rich.<sup>6</sup> Indeed, the prediction that exclusion can result in terrorism is in line with a number of empirical contributions that find that economic inequality and exclusionary policies may have contributed to the emergence of terrorist activity after 1970 (e.g. Piazza 2011; Choi and Piazza 2016; Gleditsch and Polo 2016; Krieger and Meierrieks 2019; Hansen, Nemeth, and Mauslein 2020).

To test our hypothesis, we use data for 99 countries between 1860 and 1950. As our main finding, we show that social-revolutionary terrorism was indeed more likely in countries characterized by high levels of political exclusion of the poor. This finding is robust to a battery of robustness checks, e.g. concerning the measurement of exclusionary policies and social-revolutionary terrorism. What is

more, it is also robust to an instrumental-variable approach, where we use political change concerning the political treatment of the poor in neighboring countries to instrument their local political exclusion; this instrumental-variable approach is inspired by earlier contributions such as Berrebi and Ostwald (2015), Gaibullov, Piazza, and Sandler (2017) and Acemoglu et al. (2019). Finally, we show that terrorist groups motivated by other ideologies (e.g. extreme nationalism and right-wing extremism) did not respond to political exclusion of the poor in the same manner.

Our empirical study adds to three strands of the terrorism literature. First, thanks to a new dataset by Tschantret (2019) we can empirically analyse the roots of terrorism in the 19th and early 20th century. Previously available datasets (e.g. the *Global Terrorism Database*) did not allow for such an analysis as they only covered the period from 1970 onwards (for an overview of terrorism datasets, see, e.g., Drakos 2011). At the same time, our empirical study complements earlier descriptive explorations and case studies of early modern terrorism (e.g. Geifman 1995; Jensen 2004; Clutterbuck 2004; Jensen 2009, 2014; Kassel 2009). Second, by focusing on the roles of political exclusion on grounds of socio-economic class and other class cleavages, we add to the existing literature that empirically investigates the relationship between terrorism, exclusion, discrimination and inequality for the post-1970 period (e.g. Piazza 2011; Choi and Piazza 2016; Gleditsch and Polo 2016; Krieger and Meierrieks 2019; Hansen, Nemeth, and Mauslein 2020). By providing evidence that exclusion also mattered to early modern terrorism, we can show that there is some degree of continuity in the causes of terrorism over time. Third, by studying the relationship between class cleavages (as indicated by the political exclusion of the poor) and social-revolutionary terrorism as well as terrorism motivated by other ideologies (e.g., extreme nationalism), we add to the literature that studies the grievances underlying various violent ideologies to get a better understanding of terrorism's causes. Earlier examples of empirical studies that likewise emphasize the role of ideology in terrorism include Robison, Crenshaw, and Jenkins (2006), Kis-Katos, Liebert, and Schulze (2014) and Brockhoff, Krieger, and Meierrieks (2016).

The remainder of this paper is organized as follows. In Section 2, we discuss the data and methods we employ to test our hypothesis that class inequality mattered to social-revolutionary terrorism between 1860 and 1950. We present our main findings, robustness checks and empirical extensions in Section 3. Section 4 concludes.

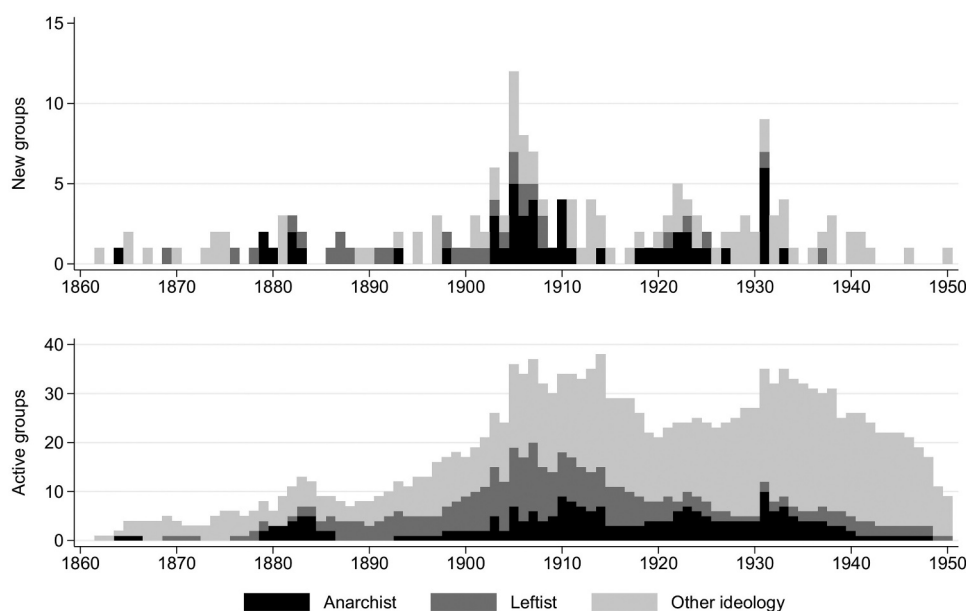
## Data and Methods

To examine the effect of the exclusion of the poor from political power on the emergence of social-revolutionary terrorism, we use a dataset of 99 Asian, American and European countries between 1860 and 1950. African countries are not included due to a lack of data. A country list is provided in the appendix.

### *Measuring Social-Revolutionary Terrorism*

Our main dependent variable is the *number of social-revolutionary terrorist groups active in a country-year*.<sup>7</sup> The data on the activity of the various terrorist groups is drawn from the *Old Terrorism Dataset* of Tschantret (2019). This dataset also reports the terrorist groups' ideological leanings. For our analysis, all groups that are classified as *anarchist* or *leftist* by Tschantret (2019) are considered to be social-revolutionary. According to Tschantret (2019), most anarchist groups are identified based on their self-identification, while left-wing groups are similarly identified as such when they self-identify as socialist or communist (including Marxist-Leninist groups) or when they otherwise fight to transform the political system for equity purposes.

Figure 1 shows how the number of active social-revolutionary groups developed over time. For our sample of 99 countries, there were 155 active terrorist groups between 1860 and 1950. 81 of them were motivated by a social-revolutionary ideology (51 anarchist and 30 leftist groups), while the remaining groups had nationalist, right-wing, religious or other leanings (Tschantret 2019). The



**Figure 1.** Formation (top) and activity (bottom) of terrorist groups, 1860–1950.

patterns visualized in [Figure 1](#) are consistent with the notion of a first wave of social-revolutionary terrorism that started in the 1880s and began to peter out after 1920, being replaced by terrorism more strongly motivated by nationalist and anti-colonial sentiment (e.g. Rapoport 2001; Parker and Sitter 2016; Tschantret 2019).

### Measuring Class Cleavages

As argued above, we hypothesize that greater societal divisions along class lines ought to increase the risk of social-revolutionary terrorism. In detail, we argue that the monopolization of political power in the hands of the rich exacerbates and perpetuates grievances among the poor, while simultaneously curtailing the ways through which the poor might improve their socio-economic lot in the ordinary political process, ultimately making terrorism an attractive option to effect political and economic change. Consequently, we operationalize class cleavages related to the division of power by an *index of political power distributed by socio-economic position* from the *V-Dem Dataset* (Coppedge et al. 2020). To provide this variable, V-Dem relies on both country-based and subject-based experts, asking whether and to what extent political power is distributed along class lines. Expert opinion may range from stating that the wealthy enjoy a virtual monopoly on political power to stating that power is more or less equally distributed across economic classes. V-Dem then uses the raw expert opinion data to provide a representative value of political exclusion of the poor per country-year observation, applying item response theory and other forms of rigorous statistical scrutiny to minimize uncertainty and bias (for a further discussion of these methods, see Coppedge et al. 2020).

Ultimately, our main independent variable measures the extent to which wealth and income translate into political power (Coppedge et al. 2020). For our analysis, we multiply the original variable by  $-1$ , so that larger values coincide with higher levels of *political exclusion of the poor*, i.e. a more



Figure 2. Global trends in political exclusion of the poor, 1860–1950.

unequal distribution of political power across economic classes. Consistent with our main hypothesis, we expect this variable to share a positive relationship with social-revolutionary terrorism.

Figure 2 shows the sample-average of the political exclusion variable over time. While there is substantial temporal variation, there is a clear trend towards higher levels of political inclusion of the poor, especially after 1920 and 1945.

## Empirical Models

### Two-Way Fixed-Effects Approach

To estimate the effect of political exclusion of the poor (*exclusion*) on the number of active social revolutionary terrorist groups (*terror*) in country  $i$  and year  $t$ , we consider the following model:

$$terror_{it} = \beta_1 * exclusion_{it} + \beta_r * X'_{it} + \alpha_i + \lambda_t + \varepsilon_{it} \quad (1)$$

Here,  $\alpha$  and  $\lambda$  refer to a set of country- and year-fixed effects, respectively. These fixed effects allow us to control for time-invariant country-specific factors (e.g. cultural and geographic variables) as well as secular time trends and global events (e.g. the First and Second World War). The vector  $X$  contains time-varying control variables which we discuss below in more detail. Finally,  $\varepsilon$  refers to a well-behaved error term. We estimate the model using the OLS estimator and report Driscoll and Kraay (1998) standard errors that are robust to serial correlation, heteroskedasticity and cross-sectional dependence, given that pre-tests suggest that these factors will affect our standard error estimates.<sup>8</sup>

### Instrumental-Variable Approach

Potentially, the estimates from Equation (1) are affected by *endogeneity*. Besides being due to the omission of relevant variables, endogeneity may also result from measurement errors and reverse causation. Considering measurement errors, it seems possible that the expert assessments of historical developments are to some extent imprecise. Attenuation bias as a consequence of measurement error in the main explanatory variable will bias the OLS-estimates from Equation (1) towards zero. Furthermore, concerning reverse causation, it is possible that class divides do not only spur social-revolutionary terrorism but that social-revolutionary terrorism also affects the patterns of reform and exclusion. For instance, the wealthy may respond to social-revolutionary terrorism by sharing (some of) their political power in an effort to avoid more severe political instability that would outright threaten their economic and political position (e.g. Aidt and Jensen 2014). Alternatively, the threat of social-revolutionary terrorism may induce entrenchment by the wealthy, leading them to further strengthen exclusionary policies to secure their politico-economic position.

To address endogeneity concerns, we run a series of *two-stage instrumental-variable (IV)* models of the following form:

$$exclusion_{it} = \beta_{11} * exclusion\_regional_{it} + \beta_{1'} * X'_{it} + \alpha_{1i} + \lambda_{1t} + \varepsilon_{1it} \quad (2a)$$

$$terror_{it} = \beta_{21} * \widehat{exclusion}_{it} + \beta_{2'} * X'_{it} + \alpha_{2i} + \lambda_{2t} + \varepsilon_{2it} \quad (2b)$$

In the first stage (2a), we predict the potentially suspect variable *exclusion* by our instrumental variable, *exclusion\_regional*, and the usual set of controls and fixed effects. In the second stage (2b), we use the predicted values from Equation (2a) to estimate the effect of political exclusion on social-revolutionary terrorism.

Our instrumental variable, regional political exclusion (*exclusion\_regional*), is defined as the average value of our political exclusion variable for all countries that are located in the same politico-geographic region of the world as country *i*, net of the value of the political exclusion variable of country *i* itself.<sup>9</sup> Our IV-approach is inspired by earlier contributions such as Berrebi and Ostwald (2015), Gaibullov, Piazza, and Sandler (2017) and Acemoglu et al. (2019). For instance, Gaibullov, Piazza, and Sandler (2017) and Acemoglu et al. (2019) use plausibly exogenous variation in political trends in proximate countries (e.g. regional moves towards democracy) to estimate the effect of local political conditions on local outcomes, arguing that regional political trends predict local political conditions due to the cross-border spread of political ideas and information. Importantly, Aidt and Jensen (2014) show that such cross-border diffusion of ideas and information already mattered during the 19<sup>th</sup> century, i.e. for our observation period.

Following the example of these studies, we argue that the political exclusion of the poor in proximate countries (i.e. our instrumental variable *exclusion\_regional*) predicts the local political exclusion of the poor in country *i*. In detail, we expect a positive relationship between both variables, where moves towards greater political participation of the poor in proximate countries encourage similar political reforms in country *i*. For instance, this relationship may be due to the cross-border diffusion of liberal ideas via trade and migration, learning and imitation effects between countries (where countries ought to follow neighbouring countries when the reforms of these neighbours are successful) or inter-country competition for capital and talent (both of which may gravitate towards countries that offer lower levels of class conflict). At the same time, we argue that regional political exclusion has no direct effect on social-revolutionary terrorist activity in country *i*, conditional on our usual set of controls and fixed effects. In sum, we thus assume that regional political exclusion is a meaningful predictor of local political exclusion (ensuring instrument relevance) but that our instrumental variable affects terrorist activity in country *i* only through its effect on local class cleavages (ensuring instrument exogeneity).

## Controls

The vector *X* consists of a number of time-varying variables to control for country-specific economic, political and demographic conditions. The summary statistics for the main variables and controls employed in this analysis are reported in Table 1.

In detail, we control for a country's level of economic development, indicated by *life expectancy* in years at birth.<sup>10</sup> We also consider the role of regime type, proxied by an *electoral democracy index*, which ranges from 0 (non-democratic) to 1 (fully democratic); higher values are achieved when, inter alia, countries exhibit extensive suffrage, have free and fair elections and guarantee freedom of association and expression. Both variables come from the V-Dem Dataset. In line with the rational-economic model of terrorism, differences in economic and political conditions may affect incentives to engage in terrorist activity. For instance, more democratic countries may be less likely to produce terrorist activity by fostering non-violent political participation. At the same time, controlling for economic conditions and democracy is necessary to disentangle the effect of the political inclusion of the poor (our main independent variable of interest) on terrorism from the effects of a country's broader economic and political development on the same outcome.

**Table 1.** Summary statistics.

	N*T	Mean	S.D.	Min.	Max.
Social-revolutionary terrorism	6,472	0.087	0.542	0.00	14.00
Political exclusion of the poor	6,472	0.692	1.342	−3.35	3.20
Life expectancy	6,472	39.394	10.803	6.87	71.60
Electoral democracy index	6,472	0.236	0.205	0.01	0.91
Population	6,472	20.752	63.271	0.02	543.78
Regional discrimination	6,472	0.217	1.381	−2.90	2.69
Domestic Autonomy	6,472	−0.102	1.590	−3.54	1.70
Internal conflict	6,472	0.063	0.243	0.00	1.00
International conflict	6,472	0.146	0.353	0.00	1.00
Public sector corruption index	6,324	0.404	0.297	0.01	0.98
Physical violence index	6,470	−0.526	0.276	−0.97	−0.02

Besides economic and political development, surveys on the determinants of terrorism (e.g. Krieger and Meierrieks 2011; Gaibullov and Sandler 2019) suggest that a minimal set of controls should also include a variable for *population size*. For instance, larger populations may produce more terrorist activity because it becomes more difficult for governments to effectively monitor them. The data on population size is from Brown and James (2018).

Moreover, we control for two variables that reflect the fact that many countries in our sample were (at least at times) colonies or client states, had only a semi-autonomous status (e.g. the Dominions of Canada and Australia), were under foreign military occupation or, conversely, presided over multinational empires. First, we control for an index of *regional discrimination*. This variable comes from the V-Dem Dataset; higher values indicate that there are sub-national inequalities concerning the respect of government officials for civil liberties, meaning that some regions are affected by discriminatory policies. For instance, multinational empires (such as Russia) may have shown less respect for the civil liberties of ethnic minorities at their periphery, which may have led to terrorism in these areas. To the extent that such discrimination is expected to correlate with economic repression, it is necessary to include this discrimination measure to disentangle its effect from the effect of the political exclusion of the poor on social-revolutionary terrorism. Second, we include a variable measuring a country's level of *domestic autonomy*. This variable is also from the V-Dem Dataset. It reflects the level of authority a country may exert over its economic and political system, ranging from −4 (no autonomy) to +4 (full autonomy). Differences in domestic autonomy could have, in turn, also affected the patterns of both exclusion and social-revolutionary terrorism.

In some specifications, we furthermore control for *internal conflict* and *international conflict* to account for the impact of broader internal political instability (civil war) and external warfare (especially concerning the two World Wars) on both exclusion and terrorism. Participation in internal and external conflict is indicated by a dummy variable that is equal to unity when a country is involved in such a conflict and zero otherwise. The corresponding conflict data is drawn from the *Conflict Catalogue* (Brecke 2001).

Finally, in some specifications we account for the extent of *public sector corruption* and *state repression*. Here, corruption is measured by an index ranging from 0 (no corruption) to 1 (very high levels of corruption), indicating the degree to which public sector employees are involved in bribery and embezzlement. Repression is measured by a physical violence index indicating the extent of state violence through the use of political killings and torture, ranging from −1 (hardly repressive) to 0 (strongly repressive). Both variables come from the V-Dem Dataset.

## Empirical Results

### Main Results

We present our baseline OLS-estimates following Equation (1) in Table 2. Concerning our main independent variable of interest, we find that higher levels of political exclusion of the poor are associated with higher levels of activity by social-revolutionary terrorist organizations. This association emerges in a parsimonious model as well as in our baseline specification. It is also robust to the inclusion of further controls. In sum, these findings are consistent with our main hypothesis in that the exclusion of the economically disenfranchised from political power appears to have motivated terrorist activity by social-revolutionary groups that aimed at remedying such class cleavages.

Briefly discussing the results for the control variables, we find that social-revolutionary terrorism is more likely in more autonomous, populous and richer countries (i.e., countries that are characterized by higher life expectancy), while there is no straightforward relationship between social-revolutionary terrorism and democratic institutions, regional discrimination and further measures of institutional quality (corruption and human rights violations). Also, while there is some evidence that social-revolutionary terrorism is more likely in countries embroiled in civil war, the same is not true for international conflicts. In general, the findings for the controls are in line with many findings from the empirical literature on the determinants of terrorism in the post-1970 period (e.g. Krieger and Meierrieks 2011; Gaibullov and Sandler 2019). For instance, finding that terrorism is more likely in more populous countries is consistent with the idea that larger populations are more difficult to monitor and more likely to breed terrorism due to the presence of a larger pool of potential terrorist operatives (e.g. Krieger and Meierrieks 2011).

Next, in Table 3 we present our instrumental-variables estimates. In line with the OLS-estimates, we find that higher levels of political exclusion result in higher levels of terrorist activity by social-revolutionary groups. Here, the IV-diagnostics indicate that the IV-estimates are sound. In the first-stage regression, our instrumental variable has the expected positive effect on local political exclusion. The associated *F*-statistics always comfortably exceed the threshold of instrument relevance of

**Table 2.** Main OLS estimation results.

	(1)	(2)	(3)	(4)
Political exclusion of the poor	0.051** (0.025)	0.071*** (0.020)	0.076*** (0.021)	0.069*** (0.020)
Life expectancy		0.004** (0.002)	0.004*** (0.002)	0.005** (0.002)
Electoral democracy index		0.084 (0.089)	0.089 (0.091)	−0.065 (0.088)
Population		0.009*** (0.003)	0.009*** (0.003)	0.009*** (0.003)
Regional discrimination		−0.032 (0.048)	−0.032 (0.048)	−0.035 (0.050)
Domestic autonomy		0.011*** (0.004)	0.012*** (0.004)	0.009** (0.004)
Internal conflict			0.121* (0.073)	
International conflict			−0.029 (0.039)	
Public sector corruption index				−0.101 (0.085)
Physical violence index				−0.143 (0.090)
No. of Observations	6,472	6,472	6,472	6,322
No. of Countries	99	99	99	98

Notes: Dependent variable is the number of active social revolutionary terrorist groups. Country-fixed and year-fixed effects included in all specifications. Driscoll-Kraay standard errors in parentheses. \*\*\*, \*\* and \* denote statistical significance at the 1%, 5% and 10% level.

**Table 3.** Main instrumental-variable estimation results.

	(1)	(2)	(3)	(4)
Political exclusion of the poor	0.282*** (0.078)	0.309*** (0.076)	0.335*** (0.084)	0.307*** (0.076)
Life expectancy		0.006*** (0.002)	0.006*** (0.002)	0.006*** (0.002)
Electoral democracy index		0.569*** (0.170)	0.617*** (0.181)	0.467*** (0.168)
Population		0.011*** (0.003)	0.011*** (0.003)	0.011*** (0.003)
Regional discrimination		0.068 (0.052)	0.077 (0.053)	0.056 (0.048)
Domestic autonomy		−0.034*** (0.012)	−0.033*** (0.013)	−0.032*** (0.012)
Internal conflict			0.198** (0.084)	
International conflict			0.003 (0.038)	
Public sector corruption index			−0.344** (0.171)	
Physical violence index			0.018 (0.014)	
No. of Observations	6,472	6,472	6,472	6,322
No. of Countries	99	99	99	98
<i>First-Stage Regression Results</i>				
Regional political exclusion	0.511*** (0.081)	0.449*** (0.071)	0.429*** (0.074)	0.429*** (0.074)
First-Stage F-statistic	39.49	39.77	33.53	26.42
<i>Weak-Instrument Robust Inference</i>				
Anderson Rubin Test-Statistic p-value	(0.01)**	(0.00)***	(0.00)***	(0.00)***
Anderson-Rubin Confidence Set	[0.18; 0.46]	[0.22; 0.51]	[0.22; 0.59]	[0.22; 0.55]

Notes: Dependent variable is the number of active social revolutionary terrorist groups. Country-fixed and year-fixed effects included in all specifications. Driscoll-Kraay standard errors in parentheses. \*\*\*, \*\* and \* denote statistical significance at the 1%, 5% and 10% level.

$F = 10$ . However, this threshold has received some criticism in the literature for being anti-conservative (e.g. Lee et al. 2020), meaning that our instrument may still be weak. To overcome this issue, we also report the Anderson-Rubin test for instrument relevance that is robust to potential instrument weakness and the associated Anderson-Rubin confidence sets (Anderson and Rubin 1949; Lee et al. 2020). As shown in Table 3, these additional IV-diagnostics suggest that our instrumental-variable approach is sound, too.

The main threat to our identification strategy (where we use regional variation in political exclusion to instrument local political exclusion) and thus our IV-estimates is that regional variation in political exclusion correlates with other regional trends that also affect social-revolutionary terrorism, thus violating the exclusion restriction. Indeed, while the results for most control variables conform to the OLS-estimates, in the IV-setting we now find that democracy is linked to more social-revolutionary terrorism (no statistically meaningful relationship in the OLS-setting), while domestic autonomy is negatively related to it (rather than positively, as found in the OLS-setting). Potentially, then, our instrumental variable picks up regional trends in democracy and domestic autonomy (e.g. related to decolonization efforts), which could adversely affect our IV-strategy.

To address these concerns, we run a number of robustness checks, broadly following the example of Acemoglu et al. (2019). First, we run an IV-model without the potentially suspect controls (democracy and autonomy). Second, we amend our baseline model with variables that account for regional trends in democracy and autonomy.<sup>11</sup> Third, we amend our baseline model with regional means of life expectancy, regional discrimination and population size; potentially, our IV-

approach is also tainted by regional trends in these variables. Finally, we add to our baseline model a variable that measures the mean-level of regional terrorist activity as another way to account for regional trending. These robustness checks corroborate our main empirical conclusion: higher levels of political exclusion of the poor result in higher levels of social-revolutionary terrorist activity; the associated IV-diagnostics indicate that these estimates are sound (results reported in Table A1 the appendix). These robustness checks thus strengthen our confidence in our main IV-results reported above.

In sum, the IV-estimates are in line with our OLS-estimates, suggesting that higher levels of political exclusion lead to higher levels of social-revolutionary terrorist activity. Compared to the OLS-estimates, effect sizes from the IV-approach are larger. They are, however, also less precisely estimated. As the OLS-estimates appear to be more conservative and precise than their IV-counterparts, we will only report OLS-estimates for the remainder of this paper.

## **Robustness Checks**

### **Further Control Variables**

To assess the robustness of our main findings, we run additional models that include further control variables. In detail, we control for the effect of natural disasters (given that natural disasters may make it more likely for terrorist groups to operate; see Berrebi and Ostwald 2011), access to education (to consider the effect of education on terrorism) and state involvement in the economy (which may influence incentives to engage in revolutionary violence to seize the means of production). The operationalization and data sources of these additional controls are reported in Table A2 in the appendix. Controlling for these additional factors does not affect our main finding: higher levels of political exclusion are still associated with higher levels of social-revolutionary terrorist activity (results shown in Table A3 in the appendix).

Additionally, following Enders, Hoover, and Sandler (2016) and Gaibullov, Piazza, and Sandler (2017), we assess whether there is evidence that economic development (indicated by life expectancy) and democracy are non-linearly related to social-revolutionary terrorism by amending our baseline model with quadratic terms of both variables. Furthermore, we examine whether our baseline results are affected by the inclusion of a lagged dependent variable, alternative transformations (by taking natural logarithms) of population size and life expectancy as well as different operationalizations of democratic development (see Table A2 in the appendix for the corresponding definitions and data sources). These alterations of our baseline model also do not matter to our main finding: we continue to find that higher levels of political exclusion result in higher levels of social-revolutionary terrorism (results reported in Table A4 in the appendix). As an interesting side-note, our results suggest that economic development may be non-linearly related to this type of terrorism, where countries with intermediate life expectancies are most vulnerable. This finding is consistent with Enders, Hoover, and Sandler (2016) who report evidence for a similar non-linear relationship between per capita income (as an alternative indicator of economic development) and terrorism for the post-1970 period.

### **Alternative Terrorism Measures**

As another robustness check, we consider whether the operationalization of our dependent variable matters to our estimates. We consider the four alternative operationalizations. First, we weigh the number of social-revolutionary terrorist groups by a country's population size. For instance, Jetter and Stadelmann (2019) argue that there may be a difference in the determinants of total and per capita terrorist activity. Second, we apply the inverse hyperbolic sine transformation to the number of social-revolutionary terrorist groups. Similar to the log transformation, this transformation makes the transformed variable less susceptible to outliers; at the same time – and in contrast to the log-transformation – the inverse hyperbolic sine transformation is defined for cases of zero social-revolutionary terrorist activity in a country-year observation (e.g. Burbidge,

Magee, and Robb 1988). Third, we employ a simple binary measure of social-revolutionary terrorist activity, which is equal to unity when there is at least one terrorist group active and zero otherwise. This is another way to curtail the influence of outliers. Fourth, instead of looking at the number of active social-revolutionary terrorist groups per country-year, we consider the *formation* of social-revolutionary terrorist groups. Here, the binary indicator of group formation is equal to unity when a new social-revolutionary terrorist group emerges and zero otherwise. In so doing, we can link our study to the literature examining the *onset of terrorist groups* (e.g. De la Calle and Sanchez-Cuenca 2012).

As shown in Table 4, employing these alternative operationalizations of social-revolutionary terrorism does not affect our previously drawn conclusions: stronger class cleavages (as indicated by a lack of political power-sharing on the part of the wealthy) are associated with higher levels of terrorist activity by social-revolutionary terrorist groups. This suggests that our main results are not due to the choice of our dependent variable.

### Alternative Measures of Class Cleavages

Our preferred measure of class conflict indicates how strongly political power is monopolized by the rich. We argue that this measure is a sound indicator of class divides, e.g. because high levels of power monopolization allow the rich to shape institutions and policies in their favor (e.g. concerning taxation, labor rights and social policies). Still, an argument could be made that idiosyncrasies related to this variable (e.g. concerning measurement error) could cloud our statistical analysis. As a final robustness check, we therefore also consider five alternative measures of class divides, namely (1) difference between social classes in relation to civil liberties, e.g. concerning property rights and access to the justice system, (2–4) differences in access to public services (e.g. basic education and clean water), state jobs and state business opportunities (e.g. concerning access to government contracts) due to socio-economic status as well as (5) a composite index of exclusion that takes into account our main measure of political exclusion by socio-economic position as well as the aforementioned alternative measures. These additional variables are drawn from the V-Dem Dataset; their summary statistics and additional information on their operationalization are reported in the appendix (Table A2). Note that most variables are only available from 1900 onwards, which substantially reduces our sample size.

We report our empirical results using these alternative measures of political exclusion in Table 5. We find that stronger social-revolutionary terrorist activity is associated with higher levels of class

**Table 4.** Alternative dependent variables.

Dependent Variable →	No. of Terrorist Group per Capita		Inverse Hyperbolic Sine	Binary Terrorist Group Activity	Binary Terrorist Group Formation
	(1)	(2)	(3)	(4)	(5)
Political exclusion of the poor	0.003***	0.003***	0.033***	0.015**	0.019***
	(0.001)	(0.001)	(0.009)	(0.006)	(0.005)
Life expectancy	0.000	0.000	0.002*	0.001	0.000
	(0.000)	(0.000)	(0.000)	(0.001)	(0.000)
Electoral democracy index	0.005	0.005	(0.018	−0.019	0.029**
	(0.008)	(0.008)	(0.061)	(0.052)	(0.013)
Population	0.000		0.004***	0.002***	0.001*
	(0.000)		(0.001)	(0.001)	(0.001)
Regional discrimination	0.002**	0.002**	0.035**	0.058***	−0.019
	(0.001)	(0.001)	(0.017)	(0.010)	(0.013)
Domestic autonomy	0.002***	0.002***	0.009***	0.010***	0.002
	(0.000)	(0.000)	(0.002)	(0.002)	(0.001)
No. of Observations	6,472	6,472	6,472	6,472	6,472
No. of Countries	99	99	99	99	99

Notes: Respective dependent variable shown in column header. Country-fixed and year-fixed effects included in all specifications. Driscoll-Kraay standard errors in parentheses. \*\*\*, \*\* and \* denote statistical significance at the 1%, 5% and 10% level.

**Table 5.** Alternative measures of class cleavages.

	(1)	(2)	(3)	(4)	(5)
Class exclusion civil liberties	0.162*** (0.042)				
Unequal access public services		0.137*** (0.059)			
Unequal access state jobs			0.197*** (0.086)		
Unequal access state business				-0.022 (0.032)	
Class exclusion index					1.462*** (0.499)
Life expectancy	0.003* (0.002)	0.003 (0.002)	0.002 (0.002)	0.002 (0.002)	0.002 (0.002)
Electoral democracy index	0.049 (0.072)	0.002 (0.090)	0.006 (0.081)	-0.081 (0.097)	0.151* (0.083)
Population	0.010*** (0.003)	0.003 (0.003)	0.003 (0.003)	0.002 (0.003)	0.003 (0.003)
Regional discrimination	-0.010 (0.040)	-0.425*** (0.104)	-0.406*** (0.095)	-0.480*** (0.121)	-0.339*** (0.078)
Domestic autonomy	0.021*** (0.006)	0.046** (0.022)	0.046** (0.022)	0.051** (0.023)	0.024 (0.016)
No. of Observations	6,473	3,997	3,997	3,966	3,997
No. of Countries	99	92	92	91	92

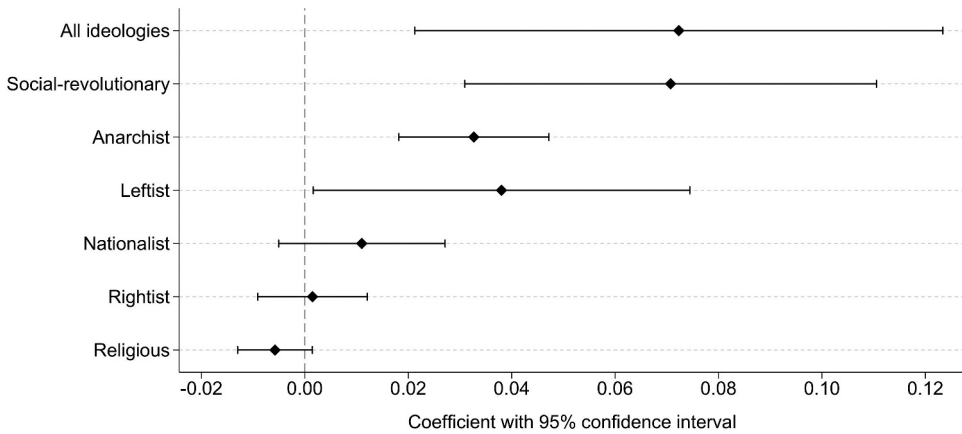
Notes: Dependent variable is the number of active social revolutionary terrorist groups. Country-fixed and year-fixed effects included in all specifications. Driscoll-Kraay standard errors in parentheses. \*\*\*, \*\* and \* denote statistical significance at the 1%, 5% and 10% level.

exclusion with respect to civil liberties as well as less equal access to public services and state jobs. The same is true when we employ a composite index of economic and political exclusion of the poor. As the lone exception, there is no statistically significant association between this kind of terrorism and class discrimination in relation to access to state business opportunities. While the reduced sample size does not allow us to directly compare these findings to our main results in many cases, they still largely speak to our main empirical conclusion: the unfavorable treatment of the poor is conducive to militant social-revolutionary activity. That is, our main results also do not appear to be due to the specific operationalization of class cleavages.

### **Other Types of Ideology Terrorism and Political Exclusion of the Poor**

As an empirical extension, we finally investigate whether other types of terrorism also share a statistically meaningful relationship with class cleavages. Here, we draw additional dependent variables from Tschantret (2019), which measure the number of active nationalist, right-wing and religious terrorist groups per country-year observation, respectively. Examples of such terrorist groups include the *Irish Republican Army* that was active in the United Kingdom (Irish nationalist terrorism), various iterations of the American *Ku Klux Klan* (a right-wing White supremacist terrorist group) and *Darul Islam* (which fought for the establishment of an Islamic state in Indonesia). Furthermore, we study how total terrorist activity (which combines information on all terrorist groups) responds to the monopolization of political power by the rich. Finally, we differentiate between anarchist and leftist terrorist group activity to corroborate our claim that both types of terrorism are similarly impacted by class concerns.

Figure 3 reports the regression coefficients for political exclusion with 95% confidence intervals, estimated separately for terrorist activity associated with different ideologies; the full estimation results are reported in the appendix (Table A5). We find that total terrorist activity shares a positive association with political exclusion. However, a closer look at the data indicates that this effect is solely driven by terrorist activity by social-revolutionary terrorist groups. At the same time, we are



**Figure 3.** Effect of political exclusion of the poor on different types of terrorism.

able to show that anarchist and leftist terrorism indeed display a kindred nature, with both types of social-revolutionary terrorism being rooted in the exclusion of the poor from political power. By contrast, we find no statistically significant association between our preferred measure of class conflict and terrorist activity by groups with nationalist, right-wing or religious agendas. This latter finding is highly intuitive, strongly suggesting that class cleavages only mattered to militant groups whose ideological orientation highlighted concerns over economic equality and the political participation of the poor.

## Conclusion

We examine the impact of the political exclusion of the poor on the activity of social-revolutionary terrorist groups for a sample of 99 countries between 1860 and 1950. Given their ideological roots, we hypothesize that anarchist and leftist terrorism during this time period were motivated by class cleavages that also materialized in the monopolization of political power by the rich. This monopolization, in turn, perpetuated and exacerbated the poor's grievances and simultaneously curtailed their means to effect accommodation in the ordinary political process, making the resort to violence more likely. Indeed, our empirical analysis shows that higher levels of political exclusion by the poor led to increased terrorist activity by social-revolutionary terrorist organizations. This finding is robust to an instrumental-variable approach and a battery of additional robustness checks, including the use of alternative measures of class cleavages. Furthermore, we show that terrorist groups motivated by other ideologies (e.g. extreme nationalism) did not respond to political exclusion of the poor in the same manner.

Our analysis primarily adds to the literature by (1) investigating the determinants of terrorism in the early days of modern terrorism and (2) highlighting the roles of political exclusion, inequality and political ideology in terrorism. At the same time, we believe that our study is not only an interesting addition to economic history and the history of political violence but could also have relevance in the 21<sup>st</sup> century. Indeed, recent decades saw trends towards higher wealth concentration and income inequality (e.g. Piketty and Saez 2014; Piketty 2014). These trends, in turn, could boost the political influence of the rich and thus resurrect 19<sup>th</sup> century grievances and ideologies largely thought buried since at least the end of the Second World War. Thus, we hope our study can inspire future research that more closely examines how exclusion, inequity and ideology have interacted with terrorism in the post-1970 era, contrasting our findings with later time periods to reveal potentially interesting commonalities, continuities and differences in the causes of terrorism over time.

## Notes

1. In this contribution, we follow the definition of Tschantret (2019, p. 5) who defines terrorism as violence (especially bombings and assassinations) by politically-motivated non-state actors. This definition shares many similarities with the more extensive one by Gaibullov and Sandler (2019, p. 278) who define terrorism as 'the premeditated use or threat to use violence against non-combatants by individuals or subnational groups to obtain a political objective through the intimidation of a large audience beyond that of the immediate victims.'
2. Throughout this paper, the term 'class' refers to groups of people within a society who possess the same socio-economic status. For instance, while coming in many stripes, members of the working class share as their common characteristic 'their dependence for a living on the sale of their labor for a daily or weekly wage' (Neal and Cameron 2016, p.228).
3. Modern scholars typically provide a more nuanced account of living conditions in the 19<sup>th</sup> century, arguing that some conditions (e.g. wages and educational attainment) would improve – at least – by the late 19<sup>th</sup> century, whereas other conditions, e.g., concerning economic and political equality, remained unfavourable or even worsened (e.g. Williamson 1982; Easterlin 2000; Voth 2004; Clark 2005; Galor and Moav 2006; Griffin 2018).
4. Ultimately, in Marxism the realization of a communist society ought to make the state obsolete and thus lead to it withering away. This hints at the larger point that there are many commonalities but also differences between anarchism and Marxism. This is even more evident when we consider the various schools of thought within anarchism (e.g. classical anarchism and anarcho-syndicalism) and Marxism (e.g. classical Marxism and Marxism-Leninism) as well as syncretic (e.g. anarchist communism) and closely related political-ideological movements (e.g. syndicalism, mutualism and trade-unionism). As discussing these issues is beyond the scope of our paper, we refer to Levy (2004), Franks (2012) and Van der Walt (2017) for further overviews and discussions.
5. Indeed, many social-revolutionary terrorist groups made a virtue out of this necessity: for instance, groups with Marxist-Leninist leanings often considered themselves to be a revolutionary vanguard that would eventually inspire revolutionary action by the broader working class (Lenin [1902] 1935). This tendency towards 'vanguardism' was often fuelled by the composition of social-revolutionary terrorist groups, whose members tended to be better educated and better off than the clientele (the poor) they claimed to represent. For instance, this composition may have been a consequence of the 'demand side' of terrorist recruitment, where more educated operatives are more likely to be recruited because they are more likely to be successful terrorists (e.g. Krieger and Meierrieks 2011, p.10). Furthermore, Abrahms (2008) notes that terrorist recruitment is often driven by social ties, where members of terrorist organizations tend to enrol family members and friends sharing similar socio-economic and education characteristics.
6. Alternatively, the relationship between exclusion and terrorism could also be studied through the lens of relative deprivation theory (e.g. Gurr 1970). This theory posits that members of society develop feelings of discontent and frustration when their social position compares unfavourably to a reference group (i.e., when they are relatively deprived) and consequently use violence to vent their frustration. For instance, relative deprivation theory can also help explain why the poor would resort to violence against the rich even though their material conditions improved during the 19<sup>th</sup> and early 20<sup>th</sup> century.
7. In terrorism research, terrorist activity is commonly measured by the number of terrorist attacks per country-year or similar frequency measures. However, as discussed by Tschantret (2019), gathering accurate cross-national data for the pre-1950 period is virtually impossible. By focusing on the incidence of terrorist groups, our research approach is consequently more akin to empirical studies that investigate the onset, duration and demise of terrorist groups (e.g. Cronin 2006; De la Calle and Sanchez-Cuenca 2012; Gaibullov and Sandler 2013; Young and Dugan 2014).
8. The issues of serial correlation and heteroskedasticity are routinely considered in panel studies. Cross-sectional dependence may arise due to spatial or spill-over effects or due to unobserved common factors. For instance, Gaibullov, Sandler, and Sul (2014) show that disregarding the influence of cross-sectional dependence may affect statistical inference related to the economic consequences of terrorism.
9. We consider the following world regions: Eastern Europe and Central Asia; Latin America and the Caribbean; the Middle East and Northern Africa; Western Europe and North America; Asia and the Pacific. According to Acemoglu et al. (2019, p.80), a focus on world regions is appropriate because countries within the same region are not only geographically close but also 'tend to have similar histories, political cultures, practical problems, and close informational ties', meaning that it is highly plausible that regional patterns in political conditions affect local outcomes.
10. Per capita income is a more common measure of economic development. However, as data on this variable is not available for many countries before 1950, we instead use life expectancy.
11. Analogous to our instrumental variable, these trend are defined as the mean-value of the democracy or autonomy variable over all countries located in the same part of the world, net of the local democracy or autonomy score.

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The authors confirm that there are no relevant financial or non-financial competing interests to report.

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## Data availability Statement

Replication data and code are made available in Mendeley Data under the following link <https://data.mendeley.com/datasets/rsvkv43b5r/1>.

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