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Does Freedom of Expression Cause Less Terrorism?

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Abstract: It is often assumed that there is a trade-off between civil rights and national safety although the association is theoretically ambiguous. This paper therefore explores this association by estimating the effect of degrees of freedom of expression on the risk of terrorist attacks. We first note that different theoretical arguments support both a positive and negative association between freedom of expression and terrorism. We explore this association empirically in a large panel of 162 countries observed between 1970 and 2016. Distinguishing between media freedom and discussion freedom, and separating democracies and autocracies, we find that discussion freedom is unambiguously associated with less terrorism in democracies.

Keywords: Freedom of expression, terrorism, political economy

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1. Introduction

When a state experiences a terror attack, the reaction from governments and politicians often is to cut back on civil rights. This sometimes occurs because of the political assumption that there is a trade-off between civil rights and national safety (Waldron, 2003; Meisels, 2005; Bjørnskov and Voigt, 2020). The existing empirical literature on this question is nevertheless divided into two overall claims. One part of the literature argues that civil rights, including freedom of speech and freedom of the press, can function as a relatively peaceful outlet of concerns and frustration. Freedom therefore prevents terror because unhappy citizens can express in legal ways their discontent with the executive branch or other political actors (Schmid, 1992; Eyerman, 1998; Li, 2005; Piazza, 2013; Ravndal, 2018). The other part of the literature describes how freedom of speech might increase the likelihood of terror by making it easier for terrorist organisations to motivate and recruit new members, as well as making it easier to plan a terror attack (Schmid, 1992; Ross, 1993; Eyerman, 1998; Li, 2005).

Yet, despite the importance of the question and the fact that a literature extensively covers multiple theoretical arguments, virtually all existing empirical studies share a common problem (cf. Weinberg and Eubank, 1998; Li, 2005; Wade and Reiter, 2007; Whitaker, 2007; Piazza, 2008; Piazza and Walsh, 2009; Chenoweth, 2010; Ravndal, 2018). These studies rest on the implicit assumption that freedom of expression differs between broad political regime types but only varies little within types. We note here that this assumption does not bear out in the data and we therefore abandon a simple comparison of regime types.

In this paper, we instead examine how freedom of speech and freedom of the press affect the amount of terror a state is subject to. We do so by using new measures derived from the Varieties of Democracy project, which enable us to test how freedom of expression affects the amount of terror a state experiences, instead of merely exploring differences across regime types. We find that *freedom of discussion* in particular is substantially associated with less terrorism, and

argue that freedom lowers the risk of terror due to two types of mechanisms: 1) more freedom of expression makes it easier for the police and intelligence agencies to effectively gather information on potential terrorists and targets; and 2) freedom of expression works as an outlet for displeased citizens through which they can openly express their discontent instead of resorting to terror.

The rest of the paper is structured as follows. Section 2 describes the two theoretical points of view, and our theoretical argument. In section 3, we define our three key terms: terror, democracy and freedom of expression. In section 4 we describe our methodical approach and explain our variables. Sections 5 and 6 includes our results while section 7 comprises our conclusions and a discussion of our results.

2. Freedom of speech as a peaceful outlet of dissent or a source of conflict

When a state is exposed to an act of terrorism, the political reaction is often to increase security against terror by restricting certain civil rights. This restriction takes place either because it is believed that a trade-off between safety and freedom exists, or because opportunistic politicians use terrorist attacks as a pretext to introduce such changes (Waldron, 2003; Meisels, 2005; Bjørnskov and Voigt, 2020). One of the civil rights that is often restricted in such contexts is freedom of expression: as of 2014, 22 of the 83 countries sampled in Bjørnskov and Voigt (in press) explicitly allow censorship during states of emergency and only 40 have unconditional constitutional protection of the freedom of speech and expression. As such, much constitutional and judicial thought relies on an assumption that restricting freedom of expression may be necessary and effective such that a trade-off between security and civil liberties exists. Accordingly, the Council of Europe Convention for the Prevention of Terrorism (2005) obliges member states to establish “Public provocation to commit a terrorist offence” as a terrorist offence under national law. A number of democracies also criminalise “glorification” or “apology” of terrorism, and the European Court of Human Rights has clarified that such

glorification may be punished without violating citizens' right to freedom of expression in the European Convention of Human Rights (Mchangama, 2016). Yet, the main claims inherent in much constitutional thought and previous research that investigates democracy and the significance of civil rights – including freedom of expression – in relation to terrorism can be divided into two opposite theoretical arguments.

The first argument is that increased freedom of expression lowers the risk of terrorism, because it acts as an outlet for the frustration of disgruntled citizens who would otherwise have turned to violence (Schmid, 1992; Eyerman, 1998; Li, 2005; Piazza, 2013; Ravndal, 2018). Freedom of expression can be used by such citizens as a peaceful opportunity to try to change the political status quo by criticising the holders of power and have an open discussion of political means and aims. The effect of freedom of expression as an alternative to terror can nevertheless only be present if citizens believe that they can express their points of view without sanctions from other citizens, interest groups, or the state. Ravndal (2018) for example argues that Sweden may be exposed to more right-wing political violence than the rest of Western Europe, because the country does not have an open and free debate about immigration policy.

However, this strand of mechanisms is more relevant for democracies as they primarily rely on voter behaviour. Another mechanism with a similar implication that does not necessarily rely on democratic institutions can arise if limited freedom of expression facilitates militant mobilisation when an essential part of the narrative conveyed by terrorist organisations holds that they are being silenced and oppressed. Once this narrative is established, existing militant groups are not necessarily likely refrain from violence when the freedom of expression is expanded because they are better able to vent their frustration, but because the propaganda of such organisations becomes less credible. Increased freedom of expression may thereby undermine the recruitment efforts of terrorist organisations and similar groups.

An additional argument in favour of freedom of expression, which is also relevant for autocracies, is that although restrictions on expression may arguably be a part of the “coup

proofing strategy“ of most autocratic regimes, such restrictions are only effective to a limited extent (Bove and Nisticò, 2014). As Egorov et al. (2009) emphasise, freedom of expression and media freedom provide both politicians and security forces with substantially more information of potential threats. In other words, for autocrats restrictions on expression have the unfortunate effect of reducing the costs of keeping terrorist and insurgent activities secret. Egorov et al. (2009) thus argue that many autocrats have clear incentives to allow some level of media freedom in order to reach an optimal balance between reducing latent regime risks and obtaining information on actual risks.

The opposite theoretical argument states that freedom of expression can contribute to increasing the risk of terror. This is arguably the case when such freedom can be used by terrorist organisations to increase the recruitment of potential terrorists, an argument used by a number of states to demand rigorous content moderation by social media platforms such as YouTube, Facebook and Twitter including proposals for legally binding remedies. Besides this, freedom of expression can be misused to create fear and instability in society, and can thereby contribute to creating a breeding ground for terror.¹ Several studies also argue that freedom of expression can cause a higher risk of terrorist attacks because terrorist organisations actively choose to commit acts of terror in societies with extensive protection of the freedom of expression (Schmid, 1992; Ross, 1993; Eyerman, 1998; Li, 2005). The main theoretical argument is that the better media coverage of attacks perpetrated in societies with extensive press freedom implies that terrorists obtain higher levels of exposure for their political messages. In other words, when one of the aims of terrorism is publicity, the ‘gains’ to terrorism are increasing in freedom of expression.

However, while the theoretical arguments are covered extensively in the existing literature, virtually all studies share a common empirical problem by distinguishing between broad regime

¹ The late Weimer Republic is an example of a situation in which a concerted effort by the Nazi party created an illusion of danger. The party arguably used the extensive press freedom to publish fake news in, for example, the Nazi newspapers *Der Stürmer* and *Der Völkische Beobachter*.

types. When testing whether restrictions on the freedom of the press are associated with terrorist activity, the existing literature rests on the assumption that there is a close and unequivocal association between the degree to which political institutions are democratic and the degree to which those institutions respect the freedom of the press (cf., Weinberg and Eubank, 1998; Li, 2005; Wade and Reiter, 2007; Whitaker, 2007; Piazza, 2008; Piazza and Walsh, 2009; Chenoweth, 2010). The literature thereby ignores the substantial variation in press freedom *within* regime types and is therefore unable to test a number of theoretical mechanisms, and separate effects of freedom of speech from broader effects of political representation.

In the following, we abandon this assumption as it is known that freedom of expression varies even within entrenched democracies – and that some autocracies allow a significant degree of media press (Egorov et al., 2009; Arrese, 2017). Instead, we test directly how the degree of freedom of expression affects the risk of terrorism within and across regime types. We also separate freedom of expression according to regime type, which allows us to get closer to a real test of specific mechanisms, as mechanisms resting on voter reactions mainly pertain to democracies.

3. Defining our key terms

Going forward, we begin by defining our three key terms: terror, democracy and freedom of expression. This is necessary because conceptual clarity of these terms is important for the subsequent analysis, and for an interpretation of our empirical results in the following. Indeed, as we argue throughout this paper, conceptual clarity at the state of measurement is a weak point of many existing studies.

Throughout the years, many studies have attempted to define terrorism. However, the literature includes over a hundred different definitions of terror and substantial disagreement remains about how to define terror and terrorist activity (Badey, 1998; Hoffman, 2006; Schmid, 2011). In the rest of the paper, we follow Enders and Sandler (2012, p. 4) in defining terror as

“the premeditated use or threat to use violence by individuals or subnational groups to obtain a political or social objective through the intimidation of a large audience beyond that of the immediate victims”. We further distinguish between international and national terrorism, because freedom of speech and freedom of the press can have different meaning depending on whether the media operate in an international or domestic context. We follow Enders and Sandler’s (2011, p. 321) definition of domestic terrorism as ”homegrown in which the venue, target, and perpetrators are all from the same country. Thus, domestic terrorism has direct consequences for only the venue country, its institutions, citizens, property, and policies.” Conversely, international terror must have actors or targets from a different nation or take place in another state than where the terrorist is from. However, although we follow a standard theoretical definition of terrorism, we must emphasise that its connection to data on terrorism is imperfect, as all available data capture actual events and not latent threats.

Second, we follow the definition in Article 19 of the Universal Declaration of Human Rights (United Nations, 2015) of freedom of expression: “Everyone has the right to freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.” We also take this to imply that anyone has the right to exchange information and opinions with anyone else, such that there can be no privileged recipients of particular information.

Finally, to be able to test how freedom of the press and freedom of speech affect the terrorist threat a country faces, we operate with a minimalistic definition of democracy (Munck and Verkuilen, 2002). Our operational definition follows Joseph Schumpeter's (1942, p. 269) idea that “democratic method is that institutional arrangement for arriving at political decisions in which individuals acquire the power to decide by means of a competitive struggle for the people’s vote.” Practically, we thus use Bjørnskov and Rode’s (2020, 532-533) definition of electoral democracy as “a set of political institutions in which properly contested, repeated and

repeatable elections are free [...] and create ex ante uncertainty for the incumbent government and de facto ex post irreversibility of election results.”

4. Data and empirical strategy

Our main variable is terrorism, which we primarily capture through the number of separate terrorist incidents in a given year in the country. Enders and Sandler’s (2012) definition of terrorism, which we use here, is in practice identical to the operational definition behind the large dataset from the Global Terrorism Database maintained at the University of Maryland (GTD, 2019), from which we draw our terrorism data. The GTD has become the most commonly used source of terrorism data in the literature and appears the most comprehensive source. However, as it rests on media reports, the GTD does not capture all terrorist attacks and may in particular underrepresent less newsworthy attacks, non-lethal events and events outside urban centres (cf. Behlendorf et al. 2016; Cubukcu and Forst, 2018). It also does not count threats and may to some extent fail to count some terrorist events in countries with very strict limits on press freedom. Yet, comparisons to official police reports are likely to overstate the problem, as the police, security forces and other institutions may have incentives to overestimate the prevalence of terrorism. This is likely to be a particular problem in countries with relatively poor institutions. As such, the relatively conservative estimates of overall terrorism in the GTD may be preferable to using official numbers from questionable official agencies.²

In order to match the terrorist data with other available data, we aggregate the events data in the GTD to annual data and measure the degree of terrorism as the logarithm (plus one) to the number of events. However, we also follow Bjørnskov and Voigt (2020) by disaggregating the terrorism data using three additional features of the GTD. This first allows us to measure the

² In addition, the potential bias in the GTD numbers arising from restrictions on press freedom – severe limitations mean less reporting and thus an artificially lower terrorism risk in the data – implies that our estimates in the following will be conservative.

number of terrorist events targeted at either the government or the military or police, respectively. Second, we follow previous studies by creating an additional measure capturing the number of attacks with multiple targets, which Bjørnskov and Voigt (2020, 586) interpret as a proxy “for logistically challenging events, versus nonchallenging with a single target.”³ The GTD also allows us to separate armed attacks from other types of terrorist attacks. Finally, we use information in the GTD to sort out attacks planned and perpetrated by international terrorist groups.

In order to be able to measure the effects of freedom of expression, we employ information from the Varieties of Democracy (V-Dem) dataset (Coppedge et al., 2016). The full index of freedom of Expression and Alternative Sources of Information in V-Dem is aggregated from separate indices of media censorship effort, harassment of journalists, media bias, media self-censorship, whether print/broadcast media are critical, whether print/broadcast media provide different perspectives, freedom of discussion for men, freedom of discussion for women, and freedom of academic and cultural expression.⁴ The main advantages of the V-Dem data is that the indicators cover a very long time period (1900-2019), whereas alternative indicators from, e.g., Freedom House or Reporters without Borders are only available since 1993 and 2002, respectively, and that they explicitly aim to cover the *de facto* situation instead of relying on legislation that may or may not be enforced. However, we must emphasise that our choice comes with two potential problems. First, as indicators are coded backwards in time, there is an inherent risk of imprecision and bias owing to a potential lack of detailed information of the

³ It must be noted that the identification of the measure of multiple attacks is not perfect. It remains a possibility that attacks on consecutive days are perpetrated by entirely different groups and are not coordinated. For countries with very high numbers of terrorist attacks, this may be an actual worry.

⁴ Unfortunately, although one of the major political battles over terrorism and free speech today pertains to online speech, we have insufficient data to include it here. The few sources, including Freedom House’s (2019) Freedom on the Net dataset and data from the Digital Society Project (Mechkova et al., 2020), only go back a limited number of years.

situation in the coded year. There is therefore an unavoidable risk that the measures are affected by hindsight bias. Second, bias can also arise due to the fact that all coding is done by independent coders (typically a minimum of five per observation). If one or more of these individuals are biased against specific countries, events or ideological directions, there will be stringency problems with the data. The V-Dem project therefore uses Bridge coding (experts must code several countries for all years) and lateral coding (experts must code several countries for one year) in order to reduce potential bias (Coppedge et al., 2020).

Overall, there is a risk that the V-Dem freedom of expression measures are biased by both theoretical hindsight and theoretical preferences shared by the expert coders. Instead of relying on either the V-Dem overall index or separate indices that are likely to be more affected by such bias, we aggregate these variables in two separate variables, following the structure of correlations reported in appendix Table A1 and the subsequent factor analytical solution in appendix Table A2. Both indicate that the two indices of freedom of discussion and the index of academic freedom form a component that is statistically separable from the six other components of the full V-Dem index. We thus form two indices by taking the simple average of these three indices, which we call “discussion freedom”, and aggregate the remaining indices in a measure of “media freedom”.⁵ Both measures therefore retain the scale from the V-Dem project, which allows values between -4 and +4 and match our definition of freedom of speech to the extent that the totality of the nine operationalised indices in V-Dem does so.

For a statistical measure of democracy, we employ Bjørnskov and Rode’s (2020) updated version of the dataset of Democracy and Dictatorship from Cheibub et al. (2010). As noted above, this specific measure of democracy follows a minimalistic definition of democracy that is coded exclusively based on the structure of the political institutions and the *de facto* adherence to those institutions to the extent that they ensure the existence of free, fair and contested elections.

⁵ As is visible in Table A1, and which further tests (not shown) confirm, the separation of these indices is even clearer if we restrict the sample to only democracies.

Whereas minimalist definitions have attributable issues – as stressed by several authors, the much-used Polity IV indicator is insensitive to restrictions on electoral participation – and may lack a number of normatively desirable features, indicators based on more normatively oriented maximalist definitions suffer from different problems.

The more serious issue in our context is that their more specific indicators and sub-indicators eventually hinder analysis of the core questions we want to answer. Most democracy measures resting on a maximalist definition of democracy include assessments of press freedom, as it is arguably a necessary element of ideal democracy. Yet, using such measures of democracy therefore implies the risk of falsely attributing freedom of the press to terrorist activity. By insisting on a minimalist democracy measure, we thus ensure that press freedom or respect for citizens' rights to expression are not directly reflected in our democracy measure (cf. Bjørnskov and Rode, 2020).

We further add a set of control variables capturing economic development, population size, and other types of conflicts. We proxy development by adding the logarithm to purchasing-power adjusted GDP per capita from the Penn World Tables, mark 9.1, from which we also derive the logarithm to population size (Feenstra et al., 2015). In addition, we add a categorical measure of civil war and interstate conflicts, which we get from the update of Gleditsch et al. (2002) in Petterson et al. (2019). This measure consists of two dummies, one capturing low-intensity conflicts defined as conflicts with more than 25 “battle deaths” in a given year while high-intensity conflicts are defined as those with more than 1000 deaths (Gleditsch et al., 2002).

Throughout all regressions in the following, we add two-way fixed effects capturing annual and country-specific factors. As such, we effectively control for all approximately time-invariant factors that could affect terrorist activity as well as freedom of expression such as geography, social trust, stable political traditions and constitutional choices and norms.⁶ The specific choice

⁶ In addition, we note that if coders at the V-Dem project may exhibit systematic, stable bias against any regime, this bias is also removed by the country fixed effects.

of estimator thus hinges on a specific problem relating to the distribution of our dependent variable. As illustrated in Figure 1, the terrorism data are distributed with a large number of zeros – no terrorist attacks occurred in more than half of all country-years in the full sample and 43 % in all democratic country-years – while the rest of the data approximately resemble an exponential distribution.

Insert Figure 1 about here

We therefore form two types of variables from the terrorism data in the following, which separate the extensive margin – whether any attacks took place – from the intensive margin that captures how many attacks occurred, given that at least one did. When estimating effects at the extensive margin, we employ a conditional fixed effects logit estimator while we use simple fixed effects OLS for the intensive margin. In both cases, we add a twice-lagged dependent variable, which accounts for country-specific trends and broader region-specific trends not captured in the country fixed effects. The lagged dependent variable also takes care of some of the potential endogeneity bias, because most reverse causality running from terrorist threats to freedom of expression would be reflected in the lagged variable. While we nevertheless cannot rule out endogeneity or simultaneity bias in the following, we additionally note that the difference in estimates in autocracies and democracies provides information about the severity of the problem. The main concern is that increased terrorist activity could lead governments to restrict the freedom of expression, such that a negative association between the two would not signify an effect of freedom, but the opposite. However, short-run changes to freedom of expression due to terrorist attacks are politically much more costly and less likely in democracies with robust political veto institutions, formal constitutional guarantees and constitutional norms against the derogation of civil liberties. To the extent that endogeneity bias is a significant concern, such bias is likely more severe in autocracies and our estimates ought therefore to be *larger* in autocracies

than democracies if they are primarily driven by the reverse causal direction.⁷ In order to inform about this problem, we throughout provide estimates using the full sample as well as subsamples with only democratic and only autocratic observations, respectively.

The full sample covers 162 countries around the world in a period between 1970 and 2016. 113 of these countries were democratic and 120 countries were autocratic in at least part of our period, such that 2721 observations out of a total of 6242 are from democracies. While the average discussion (media) freedom at an index value of 1.82 (1.57) is substantially different in democracies than the average of -.86 (-.24) in electoral autocracies, we also observe rather large overlaps between regime types.⁸ In particular, the 20 % observations from electoral autocracies with the highest discussion freedom have higher scores than the 16 % worst observations from democracies. Symmetrically, the 16 % highest scores in electoral autocracies are higher than the 20 % lowest scores in democracies, and the standard deviation within either regime type is close to 1. Evidently, simply separating regime types provides a poorly identified difference in freedom of expression and ignores the considerable variation within regime types.⁹

⁷ We additionally note that the related literature on terrorist attacks and institutional trust indicates that the direction of the bias may be uncertain. While terrorist attacks may be interpreted as institutional failures, several studies suggest that terrorist attacks lead to ‘rallying around the flag’ effect as citizens become *more* likely to trust institutions after attacks (Heatherington and Nelson, 2003; Dinesen and Jæger, 2013).

⁸ As an aside, we note that while media freedom at -1.48 is substantially lower in single-party regimes than electoral autocracies, there is no significant difference in discussion freedom (-.84 versus -.86) between the two types of autocracy.

⁹ Another different, which a perceptive reviewer pointed out to us, is that both measures of freedom of expression may be less stable under autocracy. If so, it bears on the interpretation of the evidence and our conclusions. However, it is difficult to assess the relative stability of freedom of expression with the present data. On the one hand, discussion (media) freedom appears less variable in democracies than electoral autocracies – the average year-to-year change outside of regime transitions is .071 (.062) in the former group and .089 (.072) in the latter group – and the difference is significant at conventional levels. On the other hand, when we delete all zero-changes, i.e. the cases in which coders at the V-Dem project assessed that absolutely nothing happened, the remaining year-to-year

With respect to terrorism, only four of these countries – Cabo Verde, Mongolia, Oman and Sao Tomé and Príncipe – experienced no terrorist attacks while five countries – Greece, Israel, Lebanon, the United Kingdom and the US – experienced attacks every year between 1970 and 2016. We next describe these data before using them to explore the association between freedom of expression and terrorism.

5. Main results

We start by illustrating the development of terrorism since 1970 as well as the basic structure of the freedom-terrorism association in three figures. Figure 2 first shows how terrorist events were rare events in the beginning of the 1970s that affected about 40 % of all democracies but very few autocracies. The figure also illustrates the veritable explosion of terrorism in democracies in the 1980s, in which more than four events occurred per million people in some years. The occurrence of terrorism has become rarer again since the early 1990s although with a slight uptick since 2005 and a substantial increase in its frequency in autocracies in the most recent years.

Insert Figure 2 about here

Figure 3 next illustrates the simple risk of observing any terrorist attacks in four groups: autocracies with above and below median discussion freedom, and democracies with above and below median discussion freedom. Figure 4 illustrates the same differences for the number of attacks per million inhabitants, given that any attacks occurred. The figures thus follow the separation of the extensive and intensive margins that we continue in the following tables.

Insert Figure 3 about here

Insert Figure 4 about here

changes are almost identical and very far from significantly different. As such, whether one believes that freedom of expression is more stable in democracies is a matter of one's trust in V-Dem coders' ability to correctly assess *perfect* stability instead of very small changes.

The first figure clearly indicates that autocracies with more freedom of expression tend to be significantly more prone to experience years with terrorist attacks ($p < .01$) while democracies are weakly less likely to do so ($p < .07$). However, these differences may hide effects of both economic development, differences between autocratic regime types, and many other factors. In addition, the main difference in the figure is that democracies are substantially more likely to experience years with terrorist attacks. We also note that the main differences between autocracies and democracies are reversed in Figure 4, where the difference between the number of attacks in more versus less free countries is not significant ($p < .12$) while the difference for democracies is strongly significant ($p < .01$).

We further explore these differences in Tables 2 and 3 where the former provides results on the extensive margin and the latter provides results on the intensive margin. In both, we find evidence of substantial persistence over time such that the same countries experience a substantially higher terrorism risk at both margins. We also observe that severe conflicts such as civil wars strongly affect the terrorism risk in all countries at both margins while we find no significant effect of low-intensity conflicts at the extensive margin in democracies. In other words, both the risk and subsequent escalation of terrorism are important in autocracies while it appears to be only the escalation risk that clearly affects terror in democracies.¹⁰ At the intensive margin, we likewise find that richer societies are more at risk.

Insert Table 2 about here

Insert Table 3 about here

Turning the attention to our main variables, in the full sample we observe positive and significant effects of media freedom at the extensive margin, a significant negative association of discussion freedom, and no clear associations at the intensive margin. However, when we split

¹⁰ We must nevertheless stress that the conflict risk is always lower in democracies, and we observe only 2.7 % of all country-years in which society experienced a high-intensity conflict while it was still democratic. High-intensity conflicts appear about three times as likely in autocracies.

the sample in autocracies and democracies, the positive association with media freedom at the extensive margin turns out to be driven entirely by autocracies, which we cannot reject that is substantially affected by endogeneity bias. Conversely, we find a significant negative association with discussion freedom at the intensive margin and a weakly significant negative intensive association in democracies. As such, in the case that these latter estimates are subject to endogeneity bias, they are likely to be lower-bound estimates of the true negative effect.

In the lower panels of both tables, we provide estimates of potentially non-linear effects and the top points / maximum effects implied by the estimates. While some of these estimates appear significant, the marginal effects are in most cases surrounded by such large conditional confidence intervals that we see very few associations that are significant within the actual range of the variables (cf., Brambor et al., 2006). The exceptions are the effect of discussion freedom on the intensive margin in democracies, where the estimates rather clearly show that the effect is linear, and the non-linear effect of discussion freedom in autocracies, where we find significance for the freest autocracies.¹¹

Overall, the estimates suggest rather sizable effects of discussion freedom at the intensive margin in democracies and a similarly sized, but positive association of media freedom at the extensive margin in autocracies. We also find a sizeable, but rather imprecisely measured effect of discussion freedom at the extensive margin in democracies. In the following, we therefore explore whether these overall estimates hide substantial differences across distinct types of terrorist attacks.

¹¹ We must nevertheless warn against interpreting the latter result. The effect of discussion freedom turns significantly negative at an index value above 2.4, yet we see only very few and quite particular observations in that range. Only the observations from Hong Kong in the 1990s and the most recent year in Gabon have assessments of discussion freedom above the threshold. Hong Kong is known to be similar to Western democracies in almost all aspects except their national political institutions (local institutions are fully democratic) while Gabon held free and fair elections in January 2018. The most recent years in our sample have thus been *de facto* democratic.

6. Results, different types of terrorist attacks

We next separate all terrorist attacks in five partially overlapping categories: Armed attacks, attacks against the military or the police, attacks against the government or government installations, attacks with either multiple targets or attacks implemented over several consecutive days, and attacks perpetrated by domestic terrorist groups; by definition, the second and third categories cannot overlap. All of these specific results are reported in Tables 4 and 5.

Insert Table 4 about here

Insert Table 5 about here

Starting with the results at the extensive margin, we find that discussion freedom is *not* significantly associated with the risk of observing any terrorist attacks against the government and that our results for domestic terrorism are similar to the overall results. Conversely, we find that discussion freedom is significantly and substantially associated with both armed attacks, attacks against the military or police, organisationally challenging attacks (multiple attacks), and international attacks in democracies. In addition, we also find that it reduces the extensive risk in autocracies (cf. Egorov et al., 2009). However, calculating odds ratios shows that the effects differ across types: the odds ratio for a one-point change in discussion freedom on the risk of observing attacks against military or police targets is approximately .6 while that on armed attacks, challenging attacks and international attacks is about .7 in democracies. In autocracies, a one-point change in discussion freedom yields an odds ratio of .8 for military and police targets while a similar change in media freedom yields an odds ratio of 1.3 for attacks against the government. All of these results are robust to a set of additional tests (not shown) including, for example, excluding the 10 % observations with the largest number of terrorist attacks. We are, in other words, certain that the results at the extensive margin are not driven by societies or years with extreme terrorist activity. Additional tests (not shown) also show no clear evidence that the robust associations in the table are non-linear.

As such, the results in Table 4 suggest that substantial discussion freedom mainly affects the extensive risk of getting particularly serious terrorist attacks against the military and police, and not against the government. However, the results at the intensive margin, which we summarise in Table 5, tell a slightly different story. The influence of discussion freedom in democracies remains significantly negative but does not differ significantly across the five types of attacks. In addition, we find that media freedom is significantly associated with more challenging attacks in autocracies while it is significantly associated with fewer domestic attacks in democracies.

A set of additional robustness tests nonetheless reveal that some of these results are, in fact, driven by extreme observations. Excluding the 10 % observations with the most terrorist attacks in a given year as well as the 10 % observations with the smallest number of attacks (in all cases observations with a single attack) yield very small and insignificant estimates for armed attacks and organisationally challenging attacks. In other words, given that at least one attack happens, neither media freedom nor discussion freedom affects the number of armed or multi-target attacks in democracies. We also find that the results at the intensive margin in autocracies are all fragile to excluding observations with particularly high numbers of attacks per year.

Conversely, we find that the results pertaining to attacks against either the government or military and police targets are robust to additional tests with an approximately unchanged estimate. In both cases, a one-point improvement in discussion freedom in democracies is associated with about 15 % fewer attacks per year. We again find no clear evidence that these associations are non-linear and that there are either optimal levels of discussion freedom or decreasing marginal sensitivity to freedom. We also find no indications that the findings are specific to European countries and the European offsprings, as no particular world region is driving the results. Overall, we thus find robust empirical evidence that discussion freedom is substantially and significantly associated with a lower risk of observing terrorist attacks in democracies but not in autocracies.

6. Discussion and conclusions

Whether restrictions of the freedom of expression are effective in combatting terrorism or if such restrictions are counterproductive remains an important question. Politicians in different countries have expressed very different points of view and several countries, including France, Spain and Russia, have in recent years criminalised public comments that can for example be construed as glorifying terrorism and justifying terrorist acts. Spanish courts for example used its so-called ‘gag law’, the newly revised Article 578 of the Spanish Criminal Code, in 2018 to convict a rapper for “glorifying terrorism” and insulting the king (Bohórquez, 2018). It now remains to be seen whether Spanish courts are likely to provide general enforcement of this *de jure* change or choose to continue *de facto* protecting the freedom of expression.

However, despite the existence of many examples of such behaviour, the systematic empirical evidence so far has been surprisingly weak and based on indirect indicators. In this paper, we have therefore explored the association between two measures of freedom of expression and the risk of observing terrorist attacks. Our study has covered 162 countries around the world in a period between 1970 and 2016 during which 113 were democratic for at least part of the period. We combined data on terrorism from the Global Terrorism Database with indicators of freedom of expression from the Varieties of Democracy database, which we separated in two measures of media and discussion freedom, respectively.

The findings imply that while the evidence is mixed for autocracies, extended discussion freedom is strongly and negatively associated with terrorism in democracies. To the extent that our estimates reflect causal mechanisms, they imply that a one-point change in discussion freedom in democracies – for example from the current levels in Paraguay to those of Uruguay or from the levels of Malta and Mauritius to those of Denmark and Norway – would reduce the risk of observing any attacks against the military and the police by almost 50 %. In case attacks nonetheless occur, the estimates imply that the same difference yields about 15 % fewer attacks.

The effects on other types of attacks are somewhat smaller, but still quite substantial, and we find no significant evidence of non-linear effects.

We also note that although we cannot rule out endogeneity bias, such bias in general implies that our estimates for democracies are conservative. Reverse causality – i.e. that terrorist attacks lead to political reactions that cause reductions in freedom of expression – is much more likely in autocracies than democracies. Had our findings been driven by reverse causality, we should therefore have found substantially larger and more precisely estimated associations in autocracies than democracies (cf. Bjørnskov and Voigt, in press). Yet, our estimates exhibit the exactly opposite pattern, which has two implications. First, the particular pattern means that we cannot with statistical certainty say how freedom of expression and terrorism are associated in autocracies. Second, however, we note that the pattern is inconsistent with the existence of a substantial endogeneity problem in our estimates for democracies. If anything, given that the GTD and similar sources relying on media reports may underestimate the degree of terrorism in societies with very restricted freedom of expression, our democratic estimates are conservative. However, one must also keep in mind that freedom of expression is probably somewhat more stable in many democracies than in the typical autocracy.

The implications of our findings are clear: Although we cannot rule out that very specific limitations may be effective, the general pattern across modern democracies suggests that restrictions on the freedom of expression are counterproductive if their purpose is to avoid terrorist attacks. Yet, exactly how that happens is uncertain because several theoretical mechanisms could potentially explain these findings. The fact that we find substantial effects for discussion freedom but only insignificant effects for media freedom nevertheless indicates that our main mechanism is not that freedom of expression allows the media to function as a ‘safety valve’ of frustration that could otherwise lead to violent action. Without rejecting the safety valve mechanism, we instead suggest that a relatively more important mechanism may be that freedom of expression also allows the police and security and intelligence services to obtain more

information about potential threats than if public and private discussion was restricted. We argue that the structure of our specific findings provides indications in the same direction. If the findings were due to a safety valve mechanism, we would have expected to find that discussion freedom mainly affected terrorist attacks against the government and government installations. However, we find that this association is insignificant while the strongest association is between discussion freedom and attacks against the police and military forces.

As such, our findings clearly speak against political action against terrorist threats that restricts the right to free discussion in democracies. We must nonetheless emphasise that much more research is needed in order to unearth more precisely how restrictions on freedom of expression eventually lead to terrorism. Expressions and freedom on the internet and social media are likely to become as important as those in regular print media and TV, yet the relative absence of precise data and open questions regarding how to measure freedom in the cybersphere means that whether freedom of expression in electronic media is different must remain an open question. Questions such as which types of restrictions are particularly counterproductive, which types of terrorist groups react against such restrictions or take advantage of them, and under which conditions and with which beliefs and incentives democratic politicians nonetheless choose to curb the freedom of their citizens remain left for future research.

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Table 1. Descriptive statistics

	Mean	Standard deviation	Observations
Freedom of media	.293	1.531	8012
Freedom of discussion	.566	1.559	8012
No elections	.145	.352	7957
Single-party regime	.127	.333	7957
Electoral autocracy	.267	.442	7957
Democracy	.461	.498	7957
Failed coups	.027	.169	8012
Successful coups	.019	.142	8012
No of attacks	22.436	122.579	7608
# armed attacks	18.626	108.828	7492
# against military / police	6.352	43.620	7492
# against government	3.136	14.345	7492
# attacks with multiple targets	16.921	116.677	7668
# international attacks	.867	5.061	7497
Any attacks	.475	.499	7608
Any armed attacks	.426	.495	7492
Any attacks, military / police	.240	.427	7492
Any attacks, government	.309	.462	7492
Any attacks, multiple targets	.321	.467	7668
Any attacks, international groups	.138	.345	7497
Civil war, low intensity	.122	.327	8012
Civil war, high intensity	.054	.227	8012
Log GDP per capita	8.842	.1239	7280
Log population size	2.026	1.732	7280

Table 2. Main results, extensive margin

	1	2	3	4	5	6
	All		Democracies		Autocracies	
Twice-lagged dependent	.967*** (.074)	.980*** (.074)	.568*** (.122)	.563*** (.122)	.843*** (.102)	.853*** (.102)
Single-party regime	-.636*** (.169)	-.747*** (.167)			-.258 (.196)	-.327* (.193)
Electoral autocracy	.038 (.148)	.163 (.146)			-.206 (.173)	-.094 (.171)
Democracy	-.049 (.192)	.455** (.189)				
Log GDP per capita	.363** (.144)	.313** (.144)	.132 (.378)	.141 (.380)	.117 (.188)	.032 (.186)
Log population	1.418*** (.249)	1.411*** (.250)	1.089* (.581)	1.323** (.593)	-.523 (.405)	-.562 (.406)
Civil war, low intensity	.926*** (.139)	.868*** (.140)	.589 (.370)	.341 (.370)	1.033*** (.163)	1.006*** (.163)
Civil war, high intensity	1.386*** (.214)	1.327*** (.218)	2.674*** (.799)	2.351** (.812)	1.419*** (.243)	1.379*** (.248)
Media freedom	.225*** (.065)		.066 (.168)		.220** (.093)	
Discussion freedom		-.114** (.056)		-.269* (.141)		-.132 (.083)
Annual FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	6242	6242	2721	2721	3351	3351
Countries	162	162	113	113	120	120
Pseudo R squared	.187	.186	.220	.222	.199	.198
LR Chi squared	1125.24	1117.28	538.84	542.40	644.41	641.22
Including non-linearity						
Freedom	.169*** (.067)	-.121** (.056)	.164 (.243)	-.147 (.171)	.128 (.104)	-.234** (.092)
Freedom squared	-.114*** (.031)	-.094*** (.025)	-.056 (.101)	-.067 (.056)	-.098* (.051)	-.138*** (.046)
Implied maximum	.741	-.641	1.476	-1.107	.655	-.846

Note: *** (**) [*] denote significance at $p < .01$ ($p < .05$) [$p < .10$]. Numbers in parentheses are standard errors clustered at the country level.

Table 3. Main results, intensive margin

	1	2	3	4	5	6
	All		Democracies		Autocracies	
Twice-lagged dependent	.482*** (.033)	.486*** (.034)	.446*** (.036)	.437*** (.036)	.448*** (.052)	.461*** (.057)
Single-party regime	.058 (.106)	.054 (.103)			.143 (.109)	.119 (.112)
Electoral autocracy	-.122 (.107)	-.075 (.104)			-.194 (.121)	-.151 (.119)
Democracy	-.209 (.155)	-.001 (.137)				
Log GDP per capita	.336*** (.123)	.332*** (.117)	.864*** (.247)	.864*** (.251)	.267** (.135)	.271** (.125)
Log population	1.089*** (.197)	1.126*** (.204)	1.042*** (.386)	1.178*** (.398)	.500* (.281)	.578* (.316)
Civil war, low intensity	.406*** (.089)	.384*** (.087)	.467*** (.141)	.417*** (.134)	.390*** (.112)	.362*** (.108)
Civil war, high intensity	.583*** (.119)	.539*** (.117)	.715*** (.230)	.655*** (.214)	.646*** (.137)	.605*** (.128)
Media freedom	.076 (.065)		-.068 (.093)		.167 (.102)	
Discussion freedom		-.063 (.049)		-.221*** (.079)		-.045 (.077)
Annual FE	Yes	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Observations	3382	3382	1806	1806	1576	1576
Countries	158	158	106	106	115	115
Within R squared	.463	.463	.464	.469	.467	.463
F statistic	49.62	49.58	55.89	57.42	22.83	22.42
Including non-linearity						
Freedom squared	.071 (.063)	-.059 (.051)	-.113 (.126)	-.221*** (.079)	.109 (.102)	-.099 (.070)
Freedom squared	-.049** (.024)	-.026 (.021)	.027 (.049)	.018 (.029)	-.068* (.041)	-.069* (.042)
Implied maximum	.715	-1.139	2.092	-	.798	-.712

Note: *** (**) [*] denote significance at $p < .01$ ($p < .05$) [$p < .10$]. Numbers in parentheses are standard errors clustered at the country level.

Table 4. Additional results, extensive margin using specific measures

	1	2	3	4	5	6
	All		Democracies		Autocracies	
Armed attacks						
Media freedom	.205*** (.067)		.085 (.165)		.181* (.099)	
Discussion freedom		-.129** (.058)		-.371*** (.139)		-.117 (.089)
Observations	6122	6122	2673	2673	3263	3263
Countries	162	162	113	113	120	120
Pseudo R squared	.183	.182	.202	.205	.207	.206
LR Chi squared	1034.95	1030.40	471.82	478.81	622.98	621.38
Attacks, mil / pol.						
Media freedom	.253*** (.075)		.029 (.174)		.193 (.119)	
Discussion freedom		-.158** (.066)		-.506*** (.149)		-.247** (.109)
Observations	5611	5611	2582	2582	2770	2770
Countries	162	162	113	113	120	120
Pseudo R squared	.218	.217	.239	.245	.250	.251
LR Chi squared	953.51	947.89	445.64	457.61	553.18	555.62
Attacks, government						
Media freedom	.278*** (.067)		-.041 (.161)		.281*** (.105)	
Discussion freedom		-.047 (.057)		-.159 (.127)		-.093 (.091)
Observations	6122	6122	2726	2726	3167	3167
Countries	162	162	113	113	120	120
Pseudo R squared	.171	.168	.206	.206	.185	.183
LR Chi squared	880.80	864.29	477.47	479.00	466.81	460.63
Multiple attacks						
Media freedom	.212*** (.071)		.059 (.163)		.151 (.113)	
Discussion freedom		-.179*** (.061)		-.327** (.137)		-.283*** (.099)
Observations	6257	6257	2862	2862	3099	3099
Countries	162	162	113	113	120	120
Pseudo R squared	.260	.260	.273	.276	.287	.289
LR Chi squared	1369.29	1368.97	631.50	637.23	749.92	756.48
International groups						
Media freedom	.252*** (.085)		-.121 (.190)		.184 (.136)	
Discussion freedom		-.007 (.079)		-.308** (.154)		-.106 (.128)
Observations	4838	4838	2190	2190	2326	236

Countries	162	162	113	113	120	120
Pseudo R squared	.133	.141	.205	.208	.131	.131
LR Chi squared	-1394.8186	-1399.3099	-637.49856	-635.6878	-629.29881	-629.87304

Note: *** (**) [*] denote significance at $p < .01$ ($p < .05$) [$p < .10$]. Numbers in parentheses are standard errors clustered at the country level. All regressions include the full specification reported in Table 2.

Table 5. Additional results, intensive margin using specific measures

	1	2	3	4	5	6
	All		Democracies		Autocracies	
Armed attacks						
Media freedom	.109* (.066)		-.077 (.084)		.198* (.107)	
Discussion freedom		-.032 (.051)		-.165*** (.055)		.035 (.085)
Observations	2915	2915	1560	1560	1355	1355
Countries	158	158	106	106	114	114
Within R squared	.474	.471	.479	.483	.469	.463
Attacks, mil / pol.						
Media freedom	.092 (.059)		-.115 (.104)		.178* (.092)	
Discussion freedom		-.009 (.051)		-.182*** (.057)		.008 (.098)
Observations	1655	1655	907	907	748	748
Countries	140	140	91	91	93	93
Within R squared	.487	.484	.484	.488	.506	.499
Attacks, government						
Media freedom	.112** (.057)		-.031 (.086)		.211** (.096)	
Discussion freedom		.021 (.042)		-.129** (.053)		.054 (.071)
Observations	2099	2099	1176	1176	923	923
Countries	153	153	101	101	108	108
Within R squared	.371	.366	.358	.362	.419	.405
Multiple attacks						
Media freedom	.121 (.084)		-.178* (.104)		.266** (.124)	
Discussion freedom		-.008 (.066)		-.220*** (.079)		.052 (.109)
Observations	2333	2333	1295	1295	1038	1038
Countries	149	149	99	99	103	103
Within R squared	.459	.456	.451	.456	.481	.470
Domestic groups						
Media freedom	-.004 (.036)		-.159** (.074)		.034 (.075)	
Discussion freedom		-.001 (.031)		-.094 (.051)		.006 (.057)
Observations	2248	2248	1246	1246	1002	1002
Countries	149	149	99	99	102	102
Within R squared	.259	.259	.341	.340	.159	.159

Note: *** (**) [*] denote significance at $p < .01$ ($p < .05$) [$p < .10$]. Numbers in parentheses are standard errors clustered at the country level. All regressions include the full specification reported in Table 3.

Table A1. Associations across indices

	1	2	3	4	5	6	7	8	9
1. Media censorship	1.00	0.91 (.72)	0.84 (.65)	0.77 (.68)	0.82 (.70)	0.79 (.62)	0.81 (.55)	0.86 (.53)	0.84 (.59)
2. Harassment of journalists		1.00	0.75 (.42)	0.69 (.46)	0.73 (.45)	0.72 (.47)	0.70 (.43)	0.75 (.39)	0.70 (.42)
3. Media self- censorship			1.00	0.77 (.56)	0.84 (.68)	0.81 (.56)	0.78 (.50)	0.82 (.49)	0.80 (.050)
4. Media bias				1.00	0.91 (.58)	0.91 (.59)	0.82 (.41)	0.86 (.41)	0.81 (.40)
5. Critical media					1.00	0.88 (.57)	0.80 (.39)	0.84 (.38)	0.80 (.40)
6. Media provide perspectives						1.00	0.79 (.42)	0.84 (.43)	0.80 (.42)
7. Freedom of discussion, men							1.00	1.03 (.89)	0.94 (.69)
8. Freedom of discussion, women								1.00	0.84 (.65)
9. Academic freedom									1.00

Note: the table reports bivariate regression coefficients when controlling for country fixed effects. As such, the numbers illustrate the within-country associations between different indices. Numbers in parentheses are results using only observations from democracies.

Table A2. Factor analysis of V-Dem measures

	Raw data		Residual data	
	1	2	3	4
Media censorship	.481	.355	.467	.327
Harrassment of journalists	.454	.408	.470	.334
Media bias	.744	.249	.747	.234
Media self-censorship	.604	.225	.578	.188
Critical media	.797	.164	.821	.109
Media provide perspectives	.821	.182	.845	.143
Freedom of discussion, men	.198	.793	.154	.834
Freedom of discussion, women	.159	.835	.116	.868
Academic freedom	.278	.835	.241	.614
LR test, probability	.000		.000	

Note: all factors are rotated with oblique promax.

Figure 1. Distribution of attacks per million inhabitants

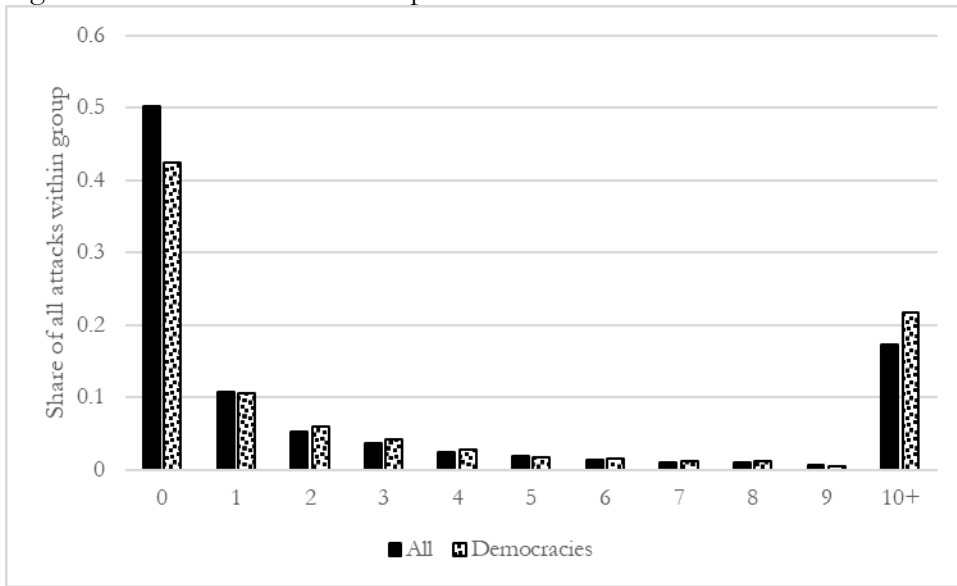
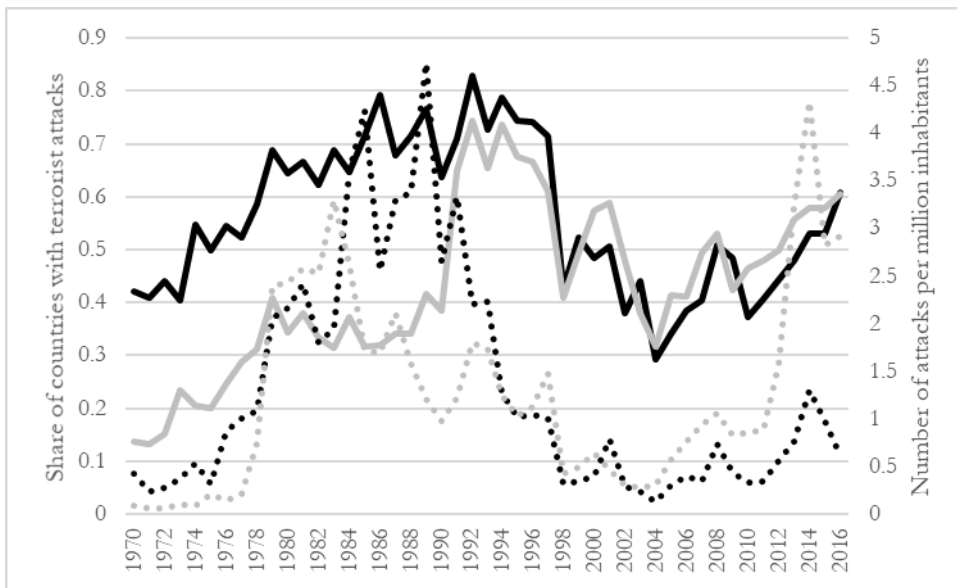


Figure 2. Terrorism 1970-2016



Note: full lines depicted the extensive margin, dotted lines the intensive margin. Black lines are averages for democracies while grey lines are averages for autocracies.

Figure 3. Annual risk of any attacks (extensive margin), four groups

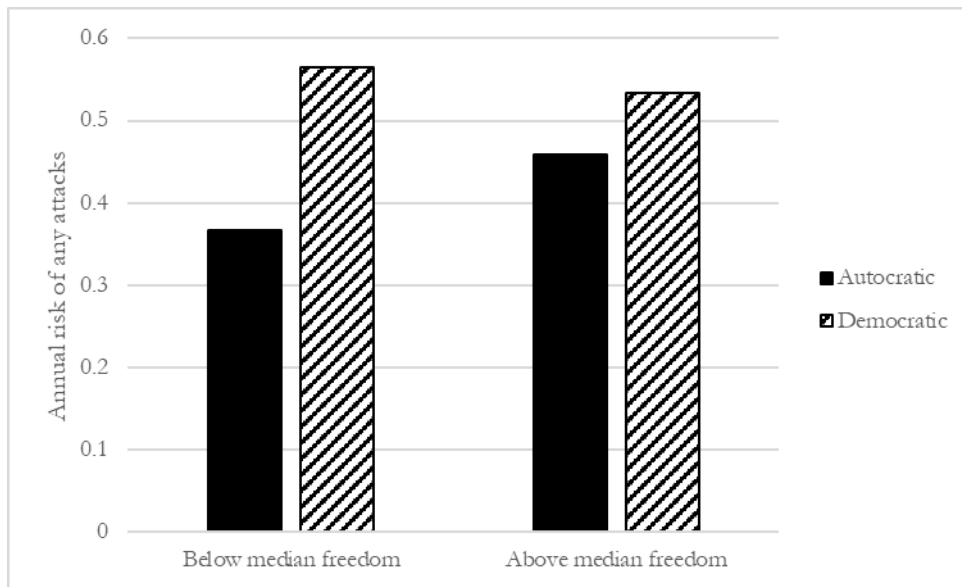


Figure 4. Number of attacks per million (intensive margin), four groups

