The repression-dissent nexus in high-threat environments: Evidence from the Romanian Gulag*

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October 9, 2024

Abstract

This paper investigates how exposure to political repression shapes collective behavior and dissent in high-threat environments. We develop a theory of repression-induced norm formation, arguing that proximity to repressive institutions fosters anti-regime identities and increases the propensity for dissident behavior, even when the costs of dissent remain high. Using the case of the Romanian Gulag, we demonstrate that localities which hosted labor camps or extermination sites during the communist era saw a disproportionately higher number of severe injuries during the 1989 Revolution. These findings suggest that repression's impact extends beyond immediate suppression, instead laying the groundwork for collective resistance through norm diffusion. Leveraging an original geocoded dataset of Gulag facilities, we employ spatial econometric techniques and instrumental variable approaches to identify the causal impact of local exposure to repression on revolutionary participation. Our main result shows that localities with Gulag facilities had, on average, 5 times more people seriously injured in confrontations with government forces during the anti-communist Revolution of 1989. We also provide mechanistic evidence, both quantitative and qualitative, that this effect is at least partly driven by anti-communist norms developed by communities in response to the Gulag, and not just by shifts in the political opportunity structure.

Keywords: political violence, communism, repression, dissent, persistent effects, instrumental variable

*We greatly benefited from comments and feedback from Jan Vogler, Anja Neundorf, Eugenia Nazrullaeva, Roman Olaru, Sascha Becker, Quintin Beazer, Michael Dorsch, Alexander de Juan, Donald Grasse, Holger Kern, Maryiana Angelova, Leonid Peisakhin, Arturas Rozenas, Carsten Schneider, and Roya Talibova, as well as participants of the Mechanisms of Persistence workshop at the Central European University, the Virtual Workshop in Authoritarian Regimes, and the Authoritarian Political Systems Group workshop.

1 Introduction

The legacy of political violence[1] is one of the most powerful forces fueling anti-regime beliefs and attitudes (Walden and Zhukov, 2020). According to prevailing theories, whether these translate into outright dissent depends on the political opportunity structure[2], with opposition mobilising when the expected costs of further repression are lower than the benefits of dissent (Kilavuz et al., 2023; Rozenas and Zhukov, 2019; Wang, 2021; Zhukov, 2023). However, this reasoning does not adequately explain dissent in high-threat environments where the expectation of reprisals is high - a relatively common phenomenon (Anisin, 2019) - nor does it explain what motivates dissidents in such circumstances.

To better understand dissent in high-threat environments, we develop and test a new theory anchored in the logic of appropriateness (March, 1994), based on the premise that when communities have endured or witnessed a history of extreme repression, their collective identity is structured in part by the memory of violence (Bautista et al., 2023; De Juan et al., 2023; Lupu and Peisakhin, 2017; Rozenas et al., 2017; Zhukov and Talibova, 2018). When this component of identity becomes salient, individuals, acting as members of their victimised community rather than as purely utility-maximising agents, engage in dissent not just strategically, as a result of risk-reward calculations, but intentionally, as a constitutive part of who they are and who they have been socialised to believe they should be. Dissent becomes the expression of a deontological norm about how individuals from a community with a shared value system ought to behave (Bateson, 2024; Kurzman, 2008; Pearlman, 2013, 2018).

We illustrate our argument with one of the most brutal, yet understudied, episodes of political violence in the 20^{th} century, the Gulag system of labour camps, penal colonies, and extermination centres established by the communist regime in Romania after 1945, in which more than 500,000 people died and millions more were affected (Boldur-Lățescu, 2005; Deletant, 2001a; Frunza, 1990). We believe this is an extreme case of communist repression and a typical case of dissent in high-threat environments (Seawright and Gerring, 2008). Using an original dataset encompassing the universe of Gulag facilities in Romania, we demonstrate a significant link between the presence of these facilities and heightened dissent against the regime during the December 1989 revolution. Our analysis employs both selection-on-observables and instrumental variable (IV) approaches, the latter exploiting the

[1]We define political violence, or repression, following (Davenport, 2007, p.2), as the use of physical sanctions against an individual or organisation to impose significant costs and to deter activities and beliefs perceived as challenging the government.

[2]We define the political opportunity structure, following Tarrow (1994, p.85), as the "consistent - but not necessarily formal or permanent - dimensions of the political environment that provide incentives for people to undertake collective action by affecting their expectations for success or failure".

logistical considerations of the regime in establishing the Gulag system.

Across several model specifications, including OLS and IV estimations, we find that localities hosting a Gulag facility experienced significantly more confrontations with authorities (Tables 3-5). On average, these confrontations resulted in approximately 2.9 more people being seriously injured per locality, an almost fivefold increase compared to the sample mean of 0.605 severe injuries. Drawing on data from the Life in Transition Survey (LiTS) III , we rule out variation in the intensity of local repression as an alternative explanation (Table A11). We also provide evidence that the formation of anti-communist norms, our theorised mechanism, drives this effect: the presence of the Gulag reduced local Communist Party membership, reinforced economic grievances manifested during the Revolution, and continued to influence protest and voting behaviour against neo-Communist elites even after democratisation (Tables 6-9). Through process tracing in the pathway case of Timisoara, the starting point of the Revolution, we also show how lingering memories of political violence generated anti-communist norms that motivated people to confront the regime despite the high-threat environment of December 1989. Figure 5, which leverages data from an original survey, provides evidence that the qualitative insights are generalizable to the population of dissidents that have participated in the Revolution.

We make several contributions to the literature. First, we bring a new perspective to the debate on the repression-dissent nexus. For decades, empirical results on this question have been mixed. While Rozenas and Zhukov (2019) have attempted to provide a unifying framework that can explain both sets of findings, we still lack a deeper understanding of why and when individuals are willing to disregard further repression in a high-threat environment. We propose a shift from conceptualizing dissent as purely an algorithmic process to a more complex interplay of rational choice and social norms about what constitutes appropriate behavior. This approach brings current research practices in political science into alignment with findings from other fields such as sociology and anthropology (Kurzman, 2008; Pearlman, 2013).

Second, we contribute to the literature examining the persistent effects of political violence (Lupu and Peisakhin, 2017; Rozenas et al., 2017; Rozenas and Zhukov, 2019; Zhukov and Talibova, 2018). While many studies using credible causal identification strategies have been published on the legacy of Gulag-like structures (Homola et al., 2020; Miller and Smith, 2015; Nikolova et al., 2022), their reliance on a limited number of single-country cases restricts the generalizability of the proposed arguments (Pepinsky, 2019). By departing from traditional settings such as Nazi Germany and the Soviet Union and examining a less studied country, Romania, we help assess the external validity of conventional findings and establish proper scope conditions.

Third, we contribute to the literature highlighting the central role of communities and communal norms in ensuring the persistence of historical institutions and events (Charnysh and Peisakhin, 2022; Neundorf and Pop-Eleches, 2020). We provide evidence that understanding the long-term links between repression and dissent is predicated on grasping how communities and their constituent meso-level organizations operate, how they curate the memory of political violence, and how they transmit social norms to future generations. Methodologically, we argue that validation of this causal chain is best achieved through a mixed-methods framework that provides both cross-case evidence for the existence of a causal effect and within-case evidence for the unfolding of the causal mechanism. We implement an original case selection algorithm for pathway cases to perform process tracing in an appropriate setting for valid causal inference, building on Gerring (2007).

2 A normative theory of dissent in high-threat environments

Through repression, autocracies inadvertently cultivate persistent anti-regime values (Bautista et al., 2023; Balcells, 2012; De Juan et al., 2023; Homola et al., 2020; Lupu and Peisakhin, 2017). In their seminal paper, Rozenas and Zhukov (2019) show that the translation of such values into overt opposition depends on the political opportunity structure, in particular the expected probability of reprisals. Low-threat environments, where risks are minimal, tend to encourage dissent, while high-threat environments tend to suppress it. This happens as communities have a threshold of acceptable violence, beyond which the opposition's ability to recoup losses by attracting new dissidents diminishes, thus limiting the likelihood of dissent (Zhukov, 2023).

However, this explanation on when does repression trigger dissent leaves a crucial question unanswered: how do communities determine 'their' specific threshold of acceptable violence? Without an answer, we cannot predict whether a given level of threat will prove too high for opposition mobilisation, nor can we fully understand the factors that shape the relationship between repression and dissent. We argue that the threshold should not be seen as fixed, but rather as endogenous to each community's history of political violence. Specifically, we maintain that communities with more severe histories of repression develop robust anti-regime norms over time, making them more likely to tolerate higher levels of retaliation during episodes of dissent.

To better understand this alternative mechanism of dissent, we decompose the decision-making process of dissidents into two main logics: the logic of consequences and the logic

of appropriateness (March, 1994). Current theories privilege the logic of consequences, suggesting that attitudes are translated into dissent based on citizens' cost-benefit assessments in uncertain environments. While individuals may weigh different costs and benefits in their utility functions, this approach ultimately reduces the decision to dissent to a rationalist-like calculus for all actors. Even research that incorporates affective responses into decision-making, such as Young (2019), typically frames emotions merely as amplifiers of perceived risk despite evidence from sociology and anthropology suggesting a more complex reality: emotions can independently drive political action and override individual utility considerations (Bateson, 2024; Kurzman, 2008; Pearlman, 2013, 2018).

According to those theories rooted in a mainly consequentialist logic, dissent in high-threat environments should be a very limited phenomenon. However, empirical evidence shows that many protests occur in autocratic systems even under such high-threat conditions (Anisin, 2019; Goodwin, 2001; Schock, 2005)[3]. To explain what could be seen as deviant cases, we appeal to the logic of appropriateness, which holds that political action is driven by social norms that frame what is 'appropriate' in particular contexts, with individuals acting in response to the question: "What would someone like me do in this situation?" (March, 1994, p.57). This situational sensitivity, which enables people to navigate complex moral spaces, is heightened in episodes of rupture with the status quo, such as dissent in an otherwise stable autocracy (Pearlman, 2018, p.884).

How does this apply in the case of the repression-dissent nexus? Following exposure to political violence, citizens may come to see dissent not only as a means of sanctioning the government, but also as a meaning-making practice that allows them to express their (anti-regime) identity and fulfil their moral obligations to the community, regardless of the cost (Pearlman, 2018, pp.883-887). The process begins when individuals experience political violence directly or, more commonly, when they encounter narratives of violence through family accounts and social interactions (De Juan et al., 2023; Lupu and Peisakhin, 2017; Rozenas and Zhukov, 2019), as a manifestation of collective trauma (Alexander, 2004, Chapter 1). Subsequently, these shared narratives are consolidated and institutionalised as collective memory by local organisations such as churches, schools and community groups, which act as both repositories and transmitters of violent experiences over time (Halbwachs, 1992; Jelin, 2003; Lupu and Peisakhin, 2017; Volkan, 2001).

The process of norm formation through collective memory is further reinforced by multiple mechanisms: intergenerational transmission ensures continuity down the line, community

[3]To explain this using purely consequentialist logic, one could argue that dissidents operating in high-risk environments derive unusually high benefits from overthrowing the regime. But even so, this explanation fails to address why the same dissidents would continue to protest as the threat level in this particular scenario rises, an often observed dynamic (Pearlman, 2018).

rituals provide regular reaffirmation, and social sanctions encourage compliance (Bicchieri, 2005; Wertsch, 2002; Zerubavel, 2003). As these norms become entrenched, communities tailor their practices to conform to and strengthen them, creating a self-perpetuating cycle that deepens their impact how individuals related to the perpetrator of violence. Paradoxically, continued repression often serves to intensify these efforts, bolstering a shared sense of victimhood and resistance (Scott, 1990) and further entrenching anti-regime norms and identities within the community.

That dissent is driven by anti-regime norms is consistent with findings that individuals with strong group identities are willing to endure seemingly irrational losses in order to maintain the status of their social group and the narratives that motivate it (Bonomi et al., 2021; Shayo, 2009). This can be further understood by considering how repression shapes community dynamics: as anti-regime attitudes emerge, the decision to dissent evolves from a matter of individual welfare to an embodiment of the expected response of the group archetype (Bonomi et al., 2021, p.2377-2378). Consequently, if the ideal behaviour of this group archetype is dissent - that is, if the imagined reference individual would disregard further reprisals - then community members who share these norms are likely to follow suit[4]

We identify two necessary conditions for dissent in high-threat environments. First, the collective memory of repression must be strong enough to override, or at least subordinate, risk-reward calculations. Thus, our argument applies to scenarios of indiscriminate political violence that are capable of forging communal identities in opposition to the perpetrators and their successors. Second, the availability of opportunities for dissent must be limited. When opportunities for dissent are rare, potential dissidents tend to evaluate each opportunity carefully, which means that they are more likely to consider their moral obligations to their victimised community. The decision not to participate in dissent on a given occasion may mean not only postponing the opportunity for future dissent, but possibly foregoing it altogether, which carries a high cost in terms of the lost expressive value of dissent (Kuran, 1997).

The scope of our theory is primarily limited to intentional dissent—defined as initial waves of protest where participants have no expectation of the demonstration's future scale. This scope condition is crucial for three reasons. First, it aligns with our theoretical emphasis on the logic of appropriateness and anti-regime norms, as early dissenters are more likely acting on internalized norms and collective memories rather than responding to immediate political opportunities. Second, it allows us to examine dissent less influenced by collective

[4]From a rationalist perspective, while repression continues to impose significant costs on dissenters, these are consistently outweighed by the moral costs of inaction, which include both the disutility of preference falsification and the psychological distress of deviating from the group archetype.

action dynamics, providing a clearer view of the long-term, community-level processes we've theorized. Third, it helps isolate our proposed mechanisms from confounding factors that emerge in later stages of protest movements, such as safety in numbers or changing political opportunities[5]. By focusing on intentional dissent, we can more accurately test our theory's predictions about the relationship between historical repression, norm formation, and high-risk collective action.

3 Romanian communism and the Gulag system

In the final stages of the Second World War, the Allies reluctantly granted the Soviet Union a controlling interest in Romania. This meant a takeover by the Moscow-backed communists, beginning with the installation of the puppet government of Petru Groza in March 1945 and the abolition of the monarchy in favour of a People's Republic in December 1947 (Deletant, 2001b, Chapter 2). The one-party communist regime was formalised with the adoption of the Constitution of 13 April 1948, which was a facsimile of the Soviet Constitution of 1936. At the heart of this document was Article 32, which stated that citizens had the right to associate and organise, provided that their activities did not violate the democratic order. This was the legal pretext used to justify some of the most brutal forms of repression in the name of safeguarding democracy.

The communist regime then developed a Gulag system of labour camps, penal colonies and extermination sites designed to spread terror among the "ideological enemies of the people" (Deletant, 2001b). Built on the Stalinist model, the Gulag was designed to systematically exterminate those who challenged the regime through a myriad of methods ranging from physical violence to starvation, forced labour and degrading living conditions (Deletant, 2018, Chapter 7). Initially, the Gulag consisted of 74 facilities with a capacity of only about 15,000 people. It soon developed into a dense network of 44 prisons for political prisoners, 61 extrajudicial investigation, storage and subjugation sites, 72 forced labour camps, 63 deportation centres, 10 psychiatric institutions, 93 mass graves and political assassination sites, and several penal colonies (Institutul de Investigare a Crimelor Comunismului și Memoria Exilului Românesc, 2013, pp.1-2).

The repression was carried out primarily by the Romanian secret police, the Securitate (Deletant, 2016, chapters 1-2), considered the "tip of the sword" of the regime (Boldur-Lățescu, 2005, p.22). Estimates suggest that, including civilian informers, the Securitate comprised some two million Romanians over the duration of the regime, making it one of

[5]While norms may also motivate later dissidents, these stages are less relevant to our study of dissent in high-threat environments and make it difficult to disentangle the effects of repression from those of cascading.

the largest institutions of its kind, second only to the East German Stasi and the Soviet KGB[6].

When these prisons and the small forced labour camps that surrounded them proved inadequate to the scale of the Securitate's actions, the government resorted to creating penal colonies where tens or even hundreds of thousands of citizens were sent to serve extrajudicial sentences on mass construction projects such as the Danube-Black Sea Canal (Deletant, 2018, Chapter 7). By 1960, some 520,000 young people had passed through these camps and colonies (Tismăneanu, 2006, pp.201-202). The communist regime was also responsible for the expulsion of more than 44,000 families to other regions, usually strategically located in barren areas, where they had to live in inhumane conditions, and for the administrative punishment of 82,700 people (Tismăneanu, 2006, pp.289-298). Some estimates put the total number of political prisoners at over 1.1 million, of whom around 500,000 died (Boldur-Lățescu, 2005, p.18). Others mention that the repression may have affected at least 2 million people (Frunza, 1990).

After 1965, the regime moved towards de-Stalinisation, replacing mass repression with targeted violence, totalitarian surveillance and ideological indoctrination. The last batches of political prisoners that were still trapped in the Gulag were pardoned by the new leader Nicolae Ceausescu, in the face of international pressures. However, this was by no means an era of liberalisation. Instead, under the personalist rule of Ceausescu, the regime mixed elements of socialism with ultra-nationalism, along the lines of North Korea's Juche philosophy (Deletant, 2016). Crucially, the Securitate prevented the formation of new opposition movements, as the pre-existing ones had been completely destroyed in the Gulag. As a result, Romania was among the countries in Central and Eastern Europe with the fewest opportunities for dissent and therefore the fewest protests.

In December 1989, after a series of relatively peaceful revolutions in Central and Eastern Europe, the anti-communist Revolution in Romania took place against the backdrop of a gruelling domestic economic crisis. It was the only violent revolution against communism in Europe, with more than 2,000 people severely injured and nearly 1,000 killed (Petrescu, 2014). While the other Revolutions clearly represented a relative shift in the political opportunity structure compared to the pre-1989 period, the Ceausescu regime remained committed to ensuring its survival and demonstrated a strong commitment to repression from the early stages of the Revolution. However, despite the high-threat environment and the increasing scale of reprisals, dissidents continue to protest, with the Revolution spreading from its

[6]The experimental methods of torture used by the Securitate have remained in the memory of Romanians as some of the most inhumane acts of the government, where so-called re-education through torture was pursued in some Gulag facilities (e.g. Suceava, Pitesti, Gherla, and Targu Ocna).

initial hotbed in Timisoara to several major cities and the capital, Bucharest.

4 Data

4.1 Independent variable: Presence of Gulag facilities in a locality

We have compiled a dataset that geolocates every labour camp, extermination site, and mass grave that made up the Romanian Gulag, and matched them to one of 3,181 localities in the country[7]. To do so, we draw on the list of such facilities drawn up by the Presidential Commission for the Study of the Communist Dictatorship (Tismăneanu, 2006), which allows us to determine their exact latitude and longitude coordinates. The geographical distribution of the Romanian Gulag is shown in Figure 1.

The main independent variable is a binary indicator that takes the value 1 if a locality hosts at least one of the 148 facilities and 0 if it does not. The results are robust to using an alternative operationalisation: the Euclidean distance from a locality to the nearest Gulag facility (Tables A2, A4). Using the presence of, or distance from, repressive infrastructure to measure exposure to political violence is a common practice in political science. For example, Bautista et al. (2023) use the spatial distribution of military bases to study the effects of repression on anti-regime voting patterns. Similarly, Homola et al. (2020) employ the distance from Nazi concentration camps to show that proximity to such infrastructure leads to long-term patterns of xenophobia. Finally, Charnysh and Finkel (2017) use the distance from Treblinka to measure whether Germans were more likely to have acquired the valuables of the Jewish population.

We argue that the presence of a Gulag facility in a locality made the community more aware of the repression, facilitating the formation of anti-communist norms (see Tables 6-9 for evidence). This happened through three main channels documented by historians and and ethnographers (Ciuceanu, 2001; Constante, 1995; Mazilu, 2004; Oprea, 2002; Nicolau and Nițu, 1993; Troncotă, 1999). First, the repressive infrastructure served as a symbolic representation of political violence to which local residents had access, either through direct contact with victims during their imprisonment or through word of mouth spread by observers or meso-level social organisations such as churches. Second, the Gulag was partly staffed by local residents for tasks such as cleaning, cooking and sometimes even disposing

[7]We limit our scope to the most extreme units, namely labour camps and assassination sites with their associated mass graves. The decision to group these types of sites together is motivated by their common history of memorialisation, as these are the types of sites that the population understood to constitute the Gulag (Ciuceanu, 2001; Constante, 1995; Mazilu, 2004; Oprea, 2002; Troncotă, 1999). In the case of Romania, assassination sites and mass graves were mostly associated with existing labour camps (Tismăneanu, 2006).

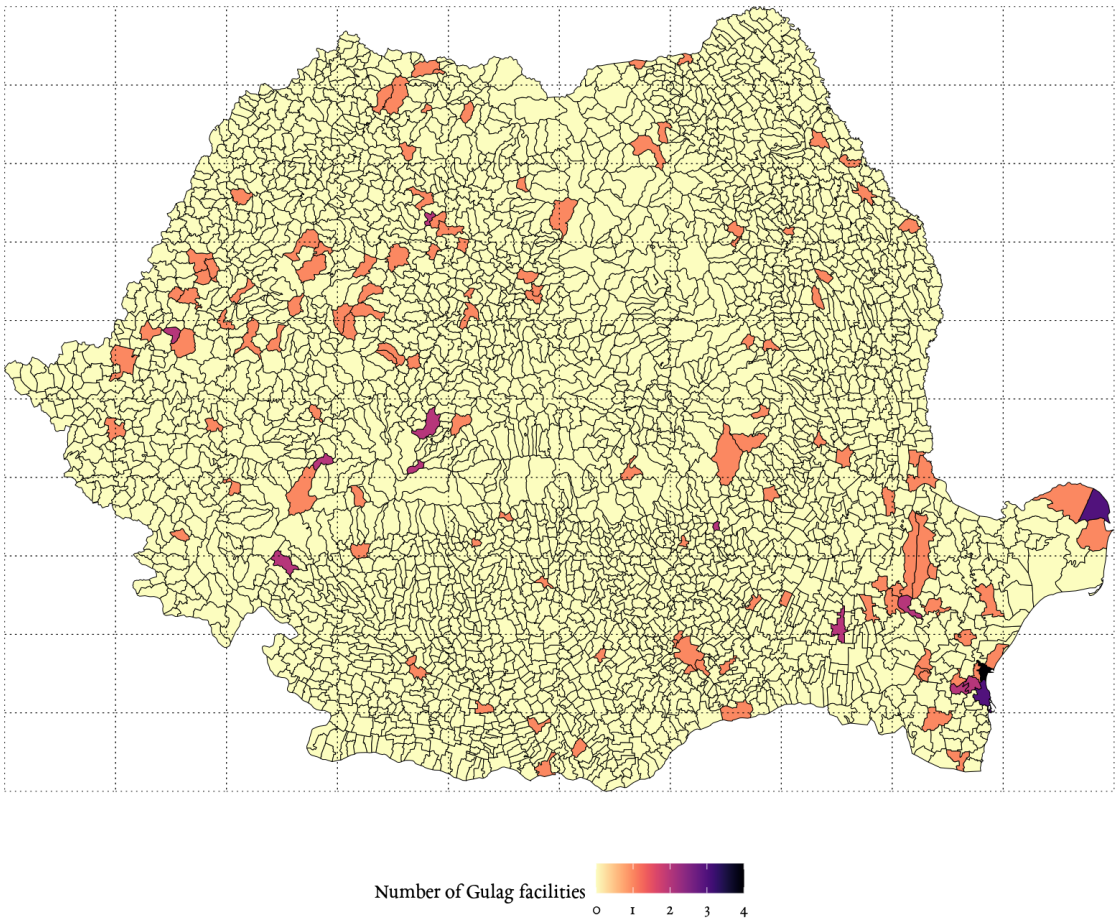

Figure 1: Geography of the Romanian Gulag

Note: This map shows the distribution of the Gulag facilities examined in this paper across the Romanian localities. The map is divided into 100 spatial groups, 81 of them containing at least one locality, based on latitude and longitude; the groups are separated by dotted lines.

of corpses. Third, some Gulag survivors remained close to the region where they were tortured, serving subsequently as living embodiment of repression for the other members of the community. These channels of norm-formation are consistent with the psychology literature showing that witnessing atrocities, or learning about them from familiar sources, can traumatise bystanders by causing them to feel shame and guilt for not being able to stop the violence (De Juan et al., 2023, pp.8-9).

Our argument relies on these people, residents of the localities that hosted Gulag facilities, as carriers of social norms, who either witnessed the violence themselves or learned about it as carriers of anti-regime social norms, similar to Charnysh and Finkel (2017) and Homola

et al. (2020). However, we do not consider in our model whether Gulag survivors also developed persistent anti-communist values that they passed to future generations. We leave this discussion, in the spirit of Lupu and Peisakhin (2017) and Rozenas et al. (2017), for future research, while acknowledging that multiple causes may have jointly shaped the protest dynamics in 1989 (Anisin, 2018).

4.2 Dependent variable: Severe injuries during the 1989 Revolution

As our main dependent variable, we use the number of people who were severely injured in each locality during confrontations with the government forces in 1989. We draw on the pre-validated list of injuries compiled by Surdea-Hernea (2024)[8], allowing us to match each entry in the list with its corresponding locality[9]. The results are similar when using a binary indicator of whether at least one severely injured person comes from a particular locality (Tables A3-A4).

Severe injuries are our preferred way to operationalize dissent during the 1989 Revolution for two reasons. First, being injured in the Revolution, as opposed to merely participating, reveals a two-step process involving participation in dissent as well as direct confrontation with regime officials, and thus an explicit expression of anti-regime behaviour[10]. Thus, our measure captures variation in the level of dissent across localities and takes into account mainly *intentional* dissent, as opposed to political participation driven purely by informational cascades as the Revolution unfolded. This increases the content validity of our measurement, given that our theoretical argument concerns primarily intentional dissent of people with anti-communist values (Adcock and Collier, 2001, pp.527-538)[11]

[8]The list is based on official data collected by the Romanian government in collaboration with organisations of the revolutionaries. The level of disaggregation is not an issue, as it is taken directly from the official documents of Romanian citizens, to which the government had full access. This mitigates concerns such as those raised by Croicu and Eck (2022).

[9]According to our theoretical argument, it does not matter where people were injured, but where these injured people come from, as the socialisation into communal anti-communist norms, nurtured by the presence of the Gulag facility, takes place in the place of birth. This assumes that people grew up where they were born, which is appropriate for communist Romania, where there was very little internal mobility among the youth before 1990 (Rotariu and Mezei, 1998, pp.134-136).

[10]Being declared severely injured was not determined by the level of medical care received during the Revolution, but ex-post by declaration and eyewitness accounts. Therefore, our measure does not implicitly capture variation in access to medical care.

[11]We acknowledge that once protests are underway, if the political opportunity structure continues to shift towards a low threat environment, holding anti-regime norms is likely to lose its status as a necessary condition for dissent. However, this paper is particularly interested in the first wave of dissidents operating in an overtly high-threat environment. In December 1989, most severe injuries occurred in the first days of the Revolution, while the number of participants exploded after the violence began to subside (Petrescu, 2014, pp.326-329).

Second, the number of participants, a more conventional measure of the scale of dissent, is less credible in the case of this Revolution because of the high incidence of *fake* revolutionaries who tried to take advantage of being considered participants without actually taking part in the events or even having been part of the repressive apparatus in order to obtain tax benefits (Adevărul, 2016; Redacția Comunitatea Liberală, 2024; Stan, 2013)[12]. By comparison, being recognised as a severely injured person required medical documentation that was not easy to falsify, did not bring significant extra-benefits to those already classified as participants, therefore reducing the incentives for artificial inflation of this count. However, we still show that our results are qualitatively similar if we use the number of participants instead of the number of severe injuries (Table A13)[13].

One concern about the validity of severe injuries as a measure of intentional dissent is that it may capture both the incentive to dissent and the pre-existing distribution of repressive infrastructure that may correlate with anti-communist sentiment instilled by the Gulag. If the latter dominates, we would not be measuring dissent but repression itself: a stronger repressive apparatus will mechanically increase injuries. We guard against this threat by showing that controlling for the size of the Securitate apparatus in a county (see Section 7 for details on measurement) does not remove the effect of Gulag facilities on the number of injuries (Table A11). The effect of the Securitate itself is not significant[14]. In addition, we discuss the sequencing of the deployment of regime forces during the unfolding of the Revolution in more detail in Section 8, demonstrating that it cannot explain away our argument. Figure 2 shows the distribution of the independent and dependent variables, and already provides preliminary evidence that places that hosted a gulag facility have a higher number of injuries.

[12]This would not bias our results if the inflation in the number of participants varied randomly, or if it were evenly distributed across localities. However, there is strong anecdotal evidence to suggest that fake revolutionaries were more likely to receive their certificates in certain counties, depending on the political composition of the local governing bodies and on the local level of corruption, especially in the judiciary (Andreescu, 2023; Bursa, 2016; Cotidianul, 2017; HotNews, 2024; Romania Liberă, 2016). Certain counties with a high number of participants and injured were more insulated from the fake revolutionary phenomena due to the presence of important NGOs curating the memory of the Revolution.

[13]Alternatively, using the number of people killed per locality would be even more problematic. The legal process that allowed the children of the victims to receive state benefits was also riddled with corruption (Adevărul, 2016). In addition, some victims were never recognised because the communist regime burned the bodies. These activities were not evenly distributed throughout the country, but concentrated in some of the centres of the uprising, such as Timisoara (Florea et al., 1995b).

[14]While we perform this robustness check to demonstrate that our results are not primarily driven by variation in the supply of repression capacity, we acknowledge that the Securitate distribution is likely endogenous to the geography of the Gulag. Therefore, following the advice of Acharya et al. (2016), we do not include Securitate related covariates in our main models to avoid post-treatment bias.

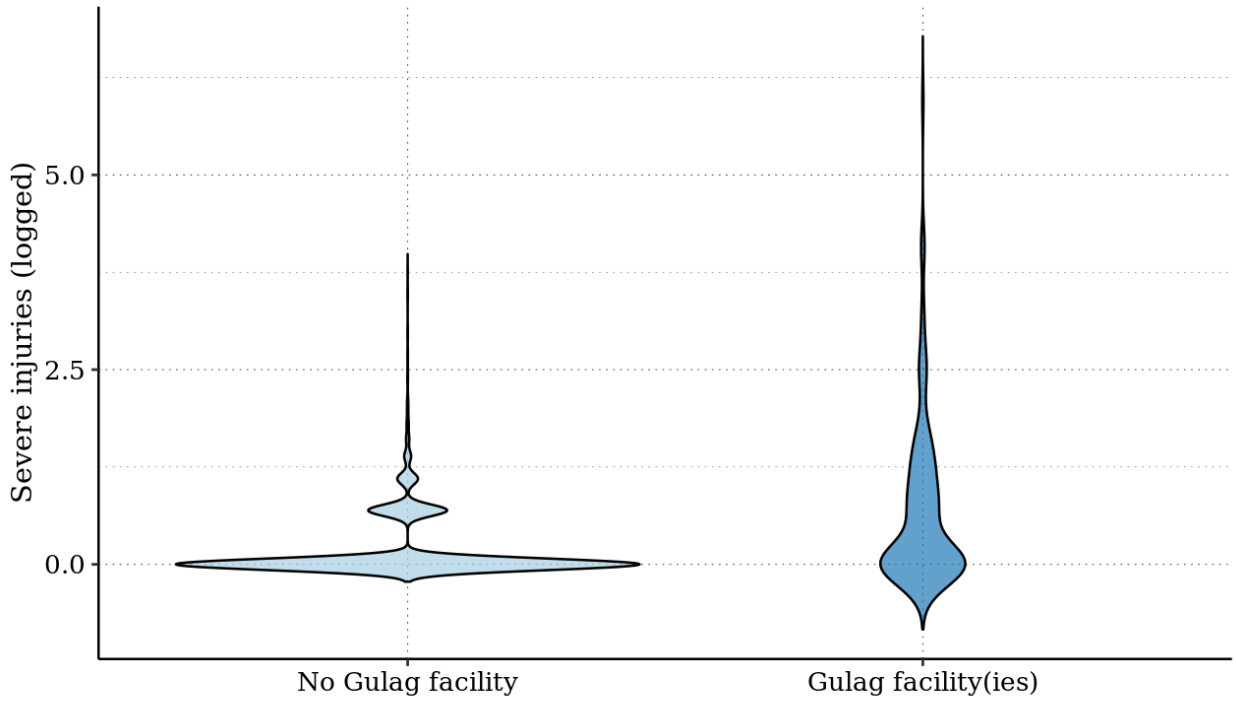

Figure 2: Distribution of independent and dependent variables

4.3 Control variables: confounders and alternative explanations

The effect of the Gulag on injuries during the Revolution can be directly observed in a bivariate regression setting (columns 1 of tables 3-5). However, we also demonstrate that the results are robust to the inclusion of a series of covariates dealing with two potential threats: confounding and alternative theories unrelated to the geography of the Gulag (Cinelli et al., 2022). We statistically adjust for the main factors that could have affected both the number of injuries and the likelihood of having a Gulag facility in one's own locality: i) population density before the communist takeover, measured in 1933, and ii) whether or not a locality was part of the Habsburg Empire, a strong predictor of institutional (dis)trust in the region (Becker et al., 2016; Vogler, 2023).

Then, to improve the precision of our estimate whilst eliminating some alternative explanations, we adjust for factors that most probably influenced the protest dynamics: i) the distance to Timisoara and Bucharest, the two main centres relevant for the opposition mobilisation in December 1989, ii) the distance to the nearest point of the railway network and the distance to the nearest water source, which could influence the ability of both dissidents and the regime to reach a locality, and iii) the population density based on the 1977 census

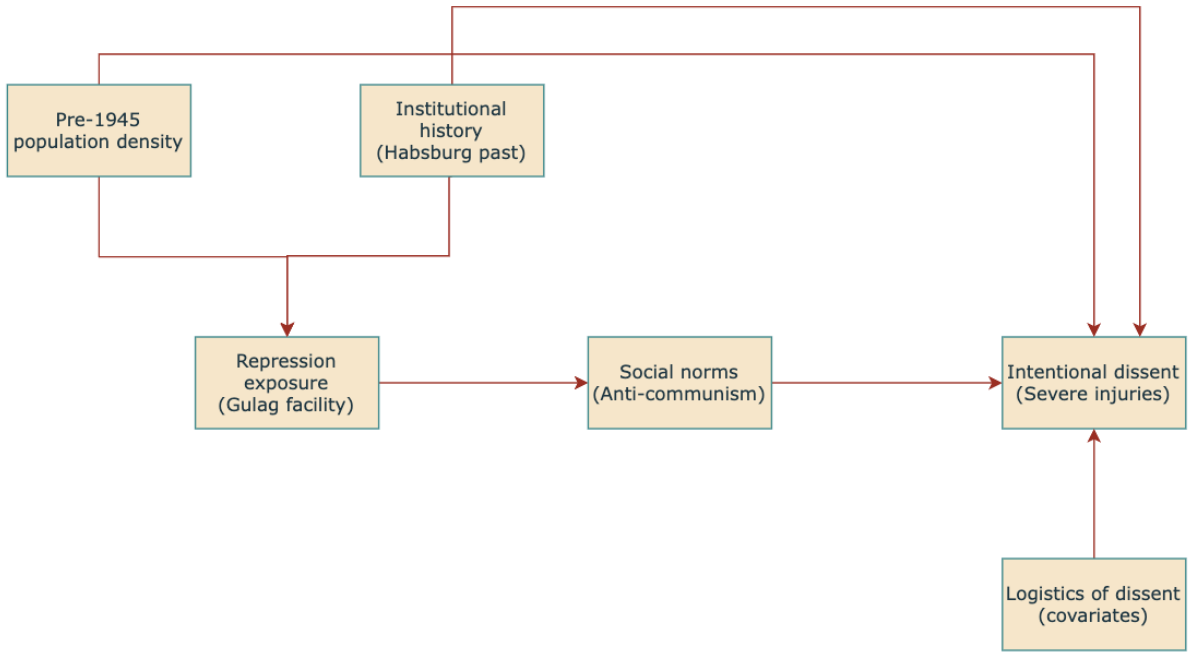

Figure 3: Directed acyclic graph (DAG) representing the causal model underlying our theoretical argument.

as a proxy for the size of the repressive apparatus that is less likely to be endogenous to the Gulag geography. As an alternative, we show in the Appendix that normalizing the number of severe injuries by the population density doesn't affect our estimates (Table A29). The complete causal model assumed in this paper is shown in Figure 3.

Table 1 provides summary statistics for the relevant variables, separated by treatment status.

5 Causal identification strategy

We exploit spatial variation to demonstrate that the presence of a Gulag facility in one's own locality made citizens more likely to intentionally dissent during the anti-communist Revolution of 1989, leading to higher rates of severe injury. For the causal effect to be well-identified, the distribution of Gulag facilities must be as-if-random (Kocher and Monteiro, 2016, pp. 954-955); that is, after a theoretically-guided statistical adjustment for critical antecedents, it must be independent of the conditions that preceded the creation of the Gulag which also influenced patterns of mobilisation in 1989.

First, under a selection-on-observables assumption, we argue that the factors considered in the authorities' decision to select the location(s) of the Gulag were primarily logistical,

Table 1: Detailed Summary Statistics by Treatment Status

Variable	Did not host a Gulag facility				Hosted a Gulag facility			
	Min	Max	Mean	SD	Min	Max	Mean	SD
Severe Injuries	0.00	42.00	0.37	1.75	0.00	381.00	6.00	12.00
Population Density in 1977	1.33	4897.35	94.29	455.49	21.26	8086.83	379.15	1600.75
Distance to Railway	0.00	56.89	8.01	12.34	0.86	51.52	9.11	11.25
Distance to Water Source	0.00	88.47	21.16	18.15	14.96	68.62	17.36	14.12
Former Habsburg Province	0.00	1.00	0.27	0.44	0.00	1.00	0.40	0.49
Population Density in 1933	21.26	190.96	65.42	33.54	27.73	190.96	64.14	36.76
Distance to Bucharest	8.30	487.97	236.20	110.15	117.24	424.40	249.74	98.61
Distance to Timisoara	6.79	651.23	326.99	155.12	136.45	653.85	343.54	162.24

unrelated to the spatial distribution of political preferences in pre-1945 Romania.

The Gulag was established in locations where previous regimes had built prisons and internment camps (Institutul de Investigare a Crimelor Comunismului și Memoria Exilului Românesc, 2013, pp.230-233). As these were built in parallel by Romanian, Austro-Hungarian, Russian and Ottoman administrations throughout the 19^{th} and early 20^{th} century, it is unlikely that the decision on where exactly to build such structures was systematically correlated with the characteristics of the various populations and, in particular, with anti-socialist attitudes. This is all the more true since, before the end of the Second World War, communism or socialism had almost no organic tradition in the Romanian-speaking provinces. Moreover, the individual files of dissidents sent to the Gulag do not indicate any intention to distribute prisoners among particular facilities; on the contrary, prisoners with similar backgrounds and from the same regions were sometimes sent to opposite parts of the country, depending on the uncoordinated decisions of local decision-makers (Institutul de Investigare a Crimelor Comunismului și Memoria Exilului Românesc, 2013, pp.233-289).

One concern is that the continued presence of Gulag facilities in a locality could be conflated with regional developments that correlate with anti-communist attitudes (Kelly, 2020, p.4). To address this challenge, we add grid-cell fixed effects to the estimation, which we compute following the approach of Doucette (2024, pp.8-9). Alternatively, one could use administrative unit fixed effects (e.g. NUTS3 fixed effects), but the counties during the communist era were created after most of the repression in the Gulag had already taken place and differ significantly from the pre-World War II territorial organisation; their introduction could lead to post-treatment bias (Pepinsky et al., 2023, pp.2-4). Similarly, using pre-War administrative units is not possible because of major territorial changes before and after

1945. We also include a second-degree polynomial in latitude and longitude to control for directional gradients (Kelly, 2020, p.4). In spirit, this makes our approach similar to the two-dimensional geographic regression discontinuity design introduced by Dell (2010), assuming that the Gulag forms a set of discontinuities. We estimate the following equation:

$$\text{Severe Injuries}_i = \beta_0 + \beta_1 \text{Gulag Presence}_i + \mathbf{X}_i\boldsymbol{\beta} + f(\text{Lat, Lon})_i + \gamma_{\text{grid}_i} + \epsilon_i \quad (1)$$

where Severe Injuries_i is the number of severely injured individuals in locality i. The key independent variable, Gulag Presence_i, is a binary indicator for whether locality i hosted a Gulag facility. $\mathbf{X}_i$ is a vector of controls, including population density and distances to major cities. $f(\text{Lat, Lon})_i$ represents a second-degree polynomial in latitude and longitude to capture spatial trends. γ_{grid_i} are grid-cell fixed effects that control for unobserved regional characteristics. ϵ_i is the error term.

Second, we employ an IV strategy that leverages exogenous variation in the distribution of Gulag facilities that is driven by distance to similarly situated units[15]. We estimate the following two-stage least squares (2SLS) equations:

$$\textit{First Stage:} \quad \text{Gulag Presence}_i = \alpha_0 + \alpha_1 \text{Distance to Nearest Gulag}_i + \mathbf{X}_i\boldsymbol{\alpha} + f(\text{Lat, Lon})_i + \gamma_{\text{grid}_i} + \nu_i \quad (2)$$

$$\textit{Second Stage:} \quad \text{Severe Injuries}_i = \beta_0 + \beta_1 \widehat{\text{Gulag Presence}}_i + \mathbf{X}_i\boldsymbol{\beta} + f(\text{Lat, Lon})_i + \gamma_{\text{grid}_i} + \epsilon_i \quad (3)$$

where $\text{Distance to Nearest Gulag}_i$ is the instrumental variable that predicts Gulag Presence_i in the first stage, and $\widehat{\text{Gulag Presence}}_i$ is the fitted value from the first stage used in the second stage regression. $\mathbf{X}_i$ includes control variables, $f(\text{Lat, Lon})_i$ is a second-degree polynomial in latitude and longitude, and γ_{grid_i} are grid-cell fixed effects.

We use a specific feature of the Romanian Gulag to restrict the variation in the spatial distribution of labour camps to a credibly exogenous part. Due to the limited capacity of the resistance movement, the number of Gulag facilities needed outside the regular prison system was limited, and the pace of opening new facilities declined as repression became more effective in the late 1950s (Deletant, 2001b). Most of the new camps were only built for specific political projects (e.g. the Danube-Black Sea Canal) in cases where no camps

[15]Distance-based instruments are well established in the historical persistence literature (Becker and Pascali, 2019; Nunn, 2008).

were available in the same region as the project[16].

Therefore, we use the distance from each municipality to the nearest Gulag facility as a predictor of whether a municipality itself hosted such a facility[17]. We show that this distance is strongly correlated with the main independent variable according to the most stringent statistical tests available (Lee et al., 2022; Stock and Yogo, 2005). To be a valid instrument, it must also satisfy an exclusion restriction: the distance from a municipality to the nearest facility should not affect how many people were severely injured during the 1989 Revolution, except through reducing the probability that a municipality itself hosted a facility.

The primary concern is that people living near Gulag facilities would become more aware of overall repression in the country and thus develop stronger anti-regime attitudes, making them more likely to participate in the Revolution and thereby be injured, regardless of whether the facility was in their locality. To alleviate concerns, we show that the effect of labour camps on the injury count is very local, losing significance 10 km outside the boundaries of a municipality (Figure 4).

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Table 2: Relationship between Gulag geography

DV: Existence of Gulag facility in a locality						
	(1)	(2)	(3)	(4)	(5)	(6)
Distance to resistance movement	0.001	0.001	0.001	0.001	0.001	0.001
	(0.978)	(0.749)	(0.786)	(0.757)	(0.822)	(0.818)
Covariates	X	✓	✓	X	✓	✓
Moran eigenvectors	X	X	✓	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓	✓
Entropy balancing	X	X	✓	✓	✓	X
Spatial lags	X	X	X	X	X	✓
N.	3181	3180	3180	3180	3180	3180

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

A second threat to exogeneity is that the distance to a Gulag is correlated with the

[16]Conceptually, if the decision to establish a labour camp in municipality X is driven by logistical and political reasons, we eliminate the latter by focusing on the part of the decision that is influenced by the existence of regime alternatives. The assumption behind this is that the communist regime, when faced with the choice of whether to establish a camp between two municipalities with similar characteristics, will boil down to rationally picking the one without immediate substitutes.

[17]We only take into account the distance to other Gulag facilities that were opened before the one in question, thus avoiding problems of temporal ordering.

distribution of the resistance movement in the first years after the communist takeover. To check this, we review historical literature that identifies such resistance movements in the first years of the Petru Groza government (late 1940s and early 1950s), and compile a list of those that were active before the main phase of the Gulag establishment (Brişcă, 2004; Dobre et al., 2003; Ioniţoiu, 1996; Onişoru, 2003). We then geolocate the resistance movements from the list, match them to our main dataset, and run a series of regressions to test for any correlation between the locations of these movements and the locations of Gulag facilities. We show such correlations be absent according to Table 2, thus strengthening the confidence we have in our exclusion restriction[18].

Finally, we also conduct a placebo test to further validate our instrument by examining the subset of municipalities without Gulag facilities. In these cases, the first stage of the 2SLS is effectively zero, as there is no variation in the endogenous variable (presence of a Gulag facility). Consequently, the instrument—distance to the nearest Gulag facility—should exhibit no relationship with the outcome variable (severe injury count). We confirm this by estimating the reduced form relationship between the injury count and the instrument among these municipalities and find no significant correlation (Table A28).

6 The long-term effect of the Gulag on dissent during the 1989 Revolution

In this section, we present the main results of our regression analysis, which show that repression led to higher levels of intentional dissent against the communist regime in the long run. Table 3 presents the estimates under the selection-on-observables assumption, which we estimate using ordinary least squares (OLS). The dependent variable for all six model specifications is the number of severe injuries from a locality during the Revolution, with a mean value of 0.605. All coefficients are significant at conventional levels, based on p-values calculated for Conley standard errors with a 50 km kernel. The results remain significant when using grid-cell clustered errors (Table A1). Column (1) shows a bivariate correlation between the presence of a Gulag facility and injuries during the Revolution. The estimates in Column (2) then introduce the covariates discussed in Section 5. Starting with Column (2), the coefficient remains stable to the introduction of additional covariates, indicating robustness.

Columns (3)-(6) introduce entropy balancing as a pre-processing algorithm before the

[18]More broadly, the instrument could be related to spatial characteristic that made it easier for citizens to participate in the Revolution. This is similar to the challenge faced under the selection-on-observables assumption, and we address it by including the battery of spatial covariates in both stages of IV estimation.

Table 3: Results: Selection-on-observables

DV: Number of severe injuries from a locality (Mean=0.605)						
	(1)	(2)	(3)	(4)	(5)	(6)
Gulag facility	5.627*	2.095***	1.953***	1.725**	1.984***	2.002***
	(0.052)	(0.050)	(0.007)	(0.021)	(0.006)	(< 0.001)
Covariates	X	✓	✓	X	✓	✓
Moran eigenvectors	X	X	✓	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓	✓
Entropy balancing	X	X	✓	✓	✓	X
Spatial lags	X	X	X	X	X	✓
R^2 Adj	0.024	0.320	0.345	0.346	0.303	-
N.	3181	3180	3180	3180	3180	3180
Moran's I	-0.002	-0.007	-0.012	-0.017	-0.008	-
Oster's' δ	-	1.62	1.76	1.76	1.78	-

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

regression. Using a prespecified set of covariates, entropy balancing generates a set of weights for the observations in the sample such that the covariate distributions of the treatment and control groups in the processed data match exactly on all prespecified moments (e.g. mean, variance) (Hainmueller, 2012)[19]. In Columns (3)-(4), we reweight the observations according to their distance from the so-called "Romanian martyr cities", a list of places from which an above-average number of revolutionaries come, in terms of participation, to mitigate the risk of a selection-intro treatment effect. In other words, we use entropy balancing to ensure that the comparison between localities is not driven by ease of access to the main points of mass mobilisation across Romania, nor by proximity to major urban areas. Crucially, the distinction of "martyr cities" was based less on the number of victims and injuries, and more on the symbolic contribution to the advancement of the Revolution, which limits the threat of matching on post-treatment variables. Then, in Column (5), we reweight observations based on spatial characteristics, which serves as a main robustness check against spatial noise being the source of our causal effect. In addition, Columns (3)-(6) include, in the spirit of (Rozenas et al., 2017), Moran eigenvectors to capture spatial patterns on the right side of the model equation (Dray et al., 2006), and Columns (4)-(6) include grid cell fixed effects.

[19] An important property of entropy balancing is doubly robustness to linear regression: if either one of the selection models or the regression model for the outcome is well specified, the estimated effect will be consistent (Zhao and Percival, 2016)

For the first five specifications, we compute Moran' I for the residuals, a statistical measure of spatial autocorrelation (Kelly, 2019, 2020). Since the values are close to 0, we can proceed with a meaningful interpretation of the coefficients. On average, the presence of a Gulag facility in one's locality increases by 2 the number of people from that locality severely injured during the Revolution, more than three times the mean value of the dependent variable. However, as the first five specifications are estimated using linear models, spatial interactions between units could remain an issue. Column (6) serves as a robustness check, estimating the same specification as in Column (3) via maximum likelihood estimation of a spatial simultaneous autoregressive lag model. Spatial weights for this model are computed using a K-nearest neighbours algorithm, assuming that the distribution of Gulag facilities is influenced by at most 10 localities in the same region.

Next, we implement the sensitivity analysis algorithm developed by Oster (2019), which measures the degree of selection on unobservables relative to observables that would be required to explain away an effect (pp. 191-196). This protocol assumes that the relationship between the independent variable and unobservable factors can be estimated from the relationship between that variable and the observable factors as revealed by the movements of R^2 (Oster, 2019, p.187)[20]. To cancel out the effect of the presence of a Gulag facility on severe injuries, the effect of unobservables would have to be 1.62-1.78 times higher than that of observables, an unlikely scenario given that our main models already include 49 synthetic variables that captures every possible spatial pattern (Dray et al., 2006).

Estimating our selection-on-observables model using OLS poses two challenges. First, given that our dependent variable is a count, the results could be driven by some outliers rather than consistent patterns. Second, given that the majority of Romanian localities did not experience protests in December 1989, the effects could be driven primarily by the skewness of the distribution of injuries rather than by our theorised mechanism. In the Appendix, we provide extensive evidence against this threats. First, we show that the estimates are stable for different functional forms of the dependent variable, including logarithmic, square root, or inverse hyperbolic sine transformations (Table A14 and Tables A26-A27), as well as for different estimators appropriate for count variables, such as Poisson (Table A15), negative binomial (Table A16), and zero-inflated negative binomial (Table A17) regressions.

It is also possible that our results are mainly driven by outliers. In this case, while the estimated effect would still be valid, it would no longer support our theoretical argument, but would instead be the product of a statistical artefact. We show that removing the bottom

[20]We assume a maximum value of R^2 of 1.5 times the maximum value in Column (5), a more conservative approach than the 1.3 suggested by Oster.

and top 1%, 2% and 5% of observations based on the value of the dependent variable does not affect our results (Tables A18-A20). The same is true for removing only the top 2% and 5% of observations with the highest injury count (Tables A21-A22). Furthermore, we show that our result remains similar even if we exclude Bucharest and Timisoara, the cities with the highest number of injuries and the focal points of the Revolution, from the regression (Tables A23-A25).

Table 4: Results: Selection-on-observables in rural areas

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	0.446**	0.435**	0.424**	0.435**	0.432**
	(0.031)	(0.035)	(0.031)	(0.026)	(0.029)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Finally, an alternative theory would be that the higher number of serious injuries in places that housed Gulag facilities was due to the latter serving as potential symbolic sites for protest. This would be similar to the case of East Germany, where anti-communist manifestations took place near places like the Berlin Wall, not necessarily because of communal norms fostered by the Wall, but because it was logistically easier to expect mobilisation around such symbolic points. To guard against this threat, we estimate our models in both rural and urban areas, defined on the basis of population density (above and below 150 inhabitants per km^2, based on the OECD definition). If community norms were at play, and not just a combination of symbolic location and accessibility, then we should also observe our effect in rural areas. Table 4 shows the results of this robustness check. Although the effect is smaller, it is still significant at conventional levels and consistent across different model specifications. Given the very low internal mobility in communist Romania between rural localities, as well as the barriers the regime put in place against people joining the fight in the main urban centres during December 1989, these results suggest the existence of a social norm even in villages that were exposed to the Gulag.

We then move to the IV results, reported in Table 5. The first stage of the estimation

Table 5: IV results

Second stage DV: Number of severe injuries from a locality					
	(1)	(2)	(3)	(4)	(5)
Gulag facility (fitted)	6.161***	2.393**	2.506**	2.384**	2.600**
	(< 0.001)	(0.033)	(0.019)	(0.021)	(0.027)
First stage DV: Presence of Gulag facility					
Distance to facility	0.005***	0.005***	0.007***	0.010***	0.009***
	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)
Covariates	X	✓	✓	✓	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
N	3181	3180	3180	3180	3180
Cragg-Donald F statistic	421.88	420.44	437.33	444.69	444.69

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

suggests that, regardless of the covariates and FEs included, distance to another Gulag facility predicts the presence of such a facility in a locality: the higher the distance to a Gulag facility, the more likely that another one was opened in a locality. In other words, as discussed earlier, the communist regime established new camps only when there was no other camp in operation in a given geographic region. How strong is this relationship? First, the F-statistics are significantly above the Stock-Yogo critical value for maximum acceptable bias relative to the OLS estimator (Stock and Yogo, 2005). Second, the coefficients remain statistically significant after adjusting according to the valid t-ratio approach developed by Lee et al. (2022), where the F-statistic must be above 104.7 to ensure significance at the 5% level compared to OLS.

Moving to the second stage, we find, again across a variety of specifications, that variation in the presence of Gulag facilities driven by logistical concerns, a credible exogenous variable, is strongly predictive of an increase in the number of severe injuries in these locations. The magnitude of the effect is larger than under selection-on-observables, but there is more uncertainty around the point estimates. Nevertheless, all estimates are significant at the 95% level.

The main threat to validity, which would be consistent with the increased size of the effects in Table 5 compared to Table 3, is that memories of repression from neighbouring

communities are also cultivated within each community, thus constructing a composite effect of indirect victimisation in one's own community and spillovers from neighbouring regions. To address this, we examine the strength of the effect induced by the presence of Gulag facilities. Specifically, we create a set of binary indicators to determine whether a locality had a Gulag facility in its vicinity. We then control for the presence of the facility in each locality in our main regression models after including the binary indicators. For the exclusion restriction to hold, the effect of the new independent variables should be insignificant. Figure 4 confirms that our instrument passes this hoop test: once we control for the presence of a Gulag facility in a locality, the presence of one in the neighbourhood is not statistically significant, largely indistinguishable from the null, and its sign is not stable.

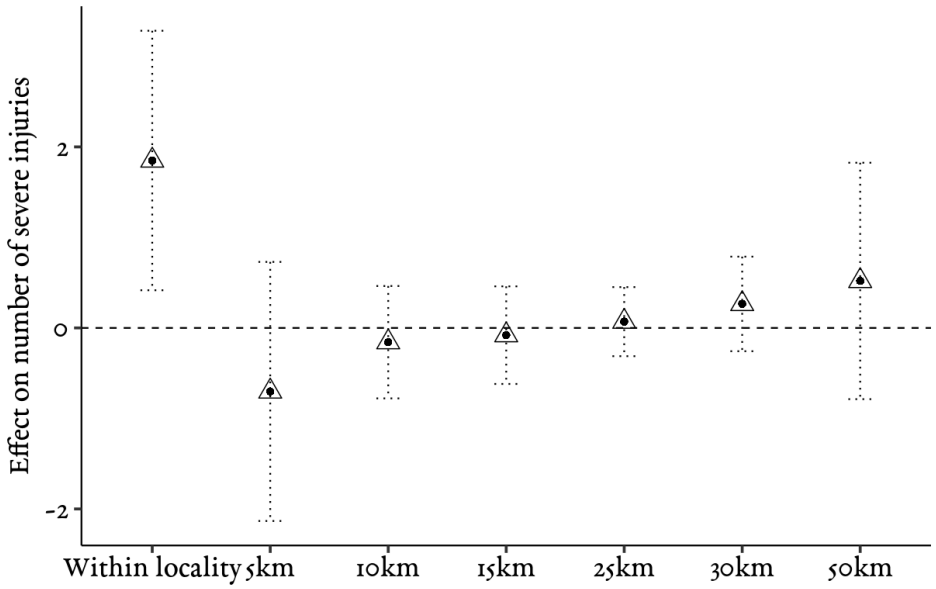

Figure 4: Effect of Gulag facilities in the vicinity of a locality

We further confirm this by measuring the distance from each locality to the nearest grid cell, outside the grid cell to which it belongs, and checking whether this area was a high repression area, defined as hosting at least 2, 3, or 5 Gulag facilities. We then control for this binary variable in both the OLS and IV regressions; its coefficient is insignificant, and the main estimates remain virtually unchanged (Tables A7-A9). Finally, we look at an alternative instrument for the presence of Gulag facilities, which interacts three logistical considerations that the regime likely took into account when deciding where to locate new units: i) the distance from other facilities, ii) the difference in elevation between a locality and its neighbors, and iii) the distance to the nearest railway network. This more stringent instrument thus exploits (quasi-) immutable characteristics of the terrain that are likely to have been relevant to the regime. Table A12 shows the results of estimating this new IV

setup with a 2SLS estimator, confirming the previous results, including the magnitude of the causal effect.

7 Repression and the creation of anti-regime norms

In the previous section, we show that exposure to political violence can lead to dissent even in high-threat environments. We argue that this is possible because of the anti-regime norms fostered by repression which facilitate long-term opposition (see Figure 3). Establishing this mechanism is critical because previous research has shown that, under certain conditions, political violence can instead lead to support for the repressive regime through a phenomenon of cognitive dissonance (Homola et al., 2020). In the absence of data on the political preferences of the Romanian population during the communist regime, we follow an approach similar to De Juan et al. (2024) and test the "observable implications that should be true" (Bennett and Checkel, 2015, p.277) if our theorised mechanism is present. While this is not a doubly-decisive test of our theory against possible alternatives, we show that the cumulative empirical evidence from the proposed series of hoop tests converges towards our preferred explanation (Mahoney, 2012).

7.1 Exposure to the Gulag and Communist Party membership

If exposure to the Gulag instilled anti-communist norms, we would expect that people from localities that hosted a Gulag facility would be less likely to become members of the Romanian Communist Party (RCP)[21]. This is because, if one holds anti-communist values, joining the RCP would imply a strong falsification of one's preferences (Kuran, 1997), which would entail a high moral cost (Kuran, 1997). While RCP membership was mostly determined by factors unrelated to political preferences (e.g. being a requirement for certain jobs), differences in membership levels between regions facing the same structural constraints may reveal differences in preferences for the regime (Gilison, 1968).

To test whether the presence of Gulag facilities leads to lower RCP membership, we rely on the Life in Transition Survey (LiTS) III, conducted by the European Bank for Reconstruction and Development in 2016 in 34 countries, including Romania. Three items ask whether the respondent's mother, father or other family members had joined the Communist Party before 1989. Taking advantage of the representative structure of the data, we aggregate the

[21] Unlike other communist parties in Eastern Europe, membership of the RCP was compulsory for anyone in a supervisory position in relevant industries, even if they only supervised one other person in a company. By December 1989, the RCP has close to 5 million members. This is different than, for example, East Germany, were joining the communist party was limited to 'meritorious' individuals.

responses at the county level and calculate the likelihood that an individual's relatives in a given county had been members of the RCP[22].

We then regress these indicators on our main independent variable, which measures the presence of a Gulag facility in each locality. To avoid the effect being driven solely by the strength of the repressive apparatus in each county, we control for the county-average likelihood that one's relatives were pressured to become informants for the secret police. We compute these values from additional LiTS III items. We also include in our model population density, a flexible function of latitude and longitude, and grid cell fixed effects to account for spatial mismatch between the locality and the county.

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Table 6: Exposure to the Gulag and membership in the Communist Party

DV: Membership in the Romanian Communist Party			
	Mother	Father	Other relative
Gulag facility	-0.001**	-0.001**	-0.001**
	(0.014)	(0.016)	(0.049)
Covariates	✓	✓	✓
Grid cell FEs	✓	✓	✓
N.	2684	2684	2684

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table 6 shows the results of these regressions. For all three items, the presence of a Gulag facility in one's own locality significantly reduced the likelihood of a relative being a member of the RCP, in line with our theoretical expectation. Given the high baseline levels of RCP membership in all counties and the small differences between counties, this is a difficult hoop test of our theorised mechanism and provides significant evidence in support of its validity (Goertz, 2006). Moreover, we find no significant effect, positive or negative, of the presence of Gulag facilities on the Securitate's efforts to turn citizens into secret police informants, which serves as a proxy for the strength of communist repression after the Gulag closed circa 1965 (Table A10). We interpret this as evidence against the alternative theory that the presence of the Gulag in the pre-1965 period led to higher levels of covert repression in the post-1965 period, which could have also explained the protest dynamics in 1989.

[22]As a caveat, LiTS responses were not available for some counties, which could bias our results if these specific regions were either hot-spots of resistance or had high levels of tolerance for communism. However, at a first glance, these counties are distributed all across the country, in place with both low and high concentration of Gulag facilities.

7.2 Exposure to the Gulag and economic grievances

Since repression cannot continue indefinitely without increasing the chances of regime change, autocracies often seek legitimisation by improving the socio-economic conditions of the population (Gerschewski, 2013). However, if public consent is tied to development, then a break in the government's ability to increase social welfare can disrupt legitimisation and trigger anti-regime reactions. If the mechanism we theorise is present, we should see even stronger responses driven by economic grievances in places with a history of repression. In other words, social norms should moderate the relationship between economic grievances and dissent. Thus, empirically, we regress the number of severe injuries during the Revolution on an interaction term between the presence of a gulag facility and a variable proxying for economic grievances.

For the latter, we compile an original geocoded dataset of firms established by the communist regime after 1945 at the locality level. On the face of it, the presence of communist-established firms should improve the regime's standing with the local population and potentially reduce citizens' willingness to dissent. In Romania, however, the regime's goal of distancing itself from international markets and adopting the North Korean model of economic insulation meant that the entire economic apparatus was geared towards exports in order to pay off outstanding debts (Murgescu, 2016). The extreme austerity measures adopted to achieve this had disastrous consequences: while annual growth averaged 11.2 % in the 1970s, in line with a social contract based on development, it fell to 2.6 % in the 1980s. This decline peaked in 1989, when the Romanian economy contracted by 5.8% of GDP, largely due to a government-sponsored crackdown on domestic consumption, including basic needs such as food, healthcare or housing (Ban et al., 2012).

In the collective memory, the last decade of the communist regime is epitomised by empty shelves in shops, food ratios, increased workload and intensity without additional remuneration, and lack of even the most basic medical care despite seemingly booming industrial capacity (Tănase, 2014). In line with the well-established theory that economic grievances drive political participation (Kern et al., 2015), we would therefore expect firms to serve as symbolic reminders of the inability of the regime to fulfill its obligation upholding social order. Therefore, people living in localities that host a firm that served their needs before the 1980s should have stronger grievances because they have 'lost something', as opposed to people from less industrially and agriculturally productive places for whom the perceived welfare has changed less. In accordance with this theory, we should observe that people from localities where a firm is located should have developed stronger anti-communist feelings, which should manifest themselves in the form of more severe injuries.

Table 7 reports the results of three different specifications, where the coefficient of interest

.

Table 7: Economic grievances and the memory of political violence

DV: Number of severe injuries from a locality (Mean=0.605)			
	(1)	(2)	(3)
Firm	0.617***	0.603***	0.617***
	(<0.001)	(<0.001)	(<0.001)
Gulag facility X Firm	1.736***	1.740***	1.736***
	(<0.001)	(<0.001)	(<0.001)
Covariates	X	✓	X
Grid cell FEs	X	✓	X
Spatial lags	X	X	✓
N.	3180	3180	3180

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

is that of the interaction term. The only covariates included are the flexible function of latitude and longitude and population density. The estimates confirm that economic grievances increased dissent in 1989 and that exposure to the Gulag strengthened this relationship. Two conclusions emerge. First, these results provide further evidence in support of our mechanism, as it is consistent with theoretical expectations derived from the grievance theory of political participation. Second, it refutes alternative theories based purely on a risk-reward analysis; within this framework, it makes little sense why dissent was stronger precisely in places where grievances were more intense, since these localities did not historically face a more lenient political opportunity structure in December 1989 (Deletant, 2016).

7.3 Exposure to the Gulag and post-1989 political behaviour

Previous literature has shown that attitudes and behaviours shaped by the experience of communism can survive long after democratisation (Pop-Eleches and Tucker, 2020; Simpser et al., 2018). Thus, if the Gulag did indeed foster anti-communist norms, we should be able to observe traces of these norms even after the regime change in 1990[23].

First, we examine whether localities that hosted a Gulag facility experienced more anti-government protests in the early years of transition, up to 1992, when relevant government

[23]This is particularly likely in the Romanian case, given that in the absence of lustration laws in the aftermath of the Revolution, many of the post-communist political elites of the 1990s were still former officials of the PCR (Stan, 2006).

portfolios were primarily held by former communist apparatchiks. In addition, many government actions were seen as anti-democratic, and some dissidents even accused the leadership of a slow return to autocratic practices through political violence (Gledhill, 2005). To collect a comprehensive sample of anti-government protests in Romania, we first compiled a preliminary list based on the Mass Mobilization Project. We then searched the local press for each of the protests mentioned, and kept them in our sample if they featured an anti-communist message, even if it was not central to the manifestation. Finally, we geocoded the protests, which allowed us to run a Poisson regression of the protest count in each locality on the presence of a Gulag facility, together with spatial controls and adjustment for population density. Table 8 confirms that localities that hosted a Gulag facility had a higher number of protests after 1990.

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Table 8: The effect of the Gulag on anti-governmental protests post-1990

DV: Number of anti-governmental protests, 1990-1992 (Mean=0.023)			
	(1)	(2)	(3)
Gulag facility	6.298***	3.581***	0.534***
	(<0.001)	(<0.001)	(<0.001)
Covariates	X	X	X
Covariates	X	✓	X
Spatial lags	X	X	✓
Notes: P-values for Conley standard errors in brackets.			
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$			

Next, we examine whether people from places that hosted a Gulag facility were less likely to support candidates with an overtly communist past in presidential elections. We have chosen two relevant elections that are best able to reveal anti-communist voting patterns, which in turn, we argue, reveal persistent anti-communist norms. First, we look at the 1992 elections, which saw the first major confrontation between a reformist pro-democracy alliance and the direct heirs of the RCP, led by Ion Iliescu, the former communist youth leader once seen as Nicolae Ceausescu's likely successor (Tismaneanu and Kligman, 2001). Second, we look at the 2004 elections, where Adrian Nastase, the leader of the Social Democratic Party, was portrayed by his rival as a perpetuator of corrupt communist practices. While other elections have also included debates about the communist part, these two have focused on the issue and thus primed citizens to reflect on their autocratic experiences. We look at the first round of these two elections, when voters have more opportunities to reveal their sincere preferences rather than vote strategically. Table 9 shows that localities that hosted a Gulag

facility had lower vote shares at the county level for presidential candidates considered to be successors to the communist regime, in line with our theoretical expectation.

Table 9: The effect of the Gulag on anti-communist voting patterns post-1990

DV: Vote share for the 'communist' successor candidate		
	(1)	(2)
Gulag facility	-5.071**	-3.528***
	(0.021)	(<0.001)
Covariates	✓	✓
N	3180	3180

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Taken together, these results (Tables 8-9) show that behaviour consistent with anti-communist norms that persisted after the demise of the communist regime is more likely to be observed in places that hosted Gulag facilities. Moreover, alternative theories that would explain the dynamics of protest in 1989 solely in terms of the political opportunity structure, and hence the risk-reward analysis of dissidents, would fail to explain the consistent correlation between the Gulag experience and revealed political behaviour after the fall of communism. Similarly, theories that deny the role of anti-communist norms and focus on the heterogeneous response of the Securitate in December 1989 would fail to explain why the same patterns of dissent resisted post-democratisation.

8 Pathway case analysis

To illustrate how anti-regime norms have motivated Romanian citizens to engage in intentional dissent during December 1989, we conduct theory-testing process tracing in a singular pathway case (Ulriksen and Dadalauri, 2016). Pathway cases are those where both the causal condition of interest (i.e. the presence of a Gulag facility in a locality) and the outcome (i.e. severe injuries from the locality) are present, and the causal effect is of significant magnitude (Gerring, 2007, p.238-239)[24]. Their diagnostic power derives from a simple consideration: if the mechanistic argument underlying an identified causal effect is correct, then the crucial

[24]Since pathway cases only become apparent after the cross-case causal inference was performed, they are by design diagnostic tools aimed at further exploring the depth of the causal relationship, not at expanding its breadth (Gerring and Cojocaru, 2016, p.405-406)

case in which the causal effect is strongest should provide the clearest instance of how that causal mechanism operates (Eckstein, 1975; Gerring, 2007)[25].

One major challenge for selecting an appropriate pathway case is accurately determining the magnitude of the causal effect of the Gulag on severe injuries in each Romanian locality. In this regard, most pathway cases are usually selected through heuristics or predictive algorithms rather than causal inference methods (Gerring, 2016; Weller and Barnes, 2014), limiting their validity of results. Instead, we propose a novel algorithm in which causal forests are used to approximate the causal effect in each locality, allowing for their subsequent ordering and finally, for case selection[26]. We calculated the conditional average treatment effect (CATE) as an approximation of the causal effect of the Gulag in each of the 3,181 localities in Romania, and then, following a theory-driven assessment of which of the localities with high CATEs might produce generalisable results, selected Timisoara, the city where the Revolution began, as a pathway case[27].

We follow the best practices in process tracing established by Collier (2011) and Ricks and Liu (2018). We first establish a timeline of events in December 1989, and then explain why this particular unfolding is better explained by considering anti-regime norms based on the logic of appropriateness, rather than two alternative theories: (i) a major shift in the political opportunity structure exploited by dissidents with exceptionally low levels of risk aversion, and (ii) a favourable dynamic of the repressive apparatus of the communist regime.

[25]In other words, the visibility of the causal mechanism needs to be monotonic in the treatment effect, which makes the presence of the theorised causal mechanism in the pathway case a necessary condition for claiming the more general presence of that mechanism in the population of cases, and its absence strong evidence for rejecting the original theory.

[26]Causal forests are algorithms that aim to accurately measure how the effect of a causal factor X varies across the sample, while correctly predicting the value of the causal effect induced (Athey and Imbens, 2016; Wager and Athey, 2018; Athey et al., 2019). While random forests are ensemble learning methods based on constructing a large number of decision trees in order to minimize the prediction error for an outcome Y between the leaves of each tree (Breiman, 2001), causal forests attempt to simultaneously maximize the difference in treatment effects between the leaves while accurately estimating the average treatment effects (Wager and Athey, 2018). This dual objective distinguishes causal forests from many other ML-based causal inference tools that explicitly address only the prediction problem.

[27]The theory-driven selection, rather than relying solely on CATEs, was undertaken to ensure that the selected pathway case was informative of a wider population of cases, an imperative for case study research (Gerring, 2004).

8.1 The chronology of the Revolution in Timisoara

Between 13 and 15 December 1989[28], the first signs of unrest appeared in Timisoara. Citizens belonging to the Reformed Church gathered in a peaceful vigil to support the local pastor, Laszlo Tokes, against the regime's politically motivated attempts to relocate him. This action came after stories of Tokes being stabbed in front of his wife and daughters by masked assailants, believed to be members of the Securitate, had spread through the city. The crowd was multi-ethnic, included people of different ages and, crucially, people with well-paid jobs who came with benefits in kind. Timisoara's communist mayor addressed the crowd and asked them to disperse, but this was unsuccessful and instead some members of the demonstration began chanting pro-democracy slogans.

As the protests continued on December 16, police used water cannons to disperse the crowds and then began using physical force, beating people who appeared to resist. As more people gathered, the communist mayor attempted to convince the core dissenters that he would reverse the decision to evict Pastor Tokes. By this point, however, the demonstrations had gained momentum, with people chanting for freedom, liberty, the fall of authoritarianism and, symbolically, Romania's former national anthem, which had been banned by the communists. On that day, many workers and students joined the movement against the dictator, which led to direct reprisals by both the police and the Securitate, who beat and killed dozens of demonstrators.

On 17 December, regime forces in Timisoara were armed with war weapons and ordered to engage in active combat with the demonstrators who had occupied the city's central squares, while also attempting to break into the Communist Party headquarters. However, as some Securitate leaders admitted in interviews after 1990, the local forces were understaffed and unprepared for such protests. Moreover, most of them had little experience in suppressing violence, as such events had not occurred for decades. This was especially important given that protests now included a large proportion of workers from local factories, including higher-ups, who were chanting directly for the overthrow of the regime rather than for improved economic conditions, as had been the case in the very small strikes of the late 1970s and early 1980s. All in all, the composition of the repressive apparatus was not anymore prepared to resort to violence than in any other part of the country. The first shots were fired at around 5pm near the Orthodox Cathedral, just outside the city centre, and one protester counted over 350 bodies on the ground.

[28]The timeline of the Revolution in Timisoara is based primarily on the local historical accounts of Balaj (1991), Costinaș (2016), Mioc (2002), as well as the edited volumes of Calafeteanu (2009) and Oșca (2009). Details about the Securitate have been gathered from the various interviews given over the years by former officers of the secret police, as well as from the accounts of Lupu (2023) and Florea et al. (1995a).

Nicolae Ceausescu left the country on 18 December for a diplomatic visit to Iran and declared martial law in Timisoara. Before leaving, Ceausescu instructed the local RCP leaders to suppress the ongoing demonstrations, but did not reinforce the repressive apparatus in any meaningful way. This decision, to leave the country amid dissent, ultimately did not reduce the scale of the protests, but increased their symbolism, as dissidents now carried national flags with the communist emblem cut out, sang patriotic songs that had been banned since 1947, and chanted slogans referring to the crimes of the communist regime, including the mass deportation of local people to the penal colony of Bărăgan, as well as the atrocities in the local detention center. Local protests by factory workers turned into a general strike, with the army killing dozens of workers who refused to return to work despite assurances of higher wages. As the death toll mounted, the Securitate was tasked with removing bodies from morgues and hospitals and transporting them to Bucharest for disposal to hide the consequences of the violence. This dynamic continued the next day, but by this time martial law had completely failed and thousands of people gathered in the streets, even though the army and the Securitate were still using military equipment against them.

The next two days, 20 and 21 December, were the culmination of these local demonstrations. Nicolae Ceausescu gave a national speech condemning the events in Timisoara, which had begun to spread to neighbouring towns, and promised a series of economic reforms that would directly benefit the population and address what he saw as the discontent that was fuelling the dissent. Crowds in Bucharest, who had compulsorily gathered to watch the speech, began booing the dictator; similarly, dissidents in Timisoara, who had heard about the speech and the reactions from the live audience, continued their efforts against the local authorities. Tens of thousands of people had gathered throughout Timisoara, and the mayor, along with several army and Securitate generals, were tasked with negotiating with the dissidents.

After the events in Bucharest, the ongoing protests became a national issue and most citizens heard about the clashes with the regime; this had not been the case before, as what had happened in Timisoara remained unknown to a large part of the population. This only changed when university students went on their Christmas holidays and, on their return to Western cities, from Bucharest, found out about the ongoing situation and spread the news to their friends and acquaintances[29]. Protests throughout the country were met with limited

[29]The fact that people in Bucharest were uninformed about what was happening in Timisoara and the surrounding towns was confirmed to us in three interviews with people who were students at the Law Faculty of the University of Bucharest in December 1989. According to their recollections, this was the first time that the trains home were monitored by the military, but they were not told why. When they arrived home in western Romania, their families told them what had happened, which they had learned from Radio Free Europe.

resistance from the regime force, especially after 21 December; this happened as the violence seemed not be deter the growth of the movements, or their spread in neighbouring localities.

On 21 December, trains full of workers from other parts of the country arrived in Timisoara in a last-ditch attempt by the regime to crush the protests. This happened precisely because the Securitate was short of personnel for demonstrations of this size, and some parts of the repressive apparatus began to refuse to cooperate with their superiors, considering joining the protests or at least not getting involved. But when the workers brought it to compensate for the understaffed saw that the demonstrators were not destroying the city, as their factory bosses had told them at the order of the local RCP leaders, they joined the rallies. In the afternoon, the dissidents organised themselves into the Romanian Democratic Front, with the aim of reforming the internal regime through democratisation. Seeing what was happening, a large number of the military laid down their arms and joined the demonstration. By the end of the day, the people of Timisoara declared themselves the first Romanian city free of communism. The Revolution continued throughout the country until Nicolae Ceausescu was executed on Christmas Day.

This chronology provides enough background information to update our priors for the two hypotheses. Three elements are crucial. First, the protests were dominated by anti-communist messages rooted in democratic principles and the memory of historical repression, rather than by material matters or strategic considerations. Second, dissidents were unwilling to cooperate with the authorities, even when there might have been some personal benefit; this was true throughout the period, despite variations in the level of repression. Third, and most importantly, the size and scope of dissent increased over time, despite the rapid and significant increase in state-sponsored violence. The scope of the protest was monotonically increasing, not decreasing, in the level of repression. Even if the dissidents had an unprecedented threshold of tolerable violence, the increase in the size of the protests cannot be reconciled with the increase in violence. Fourth, the composition of the repressive apparatus seems to have been orthogonal to the outcome of the protests, especially in Timisoara and the other so-called Martyr Cities where the main protests occurred. In practice, based on the recollection of the generals tasked with repression during December 1989, this meant that the number of injuries in deaths was primarily a function of the motivation of the participants, rather than of the degree of violence condoned by their local command offices. Taken together, these facts clearly point to a chronology that is more likely to occur in an environment where protesters are driven primarily by norms and moral obligations rather than strategic considerations of the threat environment. In such cases, seeing people willing to sacrifice themselves in the name of shared anti-communist values could motivate others to follow their actions, as the early dissidents embodied the archetype

of anti-communism to which community members aspired.

8.2 Further empirical evidence from Timisoara

The existence of anti-communist norms in Timisoara, shaped by communist violence and the Gulag experience in particular, is well documented by local historians (Costinaș, 2016; Neumann, 2007; Sitariu, 2004). From the outset, the Western part of Romania was one of the most resilient regions, as communism tried to stifle the inter-ethnic civic ethos that had been cultivated by the Habsburg Empire for over a century (Buzărnescu et al., 2004). Many citizens of German origin were sold by the communist regime to the Federal Republic of Germany for profit, while minority rights were suppressed to ensure a uniform attitude among citizens. This proved to be a failure over time, mainly due to the mobilising role of the remaining minority churches, which continued to foster communitarian values until the Revolution, which was triggered precisely by an act of repression against a Hungarian ethnic (Mioc, 2002).

The Gulag experience, especially the mass deportations from Timisoara and its surroundings to the Bărăgan plain, which served as a penal colony, increased the hostility of the population towards the regime (Marineasa et al., 1996; Spijavca, 2004). Some of those who returned after several years of this extrajudicial punishment spread details of the violence they had been subjected to, prompting a student movement that attempted a large-scale protest in support of the 1956 Hungarian Revolution (Sitariu, 2004). This was the only protest of its kind in 1956 and was immediately crushed by the authorities, with dozens of students sentenced to prison, many of them to be executed in special political prisons that were part of the Gulag network, including in Timisoara (Sitariu, 2004).

Notably, anti-communist values were not a direct emanation of the economic discontent of the population, as Timisoara and western Romania in general remained relatively developed (Jurma, 1994). Moreover, the anti-communist protests of 1956 took place against a backdrop of rapid growth and improved access to health services and education. However, these material factors did not prevent demonstrators from explicitly demanding "Communists to leave the country" (Sitariu, 2004, p.48).

These attitudes remained latent for most of the following decades, especially after Nicolae Ceausescu took over the communist part of Romania and moved from the Gulag model to one based on selective terror by the Securitate. However, as soon as the Soviet Union announced its policy of openness and transparency under Gorbachev, underground movements quickly emerged in Timisoara. Throughout 1988 and 1989, they painted numerous graffiti with anti-regime messages on the Communist Party headquarters, and anti-Ceausescu manifestos were

distributed throughout the city (Costinaș, 2016). Such acts of symbolic dissent intensified as the citizens of Timisoara became aware of the revolutionary wave spreading through Central and Eastern Europe and became an integral part of the repertoire of emerging resistance throughout 1989. The manifestos, whose existence and circulation became an undeniable reality in October-November 1989, focused less on the disastrous economic situation and more on the need for a new political regime based on the ideals of freedom, democracy and genuine popular sovereignty (Costinaș, 2016).

Any rival hypothesis would require that anti-communist social norms would be less important in the decision-making process of potential dissidents than the cost-benefit calculations they might make. Pragmatically, this would mean that the economic grievances of Timisoara's citizens were sufficiently high compared to the costs of violent repression and that the chances of improved material conditions as a result of dissent were positive. This is unlikely to have been the case for at least three reasons.

First, the citizens of Timisoara had access to Western media in the form of Radio Free Europe and the Voice of America, along with Yugoslav television and radio. They learned how the small strikes of miners and workers in the 1970s and 1980s had been crushed by the Ceausescu government and, therefore, that any attempt to negotiate with the communist authorities for better working conditions or welfare provisions would be fruitless. If we assume that people are rational, then the citizens of Timisoara, who had comparatively more information about the environmental threat as well as its negotiating tactics, should not have been the ones to trigger a revolutionary movement in December 1989. The fact that they did so proves that they acted against rational calculations, not because of them.

Second, even if a rational calculation had triggered the events of 15 December, this would not explain why the protests continued into the following week. In the first few days of the demonstrations, it was clear that the chances of the regime being overthrown were close to zero, the violence of the army and the Securitate was increasing in scope and scale, and yet more and more people were joining the crowds protesting against the regime. From a rational point of view, this made no sense, as more information about the high-threat environment and low chances of success should reduce participation, not increase it.

Third, the protesters directly rejected any compromise based on higher wages, pensions or benefits in kind and instead drew up a list of demands on political issues, including freedom of speech, assembly and religion (Costinaș, 2016). This is not to argue that the dire economic situation was not a distal condition for the Revolution, but rather that the straw that broke the camel's back was a normative offence committed by the regime, one that had nothing to do with the individual welfare of the citizens of Timisoara and that in no way changed the political opportunity structure. One of the most famous cases illustrating this is the

story of Daniel Gavra, a local railway worker who lost his leg fighting against the Securitate. Gavra said he "lost a leg, but lit the first candle" because he was responsible for distributing candles for Laszlo Tokes' vigil on 16 December (Elliott, 1990). Gavra's story quickly spread among the demonstrators, who continued to light candles while he was in hospital - proof of how quickly the community was able to embed the narrative of communist violence and retaliate in a unified way.

These points demonstrate that the logic of consequences cannot fully explain the 1989 Revolution in Timisoara. On the other hand, the local history of anti-communism, shaped by the experience and memory of political violence, lends credence to the theory that in high-threat environments, the logic of appropriateness can lead people to engage in dissent in response to repression. The centrality of anti-communist norms is further highlighted by some of the interviews cited earlier in this paper, as for some revolutionaries from Timisoara the main driver of political action was to fight the criminal regime for what it had done, not to engage in regime change, which was highly unlikely, especially in the early days of the Revolution. Recognition of the potential martyrdom was also essential in the final stages of the demonstration, when the military realised that the people were not ready to return to the status quo, and for the decision of workers from other parts of the country, brought in by the communist regime, to fight alongside the people of Timisoara (Mioc, 2002). The messages spread by the anti-communist crowd reflected the content of earlier manifestos spread in the city in the first months of 1989. Particularly from 20 December onwards, dissidents listed "oppression", "tyranny", "lack of freedom" and "lack of dignity" before "poverty", as part of their communication of demands (Costinaș, 2016, pp.3-4).

8.3 External validity of the qualitative evidence

The case of Timisoara credibly demonstrates, through process tracing, that the Revolution was primarily driven by anti-regime norms developed within the community. The final question is whether this conclusion can be generalised to other localities where major protests took place in December 1989. To provide some evidence for this claim, we conducted an online survey of participants in the 1989 Romanian Revolution, asking them what factors shaped their involvement in active combat. The purpose of the survey was threefold. First, to assess whether respondents considered the period between 16 and 25 December to be a high-risk environment. Second, to assess whether dissidents took the high-risk environment into account when deciding to dissent and, if so, whether it was a central concern. Third, to determine whether identity considerations rooted in anti-communist norms influenced their decision to dissent. When taken together, we aim to show that dissidents in December 1989

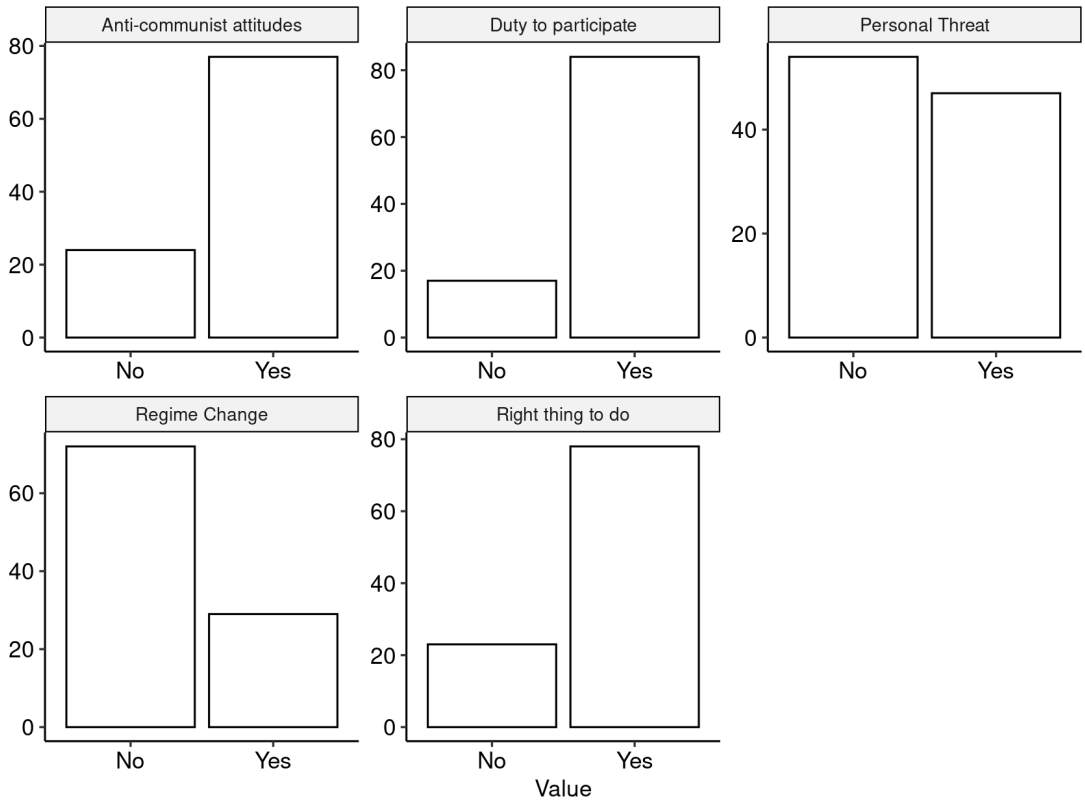

Figure 5: Determinants of the decision to participate in the Revolution of 1989
Note: The different graphs in this Figure show the responses to the question "Did you take part in the revolution because of X*?"*

against despite acknowledging the detrimental POS, due to normative considerations. These responses provide a proof of concept for our theory and validate our empirical setting as a typical case suitable for further empirical investigation.

We reached people via Facebook, through community groups of self-proclaimed revolutionaries, one of the most widespread and active platforms for those still alive to communicate. We first selected all groups moderated by people who were known participants in the Revolution and had no legal history of falsifying their status, and then cross-validated their appropriateness in qualitative interviews. The survey was designed and administered through Qualtrics and remained active between 20-25 November 2023. For each respondent, we manually verified their actual involvement in the events of December 1989, first by confirming their status as revolutionaries against publicly available lists, and then by checking existing case files from the Ministry of Justice to see whether they had been or were currently being prosecuted for allegedly falsifying their participation in the Revolution in order to gain material benefits, a common practice in Romania. We dropped one observation because we could not verify their status and one because of their legal history. The role of the survey is

not to provide information about the Romanian population through a representative sample, but rather, in line with the goals of process tracking, to learn about the experiences of the actual participants and to draw relevant conclusions about their motivation.

Figure 5 shows the results of this small survey, with N=101, roughly 2% of the people actively involved in the Revolution. The overall conclusion is that the majority of respondents appear to have acted according to a logic of appropriateness rather than that of consequences, in line with our proposed argument. In deciding whether or not to take part in the Revolution, most of them weighed up whether it was the right thing to do and whether they had a duty to take part, and the answer was overwhelmingly yes to both questions. Fewer respondents, but still a significant majority, confirmed that anti-communist norms were part of their identity, in line with our theory of why people rely on normative considerations when deciding whether or not to engage in dissent. Crucially, most respondents came from outside Timisoara, the city where the Revolution broke out, and therefore had time to learn about the regime's reprisals against the demonstrators.

On the other hand, responses were divided as to whether dissidents were concerned about the personal threat posed by dissent. However, for the majority of those who calculated the risks of political action, these considerations seemed to be outweighed by considerations of appropriateness. Respondents who considered the level of threat generally opted to act regardless of the likely outcome. Finally, and crucially for demonstrating that risk-reward profiles were not central to their decision-making process, a large majority did not consider regime change to be possible, yet were willing to incur the costs of dissent. This rules out the possibility that the Romanian population had an extraordinarily high threshold for tolerated violence, which fuelled their action with the ultimate goal of overthrowing the regime. As the in-depth interviews we conducted in parallel showed, many were willing to sacrifice themselves to make a statement.

Most of these semi-structured interviews took place between October and December 2023. Their purpose was not to achieve information saturation on the topic, but to further confirm instances where dissidents in high-risk environments operate within the logic of appropriateness. In particular, we wanted to go one step further and show that the reason why anti-communist norms were so salient and engendered a logic of appropriateness was a history of extreme political violence in the form of the Gulag.

First, the interviews directly show that the memory of political violence has shaped how citizens identify themselves. In the words of one protester who mobilised against the regime in the early days of the Revolution: "After what they [the communists] did to my family, I finally had a chance to get them" (Interview, 25 October 2023). Similarly, a protester who took to the streets of Bucharest long after the regime's willingness to use indiscriminate

repression had become public knowledge told us: "The communists made life hell for years, how could I watch, how could I look my children in the eye after that?" (Interview, 27 October 2023). Another protester from Timisoara was even more direct: "We were not there for more bread, we were there for justice" (Interview, 22 December 2023).

Second, we found that while risk considerations remained in the minds of citizens, the idea of living with the memory of a missed opportunity overrode any rational calculation; in other words, dissent was the situationally appropriate option. As one protester in Bucharest put it: "I could have died, but so could some of them. That was good enough for me." (Interview, 3 November 2023). The idea that personal sacrifice was taken into account despite the fact that there was nothing remotely certain about the Revolution's ability to remove the dictator was a common theme. One protester from Arad, the second city where the Revolution broke out, explicitly linked the decision to dissent to his family's experience in the Gulag: "They sent my grandfather, who was a supporter of the Peasants [National Peasants' Party], to the Canal. My grandmother was left alone with five children, they were poor, but they were still harassed because they were bourgeois. Bourgeois, but without bread... When I had the opportunity to do something, I felt I owed it to them" (Interview 20 November 20-23). Similarly, a protester from Timisoara revealed: "My family was sent to Bărăgan [mass deportation colony], I wanted to shout their pain, my own didn't matter" (Interview 26 October 2023).

9 Conclusions

Why do some people engage in dissent in response to political violence, even in high-threat environments? To answer this question, we have proposed an extension of current theory to include the logic of appropriateness as an underlying rationale for political action in authoritarian regimes. That is, we have argued that while dissent has traditionally been analysed by quantitative scholars through the lens of rational choice, with dissidents weighing the likely costs of repression against the benefits of overthrowing or weakening an authoritarian regime, this cannot explain all cases of dissent. In particular, it fails to explain why people would engage in protest against a violent regime, especially when the chances of those protests succeeding in remedying underlying grievances of the population are low.

In such cases, we argue that we must consider dissent as the appropriate response of people who bear the burden of victimisation to violence. If people have been socialised by various community organisations to view the regime as an out-group responsible for harming the community, then any opportunity to express their identity through action against the regime will be a significant action that complements any potential rational calculations.

To test our theory, we looked at how people from Romanian localities that hosted Gulag facilities, such as extermination centres or penal colonies, had more people who were severely injured during the anti-communist Revolution of 1989. We have demonstrated that localities which hosted Gulag facilities experienced significantly higher levels of dissent during the 1989 Revolution, as measured by the number of severe injuries. This relationship persists across various model specifications and robustness checks, including instrumental variable approaches. Our results suggest that exposure to extreme political violence can foster enduring anti-regime norms within communities, which in turn motivate dissent even in the face of significant personal risk. The mechanism we propose - the formation and persistence of anti-communist norms - is supported by several lines of evidence. We found that localities with Gulag facilities had lower Communist Party membership, stronger reactions to economic grievances during the Revolution, and continued to exhibit anti-communist political behavior in the post-1989 period. Our process tracing analysis of Timisoara, a crucial case in the Revolution, further illustrates how these norms operated to motivate dissent.

These findings have important implications for our understanding of political behavior under authoritarianism. They suggest that the decision to engage in dissent cannot always be explained by rational choice models alone. Instead, in some contexts, the logic of appropriateness - acting in accordance with internalized norms and identities - plays a crucial role. This is particularly relevant in high-threat environments where the expected costs of dissent would typically outweigh the potential benefits from a purely rational perspective.

This paper also contributes to the literature on the long-term effects of political violence. It demonstrates that the impact of repression can persist over decades, shaping community identities and political behaviors long after the immediate threat has passed. This highlights the importance of considering historical legacies when analyzing contemporary political phenomena, particularly in non-democratic societies.

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A Additional evidence

Table A1: Grid cell clustered standard errors

DV: Number of severe injuries from a locality (Mean=0.605)						
	(1)	(2)	(3)	(4)	(5)	(6)
Gulag facility	5.626*	2.095**	1.954**	1.725**	1.984**	2.002***
	(0.053)	(0.012)	(0.026)	(0.050)	(0.017)	(<0.001)
Covariates	X	✓	✓	X	✓	✓
Moran eigenvectors	X	X	✓	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓	✓
Entropy balancing	X	X	✓	✓	✓	X
Spatial lags	X	X	X	X	X	✓
R^2 Adj	0.024	0.320	0.345	0.346	0.303	-
N.	3181	3180	3180	3180	3180	3180

Notes: P-values for clustered standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A2: Continuous independent variable

DV: Number of severe injuries from a locality (Mean=0.605)						
	(1)	(2)	(3)	(4)	(5)	(6)
Gulag facility	0.028**	0.011**	0.030**	0.025*	0.023**	
	(0.034)	(0.034)	(0.014)	(0.051)	(0.024)	
Covariates	X	✓	✓	X	✓	✓
Moran eigenvectors	X	X	✓	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓	✓
Entropy balancing	X	X	✓	✓	✓	X
Spatial lags	X	X	X	X	X	✓
R^2 Adj	0.024	0.320	0.345	0.346	0.303	-
N.	3181	3180	3180	3180	3180	3180
Moran's I	-0.002	-0.007	-0.012	-0.017	-0.008	-
Oster's' δ	-	1.62	1.76	1.76	1.78	-

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A3: Binary dependent variable

DV: Number of severe injuries from a locality (Mean=0.605)						
	(1)	(2)	(3)	(4)	(5)	(6)
Gulag facility	0.259***	0.207***	0.199***	0.206***	0.209***	
	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)	
Covariates	X	✓	✓	X	✓	✓
Moran eigenvectors	X	X	✓	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓	✓
Entropy balancing	X	X	✓	✓	✓	X
Spatial lags	X	X	X	X	X	✓

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A4: Binary dependent variable and continuous independent variable

DV: Number of severe injuries from a locality (Mean=0.605)						
	(1)	(2)	(3)	(4)	(5)	(6)
Gulag facility	0.001**	0.001**	0.002**	0.001	0.002**	
	(0.038)	(0.155)	(0.018)	(0.288)	(0.023)	
Covariates	X	✓	✓	X	✓	✓
Moran eigenvectors	X	X	✓	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓	✓
Entropy balancing	X	X	✓	✓	✓	X
Spatial lags	X	X	X	X	X	✓

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A5: Removing outliers in terms of Gulag facilities

DV: Number of severe injuries from a locality (Mean=0.605)						
	(1)	(2)	(3)	(4)	(5)	(6)
Gulag facility	5.627*	2.095***	1.953***	1.725**	1.984***	2.108***
	(0.052)	(0.002)	(0.007)	(0.021)	(0.006)	(< 0.001)
Covariates	X	✓	✓	X	✓	✓
Moran eigenvectors	X	X	✓	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓	✓
Entropy balancing	X	X	✓	✓	✓	X
Spatial lags	X	X	X	X	X	✓

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A6: Removing outliers in terms of Gulag injuries

DV: Number of severe injuries from a locality (Mean=0.605)						
	(1)	(2)	(3)	(4)	(5)	(6)
Gulag facility	0.937***	0.809***	0.733***	0.711***	0.787***	
	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)	
Covariates	X	✓	✓	X	✓	✓
Moran eigenvectors	X	X	✓	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓	✓
Entropy balancing	X	X	✓	✓	✓	X
Spatial lags	X	X	X	X	X	✓

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A7: Closeness to a high-repression area, 3 facilities

DV: Number of severe injuries from a locality				
	(1)	(2)	(3)	(4)
Gulag facility	5.662**	2.074***		
	(0.053)	(0.002)		
Gulag facility (fitted)			6.52**	2.251**
			(0.046)	(0.042)
Closeness to high-repression area	-0.254	0.097	-0.274	0.091
	(0.460)	(0.361)	(0.433)	(0.404)
Covariates	X	✓	X	✓
N.	3181	3180	3180	3180

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A8: Closeness to a high-repression area, 2 facilities

DV: Number of severe injuries from a locality				
	(1)	(2)	(3)	(4)
Gulag facility	5.619**	2.069***		
	(0.053)	(0.002)		
Gulag facility (fitted)			6.082**	2.427**
			(0.022)	(0.032)
Closeness to high-repression area	-1.091	-0.489	-1.089	-0.489*
	(0.309)	(0.101)	(0.308)	(0.098)
Covariates	X	✓	X	✓
N.	3181	3180	3180	3180

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A9: Closeness to a high-repression area, 5 facilities

DV: Number of severe injuries from a locality				
	(1)	(2)	(3)	(4)
Gulag facility	5.649**	2.080***		
	(0.053)	(0.003)		
Gulag facility (fitted)			6.368**	2.278**
			(0.041)	(0.047)
Closeness to high-repression area	-0.174	0.105	-0.192	0.099
	(0.492)	(0.453)	(0.453)	(0.473)
Covariates	X	✓	X	✓
N.	3181	3180	3180	3180

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

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Table A10: Exposure to the Gulag and pressure to become a secret police informant

DV: Membership in the Romanian Communist Party			
	(1)	(2)	(3)
Gulag facility	0.000	0.000	0.000
	(0.258)	(0.507)	(0.397)
Covariates	✓	✓	✓
Grid cell FEs	✓	✓	✓
N.	2684	2684	2684

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A11: Robustness check: severity of Securitate presence

DV: Number of severe injuries from a locality (Mean=0.605)			
	(4)	(5)	(6)
Gulag facility	1.882**	1.747*	1.934***
	(0.042)	(0.071)	(0.003)
Covariates	X	✓	✓
Moran eigenvectors	✓	✓	✓
Grid cell FEs	✓	✓	✓
Entropy balancing	✓	✓	X
Spatial lags	X	X	✓
R^2 Adj	0.346	0.303	-
N.	3180	3180	3180
Moran's I	-0.017	-0.008	-
Oster's' δ	1.76	1.78	-

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A12: Alternative IV results

Second stage DV: Number of severe injuries from a locality					
	(1)	(2)	(3)	(4)	(5)
Gulag facility (fitted)	6.332***	2.474**	2.749**	2.207**	2.686**
	(< 0.001)	(0.038)	(0.011)	(0.039)	(0.019)
Covariates	X	✓	✓	✓	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
$N.$	3181	3180	3180	3180	3180
$Cragg - Donald$ F statistic	66.23	66.85	437.33	69.62	69.62

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A13: Number of participants as DV

DV: Number of severe injuries from a locality (Mean=0.605)						
	(1)	(2)	(3)	(4)	(5)	(6)
Gulag facility	5.002***	4.005***	6.645***	2.705**	3.404***	4.002****
	(<0.001)	((<0.001)	(<0.001)	(<0.001))	(<0.001)	(<0.001)
Covariates	X	✓	✓	X	✓	✓
Moran eigenvectors	X	X	✓	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓	✓
Entropy balancing	X	X	✓	✓	✓	X
Spatial lags	X	X	X	X	X	✓
R^2 Adj	0.024	0.320	0.345	0.346	0.303	-
N.	3181	3180	3180	3180	3180	3180

Notes: P-values for clustered standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A14: Results: Selection-on-observables with logged DV

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	0.525***	0.360***	0.327***	0.320***	0.347***
	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A15: Results: Selection-on-observables with Poisson regression

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	2.777***	1.596***	1.495***	1.314***	1.252***
	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A16: Results: Selection-on-observables with negative binomial regression

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	2.777***	1.596***	1.495***	1.314***	1.252***
	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A17: Results: Selection-on-observables with zero inflated negative binomial regression

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	0.556***	0.508***	0.479***	0.476***	0.504***
	(< 0.001)	(< 0.001)	(< 0.001)	(0.008)	(< 0.001)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A18: Results: Selection-on-observables without top and bottom 1% of observations based on severe injuries

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	0.556*** (< 0.001)	0.508*** (< 0.001)	0.479*** (< 0.001)	0.476*** (0.008)	0.504*** (< 0.001)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X
Notes: P-values for Conley standard errors in brackets. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$					

Table A19: Results: Selection-on-observables without top and bottom 2% of observations based on severe injuries

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	0.501*** (< 0.001)	0.469*** (< 0.001)	0.467*** (< 0.001)	0.478*** (< 0.001)	0.491*** (< 0.001)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X
Notes: P-values for Conley standard errors in brackets. $^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$					

Table A20: Results: Selection-on-observables without top and bottom 5% of observations based on severe injuries

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	0.214*** (< 0.001)	0.209*** (< 0.001)	0.205*** (< 0.001)	0.219*** (< 0.001)	0.224*** (< 0.001)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A21: Results: Selection-on-observables without top 5% of observations based on severe injuries

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	0.214*** (< 0.001)	0.209*** (< 0.001)	0.205*** (< 0.001)	0.219*** (< 0.001)	0.224*** (< 0.001)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A22: Results: Selection-on-observables without top 2% of observations based on severe injuries

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	0.501***	0.469***	0.467***	0.478***	0.491***
	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)	(< 0.001)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A23: Results: Selection-on-observables without Bucharest

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	2.742***	1.876***	1.610**	1.511**	1.779***
	(< 0.001)	(0.003)	(0.010)	(0.015)	(0.008)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A24: Results: Selection-on-observables without Bucharest and Timisoara

DV: Number of severe injuries from a locality (Mean=0.605)

	(1)	(2)	(3)	(4)	(5)
Gulag facility	2.278***	1.562***	1.289**	1.212**	1.453***
	(< 0.001)	(0.003)	(0.013)	(0.018)	(0.008)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A25: Results: Selection-on-observables without Timisoara

DV: Number of severe injuries from a locality (Mean=0.605)

	(1)	(2)	(3)	(4)	(5)
Gulag facility	5.188*	1.903***	1.747**	1.535**	1.795***
	(0.071)	(0.003)	(0.012)	(0.028)	(0.007)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.01$

Table A26: Results: Selection-on-observables with IHS DV

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	0.650*** (< 0.001)	0.453*** (< 0.001)	0.414*** (< 0.001)	0.405*** (< 0.001)	0.438*** (< 0.001)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A27: Results: Selection-on-observables with square root DV

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	0.681*** (< 0.001)	0.395*** (< 0.001)	0.354*** (< 0.001)	0.336*** (< 0.001)	0.378*** (< 0.001)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A28: Placebo Test: First Stage Results for Distance to Nearest Facility

First stage DV: Number of severe injuries from a locality (Subset: No Gulag Facility)					
	(1)	(2)	(3)	(4)	(5)
Distance to facility	0.003	0.004	0.004	0.002	0.002
	(0.118)	(0.185)	(0.319)	(0.641)	(0.689)
Covariates	X	✓	✓	✓	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
N	3181	3180	3180	3180	3180

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$

Table A29: Results: Selection-on-observables with injuries normalized by population density

DV: Number of severe injuries from a locality (Mean=0.605)					
	(1)	(2)	(3)	(4)	(5)
Gulag facility	0.012**	0.012***	0.011**	0.011**	0.011**
	(0.011)	(0.007)	(0.013)	(0.012)	(0.016)
Covariates	X	✓	✓	X	✓
Moran eigenvectors	X	X	✓	✓	✓
Grid cell FEs	X	X	X	✓	✓
Entropy balancing	X	X	✓	✓	✓
Spatial lags	X	X	X	X	X

Notes: P-values for Conley standard errors in brackets.
$^{***}p < 0.01$; $^{**}p < 0.05$; $^{*}p < 0.1$