Online Dissent and On Ground Repression in Belarus (Working Paper - Please do not distribute)

Ishita Gopal

May 30, 2023

Abstract

Online platforms provide an easy way for dissidents to share information and coordinate protests. But the surveillance of communication on these same platforms can provide governments with indications of future destabilizing actions and allow them to plan and implement repression to forestall uprisings. In this paper, I investigate this relationship between online dissent and offline repression to understand the role of government surveillance in Belarus. I collect novel data from 59 large location based protest groups on Telegram over a period of 8 months and create measures of online dissent. I combine this with data on political prosecution from records published by a human rights group in Belarus (Viasna) and information on ground protests from the Armed Conflict Location & Event Data Project (ACLED). I show that online dissent is related to subsequent on ground repression. My paper also provides a framework to analyze data from an understudied but important messaging platform which has seen rapid uptake in recent times especially in authoritarian regimes.

1 Introduction

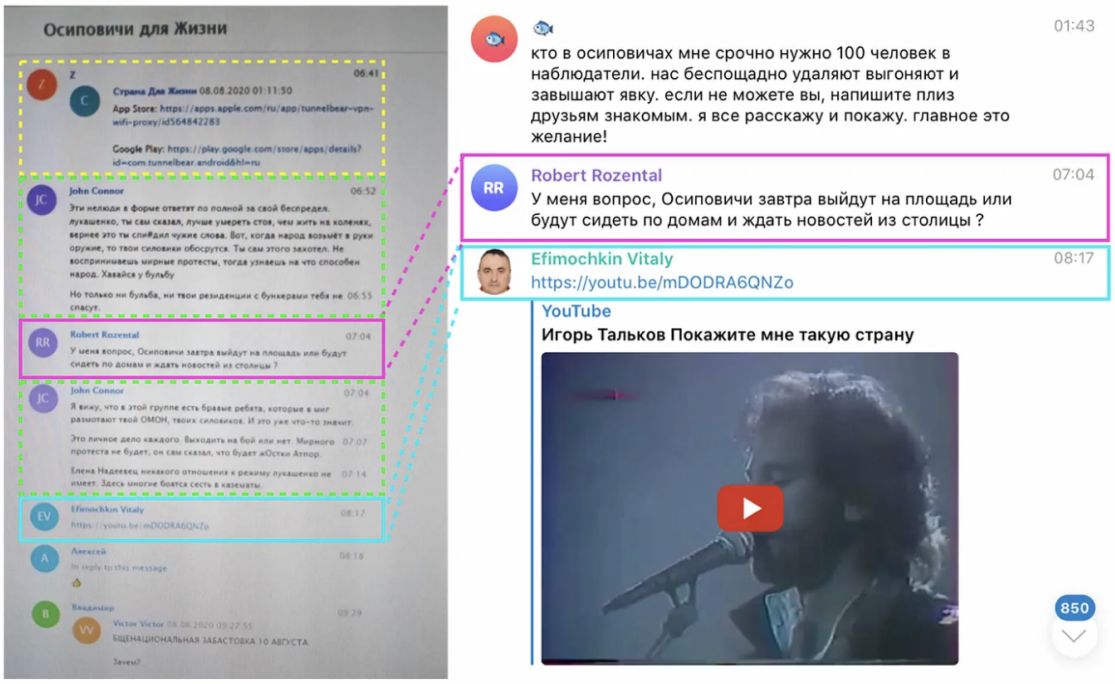
There is robust evidence that information and communication technologies and social media platforms, in particular, have played an important role in helping individuals organize and participate in collective mobilizations in a variety of contexts (Clay Shirky, 2008; Gideon Rachman et al., 2019). Online platforms provide a low cost way for citizens to share information, view collective sentiments/opinions, connect with like minded individuals and coordinate action (Jost et al., 2018). The Arab Springs - which were a series of mass mobilization events that rapidly spread across the Middle Eastern and North African region in 2011 - were intrinsically linked to coordination on social media (specifically Twitter). The success of the movements was seen by the scholarly community as an indication of the power social media holds in propelling democratization (Howard and Hussain, 2013; Hounshell Blake, 2011).

But this euphoria has been dampened by recent literature which provides evidence that the same digital technology which democratized information sharing and facilitated coordination is being used for surveillance and to inform governments' repressive strategies. For example, Dencik, Hintz, and Carey, 2018 provides qualitative accounts of the British police using social media data to make preemptive arrests before know protest days. Gohdes, 2020 shows that the Syrian government uses the level of internet access to choose on ground repression decisions. Along the same lines, Xu, 2020 shows that the expansion of surveillance technologies - Golden Shield systems - in China increased targeted forms of repression. (Poupin, 2021) provides qualitative accounts of the Russian government's repressive responses to online protest activities organized on VKontakte.

I add to this literature and investigate if repression increases following increases in online dissent activity. On the one hand, opposition groups are empowered by publicly available signals of regime dissatisfaction, the intention of individuals to participate in collective action and details of when and where to participate. But this same public information allows for unforeseen levels of surveillance by governments who can use such information to gauge anti-regime sentiments, identify key opponents, predict future protests and subsequently implement physical crackdowns - through arrests, searches, politically-motivated prosecutions etc. Surveillance enables dictators to implement preventive repression to forestall mass uprisings and aids in planning for known mass events in the future. My main hypothesis contends that increased online dissent is predictive of subsequent on ground repression.

To test this idea, I use the case of Belarus during the August 2020-April 2021 protest wave and leverage novel data from a popular messaging platform -Telegram - to investigate the dynamic between online dissent and on ground repression. Large scale protests broke out against the government in

Figure 1: Screenshot of messages from a protest group published by government channels on Telegram (source: article DFRLab (2020))



Comparison of the Osipovicy dlya zhizny chat messages shared by the Pul Pervy channel (left) and the Osipovicy dlya zhizny chat messages as of August 28, 2020. The pink and blue boxes highlight messages that remained on the chat. The green dotted boxes highlight posts by John Connor that were later erased. The yellow dotted box shows another post erased. (Source: Pul Pervy/archive, left; Osipovicy dlya zhizny/archive, right)

Belarus after the incumbent, Alexander Lukashenko, claimed a landslide victory on the 9th of August that is widely believed to have been falsified (Human Rights Watch, 2020). The violent crackdown and censorship immediately following the announcement kick-started a wave of protests which were organized throughout the country. Sundays were used as "focal days" of protest and saw large levels of on ground participation. Smaller scale protests occurred through the week leading up to Sunday. Authorities likely used physical manifestation of protests as well as digital dissent to inform where and how much to repress.

Anecdotal evidence suggests that, social media and in particular, Telegram, played an important role in helping organize the anti-regime demonstrations across the country. Surveys from Belarus show that Telegram was seen as the most trusted news source in the country and 85 percent of respondents who protested in person reported using the app (Herasimenka Aliaksandr et al., 2020). A lot of the communication on the platform was publicly available and there are recorded cases of government surveillance of the platform and subsequent cases of repression. An article by Charter 97% (2020), an independent publication, notes "it quickly became clear that the security forces were reading it (the Telegram chats)" and would detain people, force them to share their phone passwords, delete Telegram chats and/or arrest individuals under the pretext of "participating in /organising mass riots". Similarly, an article by Atlantic Coucil's DFRLab (2020) shows an example where a pro government Telegram channel published screenshots of a messages from an anti-Lukashenka protest chat (used in this analysis) on August 27, 2020 which demeaned Lukashenka and called for violence against regime actors. It is clear that there was surveillance of the platform.

To curb Telegram's use for coordinating protests, the government blacklisted content on the platform and in August 2021 they imposed legal penalties for users who participated in group chats dedicated to organising protests and for subscribing to popular anti-regime publications on the platform(*Belarus: Freedom on the Net 2021 Country Report* 2021). Overall, during this period, the government likely used online communication to identify locations of protests and also used the level of online dissent as an indicator of future participation. Thus both offline and online protests likely increased on ground repression. Given the level of mobilization during the initial period of the protest wave, the government

likely responded to on-ground and online mobilization in a similar manner.

I hypothesize that repression events during this period were a function of both online and offline dissent and *all else equal, I expect that offline repression increased following increases in online opposition activity. Further, given the expected large turnout on Sundays', I expect that the effect of digital dissent on subsequent repression was stronger closer to Sunday.*

To empirically test my argument, I analyze how sub national variation in online dissent activity affect the regime's use of on ground repression, from August 2020 to April 2021. From the onset of the protest wave, digital platforms, especially Telegram, have played an integral role in the opposition's strategy for organising protests and disseminating information regarding on-ground events. I present new data on online dissent activity captured from public group chats on Telegram, dedicated to discussions of protest in Belarus and use it as the main independent variable to predict future repression events. The empirical analysis will account for a range of important confounders to explore this relationship.

2 About Telegram and its use in Belarus

Telegram is a messaging platform which has become very popular for organizing protests in a variety of contexts - Russia, Hong Kong, Iran. The growing importance of this app has inspired a recent focus on this platform. For example, Gabowitsch (2021) and Wijermars and Lokot (2022) provide a qualitative analysis of Telegram's use during the 2020 Belarusian protest movement. Stokols (2022) catalogues the "spaciality" of the 2019 Hong Kong protests and shows that Telegram facilitated where protests occur, from centrally located civic spaces to everyday spaces like, malls, offices, and industrial buildings. Urman, Ho, and Katz (2021) also analyze the 2019 Hong Kong protests and to study the information environment on Telegram. They show that the protest network was cohesive, with diverse leaders and the platform was mostly used to discuss future protest actions and to share information on the on-ground situation. Mateo, 2022 uses information about the presence or absence of a Telegram group chat to study if pre-existing social networks influenced subsequent protest mobilization in the first week of the 2020 Belarusian protest wave. Despite the growing literature, studies which analyze data from Telegram remain limited in the social sciences and most of the research at the intersection of social media and contentious politics rely on data from Twitter or Facebook.

From the affordance perspective, the app provides one-to-one messaging, one-to-many messaging ("channels") [1] and many-to-many messaging (group chats). Part of its appeal is that it is difficult to censor the platform. Even in Belarus, it was one of the few places which remained accessible (at least, partially) during the 61 hours of internet censorship implemented by the government following the announcement of elections results. In addition, founders of Telegram have denied multiple governments' access to user data in the past, which has created an image of trust when compared to other platforms. The design of the platform is conducive for coordination. For example, individuals can create group chats on a particular topic and these groups can hold as many as 200,000 members. The groups can be public or private. If a group is public, anyone can join and follow the activities in it and participate in the conversation by creating posts themselves.

With the onset of protests in Belarus, the government successfully blocked access to more than 70 websites, including at least 25 media sites and 25 political sites by 20th August (Freedom House, 2021). As a result, many of the independent sources of information diversified dissemination, especially through Telegram (Freedom House, 2021). It is also notable that opposition channels and group chats saw a large growth in subscribers/members while government channels were not as popular on the platform. (Belarus's most popular channel Nexta had close to a million subscribers). Some have noted that the platform, at least during the period, was largely opposition led, with small government presence Mateo, 2022.While of course by no means representative, given anecdotal evidence, Telegram likely provides the best real-time behavioral measures of the salience of political and protest topics in the country. And these measures may have been used by authorities to inform subsequent repression.

3 Data and District-level Empirical Approach

I use information on online dissent and on ground repression from different districts in Belarus.

[1] Channels are similar to broadcasting pages like, Facebook pages and those who follow a page are called "subscribers"

3.1 Dependent Variable

My measure of on ground repression comes from data collected and made available by Viasna Human Rights Group. They provide details on political prisoners and also record less severe repressive "incidents" which include short-term detentions, arrests, and searches. [2] I test my arguments using both these measures. I aggregate these two measures to a daily level to create a daily counts of repression and also use a binary version of the variable where 1 indicates that there was repression in district i at time t and 0, otherwise.

3.2 Main independent variable

My main independent variable is the daily count of online dissent messages on Telegram in different regions. This measure of online activity is constructed using data from large location based group chats which were dedicated for discussing protests during this period. I use the districts for which I was reliably able to identify protest groups in my analysis. Telegram does not provide location metadata of individual users who have posted in the group for privacy reasons. However, I am able to identify the location of the group itself. The protest group chats associated with different regions, districts and cities were popular during the protest, enabling me to distinguish between chats from different areas. I manually identified and validated public protest groups associated with each district using multiple sources - comments by experts, chats which had been promoted on NEXTA's channel and a list of banned "extremist" channels/groups identified by the government in 2021 [3]. I only include groups where the maximum number of group members were larger than 1000. This resulted in identifying 59 groups. After identifying these public protest groups I used Telegram's API to download all the posts from the time each group was created. I next aggregated the number of messages sent to a district-daily count and use a logged version of the count in my model.

While it is not possible to contend that the chats capture the universe of online dissent in Belarus, these were some of the largest groups used for organisation according to anecdotal evidence, so they likely provide the best measures of online activity on average. Although, it is important to note that since the data was collected post the events, many of the groups were deleted, could not be found or had a lot of missing data (possibly a result of deleting messages). Further, even though the ability to make anonymous accounts may have encouraged users to post more freely, there may be instances where messages were subsequently deleted. Telegram provides the id of all the messages posted in a group (the first message in a group will have an id of 1, the 1000th message 1000 and so on.) and gaps in ids would indicate deleted messages. I am currently analyzing missing daily ids to determine if there are certain days where there were significantly high deleted messages.

3.3 Controls

A number of controls are required to reliably test the my argument.

On ground protest: The main confounding variable in my study is on-ground protest intensity. Whether the government increases repression at a given time, in a given area, is likely very dependent on the size of protests on ground. Repression likely increases in response to large mobilizations. To account for this, and to separate out the effect of online dissent on repression from the effect of on-ground dissent on repression, I control for on-ground protest intensity. For this, I rely on data collected by ACLED and construct a daily measure of on ground protest size for each region under consideration [4]. Accurately capturing the number of people on ground is a difficult task and estimates can be very biased. Studies usually use categorical variables to represent protest size to overcome this issue Wallace, Zepeda-Millán, and Jones-Correa, 2014; Klein and Regan, 2018. I too adopt this strategy and instead of using the raw participant estimates as continuous measures, I use two categorical variables which represent indicators of large and small protests in a location-day similar to the strategy adopted by Wallace, Zepeda-Millán, and Jones-Correa, 2014, where large implies protests with size over 1 thousand participants. I also include a measure of the overall protest intensity in the country to control for overall level of daily on-ground conflict in the country.

[2] The database was collected using web-scraping. While the information on political prisoners is available in English, the "incidents" database is in Belarusian/Russian and was translated to English.

[3] an indirect indicator of the chat's importance in the movement

[4] Although ACLED likely does not record all on ground protest activity, it provides the widest coverage of protest events across the country when compared to Integrated Crisis Early Warning System (ICEWS) project. Another potential database - Mass Mobilization in Autocracies Database(MMAD) - does not currently cover the period under consideration, so ACLED provides the best data available

Focal days: Next, the level of repression overtime also likely correlate to how near or far a salient protest day is. Focal days are known to reduce coordination problem amongst protesters (Truex, 2019; Ketchley and Barrie, 2020) and during the Belarusian protest wave, large protests were planned for Sundays and saw higher on ground participation when compared to other days of the week. The government likely increased repression on days closer to and during focal days. I create an binary indicator for days including or shortly preceding the focal day (Sunday). I test different windows of 1, 2, 3 days before a Sunday. The remaining days are coded as 0. I also interact this variable with the measure of online dissent to investigate if online activity relates to the variation in repression intensity prior to focal events.

Other variables: I use a fixed effects regression model to account for time invariant factors which may impact repression across districts. This allows me to control for things like - weather a it is a Minsk or non-Minsk district as protests were much more likely to occur in the capital. Similarly, protests are more likely to occur in regions with larger populations (Fearon and Laitin 2003). This likely influences both the government's willingness to surviel and the level of repression they use and to account for it. I account for this in my analysis. Fixed effects also allows me to control for the pre-existing political preferences of the district population which are likely to change very slowly and may be considered time-invariant. I also control for the time since the protest wave started since research finds that repression increases if protests continue over a longer periods of time.

Since I am interested in investigating if online dissent predicts offline repression, I model the number of repression events in a district i at time t and use the volume of online dissent messages in a Telegram group chat in a district i at time t-1, controlling for the variables mentioned above.

4 Descriptive Statistics

Table 2 shows examples of district chats, the maximum number of subscribers these Telegram groups had and the population of the largest cities in the district. Table 1 shows total number of online posts, total number of protest group chats, total number of small/large protests and repression between August 2020 and April 2021 in all the districts I use in my analysis. The district of Minsk experienced the highest amount of repression and also had the highest volume of online messages and on ground protests. It also has the highest number of group chats - 20 - while for the others, I was only able to identify 1 or 2 large group chats. The relationship between repression and other variables does not seem as straight forward for others. For example, the district of Smalyavichy had much lower levels of online and on-ground ground protest but has the second highest repression count.

The plots depict the Telegram post volume, the count of repression and indicator of on ground protest across time and across all the districts in the analyses.

Table 1: City/district information and associated chat group

City name	District Name	Region Name	City Population	Chat name (max subscribers)
Minsk	Minsk	Minsk	1742124	minsk97pro (54K)
Gomel	Gomel	Gomel	480951	gomel97pro (15k)
Mahilyow	Mogilev	Mogilev	369200	mogilev97pro (14K)
Vitebsk	Vitebsk	Vitebsk	342700	vitebsk97pro (13K)
Hrodna	Grodno	Grodno	317365	grodno97pro (27K)
Brest	Brest	Brest	300715	brest97pro. (17K)
Babruysk	Babruysk	Mogilev	220517	bobruisk97pro (9K)
Baranovichi	Baranavichy	Brest	168772	baranovichi97pro (8K)
Barysaw	Barysaw	Minsk	143919	borisov97pro (7K)
Pinsk	Pinsk	Brest	130777	pinsk97pro (6K), pinskstrana (9K)
Orsha	Orsha	Vitebsk	125347	orsha97pro (4K)
Mazyr	Mazyr	Gomel	112137	mozyr97pro (7.5K)
Navapolatsk	Polatsk	Vitebsk	108000	npolotsk97 (9K)
Lida	Lida	Grodno	102700	lida97pro (5.5k)
Salihorsk	Salihorsk	Minsk	101614	soligorsk_gorod (6.5k)
Maladziecna	Maladzyechna	Minsk	101300	molodechnostrana_chat (9k)
Polatsk	Polatsk	Vitebsk	82258	npolotsk97(9k)
Zhlobin	Zhlobin	Gomel	73089	zhlobin_chat1 (6K)
Svyetlahorsk	Svyetlahorsk	Gomel	71250	Svetlogorskchat (3.5K)

Table 2: Total number of Telegram posts, Group chats, Protest events and Repression Incidents across districts (August 2020 - April 2021)

District Name	Telegram posts	Group chats	Small protests	Large protests	Repressed
Minsk	1025549	20	178	51	16097
Smalyavichy	64082	2	25	2	1602
Brest	154366	2	93	9	755
Grodno	239357	2	126	12	564
Gomel	137499	2	84	11	387
Vitebsk	90121	2	90	3	291
Maladzyechna	109758	2	44	0	281
Polotsk	105604	2	82	0	136
Barysaw	36253	1	90	0	123
Salihorsk	97720	2	40	3	114
Mazyr	60048	3	20	0	100
Pinsk	113986	2	12	1	87
Svietlahorsk	52499	1	24	0	75
Orsha	31852	1	17	1	71
Zhlobin	60320	1	11	2	67
Baranavichy	42186	1	43	4	65
Lida	115990	2	83	3	64
Navahrudak	10372	1	31	0	58
Slonim	25271	1	2	0	26
Pastavy	19316	1	2	0	22
Horki	21695	1	6	0	20
Byaroza	8833	1	8	0	17
Asipovichy	31399	1	5	0	6
Zhabinka	21873	1	15	0	6
Pukhavichy	38611	1	1	0	5
Masty	16497	1	0	0	4
Dobrush	8542	1	0	0	1
Ashmyany	18871	1	3	0	1

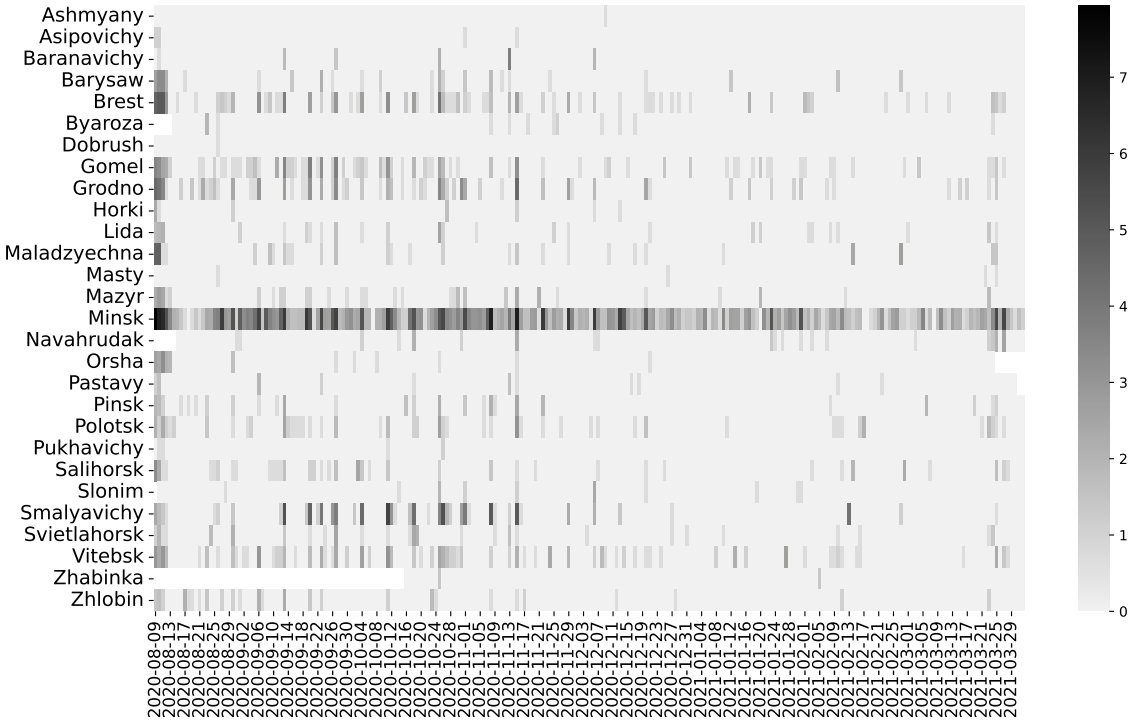


Figure 2: Heatmap of Log(Repression Count) by Date and District

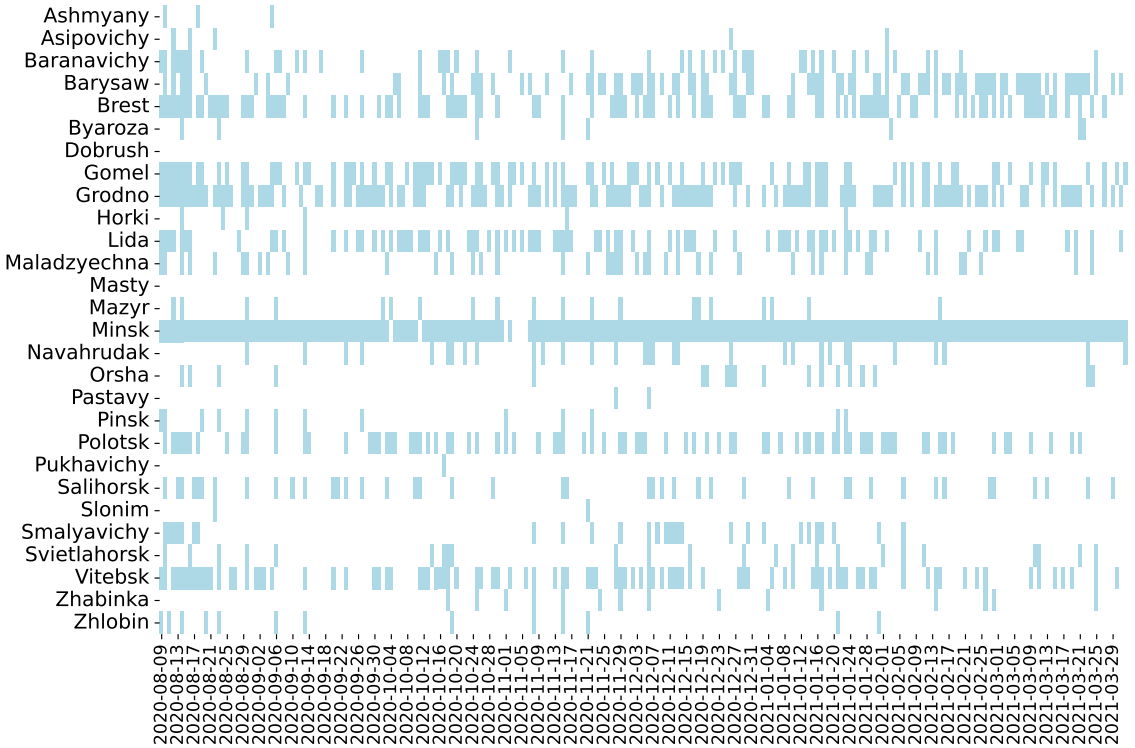


Figure 3: Heatmap showing if there is a protest (small or large) by Date and District

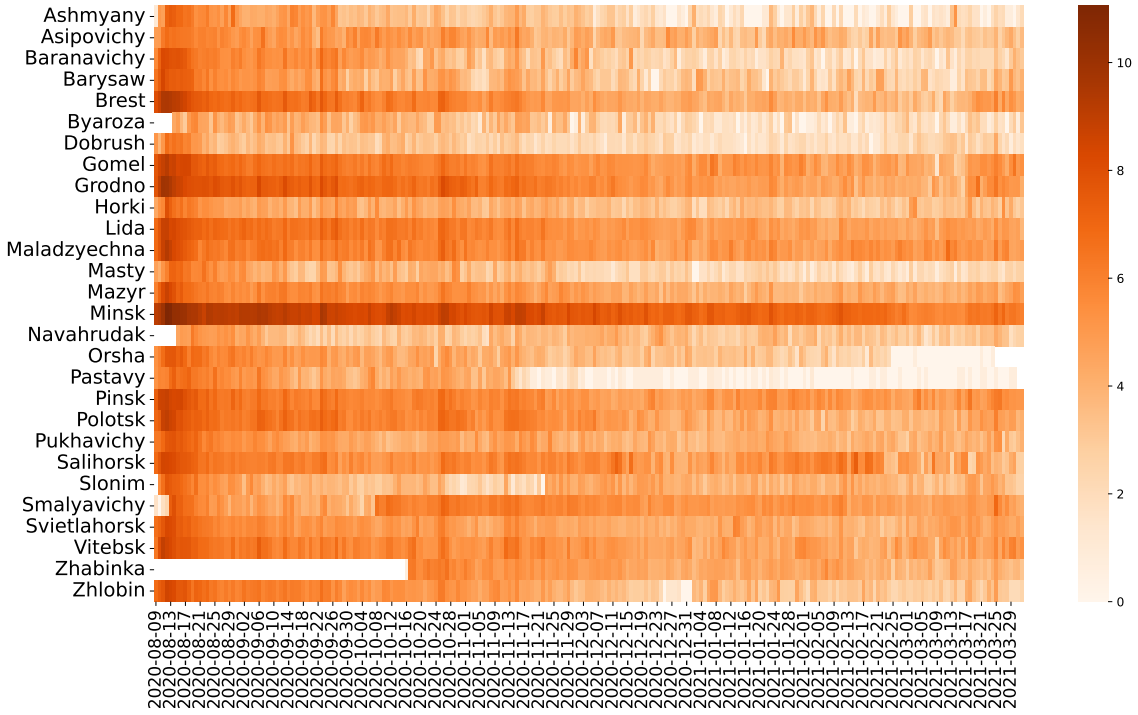


Figure 4: Heatmap showing Log(Number of Messages) by Date and District

5 Regression Analysis

I fit different versions of this basic model for my analysis:

$$Repression_{it} = \beta_1 * OnlineDissent_{it-1} + \beta * X_{it} + \varepsilon_i \quad (1)$$

Where Online Dissent represents the different versions of the main independent variable of interest in each model, X represents a series of controls, and is a stochastic error term. The variable online dissent on the right hand side is lagged by one day to mitigate any simultaneity effects as repression on day t can also increase the volume of online dissent on day t. This is not as much a concern for the reciprocal relationship between on ground protest and repression. While repression can certainly increase subsequent on ground protests, there is likely a lag and a smaller possibility for instantaneous effect that may culminate in protests on the same day. I also estimate a model where all right hand side variables are lagged and the results remain robust to this specification. All models include district fixed effects but no day fixed effects, as the latter bias the errors and lead to underestimates of repression. Finally, all models are run with country-clustered standard errors.

I estimate panel data models using the binary and logged count version of the dependent variable (repression in district i at time t). The results are displayed in Table 3. As can be seen from the analysis, my models confirm the expectations for the positive relationship between online dissent and government repression the next day. The volume of posts, which is used as a measure of online dissent, positively relates to repression the next day. And these results are statistically significant across all models. I present models with one day lagged post volume as well as one day lagged moving averages of post volume over a 3 and 5 day moving windows. There is also statistically significant correlation between on ground protests and subsequent repression and the effect size of online dissent is smaller than the effect size of on ground protests. The effect size of large protests and small protests are very close. This is interesting and indicates that small protests have a similar relationship with subsequent repression to large protests. The measure of total protests in the country also has a statistically significant correlation with repression the next day. But results are not statistically significant for regional and district level protests. Further, the effect of being close to a focal day is also statistically significant in almost all models.

Table 3: Relationship between Online Dissent and On Ground Repression

	Dependent variable:						
	Repression$_t$						
	Binary	Binary	Binary	Binary	Binary	Log(Count)	Log(Count)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Log(Post Vol)$_{district,t-1}$	0.02***						
	(0.01)						
Log(3-day MA Post Vol)$_{district,t-1}$		0.02***	0.02***			0.03***	
		(0.01)	(0.01)			(0.01)	
Log(5-day MA Post Vol)$_{district,t-1}$				0.02***	0.03***		0.03***
				(0.01)	(0.01)		(0.01)
Large Protest$_{district,t}$	0.12***	0.11***	0.07*	0.11***	0.07*	0.95***	0.95***
	(0.03)	(0.03)	(0.04)	(0.04)	(0.04)	(0.25)	(0.25)
Small Protest$_{district,t}$	0.12***	0.11***	0.09***	0.11***	0.09***	0.09**	0.09**
	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.04)	(0.04)
Focal Days$_t$	0.04***	0.05***	0.01	0.05***	0.01	0.02*	0.02*
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Total Protests$_{region,t}$			−0.01		−0.01	−0.02	−0.02
			(0.01)		(0.01)	(0.02)	(0.02)
Total Protests$_{country,t}$			0.01***		0.01***	0.03***	0.03***
			(0.002)		(0.002)	(0.01)	(0.01)
Recent Protests$_{district}$			0.003		0.003	−0.01	−0.01
			(0.005)		(0.005)	(0.01)	(0.01)
Recent Protests$_{region}$			−0.004*		−0.004*	−0.01	−0.01
			(0.002)		(0.002)	(0.01)	(0.01)
Recent Protests$_{country}$			−0.003***		−0.003***	−0.01***	−0.01***
			(0.001)		(0.001)	(0.002)	(0.002)
Binary DV$_{district,t-1}$	0.15***	0.12***	0.11***	0.11***	0.11***		
	(0.02)	(0.02)	(0.02)	(0.02)	(0.02)		
Log(Count DV)$_{district,t-1}$						0.14***	0.14***
						(0.03)	(0.03)

Notes: *p<0.1; **p<0.05; ***p<0.01. All models include district fixed effects with standard errors clustered at the district level. Post Vol=Volume of Telegram posts, these are logged and lagged by 1 day. MA=Moving Average. The Large Protest and Small Protest are binary indicators. Large protests are defined as those where participants were greater than 1000 participants. Focal Days is a binary variable which is = 1 for Sunday and 2 days before it and 0 otherwise. Recent Protests = Total count of protests in the last 5 days and is a measure of protest event density.

6 Ongoing work - Text Classification

I am currently building a text classification model to improve the measure of online dissent. The process involved translating the messages collected from Telegram to English using an open source Neural Machine Translation framework - MarianMTModel - which has been developed by researchers at the University of Helsinki. I am subsequently using zero shot text classification models to identify discussions of protest from the translated Telegram posts. Using the volume of posts which specifically talk about protests will provide a more precise measure of dissent. I anticipate to complete this work and add to the analyses by mid June.

7 Conclusion

This article presents original data collected from an understudied but important messaging/social media platform -Telegram- and tests hypothesis around digital dissent, surveillance and repression. Telegram is an understudied messaging platform that has been extensively used to organize collective actions in contexts as different as Iran, Hong Kong, Russia, Belarus and Ukraine. Yet, there are not many studies at the intersection of social media and contentious politics that have looked beyond Twitter and Facebook. My paper provides a framework to collect and analyze data from this platform, while testing hypotheses around government surveillance. It joins a growing body of research on the impact of information and communication technologies on state repression. The analysis presented in this paper studies a large-scale protest wave in Belarus that lasted almost a year and saw participation exceeding, at times, hundreds of thousands of individuals. It highlights a number of interesting findings, and shows that increased dissent in online networks is associated with increased subsequent on ground repression. Although, on ground protests and known focal days hold a stronger relationship with subsequent levels of repression. This makes sense given that known focal days allow governments to prepare for dissent in advance. The findings from this study are likely applicable across different contexts as surveillance becomes increasingly widespread across the world. Future studies may replicate such analysis in different countries and examine how online dissent networks impact repression beyond periods of large mass mobilizations. Further, as repressive governments adapt their tactics to control destabilizing citizen actions, it is likely that the role of digital technologies in aiding surveillance will become stronger. It will be interesting to observe how this relationship changes overtime and how the opposition changes behavior and tactics to overcome these developments.

References

[1] *Belarus: Freedom on the Net 2021 Country Report*. Tech. rep. 2021. URL: https://freedomhouse.org/country/belarus/freedom-net/2021.

[2] Charter 97%. *How Belarusians United with the Help of Courtyard Chats - Belarusian News - Charter'97*. 2020. URL: https://charter97.org/en/news/2021/8/12/432903/.

[3] Clay Shirky. *Here Comes Everybody: The Power of Organizing Without Organizations - Clay Shirky - Google Books*. Penguin, 2008. URL: https://books.google.com/books?hl=en&lr=&id=mafZyckH_bAC&oi=fnd&pg=PA1&dq=Shirky+C+(2008)+Here+Comes+Everybody:+The+Power+of+Organizing+Without+Organizations.+New+York,+NY:+The+Penguin+Press.&ots=HLh7dIOAE4&sig=yO7-mlAJp6a4eK359yWI5eNw3IE#v=onepage&q&f=fa.

[4] Lina Dencik, Arne Hintz, and Zoe Carey. "Prediction, pre-emption and limits to dissent: Social media and big data uses for policing protests in the United Kingdom". In: *New Media and Society* 20.4 (2018), pp. 1433–1450. ISSN: 14617315. DOI: 10.1177/1461444817697722.

[5] DFRLab. *Pro-Lukashenka Telegram channels amplify disinformation*. 2020. URL: https://medium.com/dfrlab/pro-lukashenka-telegram-channels-amplify-disinformation-2f3b0cf0a140.

[6] Freedom House. *Venezuela: Freedom in the World 2021 Country Report*. Tech. rep. 2021. URL: https://freedomhouse.org/country/venezuela/freedom-world/2021.

[7] Mischa Gabowitsch. "Belarusian Protest: Regimes of Engagement and Coordination". In: *Slavic Review* 80.1 (Mar. 2021), pp. 27–37. ISSN: 0037-6779. DOI: 10.1017/SLR.2021.28. URL: https://www.cambridge.org/core/journals/slavic-review/article/belarusian-protest-regimes-of-engagement-and-coordination/603D9B0E78348698AB2E4F6475DFB66B.

[8] Gideon Rachman et al. *Leaderless rebellion: how social media enables global protests*. Oct. 2019. URL: https://www.ft.com/content/19dc5dfe-f67b-11e9-a79c-bc9acae3b654.

[9] Anita R. Gohdes. "Repression Technology: Internet Accessibility and State Violence". In: *American Journal of Political Science* (Feb. 2020), ajps.12509. ISSN: 0092-5853. DOI: 10.1111/ajps.12509. URL: https://onlinelibrary.wiley.com/doi/abs/10.1111/ajps.12509.

[10] Herasimenka Aliaksandr et al. *There's more to Belarus's 'Telegram Revolution' than a cellphone app*. Sept. 2020. URL: https://www.washingtonpost.com/politics/2020/09/11/theres-more-belaruss-telegram-revolution-than-cellphone-app/.

[11] Hounshell Blake. *The Revolution Will Be Tweeted – Foreign Policy*. 2011. URL: https://foreignpolicy.com/2011/06/20/the-revolution-will-be-tweeted/.

[12] Philip N Howard and Muzammil M Hussain. *Democracy's Fourth Wave? Digital Media and the Arab Spring*. Oxford University Press, 2013. URL: http://deepblue.lib.umich.edu/handle/2027.42/117564.

[13] Human Rights Watch. *Belarus: Violence, Abuse in Response to Election Protests — Human Rights Watch*. 2020. URL: https://www.hrw.org/news/2020/08/11/belarus-violence-abuse-response-election-protests.

[14] John T. Jost et al. "How Social Media Facilitates Political Protest: Information, Motivation, and Social Networks". In: *Political Psychology* 39.3 (2018), pp. 85–118. ISSN: 14679221. DOI: 10.1111/pops.12478.

[15] Neil Ketchley and Christopher Barrie. "TRENDS: Fridays of Revolution: Focal Days and Mass Protest in Egypt and Tunisia". In: *Political Research Quarterly* 73.2 (2020), pp. 308–324. ISSN: 1938274X. DOI: 10.1177/1065912919893463.

[16] Graig R. Klein and Patrick M. Regan. "Dynamics of Political Protests". In: *International Organization* 72.2 (2018), pp. 485–521. ISSN: 15315088. DOI: 10.1017/S0020818318000061.

[17] Emma Mateo. ""All of Belarus has come out onto the streets": exploring nationwide protest and the role of pre-existing social networks". In: *Post-Soviet Affairs* 38.1-2 (2022), pp. 26–42. ISSN: 1060586X. DOI: 10.1080/1060586X.2022.2026127. URL: https://doi.org/10.1080/1060586X.2022.2026127.

[18] Perrine Poupin. "View of Social media and state repression: The case of VKontakte and the anti-garbage protest in Shies, in Far Northern Russia". In: *First Monday* (2021). URL: https://journals.uic.edu/ojs/index.php/fm/article/view/11711/10135.

[19] Andrew Stokols. "From the square to the shopping mall: new social media, state surveillance, and the evolving geographies of urban protest". In: *https://doi.org/10.1080/02723638.2022.2056366* (2022). ISSN: 02723638. DOI: 10.1080/02723638.2022.2056366. URL: https://www.tandfonline.com/doi/abs/10.1080/02723638.2022.2056366.

[20] Rory Truex. "Focal Points, Dissident Calendars, and Preemptive Repression". In: *Journal of Conflict Resolution* 63.4 (2019), pp. 1032–1052. ISSN: 15528766. DOI: 10.1177/0022002718770520.

[21] Aleksandra Urman, Justin Chun Ting Ho, and Stefan Katz. "Analyzing protest mobilization on Telegram: The case of 2019 Anti-Extradition Bill movement in Hong Kong". In: *PLOS ONE* 16.10 (Oct. 2021), e0256675. ISSN: 1932-6203. DOI: 10.1371/JOURNAL.PONE.0256675. URL: https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0256675.

[22] Sophia J. Wallace, Chris Zepeda-Millán, and Michael Jones-Correa. "Spatial and Temporal Proximity: Examining the Effects of Protests on Political Attitudes". In: *American Journal of Political Science* 58.2 (2014), pp. 433–448. ISSN: 15405907. DOI: 10.1111/ajps.12060.

[23] Mariëlle Wijermars and Tetyana Lokot. "Is Telegram a "harbinger of freedom"? The performance, practices, and perception of platforms as political actors in authoritarian states". In: *Post-Soviet Affairs* 38.1-2 (2022), pp. 125–145. ISSN: 1060586X. DOI: 10.1080/1060586X.2022.2030645. URL: https://doi.org/10.1080/1060586X.2022.2030645.

[24] Xu Xu. "To Repress or to Co-opt? Authoritarian Control in the Age of Digital Surveillance". In: *American Journal of Political Science* 00.00 (2020), pp. 1–17. ISSN: 15405907. DOI: 10.1111/ajps.12514.

Daily Log(Volume of Messages) across 28 districts between August 9th - 1st April.
(Volume = sum of number of message across different group chats within a district)