Authoritarian Surveillance and Public Support for Digital Governance Solutions

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Abstract

What factors determine support for digital governance solutions? And do autocracies differ from democracies in the way the population evaluates digitization initiatives by the state? Building on previous studies, we hypothesize that gaps in the quality of public services and information asymmetry between the government and the population increase support, while exposure to information about potential abuse of such tools by the state reduces support. We conducted a survey experiment with 2462 respondents in Russia and complemented it with four survey experiments of 1000 respondents each in Germany, Turkey, the United States and Estonia. We find strong and consistent evidence that knowledge about the potential misuse of digital governance solutions reduces support, irrespective of the type of political regime. Citizens who mostly rely on government-controlled information are more likely to support the introduction of digital governance tools. Contrary to previous studies, we do not find that gaps in the quality of public services increase support. Instead, respondents who are satisfied with the services provided by the state also seem to trust the government with introducing a digital governance solution.

Keywords: Digitization, big data, surveillance, survey experiment, digital authoritarianism, digital governance solutions

JEL: H56, H83, K42, O35, O57, P52

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1 Introduction

Contemporary autocrats face a substantial dilemma when it comes to administering a modern state. On the one hand, it lies in the nature of authoritarian regimes to prevent political change and ensure political control (Svolik 2012). In order to achieve these objectives, dictators often weaken or dismantle existing institutions such as an independent press or judiciary, which could act as a counterweight to the regime (Brewer-Carias 2010; Aleksashenko 2018; Bugaric 2019; Tahiroglu 2020). On the other hand, authoritarian regimes must manage increasingly complex societies and economies in order to compete in a global system characterized by rapid economic and technological change. Managing a modern economy requires efficient institutions that can independently decide on a wide range of issues to prevent antisocial behavior and enforce legal rules.

How to solve this dilemma? One answer could be so-called *digital governance solutions* (DGS), i.e. systems that use digital technologies, artificial intelligence and big data to enforce existing legal rules, but also hold the potential for authoritarian surveillance and control. As Jee (2022) argues, such systems can be superimposed on existing institutions in a process she calls *institutional proliferation*. Autocrats thus do not need to reform or strengthen existing institutions but can add an additional layer of new institutions to the existing system. The best-known example of such a system to date are the various versions of a *social credit system* (SCS) that have been introduced in China in recent years (see e.g. Backer (2019) or Kostka (2019)), although other countries are introducing similar systems as well (Engvall and Flak 2022; Manoharan et al. 2022; Peters et al. 2022). During the next couple of years, the use of novel digital technologies for both public administration and authoritarian control could thus become a game changer in the way we think about modern authoritarian states.

Even strongly entrenched autocracies need the support of the population to make digital governance solutions work, however. Despite sophisticated methods of controlling information, citizens may become aware of government propaganda and the use of digital technologies for repression, and adjust their behavior accordingly (Roberts 2020). In the case of digital governance solutions, this could lead to citizens boycotting or subverting the system, rendering it less efficient. In addition, if repression becomes too visible, it could trigger public backlash, as happened for example when new lockdowns caused large-scale protests in China in November 2022, forcing the Chinese government to back down on its Covid policy.

Understanding the determinants of public support for digital governance solutions is thus crucial to evaluate their potential future role in autocratic states. For now, this question has only been studied for the Chinese context, where Kostka (2019) identify high rates of approval for SCSs, as citizens see them as a tool to improve the quality of life and fill institutional gaps, rather than as a mechanism of authoritarian control. Once Chinese citizens learn about the repressive potential of the new technology, their approval is significantly reduced (Xu et al. 2022).

To see if these results also hold in other authoritarian states, we investigate the question for an autocracy where digital governance solutions might play an equally important role in the future, the Russian Federation. We use a between-subjects computer-assisted telephone interviewing (CATI) experiment conducted in October 2022 in Russia (N = 2,462), to investigate how information about the repressive potential of a digital governance solution affects approval for the system. As a robustness-check and to better understand the effect

of political regime type on public support, we complement our study with evidence from four additional online survey experiments (N = 1,000 each) in four countries that are in the process of introducing digital governance solutions and that feature different levels of political competitiveness, namely Estonia, Germany, the United States and Turkey.

We find that 70.1% of respondents in Russia approve of the introduction of a digital governance solution that increases bureaucratic efficiency and contains some punitive legal capabilities, a number slightly lower than the 80% identified by Kostka (2019) for China. Once Russian citizens are specifically reminded that the system can be used to identify and prosecute political dissent, support drops by almost 25% to 45.9%. Looking at the mechanisms behind our findings, we show that citizens who generally approve of the government and consume information mainly from state-controlled media are more likely to be in favor of introducing a digital governance solution, linking our results to the literature on media effects in autocracies (Adena et al. 2015; Peisakhin and Rozenas 2018; Enikolopov et al. 2022). Other than in China (Kostka 2019), perceived institutional gaps do not seem to influence approval.

Our results for Estonia, Germany, the United States, and Turkey are mostly in line with what we find for Russia, allowing us to reject the hypothesis that political regime type has a significant effect on approval. Approval rates are highest in Estonia (74.8%), followed by Turkey (66.7%), Germany (65.9%), and the US (45.9%) (see table 3). Once citizens are reminded that the system can be used to prosecute political dissent, support drops significantly in all of the countries (with the exception of the US, where the drop is also visible, but not statistically significant). In all four countries, satisfaction with public services significantly *increases* approval of a DGS, refuting the hypothesis that gaps in the quality of public services create a demand for digital governance solutions.

Our results have a number of important implications. First, as in the Chinese context, knowledge about the repressive potential of a digital governance solution can significantly reduce public support for the system. This is important, as even in autocracies public support remains essential for the proper functioning of a DGS.[1] Second, regime legitimacy matters. If citizens trust their government and receive information about the world mainly through state-approved sources, they are significantly more likely to support the introduction of a digital governance solution by the state. Third, contrary to our expectations, frustration with the quality of public services does not increase support for a DGS. On the contrary, citizens who are satisfied with the state and the quality of public services are also more supportive of introducing a DGS. Fourth, we do not find any conclusive evidence that regime type matters for the approval of digital governance solutions. Approval rates were highest in Estonia (a democracy), followed by Russia, Turkey, and Germany (an autocracy, a hybrid regime, and a democracy), with the US (another democracy) being somewhat of an outlier with much lower approval than in the other countries. Finally, our results show that even during the increasingly repressive context of Russia after February 2022, survey results in Russia are not out of line in comparison with other countries, and can arguably still be used to gauge

[1] As politicians in democracies, authoritarian leaders *do* care about regime legitimacy and public approval (Gerschewski 2018), and are concerned about the possibility of backlash and public protests (Buckley et al. 2022), which might deter them from introducing a DGS. In addition, digital platforms such as a DGS need a sufficiently large amount of public support and participation to function properly, as shown for example by the literature on e-participation (Kneuer and Harnisch 2016; Lee and Kim 2018; Toots 2019).

public sentiment in the country.[2]

Our paper is organized as follows. Section 2 shows how our study fits into ongoing debates in the literature, and introduces our theory and hypotheses. Section 3 presents our methodology and data, and section 4 our results. Section 5 discusses the implications of our findings, and section 6 concludes.

2 Literature and Hypotheses

When are citizens in favor of sharing their data with the state? And what factors influence the willingness of citizens to support governance platforms with a data-sharing component? The literature on these questions is extensive, and our paper contributes to a number of ongoing debates.

One branch of the literature studies the trade-off between civil liberties and security. After the terrorist attacks of September 11, 2001, citizens in the United States were significantly more willing to give up certain civil liberties for greater personal security (Davis and Silver 2004; Lewis 2005). Respondents with lower trust in government institutions were less likely to give up their liberties, ceteris paribus (Davis and Silver 2004). Ziller and Helbling (2021) replicate the study for the European context, and expand the space of threats to also include pandemics. They find that public support for surveillance technologies that include data collection and might restrict civil liberties is generally high, but increases when surveillance is targeted at specific threats rather than being indiscriminate, and when a threat is salient. Concerns about privacy reduce support for sharing data with the state.

The Covid pandemic has led to a vast number of studies investigating this trade-off in the context of a global pandemic. Alsan et al. (2020) conduct a global survey with over 550,000 responses in 2020, and find that major crises, such as terrorist attacks and disease outbreaks, can change preferences on the trade-off. However, the results are not uniform and reflect the heterogeneity of different countries and demographic groups. For example, disadvantaged citizens may be less willing to sacrifice their rights because they have fought harder to obtain them in the first place, or because they have comparatively fewer rights and privileges to lose than more advantaged social groups, a result also found in other studies (Davis and Silver 2004; Lewis 2005; Dragu 2011; Dietrich and Crabtree 2019).

Another development linked to the Covid pandemic is the emergence of contact tracing apps, and the trade-off between civil liberties and public health that they entail (Kitchin 2020; Huang et al. 2022). A range of empirical studies has investigated sources of public support for contact tracing apps, and found that lack of information and concerns over privacy lower support (Williams et al. 2021), while crisis perceptions only seem to play a limited role in explaining uptake (Habich-Sobiegalla and Kostka 2022). Habich-Sobiegalla and Kostka (2022) find that citizens in Germany, the US and China are willing to accept contact tracing apps despite concerns about privacy and government surveillance, as long as they perceive them to be efficient. They argue that this might explain higher approval rates in China, where usage of the app was mandatory, thus increasing its efficiency.

The debate about contact tracing apps fits into a larger literature on attitudes toward government surveillance and digital surveillance technologies. When are people concerned

[2]In this, we contribute to the ongoing discussion about survey research in contemporary Russia, see for example Reisinger et al. (2022) and Rosenfeld (2022).

about surveillance by the state? If people trust the government (Trüdinger and Steckermeier 2017; Hillebrand 2021; Liu 2022; Kostka et al. 2023) or the police (Gurinskaya 2020), they seem to be less worried about state surveillance. Surveillance by the state also appears to be better tolerated than digital surveillance by corporations (Steinfeld 2017), with older people being more tolerant of state surveillance, and younger people more tolerant of corporate surveillance (Kalmus et al. 2022). Political views also seem to play a role, with for example US citizens holding libertarian political views being more critical of facial recognition software than those holding right-wing authoritarian views (Peng 2022). Once Peng (2022) informed respondents about potential demographic biases in the technology, however, support dropped among all respondents, irrespective of their political orientation.

In some societies, in particular China, citizens appear to be more tolerant of state surveillance than in others (Kostka 2019; Su et al. 2022; Kostka and Habich-Sobiegalla 2022). The high approval for state surveillance in these societies seems to be due to citizens perceiving digital governance platforms and digital surveillance not as a threat to their privacy and civil liberties, but simply as tools to enhance their convenience and security (Davis and Silver 2004; Kostka 2019; Kostka et al. 2021). Once infringement of privacy is explicitly mentioned, support for digital surveillance drops also in China (Kostka et al. 2023). Positive coverage on state media can also significantly increase public support, especially if citizens use state media as their main source of information (Xu et al. 2022). As the literature on informational autocracies has shown, information control and framing can thus become an important tool to foster public support for specific government policies (Guriev and Treisman 2020, 2022; Rochlitz et al. 2023). One factor that seems to increase support for digital surveillance across societies is fear, for example of terrorist attacks (Matthes et al. 2019; Hillebrand 2021; Yu and Wong 2023; Kaskeleviciute and Matthes 2022). Fear seems to remain an important predictor of approval even among people who do not trust their own government (Vasilopoulos et al. 2023).

The debate about the trade-off between civil liberties on the one hand and security and convenient governance solutions on the other exists both in democracies and autocracies (see for example Zuboff (2019) for a discussion of corporate surveillance in democracies). It is however particularly relevant in authoritarian and hybrid regimes, because of the new possibilities inherent in digital technologies for authoritarian control and repression (Feldstein 2019, 2021; Kendall-Taylor et al. 2020; Strittmatter 2020; Tirole 2021). Here it might well be possible that digital surveillance technologies in combination with big data and artificial intelligence, once in place, could become a powerful tool permitting contemporary dictators to firmly entrench their hold on power. In hybrid regimes and countries that swing between more and less authoritarian forms of government, such as Turkey or Hungary, but also the United States, a well-functioning surveillance infrastructure could play the role of a technological "ratchet effect" – permitting a country to switch from softer to harder authoritarianism but preventing it from eventually switching back and democratizing again. As argued by Kostka (2019), citizens in autocracies or weak democracies could also be more tempted by the promises of digital governance solutions, as they might promise an easy fix to the deficiencies of corrupt state administrations.

It is therefore crucial to understand what factors play a role during the establishment of such technologies in authoritarian states and hybrid regimes, with one of the most important elements being public support for digital surveillance and governance platforms. However,

for the time being, the literature on this question focuses almost exclusively on China (Kostka 2019; Kostka and Antoine 2020; Strittmatter 2020; Kostka and Habich-Sobiegalla 2022; Liu 2022; Yu and Wong 2023; Kostka et al. 2023), even though the phenomenon is relevant in many hybrid regimes and authoritarian states.[3] In our paper, we test these questions for a range of additional countries. Building on the above-cited literature, we derive four distinct hypotheses:

H1: Approval of a DGS remains high as long as citizens are not aware of its repressive potential. However, citizens – even in a relatively repressive autocracy – will reduce their support if treated with information that the new technology can be used for purposes of political repression and control.

H2: Citizens whose main source of information are state-controlled media are more likely to approve of a DGS, as state-controlled media foster both approval of the government and of policies promoted by the government.

H3: In societies where public services suffer from dysfunctionalities (what Kostka (2019) terms "institutional gaps"), public approval of a DGS will be higher, as citizens see it as a tool to make interaction with state administrations more convenient and efficient.

H4: Citizens in democracies are more cautious and sceptical about the introduction of digital governance solutions than citizens in (informational) autocracies (Guriev and Treisman 2020, 2022), as the repressive potential of a DGS is arguably more thoroughly debated in societies with freer media.

3 Data

To test our hypotheses, we conducted a computer-assisted telephone interviewing (CATI) survey experiment with 2,462 respondents in October 2022 in Russia. The survey was pre-registered,[4] and carried out by FOM, a leading Russian sociological and public opinion research organization.[5] Participants were contacted with the help of census data, and a weighting-scheme was applied to make the sample nationally representative. We complemented our survey with four nationally representative online surveys conducted in September 2022 by the German company Bilendi in Estonia, Germany, the USA, and Turkey, with 1,000 respondents each.[6]

The question of whether public opinion polls can still be trusted in the increasingly repressive Russian context has been intensely debated during the last year, with various researchers having a more (Morris 2022, 2023) or less critical view (Pleines 2023; Reisinger et al. 2022; Rosenfeld 2022, 2023; Volkov 2023) of doing survey research in Russia. We believe that surveys are still a valuable tool to gauge public opinion in contemporary Russia. Unlike the Chinese authorities, the Russian government is not controlling what questions can be asked (Rosenfeld 2023). There are also still a large number of public opinion polls

[3] One notable exception is Feldstein (2021), who studies digital repression in Thailand, the Philippines, and Ethiopia.

[4] ttps://www.socialscienceregistry.org/trials/9566

[5] https://fom.ru/

[6] https://www.bilendi.de/

being conducted in Russia every week.[7] Finally, the fact that we find broadly comparable results across all of the five countries we study suggests that public opinion polls can still be used to understand the Russian context – especially with an experimental methodology that permits to test the reaction of the public to a set of randomized treatments.[8]

In all surveys, we use a two-factor between-subjects experiment. Participants were randomly assigned to either a control group or three different treatment conditions. The treatments were exposure to various forms of information about the possible uses of DGS, either in spoken language (CATI) or in written text (online survey). In the following, we now describe the Russian experiment. Slight technical differences between the Russian survey and the other surveys are discussed in Appendix A.4. Appendix A.4.1 provides an English translation of the full text for the Russian survey, and Appendix A.4.2 the English-language version of the full text for the online surveys.

Respondents were presented with a scenario where a digital platform uses data collected from citizens to make interaction with the government more efficient. The *institutional gap* addressed in our scenario is thus inefficient or cumbersome government bureaucracy, a scenario that respondents in all five countries – despite some between-country heterogeneity – can relate to. In addition to rendering governance more efficient, the digital platform is also able to connect data gathered from citizens with data gathered from other sources, such as CCTV cameras. This data can then be used to hold citizens who "violate law and order" accountable.

Our treatment conditions differ with respect to the amount of detail that is used to describe what is meant by "violating law and order". Section A.4 in the Appendix presents our questionnaires and figure 7 in the Appendix presents our control and treatment scenarios for the Russian context. In the no-exposure control condition, we do not explicitly state what *"prosecuting those who violate law and order"* means, with respect to both *prosecution* and *violation of law and order*. In the treatment conditions, different violations of what might be considered *law and order* are specified. The first treatment uses a petty crime – breaking a bench on a playground – as an example of a breach of law and order. In the second treatment, we use "participating in an unauthorized protest" as a proxy for behavior that is illegal but can also be understood as an expression of political dissent.[9] In the third treatment, we follow Xu (2022) and combine both treatments. Across all treatments, the punishment we mention as a consequence of illegal behavior is being excluded from public transport for a period of time.[10]

To ensure that participants are not overwhelmed with information, we introduce the

[7] https://www.themoscowtimes.com/2022/12/06/what-secret-russian-state-polling-tells-us-about-support-for-the-war-a79596

[8] In conducting the same survey in 5 different countries, our paper thus also makes a valuable contribution to the debate about the validity of survey research in authoritarian political contexts.

[9] In the Russian context in particular, "participating in an unauthorized protest" ("uchastvovat v nesankcionirovannom mitinge") has become a synonym of expressing political dissent, as all protest actions against the government have in recent years been forbidden by the authorities, and are therefore "unauthorized".

[10] This comes close to some of the standard sanctions in the Chinese SCS. Similarly, being banned from driving was introduced as a punishment in Russia in early 2023 for not complying with electronic summons to the military over the DGS Gosuslugi (https://www.washingtonpost.com/world/2023/04/11/russia-conscription-military-mobilization-war/).

description of the experimental scenario in two steps. We first introduce the concept of a "unified state digital archive" that will store data about all citizens and has the objective to "increase the efficiency of the government and simplify interaction with citizens" – our digital governance solution. In between, we asked an arbitrary yes/no question to give participants the opportunity to ask comprehension questions if needed. The next question then introduces the possibility that the DGS can also be used for policing and exposes respondents to the four treatment conditions. Questions are being kept as short and easily worded as possible, and answer options for our outcome variables are 4-point Likert scales (*Would definitely approve/Would rather approve/Would rather not approve/Would definitely disapprove*). If respondents do not want to answer a specific question, they have the option to select *don't know/no answer*. In most other cases, we used binary answer options to further reduce complexity and enhance comprehensibility.

Table 1 presents summary statistics for all our variables. Our sample was 55.5% female and 50.7 years old (SD=16.27), on average. We asked participants on a 1 - 4 scale whether they were satisfied with their income (M=2.92, SD=0.82), and about their employment status. From the latter we build a dummy taking the value of 1 if employed, and 0 otherwise (M=0.59, SD=0.49). Participants reported having received education on a scale ranging from 1 - 6 (M=4.45, SD=1.56), living in either urban or suburban areas (M=0.42, SD=0.49), and living specifically in Moscow (M=0.07, SD=0.26). We asked participants about their sources of news consumption, where 42.7% (SD=0.50) reported consuming mainly news from traditional media sources (TV, radio and newspapers), and 37.6% (SD=0.49) mainly from online media, such as news sites, blogs or social media. This distinction is important, as in October 2022, all traditional media sources in Russia were tightly controlled by the state. Online media, on the other hand, remain less tightly controlled, even though state control is increasing here as well. Regarding trust in public institutions, when asked a binary question 78.9% (SD=0.41) reported trusting public services, 77.5% (SD=0.41) had interacted with online government services at least once in the past year, and 83.4% (SD=0.37) thought the country was developing in a good direction, which we use as a proxy for government approval.[11] Using a 1 - 4 scale, we asked participants about the frequency of previous experiences with online digital services (M=2.59, SD=0.99).

4 Results

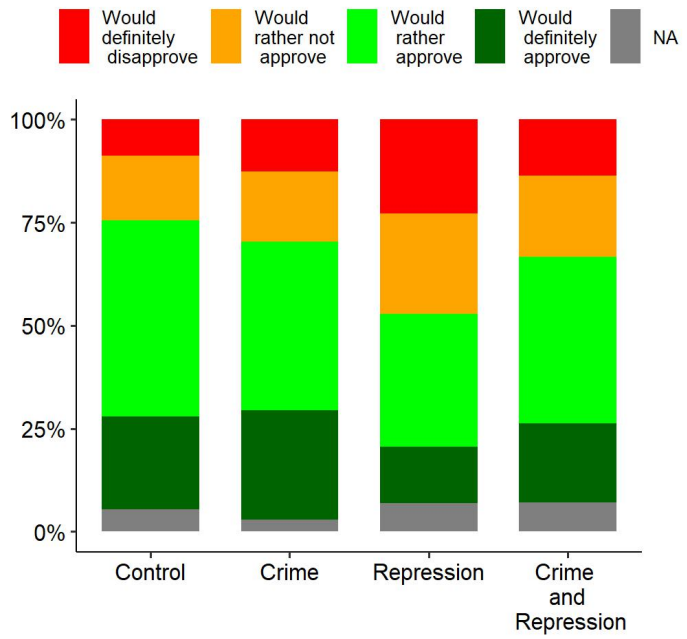
4.1 Survey Experiment Russia

What factors determine public support for a digital governance solution in an autocracy? We start by looking at the descriptive statistics. Figure 1 illustrates the effect of the four treatment conditions on support for a DGS that includes a policing component, and the last column of Table 3 in the Appendix provides summary statistics. Our results show that when the policing component is described in general terms ("find and prosecute those who violate law and order"), 70.1% of respondents support the introduction of a DGS. When respondents are provided with the specific example that "a person who broke a bench on a playground could be banned from public transport" (our *crime* treatment), support slightly

[11] Although 83.4% might seem high, this result is in line with the results of other recent surveys, including studies that use list experiments to test if Russian public opinion polls about government approval reflect the true opinion of the population, see e.g. Frye et al. (2017, 2023).

drops to 67.3%. However, when participants were treated with the *repression* treatment – reminding them that the digital governance solution can be used to identify and prosecute those who participated in "an unauthorized protest" – support decreases by almost 25% to 45.9%. Here it is important to emphasize again that participating in an unauthorized protest, "uchastvovat v nesankcionirovannom mitinge", has become a synonym of political dissent in contemporary Russia, where all anti-government protests are unauthorized. When both treatments are combined, support drops less substantially, to 59.6%, potentially because adding the crime treatment might somewhat lessen respondents' concerns that the policing component of the DGS is mainly aimed at political repression.

Figure 1: Approval for digital governance solutions in Russia



Notes: See Table 3 in the Appendix for the underlying calculation.

In the next step, we use the following linear equation to conduct a multivariate analysis:

$$y_i = \beta_0 + \beta_1 Crime_i + \beta_2 Repression_i + \beta_3 Crime\ and\ Repression_i + X_i + \epsilon_i, \qquad (1)$$

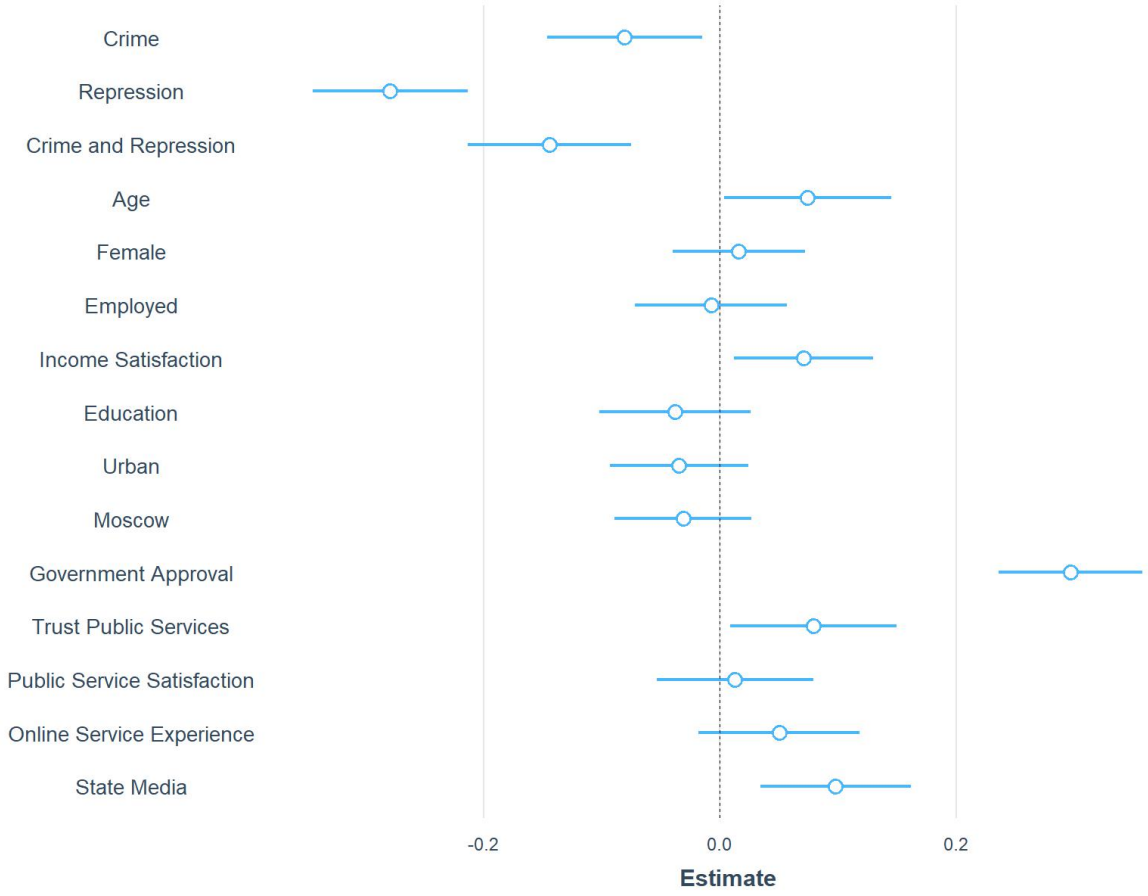
where y denotes support for a digital governance solution by respondent i, *Crime, Repression*, and *Crime and Repression* are dummy variables that take a value of 1 if a respondent was in the respective treatment group and 0 otherwise, X_i is a vector of socio-demographic controls, and ϵ_i is the error term. Figure 2 presents our results, and Table 5 in the Appendix presents the corresponding regression analysis.

Our main hypothesis (H1) is that approval of a DGS remains high as long as citizens are not aware of its repressive potential, but that citizens – even in a relatively repressive autocracy – will *reduce* their support for a DGS if treated with information that the new

technology can be used to suppress political protest. Conversely, our null hypothesis would be that citizens in repressive autocracies are already aware of constant state surveillance, and have therefore internalized the notion of surveillance by the state to the extent that they no longer update their attitudes when reminded about it once again.

Our empirical results confirm H1 and permit us to reject the null hypothesis. While the crime treatment only weakly reduces approval of the DGS, the repression treatment leads to a significant reduction in public support. Compared to the control group, the repression treatment reduces support by 0.26 SDs, which, given a mean of 2.81, is a reduction by 18.3%, with the effect being statistically significant at the 1 percent level. As before, the combined treatment leads to a somewhat smaller reduction in approval, by 7.7%, potentially because adding the crime treatment might reduce concerns that the DGS is aimed exclusively at political repression. The strong and negative effect of the repression treatment on approval shows that even in the repressive environment of October 2022, Russian citizens remain genuinely concerned about the surveillance capabilities that a big data governance solution might imply, once they are informed about these capabilities.

Figure 2: Treatment effects Russia



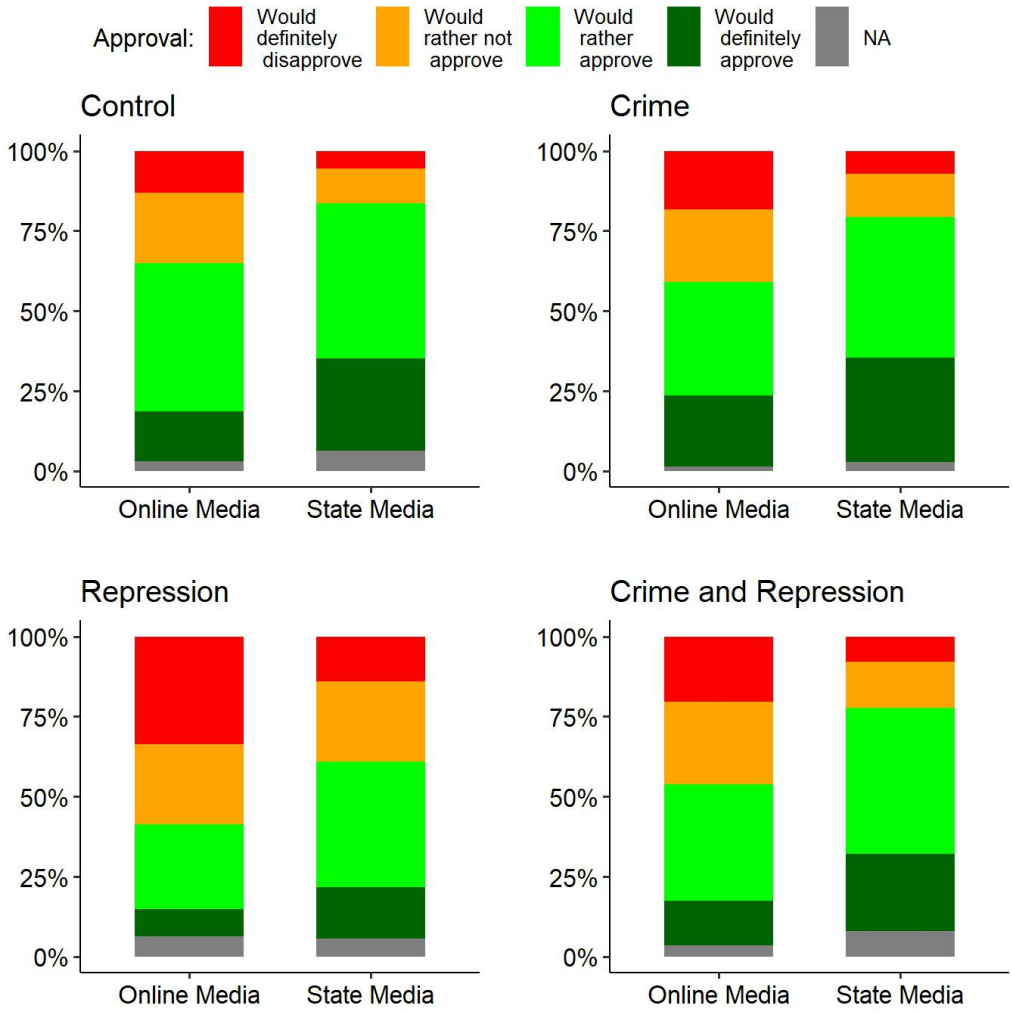
Notes: Standardized OLS estimates with 95% confidence intervals. See Table 5 in the Appendix for the underlying regression results.

In addition to the effect of information on support for a DGS, our empirical analysis reveals a number of further interesting findings, that can help us understand the mechanisms behind our results. First, government approval appears to be a strong predictor of support for a DGS.[12] Citizens who approve of the general direction the country is taking are also significantly more likely to support the introduction of a DGS.

We believe that one important mechanism through which government approval affects preferences for a DGS are channels of information – our hypothesis H2. Citizens who inform themselves mainly through government-controlled sources of information such as state-controlled TV are also significantly more likely to support the introduction of a DGS. Figure 3 splits our sample into respondents who mainly receive information through state-controlled media, and respondents whose main source of information are online media. We see that consumers of online-media such as news sites, blogs or social media – which offer a significantly more pluralistic choice of views – are significantly more sceptical about the introduction of a DGS than consumers of state-controlled media, irrespective of the treatment.

[12]To measure government approval, we use a standard question that has been used for many years in social science surveys to measure general support for the policies of the government in Russia, see Question 10 in Appendix A.4.1.

Figure 3: Effects of different media sources on approval



Notes: The sample was split between different primary sources of information for all treatments

Third, general trust in the authorities providing public services also positively predicts support for a DGS. However, other than with the four online surveys discussed in section 4.2, a recent positive or negative experience with government service provision has no effect on support. We thus cannot say that existing institutional gaps (i.e. deficiencies with public service provision) might have an influence on support for a digital platform that could address some of these deficiencies (our hypothesis H3).

Finally, citizens who are older and have higher incomes are also slightly more supportive of a digital governance solution, while gender, employment status, education, and living in a city or a rural location have no clear effect.

4.2 Online Survey Experiments

To complement the experiment we carried out in Russia, we conducted four additional survey experiments in Estonia, Germany, the US and Turkey. The countries were selected to

provide us with a range of different regime types, to test if approval of a DGS varies between countries with different political institutions.[13] Estonia and Germany are both consolidated democracies, with the Internet being slightly less free in Germany.[14] The United States, clearly a focal point for the study of contemporary institutional development, scores slightly lower on most institutional indicators. Turkey's political institutions have deteriorated significantly over the last decade, with the 2022 Democracy Index classifying the country as a "hybrid regime". Finally, Russia has by far the lowest institutional indicators in our sample, with the 2022 Democracy Index classifying it as "authoritarian".

Figure 4: Approval for digital governance solutions

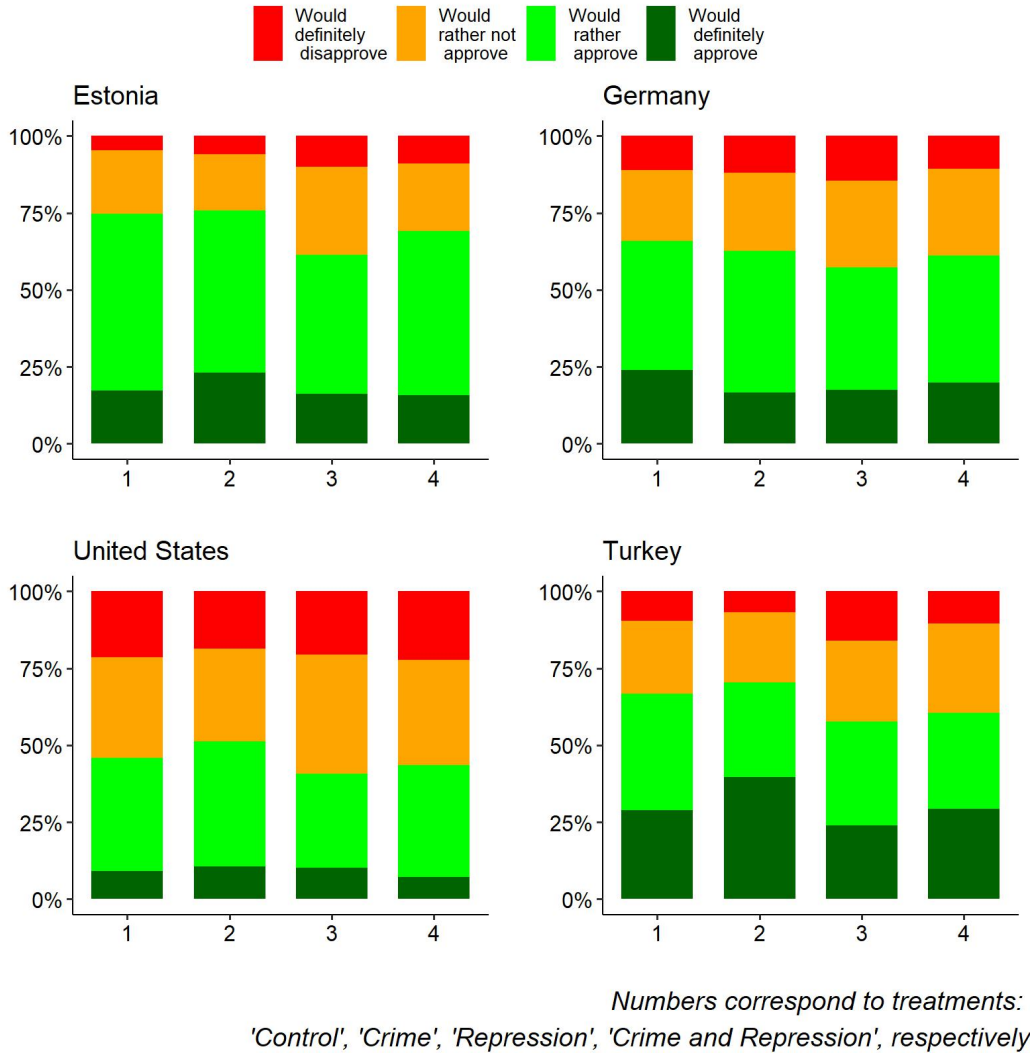


Figure 4 presents the descriptive statistics of our treatment effects, while table 3 in the Appendix provides the underlying summary statistics. We find that approval rates for a DGS vary across countries and treatments. In general, average approval rates across treatments

[13] See Table 4 in the Appendix for the range of different institutional indicators used in our approach.
[14] Estonia scores 93 out of 100 on the Freedom on the Net index, while Germany scores 77 out of 100.

are highest in Estonia (70.3%), followed by Turkey (63.8%), Germany (61.8%), and the US (45.3%).

First, the fact that the approval rate averaged over treatments for Russia (60.7%) is somewhere in the middle of what we find for the other countries suggests that the Russian data are meaningful and that survey participants in Russia did not self-censor (Robinson and Tannenberg 2019) or falsify their preferences (Eck et al. 2021), at least not more than in the other countries.

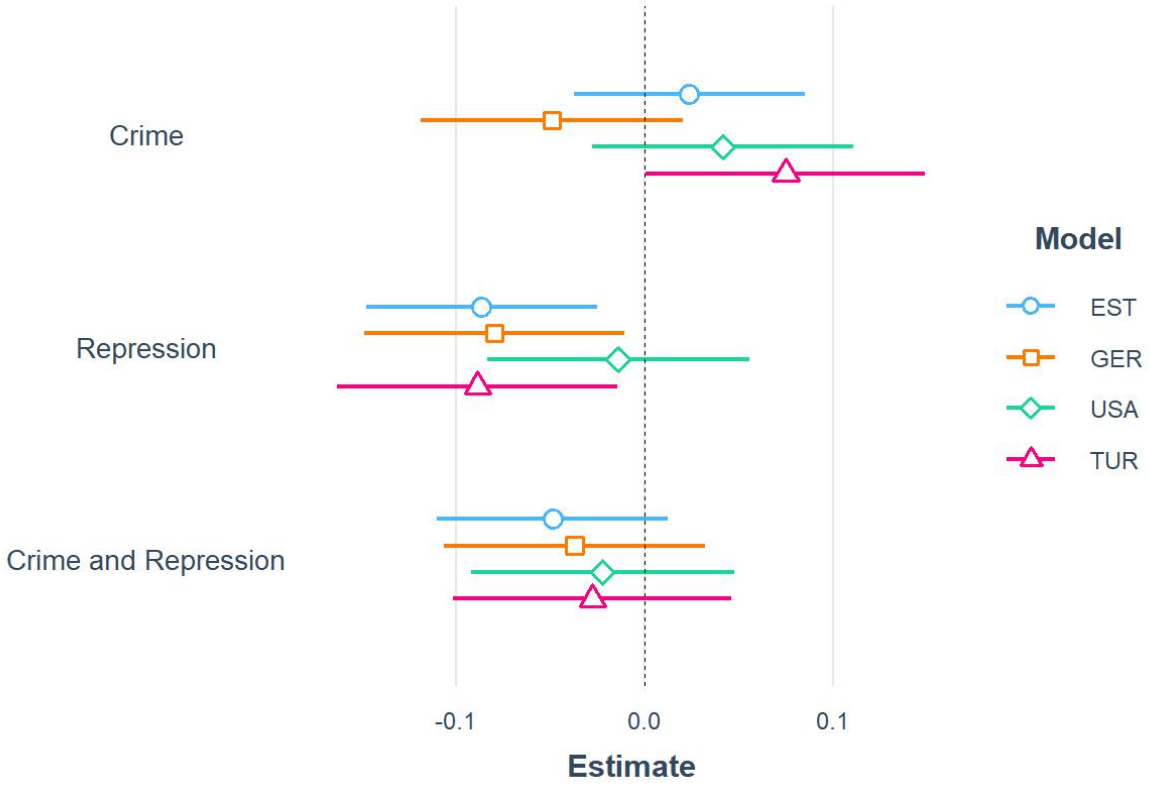
Second, and more interestingly, we do *not* find a linear relationship between political freedom and approval of a new institution that might potentially limit it, allowing us to reject our hypothesis H4. Our data suggest at least two possible explanations. Either there is non-linearity in the correlation, for example a U-shaped dependence between institutional freedom and support for digital government solutions. Alternatively, individual country characteristics, such as culture, economic development or history, might play a more critical role than indices designed only to measure political institutions. For example, it might be the case that in the United States, a country whose constitution, founding myth and economic system put particular emphasis on the importance of freedom, institutions with the potential to limit freedom are met with more scepticism than in other countries.[15] The US might therefore be an outlier with respect to absolute approval rates for a DGS.

While we find differences across countries with respect to overall approval rates, when comparing the variation between treatments, results are relatively similar across countries. For all four countries, the *repression* treatment caused a visible dent in approval rates, similar to what we found for Russia in section 4.1. The effects for the *crime* and the combined treatment are less pronounced.

For a more precise analysis, we again use equation 1 to conduct a multivariate analysis. Figure 5 presents the results of our treatments, Figure 6 in the Appendix the full set of results, and Tables 6, 7, 8 and 9 in the Appendix the underlying regression analyses.

[15] See for example Kennedy (1999), McPherson (2003), Rana (2014) or Schmidli (2022) for a discussion of the importance of the concept of freedom in recent US history.

Figure 5: Treatment effects in Estonia, Germany, the United States, and Turkey



Notes: Standardized OLS estimates with 95% confidence intervals. See appendix A.3 for the underlying regression results.

In Estonia, Germany, and Turkey, our main finding from the first experiment could be replicated, i.e., the coefficient for the *repression* treatment has a negative effect and is significant at least at the 95%-level, providing additional evidence in support of hypothesis H1. Results for the US are also negative, but not statistically significant, with a smaller coefficient than for the other three countries. To better understand our results for the US, we looked at the effect of our treatment on different age groups, and found evidence for significant age-related polarization (see Figure 8 in the Appendix). It appears that citizens in the US who are 60 years and older are actually *more* in favor of a DGS if the technology features a repression component, explaining why our *repression* treatment remains insignificant for the country as a whole. This effect, however, can only be found for the US, and not for any other country in our study. Finally, other than in the Russian experiment, the *crime* and the combined treatment had no statistically significant effects in Turkey, Estonia, Germany and the US.

Our results suggest that the effects we find for Russia seem to be robust across countries with different political institutions and different levels of political competitiveness. While in general approval of a DGS is high, once respondents are primed that the technology can be used for purposes of political control, the drop in approval rates is substantial. Interestingly, this drop only occurs in the case of the political repression treatment, and not when respondents are treated with the possibility that the technology could be used for policing petty

crime. If anything, the results from countries other than Russia suggest that the policing functionality of a DGS *increases* approval, although not significantly.

Figure 6 in the Appendix presents some additional interesting results. First, trust in the quality of public services, as well as a positive experience with government services during the previous year are positive predictors of approval for a DGS. These results refute our "institutional gaps" hypothesis (H3). People do not seem to be more likely to approve (or wish for) a DGS because they are experiencing difficulties with existing public services. Rather, they approve of introducing a DGS if they already have a positive view of public services – probably because they expect the authorities to implement it in a responsible and efficient way.

Second, respondents who are satisfied with their personal income situation and who approve of "the direction into which the country is developing" (our "government approval" indicator) are also more likely to approve of a DGS. These results suggest that being satisfied with your personal situation and the overall affairs of the country also makes people more open to the introduction of new governance technology. Interestingly, though, education has the opposite effect. More educated respondents, on average, are more sceptical towards the introduction of a DGS, with the effect being significant for Estonia, Germany, and the US.

Finally, while we also find a positive effect of TV news consumption on DGS approval for Estonia, Germany, and the US (as in the case of Russia), here the results of the experiments cannot be directly compared with the results we obtain for Russia. While in Russia receiving news about the state of the world mainly from television has become a synonym for being a recipient of state propaganda, the content of TV news in the other countries in our sample is much more heterogeneous, and does not allow a similar conclusion.

5 Discussion of the Experimental Findings

Perhaps the most important finding of our study is that *information* – about the potential costs of a DGS – *matters*. In other words, public support for a DGS seems to depend on citizens not being aware of its repressive potential, or, more generally, of the costs imposed by the new technology. Once they are being informed about the political risks of a new institution, approval drops significantly, irrespective of the context and country they live in.

When having to decide about the advantages and disadvantages of adopting a new institution, a rational citizen will infer information from priors that stem from her or his *informational* and *institutional* background. Our results show that in this situation, sources of information can play an important role. An extensive literature has shown that the media can be instrumental in influencing human behavior, both in democracies (DellaVigna and Kaplan 2007; Gerber et al. 2009; Barone et al. 2015; Durante et al. 2019) and in autocracies (Enikolopov et al. 2011, 2022; Adena et al. 2015; Peisakhin and Rozenas 2018). Autocracies such as Russia are particular, however, in that the state has agenda-setting power over the media, and can suppress alternative sources of information. How the government frames certain issues can then have an important effect on citizens' perceptions and behavior (Kazun 2016; Pan et al. 2022). Xu et al. (2022) illustrate this point by showing how Chinese citizens who receive information about the Chinese social credit system through state media subsequently show higher levels of support for the system. In our paper, we document a similar effect for Russia, with Russian citizens who receive information mainly through state-controlled media being significantly more likely to support the introduction of

a DGS.[16]

Another informational input influencing citizens' cost-benefit analysis is the institutional environment. When citizens perceive the government and existing institutions as trustworthy, they might infer that new institutions can also be trusted. This is indeed what we find. Russian citizens who approve of the direction the country is taking – our proxy for government approval – are almost three standard deviations more supportive of a DGS. We find a similar, albeit smaller effect for trust in public services. Both effects can also be found for Estonia, Germany, the United States and Turkey, although here the effects are not always statistically significant.

In this, our paper relates to an extensive literature investigating the role of institutions in determining acceptance rates for new technologies and tolerance for government surveillance. Similar to our study, a number of experimental papers have found that trust in the government or its institutions plays a key role in the acceptance of facial recognition technology (Kostka et al. 2021, 2023) and correlates positively with support for government surveillance (Trüdinger and Steckermeier 2017; Su et al. 2022) and sacrificing civil liberties for security (Davis and Silver 2004; Alsan et al. 2020). It also increases support for social credit systems (Kostka 2019) and leads to a higher willingness for data-sharing in the context of Covid-19 contact tracing apps (Kostka and Habich-Sobiegalla 2022; Huang et al. 2022). Looking at the issue from the opposite direction, Kostka and Antoine (2020) show that digital governance solutions such as China's social credit systems work better when confidence in the government is high. Ziller and Helbling (2021) reverse this causality and examine the effect of surveillance on trust in governments. Some studies argue that strong emotions such as fear can moderate the effect of trust in the government, so that even people who normally would not trust their government approve of restricting civil liberties when exposed to risks such as political unrest (Yu and Wong 2023) or Covid-19 (Vasilopoulos et al. 2023).

In sum, it seems that even in authoritarian contexts such as Russia or China, trust in government institutions is crucial to make digital governance solutions work. This is why contemporary dictatorships often attach a lot of importance to creating public legitimacy for the regime, often through control over channels of information and the media (Guriev and Treisman 2020, 2022). The media can thus become an important driver of trust in institutions, while also helping to build support for specific policies favoured by the state – as we document in our paper.

6 Conclusion

In our study, we conducted a survey experiment in five different countries to understand the determinants of public approval for digital governance solutions. We find that information about the potential abuse of a DGS by a government for purposes of political repression can significantly reduce public support for the new technology.

Why does this matter? Big data governance technologies as the one described in our paper have the potential to become a game changer in the way we think about government

[16]Indeed, the subject of the digitization of the Russian state has been extensively and positively covered on Russian state media, in particular since Mikhail Mishustin took over as prime minister in January 2020, who made the digitization of Russia's state administration one of his priorities (see for example https://tass.com/society/1571181 and https://foreignpolicy.com/2020/01/20/russia-incoming-prime-minister-techno-authoritarianism/).

surveillance and political control, in particular – but not only – in autocracies. China is a pioneer in this respect. During the last couple of years, China has tested a number of social credit systems in different regions of the country (Kostka 2019; Kostka and Antoine 2020; Strittmatter 2020; Li and Kostka 2022; Liu 2022). The Covid pandemic (Knight and Creemers 2021; Chen et al. 2022) and recent breakthroughs in artificial intelligence, big data and facial recognition have given the technology an additional boost. China is now using the data gathered via its surveillance systems as an input subsidy for Chinese firms, to promote its domestic industry and further improve its surveillance capabilities in what has become a positive feedback loop (Beraja et al. 2022, 2023a). This has made China an undisputed leader in the market for digital governance, big data and facial recognition technologies (Feldstein 2023), which are now being offered as integrated packages, for example via so called "smart city" or "safe city" solutions (Yang and Xu 2018; Große-Bley and Kostka 2021). Beraja et al. (2023b) find that China is now actively exporting these technologies, in particular to other authoritarian countries. If an authoritarian government was recently challenged by domestic political protests, the likelihood that it will import a DGS with a policing component from China is particularly high (Beraja et al. 2023b). Often, surveillance technologies are offered in bundles with infrastructure and other technologies, as part of global strategies such as the "Belt and Road Initiative". As with the democratizing effects of trade with democratic countries (Tabellini and Magistretti 2022), trade with China can thus foster authoritarian consolidation, via the export of digital governance solutions (Beraja et al. 2023a; Feldstein 2023).

One country that is particular at risk is Russia. Russia has been learning from China with respect to mechanisms of authoritarian governance for some time (Libman and Rochlitz 2019), has recently been digitizing its service sector and economy (Østbø 2021), while also becoming increasingly authoritarian. While this paper has been written, Russia started using facial recognition technology from China to identify draft dodgers in the Moscow metro,[17] and its novel DGS "gosuslugi" to deliver conscription orders to Russian men who were supposed to join the ranks of the Russian army in Ukraine.[18] Other countries have also started implementing big data governance technologies from China, for example Kenya, Laos, Mongolia, Uganda, Saudi Arabia and Uzbekistan (Feldstein 2023). As argued by Feldstein (2023), once put in place, technologies combining digital governance and big data with capabilities of surveillance and control might make it much more difficult than today for civic accountability and democratization movements to challenge autocratic governments, potentially introducing a new wave of autocratization (Snyder 2018; Lührmann and Lindberg 2019).

Understanding the factors that determine the often surprisingly high rates of public approval for digital governance solutions is therefore crucial. As our study shows, it seems that once citizens become aware that such technologies could play the role of a "Trojan horse" for introducing methods of authoritarian control, they are much more circumspect about adopting the new technology. This is important, not only in autocracies such as Russia, but also – and probably even more so – in hybrid regimes and democracies that have proven vulnerable to populist leaders with authoritarian tendencies, such as for example

[17] https://www.hrw.org/news/2022/10/26/russia-uses-facial-recognition-hunt- down-draft-evaders

[18] https://carnegieendowment.org/politika/89553

Turkey or the United States.

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A Appendix

A.1 Summary Statistics

Table 1: Summary Statistics Russia

Variable	N	Mean	SD
Control	589	2.886	0.874
Crime	585	2.838	0.972
Repression	572	2.395	1.012
Crime and Repression	577	2.7	0.958
Age	2462	50.717	16.267
Female	2462	0.555	0.497
Employed	2462	0.589	0.492
Income Satisfaction	2462	2.922	0.818
Education	2462	4.455	1.565
Urban	2462	0.419	0.493
Government Approval	2126	0.834	0.372
Trust in Public Services	2314	0.789	0.408
Public Service Satisfaction	1196	0.775	0.418
Onlince Service Experience	2448	2.587	0.988
State Media	2462	0.426	0.495
Online Media	2462	0.376	0.485
Moscow	2462	0.071	0.256

Table 2: Summary Statistics

ctry	Estonia			Germany			Turkey			US		
Variable	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
Control	254	2.874	0.744	255	2.788	0.932	249	2.859	0.946	242	2.335	0.915
Crime	252	2.929	0.805	252	2.675	0.891	250	3.032	0.948	246	2.431	0.913
Repression	248	2.673	0.864	241	2.602	0.939	263	2.658	1.014	248	2.302	0.91
Crime and Repression	246	2.76	0.825	252	2.702	0.907	238	2.794	0.983	264	2.284	0.893
Age	1000	42.779	15.512	1000	49.739	16.984	1000	38.381	12.384	1000	48.159	16.947
Female	1000	0.541	0.499	1000	0.514	0.5	1000	0.512	0.5	1000	0.502	0.5
Liberal	1000	0.492	0.5	1000	0.458	0.498	1000	0.623	0.485	1000	0.556	0.497
Conservative	1000	0.28	0.449	1000	0.296	0.457	1000	0.246	0.431	1000	0.25	0.433
Education	1000	3.589	1.583	1000	3.762	1.358	1000	4.309	1.214	1000	4.171	1.49
Urban	1000	0.578	0.494	1000	0.443	0.497	1000	0.918	0.275	1000	0.206	0.405
Government Approval	1000	0.574	0.495	1000	0.296	0.457	1000	0.295	0.456	1000	0.301	0.459
Trust in Public Services	1000	0.756	0.43	1000	0.617	0.486	1000	0.317	0.466	1000	0.469	0.499
Public Service Satisfaction	1000	0.728	0.445	1000	0.533	0.499	1000	0.322	0.467	1000	0.475	0.5
Onlince Service Experience	1000	0.784	0.412	1000	0.346	0.476	1000	0.784	0.412	1000	0.364	0.481
Minority	1000	0.098	0.297	1000	0.029	0.168	1000	0.068	0.252	1000	0.21	0.408
TV	1000	0.699	0.459	1000	0.815	0.388	1000	0.755	0.43	1000	0.751	0.433
Radio	1000	0.384	0.487	1000	0.528	0.499	1000	0.251	0.434	1000	0.278	0.448
New Media	1000	0.735	0.442	1000	0.516	0.5	1000	0.896	0.305	1000	0.543	0.498
Newspaper	1000	0.342	0.475	1000	0.398	0.49	1000	0.36	0.48	1000	0.261	0.439
Conversations	1000	0.256	0.437	1000	0.327	0.469	1000	0.277	0.448	1000	0.272	0.445

Table 3: Summary Statistics Approval

ctry	Estonia			Germany			Turkey			US			Russia		
Variable	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD	N	Mean	SD
General Approval (binary)	1000	0.703	0.457	1000	0.618	0.486	1000	0.638	0.481	1000	0.453	0.498	2462	0.607	0.488
General Approval (1 - 4 scale)	1000	2.81	0.815	1000	2.693	0.918	1000	2.834	0.982	1000	2.337	0.908	2323	2.707	0.973
Control Approval (binary)	254	0.748	0.435	255	0.659	0.475	249	0.667	0.472	242	0.459	0.499	623	0.701	0.458
Crime Approval (binary)	252	0.758	0.429	252	0.627	0.485	250	0.704	0.457	246	0.512	0.501	603	0.673	0.469
Repression Approval (binary)	248	0.613	0.488	241	0.573	0.496	263	0.578	0.495	248	0.407	0.492	615	0.459	0.499
Crime and Repression Approval (binary)	246	0.691	0.463	252	0.611	0.488	238	0.605	0.49	264	0.436	0.497	621	0.596	0.491

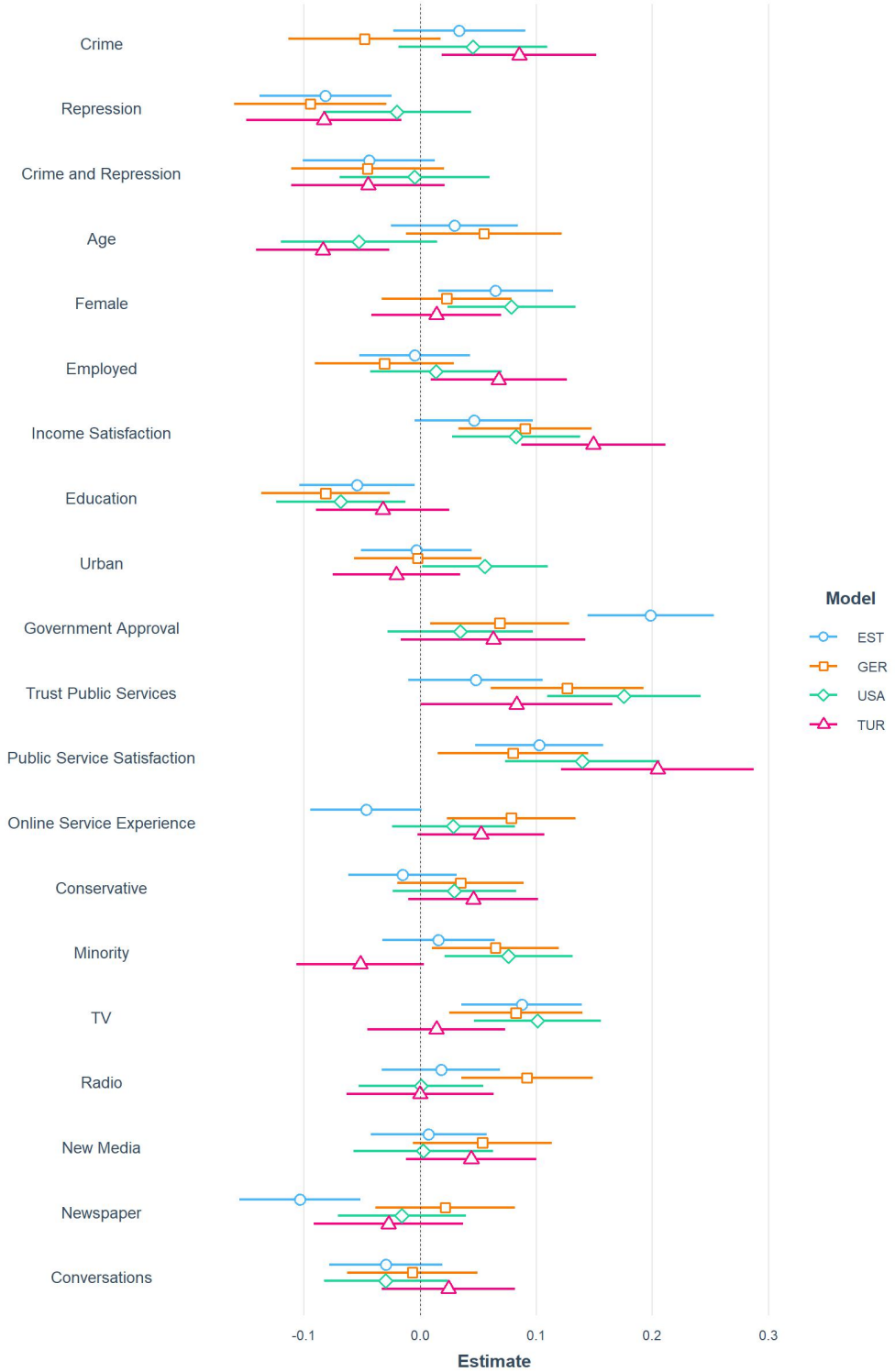
Table 4: Institutional Indicators

Index	**Global Freedom**[a]	**Internet Freedom**[b]	**Polity5**[c]	**Democracy Index**[d]
Russia	19 Not Free	23 Not Free	4 Open Anocracy	2.28 Authoritarian Regime
Estonia	94 Free	93 Free	9 Democracy	7.96 Flawed Democracy
Germany	94 Free	77 Free	10 Full Democracy	8.80 Full Democracy
United States	83 Free	76 Free	8 Democracy	7.85 Flawed Democracy
Turkey	32 Not Fee	32 Not Free	-4 Closed Anocracy	4.35 Hybrid Regime

[a]2022 Edition; Index ranging from 0 to 100; https://freedomhouse.org/countries/freedom-net/scores
[b]2022 Edition; Index ranging from 0 to 100; https://freedomhouse.org/countries/freedom-net/scores
[c]2018 Edition; Index ranging from -10 to 10; https://www.systemicpeace.org/inscrdata.html
[d]2022 Edition; Index ranging from 0 to 10; https://www.eiu.com/n/campaigns/democracy-index-2022/

A.2 Additional Figures

Figure 6: Treatment effects in Estonia, Germany, United States, and Turkey

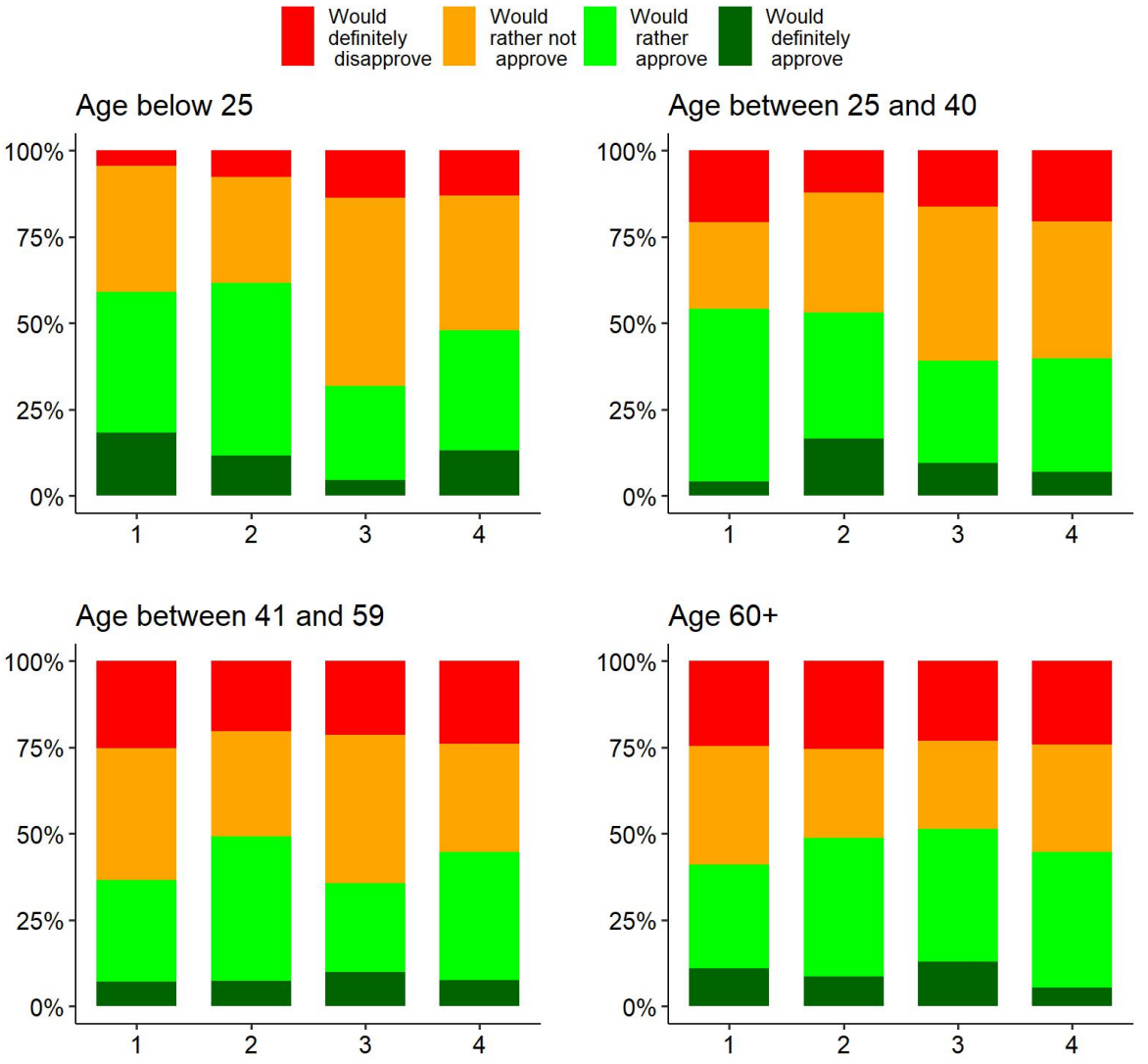


Notes: Standardized OLS estimates with 95% confidence intervals. See appendix A.3 for the underlying regression results.

Figure 7: Treatment design

Political repression Information \ Policing Crimes Information	No	Yes
No	Comparing information from the digital archive and data from video surveillance cameras will make it possible to find and prosecute those who violate law and order. Would you personally approve or disapprove of the introduction of such a system in our country? I will read out the answer choices.	…those who violate law and order. **For example, a person who broke a bench on a playground could be banned from public transport for a while.** Would you personally approve or…
Yes	…those who violate law and order. **For example, a person who participated in an unauthorized protest could be banned from public transport for a while.** Would you personally approve or…	…those who violate law and order. **For example, a person who participated in an unauthorized protest or broke a bench on a playground could be banned from public transport for a while.** Would you personally approve or…

Figure 8: Results USA with different age groups



Numbers correspond to treatments:
'Control', 'Crime', 'Repression', 'Crime and Repression', respectively

A.3 Regression Tables

Table 5: Russia

	Approval For Digital Governance Solution	
	(1)	(2)
Crime	−0.041* (0.024)	−0.081** (0.033)
Repression	−0.225*** (0.024)	−0.279*** (0.033)
Crime and Repression	−0.109*** (0.024)	−0.144*** (0.035)
Age		0.074** (0.036)
Female		0.016 (0.029)
Employed		−0.007 (0.033)
Income Satisfaction		0.071** (0.030)
Education		−0.038 (0.033)
Urban		−0.035 (0.030)
Moscow		−0.031 (0.029)
Government Approval		0.297*** (0.031)
Trust in Public Services		0.079** (0.036)
Public Service Satisfaction		0.013 (0.034)
Onlince Service Experience		0.050 (0.035)
State Media		0.098*** (0.033)
Constant	2.724*** (0.020)	2.769*** (0.031)
N	2,323	971
R^2	0.041	0.251
Adjusted R^2	0.040	0.239
Residual Std. Error	0.959 (df = 2319)	0.853 (df = 955)
F Statistic	32.919*** (df = 3; 2319)	21.287*** (df = 15; 955)

*p < .1; **p < .05; ***p < .01

Table 6: Estonia

	Approval For Digital Governance Solution	
	(1)	(2)
Crime	0.024 (0.031)	0.034 (0.029)
Repression	−0.087*** (0.031)	−0.082*** (0.029)
Crime and Repression	−0.049 (0.031)	−0.044 (0.029)
Age		0.030 (0.028)
Female		0.065** (0.025)
Employed		−0.005 (0.024)
Income Satisfaction		0.046* (0.026)
Education		−0.055** (0.025)
Urban		−0.003 (0.024)
Government Approval		0.198*** (0.028)
Trust in Public Services		0.048 (0.030)
Public Service Satisfaction		0.103*** (0.028)
Onlince Service Experience		−0.047* (0.024)
Conservative		−0.015 (0.024)
Minority		0.016 (0.025)
TV		0.087*** (0.026)
Radio		0.018 (0.026)
New Media		0.007 (0.025)
Newspaper		−0.104*** (0.027)
Conversations		−0.030 (0.025)
Constant	2.810*** (0.026)	2.810*** (0.024)
N	1,000	1,000
R^2	0.015	0.184
Adjusted R^2	0.012	0.167
Residual Std. Error	0.810 (df = 996)	0.744 (df = 979)
F Statistic	4.986*** (df = 3; 996)	11.001*** (df = 20; 979)

*p < .1; **p < .05; ***p < .01

Table 7: Turkey

	Approval For Digital Governance Solution	
	(1)	(2)
Crime	0.075** (0.038)	0.085** (0.034)
Repression	−0.089** (0.038)	−0.083** (0.034)
Crime and Repression	−0.028 (0.038)	−0.045 (0.034)
Age		−0.084*** (0.029)
Female		0.014 (0.028)
Employed		0.068** (0.030)
Income Satisfaction		0.149*** (0.032)
Education		−0.032 (0.029)
Urban		−0.021 (0.028)
Government Approval		0.063 (0.041)
Trust in Public Services		0.083** (0.042)
Public Service Satisfaction		0.204*** (0.042)
Onlince Service Experience		0.052* (0.028)
Conservative		0.046 (0.029)
Minority		−0.052* (0.028)
TV		0.014 (0.030)
Radio		−0.0001 (0.032)
New Media		0.044 (0.029)
Newspaper		−0.027 (0.033)
Conversations		0.024 (0.029)
Constant	2.834*** (0.031)	2.834*** (0.027)
N	1,000	1,000
R^2	0.019	0.234
Adjusted R^2	0.016	0.218
Residual Std. Error	0.974 (df = 996)	0.868 (df = 979)
F Statistic	6.509*** (df = 3; 996)	14.942*** (df = 20; 979)

*p < .1; **p < .05; ***p < .01

Table 8: Germany

	Approval For Digital Governance Solution	
	(1)	(2)
Crime	−0.049 (0.035)	−0.048 (0.033)
Repression	−0.080** (0.035)	−0.095*** (0.033)
Crime and Repression	−0.037 (0.035)	−0.046 (0.034)
Age		0.055 (0.034)
Female		0.023 (0.029)
Employed		−0.031 (0.030)
Income Satisfaction		0.090*** (0.029)
Education		−0.082*** (0.028)
Urban		−0.002 (0.028)
Government Approval		0.068** (0.031)
Trust in Public Services		0.127*** (0.034)
Public Service Satisfaction		0.080** (0.033)
Onlince Service Experience		0.078*** (0.028)
Conservative		0.035 (0.028)
Minority		0.065** (0.028)
TV		0.082*** (0.029)
Radio		0.092*** (0.029)
New Media		0.054* (0.031)
Newspaper		0.021 (0.031)
Conversations		−0.007 (0.029)
Constant	2.693*** (0.029)	2.693*** (0.027)
N	1,000	1,000
R^2	0.005	0.141
Adjusted R^2	0.002	0.124
Residual Std. Error	0.917 (df = 996)	0.860 (df = 979)
F Statistic	1.755 (df = 3; 996)	8.048*** (df = 20; 979)

*p < .1; **p < .05; ***p < .01

Table 9: USA

	Approval For Digital Governance Solution	
	(1)	(2)
Crime	0.041 (0.035)	0.045 (0.033)
Repression	−0.014 (0.035)	−0.020 (0.033)
Crime and Repression	−0.022 (0.036)	−0.005 (0.033)
Age		−0.053 (0.034)
Female		0.079*** (0.028)
Employed		0.014 (0.029)
Income Satisfaction		0.083*** (0.028)
Education		−0.069** (0.028)
Urban		0.056** (0.028)
Government Approval		0.035 (0.032)
Trust in Public Services		0.175*** (0.034)
Public Service Satisfaction		0.140*** (0.034)
Onlince Service Experience		0.029 (0.027)
Conservative		0.029 (0.027)
Minority		0.076*** (0.028)
TV		0.101*** (0.028)
Radio		0.001 (0.027)
New Media		0.003 (0.031)
Newspaper		−0.016 (0.028)
Conversations		−0.030 (0.027)
Constant	2.337*** (0.029)	2.337*** (0.026)
N	1,000	1,000
R^2	0.004	0.177
Adjusted R^2	0.001	0.160
Residual Std. Error	0.907 (df = 996)	0.832 (df = 979)
F Statistic	1.298 (df = 3; 996)	10.535*** (df = 20; 979)

*p < .1; **p < .05; ***p < .01

A.4 Full Questionnaire

As evident below, the questionnaires differ slightly in design for two reasons. First, some questions are only meaningful in the Russian context or are very carefully formulated in order to not be too sensitive for the increasingly repressive context. Second, some questions are only meaningful in other countries and are thus not asked in Russia.

The punishment we used in Russia is very closely designed to resemble Chinese social credit systems. Not being able to use public transportation applies to millions of Chinese citizens who have been blacklisted due to bad credit, mostly for minor offenses like not paying bills[19]. Social credit systems work with data from courts or financial transaction applications. What is new about social credit systems is not the surveillance capabilities – but the capabilities for executive power, i.e., enforcing laws, regulations, and social norms.

A.4.1 CATI Questionnaire in Russia

1) Gender
(Codify without asking the question.)
male/ female
2) Age
Please tell me, how old are you?
years
3) Education
What is your level of education?
incomplete secondary or lower/ general secondary (school)/ primary vocational (vocational school, lyceum, etc.)/ specialized secondary school (colleges, colleges, technical school, medical school, etc.)/ incomplete higher education (training in a university without a diploma)/ higher education (specialist diploma, bachelor's degree, master's degree, etc.)/ difficult to answer, refusal to answer
4) Employment
What is your occupation?
working/ studying and working/ studying and not working/ retired and working/ retired and not working/ do not work, but I am looking for a job/ do not work and do not look for a job/ other/ find it difficult to answer
5) Income satisfaction
How would you rate your current financial situation?
very good/ good/ average/ poor/ very bad/ difficult to answer
6) Sources of Information
Tell me, please, from what sources do you prefer to learn news: from traditional mass media (TV, radio, newspapers) or from the Internet (news sites, blogs, social networks, messengers)?
(If necessary, read positions 1 and 2 again. One answer.)
from traditional media/ from the Internet/ difficult to answer, other answers
7) Residency
Do you live in a city or a village?
city, township/ village/ no answer

[19] see: https://www.scmp.com/economy/china-economy/article/2186606/chinas-social-credit-system-shows-its-teeth-banning-millions

Question 8 is asked if item 1 ("town, city-type settlement") or item 3 ("Don't answer") is selected in question 7.
8) Location
What is the name of the town in which you live?
List of cities
Question 9 is asked if you have chosen item 2 ("village") in question 7.
9) District
What district do you live in?
List of districts (villages)
10) Government Approval
In your opinion, in the last year, has Russia been moving in the right or rather the wrong direction?
Rather in the right direction/ Rather the wrong direction/ Difficult to answer, other answer
11) Trust in Public Services
Speaking in general, do you trust or do not trust the authorities providing public services to the population (e.g. services for receiving benefits, certificates, documents)? I will read out the answer options.
Definitely trust/ rather trust/ rather do not trust/ definitely do not trust/ Difficult to answer, other answer
12) Public Service Satisfaction
In the last year, did you or did you not apply to the authorities to receive public services? (Pause after the first part of the question. If the respondent says that he/she did not, mark item 1 and do not read out the second part of the question). If you did, in the last such application were you rather satisfied or rather dissatisfied with the quality of the service?
Not at all/ Rather satisfied/ Rather dissatisfied/ Difficult to answer
13) DGS
Now the idea of creating a unified state digital archive, which would store data about all Russians, is being discussed. It is assumed that the creation of such an archive will increase the efficiency of government bodies and simplify interaction with them for citizens. How do you feel about the idea of creating a single state digital archive - rather positive or rather negative?
Rather positive/ Rather negative/ Difficult to answer
Only one of the questions 14a - 14d will be asked at random.
14a) Comparing information from the digital archive and data from video surveillance cameras will make it possible to find and prosecute those who violate law and order. Would you personally approve or disapprove of the introduction of such a system in our country? I will read out the answer choices.
would definitely approve/ would rather approve/ would rather not approve/ would definitely disapprove/ find it difficult to answer
14b) Comparing information from the digital archive and data from video surveillance cameras will make it possible to find and prosecute those who violate law and order. For example, a person who broke a bench on a playground could be banned from public transport for a while. Would you personally approve or disapprove of the introduction of such a system in our country? I will read out the answer choices.

would definitely approve/ would rather approve/ would rather not approve/ would definitely disapprove/ find it difficult to answer
14c) Comparing information from the digital archive and data from video surveillance cameras will make it possible to find and prosecute those who violate law and order. For example, a person who participated in an unauthorized protest could be banned from public transport for a while. Would you personally approve or disapprove of the introduction of such a system in our country? I will read out the answer choices.
would definitely approve/ would rather approve/ would rather not approve/ would definitely disapprove/ find it difficult to answer
14d) Comparing information from the digital archive and data from video surveillance cameras will make it possible to find and prosecute those who violate law and order. For example, a person who participated in an unauthorized protest or broke a bench on a playground could be banned from public transport for a while. Would you personally approve or disapprove of the introduction of such a system in our country? I will read out the answer choices.
would definitely approve/ would rather approve/ would rather not approve/ would definitely disapprove/ find it difficult to answer
15) data security
A single digital archive is supposed to store citizens' personal information (employment, tax information, health information, etc.). Would you rather or rather not worry about the security of your personal data in such an archive?
Would rather worry about it/ Would rather not worry/ Difficult to answer
16) Onlince Service Experience
One last question. How often do you use the "Gosuslugi" portal or other online government services? I will read out the answer choices.
never use it/ very rarely use it/ sometimes use it/ often use it/ find it difficult to answer

A.4.2 Online Questionnaire

0) Introduction (Button)
Thank you for your participation! This is a political science survey overseen by David Karpa as the primary researcher from the University of Bremen. Your participation makes a valuable contribution to academic research. It is therefore important that you read all questions closely and answer them truthfully. If you prefer not to respond to a question, please choose the alternative "prefer not to answer". Completing the questionnaire should take approximately 10 minutes. Participation in this survey is voluntary and unauthorized persons will not be given access to your responses. If at any time you wish to quit the survey you may do so by leaving this site or simply closing your browser window. If you wish to participate, please click "Next" below. If you do not wish to participate, please leave this site or close your browser window.
1) Age (Dropdown)
What is your year of birth?
2) Gender (Selection)
How do you describe yourself? *Male/ Female/ Prefer not to answer*
3) Political views (Two-sided slider, 11 scale) (Different wording for different countries to represent the respective poles, this is for the US.)

Here is a scale on which the political views that people might hold are arranged from extremely liberal (left) to extremely conservative (right). Where would you place yourself on this scale? *Liberal/Conservative/Prefer not to answer*

4) Employment (Selection)

What best describes your employment status over the last three months? *Working full-time/ Working part-time/ Unemployed and looking for work/ A homemaker or a stay-at-home parent/ Student/ Retired/ Other/ Prefer not to answer*

5) Income (Selection)

What was your total household income before taxes in Euros in the past 12 months? *Less than $30.000 per year (2.500 $/month)/ $30.000 - $59.999 per year (2.500-5.00 $/month)/ $60.000 - $119.999 per year (5.000-10.000 $/month)/ $120.000 - $239.999 per year (10.000-20.000 $/month)/ More than $240.000 per year (20.000 $/month)/ Prefer not to answer*

6) Income satisfaction (Selection)

How satisfied were you with your household income in the past 12 months? *Definitely satisfied/ Rather satisfied/ Rather dissatisfied/ Definitely dissatisfied/ Prefer not to answer*

7) Ethnicity (Selection) (Different ethnicities for different countries, this is for Germany. US: White, Hispanic and Latino, Black or African American, Asian, Other, Don't want to answer; Turkey: Turkish, Kurdish, Arabic, Greek, Other, Don't want to answer; Estonia: Estonian, Russian, Ukrainian, Belarusians, Other, Don't want to answer)

Which of the following describes you the best? *German/ Turkish/ Russian/ Polish/ Other/ Prefer not to answer*

8) Education (Selection)

What is the highest level of education you have completed? *Some or completed Primary Education/ Some or completed Secondary Education/ Vocational or Similar/ Some University but no degree/ University Bachelor's degree/ Graduate or professional degree (MA, MS, MBA, PhD, JD, MD, DDS etc.)*

9) Residency (Selection)

Which of these best describes the general area where you live? *Urban/ Suburban/ Rural/ Remote*

10) Sources of Information (Multiple Choice)

Which of the following media are your primary sources of information (multiple answers possible)? *Television/News/// Radio// Social Media/Smartphone/Apps/ Newspaper/ Personal conversations*

11) quality (Selection) (screenout if this does not match with the first question, or if participants are under 18)

How old are you? *Under 18/ Between 18 and 25/ Between 26 and 35/ Between 36 and 45/ Between 46 and 55/ Between 56 and 65/ Older than 65*

12) Country development (Selection)

In your opinion, in the last year, has country been moving more in the right direction or more in the wrong direction? (put in the respective country for country) *Rather in the right direction/ Rather in the wrong direction*

13) trust authorities (Selection)

Generally speaking, do you trust the authorities that provide public services to the population? *Definitely trust/ Rather trust/ Rather do not trust/ Definitely do not trust*

14) government satisfaction (Selection)

During the last year, were you rather satisfied or rather dissatisfied with the quality of government services (for example, getting benefits, certificates, documents)? *Rather satisfied/ Rather dissatisfied*

15) single archive (Selection)

The idea of creating a unified state digital archive, which would contain data about all citizens, is currently being discussed. The creation of such an archive would increase the efficiency of government bodies and simplify interaction with them for citizens. How do you feel about the idea of creating a single digital archive - rather positive or rather negative? *Rather positive/ Rather negative*

Only one of the questions 16a - 16d will be asked at random.

16a) control (Selection)

The comparison of information from the digital archive and data from video surveillance cameras will make it possible to find and prosecute those who violate law and order. Would you personally approve or disapprove of the introduction of such a system in country? *Would definitely approve/ Would rather approve/ Would rather not approve/ Would definitely disapprove*

16b) crime (Selection)

A comparison of information from the digital archive and video surveillance camera data would make it possible to find and prosecute those who violate the law and order. For example, a person who broke a bench on a playground could be held accountable. Would you personally approve or disapprove of the introduction of such a system in country? *Would definitely approve/ Would rather approve/ Would rather not approve/ Would definitely disapprove*

16c) repression (Selection)

A comparison of information from the digital archive and data from video surveillance cameras would make it possible to find and prosecute those who violate the law and order. For example, a person who participated in an unauthorized political protest could be held accountable. Would you personally approve or disapprove of the introduction of such a system in country? *Would definitely approve/ Would rather approve/ Would rather not approve/ Would definitely disapprove*

16d) crime and repression (Selection)

A comparison of information from the digital archive and data from video surveillance cameras would make it possible to find and prosecute those who violate the law and order. For example, a person who participated in an unauthorized political protest or broke a bench on a playground could be held accountable. Would you personally approve or disapprove of the introduction of such a system in country? *Would definitely approve/ Would rather approve/ Would rather not approve/ Would definitely disapprove*

17) data security (Selection)

A single digital archive is supposed to store citizens' personal information (employment, tax information, health information, etc.). Would you be concerned about the safety of your data? *Would definitely be concerned/ Would rather be concerned/ Would rather not be concerned/ Would definitely be concerned*

18) online services (Selection)

How often do you use online government services? *Never/ Very rarely/ Sometimes/ Often*