

When Do Authoritarian Regimes Use Digital Technologies for Covert Repression? A Qualitative Comparative Analysis of Politico-Economic Conditions

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Abstract

Although autocracies increasingly learn how to integrate digital technologies into their covert repression toolbox, it remains unclear under which conditions they succeed in doing so. While some technologically developed autocracies seldom use covert repression, other technologically underdeveloped autocracies apply significantly more covert repression. This begs the question: what are the necessary and sufficient conditions involving strong digital uptake leading to high levels of covert repression? The paper uses Qualitative Comparative Analysis (QCA) to 83 non-democratic regimes and leverages the 2021 digital repression dataset to answer this question. The findings show that digital uptake interacts with a pre-existing history of overt repression. In-depth case illustrations of Kazakhstan and Kyrgyzstan elucidate this argument. The findings also show two other “non-digital” pathways to high levels of covert repression, providing foundations for future evidence-based case selection investigating covert repression patterns in autocracies.

KEYWORDS

Authoritarianism, Comparative Politics, QCA, Repression, Technology

Zusammenfassung

Obwohl Autokratien zunehmend lernen, digitale Technologien in ihren Werkzeugkasten der verdeckten Repression zu integrieren, bleibt unklar, unter welchen

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Bedingungen ihnen dies gelingt. Während manche technologisch entwickelte Autokratien nur selten verdeckte Repression anwenden, gibt es auch technologisch unterentwickelte Autokratien, die verdeckte Repression deutlich häufiger einsetzen. Welche notwendigen und ausreichenden Bedingungen führen zu einem hohen Maß an verdeckter Repression? Basierend auf dem Datensatz zur digitalen Repression aus dem Jahr 2021 wendet dieser Artikel Qualitative Comparative Analysis (QCA) auf 83 nichtdemokratische Regime an. Er zeigt, dass die Nutzung digitaler Technologien mit einer bereits bestehenden Geschichte offener Repression interagiert, was anhand ausführlicher Fallbeispiele aus Kasachstan und Kirgisistan verdeutlicht wird. Die Ergebnisse zeigen zwei weitere „nicht-digitale“ Wege zu verdeckter Repression auf und bieten dadurch die Grundlage für eine evidenzbasierte Fallauswahl zur Untersuchung verdeckter Repressionsmuster in Autokratien bildet.

Résumé

Bien que les autocraties apprennent de plus en plus à intégrer les technologies numériques dans leur boîte à outils de la répression cachée, il reste difficile de savoir dans quelles conditions elles y parviennent. Alors que certaines autocraties technologiquement développées recourent rarement à la répression cachée, d'autres autocraties technologiquement sous-développées appliquent davantage de répression cachée. D'où la question, quelles sont les conditions nécessaires et suffisantes pour qu'une forte adoption du numérique conduise à un niveau élevé de répression cachée? Cet article applique la méthode d'analyse qualitative comparative (QCA) à 83 régimes non-démocratiques en exploitant l'ensemble de données sur la répression numérique de 2021. Il montre que l'adoption du numérique interagit avec un historique préexistant de répression manifeste. Cet argument est explicité par les exemples du Kazakhstan et du Kirghizistan. Les résultats montrent également qu'il existe deux autres voies «non numériques» menant à des niveaux élevés de répression cachée, fournissant ainsi les bases d'une future sélection de cas pour enquêter sur la répression cachée dans les autocraties.

Riassunto

Sebbene le autocrazie stiano imparando sempre più come integrare le tecnologie digitali nei loro strumenti di repressione segreta, non è chiaro in quali condizioni riescano a farlo. Esistono autocrazie tecnologicamente sviluppate che raramente utilizzano la repressione segreta. Tuttavia, ci sono anche autocrazie tecnologicamente sottosviluppate che applicano una repressione molto

più segreta. Ciò fa sorgere la domanda: quali sono le condizioni necessarie e sufficienti che comportano un forte utilizzo di tecnologie digitali che porta ad alti livelli di repressione segreta? Per rispondere a questa domanda, il documento applica il metodo dell'analisi comparativa qualitativa (QCA) a 83 regimi non democratici sfruttando il set di dati sulla repressione digitale del 2021. I risultati dello studio mostrano che l'uso di tecnologie digitali interagisce con un passato di palese repressione. Questa argomentazione è illustrata da un'analisi approfondita dei casi di Kazakistan e Kirghizistan. I risultati mostrano anche che esistono altri due percorsi “non digitali” verso alti livelli di repressione nascosta, fornendo le basi per la futura selezione di casi basata sull'evidenza che indaga sui modelli di repressione segreta nelle autocrazie.

INTRODUCTION

Covert repression is becoming an increasingly popular tool among autocrats to maintain political control as it is seen as less costly – both economically and politically – than overt repression, especially the violent kind (Feldstein, 2021; Guriev & Treisman, 2022). Also referred to as “low intensity” or “digital repression” in some other literature streams, this concept encompasses authoritarian practices such as censorship, disinformation, and surveillance. While both democracies and autocracies engage in covert repression, especially by using digital tools (Feldstein, 2021, Chapter 1), the political science field has started to embrace this topic only relatively recently. So far, most works have been concentrated on developing conceptualization or measurement tools (Chan et al., 2022; Feldstein, 2021; Frantz et al., 2020) or typologies of covert repression (Earl et al., 2022), but little attention has been paid to the theory of how covert repression in autocracies changes with strong digital uptake – a high level of penetration of the Internet and social media technologies.

Despite the rise in research projects focusing on digital authoritarianism (Feldstein, 2021; Guriev & Treisman, 2022; Meserole & Polyakova, 2019; Xiao, 2021), contemporary studies on the intersections of digital uptake and repression have not yet examined in greater detail the conditions under which autocracies use high levels of covert repression (Earl et al., 2022; Feldstein, 2021; Frantz et al., 2020). Moreover, the economic conditions potentially driving the development of repression remain seriously understudied. As the market of repression and surveillance technologies grows globally, there is more and more evidence showing that quite often political rhetoric and goals of suppressing the opposition in autocratic regimes tend to obscure underlying business opportunities, while the new covert repression assemblage is shaped to support a political economy of consumer citizenship (Ermoshina et al., 2022, p. 20; Graham & Wood, 2003; Hellmeier, 2016; Hou, 2017). Emerging research demonstrates that the interactions of private actors like Internet Service Providers (ISPs), online platforms, and ICT corporations with the government play an increasingly important role in shaping the political control strategies employed by governments (Earl et al., 2022; Ermoshina et al., 2022, p. 18–19). Some contemporary researchers point out that the co-optation of businesses and other private actors should be conceptualized better or investigated further in the context of repression studies (Christensen, 2019; Earl et al., 2022; Feldstein, 2021; Hou, 2017; Pan, 2017). Finally, from a methodological perspective, many scholars of ICT-induced repression have focused exclusively on China as a case due to the rich amount of available secondary data (Meserole &

Polyakova, 2019; Xiao, 2021; Xu, 2021), while other autocratic regimes, which represent more typical and generalizable cases, remain confined to the realm of regional studies. However, existing research shows that the replication of the Chinese model in other autocratic regimes is complicated due to the dominance of domestic digital service providers in China and Beijing's highly centralized domestic tech infrastructure and ICT architecture related to Internet service provision both of which were developed in the 1990s (Pan, 2017). More research on other cases of covert repression is necessary.

This paper seeks to address these gaps in the literature and provide a starting point for a more evidence-based selection of case studies analyzing patterns of covert repression in autocracies. It does so by offering additional insights into the patterns of covert repression in the broader population of autocracies through the application of Qualitative Comparative Analysis (QCA). Specifically, the paper answers the following question: *what are the necessary and sufficient (configurations of) conditions involving strong digital uptake that lead to high levels of covert repression?* Overall, the QCA results demonstrate that strong digital uptake alone cannot be a sufficient condition for high levels of covert repression in autocracies, whereas a pre-established history of violent, overt repression plays a much more important role in generating covert repression. History of overt repression can interact with digital uptake to generate the outcome, but also with strong autocratic linkages or with the absence of rational-legal legitimation. The combination of explanatory conditions involving digital uptake is then illustrated with the cases of Kazakhstan and Kyrgyzstan, a pairing chosen based on their inferential potential. These two countries with varying levels of authoritarianism have both gone through a strong period of digitalization in the 2010s, while there is also increasing evidence of the proliferation of covert repression patterns (Dall'Agnola & Wood, 2022). The case studies reveal that the QCA findings regarding the explanatory factors are, indeed, present and that the digital uptake may have played a role of critical juncture in these two countries. However, more case-level research for other combinations of conditions as well as studies of typical cases based on process tracing will be necessary to better understand the causal relationships underpinning autocratic covert repression patterns.

The remaining parts of this article are structured as follows. The first part reviews the existing literature regarding the conceptualization of covert repression as well as possible explanatory factors in the existing literature, pointing out possible research gaps and justifying this paper's hypotheses. The second part of the paper outlines the overall methodological approach, the details of the QCA, and the operationalization approach. The third part discusses the case selection for QCA illustration by providing insights into why Central Asia is a suitable region. The fourth part presents and discusses the empirical findings of the QCA. The fifth part substantiates one of the most robust QCA findings with empirical case illustrations of Kazakhstan and Kyrgyzstan. The sixth part concludes by summarizing the main takeaways, discussing the limitations of the paper, and providing avenues for future research.

CONCEPTUALIZING COVERT REPRESSION

The definitions and conceptualizations of repression in political science have changed substantially over the past five decades. In the broadest sense, political repression can be defined as an action that increases the costs of taking part in the political life of a society (Tilly, 1977). At the same time, many renowned repression scholars today usually pursue a much narrower definitional approach. For example, Davenport (2007) in his review of the repression literature defines the concept as follows: “*Repression involves the actual or threatened use of physical sanctions against an individual or organization, within the territorial jurisdiction of the state, for the purpose of imposing a cost on the target as well as deterring specific activities and/or beliefs perceived to be challenging to government personnel, practices or institutions*” (p. 2). So far,

physically observable coercion is the most well-known repression strategy that has been well-conceptualized, operationalized, and studied (Earl, 2003; Gerschewski, 2013; Gerschewski & Dukalskis, 2018; Way & Levitsky, 2006).

Only with the rise of digitalization, have social scientists started to pay more attention to non-material and non-violent forms of repression (Hassan et al., 2022, p. 159). There have been many proposals for the conceptualization of these forms of political control: for instance, “covert repressive action”, “low-intensity repression”, as well as more recently “digital repression” (Davenport, 2007; Earl, 2003; Feldstein, 2021; Gerschewski, 2013). All of these refer to less observable and less violent repression methods. The “digital repression” concept proposed by Steven Feldstein is particularly relevant to this paper due to its IT-centric scope.¹ However, the definition of digital repression as a phenomenon separate from “offline repression” is not entirely correct from a conceptual point of view. In practice, differentiation between “offline” repression and digital repression is difficult to make when it comes to their outcomes (e.g., the question of how to classify prosecution of online activists discovered by the state through non-digital means remains open).²

Analyzing different repression tactics individually also implies fundamental dissimilarities in underpinning the logic and goals of repression strategies. The conceptual problem of differentiating between “digital repression”, “covert repression”, and “low-intensity repression” can be solved through the application of a broader overarching concept. The 2022 Annual Review of Political Science has taken a crucial step in that direction by proposing a typology of what they describe as “political control” on the degree of violence and materialization (Hassan et al., 2022). Political control is defined as “any tactic through which the state seeks to gain compliance from society” (Hassan et al., 2022, p. 157). It also includes repression as a violent strategy type based on Davenport’s narrow definitional approach. Other strategy types include “coercive distribution”, and “repression by extension”, together with “indoctrination” and “infiltration” (Hassan et al., 2022). The key strength of this typology is the differentiation between material and immaterial strategies.

However, Hassan, Mattingly, and Nugent’s typology of political control strategies suffers from two omissions already well-researched in the autocratic political stability literature. The first omission is the co-optation of political opponents. The second omission is the absence of legitimation, which autocracies can also leverage similar to democracies (Gerschewski, 2013). Thus, the strategies listed by Hassan, Mattingly, and Nugent do not represent sub-types of political control, but only of repression, an important intermediate concept, a sub-set of political control. If we consider violent and non-violent repression strategies, the concept of coercion can be used for defining violent strategies only as shown in Table 1 above.³ The immaterial strategies of political coercion by extension,

¹Feldstein (2021) defines “digital repression” as “the use of information and communications technology to surveil, coerce, or manipulate individuals or groups in order to deter specific activities or beliefs that challenge the state” (p. 31). His conceptualization efforts have also been predated by a working paper of the Varieties of Democracy Institute, which has conceptualized “digital repression” as the use of “new technologies primarily the Internet, social media, and Artificial Intelligence (AI) to repress citizens and maintain political control” (Frantz et al., 2020, p. 1). A follow-up typology developed by Earl, Maher, and Pan (2022) defines digital repression “as actions directed at a target to raise the target’s costs for digital social movement activity and/or the use of digital or social media to raise the costs for social movement activity, wherever that contestation takes place” (p. 1).

²This problem also plagues the emerging typologies trying to differentiate between offline and online political control. A typology proposed by Earl, Maher, and Pan (2022), as the result, suggests that “[online] platform community standards and/or platform reward structures” represent an example of physical control and not of information control strategy (p. 2), a rather unconvincing argument.

³This naturally does not diminish the value of the “political control” conceptualization proposed by the authors. Indeed, it has to be acknowledged that the concept of “repression” in the proposed intermediary form is a type/strategy of “political control” as well as other concepts such as “legitimation” (for an in-depth discussion see Gerschewski, 2013).

TABLE 1 Updated typology of political control strategies incorporating Gerschewski's theory of autocratic stability.

Strategies of political control				
Dimensions	Repression			
	Violent	Non-violent	Legitimation	Co-optation
Material (Overt)	Political coercion	Skewed distribution	Performance-based	Allocation of material benefits
Immaterial (Covert)	Political coercion by extension	Indoctrination, infiltration	Rational-legal legitimation	Allocation of legal / administrative benefits

Source: Based on Hassan et al. (2022) and Gerschewski (2013).

indoctrination, and infiltration listed by Hassan, Mattingly, and Nugent can all be classified as “covert repression”.

Thus, based on the integration of different approaches (Davenport, 2007; Feldstein, 2021; Hassan et al., 2022; Way & Levitsky, 2006), I conceptualize *covert repression* as the application of less visible, non-violent sanctions against an individual or organization or the application of tangential activities supporting such sanctions, both of which have the end goal of increasing the costs of taking part in the political life of a society. This definition would also fit the conceptual approaches of “digital repression” developed by Feldstein and the Varieties of Democracy Institute.⁴ Thus, from a theoretical perspective, a major uptake in digital technologies becomes an exogenous reinforcement process for an autocratic system (Gerschewski, 2013).⁵

POSSIBLE EXPLANATORY CONDITIONS FOR COVERT REPRESSION

Both the theoretical literature and empirical studies have debated structural political and economic conditions that can be conducive to high levels of (covert) repression. Historical institutionalist argument from the path dependence theories and autocratic legacies literature is particularly prominent. The argument is that the pre-existing tradition of overt repression or an existing repression apparatus can be relevant for covert repression (Davenport, 1996; Feldstein, 2021, Chapters 4–6; Wang, 2021). This way, overt and covert repression become reinforcement factors, with covert repression (e.g., surveillance) providing autocrats with the ability of more fine-grained targeting of overt repression (Xu, 2021). In this case, “the digital” can become a critical juncture, which helps to improve the repression apparatus e.g., by finding more cost-efficient approaches. This argument has been empirically supported through both some small-N scale research (Feldstein, 2021; Xiao, 2021) and panel studies by Davenport and Appel (2022, p. 636).

⁴The latter admits that even if “digital repression” is treated as a separate concept, it should be seen as a subset of “covert repression” (Frantz et al., 2020).

⁵From a functionalist perspective, both approaches could fit well into the already existing operationalizations of repression (Way & Levitsky, 2006). For example, cyberbullying of the opposition by the state agents does not necessarily have to be viewed as a completely new phenomenon but can still be explained through the major expansion of the state scope (i.e., the state agents do not have to be physically present for the bullying action to occur if they have the digital means for that).

This necessitates the elaboration of what this “digital” is. The concept of digitalization can be defined as “a process of developing and adopting electronic tools, systems, devices, and resources that generate, store or process data (i.e., digital technologies) in any individual, organizational, and societal contexts” (Daminov, 2022). However, such a definition is still too broad for analytical purposes in medium-N and large-N research. Digitalization is a complex, heterogeneous process that varies significantly according to national setting both quantitatively in scale and qualitatively in terms of how state-business relations shape the process of digitalization (Daminov, 2022; International Telecommunications Union, 2017). Therefore, I propose to focus on the concept of “digital uptake” instead, which is the uptake of the Internet and social media technologies in the private and/or public sectors.⁶ This understanding of digital uptake is instrumental in analyzing the basic infrastructural and technological capabilities of governments to repress (Christensen, 2019; Ermoshina et al., 2022; Feldstein, 2021).

At the same time, Feldstein's study illustrates that digital uptake can be only one of several factors in determining the level of “digital repression” (Feldstein (2021), Chapters 4–6). Thus, alone it would be neither necessary nor sufficient in terms of explanatory power. First, the nature of state-business relations in a given country can also play a role here. The government can regulate the realms of the digital economy, while businesses may try to influence these regulations as well as interact with each other in the market of digital products and services. This dimension is particularly important given that illiberal capitalist systems in authoritarian regimes provide significant space for the co-optation of businesses (Ermoshina et al., 2022; Wong, 2012). Given that co-optation can be defined as “*the capacity to tie strategically relevant actors (or a group of actors) to the regime elite*” and that it “*needs to be exerted so that the actor is persuaded not to exercise his power to obstruct and instead to use the resources in line with the ruling elite's demands*” (Gerschewski, 2013, p. 11), co-optation can be analyzed through the extent of regime corruption and economic freedom (Gerschewski, 2013; LaPorte, 2012).

Causally, the extent of economic freedom allows us to see the extent to which the government exercises control over technology supply routes. Both contemporary literature on varieties of capitalism and pieces predating the era of the Digital Revolution suggest that control over the markets could be a determining factor in levels of repression (Ball et al., 2012, pp. 172–173; Howard et al., 2002; Sheahan, 1980, p. 273–274). The literature on limited access order shows a similar logic, arguing that regimes that provide limited access to both political and economic resources tend to be more stable (Ademmer et al., 2020). There is empirical evidence from China and Russia supporting this line of thought (Ermoshina et al., 2022; Hou, 2017). As for regime corruption, this concept can elucidate the nature of possible (neo-)patrimonial networks between business groups and public officials. Co-opted businesses in autocracies provide the technological know-how and maintain the necessary infrastructure required for coercion in exchange for tangible or non-tangible benefits (Earl et al., 2022, p. 6; Ermoshina et al., 2022, p. 20–23; Hou, 2017). For example, businesses can be subcontracted by the government to monitor and analyze online content, organize cyber-bullying campaigns, and spread disinformation (DiResta et al., 2019; Earl et al., 2022; Hou, 2017). Patterns of such public-private interactions, however, remain understudied from a comparative perspective.

The explanation that is sometimes overlooked comes from the studies on the durability of authoritarian regimes and the role of external actors and connects with the broader debate in international relations on the role of linkages. Autocratic linkages can be defined as

⁶In terms of scale, some hands-on measurements already exist such as the United Nations E-Government and E-Participation Index Series; ICT Development Index of the International Telecommunications Union (ITU); the Digix Index of BBVA; or the Data Reportal reports, although many of them have a very narrow thematic or temporal focus.

the extent of political and/or economic ties between autocracies (or in some cases – between autocratic actors), which can manifest themselves in extensive trade ties, political alliances, and policy learning (Hall, 2023; Tansey et al., 2017). These linkages are a known factor contributing to sustaining the stability of authoritarian regimes (Tansey et al., 2017). This concept could be relevant for repression as a mechanism, given that repression is often cited as one of the main channels of sustaining authoritarian stability (Gerschewski, 2013). For example, if the co-optation of businesses at home or strong digital uptake is not present, autocratic linkages might come in and help to develop state capacities not only through financial or technological assistance but also through knowledge exchange (Athey & Wager, 2017; Bader, 2015; May, 1992).⁷ These linkages can manifest themselves in the context of bilateral security commitments, participation in international organizations, policy learning, or extensive trade with fellow autocratic regimes (Kerr, 2018; Tansey et al., 2017). Autocratic linkages, theoretically, could be an alternative explanatory condition for countries that do not demonstrate strong digital uptake but have high levels of covert repression.

Another explanatory factor could be the presence or absence of rational-legal legitimation.⁸ Several researchers working on the links between legitimation and repression argue that the more an autocracy relies on legitimation strategies, the more unwilling it is to use overtly violent repression strategies, creating a tradition of non-violence (Gerschewski, 2013; Guriev & Treisman, 2022; Hassan et al., 2022). That said, the direction of causality is not entirely clear. On the one hand, overtly violent repression has serious reputational costs and damages the rational-legal legitimacy of a repressive government (Guriev & Treisman, 2022; Hassan et al., 2022; Levitsky & Way, 2013). Overt repression such as violent political killings goes against the tradition of rational-legal legitimation even in autocracies (Edel & Josua, 2018). Thus, spin dictatorships such as Russia (2000–2022), Singapore, or Kazakhstan are much more legalistic than closed autocracies.⁹ Spin dictatorships use covert repression methods precisely because these are much harder to uncover and push back against in legal terms (Guriev & Treisman, 2022). On the other hand, the causality can go the other way too. The absence of rational-legal legitimation can be related to covert repression given how the law can be interpreted informally and how legitimation pertains to the arbitrary personal power of the regime.¹⁰ Given the lack of empirical data on the relationship between repression and legitimation, therefore, both the presence and absence of rational-legal legitimation have to be considered.

Overall, from the existing literature, a situation of causal complexity can be observed: there are multiple possible explanatory conditions, which also may act in conjunctions. It can be assumed that strong digital uptake alone is neither a necessary nor a sufficient condition for a high level of covert repression. However, the literature still does not show us whether there are multiple causal pathways leading to the outcome of high levels of covert repression. Furthermore, it is unclear which combinations of explanatory factors involving digital uptake may lead to this outcome. Understanding this is important for more targeted and evidenced-based case selection for subsequent country-level research. Each of the theoretical explanatory conditions discussed above are respectively reflected in my operationalization approach. See Table 2 as well as supplementary materials in Annex I for more details (Daminov, 2024).

⁷Some researchers have already established the concept of “autocratic learning” (Gerschewski, 2013; Weyland, 2017), which is specific to autocracies only. Since “autocratic learning” is a more precise concept considering the universe of cases in this paper (i.e., autocracies), this paper will use the concept in all future references.

⁸This study will focus primarily on rational-legal legitimation as opposed to performance-based one since the latter is less theoretically connected with repression.

⁹For an interesting investigation of such legalisms, please see Skach (2021).

¹⁰The author expresses particular gratitude to the anonymous Reviewer 2 for pointing out this important detail.

TABLE 2 Summary of the approach to operationalizing the conditions and the outcome.

Condition	Description / Disaggregation	QCA Calibration	Source
X1. Digital uptake (DIG)	Social Media Penetration Rate (as a proxy)	Direct	Feldstein (2021) (cross-referenced with DataReportal)
X2. Co-optation of businesses (COP)	Index of Regime Corruption (focused on neo-patrimonial relations)	Direct	Varieties of Democracy Institute
X3. Economic Freedom (EFR)	Index of Economic Freedom	Direct	Fraser Institute
X4. Strong autocratic linkages (LIN)	Trade with autocratic regimes (1 – very significant; 0,67 – significant; 0,33 – little; 0 – very little) as 0,3 of the total score. Security or military alliances with autocracies (1 – yes; 0 – no) as 0,35 of the total score.	Direct	Triangulated evidence from WTO and World Bank
X5. Established history of repression (HIS)	Participation in autocracies-dominated political IOs (1 – more than 2 IOs; 0,5 – at least 1 IO; 0 – no participation) as 0,35 of the total score.	Direct	Evidence from the Correlates of War
X6. Rational-legal legitimization (LEG)	Average of the Freedom House's Civil Liberties Index for the past 5 years (focusing on overt / material repression)	Direct	Freedom House
Outcome (Y)	Rational-Legal Legitimation Index	Direct	Varieties of Democracy Institute
Y. Covert repression (REP)	Digital Repression Index (taking into consideration the following dimensions: government social media monitoring; disinformation by government; disinformation by political parties; online filtering; social media censorship; Internet shutdowns; blocking of social media; penalties for online users).	Direct	Feldstein (2021)

Note: All N/A cases were assessed and calibrated based on the previous years or secondary data.

Based on the reviewed literature, I present a list of preliminary hypotheses or theoretical assumptions, which I intend to validate by applying QCA. Validated preliminary hypotheses can be then examined more closely through country-level case studies – both within this paper as well as future case-level research. These Hypotheses are as follows:

Preliminary Hypothesis 1. Strong digital uptake combined with the co-optation of businesses or lack of economic freedom is jointly sufficient for a high level of covert repression.

Preliminary Hypothesis 2. Weak digital uptake combined with strong autocratic linkages is jointly sufficient for a high level of covert repression.

Preliminary Hypothesis 3. Strong digital uptake combined with a pre-existing tradition of repression is jointly sufficient for a high level of covert repression.

fsQCA METHODOLOGY AND ITS LIMITATIONS

To test the theoretical framework and validate the hypotheses in question, this paper will use the method of QCA. QCA is a qualitative medium-N method that allows seeing the key interaction patterns across many cases through the combinations of analyzed conditions (Schneider & Rohlfing, 2013; Schneider & Wagemann, 2012). This method has been gaining increased prominence in the field of social sciences because it actively embraces the idea of causal complexity, including such phenomena as equifinality, and conjunctural or asymmetric causation (Jordan et al., 2011; Oana et al., 2021; Schneider & Wagemann, 2012). QCA builds upon the key methodological principles of set theory derived from Boolean algebra. Set-theoretic methods perceive relations between social phenomena as set relations (with sets referring to collections of different things). Set relations can be interpreted in terms of conditions of sufficiency and necessity, as well as in forms of more complex causes that can be derived from them (Schneider & Wagemann, 2012, pp. 2–3). Membership scores are then assigned to the conditions and the outcome within each case on a scale from 0 to 1 based on the calibration of raw data. Application of the method allows us to see whether different combinations of conditions could be necessary and/or sufficient for the outcome in question.

This paper uses the method of fuzzy set QCA also known as fsQCA, which means that the set membership scores can vary anywhere between 0 (fully out of set) or 1 (fully in the set). This contrasts with the method of crisp set QCA (csQCA), where scores are practically binary – either 0 or 1. fsQCA allows to account for both quantitative and qualitative differences between cases. The qualitative difference depends on the case's position towards the 0.5 crossover point of maximum ambiguity. The crossover point determines whether a condition or outcome is more in or out of the case. Finally, the absence of a certain condition such as, for example, high-scale digitalization can be calculated through the principle of set negation (i.e., 1 minus the membership score in a given condition).

The QCA method was chosen for four reasons. First, QCA as a method is more diversity- and case-oriented as opposed to the variance-oriented regression analysis methods, allowing better comparisons between rather than across cases (Beach & Kaas, 2020, p. 222; Meuer & Rupietta, 2017). It is particularly suitable when analyzing different patterns across a medium-M sample of cases not large enough for a statistical observational study and is often employed for theory generation (Meuer & Rupietta, 2017).¹¹ Secondly, QCA embraces the concept

¹¹Statistically, some non-linear methods such as categorical data analysis could be considered as an alternative and/or supplement.

of equifinality, meaning that different combinations of explanatory conditions might help to explain the outcome. Specifically, to uncover equifinal and asymmetric relationships, QCA views cases as configurations of conditions (Haesebrouck & Thomann, 2021), also allowing to differentiate between case groups (Haesebrouck & Thomann, 2021; Jordan et al., 2011). Third, QCA allows for complex interactions between explanatory conditions, whereas higher-order interaction terms in statistical methods are difficult to interpret and imply a linear functional form, which might not always be supported by the theory (Meuer & Rupietta, 2017). Given that this article aims to start a discussion on the complex causal relationships between different explanatory conditions and whether there can be different congregations of countries around different combinations of conditions, the method of QCA is particularly suitable.¹² Fourth, the QCA findings inform the subsequent selection of country-level in-depth case studies, which can produce additional insights for causal inference as opposed to randomized non-informed choices.¹³ Categorization of cases through QCA allows for determining what cases can be considered, for example, typical, deviant in degree, or in kind, when conducting follow-up case-level research aiming at causal inference, theory generation, or theory modification (Schneider, 2023).

It is also important to acknowledge the limitations of QCA as a method. First, many scholars point out that QCA alone cannot be used for causal inference, but merely for establishing associations while causal inferences can be drawn only through a within-case-level analysis (Beach & Kaas, 2020; Schneider & Rohlfing, 2013; Schneider & Wagemann, 2012). However, other scholars point out that condition-oriented QCA principles can enable both within and cross-case comparisons (Thomann & Maggetti, 2020), with some going so far as to argue that QCA can even identify causal structures by producing the so-called most parsimonious solution (Baumgartner, 2015).¹⁴ Other scholars agree that such inferences can be made only after the follow-up case studies (Schneider, 2023; Beach & Pedersen, 2019). The QCA application results in the validation of hypotheses rather than full confirmation. It can be seen as the first step of theory generation.¹⁵ Therefore, QCA requires follow-up case studies to elucidate its findings, but it can also be combined with other, for example, statistical methods to improve the predictive and descriptive powers of a generated theory (Meuer & Rupietta, 2017). Finally, QCA solutions can be sensitive to changes in the calibration of the explanatory conditions and outcome. Strict fitness and robustness checks are also necessary to guard against simultaneous subset relations in QCA, which might result in false positives (Braumoeller, 2015). To avoid this, a set of robustness and sensitivity checks has been done following the guidelines by Oana and Schneider (2021).

Given that the research design faces some objective challenges such as empirical diversity and lack of empirical data, I intend to designate the thematic and temporal scope of my research as well as all limitations to ensure transparency, consistency, and internal validity of the findings. Temporarily, the scope conditions of QCA were limited to the period of the second half of the 2010s (2015–2021).¹⁶ Substantively, the population of cases included only non-democratic regimes

¹²As outlined in the theoretical framework, some of the assumptions that the existing studies have worked with so far such as causal symmetry, permanent and uniform causality, or additivity cannot always explain the messy relationship between digital uptake and covert repression. QCA, on the other hand, does not need to rely on the assumptions of normality or independence, which could be violated here.

¹³For detailed discussions of the QCA as a method see, for example, Oana, Schneider, and Thomann (2021) and Schneider and Wagemann (2012).

¹⁴Refers to the most minimal set of conditions that are sufficient to produce the desired outcome.

¹⁵E.g., one of the analyzed conditions could turn out to be not an explanatory condition but a scope condition for the existing universe of cases; alternatively, some pairs or groups of conditions could be aggregated through a reconceptualization at a higher level.

¹⁶There are several reasons for that. First, the selected period shows a higher pace of digitalization compared to the late 20th century. Second, there are larger amounts of secondary data available about the conditions and outcomes in question as opposed to earlier periods. Third, QCA is not well-suited for the integration of extended time dimensions.

(84 countries). To ensure a broader selection of cases, I only considered the regimes that perform poorly on the Varieties of Democracy Index for “Electoral Democracy”,¹⁷ i.e., falling below the 0.5 limit (on a scale of 0 to 1). Technically, to ensure the highest quality of the results, the most recent standards of best practice in applied QCA were used (such as robustness checks, Enhanced Standard Analysis, and cluster diagnostics).¹⁸ Finally, the research design primarily focuses on explaining the high levels of covert repression. It does not fully analyze the non-occurrence of the outcome (although it offers some insights, which can be found in Annex VIII).¹⁹

Calibration in QCA is defined as the assignment of (fuzzy) membership scores to the cases in question. Most conditions and the outcomes were calibrated by using the direct method of calibration using a special QCA package in R developed by Oana and Schneider (2021). Direct calibration employs a logistic function and fits raw data in between the qualitative anchors of 1, 0.5, and 0. At the same time, case knowledge is used to give a meaningful justification to those anchors. All conditions have been calibrated through the direct method except for autocratic linkages. Table 2 summarizes the overall approach to the conditions and outcome operationalization. The calibration details, the raw data, and the R script can be found in the supplementary materials.

CASE SELECTION AND ITS LIMITATIONS

In this paper's context, I present two illustrative cases to check on the adequacy of the conducted QCA and check one of the possible causal pathways to the high levels of covert repression, which involves digital uptake. The two cases of Kazakhstan and Kyrgyzstan serve only an illustrative purpose in this context. Several more comparative case studies, including those based on process tracing, will be needed to better understand the explanatory factors generating the outcome. The back and forth between QCA and case studies is an essential element of theory generation and theory refinement (Schneider, 2023).

Regarding the case selection, the article focuses on the cases of Kazakhstan and Kyrgyzstan for several reasons. First, Central Asia has been less prominently covered in the literature, despite containing a few examples of typical cases of covert repression and “digital dictatorships”. Another reason is that the digital uptake in this region was particularly strong in the late 2010s while information access has remained more open than in other typical cases such as China or Iran (Dall'Agnola & Wood, 2022; Reyaz, 2019), which allows for an immediate empirical follow-up concerning digital repression. Second, empirically, there is a significant variety in covert repression strategies in Central Asia. For example, Kyrgyzstan tends to increasingly violate online user rights but still allows for relatively broad digital freedoms on the Internet, whilst occasionally targeting violent crackdowns against individual opposition leaders, academics, journalists, or civil society activists (Shahbaz et al., 2022, Chapter Kyrgyzstan). Such strategies are also actively used in Kazakhstan and Uzbekistan (Dall'Agnola, 2023; Norov, 2023). However, Kazakhstan and Uzbekistan also use methods such as user harassment, surveillance, targeted censorship, and white-noise creation in media outlets (Shahbaz et al., 2022,

¹⁷The choice of this specific index is justified by the fact that electoral democracy is understood by VDem as an essential element of any other conception of representative democracy – liberal, participatory, deliberative, egalitarian – thus, providing the broadest and, at the same time, a less contested approach.

¹⁸The paper will use strict requirements for the parameter of fit (Schneider & Wagemann, 2012, p. 129). Moreover, the procedure of Enhanced Standard Analysis was applied to the non-occurrence of the outcome. Furthermore, since fsQCA is sensitive to researcher-specified qualitative anchors and thresholds related to consistency and the calibration of raw data as well as to the minimum frequency of cases in each configuration, this paper has conducted sensitivity analysis and applied additional checks in accordance with the robustness guidelines developed by Oana and Schneider (2021) to ensure both fit and case-oriented robustness (p. 16). Finally, additional cluster diagnostics has been performed to ensure that consistency of the QCA solutions is the same across different geographical regions as well as types of authoritarian regimes (more vs. less competitive).

¹⁹Investigating non-occurrence of high levels of covert repression could be a separate research question of its own but will likely demand a broader universe of cases.

Chapter Kazakhstan; Uzbekistan). Finally, Turkmenistan and Tajikistan use both covert and overt repression very actively (Shahbaz et al., 2022, Chapter Tajikistan; Turkmenistan).

The illustrations in this paper focus specifically on the cases of Kazakhstan and Kyrgyzstan, which from a more standard methodological perspective on qualitative research can be seen as “the most similar systems design”. Both countries cannot be considered fully democratic despite Kazakhstan being much more authoritarian. The countries also exhibit visible geographic, cultural, linguistic, and even political similarities. This has produced a plethora of comparative research on the countries in different social science subfields (Arynov, 2022; A. Junisbai, 2010; B. Junisbai & Junisbai, 2019; Schatz, 2009). In line with the QCA, while there are some similarities in terms of digital uptake, Kazakhstan still outperforms Kyrgyzstan quantitatively in terms of Internet penetration and infrastructure quality (Dall'Agnola & Wood, 2022).

In QCA terms, this comparison is justified for leveraging inferential insights related to the analyzed hypothesis because Kyrgyzstan does not exhibit the explanatory condition of the established history of overt repression as opposed to Kazakhstan.²⁰ This comparison holds even though there are also some objective limitations. First and foremost, in this paper, I focus on showcasing one of the hypotheses validated by the QCA.²¹ Second, the case illustrations aim only to establish the presence of the explanatory conditions and validate the QCA results, and not for causal inference, which would require much more in-depth research and the application of process tracing. Finally, the data collection in the case illustrations encompasses only secondary data such as the local NGO reports, journalistic investigations, and research outputs of the scholars focusing on Central Asia. Ideally, inferential case studies would rely on primary evidence such as interviews with the victims of covert repression, local privacy monitors, and experts on the digital economy.

QCA RESULTS

The results of QCA usually produce three different types of solutions – conservative, intermediate, and the most parsimonious solution. These solution types differ in terms of strictness and inclusion. This paper opts for the most parsimonious solution, which refers to the most minimal set of conditions that are sufficient to produce the desired outcome. Technically, it is obtained by including logical remainders into the logical minimization of the truth table. The most parsimonious solutions tend to be more interpretable and have a stronger generalization power. Furthermore, some scholars such as Baumgartner (2009, 2015) point out that only the most parsimonious solutions can be used for subsequent causal inference because it identifies causally relevant “boolean difference makers” whereby eliminating extraneous factors. The endnotes contain further conceptual differentiation between different solution types.²²

The methodological standard for the presentation of the QCA results is first an overview of the results of the necessity analysis and then sufficiency analysis through the truth tables and solution tables. A truth table contains the empirical evidence gathered by the researchers by sorting cases into one of the logically possible combinations of explanatory conditions known

²⁰In terms of the set-theoretic multi-method research, this pairing can be seen as a typical case (KZ) and an individually irrelevant case (KG), as recommended by Schneider (2023).

²¹The latter would require a more detailed theory-centred investigation based on process-tracing.

²²Conservative solution is a “solution that rests on no assumption about logical remainders. It is based solely on truth table rows that are deemed sufficient for the outcome based on empirical evidence. It is the subset of all other possible solutions” (Schneider & Wagemann, 2012, p. 324). Intermediate solution is a “solution term that is exclusively based on easy counterfactuals. It is a subset of, and more complex than, the most parsimonious solution term. It is a superset to, and less complex than, the conservative solution term” (Schneider & Wagemann, 2012, p. 328). The most parsimonious solution is a “solution formula among all logically possible solution terms that uses the lowest number of conditions and of the two operators logical AND and logical OR” (Schneider & Wagemann, 2012, p. 349). For a detailed discussion see (Oana et al., 2021; Schneider & Wagemann, 2012).

as truth table rows. Each row in a truth table can be interpreted as a statement of sufficiency (Schneider & Wagemann, 2012, p. 334). The solution tables summarize the solution formulas or combinations of conditions deemed necessary or sufficient for the outcome. In this paper, I also list individual cases relevant to these conditions.

Regarding the necessity analysis, no individual conditions were found to be necessary as neither of them passed the minimum required threshold of the consistency rate of 0.9.²³ As for the analysis of sufficiency, the consistency cut-off point was set to 0.8, while the PRI cut-off was set to 0.7 under the guidelines provided by the QCA literature (Braumoeller, 2015; Oana & Schneider, 2021), which resulted in slight model ambiguity reported in the supplementary materials (see Annex III and end-notes for more details).²⁴ The cut-off point for the number of cases was set to at least 2 per truth table row to reduce the noise in the data and address the problem of model ambiguity, which means that the QCA produces several alternative solutions with similar parameters of fit. As a result of this strict approach, all three types of solutions in the analysis of sufficiency have produced results without model ambiguity and with good performance on the parameters of fit (high consistency over 0.923 and PRI of 0.904) according to the standards of the QCA methodological practice (Schneider & Wagemann, 2012, Chapter 5). A concise version of the truth table is presented in Table 3 below, while the full version can be found in Annex II.

The most parsimonious solution presented in Table 4 offers three conjuncts which can be sufficient for the outcome. Some cases such as Kazakhstan, for example, fall into several table rows, indicating that they could be explained by different combinations of conditions. This means that either the interaction between digital uptake and the previous history of (overt) repression or autocratic linkages and autocratic linkages could be jointly sufficient to produce high levels of covert repression. In such instances, comparative case studies can shed more light on the within-case-level situation.

The results derived from the most parsimonious solutions proved to be consistent across different regime types – both for electoral and closed autocracies – which is illustrated by the results of cluster diagnostics. For cluster diagnostics, cases were subdivided per VDem and Feldstein's classifications (see Annex VIII for details). In terms of fit and robustness, the coverage of the most parsimonious solution spans more than 85% of the cases, with a consistency cut-off of 0.8. The robustness tests conducted following the protocol by Oana and Schneider (2021) demonstrate that while the solution is sensitive to changes in the cut-off values and the number of cases per truth table row, it remains robust. The outputs of the additional robustness checks can be found in Annex X.

Interestingly, there is only one explanation involving strong digital uptake. At a more abstract level, the explanation conforming with the path-dependency argument in the academic literature (HIS*DIG)²⁵ shows that there are possible interaction effects between strong digital uptake and the previous history of repression. This explanation sounds theoretically plausible and conforms both with the most recent empirical insights provided by Feldstein's study (2021) as well as older studies of repression (Davenport & Armstrong, 2004). This opens the question of whether the causal mechanisms suggested by Xu (2021) in his study of repression in different Chinese provinces might also be at play in other countries,

²³This does not hold for combinations of at least two SUN conditions, which were reported in Annex VI, but these conditions were not fully sensible from a conceptual point of view.

²⁴The high level of model fitness checks (PRI and inclusion cut-offs) has caused a slight level of model ambiguity (with two alternative models) in the case of the most parsimonious solution. From a technical standpoint, in the alternative Model 2, the HIS*LIN is replaced by another alternative explanation, LEG*LIN* ~ EFR. Nonetheless, in both cases, autocratic linkages play an important role, and follow-up case studies on this focal conjunct are recommended for further clarification. The more parsimonious model with a higher coverage rate was selected for presentation in this paper.

²⁵This paper uses a capital notation style for the present conditions/outcome (e.g., DIG) and adds a tilde to designate the absence of the condition/outcome (e.g., ~DIG). The asterisk sign (*) refers to a logical AND, while the plus sign (+) refers to a logical OR.

TABLE 3 Truth table: sufficiency analysis for the presence of covert repression (Y).

Truth table for Y										
LEG	HIS	LIN	DIG	COP	EFR	OUT	#	incl	PRI	Cases
30	0	1	1	0	1	1	2	1	1	Qatar, Saudi Arabia
53	1	0	1	0	0	1	4	0.997	0.995	Burma/Myanmar, Cuba, Eswatini, Vietnam
32	0	1	1	1	1	1	2	0.992	0.982	Bahrain, Turkey
31	0	1	1	1	0	1	3	0.987	0.977	Azerbaijan, Egypt, Iran
62	1	1	1	0	1	1	2	0.984	0.964	Oman, United Arab Emirates
64	1	1	1	1	1	1	3	0.981	0.955	Belarus, Kazakhstan, Russia
59	1	1	0	1	0	1	3	0.954	0.915	Burundi, Uzbekistan, Zimbabwe
56	1	0	1	1	1	1	2	0.952	0.806	Cambodia, Laos
23	0	0	1	1	0	1	2	0.950	0.884	Libya, Venezuela
19	0	0	0	1	0	1	5	0.942	0.907	Chad, Equatorial Guinea, Eritrea, Republic of the Congo, Yemen
27	0	1	0	1	0	1	8	0.924	0.888	Democratic Republic of the Congo, Djibouti, North Korea, Somalia, South Sudan, Sudan, Syria, Turkmenistan
48	1	0	1	1	1	0	2	0.878	0.624	Kyrgyzstan, Lebanon
11	0	0	0	1	0	0	2	0.835	0.554	Comoros, Mauritania
44	1	0	0	1	1	0	2	0.820	0.532	Kenya, Uganda
51	1	0	0	1	0	0	4	0.805	0.625	Afghanistan, Angola, Cameroon, Central African Republic
8	0	0	1	1	1	0	4	0.779	0.467	El Salvador, Nicaragua, Serbia, Thailand
42	1	0	0	0	1	0	3	0.768	0.233	Benin, Tanzania, Zambia
3	0	0	0	1	0	0	3	0.767	0.529	Bangladesh, Mali, Papua New Guinea
38	1	0	1	0	1	0	6	0.760	0.451	Fiji, India, Jordan, Malaysia, Morocco, Singapore
35	1	0	0	1	0	0	4	0.729	0.458	Guinea, Ivory Coast, Madagascar, Mozambique
36	1	0	0	1	1	0	2	0.710	0.244	Haiti, Nigeria
40	1	0	1	1	1	0	5	0.601	0.200	Albania, Honduras, Hungary, Montenegro, Philippines

Note: Consistency cut-off – 0.8; PRI cut-off – 0.7; and at least 2 cases per truth table row.

Abbreviations: COP, co-optation of businesses; DIG, digital uptake; EFR, economic Freedom; HIS, established history of repression; LEG, rational-legal legitimation; LIN, strong autocratic linkages.

TABLE 4 Sufficiency analysis for the outcome occurrence: most parsimonious solution (summary).

	inclS	PRI	covS	covU	Cases
~ LEG* HIS	0.942	0.924	0.484	0.082	Chad, Equatorial Guinea, Eritrea, Republic of the Congo, Yemen; Libya, Venezuela; Democratic Republic of the Congo, Djibouti, North Korea, Somalia, South Sudan, Sudan, Syria, Turkmenistan; Qatar, Saudi Arabia; Azerbaijan, Egypt, Iran; Bahrain, Turkey
HIS* LIN	0.942	0.924	0.555	0.027	Democratic Republic of the Congo, Djibouti, North Korea, Somalia, South Sudan, Sudan, Syria, Turkmenistan; Qatar, Saudi Arabia; Azerbaijan, Egypt, Iran; Bahrain, Turkey; Burundi, Uzbekistan, Zimbabwe; Oman, United Arab Emirates; Belarus, Kazakhstan, Russia
HIS* DIG	0.935	0.912	0.428	0.053	Libya, Venezuela; Qatar, Saudi Arabia; Azerbaijan, Egypt, Iran; Bahrain, Turkey; Burma/Myanmar, Cuba, Eswatini, Vietnam; Cambodia, Laos; Oman, United Arab Emirates; Belarus, Kazakhstan, Russia
Solution	0.904	0.875	0.758		

Note: Consistency cut-off – 0.81; each row represents a combination of INUS conditions (“insufficient but necessary part of a condition which is itself unnecessary but sufficient for the result”). (*) denotes a logical AND. (-) denotes the absence of a condition.

Abbreviations: COP, co-optation of businesses; DIG, digital uptake; EFR, economic Freedom; HIS, established history of repression; LEG, rational-legal legitimation; LIN, strong autocratic linkages; REP, covert repression.

given that China remains an outlier case. Nonetheless, within-case analyses of the possible causal mechanisms esp., concerning the institutional set-up of and changes in the repression apparatus, should be conducted further given the possibility of mechanistic heterogeneity.

There are two alternative “non-digital” explanations. One involves the interaction between autocratic linkages and the previous history of overt repression (LIN*HIS), while another one involves the interaction effect between the history of overt repression and the absence of rational-legal legitimation efforts (~LEG*HIS). In the former group, we observe many members of several autocracy-dominated international organizations (such as the Shanghai Cooperation Organization or the Gulf Cooperation Council). In the latter group, we observe a significant number of regimes that have exhibited trends for the arbitrary application of all types of repression strategies, as they are not particularly mindful of the economic or diplomatic costs and their side effects. These include the Democratic Republic of Congo, Djibouti, North Korea, Somalia, South Sudan, Sudan, Syria, and Turkmenistan. Detailed visual graphs for the sufficiency solution and the relevant parts related to the digital uptake can be found in Annex IX. These QCA results are visually summarized in Figure 1.

The QCA findings demonstrate that strong digital uptake alone is neither a sufficient nor a necessary condition for high levels of covert, “digital” repression. To produce the outcome, strong digital uptake acts together with other structural politico-economic conditions. This speaks to both more classical literature streams on path dependence and authoritarian legacies (confirming Preliminary Hypothesis 3) but also to the emerging studies on more dynamic factors such as autocratic linkages. Interestingly, the results show that autocratic linkages do not act as an alternative path to achieve high levels of digital repression in the absence of strong digital uptake (contrary to Preliminary Hypothesis 2). At the same time, the relevance of the previous history of repression as a factor is also supported by the analysis of outcome non-occurrence.

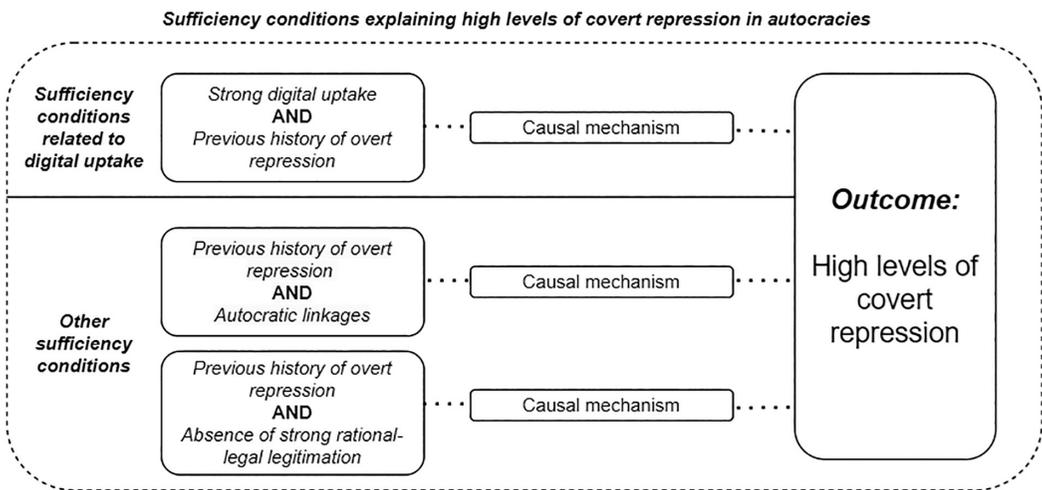


FIGURE 1 Visualization of the QCA results.

Note: Details of minor model ambiguity are also reported in Annex III.

To examine the actual qualitative presence of the discussed conditions in Hypothesis 3 (interaction between the digital uptake and previous history of repression), I also zoom into the country-level cases of Kazakhstan and Kyrgyzstan. The temporary scope conditions of the overviewed cases are limited to the period of 2016–2021 to keep it in line with QCA results. In the subsequent two sections, I first proceed with the historical contextualization of the repression apparatus in Kazakhstan and Kyrgyzstan, then describe the situation with the digital uptake, and finally link it with covert repression.

Case illustration: Kazakhstan

The case of Kazakhstan between 2016–2021 represents a clear case of a spin dictatorship actively leveraging covert repression techniques.²⁶ Kazakhstan has a decades-long tradition of political repression, going back decades into the past, all the way to the Soviet period (Privacy International, 2014). While the linkages between KGB practices and current post-Soviet repression apparatuses are more well-studied (Hosaka, 2023; Lefebvre & McDermott, 2008), this is less the case for the repression apparatuses before and after the spikes in digital uptake. Predating the high level of digital uptake in the 2010s, Kazakhstan's repression apparatus had been formed in the Soviet times, remaining largely non-curtailed during the post-independence period. The institutional structure of the apparatus largely revolves around the so-called Security Council, which was established in 1991 and includes the key law enforcement institutions.²⁷ As Nursultan Nazarbayev consolidated his authoritarian grip on power in the 1990s, the scope and cohesion of the repression apparatus remained stable. A new wave of strengthening the repression apparatus came in the post-9/11 era, where the government reinforced its political control using the pretexts of combating “extremism” and “terrorism” (Privacy International, 2014, p. 23). This effort was largely supported both by the West and the broader

²⁶The foundations for that were laid by Nursultan Nazarbayev (1991–2019), although according to the existing scholarly assessments, the administration of Kassym-Jomart Tokayev (post-2019) is leveraging similar techniques – e.g., see Zhandayeva and Rosenberg (2022).

²⁷The body includes heads of the Presidential Administration, the National Security Committee, the Ministry of Internal Affairs, the Ministry of Defense, the Intelligence Services, the Chief of the General Staff, and heads of both chambers of Parliament.

international community in the context of the US-led ‘War on Terror’ (Omelicheva, 2007). Anceschi (2015) in his article on media control in Kazakhstan describes how the Nazarbayev administration developed a sophisticated legislative framework encouraging self-censorship systematically undermining the supply of political analysis on the domestic online media market.

Mass-scale overt repression had not been both regular and systemic in Kazakhstan, but the apparatus often (over-)reacted to individual cases of politically sensitive situations – such as the 2011/2012 Zhanaozen uprising or the 2016 land reform protests.²⁸ Covert repression until the 2010s was largely unassisted by digital technologies, with direct interventions of the security agents and/or courts. For example, several autoethnographic works of both domestic and international scholars illustrate the workings of offline surveillance by individual representatives of the national security service (Dall’Agnola, 2023; Skriptaitė, 2023). Censorship, after slightly subsiding during the early years of independence, resurfaced once again by the late 1990s with pressure against journalists and outlets growing in numbers. Targeted libel suits based on more restrictive media laws became increasingly prominent in the late 2010s and early 2020s (Amnesty, 2023; Human Rights Watch, 2023). Although many of the printed and non-digital audiovisual media were dominated and/or owned by the representatives of the Nazarbayev clan disinformation was not seen as a systemic problem until the late 2010s (Anceschi, 2015; Lewis, 2016).

The spike in digital uptake in the 2010s became a critical juncture changing the repression patterns in the country. The number of Internet users almost tripled from 32% in 2010 to 86% in 2020 (World Bank, 2023a), with the number of secure Internet servers jumping from a miserly 3 servers in 2010 to 3307 in 2020 (World Bank, 2023c). Kazakhstan also significantly improved its position in the digitalization of the public sector, steadily progressing from 81st place in the 2010 UN E-Government Index to 29th place in 2020 (United Nations, 2023b). The same can be observed in the E-Participation Index, where Kazakhstan progressed from the 98th place in 2010 to the 26th place in 2020 (United Nations, 2023b). This large-scale digital uptake became a critical juncture, triggering observable changes in the government’s political control strategies, which became particularly visible in the mid-2010s. Dall’Agnola and Wood (2022) link the digital uptake to the rise of digital activism and an increased ability of activists to organize collective actions, which was correlated with the government’s response.

With the digital uptake, the government’s covert repression strategies did not undergo a systemic change but became more sophisticated and less visible.²⁹ Online surveillance is an area where the changes related to increased digital uptake were most evident because the government’s capacity to collect information increased significantly. The Systems for Operative-Investigative Activities (SORM) exported from and operated with Russian help could only wiretap phones in the 1990s and early 2000s (Bourgelais, 2013). In the 2010s, these were complemented with a variety of new digital hardware and software to monitor their Internet activity. The government also acquired technologies allowing the collection of all online data such as call logs, contacts, photos, device location, and messages from Italian and Israeli suppliers (Albrecht & Shunk, 2022; WikiLeaks, 2015), whereas before such information would have to be collected manually. A 2021 international journalistic investigation documented Kazakhstan’s procurement of the Pegasus software from the Israeli NSO Group, which enabled one group of elites to spy on a different group and journalists/civil society activists through their smartphone devices (OCCPR, 2021). In the period between 2015 and 2020 several attempts to mandate the installation of the so-called “cyber-security

²⁸Unsurprisingly, after that planned security-related and general bureaucratic expenses in Kazakhstan spiked for 2013–2014 to almost 1.8 trillion tenge, representing more than a quarter of the total national budget (Svoik, 2014).

²⁹Consider, for example, the usage of surveillance software such as Pegasus for the purposes of prosecution of individuals.

certificate” also took place. The certificate was marketed to strengthen the cyber-protection of personal devices and promoted via personalized SMS messages to citizens. If installed, however, the certificate could have enabled certain types of attacks on personal HTTPS traffic, allowing it to intercept and decrypt any traffic passing through the certificate's systems (Keumars, 2019). Complementing the data collection capacity, several Kazakhstani companies have formed a stable domestic market by the mid-2010s catering to the government's needs for the monitoring and analysis of public opinion online, making more invasive surveillance practices outdated (Moldabekov, 2019).³⁰ Services include big data analysis techniques, which have the potential to aid the government in making more sense of the enormous quantity of collected information.³¹

Changes in the area of disinformation were also observable. While the Kazakhstani regime did have significant control over the media landscape through agenda-setting in the 2000s (Schatz, 2009), promoting certain types of government-biased content online became increasingly prominent throughout the 2010s (Dall'Agnola & Wood, 2022). Such activities are not performed by the security apparatus itself but are increasingly “subcontracted”. For example, the use of troll and bot armies referred to as “nur-bots” became very prominent, spreading white noise messages and positive narratives benefitting the regime and/or local power networks (Kozhanova, 2021b). Several journalistic investigations point out that local politicians such as governors or mayors known as *akims* have started using bots to spread specific types of biased information about themselves rather than relying on the analog media (ACCA, 2020; Azattyq Radiosy, 2020; Bannikov & Lee, 2019; Kozhanova, 2021a; Smagulov, 2023). In some cases, these are positive messages or neutral messages about local politicians (“white noise”), but some target people with cyberbullying based on the type of messages that they have published on their social media – for example, after the 2019 presidential elections, posts about the post-election protests were targeted with mass-messaging of bots and trolls (Azattyq Radiosy, 2020). That said, at the moment of writing it is still not fully clear what kind of institutional support there was for nur-bots under the Nazarbayev administration at the national level.³² However, similar practices persist under Tokayev ever since 2019 (Boulay du, 2022).

Only in the case of censorship, more limited effects of digital uptake could be observed on the existing practices of the repression apparatus. While the cases of censorship on the Internet became prominent (Amnesty, 2023; Human Rights Watch, 2023), most of those were not technologically induced. Compared to other cases, where the censorship systems become semi-automated, in the cases of Russia and China, most of the monitoring in Kazakhstan in the early 2020s is still happening manually (Loskutov, 2023). For example, the legal mechanism foreseen for banning certain online materials in the mass media as of the early 2020s continues to rely on the user content reporting mechanism. Normally an individual or organization has to file a complaint with the authorities to trigger the procedures (see Article 13 of the Kazakhstani Mass-Media Law as of 2021, unchanged as of 2023). However, a special government-owned research center is legally responsible for content monitoring. One new development was that throughout the 2010s, the Kazakhstani government had been increasingly resorting to the tactics of Internet shutdowns in politically sensitive situations to prevent crises (Pavlova, 2023). Another interesting spillover effect into overt repression was the synergy between enhanced surveillance capabilities online and more precise targeting of certain members of the opposition when the results

³⁰Journalistic outlets such as Vlast KZ usually reference Alem Research, iMAS, and Media System.

³¹Generally, the role of domestic business and the IT sector in the rise of covert repression should indeed be studied more thoroughly.

³²Consider the case of Russia's “Internet Research Agency” indirectly supported by the government and government-affiliated oligarchs.

of the social media monitoring (e.g., comment and repost analyses) were used in silencing representatives of certain oppositional groups, which the Kazakhstani government views as extremist (Dyusengulova, 2021; Solntseva, 2018).

Overall, the Kazakhstani regime made large strides in using the country's strong digital uptake in the 2010s for political purposes. While progress in censorship has been least evident, the practices of surveillance and disinformation benefitted immensely from the uptake of new digital tools. In the area of disinformation, both cyber-bullying and “white noise” can be observed with the increased reliance of both local and, possibly, some national political actors on bot and troll armies. In the area of online surveillance, a local market of companies monitoring social media and the broader Kaznet space at the government's request emerged in the late 2010s. Finally, in the area of censorship, the regime mostly used the strategies of regular Internet shutdowns but failed to move beyond that: with content removal remaining largely manual. Thus, Kazakhstan can be classified as a typical case of an authoritarian regime where the digital uptake of the mid-2010s became instrumental for the new forms of covert repression.

CASE ILLUSTRATION: KYRGYZSTAN

The case of Kyrgyzstan shares several similarities with that of Kazakhstan, but also crucial differences related to the previous history of repression and the extent of autocratization. The Soviet repression apparatus was also passed down to the independent Kyrgyzstan, exactly like in Kazakhstan. Nevertheless, given the significantly more fragmented elite landscape in Kyrgyzstan, relationships between the government structures, businesses, and the incumbent have been more complex throughout the country's modern history (Cummings et al., 2013). Thus, the first and longest-serving Kyrgyz president, Askar Akaev, managed to last 15 years in power – only half of his Kazakh counterpart's term length. Even though almost all Kyrgyz presidents showed some authoritarian tendencies, many of them failed to centralize power due to a more fragmented elite landscape (Putz, 2021). Similar to Kazakhstan, the Kyrgyz presidents coordinated law enforcement and security policies through the so-called Security Council. The key difference was that the tradition of repression in Kyrgyzstan was undermined through institutional rearrangements and as the result of revolutions in 2005, 2010, and 2020, overlapping with elite conflicts. Especially the 2005 and 2010 revolutions were important in preventing the full-on consolidation of the repression apparatus because the new elite groups would attempt to reform the institutional framework of the security services to their benefit, but often failed to do so. There were also other (semi-successful/unsuccessful) reforms attempting to make the security service more transparent and open to civil society (Zubenko, 2019). The chaotic nature of the general institutional reforms in Kyrgyzstan also played a role here. For example, the database of the national Ministry of Justice records multiple adjustments to the structure of the security apparatus, with the composition of the Security Council changing 9 times compared to only twice in Kazakhstan.³³

Covert repression practices were not as widespread in Kyrgyzstan as they were in Kazakhstan in the 2010s. For example, censorship in Kyrgyzstan had not become systemic throughout the 2000s or 2010s, although occasional attacks and threats against journalists have remained commonplace (Freedman, 2012). The situation somewhat improved after the 2010 revolution, before starting to decline again closer to the end of the decade (Freedom House, 2015; Tokoyeva, 2023). This, however, was mostly related to the legislative initiatives by

³³For more up-to-date details, the national legal database portals such as <http://cbd.minjust.gov.kg/> and <https://zan.kz/> can be consulted.

the post-2020 Kyrgyz government related to the alleged goal of “combating misinformation” (Reporters Without Borders, 2021). The surveillance infrastructure in Kyrgyzstan was built on the same SORM architecture as in other Central Asian republics (Privacy International, 2014, p. 73), but there was little evidence of advanced digital surveillance systems implemented on top of it. Finally, unlike in Kazakhstan, the media landscape in Kyrgyzstan consistently remained more diverse (Cummings et al., 2013; Putz, 2021). This, linked with inter-elite conflicts, made it more challenging for the government to employ either traditional or digitally induced disinformation techniques.

A large share of the digital uptake occurred in Kyrgyzstan in the second half of the 2010s. The share of the population using the Internet rose from 16% in 2010 to 30% in 2015 but then jumped to 72% by 2020 (World Bank, 2023b). The number of secure Internet servers went from 10 in 2010 to 2771 in 2020, which is slightly lower than in Kazakhstan (World Bank, 2023d). In terms of digital uptake in the public sector, Kyrgyzstan was lagging behind Kazakhstan much more significantly. There was little change in terms of e-government, with Kyrgyzstan moving from the 91st place in 2010 to the 83rd place in 2020 in the UN E-Government Index (United Nations, 2023a). As for e-participation, the country dropped from the 28th place in 2010 to the 66th place in the respective UN Index. Overall, while the digital uptake in Kyrgyzstan in the 2010s was weaker than Kazakhstan's, it was still rather significant.

According to the QCA model, Kyrgyzstan represents a comparative “show” case (or individually irrelevant case) in the DIG*HIS pathway, meaning that it lacks the history of overt repression component. Indeed, there is very little evidence of the interaction between the digital uptake and the repression apparatus even in the late 2010s. Only minor effects are observable in surveillance. For example, in the mid-2010s, the government mandated further integration between the existing SORM and ISP technological requirements (Freedom House, 2015), but the demands were met with significant opposition from some businesses (Zholdoshev, 2015). Unlike in Kazakhstan, there seems to be no evidence of a social media monitoring market that formed in the late 2010s and that would cater to the government. One spike in surveillance efforts was connected to the COVID-19 pandemic when the Kyrgyzstani government validated a COVID-19-tracking app developed by a government-affiliated firm “Center for Digital Technologies”.³⁴ The app collected significant amounts of unnecessary personal data for unclear purposes unrelated to the issue of coronavirus quarantine (Baymuratova, 2020), but has never been adopted at a truly mass scale. Nonetheless, the long-term repercussions of the app's usage remain unclear especially after the regime change in 2020, especially given that the scale of its usage was not truly national.

Finally, there is not much observable evidence on the digitalization of the government-induced censorship systems either. By the mid-2010s, there were few to no cases in which Kyrgyzstan had forced the removal of content online (Freedom House, 2015). As for the content that the government deemed illegal which was hosted on servers outside of Kyrgyzstan, ISPs resorted to blocking the content since they cannot require that the host providers remove it. Unlike in Kazakhstan or its other Central Asian neighbors, the government of Kyrgyzstan failed up until the late 2010s to guarantee state control of ISPs. The reason for that was the lack of functional legal and technical provisions for shared use of existing infrastructure by ISPs, which would force them to build redundant and expensive infrastructure (Schwartz & Overdorf, 2019). Restrictions related to freedom of expression such as the passage of the 2020 Act on Combating Disinformation) remain administrative and unsupported by digitized content-removal systems.

³⁴This is also indicative of the role of businesses in the process of building up the covert repression apparatus.

The only area of visible uptake of covert repression was the spread of disinformation techniques in Kyrgyzstan, mimicking and advancing some of the trends in Kazakhstan and Russia. Their levels of usage spiked from 2018 onwards with another wave of autocratization domestically (Eshaliyeva, 2020; Factcheck.kg, 2022). There is evidence suggesting that the Kyrgyz troll and bot factories are semi-automated, with both hired commentators posting positive comments online and special software generating profiles and comments automatically (Factcheck.kg, 2022). That said, several people involved in the functioning of a former troll factory in Kyrgyzstan admitted that the scale of such companies engaging in fully automated information spreading is still relatively small (Factcheck.kg, 2022), with most assignments being given out to individuals. Such assignments usually meant posting a certain number of comments and performing reposts. While there is no evidence suggesting a direct link with the government, some pro-government parties resorted to the usage of those technologies in 2020 (Factcheck.kg, 2022).

Overall, there is evidence suggesting that the digital uptake of the late 2010s impacted the existing repression apparatus in Kyrgyzstan. The covert repression levels in Kyrgyzstan by the end of 2021 remained rather low, although they started to grow very quickly just before the downfall of the administration of Sooronbay Jeenbekov and after the rise of his successor. Kyrgyzstani political scientists have documented exactly the period of 2020–2021 as a breaking point, even though cases leading to self-censorship related to the targeted application of both covert and overt repression go back to the 2000s (Sharshenova, 2023). Still, by 2021, the domestic market for social media and online content monitoring service providers had failed to form in Kyrgyzstan. There were no technology-drive censorship strategies, while content removal largely remained manual even as of the early 2020s, mostly because the state in the 2010s failed to centralize its control over the ISPs and relevant digital infrastructure. While some troll and bot factories provide services to some pro-government parties, the scale of their usage only began to scale up by the early 2020s.

The lack of high levels of covert repression is, therefore, in line with the QCA expectations, given the absence of a consistent history of (overt) repression in Kyrgyzstan. This absence, despite Kyrgyzstan's Soviet colonial experience, is an interesting phenomenon deserving a separate research project of its own. From the collected evidence so far, it could be linked to elite fragmentation, elite conflicts, and a diverse media landscape (as opposed to Kazakhstan where both power and resources were concentrated under the Nazarbayev regime). Finally, the trend for low levels of covert repression in the second half of the 2010s could also change under the recently elected Japarov administration. For example, Japarov could attempt to leverage Kyrgyzstan's growing autocratic linkages or cement the covert repression apparatus beyond the paper's temporal scope. As the concerns of the local scholars show, the contrary might be the case (Sharshenova, 2023), which is why further monitoring of the situation with the covert repression in Kyrgyzstan might be required.

CONCLUSION AND LIMITATIONS

The findings of this paper demonstrate that there are two ways for strong digital uptake to interact with other structural conditions and produce high levels of covert repression. Strong digital uptake has to be combined with either strong autocratic linkages (DIG*LIN) or the previous history of repression (DIG*HIS) to be jointly sufficient for a high level of covert repression. There are also alternative explanations that do not necessarily involve digital uptake as a condition. The first is the absence of legitimization efforts in interaction with the previous history of repression (~LEG*HIS), which covers closed authoritarian regimes. The alternative is the interaction between autocratic linkages interacting with the absence of economic freedom (~EFR*LIN), which covers a more diverse set of autocracies.

The paper has illustrated only one of the possible causal pathways (DIG*HIS) to achieving covert repression in the cases of Kazakhstan and Kyrgyzstan. Kazakhstan as a typical case shows how achieving a high level of digital uptake may become a sort of “critical juncture” for the repression apparatus of a country with an established history of overt repression. Specifically, the repression apparatus of the consolidated authoritarian regime of Nursultan Nazarbayev seems to have benefitted from using digital uptake for better surveillance and, to a certain extent, more powerful disinformation and censorship tactics. In Kyrgyzstan, by contrast, successive governments failed to strengthen their covert repression mostly because of the regular disruptions to their repression apparatus.³⁵ The case illustrations validate the QCA findings. Nonetheless, other pathways involving autocratic linkages (HIS*LIN) and rational-legal legitimation (~LEG*HIS) should be explored further, with the QCA results providing a stepping stone for future case studies investigating the possible explanatory factors driving covert repression. Exploration of these pathways, given the need for process-tracing and “thick description” remains outside of this article's scope.

The findings of this paper face several limitations and require further research. Naturally, this paper only provides the first step to the process of theory generation related to the causal patterns behind covert or “digital” repression. First, there were challenges related to the aggregation of relevant data that would be most suitable for operationalizing specific conditions. For example, more up-to-date comprehensive panel data on digital uptake could be helpful for more fine-grained research. This data could also include information on innovativeness or the uptake of more advanced digital technologies such as, for instance, artificial intelligence.

Second, the QCA findings alone cannot be used for causal inference and should be followed up by inferential, not illustrative comparative case studies. Several future avenues, therefore, could stem from the results of this paper. To properly investigate the causal properties of the findings and their generalizability, detailed comparative case studies should be performed on both the confirmed preliminary and new hypotheses (Oana & Schneider, 2021, p. 185–186; Schneider & Rohlfing, 2013). Specifically, this entails additional testing for alternative pathways other than HIS*DIG. The case illustrations of Kazakhstan and Kyrgyzstan described above provide only an initial overview and would have to be developed further in a separate process tracing-based comparative case study complemented with extensive fieldwork. Based on this example, however, more case studies can be developed for other causal pathways such as HIS*LIN and ~LEG*HIS. These QCA results could make future case studies more theory-driven and help uncover either causal mechanisms or other potentially relevant conditions explaining high levels of covert repression.

Third, QCA provides only a snapshot of the situation as of 2021, and it is much more difficult to integrate a time dimension into this method. However, potential explorations with so-called tQCA (temporal QCA) or time-based cluster diagnostics could be considered in future research. Theoretically, testing the same hypotheses with alternative methods such as econometric techniques using panel data could also be possible, if the raw dataset is expanded and modified.³⁶ While not fully unprecedented (Fiss et al., 2013), this approach would require a complete reversal of the ontological and epistemological assumptions behind the theoretical framework of this research (Schneider & Wagemann, 2012). Based on the existing empirical evidence, so far, there seems to be no need for such a reversal.

Fourth, given the scope of this article, it could not touch upon some topics that would be still quite interesting to investigate. For example, the concept of technology-assisted offline surveillance such as the usage of AI-based facial recognition technologies is getting more prominence in the literature but fell outside of the paper's scope. Consider

³⁵Nonetheless, the lack of evidence as of the cut-off point of this article's temporal scope (2021) does not necessarily mean that Kyrgyzstan will not be able to increase its levels of digital repression in the future.

³⁶E.g., using Heckman-type selection models with corrections for autocratic regimes and fixed effects.

the increasing usage of “Sergek” cameras in Kazakhstan (Bitterwinter, 2022; Freedom House, 2023) and Kyrgyzstan’s similar embrace of the Chinese external surveillance systems (Torgeldyuly, 2023). These certainly deserve papers of their own. Methodologically, apart from the recommended case studies to follow up on other explanatory pathways, a similar QCA framework could be developed for the investigation of digital repression patterns not only in autocratic or hybrid regimes but also in democracies. Furthermore, once more empirical within-case-level evidence on covert repression becomes more available, the current QCA results can be updated, also to exclude cases of model ambiguity. Replication studies can also be conducted with better measurements of the explanatory conditions (e.g., with a digital uptake index that will also consider other aspects of the national digital economy’s development).

Despite the paper’s limitations, it contributes to the existing literature on digital technologies and authoritarianism in three ways. First, it shows that strong digital uptake is only one of the few factors that can bring about a rise in “digital”, covert repression. Second, the paper pinpoints the problem of how factors explaining covert repression are context-dependent. While it partly confirms some of the existing expectations in the literature related to path dependence in repression, it also raises the question of the role of other factors such as autocratic linkages as well as possible causal mechanisms at play. Third, it enriches the literature on digital authoritarianism by pushing beyond the so-called models offered by China and Russia (Meserole & Polyakova, 2019). Regarding the Chinese case, it becomes very evident that the country is an outlier, and its covert repression model is hard to replicate in other autocracies. The models of “digital dictatorships” in smaller autocracies might not necessarily look like 1984. They can be much more subtle yet still extremely dangerous for civil society.

Finally, the findings of this paper provide new foundations for further covert repression research of both qualitative and quantitative nature. Apart from conducting replication studies, there is also a need to follow up on the findings by investigating the causal mechanisms linking digital uptake and other conditions with covert repression. From the perspective of digital authoritarianism literature, it opens the question of the role of the digital economy in political repression. Following up on the calls to investigate the role of private actors and elite groups in the commodification of authoritarian practices (Saglam, 2022; Schlumberger et al., 2023), this paper provides a starting point for an evidence-based selection of cases investigating covert repression in autocracies. Opening the black box of the political economy of covert repression requires in-depth country-level cases supplemented by business analyses, which should combine a variety of interdisciplinary approaches and methods.

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The data that support the findings of this study are openly available in the Zenodo Repository at <https://zenodo.org/records/10814520>.

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SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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