The double-edged sword?

A quantitative analysis of authoritarian stability in the digital context.

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Abstract

Ever since its introduction the relationship between the modern information and communication technologies (ICTs) and authoritarian stability has been a topic of discussion. We have witnessed how the tools these technologies brought with them have been used to mobilize protest and topple dictators, at the same time we are seeing how authoritarian leaders use the technologies for the benefit of their own through enhancing surveillance and propaganda efforts. A duality that is shared by the scholars on the topic. This thesis aims to contribute to the understanding of how modern information and telecommunication technologies impacts autocratic stability, through examine whether the relationship is different depending on which digital tactics the autocrat uses. In doing this the thesis emphasize on how using the technology for the purpose of *repression*, affects the outcome of the technology use in authoritarian countries. The question has been answered through logistical regression analysis, comparing how the use of ICTs effects the probability of autocratic breakdown under the moderation of "digital repression", during the time period of 2000-2017 and in 75 countries. The results are unclear, however signs of relevant factors impacting the relationship for future studies are found.

Keywords: Authoritarian stability, modern Information and Communication technologies (ICTs), Repression

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1.Introduction

"The Goliath of totalitarianism will be brought down by the David of the microchip" are the words of former president Ronald Reagan in 1989(Rule,1989). He expressed them during a speech in London in regard to the eventual "triumph of freedom" over totalitarianism. A triumph where technologies where central, the knowledge these technologies brought would undermine old state monopolies over information (Rule,1989). Just some months afterwards the world witnessed the fall of the Berlin wall and former east European states were democratizing. The hypothesis was now confirmed, and the spread of liberal democracy was now without any hurdles.

30 years later the world witnessed how technology helped the citizens of the MENA region to topple dictators that the world regarded as eternal. Events that further validated the view of communication and information technologies as the carrier of liberty. However, today the democratization wave has slowed down and been replaced with an "autocratization", instead of more democracy we are experiencing an increase of repression and autocratic behaviors from regimes throughout the world (Luhrmann & Lindberg,2019). A development that happened in spite of the introduction of sophisticated communications technologies described as bringers of freedom and liberty (Rule,1989). The question of why this promise has not been fulfilled is of importance. As autocratic behaviors are becoming more frequent, understanding about the role that modern communication technologies have in this development is necessary for democracy promotion in the modern era. Absence of this knowledge implies a world where autocratic forces have an advantage, as a result the technologies would develop into the oxygen of authoritarianism, where the technologies are used without hurdles for the benefit of autocrats.

As modern communication technologies were at its nascent stage their relation to autocratic regimes was a discussed topic. By some the two phenomena were described as incompatible because of the threat communication technologies implies for autocratic stability, consequently autocratic leaders would resist the diffusion of the technologies (Miller,2006). Fears that were fulfilled as the technologies had a central role in several protests' movements and in mobilizing oppositional forces through giving alternative information sources in an earlier closed environment (Diamond,2010). However, recent literature has described technology as a benefit for autocratic rule. As it can be used to enhance surveillance (Kendall-Taylor et al,2020), repression (Kendall-Taylor et al,2020, Gershweinski & Dukalskis,2020) and regime propaganda (King et al,2013; King et al,2017). The

different views indicates that we know little about the relationship between technology and autocratic stability.

The aim of this thesis is to understand how the use of modern information and communication technologies affects the stability of authoritarian regimes and also explore other factors that may impact the relationship. The term *information and communication technology* is broad and implies several technologies, in this thesis I will apply a broad and unspecified definition that includes everything related to modern communication and information technologies. This thesis attempts to explore this complex relation, in answering the question How does modern information and communications technologies (ICTs) impact autocratic stability?

2. Literature Review

2.1 Autocratic Use of Modern Information and Communications Technologies

Diamond (2010) describes modern technologies as "liberation technologies" and the ways these technologies act destabilizing for authoritarian regimes. The use of technologies undermines the regime's control over information flows. Through creating blogs, using chat forums and online newspapers digital tools introduces new actors into the media landscape. These new actors are characterized by reporting that would be censored by the conventional regime-controlled media (Diamond,2010). As a result, the societal debate "widens" as the public gain access to information they never would have got without the technology. Moreover, technologies provide citizens with tools such as censorship-avoiding software and encrypted chat-applications that contribute to "opening up" the public debate (Diamond,2010). Through these tools activists are now able to communicate and access websites, something that would be impossible without the technology. Lastly, through their mobile cameras citizens documents, and share government abuses and mishandling. Videos that are spread rapidly and are important to create mobilization (Diamond,2010). All these three effects of technology contribute to a digital mobilization, where protests are organized through digital platforms.

There exist several occasions where the technology has been used as Diamond (2010) describes. During the "Arab spring" technologies played a central part in mobilizing protest, with the help of digital tools the earlier hardships of collective action were overcome (Howard & Hussain,2013). At platforms as Facebook, footage of the protesting masses was shared, and the discussions were lively. The regimes many attempts to constrain the mobilization through censorship and shutdowns, where countered by changing platforms or using censorship-avoiding software. We have seen several similar

examples of this destabilizing use of technology, during the "Green movement" protest in Iran (Rahimi,2010); in the Gezi-park protests in Turkey (Haciyakupoglu & Zhang,2015) and most recently in Myanmar when the newly military regime imposed an internet shutdown after the successful coup it orchestrated (France-Presse, 17 February 2021).

This view of technology as destabilizing is contested by a new set of scholarship. Gerchwinski & Dukalskis (2018) adjust conventional theories of autocratic stability(Gershwinski,2013) to a digital context and describe how authoritarian regimes use the internet for co-opting, conducting repression and obtaining legitimacy, through analysing the North Korean case. The North korean regime's role as a gatekeeper of internet access enables them to favour important groups such as the educated and elitis, through giving them control over the IT-economy. As a result loyalties to these important groups are maintained, while the majority do not access simple internet connection. That makes co-option a central part in the regime's digital strategy. In North Korea internet accessibility is limited to narrow parts of the population with low penetration in the population, and the limited connectivity is characterized by censorship(Gershwinski & Dikalskis,2018). A form of "Soft repression" that denias basic services and hinders the oppositional forces ability to coordinate. Lastly, the regime spreads its propaganda through digital tools to create legitimacy for its rule. This type of use it's on its rudimentary stage as it applies simple tactics such as use it for circulation of government messages and propaganda(Gerschweinski & Dukalskis,2018) . The reason for this is probably the low usage in the country, a capacity that should develop as the internet usage rises. A capacity that would allow the regime to try to form the internet after it's preferences, similar to fellow authoritarian regimes.

These kinds of stabilizing use of technology are common within contemporary authoritarian regimes, but observations show variation in how the technologies are used by the regimes. The Chinese communist party tactics have a large emphasis on sophisticated surveillance methods, where the "social credit" system is an example of how technology is used for repression and co-option (Kendall-Taylor,2020). Actors and citizens that do not comply with the regime's definition of "good behaviour" are downgraded, as a result they are not able to access state-benefits and other services (Kendall-Taylor,2020). The technological competence of the Chinese regime is also illustrated in how the regime uses digital censorship tools. The digital censorship program allows citizens to express discontent about the regimes and its performance, but censors discussions with potential to contribute to collective action against the regime (King et al,2013). The reasons for this use are unclear, however King et al. (2013) suggest that an open social media climate could constitute a way for obtaining information regarding the population's satisfaction on the government's performance, so it could adjust to possible dissatisfactions. If correct, we would witness a stabilization of authoritarian regimes' use of censorship. However, as conventional use of censorship, use of digital censorship could

possibly backfire if revealed (Gerschewinski,2013). A possibility that has not been considered by the earlier literature.

An example of other applications of communications technologies is the Russian regime's use of the technologies. It is characterized by emphasizing on technology's ability to construct legitimacy for the regime. Through using fake accounts on digital platforms, the Russian regime spreads friendly news stories and propaganda, narratives that distracts users from criticisms that exist on the same platforms (Kendal-Taylor et al,2020). This distraction is vital for hindering oppositional mobilization, it creates hesitation within the population regarding oppositional forces, that develops into confusion about the political landscape. This kind of use is only in its dawn. Technological development introduces more sophisticated tools as "deep fakes" and microtargeting, which contribute to further manipulating the digital context. Through using these new technologies autocrats are able to target specific groups to establish their narratives within specific segments of the population(Kendal-Taylor,2020). The Chinese regime also has similar methods for manipulating in its repertoire. King et al (2017) describes how the Chinese regime tasks government employees with spreading propaganda narratives using fake accounts, as a way of distracting citizens from mobilizing.

Lasly, it should be noted that the methods are not exclusively by any specific regime or that use of one tool excludes another. The methods are a part of a larger toolbox for obtaining stability where the tools that are used is dependent on several circumstances (Keremoglu & Weidmann,2020). An autocratic regime can both use massive surveillance and manipulation of the digital environment.

2.2 Autocratic Stability

The understanding of how authoritarian regimes secure their stability has shifted in periods that emphasize different central factors in the regime's strategies. Gershweinski(2013) summarize these different explanatory schemes with one coherent framework that describe legitimacy, repression and co-option as the "central pillars" for authoritarian stability.

The first scholars on the subject used the concept of totalitarianism in describing "a new form" of authoritarian rule. In contrast to earlier authoritarian regimes the totalitarian regimes of the early 20th century that were characterized by a societal ideology that was forcefully implemented with high levels of repression (Arendt,1956). Through repression and fear, the population got subjected to the ruling ideology. As repression is the threat or actual use of force against a domestic actor, with the purpose of deterring or imposing a cost on threatening activities from different actors (Davenport,2007). A definition that includes all acts with this purpose, whether the act is obvious or covert, violent or nonviolent and lastly independent of the degree of state sponsorship. Shortages of

other examples of totalitarianism undermined the relevancy of the concept and over time other factors were described as central to autocratic stability.

A new set of scholarship emphasized on the role of legitimacy in obtaining autocratic stability. For instance, the concept "Bureaucratic authoritarianism" describes how authoritarian leaders adjust to the emerging threats economic development induce to their stability (Collier,2001). A growing middle class during the 1970s forced South American authoritarian regimes to perform economically to avoid popular protests. As a result of this literature, new factors were recognized impacting authoritarian stability. The last set of scholarships broadens these factors and describes how different institutional characteristics benefit autocratic stability through creating contacts to the population. Having democratic institutions such as legislators' functions as a gate to the broader population and enables possibilities to be understanding the public opinion, to understand which groups possess a threat or not (Gandhi & Przeworski,2007). Furthermore, distribution of patronages surrounding elections works as a tool for binding the population to the regime elite (Gandhi & Lust,2007). These are all examples of how the regime apply cooption tactics

Gerchwinski(2013) describes how these three pillars contribute to the "stabilizing process" of autocratic rule, and how the achievement of stability is dependent on the institutionalization of these "pillars". An institutionalization that theoretically is reinforced externally from the pillars by the regime, internally within the pillars through self-reinforcement, or through the reciprocal relation between the different pillars, that the presence of one "pillar" strengthens, weakens or complements another pillar (Gerchwinski,2013). For instance, high levels of legitimacy through ideology simplifies use of repression as the population are ideological harmony. However too much reliance on repression can backlash and bring consequences as increasing discontent (Davenport,2007).

In complement to Gerschwinskis(2013) linkage of autocratic stability to the three "pillars", Svolik(2012) makes a distinction between the two major threats to regime, the threat from the "masses"(the population) and the threat from within the ruling elite. The elite that Svolik(2012) describes as the consisting of the "ruling-coalition", that is the dictator and his allies. The relation between the actors within the coalition is characterized by dependence and hazards, as the dictator is dependent on his allies to govern, while the allies are dependent on the dictator for their position (Svolik,2012). This relationship can have two shapes, firstly that the allies and the dictator rule together in an oligarchy, where the power-sharing is characterized by rules and institutions that brings stability. Alternatively, this power-sharing fails, and a personal-autocracy emerges, where the allies only have a supportive role to the rule of the autocrat. This constant power-struggle acts destabilizing as the allies distrust the dictator to usurp power at their expense (Svolik,2012). A destabilizing effect that can be neutralized through the use of institutions that enables rules-based power sharing where all

involved parties can share the benefits of the rule, without the fear of losing their position (Svolik & Boix,2012). However, the threat from the people will be the emphasis of this study.

2.3 The Gap & Contributions to The Existing Literature

At the moment the existing literature on authoritarian use of modern information technologies only describes how the technologies are used by authoritarian regimes, where the literature recognize three different types of uses (Keremoglu & Weidmann,2020). First, the populations' access to the technologies can be regulated, where the regimes hinder segments of the population to use the internet through putting hurdles to their use as in North Korea (Gershwinski & Dukalskis,2018) or shutting-down the internet as recently in Myanmar (France-Presse,17 Febuary,2021). Secondly, the repression can be enhanced and more effective through technologies, where surveillance and censorship that earlier were dependent on a large intelligence service are now conducted with computers as in China (Kendall-Taylor et al,2020; King et al,2013). Moreover, the technology is used for manipulating the public discussion in favor of the regime and its appearance within the population (King et al,2017, Kendall-Taylor et al,2020). It should be noted however, that one use does not exclude another and that they are a part of a "digital tool-box (Keremoglu & Weidman,2020) Where both stabilizing and destabilizing effects can be argued for. Be that as it may, assessments of how use of different tools and tactics impact the relationship between information and communication technologies and authoritarian stability are missing.

3. Purpose and Theoretical Framework

3.1 Purpose and Research Question

In filling this gap, I will link the literature on authoritarian use of technologies with the literature on autocratic stability to explore the relationship between the two phenomena and try to clarify how modern information technologies impact autocratic stability. However, the different applications of technology the concept of *information and communications technologies* implies, is a hurdle for the purpose of this thesis (Keremoglu & Weidman,2020). Consequently, I will emphasize on the use of digital repression and narrow the original research question:
How does modern information and communications technologies (ICTs) impact autocratic stability?

And construct the following question: *How is the effect of information and communications technologies on autocratic stability moderated by the level of digital repression used?*

3.2 Theoretical Model

The thesis will assess how the use of digital repression influences the relationship between use of modern information and communication technologies, and autocratic stability. Therefore, digital repression will be treated as an interacting variable, with ICTs as independent variable and autocratic stability as dependent variable. This model allows us to understand the impact of using digital repression on the overall relationship between ICTs and autocratic stability. Through using confounding variables, it also allows assessing under which conditions "digital repression" functions more efficiently, and under the conditions it does not.
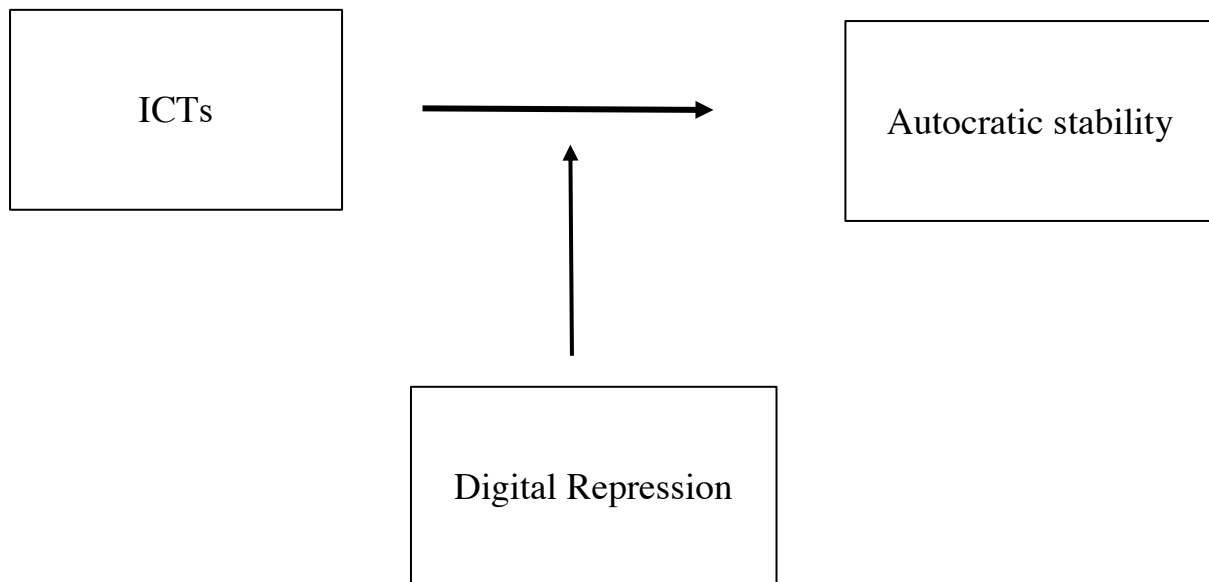
3.3 Hypothesis

The thesis argues that the presence of modern information and communications impacts autocratic stability, as described by earlier research. However, the relationship between phenomena is not clear as the literature finds evidence for both stabilizing and destabilizing effects. Hypothesizes are as a result constructed for both the outcomes. Lastly the effect could vary depending on level of digital repression used.

H1: *Access to information and communication technologies increases the probability of autocratic breakdown*

H2: *Access to information and communication technologies decreases the probability of autocratic breakdown*

H3: *Access to information and communication technologies decreases the probability of autocratic breakdown with high levels of digital repression. (And increases the probability of autocratic breakdown with low levels of digital repression.)*

4. Design & Method

To answer the question, I will apply statistical analysis. Statistical analysis gives the possibility to systematically examine large quantities of data on many units of analysis (Essaiasson et al,2017). Another benefit is the ability to include confounding variables that influence both the dependent and independent variables in the study, which allows to measure the impact of other possible factors (Essaiasson et al,2017). I will apply panel-data to make comparisons over time. Data from the digital society project (Mechkova et al.201), International telecommunications union (ITU,2020) and Geddes et al (2017) will be used.

4.1 Benefits of Method

In this section I will further discuss why statistical analysis is most suitable for answering the question.

To draw conclusions about the impact modern information and communication on autocratic stability a comparison over time between many autocratic states has to be made. This can be made effectively with the help of statistical analysis (Essaiasson,2017). Particularly, a regression analysis that allows us

to understand the correlation between the independent and dependent variable. This is tied to the explanatory ambition of the thesis on what the effects of authoritarian use of these technologies are, and thus contribute to the overall development of theories surrounding authoritarian stability in the digital context.

Using other methods for answering the question is also a possibility. For the purpose of the thesis, to develop explanations on how two phenomena are related, qualitative methods such as process tracing are an alternative to statistical analysis. Process tracing involves tracking the relationship between the independent and dependent variables in a case or a few different cases through analyzing the use of technology in those specific cases (Essaiasson,2017, p.129). To then be able to draw conclusions on the relationship between the variables and which factors are important in the relationship between the variables. It is beneficial in an initial stage for exploring possible variables affecting the variables to develop a theory. However, this kind of method is not suitable for drawing conclusions and generalizing the relationship between the variables as a small number of cases are analyzed (Essaiasson,2017).

4.2 Data

In this section I will discuss the datasets I have chosen for answering the question and their possibility for generalizing. A short presentation of the data will be made generally to then be followed by discussions of the data for each variable respectively.

The data that will be used is times-series cross-sectional data where the data consist of observations of countries over time. The units of analysis are therefore countries with the panel-variable being set for years. The observations span a time period of 17 years for most observed countries from 2000 to 2017. 75 countries will be included in the study. The number of observations is 1065 and they are limited to only authoritarian countries.

For measuring the penetration of modern information and communications technologies I will use data from the International Telecommunications Union. Their datasets contain several variables measuring the penetration of these technologies (ITU,2020). For the purpose of the question, I am interested in knowledge about the availability of the technologies and how much they are used in each country. Variables such as "% of population using the internet" and "fixed broadband subscriptions" satisfy my needs as they all give an indication on how well the technologies have penetrated each society respectively. However, in understanding the quality of the connectivity and the technological knowledge of the use there exists some variation between the variables. For instance, broadband access implies faster internet access, as such it should be considered as high standard use with the possibility for video sharing easier communication. The variable measuring mobile cellular

subscriptions correspond with a more flexible use of technology, as it is personal. At the same time, the communications part is the emphasize of the variable as it does not measure whether the "mobile subscriptions" has internet access (ITU,2020). However, the dataset and its variables does not give an indication on factors such as "education" and "technical literacy" which surely affects how the technology is used as decent use of the technologies is dependent on some level of knowledge. Therefore, it has to be complemented with confounding variables which I will discuss later.

Geddes's et al (2014) dataset on "autocratic breakdown and regime transition" will be used for measuring autocratic stability. The dataset includes a broad set of characteristics surrounding authoritarian regimes that are relevant for understanding autocratic stability. For instance, it makes a difference between regime types which allows us to understand the type of institution and which organization they have. Emphasizing on the characteristics of authoritarian regimes for understanding autocratic stability, broadens the concept beyond relating autocratic instability to democratization (Geddes et al,2014). Which is beneficial because it captures more instances of regime instability, beyond only democratization. For instance it includes variables indicating how often the leadership changes and information regarding the how the regime failure occurred which gives us information regarding where the threat originates from. The original dataset only includes observations to 2010, but I will use an extended version that stretches to 2017[1].

I will use Kendall-Taylor's et al (2020) conceptualization of "digital repression", through using their index that is based on variables from the digital society project database (Mechcova et al,2020). The database conceptualizes questions related to the political environment of internet use, and the relationship between politics and internet more generally (Mechcova et al,2020). For instance, it includes variables related to censorship, politicizing of social media and digital propaganda. As a result of its broadness, it captures several dimensions of digital autocratic behavior and gives an indication of which tools are relied upon in the larger authoritarian "digital-tool box" (Keremoglu & Weidmann,2020)

The focus of the thesis is on autocratic states and what the consequences of "digital repression" are on their stability. All autocratic states are therefore the units of analysis and the data will be analyzed comparatively between the autocratic countries. It should be noted that autocratic regimes counter diverse challenges and threats, they have for instance different economic structures, are at different stages of development and have different demographic structures. Differences that should be considered for being able to draw conclusions and generalize, as they impact the need for using digital

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[1] Through personal contact with Mr Joseph Wright, I was able to gain access to an unpublished extended version of the dataset, I am deeply thankful for this.

repression. Therefore, it is suitable to control the impact of other variables on the relationship. These variables will be brought from different datasets such as the world bank (2020). Using several datasets can bring adjustment problems between the datasets where observations are not compatible between the dataset, which complicates the possibility to draw conclusion. Something I will further discuss in the operationalization.

4.3 Excluded Data

In studying autocratic stability threats originating from internal events is of most interest for the study. Like demonstrations, uprisings, military coups or elections, therefore threats originating from external actors will be excluded. Consequently, observations indicating a foreign imposed failure will be excluded from the data as it indicates that the populations technology use have been minimal in the failure. Including those observation would exaggerate the impact of technology on regime stability.

5 Operationalization

In this section I will discuss how each variable respectively will be operationalized, and also discuss how covariates will be measured. The discussions will include a review of each operationalization validity and reliability.

5.1 Independent Variable: Use of Modern Information and Communication Technologies

The independent variable, use of modern information and communications technologies will be operationalized through constructing an index containing three variables indicating the penetration of information and communication technologies in the respective societies. The variables are "% of individuals using the internet", "fixed broadband subscription (per 100 people)" and "mobile cellular subscription (per 100 people)". They are all a part of the international telecommunications organization dataset (ITU,2020).

As earlier mentioned, the term "modern communication and information technologies is a broad concept implying several technologies and uses of technology. As such using an index to operationalize the concept is beneficial, as it reduces several data variables to one variable and therefore simplifies the analysis (Essaiasson et al,2017). Through using an index, the measurement becomes more reliable statistical as it includes several dimensions of a complex phenomenon instead of only measuring one specific aspect of the phenomenon.

The quality of the index is dependent upon the validity of the underlying variables. In my study I will compare a broad set of autocratic countries over time, the countries will therefore have different circumstances in using and introducing technologies. As some are more developed and others may be war-torn. This will lead to the countries having a large variation in the underlying variables which is positive as we are able to compare more clearly, but in some instances the difference could get too large as we may not have any data for the underlying variables for some years. This results in the index not generating any observation for those years. Consequently, those observations are not included in the analysis which is unfortunate.

This flaw of the index suggests that using one variable instead of an index for the operationalization would be a better alternative as more observations would be ensured. For instance, the frequency of internet use is an example of such a variable. Internet use is a prerequisite for digital mobilization as described by (Diamond,2010), and the internet is used via several types of gadgets (ITU,2020). It could therefore be described as a broad variable in relation to ICT measuring the general presence of the technologies in the society. But it should be noted that it does not describe how the technologies are used and giving any indication of the quality of the use. That is why I have chosen to create an index and complement this variable with others. Introducing other factors in the measurement, such as quality of connection through the (broadband variable) measuring connections as fast as 256 kbits/s and activities without internet connection such as mobile communications.

However, the index is not sufficient for operationalization the concept as the variables included only measures the actual access of the technologies without giving an indication of how the technologies are used. For instance, variables measuring the levels of social media use would be of interests to include or some sort of variable showing the stability of the connections could also be relevant. However, decent data regarding these variables was not found.

5.2 Dependent Variable: Autocratic Stability

This section presents how the dependent variable autocratic stability will be measured. To be able to take full advantage of the benefits of the dataset, a clarification of the variables of the dataset and the different divisions it applies between autocratic regimes will be made (Geddes et al, 2014). Then I will more clearly describe how the data will be used and the implications this use has on the results. Lastly, we are in need of a clarification of which definition of autocratic regime stability.

As aforementioned the dataset has indicators on different regime characteristics, with several of them being relevant for this thesis. It makes a distinction between autocratic regime types, whether the regime is personalistic(one-ruler), party-based, military-based or a monarchy (Geddes et al,2014). This is advantageous because it lets us examine the impact of the institutional context on autocratic use of technology. It also helps us understand how a possible transition has occurred, whether it originated from the masses (elections, protest etc) or from intra-elite conflicts. Data that is complemented with variables describing the levels of violence during the transitions. Which is beneficial for getting an understanding regarding how technology possibly has impacted the order of events. Autocratic stability is usually understood in relation with the level of democracy, where democratization periods are regarded as weakening of autocratic stability. Instead, Geddes et al (2014) put the emphasis on the characteristics of the autocratic regime in understanding their stability, through using these above mentioned variables. Which is beneficial as the "de-facto power" is taken into consideration for determining regime stability.

I will apply a broad selection of autocratic regimes in my examination. All autocratic regimes from the nascent stages of the technologies, from 2000 as of 2017 will be included. The dichotomous variable "gwf_failure" will be of emphasis for the dependent variable, where years with regime failures are coded as 1, independent of the characteristics of the following regime, while no change is coded as 0(Geddes et al,2014). This will be complemented through using the above-mentioned variables on regime characteristics and the variable "gwf_fail_type", we can distinguish the characteristics of the "failure". "GWF failure type" makes a difference between nine different forms of failures. All of these will be classified as decreased regime stability. You can argue that only those types of failures originating from the population (as election and protests) are relevant for the question as ICTs may be more clearly used in the process of toppling the regime, in contrast to cases where the failure is driven by intra-elite conflicts and where the role of technology may be narrower. Making such a difference implies making a judgment on the role of technology in different types of regime failures. Judgments that are hard and in need of more case-specific knowledge to make. As we have witnessed how the technology have be used in some cases for intra-elite surveillance (Kendall-Taylor et al,2020) or to mobilize supporters for different factions as in Turkey 2016(Pole, 18 of July 2016).

The data variables are a good indicator of autocratic regime stability, but it has some weaknesses. It could be questioned whether variables emphasizing solely on regime stability are sufficient for fully conceptualizing autocratic stability. Autocratic stability is complex and is dependent on several factors, as for instance complex institutions that stabilize the regime through different methods that vary depending on the context (Gandhi & Prezeworski,2007). The complexity suggests that autocratic instability can have many shapes, it can take the shapes of street protest, union strikes or institutional power conflicts. As such, I could potentially use alternative variables such as for instance frequency

of protest or power concessions by the autocrat for measuring the concept. But it should be noted these variables are contextual and shift largely depending on the environment. Some autocrats are more vulnerable to experiencing protest while some experience more strikes. Therefore, I should only use autocratic "regime-failure" which is a more universal variable, but which measures a more far-reaching form of instability which is negative. Also, the technology may result in the regime being more capable in handling for instance street protests and therefore letting them take place. Because they can conduct more surveillance and filtering during the protests. Therefore, level of protests can perhaps be a misleading measure of autocratic instability.

5.3 Moderation: Digital Repression

To measure the interaction of using digital repression on the main relationship, the index constructed by Kendall-taylor et al(2020) will be used. The index is constructed to capture several aspects of authoritarian repression in the digital context, and it uses data from digital society projects (Mechkova *et al. 2020)*. The index on digital repression includes the *indicators social media censorship in practice*, *Government social media monitoring, government social media shut down in practice, government internet shut down in practice, government internet filtering in practice, government social media alternatives.* It should be noted that the index includes variables measuring "internet shut down in practice" and "social media alternatives", which are uses that do not correspond with the "digital repression" classification described above. Therefore, I will exclude those variables from the index because the factors impacting the use of those are not the same as "digital repression" (Keremoglu & Weidmann,2020), as this thesis only will focus on the use of "digital repression". It would be an advantage to include variables measuring other applications because it would give a broader understanding of autocratic technology use as a uniform phenomenon. But I consider the excluded variables too narrow to represent the digital propaganda and shut down capacity. As the complexity of the "digital propaganda" and "internet shutdowns" are not conceptualized properly in the exluded variables. The used to index "digital repression" will as result emphasize on the regimes' use of digital technology for the purpose of censorship and surveillance.

Several weaknesses exist with the variables used in the index. Censorship and surveillance are multifaceted phenomena that have many shapes and measuring it properly is challenging. Both are difficult to conceptualize as they are under constant change because of technological developments (Burnett & Feamster,2013). Mechova et al (2020) applies questions for understanding the prevalence of the phenomena, where the questions are answered by country experts putting them in a scale. I will attach the questions and their respective answers in the appendix.

The questions are constructed to capture the theoretical conceptualizations of censorship and surveillance. Where they define censorship as the blocking of information and surveillance the

monitoring of political content (Mechova,2020). Definitions that correspond with my descriptions above and captures the central aspects of the concepts. At the same time the questions are not clear on whether they take into account different methods for censoring digitally. Burnett & Feamaster(2013) describe how a censurer can hinder information flows in several ways, for instance through partial or total blockade of access, or through degradation of performance quality. Supposedly, the consequences of censorship may vary whether discrete methods or obvious ones are applied, because the awareness about censorship differs. Awareness that is described as a central factor for citizens' perceptions of the regime (Guriev & Tielsmanns,2019). Therefore, it would be ideal to get some indication on the methods used for censorship, which this dataset does not. Problems that may be solved through controlling for confounding variables, that will be discussed further down.

Moreover, surveillance and censorship are by nature difficult to conceptualize, and I am aware that (Mechova et al,2020) measurements are not ideal because of aforementioned factors. But considering these difficulties that also other datasets share, it is the best available. It contains many countries and it's one of few datasets that have a political perspective, on the use of technology in contrast to a technological. Which is beneficial because the technological use of political actors as governments and citizens are the emphasis.

5.4 Confounding Variables

To get reliable results, potential variables affecting both the independent and dependent variable have to be controlled for. Otherwise, the result could be positively or negatively biased without taking it to account (Essaiasson et al,2017, p.99). This section will discuss these and how these will be controlled.

The origins of technology diffusion and autocratic stability are multifaceted, with several factors affecting both variables. Hence it is easy to find potential confounding variables, the difficulty is to clarify the effect of the impact some confounder has. The novelty of the study field results in a lack of understanding how different factors impact technology use and how to conceptualize possible confunders. As a result, I have been forced to exclude some wanted possible confounding variables

But there exist some conventional confounders used by earlier literature on autocratic stability, as economic development that I will examine. Economic development gives the possibility for the autocrat to gain legitimacy from the population through increasing welfare services, which means development should correspond with autocratic stability (Gerschewski,2013). It also is described as a precondition for ICTs diffusion, as a specific economic level has to be reached to be able to make the investment needed for introducing the technologies and for the population to buy all needing tools. Therefore, I will use GDP per captia for operationalizing development level, data from the world bank's development indicators will be used to measure it(World bank,2020).

The success of the oppositions' use of technology for mobilization should be related to the regime's technical competence. The regime's level of technical competence impacts which shape the technology diffusion in the country takes, with a high technical competence the regime will be more confident in controlling the technology diffusion, as a result the regime will be more flexible in letting the citizens use the technology so it will be used more broadly in the society (Miller,2006). A high level of technical competence should also enable the regime to conduct surveillance and censorship operations more efficiently. Therefore, a high level of technical competence should have a stabilizing effect on the regime. The regime's technical capacity is by definition difficult to measure, as it is highly secretive, and the capabilities are mostly covertly used. Kendall-Taylor et al, 2020) constructs a digital-capacity index based on data from the digital society project (Mechova, 2020). Common for the variables used in the index is that they measure the capacity of each respective variable used in the aforementioned digital repression index, independently of whether they use the capacities or not. A measure that I will use for understanding how the digital capacity influences the relationship.

6.Results & Analysis

In this section I will introduce the results of the regression then followed by an analysis of the results. But before I will give a short description of the data variables that will be used in the regression, followed by a bivariate correlation analysis.

6.1 Descriptive statistics

Bellow the descriptive statistics for all the used variables are presented, as an introduction to the variables. It gives an understanding of how they vary and are distributed. Information that is central to being able to interpret the coming regression analysis (Sundell,2012).

Table 1: Descriptive Statistics Of Variables Used.

Variable	Obs	Mean	Std. Dev.	Min	Max
ICTs	762	-.741	1.219	-2.182	3.798
gwf case fail	1065	.041	.199	0	1
gwf fail type	1065	.162	.867	0	9
gwf fail subsregime	1065	.057	.309	0	3
gwf leader fail	1065	.078	.268	0	1
digital repression	1065	167.978	98.252	1	338
digital capacity	1065	164.017	96.014	1	337
GDP per capita	985	493	284.489	1	985

As we see the information and communication technologies index is characterized by a large variation between the observation. It should be noted that the number of observations is 303 less for the index compared with the other variables, as expected. However, that is much more than if only 6 countries were missing, which suggests that the variables have random and occasional observations missing. This is an inconsistency within the quality of the data with few observations on some countries or not having coherent panel-data for all countries. As a result, there is a risk of bias within the data, as the observations are made less systematically and the validity of the method risk weakening. For instance, if those countries with few observations are countries with many regime failures.

Regarding the dependent variable we see that mean value is 0,04. This distribution illustrates that there are few cases of regime failure within the observations as the value nearly equals zero. Among these failures both "popular uprising" and "no incumbents run in competitive elections won by opponent" share the position as the most common types of failures with 10 each[2]. The rest are summarized by that failures originating population are more frequent than transitions occurring from intra-elite threats. Moreover, 32 of the 42 regime failures were followed by a democratic system (73%)[3]. However, it should be remembered that the number of regimes failures are low in relation to the total number of observations. This could potentially affect the possibilities for drawing conclusion, which will be discussed later.

The "Digital repression index" created by Kendall-Taylor et al (2020) is characterized by a low level of variation. The index minimum value is -2.18 and the maximum value is 3.70, where high levels express high levels of digital repression while low levels express a low level of usage. This low variation is negative for being able to understand the impacts of using digital repression. A high level of variation for the index enables to draw conclusions on eventual impact of high receptively low values of the index. This low variation could be expected as the majority of the authoritarian countries may not possess the ability to a more sophisticated use of digital repression at the initial levels of the technology diffusion. For instance to be more flexible in the digital repression for giving the illusion of freedom of expression as described by King et al(2013).

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[2] Appendix table 2
[3] Appendix table 3

6.2 Bivariate Correlation Analysis

A simple analysis of the relationship between the variables included in the regression analysis is made through a bivariate correlation analysis. It gives a basic understanding on the relationship between the variables and the direction of a possible correlation. The result is presented below.

Table 4: Bivariate correlation analysis

Variables	(1)	(2)	(3)	(4)	(5)
(1) ICTs	1.000				
(2) gwf_case_fail	-0.061	1.000			
(3) digital_repres~n	-0.129	0.058	1.000		
(4) digital_capacity	0.514	-0.150	-0.105	1.000	
(5) gdpc	0.143	-0.057	-0.024	0.057	1.000

As seen in the table, regimes with higher penetration of information and communication technologies are more stable. Which is in accordance with the view of technology as more stabilizing for autocratic regimes. However, the correlation is weak with a coefficient value of -0,061 therefore there is no possibility to draw a conclusion. Which is characterizing for all the variables, with Pearson correlation coefficients surrounding 0 with slightly positive or negative values the relationship between the variables is not significant.

The use of information and communication technologies is negatively correlated with the use of digital repression with a coefficient with at -0.129. Which is contrary with the view of authoritarian technology diffusion being complemented with increased digital repression. There is a positive relationship between the interaction variable and the dependent variable, autocratic stability with a coefficient at (0.058). Which can interestingly be interpreted as a sign of backlash when relying on too much digital repression. But as earlier mentioned the possibility for drawing conclusions is minimal.

6.3 Regression Analysis

Below I present the results of my logistical regression model. The results of logistical models function the probability of an autocratic regime failure to occur (Probability that the depended variable=1) (Sundell,2020). I apply random effect for all the models.

Table 5: Regression analysis with Autocratic stability as dependent variable and use of ICTs as independent for all the models (1-5). Effect of moderation is added for the 2-5 and for the 3-5 the suggested confounding variables are included. P-values for each model within the parathesis.

	(1) Autocratic Failure	(2) Autocratic Failure	(3) Autocratic Failure	(4) Autocratic Failure	(5) Autocratic Failure
Autocratic failure					
ICT	-0.190	-0.210	0.544	-0.207	0.514
	(0.492)	(0.673)	(0.389)	(0.687)	(0.422)
Digital repression		-0.00111	-0.00130	-0.000721	-0.000710
		(0.797)	(0.781)	(0.870)	(0.883)
c.icts#c.digital _repression		0.0000600	0.0000789	-0.0000905	0.000463
		(0.982)	(0.979)	(0.974)	(0.879)
Digital Capacity			-0.0270**		-0.0289**
			(0.003)		(0.002)
GDP per capita				-0.00206	-0.00296*
				(0.051)	(0.028)
_cons	-4.320***	-4.153***	-0.182	-3.262***	1.275
	(0.000)	(0.000)	(0.884)	(0.001)	(0.399)
/ lnsig2u	1.717**	1.726**	2.033**	1.715**	2.060**
	(0.004)	(0.004)	(0.003)	(0.004)	(0.002)
N	762	762	762	722	722

p-values in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Unfortunately, the possibility for drawing conclusions is limited as the majority of the results are insignificant with an p-value larger than 0.05, which can be interpreted as a low possibility for reproducing these exact results and that these results are a result of randomness. As such we should be restrictive in drawing conclusions.

However, in the first model the effect of information and communication technologies on autocratic stability without the presence of other variables is measured. As we see the results suggest a negative relationship with a coefficient of -0.190. If the result was significant this could be interpreted as, the presence of ICTs decreases the probability of autocratic failure with 1.9%, therefore the technology acts stabilizing.

In the second model I introduce the moderator *use of digital repression* into the model, where the interaction on the main relationship between ICT and digital repression is measured. The output of the function suggest a stabilizing effect of using digital repression as the coefficient is negative at -0.00111 and main relationship becomes more negative at -0.21. This could be interpreted as the use of digital repression further decreases the probability of autocratic failure with around 0.11% per one point increase of digital repression, as now the probability of failure is at -0.21% compared to the earlier 0.19%.

In the third model I measure the effect the confounding variable *digital capacity* on the relationship between the independent and dependent variable under the moderation digital repression. Interestingly, the results of the model contrasts with the others as it outputs a significant coefficient for the confounding variable with a p-value at 0.003. The value of the coefficient is at -0.027 which is interpreted as the one-point increase in the digital capacity of the regime increases the probability of autocratic survival with 2.7%. A result that corresponds with the view of the regimes capacity as stabilizing. The significant result for the capacity variable is interesting in relation to the "digital repression" variable, because they are based similar variables with the only difference being that the "capacity index" measures the capacity independent of whether it is used or not, and the "digital repression index" measures the capacity that is de-facto used. These similarities and the significant results suggest that the "digital-capacity index" could have been used as a moderator for the model instead of the digital repression index.

In the fourth model the effect of BNP per capita is measured on the main model between the independent and dependent variable under the moderation of digital repression. This model also has a fewer observation which should be noted. It has negative coefficient which suggest that a higher GDP per capita has a stabilizing effect on the use of ICTs in authoritarian settings.

In the fifth model the combined effect of the confounding variables is measured, as the model consist of the independent, dependent, interaction and confounding variables. Interestingly the negative effect of BNP per capita is significant with a p-value at 0.028 and a coefficient at -0.00296. A higher BNP per capita decreases the probability of regime failure with around 0.3% precent. An almost nonexistent effect however interesting as gives an indication of an effect and that it should be included in future examinations of the relationship between ICT and autocratic stability. The coefficient dose not correspond with the other models as it gives a positive relationship between the independent and dependent variable, as it increases the probability of autocratic failure with 0.54 %, a value that should not be taken in consideration as it is insignificant.

7.Conclusions

A clear understanding of the relationship between authoritarian regimes and modern information and communication technologies is of importance for securing the future of democratic development. As we already have witnessed how some authoritarian forces uses the technology for their benefit, we are in need of gaining a general understanding about this relationship.

The general aim of this thesis was to contribute to this understanding through examine how technology use impacts autocratic stability more broadly, and to specifically examine how the use of digital repression moderate this relationship.

Based on the earlier literature the theoretical model constructed hypothesizes for the stabilizing and destabilizing effect of technology use. Where the stabilizing described technology as beneficial for the regime as it enables more efficient surveillance, repression and propaganda (Kendall-Taylor et al 2020; King et al,2013), while the destabilizing hypothesis emphasize the mobilizing attributions of the opposition where it can be used for organizing protest and draw accountability from the regime (Diamond,2010; Howard & Hussain, 2013). Lastly where the effect may vary depending on which tactics is used (Keremoglu & Weidmanm,2020). Unfortunately, the possibilities for drawing conclusions where regarding the constructed hypothesis minimal, some reasons for this, I will now discuss further.

The method used, statistical regression analysis is appropriate for measuring the relationship between a dependent and an independent variable (Essaisson,2017). However, to do this, the method is dependent on decent data for obtaining reliable results. The area of study in my thesis is a recent and modern phenomenon, as the modern ICTs have been developed during the last 20 years and the level of diffusion varies between states. This has broader implications for the quality of the data and the possibility to draw conclusion. For instance, among developing countries (where the majority of authoritarian countries are included) data about the level of diffusion is low or in some cases non-existing. To draw realistic conclusions the diffusion of the technologies most probably has to reach some specific level, for the population to be able to mobilize digitally and for us to being able to examine how autocrats behave digitally. Only then realistic conclusions regarding the relationship between ICTs and authoritarian stability can be taken. Moreover, the modernity of the filed leads to lack of knowledge about how to conceptualize "digital behaviors". Data regarding the populations "technical literacy" is almost non-existence, as a result the aspect of the quality of the populations use

is missing from this study. Information that is necessary for understanding *how* the technology is used by the population, beyond the information that it is used. Conceptualizations regarding different form of autocratic digital behavior is also necessary.

These difficulties were predictable. However, this study has tried to contribute to the more important process of understanding how to understand autocratic stability in the digital context, through trying to measure how presence of modern information and communication technologies impacts autocratic stability. However, not successful in doing this it clarifies some difficulties for future studies to handle in the process of understanding autocratic stability in the 21-centurary. One obvious is the presence of data where there is a need for longer and more coherent periods of measurements. Meanwhile waiting for the data to develop assessments of factors impacting the relationship and hos to conceptualize those should be made. Question of why an outcome of the use occurred has to be answered, and what factors impacted how the technology was used by the regime in those specific occasions? Questions that suggestively can be answered by methods as process-tracing or small comparative case studies.

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9. Appendix

Questions included Mechova et al(2020) dataset:

Government social media monitoring

Question:

How comprehensive is the surveillance of political content in social media by the government or its agents?

Answers

0: Extremely comprehensive. The government surveils virtually all content on social media.

1: Mostly comprehensive. The government surveils most content on social media, with comprehensive monitoring of most key political issues.

2: Somewhat comprehensive. The government does not universally surveil social media but can be expected to surveil key political issues about half the time.

3: Limited. The government only surveils political content on social media on a limited basis. 4: Not at all, or almost not at all. The government does not surveil political content on social media, with the exceptions mentioned in the clarifications section.

Government internet filtering in practice

Question:

How frequently does the government censor political information (text, audio, images,or video) on the Internet by filtering (blocking access to certain websites)?

Answer:

0: Extremely often. It is a regular practice for the government to remove political content, except to sites that are pro-government. government to shut down access to social media.

1: Often. The government shuts down access to social media numerous times this year.

2: Sometimes. The government shuts down access to social media several times this year.

3: Rarely. There have been a few occasions throughout the year when the government shuts down access to social media.

4: Never, or almost never. The government does not interfere with the access to social media, except in the cases mentioned in the clarifications section.

Government internet filtering in practice

Question:

How frequently does the government censor political information (text, audio, images,or video) on the Internet by filtering (blocking access to certain websites)?

Answer:
0: Extremely often. It is a regular practice for the government to remove political content, except to sites that are pro-government.

1: Often. The government commonly removes online political content, except sites that are pro-government.

2: Sometimes. The government successfully removes about half of the critical online political content.

3: Rarely. There have been only a few occasions on which the government removed political content.

4: Never, or almost never. The government allows Internet access that is unrestricted, with the exceptions mentioned in the clarifications section.

Question: How comprehensive is the surveillance of political content in social media by the government or its agents?

Responses:
0: Extremely comprehensive. The government surveils virtually all content on social media.

1: Mostly comprehensive. The government surveils most content on social media, with comprehensive monitoring of most key political issues.

2: Somewhat comprehensive. The government does not universally surveil social media butcan be expected to surveil key political issues about half the time.

3: Limited. The government only surveils political content on social media on a limited basis.

4: Not at all, or almost not at all. The government does not surveil political content on socialmedia, with the exceptions mentioned in the clarifications section.

Table 2: Tabulation of Failure Type

	Freq.	Percent	Cum.
0	1021	96.05	96.05
1	2	0.19	96.24
2	9	0.85	97.08
3	10	0.94	98.02
4	10	0.94	98.97
5	4	0.38	99.34
6	5	0.47	99.81
9	2	0.19	100.00
Total	1063	100.00	

Table 3: Tabulation of subsequent regime.

	Freq.	Percent	Cum.
0	1021	96.05	96.05
1	32	3.01	99.06
2	7	0.66	99.72
3	3	0.28	100.00
Total	1063	100.00	