

The Information Dilemma: How ICT Strengthen or Weaken Authoritarian Rule

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This paper introduces a model that links ICT management to the consolidation of autocratic regimes. At its centre is the hypothesis that ICT can help both to undermine and to sustain autocratic rule. A second hypothesis is that the demise of an autocracy can be prevented, or at least delayed, if autocrats actively use ICT to enhance surveillance, accountability, indoctrination, and participation. This means that controlling ICT is not (only) a zero-sum game that is played between activists and censors. Perhaps more important is the role of ICT in the consolidation of an autocracy. Hence, popular access to ICT might or might not help undermine authoritarian rule, but if skillfully used, will definitely make a regime more resilient. The plausibility of the model will be illustrated by means of a brief comparison of two contrasting cases, China and Myanmar.

1. Introduction

This paper is concerned with the political economy of upgrading and managing information and communication technologies (ICT) in authoritarian regimes. ICT that are of interest to this study are Internet-based and non-Internet based digital networks, satellite systems, mobile phones and computers, as well as radio, television and landline telephones. Despite the general acknowledgment that the control of information is crucial for the persistence of autocratic rule, there is no agreement about whether the improved communication flows that ICT facilitate are beneficial or harmful for autocratic rule. On the one hand, scholars like Larry Diamond regard ICT as “liberation technology” (Diamond

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2010), because mobile phones and the Internet enable citizens to organize and coordinate resistance against autocratic rule. In contrast, other scholars highlight that blogs, microblogs and other social media do not only serve regime opponents, but can also be used by autocrats as a thermometer of public opinion and to monitor local officials (King et al. 2013). Even more, the “liberation technology” perspective misses the fact that ICT can also serve to stabilize autocratic regimes, for example by enhancing surveillance, accountability, indoctrination, and participation (Deibert & Rohozinski 2010; Zureik 2010). It follows from these observations that improved information flows have the potential both to strengthen and to undermine autocratic rule, and the puzzle is how autocratic regime elites deal with this dilemma.

In the remainder of this paper, I will first derive a model that links information management to the consolidation of autocratic regimes. At its centre is the hypothesis that ICT can help both to undermine and to sustain autocratic rule. This dual-use character of ICT confronts autocrats with an “information dilemma”: blocking ICT stifles economic development and thereby diminishes the legitimacy of a regime. On the other hand, broadening popular access to ICT stimulates the economy, but at the same time gives people access to “liberation technology”. Once economic growth no longer suffices to prop up the regime, ICT might be used to mobilize against autocracy. A second hypothesis is that the delegitimation of the regime can be prevented, or at least delayed, if autocrats broaden popular access to ICT, and at the same time employ ICT to modernize the regime. This means that the use of ICT is not (only) a zero-sum game that is played between activists and censors. Perhaps more important is the role of ICT in consolidating an autocracy, i.e. improving its despotic, infrastructural and discursive power. These are two different processes that need to be separated analytically. Popular access to ICT might or might not help to undermine authoritarian rule, but if skilfully used, ICT will definitely assist in making a regime more resilient. An interesting counterfactual that cannot be explored in this analysis is whether the regimes in Tunisia and Egypt would have collapsed if the government had used ICT more skilfully. In other words, it is perhaps not the liberation technology factor, but the lack of adaptability that brings down autocracies. The plausibility of the model will be illustrated by means of a brief comparison of two contrasting cases: Myanmar is an autocracy that blocked ICT, ruled by repression and was eventually forced to liberalize. China exemplifies an autocracy that has achieved considerable stability by enhancing social access to ICT, while at the same time using ICT for regime improvement.

2. ICT and autocracy

Scholars have long been doubtful about the compatibility of autocracy and ICT. For example, Helen Milner found autocracies less likely than democracies to provide popular access to the Internet (Milner 2006). Jacob Groshek presented further evidence for the incompatibility of Internet and autocracy: if autocrats do invest in a digital communication infrastructure, this tends to have a democratizing effect (Groshek 2009). The paradigm of the incompatibility of ICT and autocracy is corroborated by media reporting on how cyberspace has become an arena for mobilizing against autocrats (Howard & Parks 2012), and Larry Diamond's forceful and compelling argument that the Internet and mobile phones serve as "liberation technology" for people suffering dictatorship has stimulated a number of insightful single-case studies (Diamond 2010).

If ICT are indeed potent weapons against oppression, the question remains why a) autocrats do not ban them completely and b) why some autocracies have not shown signs of instability despite broad popular access to the Internet and mobile phones. One possible answer is that the relationship between ICT access and democratization is less straightforward than these studies suggest. In a pointed reply to Diamond's contribution, Ronald Deibert and Rafal Rohozinski, two of the foremost international experts on Internet censorship and cyber warfare, argue that the "liberation technology" perspective suffers from a perception bias: "much of the popular reporting about cyberspace and social mobilization is biased toward liberal-democratic values", and the harmful impacts of ICT "tend to be obscured from popular view by the media and underexplored by academics" (Deibert & Rohozinski 2010: 46).

In other words, while powerful and rooted in rich empirical evidence, the "liberation technology" position disregards the fact that modern ICT can also help to stabilize autocracies (Deibert & Rohozinski 2010: 43-4). Gary King, Jennifer Pan and Margaret E. Roberts have shown in a recent ground-breaking study of the Chinese censorship regime that the government allows criticism of the regime, but censors information that might spur collective action, concluding that the Chinese government's strategy might be to prevent collective action while at the same time

us[ing] social media to obtain effective measures of the views of the populace about specific public policies and experiences with the many parts of Chinese government and the performance of public officials (King et al. 2013: 339).

While much of the literature debating the impact of ICT on autocracy has focused on how the Internet can give protesters a voice, and how governments seek to control information flows in society by censoring online communication, the question how autocrats can use ICT to strengthen their regime has not been studied systematically. As country studies have shown, surveillance technologies such as Internet filtering, biometrics, audio-surveillance and Radio

Frequency Identification (RFID) can help to control and even prevent social unrest (Göbel & Ong 2012), and subtle propaganda disseminated through public media outlets can be effective in persuading people to support authoritarian rulers (Stockmann & Gallagher 2011). Finally, participatory public administration can give autocrats insight into the desires and grievances of the population and allows them to adjust their policies accordingly. In this way, modern ICT might even be able to overcome the “dictator’s dilemma” (Wintrobe 1998): the more a dictator relies on repression for stability, the less sure he is “how much support he has among the general population, as well as among smaller groups with the power to depose him”, and the more he must resort to even more repression (Wintrobe 2008: 77).

While Wintrobe conceptualizes various combinations of repression and cooptation as solutions to this dilemma, surveillance, participation and persuasion are not among them. However, channels of communication that enable subjects to voice their complaints anonymously and the monitoring of electronic communication flows might enable autocrats to understand better the aspirations and grievances of their subjects, and mass media could be used to manipulate popular preferences (Göbel 2011). Acting on such information can generate legitimacy beyond the “winning coalition” in an autocracy, namely, individuals and groups that support the regime in exchange for access to special privileges (Bueno de Mesquita 2003: Chapter 2).

ICT do not determine revolutions, but they can be used by regime opponents and the government alike to communicate and organize more effectively than without ICT (Farrell 2012). Although it has not been proven that unfettered communication can indeed bring down regimes, the fact that virtually all autocracies censor communication flows does show clearly that autocrats see ICT as a risk. Much more straightforward is the impact of ICT on regime performance: as will be shown below, ICT can enhance a government’s capacity to suppress, organize, co-opt and persuade social actors, thereby strengthening the regime against legitimacy crises and other challenges to its survival. These processes are analytically separate from the zero-sum game of fighting over the control of information flows. Why political elites decide to embrace or block ICT, and how they manage to use them to prop up the regime, is a topic that should be studied intensively.

3. Theoretical model

Two terms at the heart of this analysis need to be clarified: autocracy and autocratic consolidation. As for autocracy, I follow Geddes, Wright and Frantz in defining the term as any regime that is not democratic, i.e. where the government did not achieve power by means of a “direct, reasonably fair competitive election in which at least ten percent of the total population [...] was eligible to

vote; or indirect election by a body at least 60 percent of which was elected in direct, reasonably fair competitive elections; or constitutional succession to a democratically elected executive” (Geddes et al. 2012).

The second concept used in the paper is the consolidation of autocratic regimes (Göbel 2011). Autocratic consolidation is defined as a “deliberate state project to improve a regime’s capabilities for governing society” and rests on the insight that just like democracies, autocracies need to “organize” and “deepen” (Göbel 2011: 176) their rule so they can meet social demands, stimulate innovation and avoid or mitigate crises.

Building on Michael Mann’s (Mann 1984) influential differentiation of state power, I argue that autocratic consolidation encompasses the build-up of capacities necessary to exert three kinds of power: “despotic power”, “infrastructural power”, and “discursive power” (Göbel 2011: 183). Unlike Mann, who understands despotic power as a mandate for arbitrariness (Mann 1984: 188), I use the term for hard repression. Infrastructural power denotes the logistics of everyday political control and depends on the institutionalization, differentiation and social embedding of state power. Discursive power refers to the power to change (or at least influence) the cognitive filters through which people interpret and evaluate their environment (Göbel 2011: 183).

The propositions outlined above are condensed in a model of the use of ICT in and by autocratic regimes. If these propositions are true, then introducing ICT is a risk for autocratic regime elites, but one that can be managed. On the one hand, blocking information flows will prevent economic development and thereby cause popular dissatisfaction with the regime. On the other hand, improving information flows by introducing ICT is likely to stimulate growth and generate support at first, but might in the long run undermine the regime, because it is difficult for autocracies to generate legitimacy (Huntington 1991: 55). Autocrats usually justify the limitation of personal freedoms with the promise of speedy modernization. Once a regime is modernized, autocracy has rendered itself obsolete. Arguably, this process can be accelerated by popular access to ICT, which can be used to gather and disseminate sensitive information and organize resistance. Therefore, if autocratic regime elites decide to popularize ICT, they will need to devise strategies to maximize the stabilizing impact of ICT, while at the same time minimizing their destabilizing impact. Successful autocracies will enhance popular access to ICT, but also control access to information. More importantly, however, they will employ advanced digital technologies to strengthen state capacity. In particular, modern ICT will be employed to enhance an autocracy’s capacity to wield despotic, infrastructural and discursive power.

As for despotic power, ICT can be used to counter and prevent unrest by developing and applying surveillance technologies such as wire-tapping, audio-surveillance, audio-filtering, the filtering of Internet content, Internet policing,

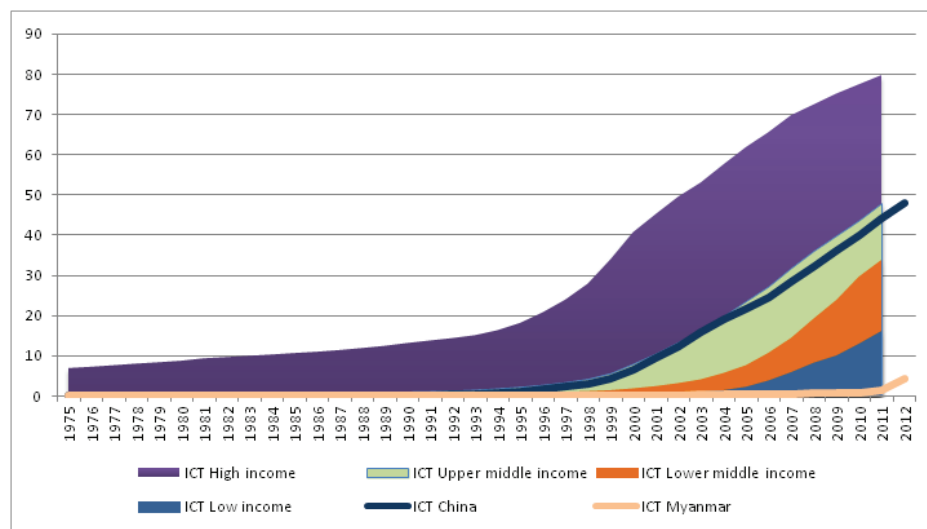
tracking persons and goods with the help of Radio Frequency Identification (RFID) technology, Geographical Positioning Systems (GPS) and Geographic Information Systems (GIS). ICT benefit infrastructural power, which includes capacities to levy and distribute government revenue, a functioning bureaucracy as well as communication channels between government and social groups, because they enhance the feedback loops *into* the regime and improve communication flows *within* the regime. E-government can fulfil both purposes, because it links the aggregation and processing of social preferences. Finally, ICT can help autocrats gain by increasing their capacity to wield discursive power. ICT can be used to form, adapt and disseminate a coherent and consistent official ideology and to create authoritative, yet compelling narratives of crucial events that will be distributed through the education system and the mass media. In particular, ICT use itself can be the subject of such indoctrination, for example in techno-nationalist propaganda (Kang & Segal 2006) and in school curricula aimed at increasing the “technological literacy” of young children (World Bank 2010). In effect, autocratic rulers will try to manipulate individual preferences in such a way that people become less likely to use ICT as a “liberation technology” (Diamond 2010).

These processes are repetitive, as information on the impact of previous policies is fed back into the regime, and guides the refinement of existing policies or the development of new ones. The following sections will illustrate the model and provide a first plausibility test by comparing how the regime elites in China and Myanmar tackled the information dilemma.

4. ICT and Authoritarian Consolidation in China and Myanmar

China and Myanmar offer themselves for comparison because of their similarities of context in the first stages of their development. Regime elites in both countries were faced with the task of transferring military structures into a state apparatus in the making, but had only limited resources at their disposal because of the agrarian character of their economies. In addition, both regimes had to overcome the resistance to the new regime from minorities and other social groups. Finally, the early years in the two regimes progressed in similar ways. In both countries, the elites started with regime consolidation shortly after they had come to power, but quickly stopped: confronted with the risks that further reforms entailed, they hollowed out the existing structures, milita-

Figure 1. ICT penetration in selected countries.



Source: Data derived from World Bank 2013a.

alized state-society relations and degenerated into underdeveloped and isolated terror regimes.

In contrast to the stagnating and repressive military regime of Myanmar (Croissant & Kühn 2011: 139-48), which only recently showed signs of liberalization, the regime elites in China decided as long ago as the late 1970s to stimulate economic change. Although both regimes are nearly identical in their FreedomHouse and Polity IV values² and can be classified as hard autocracies, they are very different as regards the way in which they employ ICT for regime maintenance.

A comparison of the diffusion of ICT in the two countries illustrates this well. The remarkable difference between China and Myanmar today easily blinds us to the fact that as late as 1982, their ICT penetration rates nearly converged. For example, only 0.2 percent of the Chinese population, and 0.1 percent in Myanmar owned a landline (World Bank 2013a). In China, the number of landline telephones increased to 28 per 100 in 2006, but fell to 22 per 100 in 2010. This decrease is the result of leapfrogging in telecommunications: new users no longer apply for landlines, but communicate solely by mobile phones. Whereas in 1995 only 0.3 per 100 persons owned a cellular phone, 62.2 percent of the population did so in 2010. The Internet spread with equal speed: today, nearly half of all Chinese are Internet users, and about one third have their own broadband access. In stark contrast to these figures, only 1 per 100 Burmese had

² In the 2011 FreedomHouse Index China scored 7 on political and 6 on civil liberties, while Myanmar received the worst score on both dimensions (FreedomHouse 2012). The two countries received very low scores on the Polity IV measure as well (China: -7/-7; Myanmar: -6/-6) (Marshall & Jaggers 2011a and Marshall & Jaggers 2011b).

a mobile phone or a landline, and only one per 2000 used the Internet in 2010 (World Bank 2013a).

Figure 1 illustrates the development of ICT in China and Myanmar in comparison to the rest of the world. The figure shows what proportion of the population, on average, has access to landlines, has a mobile phone subscription, and uses the internet. As can be seen, China develops in sync with those countries that the World Bank today classifies as upper middle income countries. Myanmar, however, is far below the low income stratum. What the graph also shows is that ICT use picked up markedly between 2011 and 2012, which is exactly when the regime began to liberalize. Hence, political change has led regime elites in Myanmar to embrace ICT instead of continuing to block them. This provides some evidence for the assertion that an information dilemma exists for authoritarian regimes, that regime elites had previously decided to answer this dilemma by blocking ICT, and that they have now chosen to provide people with greater access to information technology. The difference is especially marked for mobile phone subscriptions per 100 people, which increased from 1.24 to 11.17 between 2010 and 2012!

The following paragraphs illustrate that these developments are tightly linked to regime consolidation. The blockage of ICT in Myanmar not only hindered development, but also meant that the regime elites had no chance to increase state capacity by improving information flows within the regime, and between the population and the regime. Arguably, this is the classic situation that Wintrobe describes: afraid of the population, the Burmese rulers imposed a terror regime on the population to prevent them from challenging the regime. In contrast, the Chinese regime elites have allowed ICT to proliferate. On the one hand, this has facilitated economic growth. On the other hand, the availability of modern ICT has enabled the regime to enhance its infrastructural, despotic and discursive power.

4.1 INFRASTRUCTURAL POWER

The analytical framework of authoritarian consolidation introduced above structures the analysis, which begins with the analysis of the three most important component parts of infrastructural power: extractive and redistributive capacity, the quality of the bureaucracy, and the social embeddedness of a regime.

Extractive and redistributive capacity. An important issue that is frequently overlooked in the comparative study of autocratic regimes is the fact that increasing infrastructural power is expensive. Our two cases illustrate that agrarian countries are at a disadvantage: the value-added of agriculture is low, and this translates into low budgetary revenues. Without access to profitable natural resources or foreign credit, regime elites in agrarian economies are forced to engineer a structural change of the economy, which entails channel-

ling as much as possible of the low value-added of agricultural production into the build-up of industry and/or allowing foreign direct investments (Rostow 1960). Moving economic production up the value chain, a regime can enhance its tax base and increase performance legitimacy. However, Figure 1 indicates that this is not possible without allowing ICT to proliferate. In essence, the information dilemma converges with a liberalization dilemma. But why would regimes seek to avoid liberalization?

One possible explanation is that authoritarian regime elites are foresighted enough to avoid being driven towards the performance dilemma. The developments in our cases suggest a second cause: countries that do not allow foreign direct investments need to decrease the profit margin of the peasants so that they can free resources for building up an industrial sector. In the agricultural societies that both countries were, this entailed a huge risk of alienating the majority of the population.

As indicated by the growth of the agricultural sector in Myanmar, the Burmese regime elites sought to avoid this risk. After usurping power by a military coup, Ne Win turned to the peasant majority for support and nationalized private enterprises, which then began to falter (Alamgir 1997: 339). As a result of underperformance in industry and low tax revenues from agriculture, Myanmar's budgetary revenue fell from 17% of GDP in 1958 to 9.9% in 1975 (Taylor 1987: 345), and reached a historical low of 4.7% of GDP in 2001 (Taylor 2009: 460). As for redistributive capacity, most of what little the government was able to extract from the economy was reinvested into the rural areas, where World Bank statistics indicate a moderate increase in living conditions: in the early 1980s, the number of tractors, food production, school entrance rates and life expectancy all increased (World Bank 2013a). In contrast, the urban areas were neglected to a degree that incited the students to take to the streets in 1988 (Slater 2010: 272).

The situation is very different for the PRC. While Ne Win strengthened agriculture and the rural areas at the cost of industry and the cities, Mao Zedong concentrated his efforts on siphoning off agricultural surplus to strengthen heavy industry and the cities – with disastrous results. Although the focus of development shifted from heavy to light industry and from plan to market after Mao's death in 1976, industry and cities continued to be subsidized by agriculture. However, although China's economic growth looked impressive on paper, the government was unable to control inflation and the growing income gap between the cities and the countryside (Naughton 2007), and it did not stimulate technological learning. Although Deng Xiaoping in 1979 named "Science and Technology" as one of "Four Modernizations" to be pursued, public sector expenditures for research and development (R&D) were quite low until the mid-1990s. As a consequence ICT penetration was still rather low: only 3.4 per 100 persons owned a landline, and nearly none a cellphone (World Bank

2013a). Inflation, corruption and rising inequality combined with low levels of state capacity to cause a regime crisis in both countries within the space of a year. Myanmar saw mass anti-regime protests in the summer of 1988, China in the spring of 1989, and both used brute force to restore public order.

After the immediate crisis was over, the regime elites in Myanmar chose repression over adaptation and blocking ICT instead of improving communication flows. In contrast, the Chinese authorities engaged in the interlocking processes of further liberalizing the economy and strengthening popular access to information technologies. Beginning in 1992, export processing zones were established, and China was opened for limited foreign direct investments. Concurrently, the percentage of the population that owned a telephone increased nearly 50 percent year on year (World Bank 2013a).

Quality of the bureaucracy. The World Bank uses the indicator of “government effectiveness” to measure the quality of bureaucracy (World Bank 2013b). Whereas Myanmar plummeted from -1.20 to -1.85 on this score (the lowest score is -2.5) between 1998 and 2009, China’s score improved from -0.33 to +0.12 (highest score is 2.5). In global comparison, this locates Myanmar at the very bottom and China in the middle ranks of bureaucratic quality. These figures do not capture the early years of the Ne Win regime, where the quality of the bureaucracy was at first improved through a number of administrative reforms. Between 1962 and 1974 personnel on the administrative payroll doubled, and an increasing part of the budget was invested in the improvement of the bureaucracy (Taylor 1987: 313). However, growing debt led the Ne Win Regime to neglect the bureaucracy. Corruption increased, efficiency decreased (Englehart 2005), and after the military coup in 1988 the administration was integrated into the military apparatus, which did not lead to any improvements.

In China, the impact of integrating ICT into the regime is reflected in public administration reforms: public administration has become computerized, which makes petty corruption far more difficult than before. In addition, the Chinese government has been making use of e-government to enhance transparency and to experiment with carefully circumscribed public participation (Göbel & Chen 2013). E-government offers novel ways to enhance legitimacy by improving the responsiveness to public demands. Almost every government unit is now required to have an online portal. However, these portals vary in their quality and the degree of participation they allow. At a minimum, people are informed about laws, policies and government activities (Zhou 2004). Frequently, government websites also allow people to leave messages (which are unlikely to be answered). Such websites are easy to set up and maintain. They provide a semblance of transparency, but are not likely to make people feel empowered (for an overview over latest developments, see Noesselt 2013).

A few localities have established online petitioning and complaint systems. Here, people can express grievances by registering on a website and filing an

online complaint. Registration allows them to track the processing status of their submission, and rate the outcome. In addition, the website provides reference information such as the number of submissions, average processing time and issues that are currently under investigation or are already resolved. Although such platforms are not powerful enough to engage major political problems, they create considerable support by resolving issues that are small but very relevant for the lives of the urban population. Examples in case include damaged infrastructure, quarrels with the management organisations of residential buildings, overcharged administrative fees and other forms of petty corruption. In addition, they enable officials to observe in real time where and how often particular problems occur, and how quickly they are solved. As the data is delivered directly by the public, bypassing local governments, it serves as an objective measure of a department's performance. Abuse of power can be quickly detected and acted upon.³

Though not suitable for tackling grand political corruption, e-participation can reduce petty administrative corruption and thereby create legitimacy without changing the fundamentals of the political system.

4.2 DISCURSIVE POWER

A citizen's belief in the legitimacy of a regime is formed not only, and perhaps not mainly, by a regime's objective achievements, but by the individual perceptions and interpretations of these achievements. The literature on "framing" processes illustrates how individual attitudes are formed by the dispersion of values and discourses through the media and the education system (see Chong & Druckman 2007). Most of the existing scholarship on framing examines opinion formation in democracies, but has so far neglected autocratic regimes. However, recent research on opinion formation in China presents credible evidence that the government's skilful instrumentalisation of popular media and the education system can increase the resilience of autocracies (Stockmann & Gallagher 2011; Kennedy 2009; Li 2008). Discursive power not only affects individual attitudes towards a regime, but also serves to facilitate the building of an environment conducive to technological innovation.

The management of discourses can help regime elites to create faith in the government, to marginalize concerns about developmental risks, and to imbue different social groups with specific roles or tasks in transforming a country into a knowledge economy. As is the case with public administration, modern ICT can be deployed to increase a government's discursive power. The impact of improved discursive power on beliefs of legitimacy can again be observed only in China, and not in Myanmar.

Myanmar. In order to mitigate the volatility of Myanmar's multi-eth-

3 Information gathered through on-site research by the author in August 2012 and July 2013.

nic society, the regime made use of a catch-all ideology that fused elements of Buddhism, Marxism and Leninism (Taylor 1987: 230–61). Even though it remains unclear if such an across-the-board ideology was able to kindle flames of patriotism, Taylor highlights that government propaganda at least served to familiarize the population with concepts such as state, government, administration and nation (Taylor 1987: 372). As was the case with infrastructural power, the regime's discursive power was also reduced with the 1988 coup. On the one hand, the regime gave up one pillar of the legitimizing ideology when it turned away from Socialism (Slater 2010) and replaced it with the glorification of the armed forces as the saviour of the nation and guardian of Myanmar's independence (McCarthy 2010; Steinberg 2007; Than 2001: 245). Yet, and this illustrates the impact of ICT on discursive power very well, it is questionable if this unattractive ideology even reached its addressees. With the dismantling of the Burmese Socialist Program Party and its mass organizations, which were the regime's main instruments of indoctrination, the regime cut its channels into society. The Burmese mass media were unfit to replace these channels: according to Thomson Gale, a population of 42 million has access to only four million radios, 320,000 TV sets, 52,000 computers and 7,000 broadband connections (Thomson Gale 2011). The two government newspapers circulated 200,000 copies each, but magazines ran merely a few hundred copies. The lack of channels of communication between regime and population thus made it difficult to produce and disseminate persuasive propaganda.

China. Conservative elites in the CCP attributed the 1989 crisis at least partly to the neglect of propaganda and “thought work” in the aftermath of Mao's death. This neglect was seen as having manifested itself in the increasing popularity of Western democratic ideas, which undermined the CCP's claim to absolute power (Brady 2008: 41). Beginning in 1992, the regime first curbed what little autonomy the Chinese media had been allowed, and then instructed the propaganda authorities to help maintain CCP one-party rule by producing and disseminating persuasive frames. One important aspect of discursive power is that frames are not static, but are continuously adjusted to political, economic or social changes and to changing preferences within the population. ICT greatly enhance this process.

ICT are used to spread techno-nationalist mentalities, which can be read as a promise to further modernize China, in that sense negating the existence of a performance dilemma. The Chinese government's plan to make China a “nation of innovations” within 25 years (State Council of the People's Republic of China 2005) is flanked by the extensive indoctrination through a vast and growing propaganda apparatus. The frequency of the term “innovation” (*chuangxin*) in the headlines of the People's Daily (*Renmin Ribao*), one of the most important propaganda organs of the government, increased from 58 in 1996 to 424 in 2009. At the same time, the number of articles that carried the term in the

full text increased from 839 to 4999.⁴ Translated into the jargon of the World Bank, the CCP government seeks to improve the “technological” (World Bank 2010: 174) and “functional” (World Bank 2010: 16) literacy of the population, making them an integral part of the Chinese government’s modernization plan.

The government not only monitors and censors social media, but has itself become an avid blogger. In line with the central government’s recent efforts to strengthen the Party’s control over the cultural sector, government departments and officials were asked to set up microblogs. As a consequence, the number of official microblogs increased from less than 1,000 in January 2011 to more than 130,000 in December 2012. The overwhelming majority are hosted by the commercial providers Sina and Tencent and not, as might be expected, by the People’s Daily or Xinhua. Most are operated by local government departments at the county level and below, and nearly half belong to public security departments and officials (E-Government Research Center 2013; People’s Daily Online Public Opinion Survey Office 2012). The regime’s obsession with public security, the bad reputation of the security organs and the high visibility of the police are probably responsible for this preponderance. Some of the better-known microblogs, such as that of Beijing’s municipal public security department, have millions of followers.

Although it is too early to say if this recent strategy will succeed in bolstering the legitimacy of the CCP one-party regime, it vividly illustrates the government’s steep learning curve (Noesselt 2013).

4.3 DESPOTIC POWER

Judged by the classic indicators, both regimes have significantly increased their capacity to repress dissent. In Myanmar, Ne Win’s early attempts to improve infrastructural and discursive power are mirrored in a decrease in military spending: Between 1954 and 1987, the budgetary share of military expenditures had fallen from 40% to 21%. Predictably, the regime remilitarized after the coup of 1988. Expenditure figures are not available, but the increase in the army and paramilitary forces from 186,000 in 1985 to 595,000 in 2009 suggests that the military and public security apparatus now commands a significantly larger share than before (Institute for Strategic Studies 2011). Similar processes can be observed in China. In 1988, local governments had allocated merely 2% of their budget for maintaining public security, but more than three times as much (6.4%) in 2009 (National Bureau of Statistics 1996; National Bureau of Statistics 2010). However, this average conceals a large degree of local variation: while Gansu provincial government spent merely 4.6% of its budget on public security in 2009, Guangdong province nearly crossed the 10% threshold (National Bureau of Statistics 2010). It is important to note that although

4 Own analysis based on the People’s Daily full text database, access limited to subscribers.

China's repressive capacity has increased, and although repression is routinely employed, repression is not the chief means of regime maintenance. Here, it differs from pre-liberalization Myanmar, where the junta relied almost exclusively on repression and was therefore characterized as "one of the most repressive regimes in the world" by Aurel Croissant and David Kühn (Croissant & Kühn 2011: 139).

As was the case with infrastructural and discursive power, the broad utilization of information-, communication- and surveillance technologies for regime maintenance requires considerable investments – hence the explosion of public security outlays in provinces and cities such as Guangdong, Beijing, Shanghai and Tianjin. Once in place, however, they significantly raise the cost of opposing the regime. A comparison of Internet control in the two countries serves to exemplify this point. The Chinese government's approach to Internet control is to improve information flows beneficial for technological innovation, but to restrict access to sensitive information. In contrast, the Burmese government does not distinguish between "beneficial" and "harmful" information, but restricts access to information almost completely. According to the Open Net Initiative, the number of Internet users in Myanmar had plummeted from 300,000 to 45,000 within a very short time (Deibert et al. 2010: 433) and has increased again only since 2011. This was the result of drastic government measures such as making private Internet access prohibitively expensive, outlawing Internet Cafes, restricting Internet use to specific hours and slowing or even shutting down the Internet for extended periods of time, as happened in the fall of 2008 (Deibert et al. 2010: 433). In other words, the pre-liberalization Burmese regime countered the unintended use of modern ICT by pulling the plug and concurrently blocking innovation. In China, popular ICT use is constrained only selectively, in order to facilitate economic growth while keeping dissent in check.

Other measures that deserve the attention of political scientists are the employment of ICT to predict and prevent "catastrophes" such as mining accidents and natural disasters, but social unrest also falls into this category (State Council of the People's Republic of China 2005; National Development and Reform Commission 2010). In a speech on the future of "the management of society" (*shehui guanli*) Hu Jintao announced the creation of a database containing a wealth of personal data for each of China's 1.5 billion citizens (Hu Jintao 2011). With the help of centralized databases and improved communication channels between public security organs, the government plans to systematically enhance the regime's rapid response capabilities (State Council of the People's Republic of China 2005).

Greg Walton pointed out as early as 2001 that the Chinese government was designing a surveillance network "able to 'see,' 'hear,' and to 'think'" (Walton 2001: 15), implying the use of closed circuit (CCTV) cameras, audio surveil-

lance and artificial intelligence. Depending on the advances in face recognition, the use of CCTV cameras could be extended from regulating traffic and deterring criminal activities to tracking individuals. China now possesses the largest network of Closed Circuit Television (CCTV) cameras in the world, with more than 10 million cameras being installed in 2010 alone (Branigan 2011). In 2011, the city of Chongqing installed 500,000 such cameras (Chao & Clark 2011). “Speech signal processing” facilitates intelligent telephone surveillance: words and phrases can be recognized and assigned to individuals. Artificial intelligence is used to identify and store individual communication patterns in data streams under surveillance (Walton 2001: 17).

Most recently, “China Information Technology,” a main provider of surveillance technologies to local governments in China, has been developing an identity card for migrant workers, who are a social risk group especially in Guangdong Province. These cards will contain RFID chips that can communicate with GPS satellites, which will enable local governments to track the movement of a locality’s migrant population in real time. As soon as the data signals an impending demonstration or any other form of public assembly of a significant number of migrants, forces can be deployed to disperse the protestors.

As the Chinese government is not alone in propping up authoritarian rule with modern technology, this is a complex worth further attention. The fact that such technologies are frequently not developed domestically, but in cooperation with multinational enterprises, makes the nexus between technology and repression even more relevant (for China, see Göbel & Ong 2012).

5. Conclusion and discussion

The purpose of this paper was to model the impact of ICT on authoritarian rule. It was posited that autocratic regimes are confronted with “information dilemmas” at various points in their history, and that they can choose to allow or block the spread of ICT. The comparison between Myanmar and China has illustrated that the decision to block or allow the spread of ICT might be intimately connected with the decision whether or not to liberalize a country’s economy and/or allow the influx of foreign direct investments. The study also showed that allowing ICT presents risks as well as opportunities. In terms of risks, ICT might be abused as “liberation technologies” – further research is needed to establish the influence of popular ICT use on autocratic regime breakdowns. In terms of opportunities, governments can employ ICT not only to eavesdrop on the population, but also to strengthen their capabilities for surveillance, organization, and persuasion. The illustration of the manner in which the Chinese government uses ICT to prop up state power suggests that these measures serve to increase legitimacy-relevant outputs as well as to increase the capability of

regime elites to monitor the performance of its agents, to aggregate and process popular demands, and to persuade people to support the regime. China and Myanmar are extreme cases in the spectrum of methods to deal with the information dilemma. More research is needed about cases in which ICT was allowed to proliferate, but nevertheless subsequently collapsed. The model introduced in this paper would suggest that they were less adept at managing ICT – not only, and perhaps not primarily, its utilization by regime critics, but more fundamentally for the purpose of increasing the despotic, infrastructural and discursive power of their regimes. Studying ICT management in those regimes that broke down during the Arab Spring – all of which were characterized by longevity and fairly high ICT penetration rates – would be a first step in testing the explanatory potential of the model formulated in this paper.

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