

# ► Call for Power?

Mobile phones as facilitators of political activism

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# Call for Power?

## Mobile phones as facilitators of political activism

*This paper examines how mobile phones affect political activity. In a number of cases, the mobile phone as a uniquely easy-to-use and personal communication device has been portrayed as a key tool to facilitate mobilization and collective action, such as during the impeachment process of President Estrada of the Philippines in 2001. Taking some of these case studies as a starting point, I find a plausible theoretical framework for analysis in the literature on collective action theory, mobilization and diffusion theory, and network society theory, which I develop further to include the novel aspect of mobile telecommunications. Mobile teledensity data and three political activism indicators in over a hundred countries are then tested with negative binomial Poisson and ordinal logistic regression over a period of 16 years. The results do not support the observations of earlier case studies; I find no significant relationship between mobile teledensity and anti-government protests, riots, or major government crises.*

### A New Tool for Civil Society?

In 2001, the elected President of the Philippines, Joseph Estrada, had to step down after weeks of demonstrations in Manila, the capital. The protesters who demanded his impeachment were mobilized via their mobile phones, mainly by waves of text messages calling for participation in street protests.

There is a tendency in the literature to give mobile phones and networks a lot of credit for shaping outcomes such as the one in

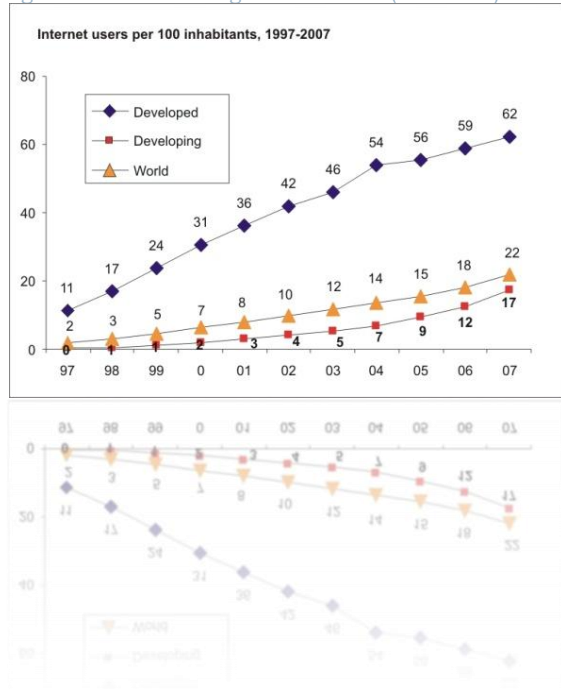
Manila, calling these mobile-phone enhanced protesters *smart mobs* (Rheingold 2002).

*"Mobile communication is said to enhance the autonomy of individuals, enabling them to set up their own connections, bypassing the mass media and the channels of communication controlled by institutions and organizations" (Castells et al. 2007).*

But how much does the mobile phone really affect outcomes? Are a few calls or text messages enough to challenge the power of the state? The events in the Philippines and elsewhere were quite a sensation and have led a variety of scholars to embrace the issue and do research on the social and political impact of mobile phones. However, little systematic research beyond loose collections of case studies has been done so far. I wish to fill this gap by presenting a comprehensive theoretical discussion and extending the analysis to a larger number of cases using quantitative methods.

Mobile phones have, other than the Internet, only recently received increased attention by political scientists. Unfortunately, research on mobile phones in this field and in other social sciences is often being lumped together with research on the Internet, usually under the umbrella term Information and Communication Technologies (ICT). These studies often fail to capture the distinct properties of mobile telecommunications because when they claim to analyze ICT, they do, in fact, largely deal with the Internet only (Walker 2006; Nicholson 2005; World Bank 2008).

Figure 1: Internet usage in the world (ITU 2007)



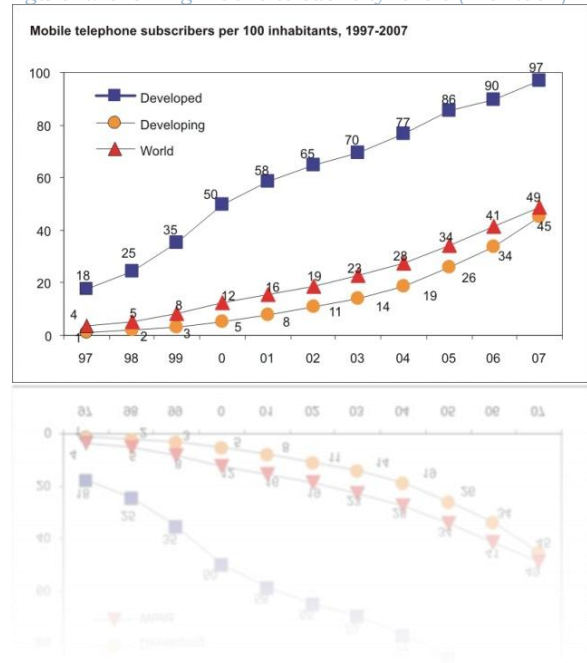
This causes validity problems and it also completely ignores distinct inherent capacities of mobile phones and networks, treating them as if they were “a natural extension of the Internet, rather than an entirely distinct system with its own rules, a separate user base, and a completely different network structure” (Walker 2006). This is clearly unsatisfactory from an analytical perspective, especially in light of the worldwide trend that shows rapid growth of mobile phone penetration (Figures 2, 3 and 4).

There has long been a thriving body of academic literature describing the virtues of the Internet, being such a powerful and liberating tool for civil society<sup>1</sup> and its activists

<sup>1</sup> Civil society here refers to value-based movements in the arena of uncoerced collective action, as defined by the London School of Economics and Political Science (LSE 2004).

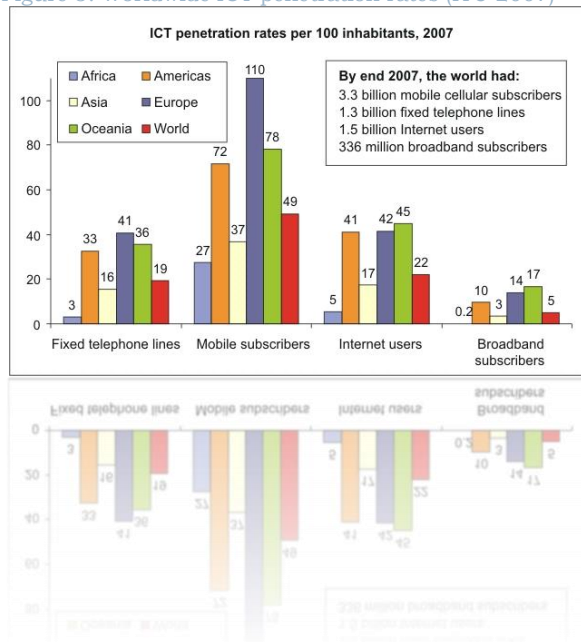
while there is no such resource to draw from in the case of mobile telecommunications, despite some works that will be introduced below. This lack of research is partly due to the Internet's earlier emergence compared with mobile telephony, at least with regard to its mass deployment.

Figure 2: Growing mobile teledensity levels (ITU 2007)



Mobile phone networks are growing nearly everywhere. The use of mobile handsets faces almost no restriction, as the massive growth rates even outside of the OECD indicate, where more than half of these global investments in 2004 were made (ITU 2006). As some of the case studies presented later will show, mobile phones can be a powerful tool for civil society that offer possibilities the Internet cannot provide. Some of the mobile phone's functionalities deserve increased attention and research efforts by political scientists along the example of earlier Internet research.

Figure 3: Worldwide ICT penetration rates (ITU 2007)

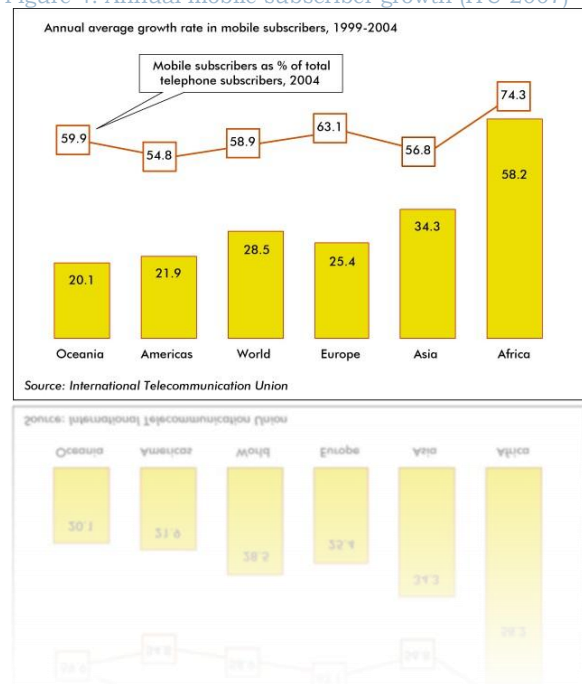


Take for example the process of political mobilization; mobile phones can facilitate its emergence by virtue of three important factors: mobility, personalization and multimodality. Mobility adds a spontaneity factor to potential mobilization, because users can react instantly and emotionally to events. Personalization is given through the typically person-to-person and social type of contact. Finally, the mobile phone is multimodal because it can transmit voice, images, and sounds, making it a tool for live transmission of events to be shared on the network with the implications that follow from such 'broadcasting' (Castells et al. 2007). These aspects can potentially turn mobile phones into indispensable tactical and organizational tools for any group or organization that wishes to mobilize people around a common cause. The case studies and interviews below present a forceful body

of evidence that further research should be done.

In the last decade, the world has witnessed very high telecommunications investments in almost every country. Why is this happening? Universal demand, falling costs and a profitable, competitive market appear to be the driving forces behind this phenomenon. International and home-grown mobile network operators have "worked out how to earn princely sums in the world's poorest places" (Economist 2006) and are fiercely competing for market share, pouring in large sums of investment in many countries.

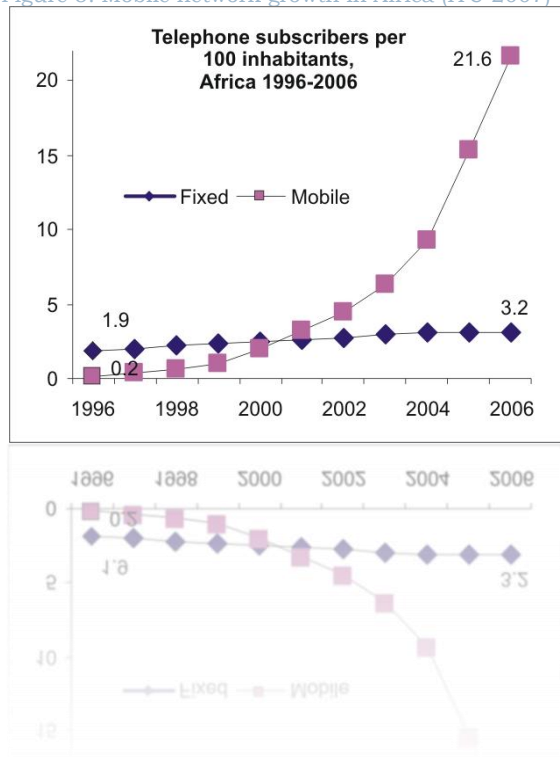
Figure 4: Annual mobile subscriber growth (ITU 2007)



Mobile technology, owing to its unique characteristics, is able to bypass the structural problems that inhibit the Internet in less developed countries, and has thus expanded more (see Fig. 3). It has "enabled developing countries to skip the fixed-line

technology of the 20th century and move straight to the mobile technology of the 21st" (Economist 2008a). This is an exception; most new technologies – the Internet and PCs are good examples – depend on existing infrastructure such as roads, electricity and fixed phone lines in order to work. In other words, "to go high-tech, you need to have gone medium-tech first" (Economist 2008a). If there is no reliable source of electricity, there is no point in having a computer or a fridge.

Figure 5: Mobile network growth in Africa (ITU 2007)



A mobile phone, however, does not need a steady, local source of electricity but can instead be recharged occasionally. Neither is it dependent on existing fixed phone lines as the Internet is. The threshold for its use is also lower by other terms: phones can be operated by users with no or minimal levels

of literacy. The same cannot be said about computers (Dholakia and Kshetri 2003). This is an important factor in less developed countries with high illiteracy levels, and together with other factors, it explains mobile phone technology's swift success in connecting people also in previously very isolated places. Africa is a good example for this. Infamous for extremely low penetration of telecommunication services, it has recently been able to greatly profit from the mobile phone's unique 'leapfrogging' abilities. Fig. 5 illustrates Africa's immense mobile telephony breakthrough compared to traditional fixed telephony.

More importantly, civil society in developing countries is making use of the new tool, particularly its cheap and practical text messaging function. An example is the call for nation-wide boycotts that is mass-transmitted via SMS<sup>2</sup>, a phenomenon that has for example taken place in Nigeria (Obadare 2006). And as the following sections will show, the combination of quick communication and large, angry masses of people can have consequences political leaders should be wary of.

#### Research Question and Approach

The bottom-line question of this paper is to find out what the proliferation of mobile phones, a trend observable in almost every country, means for the political sphere. Can a few calls and text messages really challenge the established powers? Will it be easier to mobilize a large number of people for street protests and other forms of what can be called political activism? Will civil

<sup>2</sup> Short Message Service, a communications protocol to exchange text messages between mobile phones.

society become better organized and more effective vis-à-vis the state? *Can mobile network growth be associated with increased political activism?* Is there really any effect at all? In a number of events the use of mobile phones has, perhaps too enthusiastically, been given credit for the outcomes of protest activities that were directed against governments.

Ideally, an explanation of an outcome in one or a small number of cases should stimulate a larger-N analysis in order to estimate the average effects rather than explain particular cases (Mahoney and Goertz 2006). Using qualitative studies and extending the analysis to a larger number of countries is precisely the purpose of this paper.

### Smart Mobs and the State

As Castells and his colleagues (2007) note their book *Mobile Communication and Society*, mobile communication networks can be formed and reformed instantly, and messages are often received by a known source, enhancing their credibility. At the same time, such networks provide a powerful platform for political autonomy on the basis of independent channels of autonomous person-to-person communication.<sup>3</sup> The authors observe a growing tendency for people to use mobile communication to voice their discontent with their country's authorities and to mobilize protesters by

<sup>3</sup> "The networking logic of the communication process makes [the mobile phone] a high-volume communication channel, but with a considerable degree of personalization and interactivity [while] the wide availability of individually controlled [mobile] communication effectively bypasses the mass-media system as a source of information". (Castells et al. 2007).

inducing 'flash mobilizations'.<sup>4</sup> Such mobilizations are thought to have "made a considerable impact on formal politics and government decisions" in a number of instances (Castells et al. 2007). In this paper, I will repeatedly draw from this qualitative study that was initiated by the Annenberg Research Network on International Communication at the University of Southern California. It is to my knowledge the most comprehensive and up-to-date work on the social impact of mobile phones available.

A very illustrative case, and probably the most famous one, is the so-called *People Power II* revolution in the Philippines in 2001. Its fame is partly due to Howard Rheingold's book *Smart Mobs* (2002) and an article by Rafael Vicente in 2003.<sup>5</sup> It is often considered the first time in history that the mobile phone played an instrumental role in removing the ruling president of a state (Castells et al. 2007).<sup>6</sup> In a nutshell, President Estrada's growing unpopularity caused by episodes of mismanagement and corruption combined with the unwillingness of the Senate to investigate evidence during a formal impeachment process caused enraged citizens to take the streets. Many of the protesters followed 'instructions' received via their mobile phones (Castells et al. 2007).

<sup>4</sup> 'Flash mobs' originally consisted of a large group of people who assembled suddenly in a public place performed an unusual action for a brief time and then quickly dispersed. Some authors seem to be using this term in the wider sense of large demonstrations that rely on communication technology, and are not necessarily very short in duration. For such events, the term 'smart mobs' may be more adequate (Nicholson 2005; Rheingold 2002).

<sup>5</sup> Rheingold set up a website collecting news on the smart use of ICT, see [www.smartmobs.org](http://www.smartmobs.org).

<sup>6</sup> My interview with Ivan Marovic suggests that an earlier event of this type may have happened in Serbia in 2000.



Growing street pressure led most key cabinet members to abandon their posts. Eventually, the army sided with the protesters and Estrada was removed from office. By the end of the same day, the Supreme Court declared the presidency vacant, and the new president, Gloria Arroyo, was sworn in. People Power II concluded on a triumphant note. News coverage invariably highlighted the role of new communication technologies, particularly SMS and the web, in facilitating and enabling the protests. Indeed, it was texting that made the swift gathering of tens of thousands possible immediately after the crucial decision of the Senate. The demonstrators were using SMS so actively that during the week of the protests it "caused serious strain on the networks" that covered the protest area: Globe Telecom, an operator, reported a massive, nearly two-fold increase of SMS traffic from on average of 25 million per day to 45 million. (Castells et al. 2007).

Another noteworthy case is Spain. An Al-Qaeda cell killed 192 commuters in Madrid by blowing up bombs inside three trains on March 11<sup>th</sup>, 2004. The attack took place just four days prior to Spain's national elections. Incidentally, these elections were dominated by the debate about Spain participating in the Iraq War. Despite broad opposition to the war, the ruling Conservative Party (PP) was expected to win the elections based on its economic record and its widely accepted tough stand on Basque terrorism (Castells et al. 2007). Ignoring the increasing evidence that Jihadist terrorists had been behind those attacks, the PP kept blaming ETA, the Basque terror organization. This was perfectly rational because "making the Basque terrorists responsible would favor the PP in the

elections, while acknowledging the action to be that of Islamic terrorists would indicate to Spaniards the high price they were paying for their government's policy in Iraq, thus potentially inciting them to vote against the government" (Castells et al. 2007). An inquiry commission later produced evidence that the PP had, at the very least, deliberately delayed information and presented as proof some elements that were still under scrutiny. Regardless of the true extent of deception, thousands of Spaniards were convinced that the government was manipulating facts, and they started to disseminate their views to other citizens. At the same time, the major TV channels, all of them directly or indirectly controlled by the government, and most radio stations supported the Basque terrorist hypothesis. The print media followed suit, after the Prime Minister had personally called editors of the main press publications to reassure them. With most of the traditional media sticking to one version, oppositional views had to turn to alternative communication channels to spread their version of the truth. The crucial aspect was the youth's participation. Usually characterized by high abstention rates, they became politicized by these events, and their extensive use of mobile phones to disseminate information and call for demonstrations against the PP let many voters switch sides. The Socialist Party then unexpectedly, but clearly beat the PP in the polls (Castells et al. 2007). SMS traffic increased by 20 percent over the average on the previous day, and by 40 percent on Election Day, an all-time record. As Castells et al. (2007) note, the critical point was that the senders were known to the receivers, making the network of diffusion increase

exponentially while retaining proximity to the source. Major television channels and newspapers were soon ignored as reliable sources, but the major private radio network SER eventually started to look for the alternative Al-Qaeda explanation. Consequently, many activists referred to the SER when calling or texting their friends.

An equally interesting, but unsuccessful case in terms of mobilization, is the 2003 SARS epidemic in China. Here, mobile phones were used by families and friends of victims to spread the news of this strange, deadly disease, while the Chinese authorities were completely censoring any kind of information on this. Eventually, the Chinese government started a successful media counteroffensive denouncing the 'rumors' as false and downplaying the severity of this 'variant of pneumonia'. Castells et al. (2007) conclude that in contrast to the Spanish case, traditional media seems to have effectively undermined the earlier information dispersed by mobile phones "because SMS was perceived to be a medium of lower credibility and there was no other source of information". Most people, Chinese and foreigners alike, "chose to believe the official version, only to witness the SARS epidemic in full swing within weeks".

It is clear that the outcomes of the events presented above were strongly shaped by context, and that the mobile phones' facilitating aspect worked most likely in conjunction with many other factors. Castells and his co-authors do not deny this, and neither is it my point to give mobile phones too much credit for what happened. What is of interest here is a certain pattern, where mobile phones repeatedly showed their

potential in shaping and facilitating the development of mass events. At the same time, the true effect of the mobile phone alone remains unclear and further analysis is needed to clarify this question; quantitative analysis may be able to do this.

Events similar to the ones above are being reported from all over the world and they usually fall into two categories: mobile phones are either used for monitoring or reporting; or they are used for mobilization and collective action. In the former, it usually takes place at polling stations: voting results are transmitted to radio stations at once, making the opportunity to rig results considerably more difficult (Economist 2008b). Countries where such monitoring has taken place are for example, Senegal (Abel 2000) and more recently, Zimbabwe (Global Voices 2008; Martz 2008). My analyses, however, will focus on the second category where mobile phones have been used for mobilization and collective action.

#### Street Activism in Serbia and Belarus

To gain additional insight in the practical use, or 'street use' of mobile phones, I interviewed two key informants. Both Ivan Marovic, a former leading member of the Serbian opposition movement Otpor and Pavel Marozau, a Belarusian dissident, currently exiled for his media activism and involvement in an opposition movement called *Third Way*, have actively used and witnessed the use of mobile phones by political activists.

Originally a student movement, Otpor turned political after the NATO bombings in Serbia in 1998, waging a political campaign against



Slobodan Milosevic. The campaign eventually led to a successful outcome, Milosevic stepped down in 2000 and was later extradited to The Hague for trial. In the interview, Ivan Marovic, responsible for press and PR at Otpor during the events in 2000, and one of the founding members, unequivocally confirmed the importance of mobile phones in this movement. A particularly interesting aspect that surfaced in the interview was the fact that the Internet played a rather limited role because the Web was slow and not used a lot in Serbia in 2000. Mobile phones, on the other hand, were very common according to Marovic: “[By] 2000, almost everybody had a mobile”. While the Internet was used for strategic communication – news, documents, etc. – the mobile phone was crucial for operational and tactical communication. For example, in order to transport small packages from one place to another, they would ask bus drivers to deliver these and immediately text or call the receiving party in the other town to pick up the deliveries. Marovic stated that cell phones were crucial for such operations. He also gave an example of mobile use where changing tasks in real time was critical: in a long 80km march from Novi Sad to Belgrade in April 2000, the organizers had to coordinate tasks while walking. Food had to be supplied by volunteers from different towns, buses needed to be organized for those who could not walk anymore, and the welcome rally and press releases upon arrival in Belgrade needed to be prepared and coordinated. Marovic used up three cell phone batteries that night.

Pavel Marozau and all other activists behind *Third Way*, an independent youth group, eventually had to flee Belarus after charges

of ‘insulting’ the president had been brought against them. In Belarus, this automatically means a guilty verdict, as President Lukashenka heads a Soviet-style police state. Third Way’s goal is nothing less than reforming and modernizing Belarusian society (Third Way 2008), and they are very keen in using all kinds of technologies for their purposes. Government surveillance appears to be an overall issue in the case of Belarus, as is the need for safe communication. Pavel Marozau agreed that mobile phones are very important for his organization’s activities. However, he also added that where possible, the use of mobile phones is being avoided for ‘serious things’. Mobile communication can be very unsafe, operators have little scope to resist governmental requests for sensitive data. Interception by state authorities is especially common in the run-up phase to state elections. Third Way has been using mobile phones to contact potential new recruits, but also for operative coordination, or media reporting — for example upon having been arrested. In the case of operative coordination, it is important to use coded language or not name places while talking on a mobile phone. Marozau described a situation where he accidentally slipped the name of a public square while talking to an activist on his mobile phone. The consequence was swift: his fellow activist was arrested within 15 minutes. Another tactical strategy is to use reconnaissance activists in street demonstrations who report police movement. To do this, the reconnaissance activists use ‘clean’ mobile phones with SIM cards and phone IDs that have not yet been registered by the surveillance apparatus or that have been

manipulated using illegal Russian software. The Belarusian authorities are, of course, not foolish. Marozau explained in the interview how they are well aware of the power of mass SMS and have made use of it themselves, especially prior to the presidential elections or the 2004 referendum. They routinely modify the opposition's messages, or just spread the opposite message. The Belarusian government has also created its own, well-funded youth organization which also uses mass SMSes and other communication strategies, thus copying the opposition movement's tactics. In addition to tapped phone calls, there is also the risk of *localization*; with today's technology, it is possible to localize the position of a mobile phone and thus its user even when the handset is not being used. The accuracy is 50-100 meters, according to Marozau. It has become common to simply switch off the phone or even remove the battery to be on the safe side.

### The Theoretical Framework

Mobile connectivity can be said to both reflect and intensify social ties: without social ties, the mobile phone, predominantly used for social contact with friends and family members, is of little use. At the same time, it is a powerful tool to manage or 'microcoordinate' one's social life and keep in touch with one's social network, and one that can be used to strengthen and expand social ties (Ling 2004; Livesay 2003). The concept of social ties and how mobile telecommunications is affecting these will be a recurrent theme below. In order to understand how this aspect can be understood in conjunction with existing

theory, I draw from three types of theory: *collective action*, *mobilization* and *diffusion*, and also *network society theory*. The variant of collective action theory used mainly highlights individual motives to participate in the activities and movements of interest here. Mobilization and diffusion theory further emphasize structural aspects of how political and social movements are generated. Finally, network society theory links the previous theories to technology both conceptually (Castells 2000a and 2000b) and more conclusively where the theory is used in connection with mobile telecommunications (Castells et al. 2007). The aim of this discussion is to advance the development of a suitable hypothesis.

### Collective Action

The main point of this collective action variant developed by Roger Gould (1993 and 1995) is that social ties make individual's decisions about participating in collective action *interdependent*. If at least one actor has already made a contribution to a cause, other actors have thus according to Gould (1993) two reasons to make contributions of their own. One is *instrumental*, i.e. based on how one perceives the efficacy of a cause. The other is *normative*, i.e. based on how one fears, or wishes, to be perceived by others. Neither reason accomplishes much by itself: Normative pressure to contribute to collective action will have little impact if elicited contributions are completely wasted, while increasing marginal returns will only reinforce the waiting game and encourage free-riding in the absence of fairness norms. Social ties, as he argues, "occupy a central role in explanations of how groups overcome the free-rider problem" (Gould 1993). A basic

tenet of Mancur Olson's (1965, cited in Gould 1993) characterization of the free-rider problem is that "a rational actor will abstain from contributing to a public good if his or her contribution has a negligible impact on the total amount of the good produced and consequently a negligible impact on his or her consumption of the good". But if these decisions are *not* independent, i.e. if one actor's contribution makes another actor's contribution more likely, the total benefit resulting from an individual's decision to contribute may be considerably greater than his or her cost of contributing. Introducing a normative element makes sense because as Gould states, "few social scientists believe that individuals are pure rational egoists, particularly since collective action occurs more frequently than the rational choice framework would predict". While people may be perfectly willing to contribute something to a collective good, they are most likely to first wait and see what others do to be reasonably sure their contributions will not be wasted, before joining in. If some individuals take the initiative, it will increase the motivation of others to join in because the initiators have increased the marginal returns to the group that would arise from further contributions.<sup>7</sup> Any utility maximizer would still try to get a free ride here; however, in the presence of norms of fairness, everyone with social ties to the initiators now has a reason to match the initiators' contribution. "As much as people dislike being exploited, they do not want to

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<sup>7</sup> Gould uses 'Maple Street', a fictitious neighborhood, to illustrate this point. The public good in question is overall cleanliness: If one person has already picked up some trash littering the street, the marginal return from further cleaning increases because "every single discarded object now represents a greater percentage of the total remaining" (1993:184).

be perceived, and potentially ostracized, as exploitative" or to state it more positively, "seeing others contribute should motivate actors to contribute their share" (Gould 1993).

In general, one can say that the degree to which contributions are *visible* affects the level of normative social pressure non-contributors may be subjected to, thus altering their behavior (Gould 1993). This aspect of *visibility* needs to be emphasized at this point, because I will argue for enhanced visibility through mobile phone usage. From a theoretical point of view the concept of visibility in my context represents the collective, public demonstration of activists confronting political authority on specific grounds (Livesay 2003; Melucci 1994). Visible action such as the waves of mass SMSes described earlier "strengthens the hidden networks, boosts solidarity, creates further groups, and recruits new militants who, attracted by the movement's public action, join its hidden networks" (Melucci 1994). Those hidden networks are the overlapping networks of small groups submerged in daily life. They make visible action possible because they provide the solidarity resources needed and the framework within which mobilization takes place (Melucci 1994; Livesay 2003), a factor that was also pointed out by Pavel Marozau from Third Way. I will return to this aspect later, tying this conceptually to mobile phones, assumed to be the carriers of increased and faster-spreading visibility.

### Mobilization and Diffusion

Mobilization theory and diffusion theory further emphasize structural aspects that

facilitate mobilization for collective action. The idea of thresholds is critical; resources, organization, opportunity and grievances must be present simultaneously at their threshold levels before a movement emerges, though deficits in some dimensions may be offset by surpluses in others (Jenkins 1983; Buechler 2008). This latter argument is particularly useful in the present case, as one can argue that mobile phones may create a surplus in, say, organization and resources. They do this not necessarily through the total amount of skill or resources available, but rather through more efficient use of these factors. For instance, the real-time aspect of mobile communication means that people, supplies, and money can be reallocated or redirected while a process is under way (Townsend 2000; Kwan 2007). This can be particularly effective in protest movements, e.g. in street demonstrations where protesters can quickly adapt to police movement, arrests and blockades by spreading information about them and immediately acting on it (Rheingold 2002; Castells et al. 2007). Indeed, the increase in reallocatable discretionary resources such as time and money is absolutely central to the expansion of a social movement (Livesay 2003). Micromobilization, "that small group setting in which processes of collective attribution are combined with rudimentary forms of organization to produce mobilization for collective action" (McAdam 1988, cited in Livesay 2003), points at some other relevant arguments within mobilization theory. Micromobilization can be provided by non-political and informal groups such as friendship networks. Such contexts can be generative of social movements for a variety of reasons. Such dense social networks

increase 'structural proximity', the proximity of more people to movement activity. Members of such networks are more likely to come in contact with movement activists and their flows of information. More importantly, this structural availability can operate both at the individual and group level. 'Bloc recruitment', i.e. on group rather than individual basis, thus becomes possible (Livesay 2003). Such 'blocs' can, in turn, increase group solidarity. Equally important is that micromobilization contexts make certain psychological processes that facilitate movement participation more likely. These are for example, as Livesay (2003) notes, the "delegitimation of hegemonic ideologies, the attribution of the causes of experienced grievances to structural rather than to individual factors, and the development of the perception of the efficacy of movement participation." Social ties to movement supporters should increase the likelihood of one's recruitment. Lastly, micromobilization contexts provide the rudiments of organization: Livesay (2003) mentions for example leaders and communication technologies. They are needed to translate contributions into concrete action.

The two most facilitating features of pre-existing networks seem to be dense lateral ties, i.e. social integration, within the population of potential recruits as well as multiple bridging ties that link network clusters together (Livesay 2003). This insight is also shared by proponents of *diffusion theory*. This field focuses on the flows of information and ideas through various kinds of channels. As Soule (1997) notes, definitions of diffusion "almost always include the notion of connectedness" and in relational models

of diffusion, information is said to be flowing between actors through their direct network relations. She (Soule 2004) also repeatedly stresses the importance of networks to diffusion processes. Likewise, models used by network analysts reflect this in their claim that “ideas diffuse more rapidly when individuals are in direct and frequent contact”, i.e. where the interaction rate is high (Soule 2004). Such an observation is certainly likely to be made among users of mobile phones, where texting and calling takes very little effort and time and can be done anywhere.

#### Network Society and Technology

Manuel Castells' works, particularly his *network society theory* (Castells 2000a and 2000b) is another theoretical approach useful for the present analysis. He puts communication technologies, a virtually indispensable medium in our informational age, at the center of human action, which is to rely on processes enacted by organizational forms that are built upon networks, particularly upon information networks (2000b). While networks are to be “old forms of social organization, they are now *empowered* by new information [and] communication technologies, so that they become able to cope at the same time with flexible decentralization, and with focused decision-making” (Castells 2000b; emphasis added). Technology is omnipresent in our everyday lives. This is particularly true with mobile phones, which are highly personalized technological artifacts. Mobile telecommunications technology can modify our social structure by creating what Cooper (2002) calls the “transparency of the world” where communication is possible anytime and anywhere, virtually eradicating

“communication-free pockets”. The structural argument presented earlier can be encountered again here: In the sense that technology can enhance visibility, or transparency, one can also expect it to facilitate participation boosts in the political sphere, for example through feedback loops that intensify recruitment to political and social movements. Mobile telecommunications technology also “critically affects spatiotemporal change”, i.e. the structural dimensions that otherwise restrain human action in both distance and time. The space of social interaction becomes redefined because mobile telecommunication changes the location reference – people are “here and there, in multiple heres and theres, in a relentless combination of places” (Castells et al. 2007). The temporal dimension becomes redefined because individuals now do “midcourse adjustments” as they “walk or travel toward their destination while deciding which destination it is going to be. [They do this] on the basis of instant communication in which they are engaged” (Kwan 2007). This may be just as true in everyday life as in a street demonstration. Places now exist as “points of convergence in communication networks created and recreated by people's purposes” (Castells et al. 2007; Kwan 2007; Ling 2004). This is exactly the effect that can be expected to work in favor of demonstrators. Communication technology is now shifting the possibilities from place-to-place towards person-to-person connectivity. Computers and telephones are traditionally tied to a fixed location; mobile telephones are not. Due to this phenomenon, it becomes increasingly difficult to pinpoint when and where an

activity begins (Kwan 2007). To relate this to an example: it is harder to crack down on demonstrators who change plans and destinations on-the-go.

### Conclusions and Alternative Approaches

The theoretical arguments laid out in the previous chapter are concerned with issues of collective action and networking and seem to relate to the material presented in the empirical section. An example is the recruitment and mobilization for political causes by means of mass-SMS waves that call for protest participation. There are, of course, many other theories that can be used to frame these questions. However, in conjunction with the technological argument, the theories discussed above are considered the most relevant for the chosen research focus.

Two important issues, *monitoring* and *logistics*, were briefly discussed above but are not really reflected in the theoretical literature discussed. Doing this would be beyond the scope of this work. These two aspects, together with alternative theories, are briefly addressed below for the sake of future research in this novel field.

Garret (2006) and Green (2002) have raised the issue of monitoring, calling this a "reversal of the Foucauldian panopticon". In the traditional state, the elite controls power by surveillance techniques – a central mechanism that is to generate disciplinary self-regulation by the population. This is what Foucault (1977 and 1979, cited in Garrett 2006 and Green 2002) describes with his panopticon. Modern information technologies can somewhat reverse this in

today's world. The public eye, enhanced by information technologies, can thus force the elite into self-regulated behavior. The cruder kinds of electoral fraud such as the stuffing of ballot boxes often rely on poor communications between the center and the periphery.<sup>8</sup> They have now become much harder to carry out, because monitoring has become so cheap and effective that it can now more easily produce considerable embarrassment for fraudulent leaders.<sup>9</sup>

Mobile phone utilization for logistical purposes relates to efficiency in a more economic sense. Technology reduces transaction costs of a certain activity, opening up new options and facilitating existing ones. The question of logistics may be better approached by strands of economic theory, and transaction cost issues may be useful to analyze the particularly restrictive conditions under which oppositionist movement operate.

An entirely different alternative approach to decision-making is the concept of *information cascades* (Bikhchandani et al. 2007). An information cascade takes place "when individuals acting in conditions of uncertainty strongly condition their choices on what others have done previously" (Drezner 2005). In repressive societies, such information cascades tend to reinforce

<sup>8</sup> There is often a time span between the casting of ballots and the publication of results, particularly when ballot boxes are first transported to a central office for counting. This is often used as an opportunity to manipulate results in favor of the incumbent rulers.

<sup>9</sup> "Even with minimal resources, monitors can count the voters and conduct exit polls – and then phone [or text] their findings to a radio station before the authorities stuff the ballot boxes" (Economist 2006b).



acquiescent behavior by citizens. However, this cascade can be reversed by strong exogenous shocks that trigger acts of protest. It is not difficult to imagine what the omnipresence of mobile phones can do to boost such cascades.

### Bringing in the Mobile Phone

It is increasingly becoming clear that mobile phone networks, in addition to other means of communication, are key means of social exchange (Campbell and Park 2008; Castells et al. 2007; Ling 2004; Kwan 2007; Economist 2008b). This is undoubtedly most pervasive in more developed countries, but as shown previously, other countries are catching up fast. This has deep consequences for social science research: "It is widely recognized that the spread of new forms of communication is likely to affect social organization in depth, and that this requires a reformulation of sociological concepts, including that of social relations" and "research on networks and participation will have to explore the impact of virtual links" (Diani 2004). I plan to do just that, formulating my hypothesis which I base on the previous chapters and which will lay the foundation for the subsequent quantitative analyses.

The hypothesis that is to be tested in this paper boils down to the question whether the developments in the amount of mobile phone users can be associated with anti-government demonstrations, riots, or major government crises.

The degree in which political activism (such as protests) are *visible* is expected to be the key factor. The more visible a protest movement, the more likely is an individual's decision to join because due to the

apparent increase of participants (or contributors), individuals will assume increasing marginal returns. However, unless there are personal friends among the protesters, the non-contributor may decide to wait and see how things develop because the normative social 'pressure' is not sufficiently given. Now, with mobile networks present, the situation can be expected to change in favor of both the fairness and efficacy aspects that are central in Gould's collective action model. With regard to efficacy, the more members there are in a network, the higher the expected potential mobilization feedback loop or the 'chain reaction' that can amplify any message spread within a network. Every individual is for example more likely to be the recipient of information spread via text messages or a call. As a consequence, individual expectations of marginal returns are assumed to increase because the more information and feedback one receives about a protest movement, i.e. the more 'visible' the joining in of others becomes, the more likely one will be inclined to believe in its success. Due to the mobile phone's ability to enhance the autonomy of individuals and to bypass mass-media (Castells et al. 2007), visibility of an issue or activity even increases when the media are not reporting it (as illustrated by the aforementioned examples of Spain and, initially, China). The effect on fairness is thought to work equally through technology-enhanced social ties: The more users there are in a network, the stronger the expected potential fairness impact on mobilization. Fairness norms are expected to have an increased effect because the mobile phone is such a personal device (Campbell and Park 2008; Ling 2004). It is

assumed that nobody likes to be seen as a free-rider by friends and relatives; they will on the contrary be more likely to enjoy engaging in cooperative action with friends. As mobile telecommunication increasingly gains importance for an individual's social ties, any message or call received is with great likelihood assumed to originate from a friend, a work colleague, a family member, a fellow student, a friend of a friend, etc. – in other words, from those overlapping 'hidden networks' that form trusted circuits of exchanges for information and new ideas (Melucci 1994). Individuals can therefore be expected to be more motivated to contribute to the protest activities rather than to abstain.

More mobile phones also potentially increase structural effects as described in the network theory section above. Drawing from mobilization and diffusion theory, it is plausible to predict that 'structural proximity' and higher interaction rates through multiple bridging ties could cause faster information diffusion through dense networks of individuals directly connected to each other, and this is expected to increase overall and interpersonal visibility of any actions planned or being taken. This, in turn, is expected to result in more effective mobilization where mobile networks are more pervasive.

Against this backdrop, it could be anticipated that an increase in mobile network users can lead to increased effectiveness of mobilization due to *improved outreach, speed and response*. An increase in overall mobile connectivity among a country's population can thus be thought to increase political protest activity

in this country. I therefore formulate the hypothesis as follows:

*An increase in mobile connectivity in a country is followed by an increase in political activism in the same country.*

Here, mobile connectivity will be used as a concept that reflects interpersonal linkages enhanced by mobile telecommunication technology, while political activism is to contain protest activity. In the analysis below I attempt to identify the effect of mobile connectivity on political activism, controlling for some plausible other factors while keeping the model parsimonious. There is a good deal of plausible reasons in both the empirical and theoretical literature to formulate and test a relationship as presented above. Some caveats must be considered, however.

#### Counterarguments

Next to the null hypothesis that there is no relation whatsoever between mobile connectivity and political activism, one possible alternative hypothesis could state the opposite effect – that increased mobile connectivity decreases political activism. What would be plausible arguments for these alternatives?

Much of the hypothesis developed in the previous section rests on the assumption that facilitation, provided by increased mobile connectivity, can lead to increased activism. Some authors caution against giving too much credit to technology: "[ICT technologies] influence, contextualize, facilitate, permit or inhibit courses of action, but not as first-order dynamics that change, transform, foster, impose or shape a course

of action" (Mansell and Wehn 1998, cited in Wilson 2004).<sup>10</sup> Such a second-order argument would create a distinction between potential and actual effects of mobile connectivity where the potential depends on first-order dynamics to unfold its impact. The tilt in the outcomes is provided by individuals' and organizations' choices when and how to use mobile phones, not by the device itself. It is thus important not to assume any automatism or to jump to monocausal conclusions (Wilson 2004). For instance, increasing visibility may not automatically result in increasing response. A wave of SMSes asking the receivers to join a demonstration may for example fail to trigger a response for a number of known or unknown reasons that cannot be offset by individual efficacy and fairness considerations. And even when the necessary structural and psychological requisites are in place, if the principal variable that is to trigger human agency does not operate, or if other variables neutralize its workings, no measurable effect will be noticed (Wilson 2004).

The dynamic perspective taken on society whereas the state as a factor remains conceptually somewhat static could result in a potential logical flaw. Governments make use of technological progress for their own purposes. The examples described earlier allowed us to observe rapid technological adaptation of civil society actors. That government actors do not adapt to technological progress or that they do so at a slower pace than civil society actors is

highly doubtful. The development of the Internet gives an indication of the ingenious ways in which governing elites are able to adapt to technologies that challenge their established power. Many countries have imposed restrictions on free Internet access. Such measures have been implemented despite the Internet's structural properties that were precisely designed to exacerbate censorship and other content interferences (Deibert et al. 2008). The same is happening with mobile telecommunications. My interview with Pavel Marozau indicates that the state increasingly asserts its power in this area as well. Finding empirical evidence of such control is more difficult due to the secrecy typically surrounding such measures, and the less open architecture of mobile telecommunication systems compared to the Internet. Marozau highlighted the more subtle workings of such governmental countermeasures. Castells et al. (2007) report a case where the police simply tapped into the flows of SMSes between activists during a demonstration in New York and then took action based on that information. This can of course be prevented through codes, but this restricts the potential for mass mobilization. There are also more forthright variants of censorship where mobile networks are simply shut off, either in selected areas or altogether. Recent examples are Tibet during the riots prior to the 2008 Olympic Games in Beijing or Ethiopia during the violent election protests in 2005 (NZZ 2008a; BBC 2007).<sup>11</sup> In both cases, the authorities presumably shut down mobile networks in an attempt to prevent their use by journalists and anti-

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<sup>10</sup> ICT in Mansell and Wehn's usage refers first and foremost to the Internet, but the argument can be a valid one within the context of mobile telephony as well.

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<sup>11</sup> SMS services remained unavailable for two years in Ethiopia which has only one mobile network operator. See also Ethioblog (2007).

government activists. Such crude measures are no doubt highly effective, and together with other tactical adaptation by governments, may offset the advantages gained by civil society actors (cf. Meier forthcoming). Two possible implications of this are that increased mobile connectivity would not result in an increase in political activism, or that it may even cause a decrease if states should adapt faster to the technological progress than civil society. This is plausible if taking into consideration that new and public, omnipresent communication technologies can actually promote the state's surveillance capacities.

Moreover, the same effect that could lead to increased political activism may also lead to its decrease (Townsend 2000; Kwan 2007). Mobile phones may facilitate not only mobilization, but also demobilization. Protests may be called off just as quickly and efficiently as they are initiated due to 'midcourse adjustments' and feedback loops that work in the opposite direction.

Finally, changes in mobile connectivity may be part of a larger socio-economic change process that may alter civil society's interaction with the government in many ways, for example a transition to more stable forms of political activity.<sup>12</sup> The downward development of political activism variables over the past 16 years may be an indication of this. With too much 'noise' created by socio-economic variables it may be difficult

to identify and isolate the expected effect of mobile connectivity on political activism.<sup>13</sup>

### Research Design

The two key concepts in this paper are *mobile connectivity* and *political activism*. Mobile connectivity can be understood as a specific, systematized concept within the larger conceptual background of connectivity. The background concept includes other relevant factors such as Internet connectivity, urbanization, transportation, cultural linkages and so forth, all elements that can be useful in clarifying connectivity. Discussing all these would go beyond the scope of this paper. For the purpose of my research question, I will focus on the novel factor of mobile phones; the systematized concept is denoted as 'mobile connectivity'. This term is meant to describe interpersonal linkages via mobile telecommunication technology. Political activism, on the other hand, may draw from the underlying background concept of political participation and related ideas. I systematize this concept for my purposes by restricting 'political activism' to the public expression of political discontent by members of civil society. Civil society is defined according to LSE (2004).

For the purpose of this analysis, I decided to use the proliferation of mobile phone subscriptions in a country to measure mobile connectivity. Mobile teledensity data, as it is called (see below for definitions), is

<sup>12</sup> Such a relationship is suggested in Gates et al. (2006). They have found that the higher a country's GDP, the longer its survival rate, which can be an indication of stability.

<sup>13</sup> This argument could be offset if mobile connectivity should increase faster than economic development. A correlation test to see whether this could be the case did not produce conclusive results.

considered the best available proxy to this concept. There is no other mobile phone data as comprehensive, accessible, and fit for per-country comparison I would be aware of. Better still would be traffic data, which can measure the amount and location of mobile network usage; Castells et al. (2007) seem to have in parts been able to get access to some SMS traffic data, but it is not generally available to the public and much less so on a national or comparative global level in the way mobile teledensity data is. In order to measure political activism, three different variables are each tested separately: anti-government demonstrations, riots, and major government crises. They were deemed good proxies for civil society's political activism. I deliberately kept out variables that would include the measurement of violence beyond riots (guerilla warfare, armed rebellion, purges, etc.). The units of measurement are country-years; therefore all definitions used below apply to such. A more comprehensive discussion of the validity as well as the reasons for including each variable is given below.

#### Variables used

To measure mobile connectivity, an indicator called mobile teledensity is used; it is defined as *mobile cellular subscribers per 100 population*. It refers to the use of cellular-technology portable telephones subscribing to a public mobile telephone service that relies on either analogue and digital cellular systems.<sup>14</sup> Both postpaid and prepaid

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<sup>14</sup> Third-generation cellular technology, so-called 3G services are also covered, while public mobile data and radio paging services are not (MDG 2008).

subscriptions are included.<sup>15</sup> The data is collected by the International Telecommunication Union, a UN subsidiary, and provided by the United Nations Millennium Development Goals website (MDG 2008). Anti-government demonstration is used to measure political activism. It is defined as *any peaceful public gathering of at least 100 people for the primary purpose of displaying or voicing their opposition to government policies or authority, excluding demonstrations of a distinctly anti-foreign nature*. The data is provided by the Cross-National Time-Series Data Archive (CNTS 2007), a proprietary database established by the late Arthur S. Banks. According to CNTS, most of the data are derived from The New York Times. The variable definitions are adopted from 'Dimensions of Conflict Behavior Within and Between Nations' (Rummel 1963). In order to approach the concept of political activism more thoroughly, two additional CNTS indicators, *Riots and Major Government Crises*, were tested as well. Riots are defined as *any violent demonstration or clash of more than 100 citizens involving the use of physical force* and *Major Government Crises* as *any rapidly developing situation that threatens to bring the downfall of the present regime - excluding situations of revolt aimed at such overthrows*. Other variables included are GDP, Population, and Time. GDP per capita is defined as *gross domestic product per capita based on purchasing power parity (PPP) in constant 2005 international dollars* and is provided by the World Bank Group's *World Development Indicators* website (WDI

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<sup>15</sup> *Prepaid* means that one buys a fixed amount of airtime, SMS or other services in advance, while *postpaid* means that one uses the mobile phone and gets invoiced accordingly, usually on a monthly basis.

2007). An international dollar has the same purchasing power over GDP as the US dollar has in the United States. Population is defined as the total population in a country divided by 1000. This indicator is available in the CNTS database. Finally, time, measured in years, was included as a dummy variable to control for trend effects. The reasons for each variable's inclusion are discussed below.

### Validity

Using mobile teledensity as a proxy to mobile connectivity was deemed straightforward and reasonably sufficient to cover the concept within the framework of this paper. Teledensity data is considered very accurate and very reliable data (MDG 2008), but there are nevertheless some relevant issues. The dataset does not distinguish between a complete absence of networks (and hence subscribers) and missing values. In contrast, mobile teledensity of 100 percent and more can be found in a number of countries, suggesting that everyone there has one or more subscriptions. This is, of course, misleading, as there will always be individuals that are too young, too old or too disabled to use a phone, and those who cannot afford one, choose not to have one, or are not allowed to own one, e.g. in prisons and asylums (Sutherland 2008). Thus, some users own several subscriptions, while others share one. Moreover, the per-country measurement raises the issue of subscribers that are not residents of the country or countries where they are counted, and that may have further subscriptions in other countries. Mobile network operators may also have an incentive to report large numbers of subscribers, and thus deliberately inflate their customer base, especially when

negotiating contracts with governments.<sup>16</sup> This does, on the other hand, reduce the average revenue per user, a factor that can disappoint financial analysts and hence the value of the operator. In theory, this should restrain operators from overzealous reporting of large numbers of customers (Sutherland 2008). Why would certain individuals have several SIM cards? On one hand, wireless technology has created a proliferation of SIM cards. They can now be found in laptop computers, cars and many other devices.<sup>17</sup> This is an example of wealthier customers, and some of those SIM cards may not be included in the ITU's measurement by definition. The phenomenon called 'SIM switching' is more relevant: less wealthy users may use several SIM cards to take advantage of changing tariffs. Ewan Sutherland (2008) sums up the reasons for such ownership of more than one SIM card:

- *Overcoming patchy or poor network coverage*
- *Avoiding network congestion*
- *Saving money by making on-net calls [same operator]*
- *Benefiting from discounted or bundled tariffs for voice or for data*
- *Receiving calls or voicemail [or SMS] to an older number*

The importance of such issues varies from country to country, and makes it difficult to estimate how inflated the numbers of users

<sup>16</sup> A possible strategy to manipulate the size of the customer base is the expiration date of unused SIM cards, i.e. how long an operator waits before deactivating idle SIM cards.

<sup>17</sup> They are now even used in remote activation and safety control systems. In Norway, for example, the heating at a mountain cabin can be activated by SMS prior to the owner's arrival. The same cabin can be connected to a burglar alarm control center via a SIM-card device.



truly are; also, it does not allow for a more than approximate per-capita definition of subscriptions (Sutherland 2008).

Using anti-government demonstrations to measure the concept of political activism as described above seems accurate. It measures the mobilization and collective action aspect I am interested in – the one that supposedly leads to protest directed against the ruling government. It excludes mobilizations “of distinctly anti-foreign nature” (CNTS 2007). Clearly, data collected through newspapers can never be truly comprehensive. CNTS acknowledges this, and also raises the issue of possible geographical bias. This means that events are being seen through the eyes of the US-based media. Moreover, certain events may not be of a clear domestic nature, as for example the Palestinian-Israeli conflict, somewhat blurring the typology used. Such data should in general only be used for macroanalytic purposes as in the present case. Riots were considered to be a likely addition to anti-government demonstrations, insofar as these may turn violent. The dimension of non-military violence is an acceptable addition to the already considered peaceful dimension to cover the concept of political activism. However, the data provider's definition is very sparse and it remains somewhat unclear what type of event that is being measured and whether the use of 'citizen' is intentional (with the implications that may follow from this). *Major Government Crises* as an indicator was thought to cover some aspects of the concept as well, particularly the 'rapidly developing' situation which could be associated with mobile phone enhanced protests and the speed and magnitude of

response it can facilitate. What the causes of the rapidly developing crises are and whether popular pressure (where mobile phones could play a role) or some other reason caused the downfall remains somewhat unclear, but it is reasonable enough to see it if not as a sign, then at least as a consequence of political activism, and therefore the indicator is included in the analysis. Otherwise, the same measurement reservations as above with regard to newspaper bias and comprehensiveness apply.

The underlying concept of GDP can be expressed as the (economic) development level of a country, which I intend to cover with the chosen indicator GDP per capita. Measuring economic strength with GDP is common in the social sciences; there should be little validity and reliability concerns. The choice of real (as opposed to nominal) i.e. inflation-adjusted dollars, which also account for purchase-power parity, should produce a valid measurement. Why include this variable? There are two reasons. The first is a possible relationship between mobile teledensity and economic development (Röller and Waverman 2001; Wilson 2004); the second is a possible positive or negative effect of economic development on political stability (for example Gates et al. 2006; Gjerde 2005). As the teledensity variable has values relative to population, I also needed to control for this to avoid picking up a spurious effect that relates to population rather than mobile teledensity levels. Time is commonly applied in time-series and panel data analysis to control for trend effects (Skog 1988 and 2004). To control for the possible effect that the previous year's incidence of political activism can have on

the on the following year's incidence, a lagged version of the dependent variable was included in the model, a common procedure in time-series analysis (Gujarati 2003).

#### Panel Data Analysis and Categorical Data

The units of analysis are country-years, thus combining cross-section and time-series analysis into so-called panel data analysis (Gujarati 2003). 191 countries were repeatedly observed over a period of 16 years, from 1991-2006, although about a third of these dropped out due to missing values. The scores for the dependent variables always represent the given year, while the scores for the independent variables are from the previous year ( $t-1$ ) to control for reverse causality (Smelser 1973). Mobile teledensity, GDP, and population were log-transformed because of the effect of a unit increase which is expected to be larger for a country with a low level on the variable than for a country with a high level. The log-transformation also reduces the skewness of the variable. Panel data sets offer advantages over pure cross-section or pure time-series datasets. The number of observations is typically much larger; rather than just analyzing 191 units or 16 years of the same unit, I combined both. This is likely to generate more reliable estimates and allows one to detect effects that cannot be identified with pure cross-section or time-series data, and it also makes more sophisticated models available (Gujarati 2003).

The dependent variable determines what type of regression is adequate to analyze a

given set of data. The dependent data at hand is considered to be categorical. In theory, any number of anti-government demonstrations, riots or major government crises are possible per year and per country. In practice, only a limited number of such events occur. The limit in the data seems to be no more than 24 anti-government demonstrations per country in any given year; for the other indicators, it is even less. They thus belong to the group of *discrete* variables, which have a finite number of non-negative integer values only, i.e. natural numbers starting from zero and with no decimals. Such variables are defined as categorical (Powers and Xie 2002). When the outcome is not binary, as in my case, alternatives to the logistic regression are the ordinal logistic and multinomial logistic regression for ordered or nominal values, respectively. For the special case of event count data Poisson regression should be considered. My dependent variable seems to have the properties of so-called count data, or rare event data, because the number of anti-government demonstrations, riots, or major government crises are counted on a per-year basis. Due to the data properties a variant of Poisson regression seems most adequate. The Poisson model requires so-called equidispersion, i.e. the event counts in the dependent variable should be evenly distributed so that the distribution's variance is equal to its mean. Since equidispersion cannot be assumed here – scoring the dependent variable predominantly results in zeroes and ones – a variant of Poisson called *negative binomial Poisson regression* can instead be applied. It accounts for so-called overdispersion, i.e. more observed variance than the Poisson

model would predict (Liao 1994; Norušis 2008; Cameron and Trivedi 1998). Random events will more often than not remain unobserved, making zero event counts dominant and as a result, the distribution will be skewed. Negative binomial Poisson regression can account for this. The rationale of Poisson distribution is that events are independent from each other. In the case of domestic protest events, this condition may not be given, i.e. events in one year may correlate with those in the following year. Such occurrence dependence can result in overdispersed distributions and is common in time-series analysis (Cameron and Trivedi 1998; Norušis 2008). A lagged version of the dependent variable is included in model to account for this possible effect and give a better model specification.

### Regression Analysis

The results of the negative binomial Poisson analysis<sup>18</sup> presented below indicate that mobile density has no significant effect on anti-government demonstrations when the control variables are included (Table 1). The same is true when using riots or major government crises as dependent variables (Model 2 and 3, in Table 1). GDP per capita is small and insignificant except for riots, where it has a significant negative effect. Population has an effect on all three variants of political activism variables.<sup>19</sup> The significant effects can be interpreted as

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<sup>18</sup> The Poisson model was dismissed after testing whether the overdispersion parameter in the negative binomial Poisson model was equal to zero, the special case where it is identical with the Poisson model. See Appendix E for the calculations.

<sup>19</sup> I tested also a variant without the lagged event variable. The results differed only slightly and this significant variable was therefore kept in the model. For the results without it, see the thesis appendix.

follows: for a one unit change in the predictor variable, the incidence of the political activism variable is expected to increase or decrease multiplicatively by the antilog of the coefficient (cf. UCLA 2008).<sup>20</sup>

The same model was also tested with some modifications. A model with aggregated counts was tested but the results didn't change the results in a critical way. This was done because when there are many counts or few observations for a given count then some aggregation of count data may be necessary (Cameron and Trivedi 1998). I tested also a model that excluded the lagged dependent variable, but including this significant variable was considered a better specification and the difference was small.

The insignificant results for mobile teledensity<sup>21</sup> led to the question whether this could be caused by a violation of assumptions made about the distribution. Ordinal regression can be an adequate alternative in this case, as it accounts for the natural order of count data while assumptions of the previously tested model

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<sup>20</sup> The estimated coefficient (B) indicates whether the change is an increase (positive sign) or a decrease (negative sign). For example, the antilog ( $\exp(B)$ ) of 0.337 is  $\exp(0.337) = 1.401$ . This means an increase of 1.4 or 40 percent per one-unit increase of the predictor. For more detailed information on the particular regression results, confer with the original thesis at [www.miard.ch/papers/academic.html](http://www.miard.ch/papers/academic.html) or search it on [www.duo.uio.no](http://www.duo.uio.no).

<sup>21</sup> I tested also a model with sequential inclusion of the variables. Interestingly, mobile teledensity has a small but significant negative effect on political activism variables but this effect is lost when including the time dummy (but not with GDP). For the reasons explained in above and the significant correlations between the predictors such a reduced model was not considered a good specification.

are relaxed.<sup>22</sup> The results did not lead to significant changes compared to the previous regression model; mobile teledensity remains insignificant, while both population and the lagged dependent variable have a significant and positive effect. GDP has a significant and negative effect on riots (Table 2).

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<sup>22</sup> The multinomial logistic model is inappropriate for count data for which the outcome, the number of occurrences of an event, is naturally ordered. Multinomial logistic regression is useful with nominal data.

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**Table 1** Predictors of political activism 1991-2006. Negative binomial Poisson regression

Variables	Model 1 anti-gov demo	Model 2 riots	Model 3 major gov crises
Mobile teledensity (log)	-.006 (.0482)	.092 (.0671)	-.018 (.0781)
GDP per capita (log)	-.090 (.0748)	-.318** (.1035)	-.066 (.1276)
Population (log)	.337** (.0260)	.316** (.0362)	.216** (.0415)
Lagged dependent variable <sup>b</sup>	.334** (.0303)	.448** (.0549)	.963** (.1056)
[year=2006]	-.749 (.4201)	-1.838** (.5156)	-.504 (.8423)
[year=2005]	-.563 (.4068)	-1.872** (.4983)	.138 (.7915)
[year=2004]	-.489 (.3969)	-1.937** (.4889)	-.186 (.7903)
[year=2003]	-.630 (.3911)	-2.250** (.4928)	.071 (.7663)
[year=2002]	-.578 (.3805)	-2.347** (.4794)	.551 (.7387)
[year=2001]	-.964 (.3810)	-2.160** (.4599)	.322 (.7327)
[year=2000]	-.120 (.3556)	-1.695** (.4249)	.392 (.7169)
[year=1999]	-.624 (.3559)	-1.877** (.4274)	.100 (.7107)
[year=1998]	-.222 (.3381)	-1.913** (.4157)	.362 (.6906)
[year=1997]	.063 (.3314)	-.981** (.3726)	1.076 (.6711)
[year=1996]	-.044 (.3376)	-1.083** (.3866)	.123 (.7201)
[year=1995]	.243 (.3332)	-.718 (.3710)	.244 (.7119)
[year=1994]	-.397 (.3647)	-1.293** (.4319)	.299 (.7189)
[year=1993]	-.304 (.3830)	-1.582** (.4951)	.493 (.7319)
[year=1992]	.065 (.3708)	-1.098* (.4475)	1.181 (.6955)
[year=1991]	0 <sup>a</sup> (.)	0 <sup>a</sup> (.)	0 <sup>a</sup> (.)
Intercept	-3.011** (.6981)	-.967 (.9302)	-4.023* (1.2633)
Log likelihood	-1537.286	-856.620	-642.952
Chi-square likelihood ratio	535.269	302.938	179.832
N	1913	1914	1914

Note: Estimated coefficients are unstandardized negative binomial coefficients. Standard errors in parentheses. All independent variables except the time dummy (year) have scores lagged by one year (t-1). SPSS 16.0 for Mac was used.

\*Significant at the 0.05 level and \*\* at the 0.01 level

<sup>a</sup> Set to zero because this parameter is redundant.

<sup>b</sup> Y<sub>t-1</sub>; scores the previous year's anti-government demonstrations, riots or major government crises, respectively.

**Table 2** Predictors of political activism 1991-2006. Ordinal logistic regression.

Variables		Model 1 anti-gov demo	Model 2 riots	Model 3 major gov crises
Location	Mobile teledensity (log)	.027 (.053)	.088 (.076)	-.042 (.078)
	GDP (log)	-.034 (.082)	-.280* (.114)	-.078 (.128)
	Population (log)	.294** (.029)	.283** (.039)	.212** (.041)
	Lagged dependent variable <sup>b</sup>	.348** (.033)	.627** (.063)	.959** (.093)
	[year=1991]	.375 (.504)	.628 (.669)	.396 (.825)
	[year=1992]	.779 (.433)	-.212 (.707)	.912 (.708)
	[year=1993]	.389 (.431)	.571 (.585)	.606 (.681)
	[year=1994]	.579 (.398)	.659 (.546)	.567 (.652)
	[year=1995]	1.045** (.353)	.696 (.502)	.867 (.593)
	[year=1996]	.851** (.332)	.678 (.454)	.434 (.608)
	[year=1997]	.469 (.329)	.276 (.454)	1.407** (.517)
	[year=1998]	.378 (.311)	-.013 (.440)	.810 (.507)
	[year=1999]	.336 (.299)	.264 (.400)	.609 (.502)
	[year=2000]	.439 (.281)	.113 (.380)	.593 (.489)
	[year=2001]	-.213 (.293)	-.425 (.392)	.663 (.464)
	[year=2002]	.445 (.259)	-.278 (.368)	.834 (.439)
	[year=2003]	.299 (.257)	-.374 (.367)	.159 (.477)
	[year=2004]	.315 (.253)	.183 (.311)	.215 (.479)
	[year=2005]	.174 (.256)	.093 (.309)	.463 (.461)
	[year=2006]	0 <sup>a</sup> (.)	0 <sup>a</sup> (.)	0 <sup>a</sup> (.)
Threshold <sup>c</sup>	[event = 0]	4.544** (.544)	3.189** (.724)	4.201** (.897)
	[event = 1]	5.375** (.548)	4.311** (.732)	5.895** (.882)
	[event = 2]	5.915** (.552)	5.150** (.744)	7.505** (.937)
	[event = 3]	6.637** (.559)	5.867** (.764)	8.899** (1.120)
	[event = 4]	7.107** (.567)	–	9.595** (1.325)
	Log likelihood	2828.379	1556.768	1266.735
	Chi-square likelihood ratio	331.004	181.449	171.335
	Pseudo R <sup>2</sup> (McFadden)	.105	.104	.119
	N	1913	1914	1914

Note: Estimated coefficients are unstandardized negative log-log coefficients. Standard errors in parentheses. All independent variables except the time dummy (year) have scores lagged by one year (t-1). SPSS 14.0 for Windows was used.

\*Significant at the 0.05 level and \*\* at the 0.01 level

<sup>a</sup> Set to zero because this parameter is redundant.

<sup>b</sup> Y<sub>t-1</sub>; scores the previous year's anti-government demonstrations, riots or major government crises, respectively.

<sup>c</sup> Intercept-equivalent term. The last category doesn't have an odds associated (Norusis 2008).



## Discussion

One clear conclusion of my analysis is that mobile teledensity consistently remains non-significant throughout all types of models. At the same time, I find that population levels have a fairly strong effect on all political activism variables. Occurrence of one political activism event in the previous year appears to be a likely predictor of the same event in the following year, thus indicating that occurrence independence is not given. Economic level measured by GDP seems to be negatively associated with riots. The null hypothesis stating no association between mobile connectivity and political activism cannot be rejected with 95% certainty. This conclusion is considered robust due to the variety of models tested with the data, which did not produce notably different results.

Why are the results for mobile teledensity not significant? Although this indicator significantly correlates with the political activism variables, no significant effect can be found in a regression model that includes the control variables GDP, population, and time. This suggests that the development of political activism is not dependent on developments in mobile telephony over the years in any measurable way. Running the analysis with mobile teledensity as the only predictor produced small but significant results, but these disappeared when including time and population as control variables in the model. The non-significant results of GDP are somewhat counterintuitive. Gjerde's (2005) conclusion that countries with higher GDP experience more anti-government demonstrations and riots are not confirmed by my results; riots even showed a contrary result. The analysis suggests that increasing GDP reduces the probability of violent (riots), but not peaceful protest (anti-government demonstrations). Major government crises are not affected by

economic levels according to my results, either.

## Conclusion

The case studies and interviews indicate that mobile phones may have potentially gained a central function as facilitators in mobilization and collective action processes in the political sphere. Furthermore, the theoretical literature in the social sciences offers many different and productive approaches to explain these processes, and the potential function of communications technology is recognized but not very well-explored. The theoretical base seems broad enough to develop a hypothesis on possible associations between mobile phone-enhanced social linkages and political activism. However, the results of my regression analyses imply that mobile connectivity can neither negatively, nor positively be associated with political activism. Overall, time trends, population levels and the previous incidence of political activism appear to be better predictors of the occurrence of political activism than mobile connectivity and economic levels. It seems thus that impressions given by some of the case studies are overrated and that generalization by means of a global comparative analysis is not possible in the way conducted in this paper. The effect of mobile phones is either inexistent, too weak to be measurable, or offset by other factors. The simple assumption that mobile phones alone will create a measurable impact on political activism cannot be sustained with the methods and data used in this paper. I will in the following suggest some amendments and outline some future work that should be done.

## Outlook

One of the main counterarguments to the hypothesis mentioned above was the issue

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of monocausality. Although mobile phones were not treated as causes of political activism, network society theory still claimed this communication technology (together with the Internet) to be an 'indispensable medium' in the workings of 21<sup>st</sup> century society. From the results achieved, one can conclude that if mobile communication truly is a necessary condition, it may not be a sufficient one for the effects stated. What other variables could be relevant? Castells et al. (2007) repeatedly highlight their view that mobile phones, while powerful and important in the context of 21<sup>st</sup> century political activism, must interact with a particular media environment to unleash their potential in the sense discussed in this paper. Including media freedom or other media variables into the analysis may be a possible avenue to tackle this aspect. In some of the examples observed, the Internet seems to have played an important role as a backup information and dissemination source on which users of mobile phones were able to rely. It may be worthwhile to analyze the combined impact of mobile phones and the Internet, in addition to (more traditional) media variables, although the very low Internet penetration rates in many non-OECD countries may cause difficulties in extracting useful information from such data. In countries with low Internet accessibility, other media such as the radio may substitute for the Internet, a factor that can be accounted for. Broadening the set of variables included as predictors of political activism may, interestingly, return the debate to the background concept of connectivity briefly mentioned in the research design section above. This could imply that mobile connectivity is only one link in a chain of

factors that amounts to connectivity effects. After all, even highly motivated would-be protesters need travel infrastructure (roads, railways, etc.) to join a demonstration, and their motivation will depend on a variety of information sources such as websites, TV channels or radio stations and perhaps an urban setting that provides spatial proximity to high-enough numbers of other potential protesters.

A further aspect to be considered in future research is rapid adaptation, or the potential 'arms race' between civil society and governing elites (see 'Bringing in the Mobile Phone' section above). It seems plausible to argue that the situation under democratic and the one under oppressive regimes cannot be compared in terms of how, and how effectively, communications technology is being used. For those more concerned with authoritarian governments' dealing with citizens empowered with mobile phones, a possible way to control for this would be to separate the analysis by regime type and check whether the mobile phone has a larger impact in freer societies compared to oppressed ones. It may also be important to keep in mind that government, whether autocratic or not, have varying capacities in terms of resources, such as technical equipment and skilled specialists. It may be much easier to deal with an opposition newspaper than with a technically advanced communication network that everybody in a country uses, including the members of the ruling elite. To further develop this approach a distinction by regime strength may be fruitful – weak governments may be less capable of coping with 'smart mobs' than stronger ones.

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