The Effect of Increased Connectivity on Serial Regime Change

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Abstract
Much has been written on how the increase of connectivity through the internet and other media has facilitated successful changes in government such as the Arab Spring. However, regime change, even when essentially peaceful, occurs in a dynamically complex environment that renders often counterintuitive results. For example, when a government falls to an insurgency (peaceful or otherwise), the establishment of the new regime is often not the end of the story. In particular, new regimes often find themselves faced by their own insurrections and may very likely be overthrown by them. Thus begins a domino-like chain of serial insurrections and regime changes, which typically create immense havoc. Much has been written on why traditional governments fall to insurgencies in the first place and how connectivity can promote this. However, this paper uses the methodology of system dynamics to posit that increases in connectivity may not only increase the probability of overthrowing a traditional regime, it may also increase the likelihood of a series of rapid, successful insurgencies that result in multiple regime changes. We also examine how various interactions between the regime(s) and populace lead to other unforeseen results. One finding that stands out is that connectivity may very well increase the likelihood that the end result of a series of insurgencies will be less popular among the citizenry than the regime that was initially overthrown.

1. Introduction
Many papers concentrate on the origins and suppression of insurgencies. A fact that is often overlooked in papers on insurgencies, however, is that the government’s relationship with the populace is a dynamically complex system [1, 2]. Hence, the result of a change in that system, such as greater internet connectivity, can lead to unforeseen results. For example, after a traditional regime is overthrown, the newly established regime will often eventually face a new insurgency attempting to overthrow it. This begins a cycle of what we shall refer to as “serial regime change” in which each insurgency overthrows an incumbent government and takes power, but then is shortly overthrown itself by a subsequent insurgency.

The havoc wreaked by the “serial insurgencies” is often worse than that of the initial insurgency. The Anglo-Irish War of 1921-1922, in which the first modern insurgency (Keegan 2001) succeeded in overthrowing British Rule with the Irish Free State was followed almost immediately by the Irish Civil War of 1922-1923, in which one faction of the victorious Irish Republican Army attempted to overthrow the new government. Importantly, the Irish Civil War took many more lives than that of the prior insurgency against Great Britain [3]. The Democratic Republic of the Congo (formerly Zaire) has experienced a series of insurgencies beginning in 1996 continuing to the present day, which has resulted in the deaths of an estimated 5,000,000 people, the most lethal conflict since the Second World War [4].

Many regime changes in history, such as the English, French, and Russian revolutions follow this trajectory of serial regime change accompanied by military action. However, we focus this paper more narrowly on two areas. Our focus is the change in this trajectory due to the increase in connectivity such as seen during the Arab Spring, which includes a number of successful insurgencies beginning in 2010 in Tunisia, Egypt, and Libya as well as ongoing conflicts in Bahrain, Syria and elsewhere. For purposes of illustration, we also limit ourselves to insurgency-induced regime change, although the applicability of these findings to other sorts of regime change (even perhaps parliamentary elections) would be similar.

Insurgencies are generally defined as civil warfare aimed at regime change characterized by a heavy--though not necessarily exclusive--reliance on asymmetric tactics, such as riots, ambushes, bombings, and assassination [5]. These are aimed more at undermining the will of the incumbent government to continue rather than directly destroying their forces [6]. Many insurgencies also include, or are composed entirely of, non-violent tactics such as mass demonstrations and other political acts that follow the logic of asymmetric conflict (e.g. the 1989 “velvet revolution” in Czechoslovakia).

Insurgencies really only began to emerge in the 1910s-1920s when two important technologies matured. One was the weapons technology ideal for asymmetric warfare, including smokeless powder (for
sniping) and explosives (including the electronics to control them) suitable for improvised explosive devices. More relevantly for this paper was improved communication, which enabled "real-time" newspaper coverage as well as radio, television, etc. This facilitated the spread of "real-time" propaganda to both recruit support for the insurgency and intimidate opposition. It has been suggested that uprisings in recent years, such as the Arab Spring, were facilitated by further 21st Century increases in connectivity that made it more difficult for incumbent governments to suppress organized dissent [7]. However, if the internet makes incumbent governments more unstable by accelerating the rate at which dissent can disseminate throughout a society and become organized [8], might it also make new governments established by successful insurgencies more unstable as well? Bimber's [9] findings argue that the lowered communications costs and barriers created by improved connectivity accelerate the formation of political interest groups in the U.S., which over time creates less stability and more "churn." If we extend his logic on acceleration to resistance groups arrayed against repressive governments, then increased connectivity may promote the conditions for a series of rapid regime changes. Interestingly enough, Libya and Egypt seem to be following this pattern with the onset of subsequent rounds of insurgencies.\(^1\)

To be clear, the purpose of this paper is not to explore the causes of insurgency. This is well-trodden ground. Rather, we wish to explore the following questions.

1. Does improved connectivity not only facilitate the initial insurgency, but also make subsequent regimes less stable, thus promoting the likelihood of serial insurgencies and regime changes?
2. Once an initial insurgency has succeeded, how does connectivity impact the factors that propitiate and which inhibit subsequent regime changes?
3. How does connectivity influence the end of a sequence of regime changes? In particular, it has been observed that the end regime is often "worse" than the initial regime. Does connectivity influence this?

To examine these questions, we propose to build a simple theoretical model using the system dynamics methodology [10]. The model is stylized, yet is informed by relevant models of conflict, defense and security, appropriate political science and organizational theory, as well as the concept of "insurgencies as a business" [11].

1. The model

We start with a number of assumptions to keep the model "as simple as possible, but no simpler." We then give an overview using a causal loop diagram of the model and finally give explicit descriptions of (1) the stock and flow structure of the involved military forces, both government and insurgent, and (2) the effects of a regime collapse in "resetting" the model.

2.1. Assumptions

The following are the base assumptions of the model.

1. The initial incumbent government (henceforth, the "traditional" regime) is faced with a single insurgency.
2. Popular support is split among three groups, roughly corresponding to "market shares" in the business realm: the government, the insurgency, and also an uncommitted group [1]. The "market shares" are determined by the standard system dynamics logit choice model, sometimes referred to as the "us/(us+them)" formulation [12]. Crucially, each faction's indicated attractiveness is delayed by a perception delay before being put into the "us/(us+them)" formulation. Each faction's indicated attractiveness (other than for uncommitted) is a function of:

- **Base legitimacy.** Following Weber, we include legitimacy in the model because it is, along with armed forces, the essential bulwark against regime change [5], [6], [13], [14]. We separate legitimacy into two components. Base legitimacy is that inherent in the regime or insurgency because of the appeal of its ideology or the charisma of its leadership.
- **Induced legitimacy.** The other part of legitimacy results from projects like building infrastructure, taking care of the population's basic needs such as medical care, or more subtly over time inculcating children in school with a philosophy that favors the government. Needless to say, all the activities above have a significant delay on the order of years or even decades before they impact legitimacy [14]. This process has many names, such as "winning hearts and minds," "peace support operations," or "military operations other than war." These are to some extent misnomers, because much of this work, while perhaps initially done by the military after an insurgency, quickly moves to the civilian sector.

- **Asymmetric Incidents.** Recent asymmetric incidents (e.g. demonstrations, assassinations, ambushes, bombings) have an inverse effect upon the attractiveness of the incumbent regime
because they demonstrate that the incumbent regime cannot maintain stability [14], [15]. Hereafter, these will be referred to simply as "incidents."

- **Blowback.** Recent government detentions and killings are hereafter lumped into "detentions" for convenience. The more detentions and killings that are undertaken by the government, the less attractive the government regime becomes. This is because the government is either not seen as "playing by the rules" or it has killed or injured enough people to anger the populace [1], [15].

- **Reservation attractiveness.** The uncommitted group has a "reservation attractivenesses" similar to a reservation price in an economic model. This creates the uncommitted group common to many models of insurgency [1]. Populations with high reservation attractiveness tend to refrain from actively committing to a faction and are generally more apolitical.

3. Each faction's (the incumbent regime's and the insurgency's) troops (or demonstrators in more peaceful insurgencies) increase in an "S-curve" with popular support. In essence, if the faction's (whether government's or insurgent's) popular support is close to 100%, then it will have close to 100% of the base fraction of the population inclined towards military service. On the other hand, as popular support nears 0% for a faction, troops supporting that faction near zero even more quickly. This prevents groups with low popular support from fielding a military [15].

4. The government collapses if (1) the insurgent's troops exceed the government's or (2) popular support for the government falls below a certain threshold. At this point the former regime's troops disperse. The former insurgency becomes the new government, and, after a "honeymoon period," it will face a new insurgency of its own, albeit without the benefit of any accumulated induced legitimacy from the prior regime.

5. Connectivity is represented by the rate at which perceptions change of regime legitimacy. This assumption, that the only effect of the internet on an insurgency, is to speed up the rate of change of public perception is probably simplistic. However, it captures many of its key effects at least directionally. Per Weber, legitimacy is a public perception. The literature in marketing has shown that public perceptions change more quickly with increased connectivity because it facilitates interactive dialogue between individuals, which is more effective than one-way, hierarchical communication in changing beliefs [16]. Bimber et al. [17] and Shah et al. [18] make this assumption implicitly in their studies on the effects of connectivity churn in political processes. Pappacharisi [19] does the same and explicitly discusses subversive movements.

Some comments on the assumptions are in order. One is that there are occasionally situations (such as in the United States and much of Europe) in which there is no insurgency. In most of these cases, there are, in reality, very weak movements seeking regime change. For example, the republican movement to remove the monarchy in the United Kingdom, while real, is far too weak to put together a demonstration, much less resort to violence. More common is the situation in which there are multiple insurgencies. However, usually one insurgency is definitively more of a threat than the others or they are regionalized (in which case, this model could be thought of as modeling the stability of a region rather than the entire state). Historically, scenarios in which there are multiple insurgencies that are of roughly equal danger to the government and are not confined to separate regions are relatively rare [6].

The regime collapse mechanism is twofold. While it is true that a government can be overthrown by sheer, naked power, many governments seem to fall due to a lack of will. The leaders exit the stage (often seeking asylum in another country), the rest of the government becomes confused or disperses, and the insurgency merely rushes in to fill a vacuum [5]. Hence, in our model a government can fall if its popular support falls below a certain threshold. However, this does not account for the endgame of many other insurgencies, which more strongly resemble a conventional forces battle (even if the bulk of the action during the insurgency up to that time was asymmetric) [6]. We avoid modeling the mechanics of conventional military actions because they are not material to our research questions, so we simulate this sort of overthrow with a simple headcount rule. If a government's forces are outnumbered by the insurgency's, it falls. Of course, the reality is obviously more complicated, but if the government's forces are outnumbered, its days are generally numbered in any case. Thus, this headcount rule seems a reasonable simplification of reality.

2.2. Overall causal loop structure

Given these assumptions, we now turn to the structure of the model, an overview of which is presented in Figure 1. At its core, the model consists of four major loops. The loops are represented using standard system dynamics causal loop notation [12]. Because of space limitations, the way these are derived is not described here, but is based on a “stock-and-

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2 Without a honeymoon period, in many cases no regime can assert control, creating an ongoing anarchy that is rarely observed in practice.
flow” methodology and is developed following standard system dynamics methodology as described in [12] and [10]. The parameters of the model are stylized, but drawn from typical values in prior system dynamics models of insurgencies such as [1] and [15].

The incident loop captures the effects of the insurgents’ asymmetric warfare [15]. Every incident, after a perception delay, reduces the indicated government regime attractiveness. This reduces perceived government attractiveness, which in turn increases insurgent popular support because of the logit choice market model as described earlier. After a delay, this increases insurgent forces. (Note that we will focus in on the troop stock-and-flow structure in more detail in Section 2.3.) This increases the number of incidents, which completes the reinforcing loop.

The suppression loop starts as increased government forces increase the number of detentions (and potentially killings) of insurgents. Over time, this reduces the number of insurgents, reducing in turn the insurgency density. This makes it more difficult to find further insurgents, thus reducing further detentions and completing the balancing loop. This is adapted from [15].

The blowback loop begins as increasing detentions increases the number of recent detentions [20], [15]. This magnifies the negative effect of recent detentions upon the indicated government attractiveness. Over time this reduces the perceived government attractiveness, which reduces popular support for the government and ultimately government forces. Less forces means less detentions, thus completing the balancing loop.

Finally, the induced legitimacy loop begins when a new government takes power. The new government takes actions, such as building hospitals and schools, taking care of the population, issuing favorable propaganda, and, perhaps most importantly, educating students. These activities (1) fulfill those portions of the civil contract [13] (pp. 14-16) other than law and order and (2) inculcate an attitude, particularly among young students, favorable to the government. Thus they acquire induced legitimacy over and above their base legitimacy. This stock of induced legitimacy increases the attractiveness of the government. It is important to note that the delay in accumulating this is quite long as is the rate at which it decays. This is achieved by using a simple one-stock smoothing structure with a time delay for accumulation (or loss) of many years, if not decades.

2.3. Forces’ stock and flow structure

While the overall structure gives a fairly accurate intuition for the influence of the overall model, the forces structure needs more detailed explanation because of its complexity. Figure 2 describes the force structure for the model using the stock-and-flow notation common to system dynamics [12]. All of the variables in Figure 2 are subscripted except for time constants, recruiting base (and its causal variables), government force and detaining effectiveness. For the

![Figure 1: Overall causal loop diagram of the model](image)
forces and those who have been detained), then that excess joins the active force after a period of months in the recruiting delay. On the other hand, if the indicated force is lower than the total forces, then the active force shrinks, albeit it can never go below zero. Detained forces cannot decline because they are not released during an active insurgency. Note that the forces of the government regime increase and decrease in exactly the same way except that their driver is popular support for the government.

Active forces in the insurgency decline in two ways. They can retire after a certain period of time represented by the "tenure in force" variable, which represents the average time an insurgent remains active. Active forces consist primarily of young men. Once they become too old (between 25 and 35 years depending on the circumstance), most will retire. Active insurgent forces can also be detained (and perhaps killed) by government forces. The rate of detaining insurgents increases with the number of government forces and the detaining effectiveness (which in the base model is a constant) and decreases with the insurgent density in the population. (If an insurgency is quite large, it will be relatively easier to detain an insurgent than if there is only one or two in the entire country.)

Detained forces are included in the balancing loop that controls recruiting. The reason is that an insurgency may have an indicated force of 20,000 troops. However, if 15,000 troops have been detained, the insurgency should not receive new troops to make up the difference absent some change in popular support. Thus there is a "conservation of matter" effect with respect to personnel, which is ignored by some models in the literature [20] By ignoring the fact that detained or killed troops cannot easily be replaced, these models overstate the difficulty in suppressing an insurgency and can lead to false policy prescriptions.

Unfortunately, this fix also creates its own problem. Death is permanent, and even detention can last longer than tenure in an insurgency force. Thus, dead and detained soldiers can stay on the rolls far past their retirement age if they were still active. We solve this by having detained forces "retire" at the same time they would if they had remained active.

There is a third way for active troops to decline, which is that government troops disperse when their government is overthrown. This results from regime collapse, which is discussed in the next section.

2.4. Effects of regime collapse

As stated earlier, a regime collapses if its popular support falls below a certain threshold or the number of insurgent forces exceed the government's. The former insurgency now becomes the new government, and the former government disbands. There are no prior system dynamics model to build this structure on. However, we base this structure the common path of regime change as verbally described in [3]-[6]. At this point, several things happen. For convenience, we shall refer to the incumbent government as regime 1 (or R1 for short), the former insurgency (which is the new government) as regime 2 (or R2), and the new insurgency—against R2—as regime 3 (or R3).

1. R1's active force troops are dispersed and free to join either the new government, R2 (this often happens in practice [3]), the new insurgency R3, or simply become uncommitted.

2. R2's active force troops become the active troops of the new government. A fraction of R2's detained forces from when it was an insurgency are freed from detention, swelling up R2's active forces. This fraction represents those detained forces that were not actually killed. Those that were killed are left in the R2's detained forces as placeholders so that they cannot be immediately replaced.

3. R2's recent detentions are set at zero as is its stock of induced legitimacy.

4. R3's recent incidents start at zero.

5. R2's insurgent perceived attractiveness becomes its government perceived attractiveness.

6. R3's indicated insurgent attractiveness is initially its base legitimacy, but its insurgent perceived attractiveness is initialized at zero. Moreover, it cannot overthrow R2 until after a "honeymoon period" as described previously.

The model proceeds as before except now that R2 is the government and R3 is the insurgency.

2.5. Relative deprivation

Another novelty in this model is to adapt Gurr’s [21] argument that the support for an insurgency increased in part based on the gap between expected and actual government performance. To model this, we modified the portion of the model connecting indicated government regime attractiveness to govt. popular support as shown in Figure 1A. Note that the perception formation delay for government attractiveness is 12 months. The formation delay for the short-term perception of government attractiveness is set at 3 months. The resulting gap has a negative effect on government attractiveness.

Figure 1A: Relative deprivation structure

3. Model behavior and sensitivity analysis
To investigate the implications of this model, we now present the highlights of an extensive policy and parameter sensitivity analysis. The full analysis is precluded for reasons of paper length. However, we follow standard system dynamics practice as described in [12].

3.1. Base case: No internet connectivity

We first model a base state without internet connectivity facing an insurgency. Popular support for the governing regime (R1) and the insurgent regime (R2) are shown in Figure 3. The model is started off by a 20 percent reduction in attractiveness for 4 years simulating an economic crisis. Regimes 3-8 (R3-R8) are not shown, because R1 (which is the traditional regime) never falls. On the other hand, R1 never quite quashes the insurgency by R2 either. This results in a "smoldering insurgency" [15] in which the insurgency never overthrows the government, but also is itself never quashed.

Figure 2: Stock and flow of model force structure

Figure 4 shows the "boots on the ground" or BOG measure often used by military theorists in insurgency and nation-building discussions. This measure favors the government forces even more than popular support because of the way popular support translates into actual forces as described in Section 2.1.

A BOG of 20 is considered the high water mark for any sort of domestic insurgency [22]. For reference, after the Second World War, the U.S. had a BOG presence in occupied Germany of approximately 16 [14, p. 105]. This means that U.S. soldiers comprised 16 of every 1000 inhabitants in occupied Germany (or about 1.6%). British troops during the Malaya Emergency had 13.94 troops per 1,000 inhabitants, which is the highest sustained peacekeeping force in postwar times other than (possibly) the U.S. presence in Iraq [15, p. 104].

In sum, the result of this base case without strong connectivity is similar to an insurgency occurring in a regime such as North Korea. North Korea has only a domestic internet service, which is cut off from the
world internet as well as heavily monitored and censored. Moreover, North Korea has had literally generations to inculcate loyalty to the regime and has a security force that is probably more ruthless than what is modeled in the simulation, which is mostly based on models of First-World interventions such as [1] and [15]. The interesting question is what happens if, instead, the level of connectivity is more similar to that of the Mid- or Near-East, which is much more similar to that in the First World.

3.2. Improved Connectivity

To simulate better connectivity, we reduce the perception formation time for popular support from 48 months in the base case down to only 12 months. The result on popular support is shown in Figure 5. Note that the base legitimacy of R1 (the traditional regime) is 0.7 on an index of 0-1. The 20% reduction from the economic depression reduces that to effectively 0.56. The successor regimes all have a base legitimacy of 0.5. Despite this advantage, R1 collapses at month 28. At this point, R2 becomes the government and begins to accumulate induced legitimacy itself (Figure 6). This very slowly improves its popular support. However, it soon has to deal with its own insurgency from R3. R3's asymmetric incidents begin to drag down R2's support. Further, R2 begins to detain R3 forces, which pushes government support down even further. Even the lifting of the economic depression is not enough to save R2, because its attractiveness has been so damaged by the insurgency. In short, R2 has to deal with many of the same problems as R1, but it has simply not had enough time to build up a sufficient amount of induced legitimacy to stop the new insurgency (R3) from overthrowing it.

As stated in Section 2, paper [21] suggested that the support for an insurgency increased in part based on the gap between expected and actual government performance. Hence, a plausible second channel of connectivity-induced instability might be if connectivity increases the weight on the gap between recent experience and expectations. We test this by doubling the weight on the gap between recent and expected government attractiveness of the government. This creates the scenario shown in Figure 6. By increasing the weight on the expectation gap, the average regime tenure shrinks still further from the improved connectivity scenario resulting in 10 regimes prior to month 240. Hence, improved connectivity may contribute to the collapse of the traditional regime and subsequent serial regime change not only by increasing the rate at which expectations form, but also by increasing the weight on relative deprivation.

Thus, in toto, the net effect of connectivity is that it is a mixed blessing. It increases the possibility of overthrowing an unpopular traditional regime by making it easier for an insurgency to gain public support, and via popular support, more forces. However, increased connectivity also weakens the ability of any future government to stay in power either, and they generally begin without the stores of induced legitimacy inherent to traditional governments [13], thus leading to a “domino effect” of serial regime change. The question that naturally arises is: How does this affect the endgame? We turn to this question next.

3.3. Relative dominance of the final regime

The base improved connectivity case had insurgencies that all had the same base legitimacy of
0.5 on a 0-1 scale. (For the remainder of the paper, we ignore the potential change in relative deprivation simulated in Figure 6.)

One thing that might stop these serial insurgencies could be the emergence of an insurgency with a higher base legitimacy than the others. As a sensitivity test, we set the base legitimacy of R4 to 0.8, while leaving all other insurgencies at 0.5 as in the first improved connectivity scenario in Figure 5. This is enough, barely, to stop the domino effect of serial regime change (Figure 7). Interestingly, it also shows that a governing regime’s popular support can actually fall below that of the insurgency yet remain in power, which is in line with the observed popular support of many regime’s. The reason this is possible, at least in the short run, is that it takes time for the force levels of both the government and the insurgency to adjust to the levels indicated by their popular support. One real-world example of such a dynamic can be seen in the relative popularity of the government and the student forces in China during the Tiananmen Square demonstrations in 1989.

![Figure 7: Increased R4 popularity ends the series of insurgencies](image)

This raises a number of interesting questions. One is: Does the regime that breaks the chain of serial insurgencies need to be more attractive than its predecessor and follower? Or does it just need to be more attractive than its follower? We test this by resetting R4’s base legitimacy to 0.5 and reducing R5’s base legitimacy to 0.3. From Figure 8, simply being more attractive than a successor insurgency may be enough to break the cycle of serial regime change. A regime does not need to be more attractive than its predecessor to bring down a government, but it does need to be more attractive than its successor to remain in power.

Even more interestingly, the base legitimacy of the traditional regime, R1, was 0.7. Even reduced by 20% from the economic depression that kicked off the model, that is still effectively an attractiveness of 0.56, which is greater than any of the successor regimes in this simulation. This corresponds to the observation that many times, the final regime that ends up on top is worse than the original regime that was overthrown. What is crucial is that the regime in power is sufficiently more attractive to the population than its successor, not its predecessor.

![Figure 8: R4 is more popular than its successor, but not its predecessors. However, this is still enough to end the series of insurgencies.](image)

3.4. Potential stabilizing factors

Another potential factor that can help break the chain of serial regime change is the rate at which an incumbent government can build up its induced legitimacy. We tested this by increasing the rate at which R4 builds legitimacy by a factor of 2, then 4, and then 8. For sake of brevity, we omit the graphs. However, the short answer is that building up induced legitimacy helps increase the time that R4 is in power, but does not prevent its overthrow. The reason for this is that it takes time to build up induced legitimacy. What is really needed is an immediate effect from increased base legitimacy. Accumulating induced legitimacy just takes too long in and of itself to end a series of insurgencies.

Reducing the blowback loop of detentions on government attractiveness should also be helpful [14]. In our simulations, weakening the blowback loop does lengthen the tenure of the regime. However, it does not prevent its ultimate overthrow. We then instead added extra troops from an outside country (e.g. UN peacekeepers). This actually decreased the time R4 was in power. This is probably due to the fact that R4 had insufficient legitimacy to withstand the effect of the extra detentions on the blowback loop. Similar issues were seen in [15], which suggested that a high rate of detentions early on in a counterinsurgency (as advocated in [23]) is counterproductive unless the government has a high level of legitimacy. So adding extra outside troops to supplement is counterproductive on its own. Somehow increased legitimacy must be established first.
Thus, accumulating induced legitimacy more quickly and weakening the blowback loop, while helpful, are not as helpful as we could hope for in ending serial insurgencies. Adding extra troops was actually counterproductive. So is there any other factor, other than relative dominance, that can end a serial insurgency?

3.5. Authoritarianism as a stabilizing factor

It has been suggested that after a period of warfare such as serial insurgencies, the populace becomes ever more willing to trade in social liberties for some relief from the chaos associated with disorder [24]. This has been seen in our own time with the emergence and relative popularity of Vladimir Putin (in Russia at least) after the Chechnyan insurgency and other disturbances in Russia. Figure 9 tries to capture this effect by adding a long-term law and order loop to the model. Over time, as past experience of insurgent incidents accumulates, the population becomes ever more desensitized to the violations of the civil contract created by government detentions of insurgents. The ultimate effect is to stabilize each successive government, all other things being equal. In Figure 10, by the time R4 is a government, the population is desensitized enough that it can suppress the insurgency.

4. Limits, discussion, and conclusion

Two specific limitations of this model bear special mention. One is that there is only one insurgency active at any one time. As mentioned in Section 2, this is not a terribly strong assumption. The other limitation is more problematic.

We do not allow the base legitimacy of any government or insurgency to change over time as a regime’s ideology or the circumstances of the population changes. This is often the case in the real world. That said, we feel that even with static base legitimacies, we have captured some dynamics that are of import in understanding the impact of improved connectivity on serial regime change.

One implication is that, while connectivity helps citizens overthrow an unpopular regime, any new government will also be less stable and more likely to fall to a new insurgency before it can accumulate its own stock of induced legitimacy. Thus, the likelihood of serial insurgencies and instability may be an unintended side effect of improved connectivity. Moreover, any impact of connectivity on the effect of relative deprivation will only exacerbate this dynamic.

Second, the standard successful bundle of strategies for counteracting insurgencies, such as “winning hearts
and minds” or reducing collateral damage and injuries when detaining or suppressing insurgents are indeed helpful. However, their utility declines in an environment in which increased connectivity increases the likelihood of serial regime change. Adding troops (say from a foreign power or peacekeepers) without sufficient legitimacy to withstand the blowback from increased detentions is particularly counterproductive in ending a serial insurgency.

A final implication of this work is that it is quite possible for a nation to end a phase of serial regime change with a government that is less popular than the initial regime. All that is needed is for the final regime to be more popular than any potential successors, not its predecessors. Hence, if improved connectivity results in an increased number of serial insurgencies as this work suggests, the end result on governments worldwide may be a number of regimes that are less popular and less responsive to their citizenry than the traditional regimes that were replaced. Moreover, if citizen weariness from the chaos serial insurgencies does result in the desire for an authoritarian regime as discussed in Section 3.4, it is quite possible that the increased regime instability created by connectivity may tend to produce ever more authoritarian governments over time. The fact that authoritarian regimes often crack down on freedom of expression and even connectivity (e.g. North Korea) only exacerbates this trend. Thus, the openness promised by improved connectivity may paradoxically result in a decrease in civil liberties over the long run.

While these findings are all intriguing, however, there is still a great deal of research that must be done on these issues. For example, the effect of learning by both insurgency and counterinsurgency forces must be taken into account. Perhaps even more importantly, the heterogeneity of the population needs to be modeled. Also, insurgents can create their own blowback, which has not—to the best of our knowledge—been previously modeled. Finally, the dynamics of multiple simultaneous insurgencies must be modeled because increased connectivity might increase these as well. All of these factors may be influenced by improved connectivity. Nonetheless, this model, by explicitly examining the causes of serial insurgencies has made an important initial step in understanding one of the crucial political problems created by 21st Century technology.

5. References

3 Our suspicion based on some initial testing is that the result will be even faster transitions between subsequent regimes. Also, we suspect an increased likelihood that no regime might gain enough legitimacy to effectively govern. However, both of these speculations need to be rigorously tested.