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Transparency and Openness in Government: A System Dynamics Perspective

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ABSTRACT

When coupled with direct stakeholder *participation*, *transparency* and *open government* have been touted as among the key drivers in the evolution of a less secretive, less single-handed, more responsive, and in essence more democratic government of the 21st century committed to preserving the public good, serving citizens and business, and also curtailing the overwhelming influence of special interest groups. Based on a system dynamics model of major factors, we find evidence for information feedbacks as major influencers in changing the dynamic processes between the executive branch, the legislative branch, the press, and the general public.

Categories and Subject Descriptors

I.6.8 [Simulation and Modeling]: Continuous – *system dynamics modeling*.

General Terms

Management, Experimentation, Security, Theory

Keywords

Open Government, Transparency, Participation, Electronic Government.

1. INTRODUCTION

In recent years, democratic governments around the world have embarked on “open government” and “transparency” initiatives. As an example, in the United States the Obama administration introduced a respective initiative on its first day in office. However, so far little is academically known about the effects of transparency and open government on the relationships of major stakeholders such as the executive branch, the legislative branch, the press, and the general public [21], and whether or not less secrecy in government would ultimately lend itself to a more informed and more involved general public.

Originally the constitution of the United States had established a system of equilibrium between the three branches of government based on the principles of the division of powers and a system of so-called checks and balances. In the vision of the founding fathers of the fledgling United States an independent and

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uncensored press provided a further safeguard and fourth constituent guaranteeing the watchful surveillance of public affairs ready to inform the general public about any constitutional concerns or abuses of public office. Over time, mostly as an aftermath of major crises and wars, the equilibrium appears to have shifted in a way that the executive branch had assumed a higher influence and greater weight partially offsetting the originally envisioned and enacted equilibrium. Over the decades, the influence of organized special interests also exerted a growing influence on the executive and legislative branches. Furthermore, the more the mass media became monopolized and concerted the more they grew into a constituency with an own agenda capable of propelling or destroying presidencies and other political careers. At the same time and as a measure of preserving and even maximizing its relative standing, the executive branch resorted to increasing secrecy about government decision-making and intention as well as hoarding of critical information. Transparency and open government, hence, have been proposed and portrayed as capable means, which helps curtail the influence of special interest (including the monopolized mass media) and re-establish the originally intended and enacted equilibrium between major constituents. Elsewhere we have presented a dynamic hypothesis [21], which conceptualized the major variables (such as stakeholders and stakeholder decisions) involved in the exchanges in the public sector and important feedbacks between those variables.

In this paper, we present a formal model of these variables and feedbacks along with the preliminary computer simulation results. The paper is organized as follows: First, we update the literature review on the subject. Second, we present our high-level research questions. Third, we detail and discuss our simulation model. Fourth, we present the results of select simulation runs. Fifth, we discuss the results and their limitations. Sixth, we broadly specify future expansions of our model and conclude that based on our simulation model, the promise of transparency and open government might in fact yield some of the expected results.

2. LITERATURE REVIEW

In the following we focus on the most recent publications on transparency and open government and provide a complementary review of literature to the one, which we presented before elsewhere [21]. To our amazement and great satisfaction as scholars who are highly interested in this particular subject, within the short period of time between the previous review and this one, quite a few scholarly articles have appeared, signaling a rising interest in the topic.

As we showed before, the freedom of information act (FOIA) of 1966 in the United States can be viewed as a major point of departure in the drive for increased transparency and open government [15]. Yet, over the decades and despite various updates of and amendments to the law the executive branch across agencies and administrations has shown little enthusiasm when implementing FOIA [19]. This practice changed under the Obama administration, which has made publicly available and also declassified an unprecedented number of government records (<http://www.whitehouse.gov/open>, accessed 4/22/2011), ever since issuing the “Memorandum on Transparency and Open Government” on 1/21/2009 and later the “Open Government Directive” on 12/8/2009. Less restricted access to government-held information (access-to-information, or ATI) has become a focus of public debate and legislation also in numerous other countries, although many initiatives were seen as solely “cosmetic” [18, p. 155] or still resting on a “shallow” level [17]. Sizable variances in transparency were found on government websites also at local levels [1]. In some countries with a long centralist tradition in government, the bureaucracy had developed a strong culture of secrecy almost naturally resisting transparency initiatives [14], which might require executive orders or even affirmative legislation to enforce the sharing of information with the public [5], and more importantly, catalyzing cultural change towards transparency inside the administration itself [3]. In other countries, cautious pilot projects were started to better understand the effects of open government beforehand [11]. But even in the United States with its explicit FOIA statutes, insufficient funding [15] and poor information management practices [22] helped unduly maintain secrecy. Yet, public policy making in the 21st century must be understood and competently discussed on the basis of open, comprehensive, and readily available data it has been argued [16]. In more general terms, the legitimacy of government rests on its continued credibility, which in turn roots in the transparency of its action and decision-making [4, 14]. Transparency appears as a prerequisite of good governance [10]. However, besides and beyond the worldwide drive, from a democratic and participative perspective to mitigate government secrecy, modern information technologies effectively enable the sharing of information in quantitatively and qualitatively unprecedented and cost-effective ways [2, 6, 8]. Dawes also points out that a strong feedback exists between the quality of data provided by government agencies and the usefulness and actual use of the data: the higher the quality the greater the usefulness, and vice versa [7]. Yet, releasing data does not guarantee greater transparency and better usefulness of information for citizens depends on adequate ways of presentation and manipulation [12].

In summary, the current body of knowledge has presented and systematized the origins of transparency and open government over the last five decades. It has accounted for the legislative evolution and conceptualized the relationships of transparency and the effective overcoming of government secrecy and increased legitimacy of the democratic state and the model of good governance. However, for the continued lack of sufficient empirical evidence, so far no conclusions can be drawn whether or not the transparency initiatives have or will ever have the intended or other effects.

3. RESEARCH QUESTION

Democratic government involves a number of major constituents with different missions and different agendas. In Figure 1 and on a high level of abstraction, we depict six major constituents (in boxes), and how they influence each other (arrows). The executive, legislative, and judicial branches along with the press and the people comprise the constituents of the 1787 constitution. Special interest groups and lobbyists emerged in the course of the evolution of the democratic system playing a major influencing role in the overall context, however, without any particular constitutional mandate. The arrows symbolize major influences and their directions, for example, the legislative branch “checks and monitors” the Executive branch. The high-level variable and influence graph in Figure 1 unveils a multitude of interdependencies and feedbacks of dynamic interaction of constituents over time. This leads us to our high-level research question:

(RQ): With regard to the balance of influences and feedbacks between the major constituents, what are the likely effects of the open government, transparency, collaboration, and citizen participation initiatives?

In this paper, we thrive for providing a partial and preliminary answer based on a system dynamics model, which we introduce in the next section.

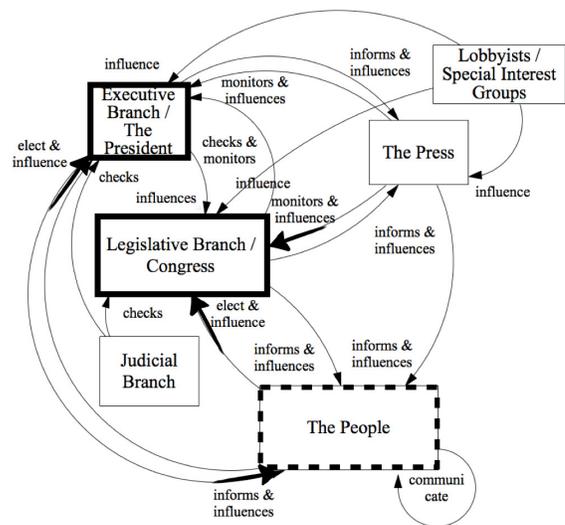


Figure 1: The Intended Effects of Open Government , Transparency, Participation, and Collaboration, 2009

4. THE SIMULATION MODEL

In its current version our simulation model focuses on the original constituents and omits the influence of special interests groups and lobbyists, as well as citizens’ direct influence. We will add these variables and their relationships in a future version of the model.

4.1 Major Feedbacks

We conceptualize the influence of the major stakeholders as variable accumulations of influence that compound (a) the constitutionally endowed mandate to act, (b) the relative

approval in so doing as a net balance of support and opposition, and (c) the capacity to maintain the base of influence by withstanding external influence-diminishing influences. We acknowledge that this definition of influence as an accumulation might overlap in part with various definitions of *power*. However, we deliberately refrain from using that term, since it has assumed too many meanings in too many different contexts, which might have the capacity to distort the focus on our arguments.

4.1.1 Checks and Balances

Presidential influence rests on the mandate, with which the constitution endows the executive branch. However, how this mandate is executed can differ significantly from administration to administration. For example, the Bush administration practiced a style of presidential action, which has been characterized as in part quasi-dictatorial and at least heavy-handed, while other administrations interpreted the mandate in a more restrained fashion [9, 13, 20]. However, presidential influence is also grounded in public support, which expands or limits the choices on any President’s political agenda. Presidents cannot pursue any political agenda item at any time, but have to carefully orchestrate, which particular political items they want to advance at any given point in time relative to their standing and influence in both Congress and the public. Furthermore, presidents strive to maintain or increase their relative standing to gain political maneuvering space. So, presidential action is always geared at increasing presidential influence in order to advance as many political agenda items as possible.

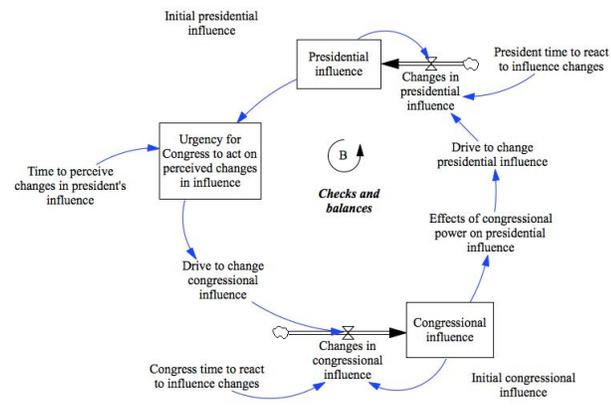


Figure 2: The Checks and Balances Loop between Congress and the President

Yet, when the President’s influence becomes too strong in the view of a majority of legislators, urgency mounts on part of Congress to counteract the increase of Presidential influence leading to a drive to change, that is, increase congressional influence effectively curtailing the presidential influence. As an example, during the Bush years and from 2006 onwards, Congress engaged in passing legislation, which attempted to confine presidential action in a number of ways. And in fact, in the following years congressional influence rose and observably curtailed the President’s maneuvering space through the

remainder of his term. At the same time, President Bush’s public standing had decreased to historically low levels limiting his political-agenda-setting capability even further. The counterbalancing influences of the Executive Branch and Congress are shown in Figure 2. It is noteworthy to mention that the counterbalancing effects also work the other way around. Much of the heavy-handedness of the Bush administration was a declared and intentional reaction as well as a deep dissatisfaction with the balance of influence between Congress and the Executive branch at that time, which President Bush considered unconstitutional and unduly curtailing presidential actions and prerogatives. However, the inverse expanding and shrinking of influence of the legislative and executive branches is what the creators of the constitution seemingly intended with this system of checks and balances leading to an equilibrium over the long haul.

4.1.2 Government Secrecy

One particular and traditional means of increasing the influence of the executive branch has always been the withholding of decision-relevant information. Secrecy and widespread hoarding of information in the executive branch limit both Congress’ and the general public’s capability to monitor and counteract presidential actions. Again taking the Bush administration as an example, never before were so many documents classified and withheld from the public eye. But the Bush administration went a step further and “managed” public knowledge by releasing information very selectively and purposefully. For launching the Iraq war, spotty and unconfirmed (and ultimately wrong) information on the existence of weapons of mass destruction in the hands of a brutal and reckless dictator was framed and presented as confirmed fact, which then justified military action. And even during the military encounter itself the administration did not leave the management of information to chance and introduced the practices of “embedded reporting” and censoring the presentation of video footage and photography.

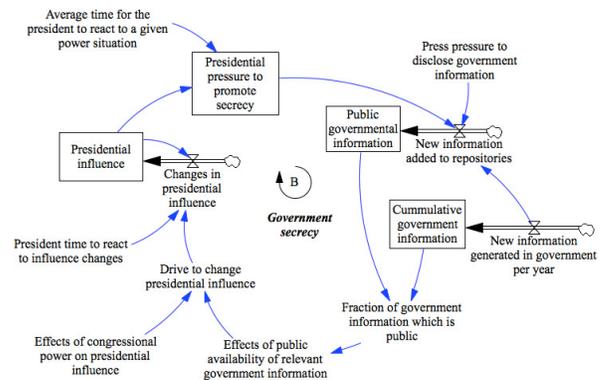


Figure 3: The Secrecy Loop

We consider both the quantity of readily available government information and the way the information is managed, that is, how comprehensive the information is, a major instrument for preserving and increasing presidential influence. However, the more information withheld or recognized as distorted the more a drive sets in to reduce presidential influence and gain access to complete information.

In Figure 3 we portray the feedbacks of executive branch secrecy the counterbalancing effects as described before. In this feedback relationship we also observe that the comprehensive and undistorted availability of decision-relevant information leads to a reduced drive to change the influence of the executive branch.

4.1.3 Press Influence

Fairly early, with the first amendment to the Constitution their creators understood the important role the independent press could play in the overall context of democratic government that would rely on a delicately dynamic equilibrium between the branches (and levels) of government based on the separation of powers and the system of checks and balances. The press was envisioned as an eternally independent and free entity that would play the role of public watchdog and inform the general public on any developments deemed unconstitutional or otherwise problematic. In that capacity, the press would have an influence in its own right.

The press would independently investigate and pressure government to disclose information such that new information would become available adding to the information, which government would have released anyway. The accumulation of publicly available information then can be compared to the total information generated in government, which allows the calculation of the fraction of government information that is publicly available (see Figure 4). The greater the fraction of publicly available information the more press influence would ultimately increase. However, the presidential urge to promote secrecy could offset or even counteract this drive for greater press influence resulting in a net change of influence that the press exerts.

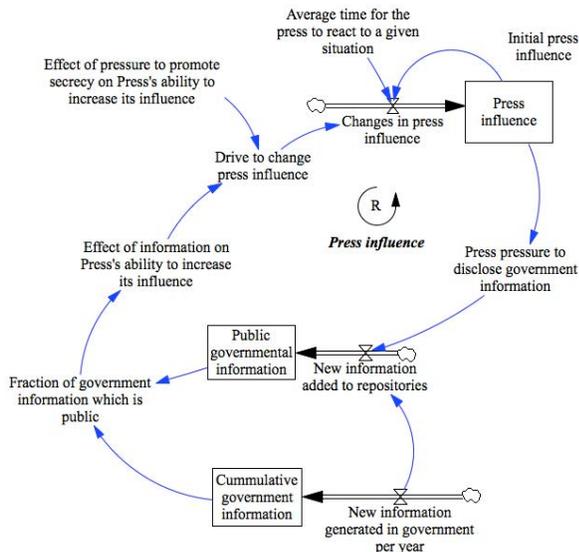


Figure 4: The Press Influence Loop

4.1.4 Open Government

For five decades, Congress has been a strong advocate and active proponent of freedom of information. Besides imposing

budgetary constraints on the executive branch the fight for information disclosure has been Congress' strongest weapon for maintaining and expanding its own influence and curtailing the influence of the executive branch.

Congress pressure ultimately leads to the release of information, which increases the fraction of publicly available government information. The greater the fraction of available information the lower is the drive for curtailing the President's influence, and vice versa. If the President's influence rises too high, then the urgency on part of Congress rises, to check the President's grown influence. Figure 5 depicts the feedbacks in the so-called "open government" loop.

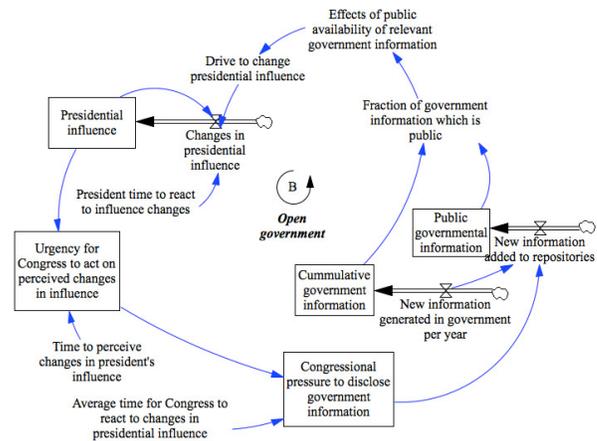


Figure 5: The "Open Government" Loop

5. FINDINGS

In its current formulation the model exposes a behavior of damping oscillations, that is, the initial oscillations taper off after some fifty years. In so doing, the model reproduces the behavior intended by the creators of the US constitution, that is, the extent of influences of the executive branch and Congress alternates counterbalancing each other. As shown in Figure 6, the feedback processes described in the previous section lead to Congress having an important influence on government actions also in the simulation. The executive branch (the President) is second to Congress in terms of the extent of influence, while the mainstream press is the actor with the least influence among the three main actors in this model version. Presidential influence stays relatively low mainly due to effective checks and balances, which counterbalance the influence of the executive branch, while the press influence remains lower than the presidential influence since the executive branch controls to a great extent the amount of information given to the press.

Considering these initial basic conditions, government information is mainly kept secret, and less than 40% of government information is public in this basic scenario of our simulation. This is the result of the interplay between executive branch, Congress, and the press influences through either releasing or keeping information secret (see Figure 7).

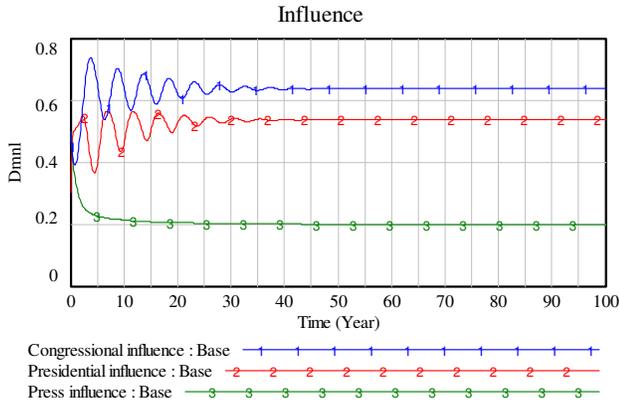


Figure 6. Press, Congress and Presidential influence

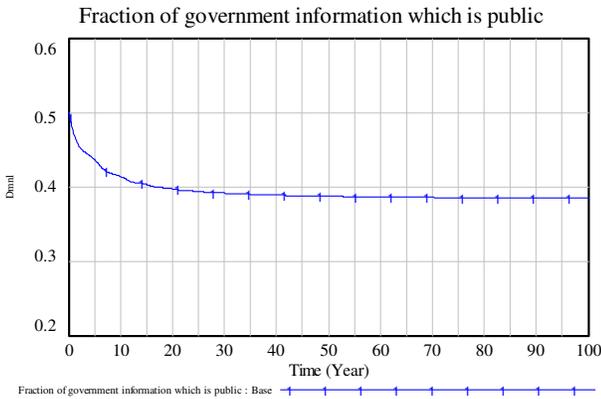


Figure 7. Fraction of Public Information

For the purpose of exploring the basic model behavior, we designed four alternative scenarios to compare with the base run.

The first scenario is related to the effects of external events such as (most severely) war or major natural and manmade disasters, or major downturns of the economy, but could also include civil unrests or major political scandals like Watergate, in other words, highly disturbing events that do not emanate from within the system. This scenario, which we called “Shock,” refers to a temporary (10 years long) external severe event starting in year 15.

The second scenario, called “Step”, represents a continuous external threat to the nation also starting in year 15. Such a continuous threat could be envisioned as the Cold War, which lasted almost half a century, or most recently the so-called war on terror.

The third scenario, entitled “OpenPresident” stands for an executive branch that without regard to its influence position never promotes secrecy and disclosing all relevant government information, in technical terms, setting the model variable *Presidential Pressure to Promote Secrecy* always to zero.

Finally, the last scenario involves a combination of scenarios 2 and 3, that is, an executive not exercising pressure to promote secrecy, but also a continuous external disturbance starting on year 15.

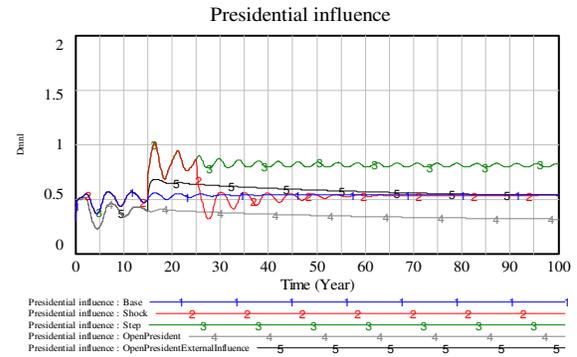


Figure 8. Presidential influence

As shown in Figure 8, in the model external events and threats are closely related to higher values of *Presidential Influence*. In fact, *Presidential influence* is only higher than *Congressional influence* in case of an external disturbance perceived by Congress as a good reason for the president to accumulate influence. As the simulation shows, the increased presidential influence is a combined result of the increased perception of urgency of the president to act, and a reduced influence of Congress resulting from this urgency.

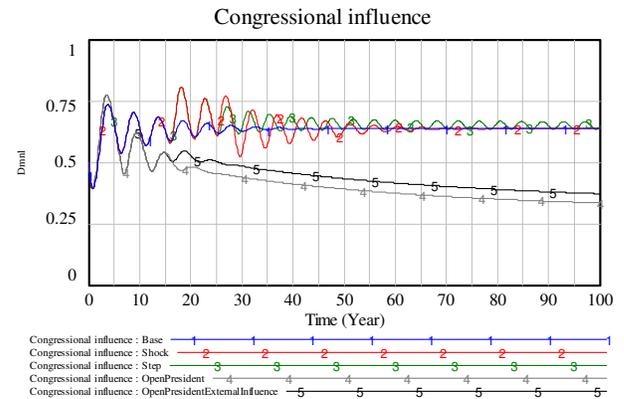


Figure 9. Congressional influence.

As shown in Figure 9, as a result of these influence dynamics and according to our simulation model, Congress maintains a stronger position in the fourth scenario when the nation feels to be externally threatened but at the same time public information is readily available. However, in our model it appears the perceived urgency of presidential action has a stronger influence than the availability of information.

Press influence is higher, as it is expected, in the scenarios of readily available information and transparency. Press influence affects *Congressional influence* and *Presidential influence* through pressure to disclose information.

In fact, in both cases in which the press has access to more information, it becomes the actor with greatest influence.

According to our model, the press strongly impacts *Congressional influence*, especially in cases of a perceived urgency for the president to act (see Figures 10, Figure 11, and Figure 13).

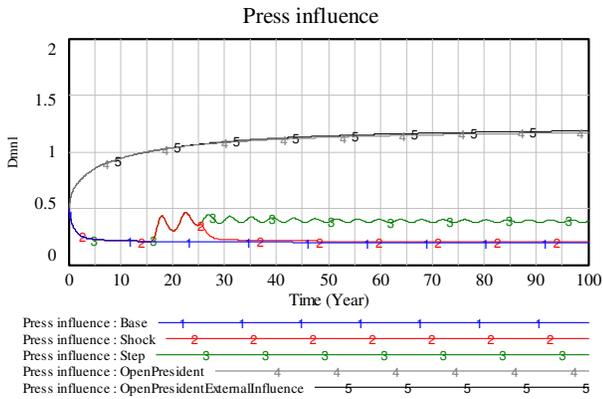


Figure 10. Press influence

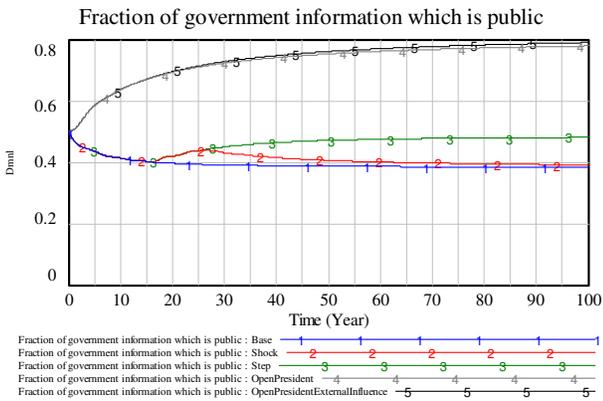


Figure 11. Public information.

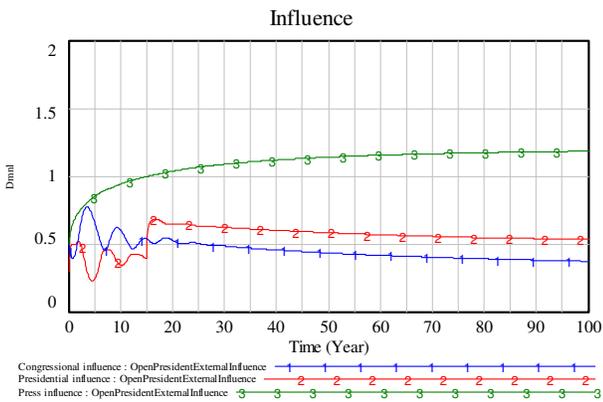


Figure 12. Effects of opening government with an external disturbance.

6. DISCUSSION

6.1 Simulating Dynamic Political Processes

System Dynamics modeling is a continuous and not a discrete-event modeling approach. Continuous modeling of nonlinear relationships of major variables, which are connected via feedbacks, allows the uncovering of dynamics in the relationships between those variables. It also allows observing and analyzing the behavior of a dynamic problem under study and represented through the model in cases of external events including shocks, steps, and other externalities. The interplay and interactions of constituents in the democratic system of the United States over time represents such a dynamic problem of great complexities.

The Constitution of 1787 set the basic rules and the boundaries for the interplay and interactions of the various constituents. At this point, we would like to reemphasize that the current version of our model attempts to represent the constitutionally sanctioned political processes and major variables in these processes in United States of the 19th and early 20th century. That is, we have not accounted for the influence of monopolistic mass media, nor have we represented the influence of powerful special interest groups, nor the direct pressure and concerted action by the people.

However, we were able to reproduce important types of behaviors, which were also observed in the unfolding of the history of this nation. In times of war and crisis, the influence of the executive branch increased over time and was gradually shrunk, after the crisis was over. The model also greatly reproduces the counterbalancing influences of the executive branch and congress as they were designed and envisioned by the creators of the Constitution. In the next section we briefly outline how we intend to further develop the model to include phenomena first observed in the second half of the 20th century and the early 21st century.

6.2 A Relatively Stable Equilibrium Unless...

One major insight from our modeling exercise regards the stability and resilience of the democratic system as designed by the US Constitution. It is amazing that until shortly after World War II this system appears to have returned to its balance time and again. Our model shows a system with exactly this resilience. In so doing, the Constitutional design of checks and balances, in general, appears to favor Congressional influence over the influence of the Executive branch.

However, we also see in the model that presidential influence mainly increases upon external disturbances that pose threats to the country in one way or another. This fact gives the president an incentive to inflate the imminence and severity of external threats. However, the repeated use of such external disturbances can impact the trust of other actors in the President's urgency to act.

According to our model, if government information is not hoarded but freely shared the press gains an important amount of influence over both Congress and the Executive branch. As stated before, the current model does not include major variables such as monopolistic mass media, powerful special interest groups, or the concerted action of the people themselves. It

would be interesting to explore the impact of social media in the influence of the people.

7. FUTURE WORK AND CONCLUSIONS

In future versions of the model, we intend to include the three phenomena mentioned above.

- (a) *Monopolistic mass media*: James Madison, Thomas Jefferson, John Adams, and Thomas Paine and their collaborators on the Constitution could hardly have imagined and certainly had a fairly different view and idea of the free press than what has emerged in the last half of the 20th century and the early 21st century. Highly concentrated and aligned mass media as we today know them controlling and shaping how political and other problems are framed, and how people perceive them (and, hence, think about them) were not existent at times when the Constitution was enacted as the basic law. We wonder what precautions and safeguards, if any, would have been placed into the first amendment, if the founding fathers could have foreseen these developments.
- (b) *Powerful special interest groups*: Likewise, while the creators of the Constitution undoubtedly understood the phenomenon of lobbyism well, the extent of lobbyism, which we witness today, is completely different, that is greater in both quality and quantity. Again, we can only speculate, which safeguards would have been put into the Constitution, if any, to prevent an overboarding influence of special interests.
- (c) *Direct action of the people by the people and for the people*: The so-called Arab spring of 2011 demonstrated to the world that the “masses” could flock and align behind a cause in ways and with an immediacy, which would have been inconceivable only a decade earlier. While the major driving forces behind those movements are economic, political, and educational inequalities and suppression, which those masses were no longer willing to accept, the flocking and aligning had to be facilitated in some fashion. Modern information technology, in general, and social media, in particular, seemingly played important roles when explaining the flocking and aligning behaviors.

We noticed that the Obama administration addressed all three areas at least in part upon or even before taking office: Then candidate Obama used social media and other direct formats of communication with voters to escape the agenda-setting lock-in that the monopolistic press was so used to until that presidential campaign in 2008. After taking office, the White House wasted little time to set up direct channels on Facebook, YouTube, and Twitter to ensure direct communications with the populace. Further, on the first day in office the administration issued new rules for lobbyists, when joining or leaving government employment. With the same executive order the aforementioned “open government initiative” was launched, through which hundreds of thousands of government documents and datasets have meanwhile been released. However, the initiative also called for collaboration with and participation of citizens, businesses, and non-governmental organizations.

In a future version of the model, we intend to incorporate these 20th/21st century variables and feedbacks into the model. While we can say with some confidence from the current model version that total freedom of information would have given the

press and Congress tremendous leverage over the Executive branch (also explaining the widespread secrecy of administrations), we are not sure that the “open government initiative” and total freedom of information would reinstate the initial equilibrium and resilience of the constitutional system.

We conclude that modeling the feedbacks between major variables in the political processes has the capacity to unveil important dynamics of the evolution of the democratic system in the United States. In this way, such modeling has not only explanatory utility but can also inform policymakers regarding the options and effects of policy choices.

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