Some Thoughts on Reform Miracles

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Paper presented at the
Reform Miracles International Seminar
27-28 May 2005
Leiden, The Netherlands

The papers and discussion here deal with intentional, fundamental, sudden reforms by governments, successfully implemented. Of course that leaves a lot out. It excludes successful reforms that occurred by accident, those that occurred slowly, those that were unsuccessful or were not implemented fully, and those that were marginal rather than fundamental. My comments will be more general, as I will provide some background information about my research with Bryan Jones about the nature of policy change in government in general and over long periods of time. However, I believe our approach and findings may have some relevance, at least as points of comparisons and in suggesting factors to look at in explaining successful reforms as we compare these to other causes of large-scale policy change.

Bryan Jones and I develop a model of decision-making in governments that has bounded rationality at its core.[1] We start by making some simple observations, including the following: Governments deal with a wide range of complex problems, many more problems than could possibly be considered simultaneously on the public agenda or even within the cognitive capacities of any single individual at a single time. Therefore one important dynamic in the process is attention-shifting. Given that attention is scarce (e.g., there are more problems that deserve our attention that we can possibly attend to at any given time), how do issues rise to our collective attention, e.g., to the public agenda? The first step in any decision-making model must in any case be the decision to attend to the issue rather than to pay attention to some other topic. The second step, once one pays attention to a given issue, is to define the issue, to understand it. Most issues of public policy are complex, so at any given time the public discussion of them is partial rather than complete. In any case, issues must be defined and this process further restricts the range of discussion about the issue. Conceiving of poverty in terms of educational opportunities is reasonable, but the problem is more complex than that. In fact, most important issues of public concern are extremely complex, raising more dimensions of potential evaluation than will likely ever be considered. So issue-definition provides a further important way in which consideration of issues by government is bounded, or incomplete. The third step in a decision-making process is to consider alternatives, given the way the issue has been defined. There is a clear linkage between how one defines the issue of poverty, for example, and what solutions are potentially the most appropriate, but even with a single understanding of the issue, more than one potential policy solution may be considered. Finally, the last step in the process is

[1] I draw from Bryan D. Jones and Frank R. Baumgartner, *The Politics of Attention: How Government Prioritizes Problems* (Chicago: University of Chicago Press, 2005).

to choose one or more policies from all those that are available and discussed. Figure 1 lays out our simplified process of decision-making in stages.

(Insert Figure 1 about here)

Figure 1 points to the idea that decision-making in government settings is much more complex than simply choosing among alternatives. In fact, this is only the last of four stages, each of which involves substantial uncertainty and incompleteness.

Given the multi-stage process that we lay out in Figure 1, how does policy unfold over time? The general idea of our model is that adjustments to policies will not be proportionate to changes in the environment, to the severity of the underlying social problems, for example. This is because all the possible alternative policies by definition are not being considered simultaneously. In the tree and branch structure that we have laid out in the stages of Figure 1, only a few alternatives are being considered, given that one has already reached the last stage of the process. For most issues most of the time, local equilibria hold. That is to say, for most issues most of the time, only a narrow range of policy options are entertained; policies maintain a heavy status-quo bias. Policy solutions that are appropriate for issue-definitions that were eliminated in a previous stage are never considered, for example.

What would make an issue rise again to the attention of political leaders? More importantly, what would make policymakers re-consider the ways in which they define the problem, the various policies that they consider as potentially relevant to the problem, and therefore possibly move from one policy to a dramatically different one? In sum, what would cause a reform? The analysis from Figure 1 suggests that something fundamental would require that attention be focused on the issue by higher level political leaders. Why would they focus on this issue rather than another issue? The scarcity of attention guarantees that this process will not be automatic or proportionate to the severity of the problem: Most issues most of the time receive no attention whatsoever from the political leadership. Something must push the issue to the attention of the political leadership, displacing other pressing issues, since attention is limited but the number of potential problems to discuss is virtually unlimited. This implies a process with some “friction.”

What do we mean by friction? We mean simply that problems have to accumulate to a certain level of severity before the political system can be expected to respond to them. The threshold level of severity is not fixed, however, because it depends on the number of other issues simultaneously clamoring for attention. There is no reason to assume that all times in history will have the same number of problems competing for attention: In times of war or economic crisis, for example, public and government attention focuses so strongly on these issues that it is difficult for other concerns to get much attention from the political leadership (which does not mean that no policies get adopted within the regular functioning of policy subsystems, by the way; only that high-level political initiatives are rarer). So the threshold is not fixed, but there is definitely a threshold: below the threshold, “normal” politics of devolving authority to the competent and specialized authorities continues. No institutional reforms are enacted, no fundamental rethinking of the nature of the policy response to the issue occurs, and in general the status-quo policy is implemented with only marginal or small adjustments as required by changing circumstances. This is what takes place for most issues most of the time. We might

call it "hyper-incrementalism" because it implies an inevitable under-reaction to changes in the environment. All the decision-making takes place in the last stage or two of Figure 1. No fundamental re-evaluations take place.

Above some level of friction, political leaders become interested in the problem. Why are they interested in this rather than in something else? Because it has risen in importance in the competition among potential objects of attention. This cannot be good for the status quo conception of the underlying nature of the problem. If policies were working well then there would be no reason to see the issue rise to the attention of political leaders. Almost by definition, public policy decision making involves adjustments to previous decisions already made; very few policies are made from a blank slate. Seen in this way, from the perspective of a political leader, the very fact that the issue is coming to their attention suggests that perhaps there were imperfections in the status quo policies, in the range of solutions that were considered, and even in the ways in which the problem was defined. Once a more fundamental, or complete, search through the problem space occurs, dramatically different policy solutions might well be considered (whereas previously they were not considered because decisions were only at the last level of the tree-and-branches in Figure 1, among competing solutions all implied by a certain definition of the issue). Now, there is no reason to assume that leaders will necessarily reject the previous ways of defining an issue, or reject a status quo policy orientation each time they consider it; they may well reconfirm the previous policy orientation. But in the perspective of Figure 1, without moving up the branches of the tree, it is virtually impossible to envision a dramatic policy change. Once debate centers around redefining the nature of the problem itself, then it is quite possible that dramatically different policy solutions will be considered and adopted. In sum, after some threshold is reached, the possibility is much stronger that dramatic policy changes may be adopted. These would be disjoint because of the stages that we lay out in Figure 1. While most policies most of the time are made without reconsidering such fundamentals as how the underlying problem is understood, and therefore are limited to marginal adjustments to existing policies, occasionally there may be much more fundamental re-thinking of entire policy paradigms, and at least the possibility that new policies dramatically different from existing ones will be adopted.

If one considers the simple question of how much would a policy output be expected to change for one unit of change in policy inputs (some measure of the severity of the underlying social problem the policy is designed to affect, for example), a fully rational policy response would generate perfect proportionality between changes in inputs and changes in outputs. If there was some set of fixed decision costs, there would be a lag, or a fixed threshold, below which the smallest changes in inputs might lead to no response, but above which the size of the policy response would be proportionate to the size of the change in the social inputs to government. In our model, we expect something quite different: an under-response to changes below some threshold, then an over-response. Figure 2 summarizes this set of expectations.

(Insert Figure 2 about here)

Figure 2 shows a hypothetical proportionate response (the solid line moving up from the origin), a proportionate response with fixed costs (the dotted line moving up in a straight line, but with no response to small changes in inputs), and a disproportionate response curve. This curve

shows virtually no response below a certain level of change in the inputs, then a rapidly increasing response until the size of the response is much greater than the degree of change in the inputs that may have caused it. The figure is for illustrative purposes and summarizes how we expect a friction model of decision-making which takes seriously the scarcity of attention would operate.

What would happen if for the sake of simulation we transformed input series in the manner suggested by Figure 2? Let's say a political system dealt with a random series of changes in inputs (as would be expected if there are thousands of different underlying processes affecting government, for example, each of which evolving independently of the others); what would the outputs look like? If any linear transformation were applied to a series of random inputs, we would see a similarly random output series. If the distribution of changes in the severity of problems was shaped Normally, then the distribution of changes in public policy in reaction to these changes would also be shaped Normally. Any fixed decision costs might move the response up or down by a fixed amount, but the shape of the distribution would remain the same. What about the case of the disproportionate response function that we propose? In this case, if we take the same Normal distribution of changes in social inputs, but transform the series by under-reacting to small changes and over-reacting to large changes, then the shape of the distribution of changes in policy outputs no longer will look Normal. It will have more cases in the central peak, fewer cases in the moderate "shoulders" of the distribution, and more cases in the extreme tails. Statistically it will have a high kurtosis value (kurtosis being the statistical measure of the "peakedness" of a distribution; Normal distributions have a kurtosis value of 3). The more the friction imposed by the decision-making procedures, the higher the kurtosis value of the distribution of changes in policy outcomes over time. The greater the friction, in sum, the greater the "peakedness" of the resulting distribution. In cases where only a small amount of friction is apparent, the distribution of changes in outputs across time would look quite similar to a Normal curve; only where the disproportionate friction of the type we describe here is substantial will one observe substantial transformation in the output series. When we look at real distributions, this is in fact what we observe.

Figure 3 shows the distribution of budgetary changes across approximately 60 categories of spending for about 50 years of the US federal government.

(Insert Figure 3 about here)

The US government clearly responds disproportionately to changes in social inputs. In our book we go through many examples of different indicators including laws, hearings, media coverage, even the size of the entire government on an annual basis back to 1800. All these distributions of annual change show the distinctive shape which is so obvious in Figure 3, though different distributions show it to differing degrees.

What has this got to do with fundamental, sudden, and intentional policy reforms: the reform miracles that we are here to discuss?

First, our empirical evidence from a very large study of US policy processes suggests that fundamental changes are more common than one might expect. In fact, the system

simultaneously shows a strong adherence to the status quo at the same time as it generates tremendous numbers of policy punctuations, or changes that are far out in the tails of the distribution. So we can see that hyper-incrementalism or an extreme allegiance to the status quo coexists with dramatic change, across the entire system.

Second, where does this distribution come from? After all, it makes clear that the same process simultaneously produces both stability and lurching. It avoids proportionality. It induces over- and under-reactions. We think this comes from cognitive limitations and agenda-setting dynamics that create a friction model of policy change. A friction model allows us to understand the status-quo bias that is so obvious in politics with respect to the same features that also make the dramatic policy changes so important as well. In fact a single process creates both parts of the distribution. Not only is there no contradiction between them, but in fact the process that creates the hyper-incrementalism (cognitive limits, bounded search, organizational mandates and missions…) also renders inevitable that occasionally such a process will have to be disrupted by major reforms. These two factors have some relevance for the study of reform miracles, which are after all not the same thing as a simple large budget changes. In any case, our study gives some suggestions of things to consider:

First, was change over-due? That is, was there substantial concern about the underlying problem for a long time, with no action? Or, to the contrary, did the reform quickly and seamlessly follow from some exogenous environmental change? If the friction model is correct, then we would expect substantial reforms to come about only after pressures have accumulated through a substantial period of time during which evidence mounts that changes in policy direction are needed, but these are substantially resisted by those interested in preserving the status quo. The greater the "friction" the greater the size of the resulting reform, once it comes about. The "cause" of the reform is often said to be related to some quantitative indicator, but in our research when we look at such indicators across long periods of time we find that the policy response to them is variable: sometimes there is no response, sometimes a very strong one. This seems part of the general process explained by what we describe: limited attention.

Did the reform call into question underlying understandings of the nature of the problem or of the design of solutions? It could be that this is defined into the definition of what a reform means for the purpose of this study, since the object of the project deals with "fundamental" reforms. However, if the friction model is correct then a bounded rationality model would imply that people or organizations do not update their understandings of the importance of a given problem, of the characteristics that define the problem, or reconsider the full range of available solutions to the problem until they are forced by some substantial pressure to devote renewed attention to the issue. Our model of cognitive process includes several steps as laid out in Figure 1. These could be reviewed empirically to understand the nature of the policy reforms enacted. Do reforms correspond to periods of greater attention to the issue? Do they result from changes in consensus definitions of the nature of the problem? Or do they result from simple demonstrations that, with constant importance of the problem and constant problem-definition, a new solution has been demonstrated to be superior to an old one?

One useful variable to keep in mind may be the degree of technical complexity of the reforms being undertaken. If all are quite large then it could be possible to treat this as a constant,

assuming that large reforms are always substantially complex and multidimensional. But of course simple reforms with more predictable consequences may be easier to manage and implement than more complex ones. Our theory of bounded rationality focuses exclusively on complex issues. Simpler matters may be made with more proportionate response. However, for the class of policy reforms that one may study dealing with most issues in government, it is possible that there may be no substantial variation in the technical complexity of the issues: typically, there is great complexity. (Note that the complexity of the underlying subject matter—scientific research as opposed to health care availability—is not the question here. I refer to the complexity of the dimensional structure of the issue. Poverty policy is not technical in the same way as nuclear weapons policy, but it may be more complex.)

Finally, our multi-stage model would suggest that there is an agenda-dynamics process associated with the reforms. That is, the first step in the process is essentially this question: Why pay attention to health care, if immigration matters are more pressing? That is, the level of attention to the broad topic, to the entire issue-domain, should matter. In periods of extensive concern with the general domain, more fundamental rethinking of how to define the problems may be more common. After all, with scarcity of attention, deciding to pay attention to this topic means there must be serious underlying problems; otherwise one would be paying attention to something else that was more serious. Thus, working through the stages in Figure 1, we would expect these reforms to be more common during such periods, or following them. This multi-stage model implies that when attention does focus on a new issue, fundamental rather than marginal adjustments may come; these are justified by some extent by the very fact that the issue has emerged. Theoretically these fundamental reforms should not occur without renewed attention to the issue and some dissatisfaction that the previous problem definition had somehow missed out on elements of the issue that were in fact too important to ignore.

Let me close with one caveat about chronologies. The stages in Figure 1 are meant to be heuristic. That is, while one must be paying attention to immigration before a problem definition relating to immigration is relevant, the actual order in which policymakers make these decisions can often be overlapping, confused, or even backward. That is because those who seek to promote new issue-definitions, for example, may know that this can only occur if they heighten awareness of the underlying issue. So the stages that we lay out in Figure 1 are meant to clarify the conceptually distinct processes that logically can be separated; they are not meant to be empirical descriptions of how the process necessarily works. In the real world, these stages almost certainly overlap.

Fundamental, sudden, purposeful policy reforms are one cause of dramatic policy change. In this short note I've tried to give some possible points of comparison with a broader study of dramatic policy change in general. The general ideas of attention-scarcity, bounded rationality, and the multi-stage process of decision-making leading to disproportionate policy responses may hopefully include some useful insights.

Figure 1. A Model of Decision-Making.

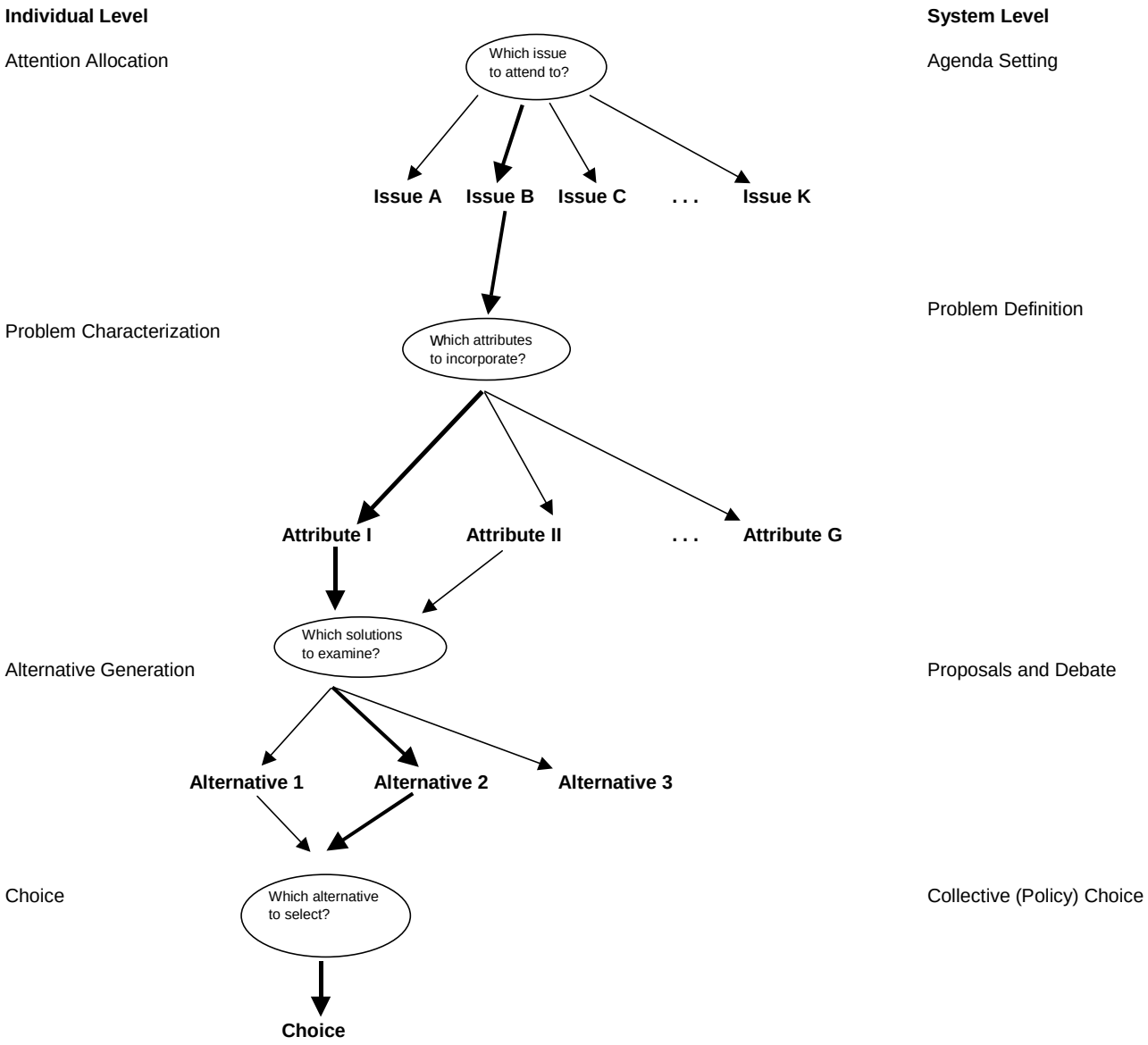

Figure 2. Policy Inputs and Policy Responses.

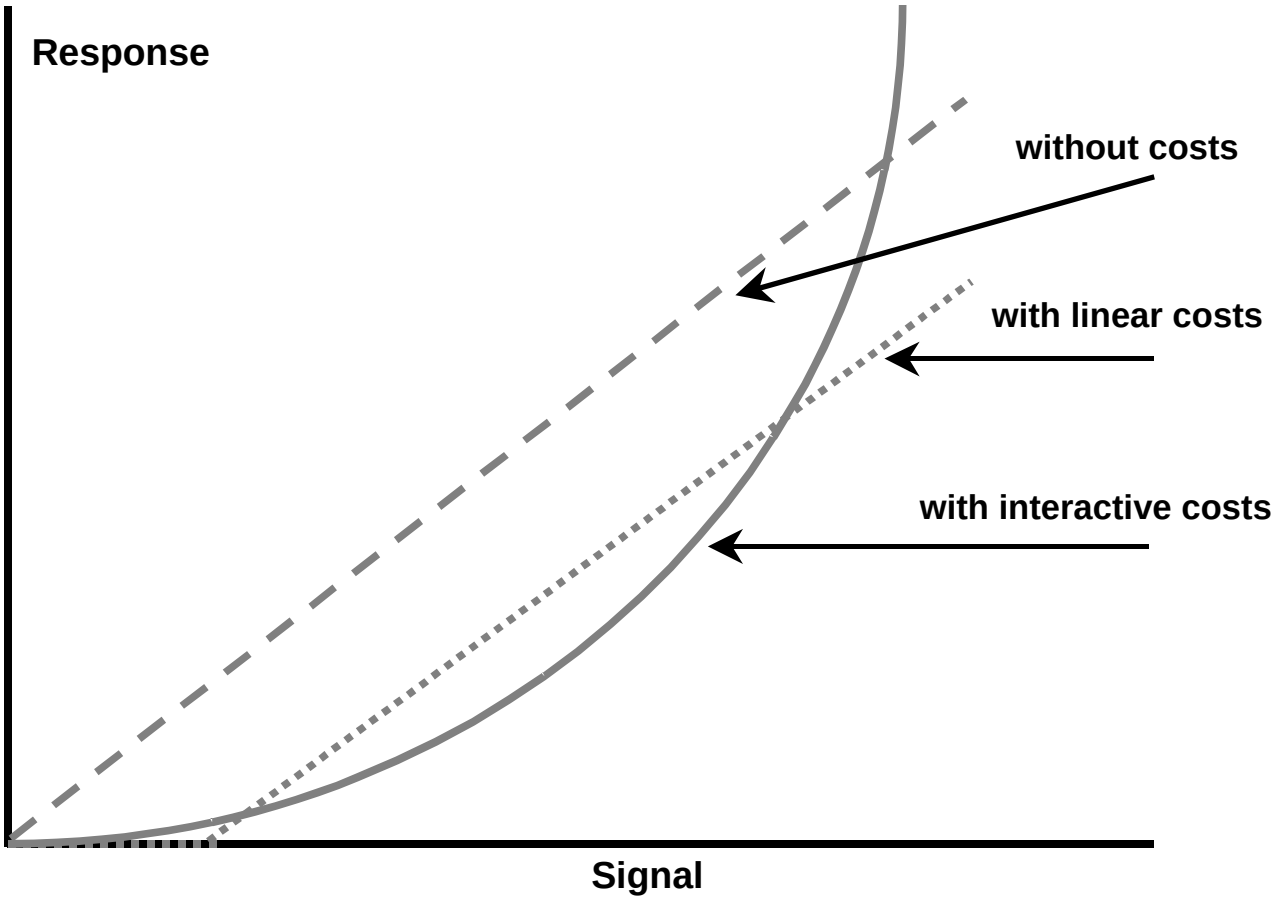

Figure 3. The Distribution of Annual Percentage Changes in US Budget Authority, 1947-1998