I. Introduction: the Essential Characteristics of Crisis Management

1. A crisis typically has three characteristics.
   i. First, a crisis is unexpected, a complete surprise.
   ii. Second, a crisis is normally unpleasant in that current plans are found to work less well than had been anticipated.
   iii. Third, a crisis requires an urgent response of some kind. That is to say, an immediate change of plans is expected to reduce or avoid the worst consequences associated with the unpleasant surprise.
2. These characteristics imply that **not every** personal or public policy **problem is a crisis**, because many public policy problems are anticipated or long-standing.
   - For example, the present social security problem faced by most OECD nations is not a crisis, although it is a serious problem.
   - Not every serious problem is a crisis.[1]
3. Crises are, nonetheless, common events for most people, most organizations, and most political systems.
   i. Private crises include sudden unexpected accidents, deseases, and attacks that have to be responded to quickly to avoid terrible outcomes.
   ii. Recent public policy crises include terrorist attacks, unexpected environmental catastrophes, outbreaks of new deadly contagious diseases, and natural disasters such as major

[1] This discussion distills essential features of the word "crisis" typical in ordinary usage of the term, and also parallels that used by political science research on crisis management. Hermann (1972, 13) is credited with the classic definition of crisis: "A crisis is a situation that threatens high priority goals of the decision making unit, restricts the amount of time available for response before the decision is transformed and surprises members of the decision making unit by its occurrence."

floods and earthquakes.

4. The political economy of crisis management has been neglected by the rational choice community.

   i. There is, for example, no reference to crisis management in Mueller's (2003) or in Persson and Tabellini's (2000) extensive surveys of the public choice and political economy literatures, nor is there an entry for crisis management in Rowley and Schneider's (2004) *Encyclopedia of Public Choice*.

   ii. This lacuna is perhaps best understood as a limitation of contemporary rational choice models, although not of the rational choice approach itself. Neither urgency or surprise can readily be included mainstream rational choice models.[2]

5. This analyzes the problem of crisis management using a minor, but significant extension of the core rational choice models of political decision making.

   i. The analysis has several general implications about the nature of crises, about responses to crises, and the need to develop routines to improve responses to crises.

   ii. The analysis also has implications for the politics of crisis management, for designing routine procedures for crisis management, and for the times best suited to developing such routines.

   iii. It also explains why persons might want to induce crises for other persons and organizations.

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[2] This is not to say that surprise or urgency have gone unanalyzed by the broader political science and economics communities. The importance of surprise events in ordinary life is a core assumption in GLS Schackle's work in economics (1969), and there is a substantial literature on crisis management in political science and public administration, largely focused on urgent international military and financial crises. To the extent that general conclusions are drawn, they are drawn from a series of meticulous case studies. They are inductive rather than deductive. See, for example, Hermann (1972) and Rosenthal and Kouzmin's (1997) for overviews of the more analytical subsets of those literatures.

6. As demonstrated below, an important and unavoidable property of crisis management is an unusually high propensity for making policy errors.

   i. Standing procedures for dealing with crises should be designed with such mistakes in mind.

   ii. Moreover, once such routines are developed, events that formerly were crises become more or less ordinary ("routine") events that can be dealt with using pre-existing procedures.

   iii. The focus of analysis is crisis management within democratic polities, although much of it will also apply to crisis management within private organizations and indeed for personal crises.

II. Can There Be a Rational Choice Model of Crisis Management?

1. To analyze crisis management using our standard tools, it is first necessary to overcome a significant methodological problem that may partially account for the lack of a rational choice literature on crisis management.

   A. There is a sense in which "crisis management" is **impossible** in the most commonly used economic models of rational decision making.

   i. The usual model of rational decisionmaking assumes that individuals possess sufficient information and imagination to evaluate every alternative course of action in every conceivable combination of circumstances.

   ii. Preference orderings are complete and transitive for the full range of possible events and opportunities.

   iii. Individuals know the full dimensionality of their opportunity sets and the conditional probability functions associated with

them.

iv. Thus, Although random shocks of one kind or another may exist, there can be no surprises, no truly unanticipated circumstances calling for unanticipated decisions in conventional rational choice models.

B. **The standard assumptions rule out crisis management, because they rule out unpleasant surprises calling for (new) urgent responses**.

- Unpleasant surprises may arise that must be dealt with rapidly, but these are in principle no different from other decisions that much be reached as time passes.

- All circumstances are "ordinary" in the standard rational choice model. There are no emergencies, no sudden requirements to adapt to new and unforeseen circumstances.

2. Several approaches can be used to escape from the limits of the standard model.

A. For example, one could introduce planning costs or assume that individuals are rational only within narrow limits.

B. The approach taken in this paper is to focus attention on a form of imperfect information that is neglected in most economic models of human decision making.

III. The Search and Ignorance Characterizations of Imperfect Information

1. Economists have assumed, for the most part, that imperfect information takes the form of finite but complete data sets.

A. That is to say, information is assumed to consist of data points, and each data point includes information about all relevant dimensions of the phenomena of interest.

B. Individuals may have information problems in such models because they have only finite collection of data, but this problem causes imprecision, rather than systematic errors.

C. Expectations and decisions and plans based on them remain on average correct in the sense that they maximize expected utility.

2. The approach taken in the present paper is to acknowledge the existence of another form of imperfect information, namely, ignorance.

A. Ignorance is not caused by having too few data points in one's sample, but rather by observing too few dimensions (characteristics) of the data points that are available.

B. Ignorance occurs whenever information about some dimensions of choice is unavailable to individuals at the time that they make decisions or adopt plans of action.

- In effect, individuals have a sample of size zero for such "missing" variables (Congleton 2000a and 2000b).[3]

C. It bears noting that most of our ignorance is not "rational ignorance," but rather natural ignorance: a residual of the very limited initial endowment of information we are all borne with.

IV. Ignorance, Surprise, Urgency and Mistakes

1. Although finite samples and ignorance have many similar behavioral implications, some implication are quite different.

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[3] The problem of ignorance has not been entirely neglected by economists, but for the most part has been limited to settings of asymmetric information in which one party does not know what the other knows. Here one may note Hayek's classic pieces on knowledge (1937, 1945) and Geogesu Rogen's (1971) insightful work on information and entropy, as well as a large contemporary literature on asymmetric information and public policy. For the most part, however, the latter retains the normal Baysian assumption that the full dimensionality of the universe is known, and that although one player may not know what the other knows, he knows what can be known. See for example, Migrom and Roberts (1986), Laffont (1994), or McLean and Postlewaite (2002).

2. Two of these are especially relevant for the analysis of crisis management.

A. First, **unlikely events** may occur in the search and Bayesian representations of imperfect information, **but not complete surprises**.

i. Complete surprise is impossible, because there are no "unknown" possibilities.

- There is "nothing new under the sun" in such models, because the entire strategy and outcome sets are assumed to be known (or potentially knowable).

i. In contrast, ignorance allows the possibility of complete surprise, because some possibilities are unknown.

- Ignorance implies that entirely unforeseen events may arise that call for immediate attention, which is what we normally mean by the term "crisis."

- New circumstances may be encountered as a result of intentional innovation and accidents.

B. Second, the usual Bayesian characterizations of information allows the possibility of mistakes, but not systematic error.

i. Random events may cause sensible choices to look foolish, ex post, but not systematically mistaken.

- Expectations can be unbiased with just a bit of complete information as long as the models are also known.

i. Ignorance implies that "unknowns" are associated with every decision, and that "unbiased" decision making is possible only in areas in which ignorance does not lead to biased expectations.

- In areas in which missing variables are important, rational decision makers may make **systematic errors**, because expectations are biased,

and/or decisionmakers are ignorant of relevant variables and relationships.

3. This does not mean that ignorance rules out rational behavior.

   A. Rational choices remain possible in the sense that all the information available to decision makers is taken into account and the **best of all known possibilities is chosen**.

   B. Ignorance simply implies that the list of possibilities considered may be very incomplete and that an individual's understanding of causal relationships (the conditional probability distributions between current actions and future events) may be erroneous in many respects.

   C. Surprise and urgency are consequences of ignorance

      - And ignorance implies the possibility of honest mistakes.

      - The quality of individual decision making may also be affected by intense emotions associated with surprise, such as fear or anger, that reduce the quality of rational decision making, but these effects are neglected in the present analysis.

      - (It seems likely that many instinctual responses are hard wired "quick" responses to crisis that worked reasonably well on average in the early days of humanity or their pre cursors.)

V. An Illustration: Optimization with Missing Variables

1. Several essential features of crisis management can be illuminated with the following model.

2. Consider a setting in which individuals maximize a strictly concave utility function defined over their own private consumption, C, and

personal health, H,

$$U = u(C, H) \qquad (1)$$

A. Suppose that an individual's health, H, is a random variable that is affected by his or her own private expenditures on health care, E, and government public programs that reduce known health risk, R.

B. In addition to these two readily observable control variables, suppose that an individual's health is also affected by risk factor Z, which is initially unobserved.

C. Z could include such unknown factors as disease vectors, environmental toxins, terrorist plots, and geological pressures,

$$f(H) = h(H \mid E,R,Z) \qquad (2)$$

D. Private income Y is assumed to decline as government regulations increase or as other health-improving programs increase at the margin because of increases in regulatory or tax burden.[4]

E. An individual's personal opportunity set for private consumption and health care in this case can be written as

$$C = Y(R) - E. \qquad (3)$$

3. In their roles as private citizens, individuals select their health-care, a type of risk reducing behavior, to maximize expected utility,[5]

[4] Across some range, personal income may increase as R increases, insofar as improved health improves productivity in the workforce. However, when R is set at approximately the level that maximizes median voter utility, R will be increased until it is in the range in which R decreases personal income (see below); thus, for expositional and analytical convenience, Y_R is assumed to be less than zero across the range of interest.

[5] Sufficient conditions for strict concavity are $U_C > 0$, $U_H > 0$, $U_{HC} > 0$, $U_{CC} < 0$ and $U_{HH} < 0$. In addition to the strict concavity of U, it is assumed that the marginal return from private health care is reduced by effective regulations, $H_{ER} < 0$, and increased by risk factor Z, $H_{EZ} > 0$.

which can be written as

$$U^e = \int h(H|E,R,Z)u(Y(R)-E,H)dH\,. \qquad (3)$$

A. Differentiating equation 3 with respect to E and setting the result equal to zero allows the expected utility-maximizing level of risk-reducing public expenditures to be characterized as:

$$\int [h_E U - hU_c]dH = 0 \qquad (4)$$

B. Equation 4 in conjunction with the implicit function theorem implies that the private demand for private health care can be written as

$$E^* = e(R, Z) \qquad (5.0)$$

with

$$E_R^* = \frac{\int h_{ER}Uv + h_E U_R - h_R U_C - hU_{CR} - dH}{-[U_{EE}^e]} < 0 \qquad (5.1)$$

$$E_Z^* = \frac{\int [h_{EZ}U]dH}{-[U_{EE}^e]} > 0 \qquad (5.2)$$

$$\text{with} \quad U_{EE}^e = \int [h_{EE}U - 2h_E U_c + hU_{cc}Y_R]dH < 0$$

C. The individual's demand for the regulation of health risks can also be determined from the same model.

D. Given his or her private expenditures, a typical voter will favor the level of regulation that maximizes

$$U^e = \int h(H|E^*,R,Z)u(Y(R)-E^*,H)dH \qquad (6)$$

which requires:

$$\int [h_R U + hU_c Y_R]dH = 0 \qquad (7)$$

as implied by the envelop theorem.

E. Together with implicit function theorem, equation 7 implies that the political demand for regulation is a function of the unknown variable, Z,

$$R^* = r(Z) \qquad (8)$$

i. **The individuals of interest, however, are assumed to be ignorant about risk factor Z, so function r(Z) cannot directly determine policy in this case.**

ii. Z can only indirectly affect the public demand for health care by its unrecognized effects on the marginal returns to private and public health expenditures, H_E and H_R.

- These returns may be known with certainty as long as Z remains at a steady state, $Z = Z^o$, in which case ideal policy $R^* = r(Z^o)$ can be adopted without any knowledge of Z.

- In such cases, ignorance does not reduce the effectiveness of private or public plans in stable circumstances.

- Ignorance of Z, however, can be a significant problem that leads to systematic errors in both public and private decision making if Z is not completely stable.

F. For example, suppose that Z increases from Z^o to Z' and produces an unobserved increase in the marginal returns from government policies to reduce health risks and to private risk reducing expenditures.

i. Such changes might go unnoticed if data on H_E and H_R are collected infrequently or if small changes are neglected.

ii. H is stochastic and thus minor fluctuations in the effectiveness of risk reducing policies may be discounted as unexplainable random effects.

- As long as the changes generated by the new level of Z are not recognized, the original policy remains "optimal" given the information available to decision makers, but no longer best advances their true interests.

4. The unnoticed change in Z implies that equations 4 and 8 are no longer be satisfied at $R^o=r(Z^o)$ and $E^o = e(R^*, Z^o)$. Losses accumulate, but there is no crisis because no attention is focused on policy reform.

- People are less healthy and/or comfortable than they would have been

with more complete information, but they do not yet realize this.

- The rate at which unnoticed losses accumulate under current public policies can be characterized as:

$$\Delta U^e = \int h(H|E^0, R^0, Z)u(Y(R^0) - E^0, H) - (H|E', R', Z)u(Y(R') - E', H)dH \qquad (9)$$

where $R^0 = r(Z^o)$, $E0 = e(R^*, Z^o)$, $R' = r(Z')$, and $E' = e(R', Z')$.

5. Consider now the consequences of a scientific breakthrough that allows data on Z and the relationship between Z and H to be collected for the first time.

A. Three related crises can be generated by the discovery of Z as a risk factor.

B. First, there is the immediate policy crisis. Previous private plans and public policies are now revealed to be suboptimal. New plans and new policies become necessary.

i. The "urgency" of the policy crisis varies with the perceived magnitude of the losses that accumulate.

- The higher the rate of perceived losses, the greater is the urgency of policy change.[6]

i. Adopting an effective new policy, however, may be a nontrivial matter, both because major policy changes may be required and because it may take time before the effects of Z are completely understood.[7]

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[6] Urgency may exaggerated in cases in which panic or terror is generated by the sudden changes in perceived health risks associated with disease or attacks. In effect, Z' may be mistaken for Z", with Z" >> Z, or relationship $H_Z < 0$ may be misestimated because of the scarcity of information about current and past values of Z.

[7] For example, Bayesian adjustment converges on the true underlying distribution of Z in the long run, but remains inaccurate, indeed biased, in the short run for cases such as the one postulated here.

VI. Crisis Induced Demands for Research

A. An implication of the ignorance associated with unpleasant surprises, is that crises often create a demand for new information, a "knowledge crise."

- Policy makers become more aware of their own ignorance and suddenly demand new policy-relevant information.

- In cases, in which losses are not severe, individuals and policy makers can delay changes in behavior and/or policies until information is gathered and options fully understood.

- However, such complete research is not always desirable (or optimal) when losses are large and the time necessary to fully understand the choice is thought to be relatively long (that is to say "too" long).

B. The effect of Z on the marginal productivity of private and public expenditures will not immediately be understood, because previous experience involved only changes in E and R.

i. New data and new analysis will be necessary to understand the effects of Z on health risks.

ii. The future time path of Z necessarily becomes a topic of research if capital investments are necessary to address risks associated with changes in Z.

iii. If Z simply moves to a new steady state, Z = Z' and the new relationship between H and Z comes to be fully understood, the new optimal steady state patterns of public and private risk reducing activities can be determined as above, R' = r(Z'), and E' = e(R', Z').

iv. Unfortunately, neither scientists nor policy makers can initially be sure that Z has simply moved to a new steady state.

v. Has Z temporally increased, moved to a new steady state, or

begun a new process of increase?

vi. Perhaps Z is a stochastic variable. If so, how is it distributed?

C. The initial temptation will be to economize on research by ignoring the change in Z or simply extrapolating from the two available observations, Z = 0 and Z = Z'.

i. Either approximation, however, may imply future levels of Z that are very wide of the mark.

ii. Having neither observed nor studied Z, little will be initially known about Z's behavior through time.

- Contemporary examples of such knowledge conundrums include urgent concerns over the future path of Islamic terrorism, global warming, and the acculturalization of recent immigrants within OECD countries.

D. Once the risks and time path of Z are understood, there may be subsequent efforts to control or influence the future course of Z.

- In such cases, completely new dimensions of policy may be added to the political agenda, which may, in turn, require new "crisis" research on Z policy to be produced and evaluated.

- Whether Z can be controlled or not, policy mistakes are likely to continue until both Z and policies for addressing Z are well understood, and this may take a long time.

E. Here, the reader might recall the wide range of public health problems that have plagued mankind for most of human history.

- Many solutions were tried over many centuries and much analysis was undertaken, but truly successful policies were adopted only in the past century or so as knowledge of bacteria, viruses, and other hazardous materials improved.

- Few plagues occur in developed countries these days, but this is a

fairly recent state of affairs.

- Similarly efforts to control crime and fire, which are as old as civilization itself, however, have become increasingly effective as better routines, equipment, and materials became available.

VII. Where to Crises Come From?

1. Crises may be caused by nature, by the strategies of rivals, and by one's own mistakes.

   A. Examples of natural crises include new deseases, particularly unusual weather, earth quakes, volcanos, and other surprise events that undermine existing plans.

   B. Examples of human induced crises include supprise attacks, car accidents, and innovations that undermine the value of some kinds of capital.

      - A relatively benign form of crisis is evident in the tennis play of Roger Federer and Rafael Nadal attempt to create for their opponents by hitting various "impossible" shots.

      - Others include the efforts of terrorists and ordinary criminals who often affect "innocents" who have never given any thought to appropriate responses.

   C. In addition, responses to past crises that are based on poor information, may also fail to solve the problem of interest or create new ones--not necessarily immediately--and so can also be a source of current and future crises.

2. We will focus on mistakes today, in part because these are evident in the case studies that we will focus on Tuesday and Wednesday.

A. The ignorance associated with all true surprises also implies that mistaken policies are likely to be adopted, and that those mistakes may generate new crises insofar as mistakes have unanticipated effects.

B. In the model above, secondary crises might arise in the period in which the relationships between R and Y or between Z and H are not fully understood.

- For example, increases in R beyond the range of experience might reduce Y by far more (or less) than initially believed, requiring a new round of emergency policy formation, hasty scientific research, and policy analysis.

- In this manner, urgency in combination with ignorance implies that one policy crisis may generate many others.

C. Urgency would not generate future policy problems without knowledge problems, but knowledge problems are an essential feature of all surprises and, therefore, all efforts at crisis management are prone to policy mistakes.

i. In this manner, ignorance and urgency may generate crisis cascades that are not caused by the original crisis, but rather by errant responses to the original crisis.

ii. Some crises get out of hand simply because urgency prevents ignorance from being reduced sufficiently to permit accurate estimates of policy consequences.

VIII. The Politics of Crisis Management in a Well-Functioning Democracy

1. In democracies, policy decisions are ultimately made by representatives elected by eligible voters.

   A. Because those elected to public office generally wish to stay in office and remaining in office requires broad electoral support, policy makers in democracies tend to favor polices that advance the interests of a broad cross-section of voters.

      - In a "first-past-the-post" electoral system, electoral competition induces policy makers to adopt policies that maximize the welfare of the median voter (within the limits of their information and the information aggregating magic of the jury theorem).

      - Within a proportional representation (PR) system, electoral incentives are less sharp, but majority coalitions normally include the representatives favored by the median voter.

   B. Consequently, democratic policy formation within both first-past-the-post and PR electoral systems tends to move toward the middle of the distributions of voter demands for government services and regulation.

      - In either case, electoral competition clearly constrains the policy options of elected officials who wish to be reelected.

2. Crisis and Democratic Policy Error

   A. The existence of a crisis does not usually change fundamental political incentives, nor does political decision making avoid the information problems associated with surprise and urgency.

B. That is to say, an "ordinary" crisis such as a new disease, major storm, accident, earthquake, or terrorist attack does not directly affect the balance of power within government, the incentives for choosing some policies over others, nor the difficulty of doing so in a setting in which decisions must be made rapidly without sufficient information.

3. Elected officials remain principally interested in broad policy issues that advance their electoral interests; consequently, democratic crisis management tends to focus on relatively severe and broad crises, because only those affect enough voters to influence future elections.

   A. Voters remain interested in maximizing their lifetime utility, whether in a crisis or not, and will vote for politicians and parties whose crisis management most advances their interests, given each voter's understanding of the policy alternatives and crisis at hand.

   B. The surprise and urgency of policy decisions during times of crisis implies that voters are more likely be mistaken in their assessments of their long-run interests.

4. An additional source of error is introduced in democracies, because surprise and urgency also imply that elected officials do not have an electoral mandate to address a crisis with specific policies, but rather have to discern hurriedly the future interests of their electoral supporters.

5. Urgency rules out a careful analysis of long-term political interests by both voters and politicians.

   - Policy responses to crisis will be based on less information than would have been available if policy decisions could be postponed until the next election.

   - Democratic crisis management is, consequently, more error prone

than normal democratic policy making is.

6. It is based on less information, less analysis, **and lacks a clear mandate from the electorate.**

   A. Although political decision makers remain interested in advancing the interests of pivotal voters, the urgency of crisis management implies that new policies are less likely to advance those interests than policies adopted in less urgent times, in part because the voters themselves are less able to determine their own interests.

   B. Policy mistakes will be more obvious after new policies are put into place than at the time they were adopted, because more information becomes available as experience and research accumulates.

   C. This implies that incumbents are more likely to lose elections following a crisis than in less urgent times, insofar as voters punish politicians for their past policy mistakes.

7. The policy decisions adopted during times of crisis, however, are not necessarily less legitimate than ordinary decisions if they are made using procedures that satisfy constitutional constraints.

   - Government officials will simply appear to be less competent after periods of crisis than in ordinary times.

   - Indeed, the logic of crisis management implies that this is necessarily the case.

IX. Crisis through Persuasion: Agenda Control, Urgency, and Agency Problems

1. The above analysis assumes that voters have information that is comparable to elected policy makers, at least in terms of the dimensionality of the information available.

A. Additional errors arise in settings in which policy makers and voters have substantially different information available to them.

B. Informational asymmetries create a variety of agency problems, many of which have been analyzed by the rational choice literature on democratic politics.

i. For example, informational asymmetries allow elected governments to adopt policies that are not in the general interest or those of electoral majorities, because some policies are largely unobserved, and, indeed, may be unobservable.

ii. A good deal of the special interest legislation that is passed, remains politically feasible because of such informational asymmetries.

iii. The beneficiaries of narrow policies have better reasons to be aware of such policies than those less affected.

2. Informational asymmetries also allow crises to be manufactured

- —as when an agency announces that previously unrecognized problem Z has to be addressed immediately or else enormous losses will accumulate.

- By exercising agenda control during a period in which urgent action is required, crisis manufacturers can obtain more of what they want than possible during less urgent policy negotiations, because urgency implies that fewer alternatives to their initial proposal can be considered.

3. Crisis manufacturing, thus, potentially allows governments to adopt policies that advance narrow ideological goals, favor their most supportive colleagues, contributors, and regions with little fear of electoral consequences.

A. This effect of crisis is partly offset by increased voter demands for new policy-relevant information.

- However, voters tend to be less able to judge the quality of the information supplied, because they normally have little direct experience with the problems and solutions analyzed during times of crisis.

- Indeed, their relatively greater reliance on secondhand information makes them more susceptible to manipulation than in long-standing policy areas in which voter assessments of policy are partially rooted in their own independent observations and judgment.[8]

- Being aware of their own relatively greater ignorance, voters are also more willing to defer to governmental and other experts during times of crisis—after all, "something" has to be done!

B. These effects tend to alter the informal balance of power between voters and elected officials in a manner that reduces voter influence over public policy—at least in the short run.

C. Times of crisis, thus, present interest groups inside and outside government with unusually great opportunities to profit by influencing the details of the policies adopted privately within the legislature and publicly through media campaigns.

- Bureaus may secure larger budgets and interest groups may be able to secure more favorable tax or regulatory treatments than possible during ordinary times,

- because voters and their elected representatives are more willing to accept the arguments and assertions of agency experts in times of crisis than in ordinary times and less able to monitor policy decisions.

4. All these informational asymmetries increase the likelihood of

[8] Of course, voters realize that secondhand information is not always accurate or unbiased and take this into account as much as possible. The lack of direct experience on the policy issues at hand, however, limit the extent to which this is possible. To the extent that disseminating information has any systematic effect on voter knowledge, it can be used to influence voter assessments of the relative merits of policy. Such effects are very evident in new areas of environmental regulation and in recent responses among nations to the threat of international terrorist attacks.

policy mistakes (suboptimalities from the perspective of the median voter) relative to ordinary policies under asymmetric information and relative to crisis management in the symmetric information case.[9]

A. If political decision making is more mistake prone during times of crisis, and voters punish elected officials for mistakes, then an implication of the above is that more politicians will lose office during and after times of crisis than at other times.

- Although governments lose office for a variety or reasons unrelated to their success at crisis management, many are consistent with this prediction.

X. Crisis Cascades Can Lead to Constitutional Crises

1. In cases in which one policy error begets subsequent crises, voters may reasonably come to question the competence of their leaders and the performance of their fundamental political institutions.

A. It is often difficult to distinguish among bad luck, incompetence, and institutional failure.

B. Consequently, crisis cascades can easily lead to constitutional crises as routine governmental procedures fail to produce satisfactory policy decisions for the crises at hand.

- A constitutional crisis may also arise because of internal or external attacks on constitutional procedures, as when elected officials willfully ignore constitutional limits, challenge long-standing constitutional

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[9] Among many other examples of rent seeking during a time of crisis, one can point to recent efforts in the United States to address its 911 crisis. Military expenditures rose rapidly after the terrorist attack, but as Wheeler (2004) and Rugy (2004) point out, a good deal of the increase in military expenditures justified as antiterrorism efforts, had little to do with terrorism. Moreover, per capita expenditures on "homeland security" were often highest in rural states where the probability of attack is relatively low (Wyoming, North Dakota, and Alaska) and lowest in more densely populated states where risks are relatively high (New York and California). Of course, such rural states voted disproportionately favor of the Republican presidential candidate (69%, 63%, 62%) overseeing those expenditures than did the more urban states (40%,45%), where terrorisim is arguably a greater threat.

practices, or a coup d'état is undertaken.

C. Crisis cascades may encourage such attacks, as when hyperinflation undermines support for the existing constitutional regime.

- In either case, a major crisis can produce significant and mistaken reforms of the fundamental procedures by which governments make decisions.

- For example, Gasiorowski (1995) provides statistical evidence that changes in fundamental institutions are more likely to change during times of economic crisis in large developing nations.

- Historical accounts provide additional evidence of changes in fundamental governmental procedures in response to crisis cascades.

2. Constitutional responses to crisis are more problematic than ordinary political crisis management, because losses from mistakes can be very large.

A. Changes in constitutional procedures generate losses that linger on after a crisis is over, because changes in the fundamental procedures and constraints of governance affect all subsequent policy decisions, rather than those associated with the crisis at hand.

- Losses associated with constitutional mistakes also tend to continue for longer periods than ordinary policy mistakes, because constitutional mistakes are inherently more difficult to correct than ordinary policies.

- Constitutional reforms often create a new balance of political power, which implies that the groups that adopted a constitutional reform cannot always repeal them if the new procedures or constraints perform less well than anticipated.

- The problem of irreversibility is increased by requirements of supermajority support in that reversion to previous rules can be blocked by

a minority.

B. The essential problem of constitutional crisis management, however, is not irreversibility, but rather the mistake-prone nature of rapid decision making in circumstances of limited information.[10]

- All constitutional reforms are difficult to reverse; that is what allows ordinary amendments to function as new rules for the political game.

C. The difficulty of lawful constitutional reform tends to increase the stability of constitutional rules and also tends to reduce the risk that one constitutional crisis will beget subsequent crises.

- The importance and irreversibility of constitutional amendments simply increases losses associated with mistakes.

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[10] For example, the suspension of democracy in Italy during the interwar period was an unfortunate consequence of a constitutional crisis cascade. The break down of law in order following WWI created a crisis mentality throughout much of Italy, a sense of uncertainty and urgency. A small Fascist political party emerged partly because of this and successfully won 35 of the 535 seats in parliament in the 1921 elections. Among their members was an ambitious journalist named Mussolini. Fascist groups created a constitutional crisis in 1922 by marching on Rome. King Emmanuel III responded to the crisis by appointing Mussolini prime minister, rather than calling out the army. The new right of center coalition government asked for and received emergency power and electoral reform in 1923 with the approval of parliament. The new election law, the Acerbo, assured "strong" government by giving two thirds of the seats in parliament to the party or coalition with the most votes. The Fascist coalition easily won the election of 1924, and the coalition of Fascists, Nationalists (Conservatives), and Liberals resumed office but now with essentially complete control of parliament.

The left-of-center opposition parties created another constitutional crisis by walking out later in the same year after the murder of a prominent leader. They were prevented from resuming their seats, which further tipped the parliamentary balance toward the Fascist and Nationalist components of the government. In 1925 the laws on censorship were strengthened. The right-of-center coalition began to splinter in 1925, but it was already too late for the Liberals. In 1926 opposition parties were banned, thus, ending electoral competition for twenty years, Duggan (1984). Without competitive elections, governance became unshackled from moderating pressures associated with majority rule and the error correction associated with public debate and electoral feedback. Similar patterns of "emergency" constitutional reforms exist for Germany, Argentina, and many African countries during the past century.

XI. Standing Procedures and Institutions for Limiting Damages from Crisis Management: Planning for Mistakes

1. The above analysis has argued that the essential features of crisis settings—surprise and urgency—have one clear implication for policy outcomes.
    - Namely, that policies adopted during times of crisis are more mistake prone than are policies adopted during normal times. Surprise and urgency, consequently, also have implications for designing effective and robust routines and institutions for crisis management.

2. The standard tools of welfare economics, social welfare functions and contractarian analysis, imply that institutions should attempt to limit downside risks associated with political and economic institutions.

    A. Although the extreme risk aversion assumed by Rawls is widely debated, the assumption that utility maximizing men and women are risk averse is widely accepted by researchers using rational choice models.

    B. Utility functions are widely assumed to be differentiable and strictly concave, which implies both diminishing marginal utility of income and risk aversion.

    C. Risk aversion has many implications for institutional design in peaceful and predictable circumstances, as noted, for example, in classic work by Buchanan and Tulluck (1962) and Rawls (1971), and in more rent work by Mueller (1996), Buchanan and Congleton (1998), Brennan and Hamlin (2000), and Congleton (2003, part II).

3. Risk aversion also has a number of implications for the design of routines and institutions to address crises of various kinds.
    - Mistakes increase the downside risk associated with political decision making, and the logic of welfare analysis implies that the institutions

should attempt to reduce those risks.

4. First, plan ahead.

A. Urgency implies that there will be little time to explore alternative courses of action during a time of crisis.

- So, it is sensible to investigate and plan for crises before they happen to the extent that this is possible.

B. Although surprise is a fundamental characteristic of all crises, ignorance of future crisis scenarios and policy responses to them can be reduced by creative analysis and planning.

- One can never fully anticipate the exact time and place of an earth-quake, contagious disease, or terrorist attack.

- However, many of the policy responses to these crises are similar regardless of specific details.

- That is to say, the number of possible reponses to crises tends to be smaller than the number of possible crises that can be imagined.

C. A careful analysis of real and imagined crisis scenarios, thus, allows rapid policy responses to be chosen from a menu of well-understood policy options.

i. For example, an individual crime or fire remains a crisis in the sense that each case is a surprise and calls for an immediate response.

ii. Responses to individual crimes and fires have been routinized.

- And, thus, particular crimes and fires are no longer regarded to be political crises, although they often have unique features and remain crises at the level of the persons directly affected.

i. In this manner, analysis of past crises can reduce losses associated with mistakes during future periods of crisis; although it cannot entirely eliminate surprise, urgency, or mistakes.

D. However, **it is never rational to be fully prepared**, because the costs of preparations are non-trivial and in many cases the benefits are trivial.

- That is to say, it is rational to remain a bit unprepared at the margine.
- Moreover ignorance suggests that complete preparation is impossible.

5. Second, insofar as policy mistakes are inevitable, **be prepared to correct mistakes**.

A. Insofar as policy mistakes are unavoidable during times of crisis, the standing procedures for dealing with crisis should allow policy mistakes to be discovered and corrected at relatively low cost.

i. This is, of course, one reason for having regular and routine popular elections rather than electing persons for lifetime terms of office.

ii. All emergency policies should have explicit "sunset" provisions so that policies are carefully reviewed after the immediate crisis has passed and better information becomes available.

6. Third, avoid big mistakes.

A. A well-designed constitution should be crisis proof.

- It should be designed to handle the urgent unforeseen problems in a manner that does not threaten its fundamental decision procedures and constraints.
- Urgency implies that streamlined decision processes can be productive during times of crisis.
- However, emergency powers should not used as a method of circumventing normal constitution practices.

B. The standing procedures of crisis management should also allow persons other than those charged with crisis management to determine when the crisis has ended so that the normal decision processes are reinstated.

- (An example of such an architecture is provided by the U. S. constitution, which gives Congress the power to declare war, but makes the President the commander in chief.

- The war can, moreover, only be continued with Congressional, approval insofar as Congress controls funding for the military on a year to year basis.)

C. Constitutional amendments during times of crisis should be avoided to the extent possible, because changes in the fundamental procedures and constraints of governance are difficult to reverse and, consequently, constitutional mistakes tend to be far more costly than ordinary policy mistakes.

7. Fourth, reassess after the dust clears.

A. As better information becomes available, institutions should allow past decisions to be revisited, and revised.

- Error correction is an essential feature of dealing with crisis management, and is one method to reduce the likelihood of crisis cascades.

- It is best if both the review and policy revision are done by agencies and persons not involved in the crisis management itself, to reduce conflicts of interest.

B. Procedures for dealing with crises should be designed, implemented, and revised during times that are relatively free of crisis.

XII. Conclusions: Crisis Management and Rational Choice

1. The fact that surprise and urgency are essential features of crisis management has clear implications for policy making during times of crisis.
    - Surprise, by definition, implies that current events were unanticipated.
    - Urgency, by definition, implies that a rapid policy response is advantageous.
    - However, in combination with surprise, urgency implies that policy responses will be more error prone than are responses to less urgent or surprising policy problems, and this property of all crisis management should be taken account of.
2. Although crises are by their nature unanticipated and unanticipatable, crisis management can be routinized within limits.
    - The costs of policy mistakes can be minimized by conducting policy research that reduces ignorance about possible problems and responses, creating narrow, streamlined decision procedures for making emergency decisions with clear lines of responsibility and making emergency decisions temporary, and easily reversible as new knowledge becomes available.
    - The costs of crisis management can also be reduced by avoiding major procedural and constitutional reforms during times of crisis.
3. Insofar as crises are fairly common events, the analysis indirectly predicts that every successful government will have developed standing procedures for dealing with urgent unexpected problems.
    - Without such procedures, a city, region, or national government would be disadvantaged relative to those that have effective institutions for dealing with crisis.

A. The advent of crisis does not change the nature of human decision making, although it does systematically reduce the quality of the decisions made at a point in time, and through time insofar as the errors of one round of crisis management may generate subsequent emergencies that have to be dealt with rapidly.

B. However, insofar as a government's routines and institutions of crisis management reflect trial and error rather than a careful analysis of the common properties of all crises, unusual emergencies will not be properly accounted for in existing routines.

- The likelihood and costs of errant decisions in such cases can be reduced by acknowledging the prospect of error and designed general routines and institutions for crisis management accordingly.

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