

Policy Overreaction

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Abstract. There is very little research by policy scholars about public policy pathologies and virtually no research that delves into the conceptual nuances of policy overreaction. To bridge this gap, I marry literatures on psychology, behavioral decision making and emotions with more strategic taxonomy of general mechanisms for influencing people's behavior. I thereafter develop an analytical framework that revolves around two key dimensions of policy overreaction: (i) the effects of positive and negative events, and (ii) the effects of overestimation and accurate estimation of information. Based on these dimensions, I identify and illustrate four distinct modes of policy overreaction which reflect differences in the nature of implemented policy. I argue that the policy tools menu utilized in each mode of policy overreaction is dominated by unique mechanisms for changing or coordinating the behavior of the general public which, once established, produce excessive — objective and/or perceived — social costs.

KEYWORDS: Overreaction, overconfidence, risk, decision bias, emotions, public policy, coordination

I. INTRODUCTION

Policy overreactions are policies that impose objective and/or perceived social costs without producing offsetting objective and/or perceived benefits. A classic example is the Egyptian government's decision to cull all pigs in the country during the swine flu crisis of 2009, even though not a single case of this disease either among humans or even pigs had been reported in Egypt.¹ In recent years, economists, psychologists and political scientists have devoted a great deal of attention to the emergence of overreaction (e.g., Kahneman and Tversky 1973a; Tversky and Kahneman 1974; Sunstein 2002, 2008; Jones and Baumgartner 2005; Daniel, Hirshleifer, and Subrahmanyam 1998; Odean 1998). In this research literature, decision making biases, strong emotions and overconfidence, which "occurs when confidence exceeds accuracy" (Griffin and Brenner, 2004, 178), have been shown to explain excessive patterns of behavior.²

Surprisingly, there has been no diffusion of this research into the field of public policy. In fact, there is only one study by policy scholars about public policy pathologies (Peters and Hogwood 1985) and virtually no research that delves into the conceptual nuances of policy overreaction. Furthermore, although an abundance of research has examined policy success (e.g., Gupta 2001; Bovens, 't Hart and Peters 2001; Davidson 2005; Edelman 1988; Stone 2002; McConnell 2010) and policy failure (Kerr 1976; Ingram and Mann 1980; Dunleavy 1995; Bovens and 't Hart 1996; Tiffen 1999; Thompson 2000; Boin et al. 2005; Handmer and Dovers 2007; McEntire 2007), little attention has been devoted to policy that may be almost too successful in terms of the preservation of government's policy goals (process success), the obtainment of the results desired by the government (program success), and the enhancement of the reputation of the government (political success) (McConnell's 2010).

This conceptual paper tries to bridge this gap by marrying literatures on psychology, behavioral decision making and emotions, with more strategic taxonomy of general mechanisms for influencing people's behavior (read, the general public). The analytical framework advanced here puts the spotlight on two dimensions: (i) the effects of overestimation and accurate estimation of information, and (ii) the effects of positive and negative (adverse or threatening) events. Based on these dimensions, the paper identifies four modes of policy overreaction that reflect differences in the nature of implemented policy. *Preemptive overreaction* emerges when policy makers overestimate information regarding a negative event (e.g., a misperception that a risk poses an imminent threat); *Regulatory overreaction* occurs when policy makers accurately estimate information regarding a negative event (e.g., a realistic recognition of the scope and intensity of a threat, and a derived increase of the regulation and supervision of the state over large swaths of society, with particular emphasis on law enforcement); "*Calibrated*" *overreaction* emerges when policy makers overestimate information regarding a positive event (e.g., a misperception that a new policy model or theory precisely mimics some particular parameters of reality); and *Nearly-mandatory overreaction* occurs when policy makers accurately estimate information regarding a positive event (e.g., a realistic recognition regarding the contested nature of a scientific innovation and the derived implications in terms of policy implementation and information gathering in light of a potential public backlash).

According to the analytical framework, the policy tools menu for each mode of policy overreaction may be dominated by unique mechanisms for changing or coordinating the behavior of the general public that, once established, produces excessive (objective and/or perceived) social costs. Based on Stone's (2002) taxonomy of general mechanisms for changing or coordinating people's behavior (i.e., "inducement", "rules", "facts", "rights" and "powers"), the

following association between overreaction type and coordination mechanisms may emerge. *Preemptive overreaction* will tend to rely on persuasion (“facts”) through preemptive talk, force and/or spectacle in an attempt to defeat a perceived inevitable threat and/or to gain a strategic advantage in an allegedly unavoidable swing of public mood. Classic examples are the cull of all pigs in Egypt and the slaughter of around five million animals for precautionary reasons following the Bovine Spongiform Encephalopathy (BSE) crisis in the UK. *Regulatory overreaction* will tend to rely on all five mechanisms in order to undertake an aggressive information search, including rapid implementation of legislation that permits exceptional, far-reaching and often overtly authoritarian measures in the search for information, combined with increasing individual and organizational anxiety over the issue in order to facilitate greater cooperation between government agencies and the general public. A classic example is the US government response to 9/11. *“Calibrated” overreaction* will tend to rely on “facts”, “rights” and “power,” in order to anchor the relevant experts who master the new model/theory at the core of the executive, ensure that all relevant policies are in line with the model, undertake regular assessments of the “calibrated” policy, and present them to the general public. Classic examples are the use of the Phillips Curve in United States economic policy during the 1960s-1970s,³ the shock therapy marketization/transition model in post-Communist Russia during the early 1990s, and the implementation of radical, far-reaching programs of public management reforms in New Zealand during the late 1980s and 1990s. *Nearly-mandatory overreaction* will tend to rely on “rules”, “inducements” and “facts” in an attempt to implement a contested policy program by thrusting responsibility onto individuals (e.g., parents) through public schools or other organizations close to the state while allowing wide opt-outs in order to limit public backlash, and searching for information in order to persuade the public regarding the merit of the

policy. Classic examples are school-based Human papillomavirus (HPV) vaccination in the UK, Canada and Australia, as well as bike helmet laws in states and municipalities across the United States since the invention of the modern protective helmet.

The analytical framework and the subsequent illustrations of each type of policy overreaction contribute to our understanding of a large spectrum of policy overreactions. Surprisingly, no conceptual statement regarding the topic has ever been made before, so this paper is a lone voice crying out for more research on this topic. Although empirical research is necessary to refine the conceptual arguments proposed here, this analysis provides insights into the varied world of policy overreaction. Because policy overreaction is a feature of all polities at some point in time, political scientists and policy scholars everywhere should take a look at the research program described in the concluding section and use it to provide a detailed and nuanced perspective on this phenomenon in their polities.

The words policy makers are used throughout this article, whilst recognizing that decision making in parliamentary systems may be based on the core executive model, which emphasizes the importance of networks and policy communities (e.g., Dunleavy and Rhodes 1990; Rhodes 1995; Smith 1999, 2003; Marsh, Richards and Smith 2001; Peters, Rhodes and Wright 2000), or the presidential model which stresses the prime ministerial predominance within the changing structure of parliamentary systems (e.g., Poguntke and Webb 2005; Poguntke 2009). The term is useful because it captures the possibility that political power may be a relational category due to the need of actors to cooperate in decision making. This, in turn, requires incorporating aspects of groupthink into the analysis. The analysis proceeds as follows. The initial section surveys the relevant literature. The third presents the analytical distinction amongst the four modes of policy overreaction. The fourth illustrates each mode of policy, and

the final section elaborates a future research agenda on policy overreaction. Readers who are not interested in the theoretical details may skip the next two sections.

II. SURVEYING THE LITERATURE ON PSYCHOLOGY, BEHAVIORAL DECISION MAKING AND EMOTIONS

The mechanisms by which policy overreaction occur are subtle, and they are to be found deep in the way government organizations work and their members behave, as well as in the way society at large is organized and its members behave. It is therefore tempting to jump to the conclusion that each policy overreaction is conditioned by very specific circumstances. A diffused body of anecdotal policy analysis, which revolves mainly around issues related to emergency preparedness and homeland security, tends to support such a claim (e.g., Friedman 2011; Stern 2002/03). At a more abstract level, Hogwood and Peters (1985) have developed an analytical taxonomy of the pathologies of policy making that draws on medical metaphors. They coined the term *over-steering*, which refers to “moving back past the correct path to another set of mistakes in the opposite direction” (p. 83); *over-targeting*, which refers to “[t]he use of as many instruments as there are objectives” (p. 167), and *overinstrumenting*, which refers to a case wherein “many instruments all target the same client group or objective” (pp. 167-8). Alongside the very little research on policy pathologies, there is, however, a concentrated, highly-developed and original body of scholarly writing on overreaction in the fields of psychology, behavioral decision making and emotions. The findings of these literatures divert attention away from “specific circumstances” and medical metaphors and toward a view of policy overreaction as a predictable response. This section reviews the literature on overreaction, and highlights the insights that have advanced the analytical framework presented here.

In psychology, overconfidence is important for two reasons. The first is related to DeBondt and Thaler's (1995) observation that "perhaps the most robust finding in the psychology of judgment is that people are overconfident."⁴ The second is related to Plous' (1993, 217) argument that "No problem in judgment and decision making is more prevalent and more potentially catastrophic than overconfidence." Overconfidence has been studied in three different ways, namely *overestimation* of one's actual ability, performance, level of control, or chance of success; *overplacement* (i.e., when people believe themselves to be better than others), and *overprecision* (i.e., when people believe that the information that they have is more reliable than it actually is) (Moore and Healy 2008, 502).⁵ Based on illustrative experiments, Moore and Healy (2008, 502) have found that excessive overestimation can arise from an overly precise subjective probability distribution in an individual's head (overprecision), or from an overestimation of one's ability to resolve the policy problem (overestimation) — and that those two are really one and the same for single-item confidence judgments (Moore and Healy 2008). In addition, whereas overestimation increases with task difficulty, overplacement decreases with task difficulty (Moore and Healy 2008, 512).

In behavioral decision making, Kahneman and Tversky (1972, 1973a) have proposed that the *representativeness heuristic*, which refers to the tendency to utilize one characteristic to imply another, leads to overreaction. DeBondt and Thaler (1990) have suggested that the *leniency heuristic*, which refers to situations wherein individuals are more likely to attribute desirable traits to things they know, leads to overreaction. Relatedly, Griffin and Brenner (2004, 178) suggested that *overprediction*, that is, the tendency to assign probabilities that are consistently too high,⁶ and *overextremity*, that is, the tendency to assign probabilities that are consistently too extreme,⁷ lead to overconfidence. In behavioral finance, which is built on

cognitive psychology (how people think) and the limit to arbitrage (when markets will be inefficient), theories of overreaction are driven either by different psychological factors, different types of investors, or reflect un-modeled risk (Lin and Rassenti 2008). Regarding the psychological factors, overreaction may be the result of overconfidence by informed investors who possess private information (Daniel, Hirshleifer and Subrahmanyam 1998), and *representativeness bias* (Barberis, Shleifer and Vishny 1998; Amir and Ganzach 1998). Regarding heterogeneous investors, Hong and Stein (1999) suggest that investors who base their decisions on a limited history of prices tend to over-extrapolate trends in returns, reinforcing momentum in trading activities and leading to price overshooting. Regarding risk-based explanations, Fama (1998) has argued that overreaction may be the result of poorly specified risk factor models. An advance in the related area of analysts' earnings forecasts has proposed that the *leniency* heuristic leads to overly optimistic predictions perhaps because of the analysts' tendency to maintain good relations with managers they know as a primary source of information (DeBondt and Thaler 1990).

In the areas of emotions and risk assessment, Sunstein (2002) has suggested that public overreaction to highly politicized, low-probability risks could be explained by *probability neglect*, which occurs when people focus on the worst possible scenario. The strong emotions that are then triggered lead to a failure to inquire into the probability that the worst case will actually occur. The study of emotions is also tied to overconfident behavior, which, in turn, is a classic case of bounded rationality (Simon 1982). As Akerlof and Shiller (2009) suggested, “The very term *confidence* [implies] behavior that goes beyond a rational approach to decision making [...]” (p. 13, *italics in original*). Bounded rationality has an emotional dimension in its model of human decision making, and assumes that humans are equipped with cognitive limitations — “an

emotional ‘governing system’ to regulate attention and action” (Jones and Baumgartner 2005, 16) — that confine and channel their abilities to maximize pleasure, profits, welfare and so on. In the area of emotions and public policy, it was suggested that these cognitive restrictions lead to human, organizational and governmental decision making that stresses disproportionality in response to incoming information (Jones and Baumgartner 2005). The disproportionate information processing model suggests that policy makers often ignore powerful signals indicating the need for a policy change, and overreact by initiating large-scale policy changes when signals are particularly strong. The result is a pattern of policy stability and significant, punctuated changes, especially when emotions are running high (Jones and Baumgartner 2005, 21).

Emotions tend to run high, for example, when individuals are facing negative events or dreadful possibilities.⁸ According to Simon (1983), emotions focus attention and help overcome the limits of our one-at-a-time information-processing system. However, when emotions take charge, probabilities are neglected, and the result is harmful overreaction to risk (Sunstein and Zeckhauser 2010, 116). Specifically, negative emotions impact strategy selection and decision making in two ways (Payne and Bettman 2004, 123). Firstly, emotions may degrade cognitive performance, thereby interfering with decision processes (e.g., Hancock and Warm 1989). Secondly, decision makers may adapt to the negative emotions by either engaging in extensive processing of information in order to maximize decision accuracy (Folkman and Lazarus 1988), or by taking actions that minimize emotion, such as opting for the status quo, delegating the emotion-laden decision, or choosing an option that is easier to justify (Luce 1998). A related strategy is to ignore the distressing aspects of the problem at hand, focusing solely on aspects of the decision problem that one finds easier to deal with (Payne and Bettman 2004, 124).

Governments also suffer from *action bias* because of their own natural tendencies to take some action regardless of whether it is needed (Patt and Zeckhauser 2000). Consequently, the government may tend to take excessive preventive actions, “if the relevant actors are able to obtain credit from themselves or from the public for responding to the risk” (Sunstein and Zeckhauser 2010, 116).

The aforementioned survey of the literature emphasizes the importance of key components in the phenomenon of overreaction, and this, in turn, allows for a nuanced conceptual framework of policy overreaction to be devised. Our attention turns now to the analytical framework.

III. ANALYTICAL FRAMEWORK

Policy overreactions are policies that impose objective and/or perceived social costs without producing offsetting objective and/or perceived benefits.⁹ This definition reconciles the tension between the objective and subjective dimensions of “overreaction”. A definition that portrays overreaction as purely a matter of interpretation will fail to capture the objective dimensions of social costs and benefits, and may also fail to encompass the objective dimension of goal attainment in case the policy overreaction is almost too successful. Equally, a definition that portrays overreaction purely as objective will fail to capture the subjective dimension of social costs and benefits, and may also fail to encompass the subjective dimension of goal attainment in case the policy overreaction is almost too successful, even if accompanied by substantial controversy. Therefore, both the objective and subjective dimensions of overreaction need to be built into the definition.

The theoretical framework advanced here draws insights from research on overconfident behavior. Although an abundance of research has examined policy change from different theoretical angles — such as, the punctuated equilibrium theory (True, Jones and Baumgartner (2007) and the advocacy coalition framework (Sabatier and Weible (2007) — studies have not conceptually looked at situations whereby policy makers believe they are more talented and competent than they actually are, have more control over the event at hand than they actually have, have more chances of success in solving the policy problems than they actually have, and perceive the information they possess as more precise than it actually is. Whereas competing models of policy change implicitly assume that policy makers accurately perceive their abilities, thus set more realistic goals and avoid overly risky ventures, the analytical framework developed in this paper takes a different point of departure. Here, policy makers form overly positive judgment of their abilities and the precision of the information they possess. They do so because they might simply be unable to accurately assess their own competence (e.g., Moore and Healy 2008) and/or motivated to be overconfident because of its psychological benefits (e.g., improving self-esteem, mental health and task motivation and persistence)(Alicke 1985; Taylor and Brown 1988; Waldman 1994). The fact that the effects of overconfidence endured over time (Cameron and Sebastien 2010) emphasizes the need to seriously pay attention to the psychological aspects of policy makers' behavior.

The theoretical framework also draws insights from research on groupthink, which is defined in Merriam-Webster's dictionary as “a pattern of thought characterized by self-deception, forced manufacture of consent, and conformity to group values and ethics”. Analyzing policy decisions such as the Bay of Pigs invasion, the Cuban missile crisis and the escalation of the Vietnam war, Janis (1972) identified eight symptoms for which he coined the

term “groupthink”. These symptoms were illusion of invulnerability, collective rationalization, belief in inherent morality, stereotyped views of out-groups, direct pressure on dissenters, self-censorship, illusion of unanimity, and self-appointed mindguards. Some of these features were documented in the official inquiries conducted on the Challenger and Columbia space shuttle disasters (Rogers Commission 1986; Columbia Accident Investigation Board 2003), the failure of Enron (Samuelson 2001; Cohan 2002), and in some decisions relating to the second Iraq war (Hersh 2004; Suskind 2004). Recently, Bénabou (2009) found out that “while each person decides how to interpret objective reality, that reality — promising, disappointing, or scary — is itself shaped by the actions of others, and therefore by their subjective mindsets” (p. 2). This finding implies that “in organizations where some agents have a greater impact on others’ welfare than the reverse [e.g., the prime minister or President], strategies of realism or denial will “trickle down” the hierarchy, so that subordinates will in effect *take their belief from the leader*” (*italics in original*, Bénabou 2009, 2). Needless to say, theories of policy change have so far failed to consider the possibility that beliefs, such as wishful thinking and reality avoidance, will become “infectious” through all part of the organization.

The literature review brings to the fore the importance of two analytical dimensions: (i) the effects of positive and negative events, and (ii) the effects of overestimation and accurate estimation of information. These dimensions are mutually exclusive: individual’s overconfidence exists in human behavior because people often have imperfect information about their own performances, abilities, or chances of success, and even worse information about others (Moore and Healy 2008), and groupthink is “[...] endogenously spread, horizontally and vertically, through all or part of the organization” (Bénabou 2009, 4). Attention now turns to a brief discussion of these dimensions.

NEGATIVE EVENTS

Negative events are defined as ones that have “the potential or actual ability to create adverse outcomes for the individual” (Taylor 1991, 67). According to Kasperson, Kasperson, Pidgeon and Slovic (2010, 332), such events “often take the form of specific, well-defined incidents,” as opposed to positive events that, “although sometimes visible, are often fussy or indistinct.” Negative events elicit strong and rapid psychological, cognitive, emotional and social responses (e.g. Taylor 1991; Johnson and Tversky 1983; Berscheid 1983; Diener and Emmons 1985). But which attributes of such events create a greater sense of fear? Scholars have found that the characteristics that are conducive to disproportionate fear include involuntary exposure, unfamiliarity, and invisibility (Stern 2002/03). In addition, disproportionate fear emerges when victims may not realize that they were exposed to particular risks, or when the effects of the risks are delayed, or when the mechanism of harm is poorly understood, or when long-term effects or the number of people likely to be affected is difficult to predict (Slovic, Fischhoff, and Lichtenstein 1980; Slovic 1987 quoted in Stern 2002/2003, 102). Stern has also suggested that certain risks, such as an attack with biological weapons, cause stronger emotional reactions compared to other risks because they generate feelings of dread, disgust and horror (Stern 2002/2003, 104-5).

Once negative emotions are brought into the picture, it is necessary to provide some nuance. Recent studies of, for example, anxiety and anger, have shown that negative emotions do not have uniform effects (Lerner, Gonzales, Small and Fischhoff 2003). Huddy, Feldman, Taber and Lahav (2005) corroborated these findings in their research on American attitudes toward war after 9/11. Based on a distinction between perceived threat and the anxiety it can elicit, they have shown that the minority of Americans who experienced high levels of anxiety in response to the

9/11 attacks were less supportive of aggressive military action against terrorists, less approving of President Bush, and were in fact more likely to favor increased American isolation. This finding is in line with psychology research indicating that anxiety leads to an overestimation of risk and risk-averse behavior (e.g., Lerner and Keltner 2000, 2001). The majority of Americans who perceived a high threat of future terrorism in the United States supported the Administration's antiterrorism policies. This finding is in line with psychological research indicating that external and perceived threats increase support for outwardly focused retaliatory action (e.g., Herrmann, Tetlock, and Visser 1999).

In light of these findings, we assume that overreacting policy makers are aware of this link, and therefore implement policies that increase external and perceived threat. A classic example is President Bush's issuance of terrorist alerts into the early months of 2002 (Huddy et al., 2005, 604). In addition, because of the intensity of the 9/11 events, we have to acknowledge the opposite possibility, namely that an event may contain positive and negative sub-events. These cases naturally weaken the analytical framework advanced here. We therefore assume that this framework is limited to events which are either strongly-positive or strongly-negative.

An additional nuance is related to the short-term vs. long-term impacts of negative/positive events in relationship to policy overreaction. Taylor (1991) highlighted asymmetrical reaction over time, i.e., short-term mobilization and long-term minimization. Although no single theoretical mechanism could explain the mobilization-minimization pattern (Taylor 1991), there has been no attempt to transcend lower-level responses (e.g., arousal and attention) and higher-level responses (e.g., judgment formation) to focus on exogenous factors which may impact upon both sets of responses (e.g., the media). Numerous studies have suggested that negative aspects of an object, event or choice are weighted more heavily than

positive aspects in judgments (Kahneman and Tversky 1984; for a comprehensive review of this literature, see: Taylor 1991, 69-71). In this respect, the media is no different than individuals. Just as individuals pay more attention and give greater weight to negative events, so does the media (Koren and Klein 1991; Slovic 1993). The extraordinary media coverage that such events generate in the short-term implies that public announcements and live-reporting of an on-going event disseminates instantaneously throughout the general public and to policy makers. In other words, every policy makers maker simultaneously receives more or less the same update. In the long-term, however, media interest declines as other issues top the agenda.

OVERESTIMATION OF INFORMATION

Regarding the asymmetrical effects of overestimation and accurate estimation of information, this theoretical framework is anchored in the literature on overconfident behavior and particularly in models in which overconfidence increases the perceived precision of information (*overprecision*) and the perceived ability, level of control and chances of success in solving the policy problems (*overestimation*) (Moore and Healy 2008, 502). These two confidence judgments are really one and the same for a single-item confidence judgment (Moore and Healy 2008). The fundamental assumption of the analytical framework advanced here is that major negative and positive events require first and foremost an overarching decision — similar to a single-item confidence judgment — regarding the direction of policy. In other words, when major negative or positive events occur, policy makers' beliefs that the information at their disposal is more reliable than it actually is (i.e., their precise subjective probability distribution in their heads), and their overestimation of their ability, performance, level of control or chances of success to resolve the policy problem, are indistinguishable.

The presence of group overconfidence would have implications for how organizations work. A policy maker who is overconfident in his or her social group may put less effort into looking outside his social group when searching new advisers. Overconfidence may also explain why policy makers often hire individuals to who they are connected in some way, as well as why decision-making groups often fail to draw on valuable outside information, even when that information could easily be obtained (Janis 1972). Recently, Healy and Offenberg (2007) found that “the overall magnitudes of individual and group confidence are approximately the same [...]” (p. 4). Given the asymmetric roles that exist in bureaucratic organizations and the finding that realism and denial trickle down from the leaders (Bénabou 2009, 1), when a number of interdependent policy makers interact within numerous overlapping, interlocking networks in the core executive, one can expect that they “will contagiously invest excessive *faith in a leader’s “vision”* (*italics in original*, Bénabou 2009, 18). The leader’s preferences that favor some activities or world views over others may serve as commitment device to reduce policy makers’ concerns over their status in the core executive (e.g., Rotemberg and Saloner 1993). The leader’s request from policy makers to seek new information may result in the latter obtaining information which is in line with the leader’s (expected) signal (e.g., Prendergast 1993). “Both mechanisms thus lead [policy makers] to “conform” their behavior to [the leader’s] prior beliefs (Bénabou 2009, n22). Given that policy makers believe they are more talented and competent than they actually are, have more control over the event at hand than they actually have, have more chances of success in solving the policy problems than they actually have, and perceive the information they possess as more precise than it actually is, the finding that the overall magnitudes of individual and group confidence are approximately the same (Healy and

Offenberg 2007) implies that organizations and institutions are not likely to be able to protect against the enthusiasm and/or misjudgment of policy makers.

As noted earlier, the ways objective reality is interpreted in organizations may be shaped by the actions of others. However, in extreme events, it is reasonable to expect that the availability of information may still play a role in the ability of policy makers to interpret objective reality. Most theories of overreaction place the availability of information and the potential need to invest in information acquisition at the heart of their study. They rely on the ways people assimilate information, distinguish between uninformed and informed people, and try to help overcome people's inherent information processing limitations (Schoemaker 2010, 58). Although politically relevant information is used and misused, in the modern era no person is dependent upon a single source of information in any policy area, however complex it may be. Furthermore, politically relevant information is more widely available than ever before (Aalberg, van Aelst and Curran 2010). Moreover, the live broadcast of critical events produces a situation wherein people, as well as policy makers, are awash with information, and provides "vivid images [that] can produce palpable overreactions" (Slovic, Peters and MacGregor 2002). This generalization, however, should be balanced by the findings that the flow of news and current affairs is lowest in the most commercially oriented television system and among the commercial TV channels (Aalberg, van Aelst and Curran 2010), and that "strongly held views will be "extraordinarily difficult to change by informational presentations [...] [whereas] when people lack strong prior opinions about a hazard, the opposite situation exists — they will be at the mercy of the way that the information is presented" (Slovic, Fischhoff and Lichtenstein 1984, 184).

ASSUMPTIONS

In addition to the aforementioned assumption, there are other assumptions that are related, among others, to policy makers' attention and decision biases. Psychologists have provided a great deal of evidence as proof that it is difficult to process numerous information sources and perform complex tasks at the same time. Based on this interfering effect of extraneous information, the analytical framework assumes that there is no neglect by policy makers of public information signals, and no competing signals that draw policy makers' attention away from a given case. It also assumes that public and private information arrives sequentially over time and is revealed symmetrically to the key policy makers. It further assumes that policy makers are proportionally influenced by information precision and the positive/negative nature of the event at hand, rather than disproportionately influenced by one at the expense of the other. Another assumption is that policy makers' considerations are not clouded by conservatism bias, and if so, they are able to undo this bias. Regarding policymakers' incentives, it assumes that the policy horizon is relatively short, hence no action may incur significant costs, even catastrophic ones.

MODES OF POLICY OVERREACTION

Four distinct types of policy overreaction emerge out of the aforementioned two dimensions. *Preemptive overreaction* emerges when policy makers overestimate information regarding a negative event; *regulatory overreaction* occurs when policy makers accurately estimate information regarding a negative event; "*calibrated*" *overreaction* emerges when policy makers overestimate information regarding a positive event; and *nearly-mandatory overreaction* occurs when policy makers accurately estimate information regarding a positive event.

The policy tools menu of each mode of policy overreaction is dominated by unique mechanisms for changing or coordinating the behavior of the general public which, once established, produce excessive social costs. Before turning to the mechanisms themselves, it is important to clarify the rationale underlying their creation by policy makers. Accurate estimation of information naturally leads to the establishment of mechanisms that enable intensive or sometimes even aggressive information searches. By contrast, overestimation of information is not likely to lead to a similar response because the longer the policy appears calibrated (Lichtenstein, Fischhoff and Lawrence 1982, 307), the more confident the policy makers become about the reliability of the information at their disposal. Negative events, especially those that trigger strong emotions and fears, may lead to the establishment of mechanisms that facilitate policy makers' responsiveness to public demand for too much policy or their ability to curtail such demand by a pre-emptive, dramatic policy act. Overestimation of information may lead to the creation of mechanisms that sustain policy continuity when the policy appears miscalibrated (e.g., mass media campaign). Positive events that result in policies with contested merit may require the establishment of mechanisms that facilitate the delivery of the policy to the highest number of people in the shortest period of time and enable to pacify or neutralize a public backlash (e.g., exemption mechanisms; on-going mass media campaign; information search, and so on).

To delve into the nuances of the distinct coordination patterns that characterize each mode of policy overreaction, the analytical framework relies on Stone's (2002) taxonomy of general mechanisms for changing or coordinating people's behavior, namely "inducement," "rules," "facts," "rights" and "powers." *Inducements* refer to "changing people's behavior with rewards and punishments or incentives and sanctions" (Stone 2002, 261). *Rules* refer to

“commands to act or not act in certain ways” (p. 261-2). They are divided into laws as well as social customs and traditions, informal norms, moral rules, and the rules and bylaws of private associations (p. 285). *Facts* refer to “strategies that rely principally on persuasion. They change people’s behavior by operating on their minds and their perceptions of the world [...]” (p. 262). This definition is extended here to include persuasion by talk, force and by spectacle (i.e., a show). *Rights* refer to “strategies that allow individuals, groups or organizations to invoke government power on their behalf [...]. Although rights must rest on authoritative rules from the state, they are a distinctive policy instrument in their heavy reliance on citizens for enforcement and their use of special adjudication process” (p. 262). *Power* refers to “strategies that seek to alter the content of decisions by shifting the power of decision making to different people [...] these strategies include changing the membership or size of policy making bodies, and shifting decision-making authority from one part of government to another” (p. 262).

Reliance on “inducement” measures is likely to have limited cost-effectiveness in the short-run. Although they can make at least some current problems less urgent, and the potential outcome of, say a public backlash, more costly, they carries a potential for excessive costs (Schachter 2010, 25). First, they can be interpreted as giving up to public criticism, thus leading to increased criticism in order to secure additional exemptions and/or to previously compliant groups to adopt non-compliance tactics in order to gain concessions (Schachter 2010, 26). Second, the aforementioned interpretation may set the stage for political opponents to level charges of giving in to the industry lobby, scientists, and so on (Schachter 2010, 26). If these cases materialize, policy makers will have to utilize more costly policy measures in order to ensure their policies are thoroughly implemented. “Facts” are also likely to have limited cost-effectiveness in the medium- and long-run because, as perception-dependent constructs (e.g.,

deterrence), they are prone to interpretation and hence may be subject to political, cultural and social manipulation. The cost-effectiveness of “rights” is context-dependent. Cost-effective citizen participation in regulatory/law enforcement, for example, depends on the existence of recognition of rights in the area at hand (e.g., right to a clean environment) and a citizen cause of action, clear standards, access to information, standing, and an independent and well-informed judiciary (International Network for Environmental Compliance and Enforcement 2008). The cost-effectiveness of official and informal “rules” as well as “power” (i.e., constitutional engineering) is also context-dependent as they derive their enormous power from legitimacy (Stone 2002, 286, 356).

Table 1 about here

Table 1 presents the four types of policy overreaction and their mechanisms for changing and coordinating people’s behavior. Although numerous mechanisms for influencing people’s behavior may be used in each type of policy overreaction, certain mechanisms will dominate the policy tools menu that is utilized.

In the case of *preemptive overreaction*, the most likely mechanism for changing or coordinating the behavior of people will be persuasion by talk, force or by a spectacle. Genuine preemptive overreaction occurs when policy makers overestimate a threat — believing it is an imminent threat (e.g., clear and present danger that the enemy country in question is about to attack you) — and take an aggressive step to neutralize it and deter the opponent from further hostile action.¹⁰ The direct and indirect routes to such overreaction has been elegantly described by Levi (1983), who argued that,

Exaggeration of the hostility of the adversary's intentions is the most common form of misperceptions. It derives from system-induced worst-case analysis, the tendency to define intentions in terms of available capabilities, diabolical images of adversary, and psychological constraints on information processing [...] There is a less direct but more common route to war which also stems from exaggerated perceptions of the adversary's hostility. Frequently, the response to perceived hostility is to increase military capabilities in order to deter aggression and to prepare for war in case that deterrence fails. Such actions may initiate a conflict spiral that escalates towards war. The escalation of the conflict spiral is particularly likely if the initial perceptions of hostility are erroneous, because the adversary is then quite apt to see the escalation as an indicator of aggressive intentions, which leads to compounding of misperceptions in a contagious process (1983, 88).

Manipulative preemptive overreaction is an attempt at gaining a strategic advantage in an allegedly unavoidable swing of public mood. To do so, policy makers will try to convey information that provides a new perspective on the event at hand, or in order to divert attention away from damning information related to said event.¹¹ At the outset, negative events evoke strong public emotions, and this, in turn, increases the policy makers' need for legitimization and the wish for credit claiming (Patt and Zeckhauser 2000; Sunstein and Zeckhauser 2010). This need and wish are exacerbated if a policy maker knows he or she is being observed while making a decision. According to Kleindorfer (2010, 72), "this will have predictable effects on the process and outcomes of decision making." To understand these effects, one has to recognize that "decisions could be aided by *re-valuing emotion goals in a different frame and by making more salient alternative plans* for dealing with strong emotion" (Krantz 2010, 67, *italics in*

original).¹² Policy makers may therefore try to regain control in the contest between frames and counterframes in order to “[...] impose their frames upon the public understanding of the crisis and its wider implications [...]” (Boin, McConnell and t’Hart 2008, 287). Given the importance of visual imagery in shaping people’s understanding of risk events, policy makers may look for proactive framing of crisis management, especially the use of non-language in the form of highly visual and dramatic information that is easily remembered (Ferreira, Boholm and Löfstedt 2001).

Opting for this type of preemptive overreaction, implies a decision to initiate a spectacle in order to provide a different frame for the interpretation of the event, or to divert attention to alternative facts in order to make the option of sitting at home and watching the powerful images of the disaster and the rescue operation more salient and attractive to the public. The idea here is to solely rely on “facts” of the spectacle in order to create the impression that the crisis is under control. The belief held by policy makers employing this mode of action is that shaken confidence can be restored through more intensive, credible and convincing communication at the confidence level (Siegrist, Gutscher and Keller 2007, 283). This implies that the “facts” refer not only to “the facts of the case” but also primarily to “knowledge about the concerns and values of [...] the target audience” (Siegrist, Gutscher and Keller 2007, 283).¹³ So, whereas in one context a declaration of responsibility or a broad public warning campaign may suffice, in another, a spectacle of leadership “under fire” is necessary to regain public trust, while in a further case, a spectacle related to other matters will do.

In the case of *regulatory overreaction*, all five mechanisms for changing or coordinating the general public are likely to be utilized in an attempt by the government to implement far-reaching regulation and supervision over large swaths of society, with particular emphasis on law enforcement, in response to a perceived (existential) threat. Policy makers will tend to initiate

processes of sensemaking, and, for that purpose, relevant information will be aggressively sought. A continuous search for information requires legal, technical and human infrastructure to support information search and exchange, cultural openness to new information, and an effective inference system capable of recognizing new signals and symbols (Feldman and March 1981) and of using mental models (Weick 1995). Such a need poses a distinct challenge for decision makers who must ensure reliable performance of information functions under stress in order to achieve coordination among a large number of actors who are engaged in the response to the negative event (Comfort 2002, 30). They have to develop continuous search and exchange processes in order to find out valid information upon which action can be undertaken. To do this, all five mechanisms are utilized so that enforcement agencies, as well as the general public, will scan the environment for information and use it to develop a plausible course of action in a turbulent context (Weick 2001; Weick and Sutcliffe 2001).

Regulatory overreaction therefore requires a rapid implementation of legislation that enhances the jurisdiction and powers of enforcement agencies, including intrusions into private life, access to confidential personal information, introduction of surveillance systems, background security checks, disclosure of personal or other sensitive information, tighter controls, house, bag and body searches, and other exceptional, far-reaching and often overtly authoritarian measures. Because policy makers fear a worst-case scenario, and therefore run the risk of doing too little, they encourage the general public to act as informants. They do so by increasing individual and organizational anxiety over the issue at hand, thereby increasing engagement in this area. Regulatory overreaction provides the general public with meaning and enabling capabilities, transforming not just their strategic behavior, but also their goals and abilities. The general public is encouraged to involve itself in a pro-active manner, hand-in-hand

with government agencies, to follow their instructions and maintain watch and ward over public spaces. The idea is to increase the subjective faith in one's own abilities to help government deal with the crisis, and to increase trust in elected officials and bureaucrats even if said citizen disagrees or does not understand their decisions. One way of doing this is to label those with divergent ideas as "soft on the issue at hand," as well as to undertake personal attacks and defamation against them. This may be complemented by a mobilization of political discipline and a vast rhetorical arsenal used to implement such changes.

Regulatory overreaction imposes objective and perceived social costs without producing offsetting benefits, both objective and perceived. Because policy makers fear a worst-case scenario and the public is afraid, the public will overpay for policies that promise a resolution of the policy problem (Friedman 2011). Negative emotion, furthermore, leads the public to demand too much policy (e.g., Friedman 2011). A policy spending boom is accompanied by funding that is channeled by politicians to their districts to make themselves look strong on the issues at hand, which may have little to no relation to the actual (negative) event. Spending also goes to fund the aggressive information search and the operational costs of all agencies created to cope with the event at hand. Laws and regulations undermining liberty are justified in light of the event at hand, and policy makers continue to search for more ways to resolve the policy problem, especially if additional events occur.

"Calibrated" overreaction revolves around the relationship of new ideas (i.e., positive events) to reality. Ideas — defined as "claims about descriptions of the world, causal relationships, or the normative legitimacy of certain actions (Parsons 2002, 48) — impact policy development (Béland 2009, 702). "First, such processes help to construct the problems and issues that enter the policy agenda. Second, ideational processes shape the assumptions that

impact the content of reform proposals. Third, these processes can become discursive weapons that participate in the construction of reform imperatives (Béland 2009, 702; see also Béland and Cox 2010). In a more general sense, new *ideas* include new *theories* and *models*. These three words are synonymous and are used here interchangeably.

Overestimation of information derived from a new model implies recognition by policy makers that the parameters of the model at hand guarantee that it precisely mimics some particular parameters of reality. Policy makers will rely on “facts”, “rights” and “power” in order to anchor the relevant experts who master the new model/theory at the core of the executive, ensuring that the all relevant policies are implemented in accordance with the model, undertaking regular assessments of the “calibrated” policy, and presenting them to the general public.

The longer the policy appears calibrated (Lichtenstein, Fischhoff and Lawrence 1982, 307) — that is, there is a relatively high correspondence between policy predictions and their actual occurrence — the more confident the policy makers become.¹⁴ Furthermore, the longer policy makers are confident and/or the judgment task is difficult, the more overconfident they become (Lichtenstein Fischhoff and Lawrence 1982, 315; Lichtenstein and Fischhoff 1977). Consequently, the public is presented with “facts” that it is encouraged to accept as “truths.” These “facts” may serve as “anchors” towards which people’s estimates are pulled (Tversky and Kahneman 1974). In addition, the more confident the policy maker becomes, the more inclined he or she is to publicly demonstrate leadership ability and executive authority.

In this type of overreaction, policy makers who support and advance the policy are never on the losing side of a vote. An important source of this policy weight is the reluctance among policy makers to challenge the policy proposed by the main policy maker (e.g., the President or the Prime Minister), who, in turn, relies on experts’ advice. The main policy maker/s come close

to dictating decisions, or unilaterally claiming agenda-setting rights and decision making rights while underweighting dissent and disagreement over policies. As long as the policy feedback is slow and “noisy,” there are long lags during which signals from the general public, private interests, legislators and bureaucrats are poorly utilized by the relevant policy maker. The general public and expert organizations have no incentive to acquire information in the absence of “noise” because they are faced with facts that are conveyed as “true” by policy makers and scholars. In other words, policy makers appear to perfectly aggregate all available information. Once signals become clearer, impartial overreaction will gradually grow to be perceived as a severe problem. Consequently, mechanisms may be established in order to “hide” this problem (e.g., media campaign) and to maintain policy continuity.

In the case of *Nearly-mandatory overreaction*, policy makers will tend to rely on “inducements”, “rules” and “facts” in an attempt to implement a contested policy program by (i) thrusting responsibility onto individuals (e.g., parents) and organizations close to the state (e.g., state schools), (ii) allowing wide opt-outs from the policy enacted in order to limit public backlash, and (iii) searching for information in order persuade the public regarding the merit of the policy. This type of policy overreaction also includes mandatory policy programs that are based on legislative trade-offs of rights that allow individuals to opt-out of the mandate without claiming an objection on any particular ground to the policy as a general matter. A classic example is the Virginia mandatory HPV mass vaccination (Palmer 2008, 655). Mandatory policies with no opt-outs do not fall under this category of policy overreaction, but may belong to any one of the aforementioned types of overreactions.

At the outset, as positive as an event may be, it may also be perceived as scientifically risky by some experts and some segments of the public (Pidgeon and Beatie 1998; Slovic 2000),

or one that creates ethical, personal, religious or philosophical problems. Under these conditions, the merit of the policy may be contested. The potential consequences of disagreements between policy experts or between experts and the general public — when lay people know something that the experts do not (e.g., Wynne 1992; see also Pidgeon, Hood, Jones, Turner and Gibons 1992; Slovic 1998, 2010) — lead policy makers to initiate the following steps: (i) generate anxiety and sometimes even panic among the targeted population (e.g., Connell and Hunt 2010); (ii) speedily press their heavily-subsidized policy mainly through institutions, which may be distinct from the state but operate in close proximity to it (e.g., state schools, state hospitals, army, prisons, workhouses, asylums and so on) and whose mode of operation include practices of discipline through professional training and repetition (i.e., informal “rules”); (iii) promote the intervention of responsible related others (parents, mothers, wives, community representatives, and so on) to intervene in the decision of the target audience to comply (informal “rules”), and (iv) search for information and utilize it in highly-focused educational campaigns directed at the members of the target institutions in order to generate powerful discursive legitimacy to the policy (“facts”), and (v) allow wide opt-outs in order to limit public backlash (“inducements”).

The next section illustrates the aforementioned modes of policy overreaction. These are illustrations and not case studies in a structured comparative research. They were selected because they differ so radically and starkly from each other so much so that the features of the analytical framework advanced here comes out clearly. Due to the page constraints in this paper, the illustrations remain at the general level. We therefore omit a comprehensive presentation of the environment, the actors, the interactions and the end result of each case. In other words, the following section is not strong in its use of methods. The interested reader will find such a presentation in the referenced literature for each case.

IV. ILLUSTRATIONS

An excellent example of *preemptive overreaction* can be found in the case of Israel's 2008 offensive against Hamas in the Gaza Strip, known as Operation Cast Lead. The advent of Operation Cast Lead occurred two years after the disappointing military performance by the Israel Defense Force (IDF) during the Second Lebanon War in 2006. After the Second Lebanon War, the top military leadership had been replaced, a reevaluation of combat tactics was undertaken, and a new plan for handling the media was formulated and executed (Caldwell et al 2009; Farquhar 2009). The Operation was a response to eight years of Hamas rocket fire on people living in southern Israel that had continued during the three years after Israel withdrew from Gaza, and for two months prior to the operation when 160 rockets and mortars were fired at Israel (Barak 2009). The decision of the Israeli government to embark on this operation was intended to defeat a perceived threat of Hamas launching hundreds of rockets at Israel during a military eruption on one of Israel's other borders (including Iran), as well to convince the Israeli public of the continued supremacy of the Israeli military (Schachter 2010).

Once the fighting began, media reports provided the Israeli public with a spectacle of decisive military might, which was especially manifested through the use of white phosphorous bombs to create smokescreens (Frenkel 2009). Only a few days into the Operation though, it became readily apparent that the Israeli military had overestimated the strength of Hamas' fighting force in nearly every area of military preparedness, and had thus launched a concentrated barrage of firepower that assumed a much stronger enemy than actually existed (Farquhar 2009, 72). An amount of force that was calibrated by the IDF to act as a deterrent against future action against Israel instead looked like a major coordinated assault on an ill-prepared and amateurish fighting force. As well, victim reports illustrated that even if Israel had

indeed learned how to limit civilian deaths, the ratio of Palestinian deaths (militants and civilians alike) to Israeli deaths was highly skewed (Platt 2009).¹⁵ An IDF interim Report of the fighting concluded that “IDF officers and defense experts [have] overestimated Hamas’ ballistic capabilities, which were said to allow the organization to launch up to 200 rockets per day while under fire from launcher-hunting Israel Air Force crafts” (IDF Interim Report, reported in Harel and Sinai 2009). The IDF and defense experts also simultaneously overestimated the signs of panic by residents of the targeted areas in the Negev (IDF Interim Report, reported in Harel and Sinai 2009).

A prime example of *regulatory overreaction* is the American response to the terrorist attacks of September 11, 2001, in which all five mechanisms for changing or coordinating behavior were utilized. In the immediate aftermath of 9/11, The U.S. military invaded Afghanistan and Iraq, which quickly reframed the situation in a way that portrayed the United States as avenger, as opposed to defenseless victim. For a nation that perceives itself as the dominant world power, this aggressive posture was clearly a more comfortable role to inhabit, and was bolstered in the public mind by moral absolutist rhetoric like “axis of evil” (Kassop 2003; Etzioni 2005). In terms of legislation, overwhelming majorities in Congress passed the *USA PATRIOT Act*, the most far-reaching and comprehensive response to a terrorist act in American history. The Act dramatically reduced restrictions on law enforcement agencies’ ability to search telephone, e-mail, medical and financial records, as well as homes or businesses without the permission or knowledge of the owner or occupant (Zakaria 2010a, b; Taylor 2003). The act also expanded the Secretary of the Treasury’s ability to regulate financial transactions, and authorized the indefinite detention and/or deportation of immigrants suspected of terrorism-related activity with little to no burden of proof. The legislation served to fundamentally redefine

terrorism in United States law to include domestic terrorism, which in turn allowed all of the above provisions to apply to the United States domestically (Andreas 2003; Baker 2003). The founding of the Department of Homeland Security (DHS), however, was the major structural power shift to come as a result of the events of 9/11. Since its start, the DHS has grown to become the third largest governmental department, after the Department of Veteran Affairs and the Department of Defense, with more than 200,000 employees. Some of the agencies which were “hurriedly pulled together into DHS in 2002 [such as the Federal Emergency Management Agency, and the Secret Service][...] are not primarily concerned with counterterrorism” (Friedman 2011, 84). The State Department, however, was given jurisdiction over the Rewards for Justice Program, the primary, much-touted rewards program for information regarding suspected terrorists or suspicious activity. In terms of budget, homeland security spending has grown from about \$12 billion in fiscal year 2000 to around \$66 billion for FY09 (Friedman 2011, 84). The specific DHS budget grew from \$31 billion in FY03 to \$55 billion in FY10 — over 45% growth after adjusting for inflation (Friedman2011, 84). These figures do not include the increase in state and local homeland security spending (Friedman 2011, 84).

A key example of “*calibrated*” *overreaction* is the application of a shock therapy marketization/transition model in post-Communist Russia during the early 1990s. The positive events are the evolution of the shock therapy model and the successful implementation of this model in Poland. At the outset, the shock therapy model was first championed by renowned economist and Nobel Laureate Milton Friedman, and then later by U.S. economist Jeffrey Sachs of Harvard University (Nelson and Kuzes 1995, 87) and Swedish economist Anders Åslund. By the time Boris Yeltsin and Prime Minister Egor Gaider, a renowned economist and free market advocate himself (Tompson 2002), were considering utilizing the shock therapy model in order

to quickly transform Russia's highly centralized structure into a liberalized, market economy, Sachs and Åslund had already successfully advised other Eastern European and South American countries in using shock therapy to transform their own economies and had thus amplified the reputation of both themselves and the shock therapy model. The general consensus amongst world economists in regards to transitioning countries into market economies was that there were two ways to go about doing this: through gradualism, which would slowly reform and privatize the Russian market over time, and through shock therapy, the new and much-touted model that advocated simultaneous privatization, liberalization, and institution-building within a very short period of time (Marangos 2003; Pickel and Wiesenthal 1997, 72). Yeltsin, on the advice of Gaider, who was impressed by the signs of early success particularly in Poland, chose to implement shock therapy on the premise that it would create a much more politically advantageous situation for himself in which the economy would be hit hard for a short period of time and then would steadily improve (Medvedev 2000, 15-16), a forecast delivered by Western advisors. On October 28, 1991, Yeltsin addressed the Congress of People's Deputies in a landmark speech in which he outlined the plan for implementation of shock therapy and set expectations for the path that lay ahead. At the beginning of November, Congress authorized Yeltsin to begin implementing his shock therapy plan by voting him special powers to issue mandatory decrees (Nelson and Kuzes 1995, 35). Economists in Russia, however, were more than wary, due to the still somewhat unproven nature of shock therapy in the long term and in large, complicated centralized economies, and due to the unique situation in Russia that made it a less than ideal candidate, much different than Poland (Azizian 1999; Medvedev 2000, 43-45). The decision, however, was taken out of their hands and Western economists, including Jeffrey Sachs and Anders Åslund, were brought in to advise the program (Tompson 2002; Medvedev

2000, 15; Angner 2006). Companies of all varieties formerly owned by the government were hastily privatized, and citizens were given special vouchers in order to buy into these new private enterprises, and as a trade-off for the near total loss of private savings as a result of price stabilization efforts (Nelson and Kuzes 1995). However, within less than a year confusion and corruption had seeped in and it became abundantly clear that Russia was on a disastrous course (Cudahy 2010; Nelson and Kuzes 1995), even as the Yeltsin government continued to recalibrate the program and to assure optimism as to its eventual success. As Russian economists had predicted, Russian workers were for the most part ill-equipped to run the enterprises in which they had previously worked, and had little understanding of the nature or process of private investment. At the same time, IMF investment requirements that Russia was asked to meet in order to receive Western funding necessary for success exacerbated internal issues by constraining the options available to fully tailor the program to fit moment-by-moment needs (Nelson and Kuzes 1994), thus ensuring that Gaider and Yeltsin were heavily constrained in their ability to fully address problems that arose specific to the Russian situation.

An example of *near-mandatory overreaction* can be found in the human papillomavirus (HPV) vaccination across the UK which started in 2008. At the outset, HPV can cause all varieties of cervical cancer and genital warts. (NCSL 2011). There are more than 30 strains of HPV and two scientific breakthroughs that show high efficacy in treating some of them: one vaccine (*Cervavix*) protects patients against the two strains of HPV (types 16 and 18) responsible for 70% of cervical cancer cases, and another vaccine (*Gardasil*) offers additional protection against HPV types 6 and 11, which cause over 90% of genital warts cases (NCSL 2011; Cuzik, Castanon and Sasieni 2010). HPV, unlike measles, mumps, or rubella, is only transmitted through sexual contact and is thus not in danger of causing an epidemic, the primary reason for

mandating compulsory vaccinations (Colgrove 2006). As well, there was some fear that as effective as the HPV vaccine appeared from initial testing, there were still a number of unknowns relating to its long-term safety, particularly for preteen girls who only made up 1,184 out of 25,000 patients in the clinical trial (Vamos and McDermott 2008). In addition, females can benefit from two complementary modalities to prevent disease and death due to HPV infection and cervical cancer: Pap screening as well as surgical or medical treatment of cancer (Connell and Hunt 2010).

In 2008, a recommendation was made by the Joint Committee on Vaccination and Immunisation to begin routine vaccination. Two national programs of HPV vaccination for girls have been instituted since September 2008: a routine program for 12 and 13-year-olds and a catch-up program for 17-18-year-olds. The cervical cancer vaccine that does not protect against genital warts was chosen by the Department of Health although at that time both vaccines were available. The arrangements for administering the vaccine were devolved to local Primary Care Trusts (PCTs), most of whom followed the Joint Committee's recommendation in opting for school-based delivery of the routine program (Kumar and Whynes 2011, 172). The decision to opt for school-based delivery provided a clear-cut solution to the challenge of this vaccination program, namely its acceptability by adolescents. The "organized vaccination program during normal school hours reduces the need for personal effort to virtually zero" (Kumar and Whynes 2011, 176). Indeed, data for the first full year of the scheme indicated that around 88% of girls in England who are eligible received the first dose of the vaccine.

Given the low public awareness of HPV and its link to cervical cancer (Waller, McCaffery and Wardle 2004), an educational campaign was initiated, including an information sheet with details on HPV and its links to cervical cancer, educational DVDs for girls, and a

consent form for parents. Those who refused vaccination were asked to state the reason on these forms (Stretch, Chambers, Wittaker, Critchley, Jackson, Montgomery, Roberts and Brabin 2008). However, parents could either write down the reason for their refusal, or withdraw the consent verbally. In addition, individual and joint school parents' evenings were organized during which parents and girls were invited to attend information evenings, and school nurses ran education sessions (Stretch et al. 2008). A few catholic schools refused to participate in the vaccination campaign, and the scheduled vaccination session was re-located to a local health center. The fact that the educational campaign had been undertaken in schools is rather important because "mass media has a key role to play in the perceived desirability and acceptability of vaccines, and hence a key determinant of the uptake of HPV vaccination program will be the media coverage it receives" (Hilton, Hunt, Langan, Bedford and Petticrew 2010, 943). As long as gaps in parents and girls' understanding of the benefits and risks of a vaccine are bridged by in-school educational campaigns, there is a relatively low probability that adverse publicity about the safety of immunization and fear-inducing messages will reach the national media. The resulting powerful discursive legitimacy increases acceptability rate. The aforementioned experience has not being unique to the UK. Australia and Canada have executed mass HPV vaccination campaigns along similar lines (e.g., Connell and Hunt 2010).¹⁶

Although it is generally considered unprofessional for political scientists to base their analytical frameworks on a description of relatively few illustrations, it may have been justified to bring to the attention of the readers the aforementioned illustrations because the term "overreaction" carries immense psychological freight and because the aforementioned illustrations indicate that the analytical framework devised here is not farfetched.

V. CONCLUSIONS

Most scholars of policy apparently do not seem to appreciate the need to theoretically understand policy anomalies. Perhaps the reason for this lies in the little attention paid by policy scholars to the psychological patterns that animate policy makers' ideas and behavior, and their tendency to relate policy decisions to institutional and contextual factors, ideas and thought patterns, individual motivations and interests, and so on.¹⁷ Insofar as policy overreaction exists in any polity at some point in time, an analytical description of how the policy process works must consider psychological factors, however fluid they may be. In producing an analytical framework that describes modes of policy overreaction and their mechanisms for coordinating the behavior of people, this paper bridges the current gap in the policy literature and explains the rationale underlying different modes of policy overreaction. Specifically, this paper is a theoretical exploration of the relationship between overconfidence (at the individual and group levels) and emotions on the one hand, and policy overreaction, on the other. It focuses on two hitherto unexplored attributes of policy: (i) the effects of positive and negative events, and (ii) the effects of overestimation and accurate estimation of information. Building on a few assumptions, the paper explains the propensity to develop different mechanisms for the coordination of people's behavior, which, once established, produce excessive social costs.

Could we now say with some reliability and some precision what is an overreaction and what is not? For "low probability, high consequence" negative events, all activities that deviate from objective and subjective caution could be considered policy overreaction. Cautious policy — the mirror image of policy overreaction — involves an investment in avoiding new disasters and making social and economic systems as well as individuals' mental health less vulnerable should they occur. It requires policy makers to look closely at the intersection between security/preparedness/prevention and risk coverage mechanisms (e.g., making insurance

coverage available and affordable), spend more time in monitoring economic, social and individuals' mental developments, and assure that the largest number of inhabitants in high risk areas are actually prepared. Undermining the beliefs of residents that disasters will not happen to them, with the derived consequence of them not investing in cost-effective mitigation measures, is an integral part of cautious disaster-preparedness policy. Special loans, premium discounts and tax refunds are all legitimate policy tools utilized in this policy. Such policy can replace unreliable government rhetoric and "cheap talk" information-elicitation devices (e.g., surveys) before such events occur, and gross overreaction when they do. Classifying policy overreaction — which is the aim of this paper — is the first step to keep it under control since different types of this phenomenon can be named and analyzed.

Before attention turns to the agenda for future research, there is a need to briefly wrestle with the problem of empirical research. Measuring the link between overconfidence and groupthink, on the one hand, and policy choices, on the other, should be guided by the hypothesis that higher degree of policy makers' overconfidence and groupthink leads to significant policy activity as long as past policy payoffs are a proxy for overconfidence, dissension in relevant governmental committees a proxy of the degree of consensus among policy makers, and policy changes within a short span of time a proxy for policy activity. A variation of policy activity over positive and negative events may validate the typology advanced here. A focus on monetary policy perfectly fits such a research due to the disagreements about the desirability of activist policy which are derived from the conflicting views about the preciseness with which policy makers can assess the contemporaneous state of the economy (Cesarini, Sandewall and Johannesson 2006, 454). Another proxy for overconfidence may be gender, because higher degree of overconfidence and groupthink were found among men than

among women (Barber and Odean 2001). Cabinet reshuffles made by a prime minister may be considered as an investment decision, and therefore may serve as a window into his or her beliefs on the cabinet's value and its post-reshuffle prospects. The rationale of this indicator is that doing numerous reshuffles over a short span of time is itself a bad idea and a likely indicator of overconfidence. Prime ministers engaging in multiple cabinet reshuffles within a short period of time may tend to overestimate their ability to select able and competent cabinet members.

Future research may systematically examine modes of overreaction in specific policy sectors, expecting they will vary along worldviews within policy domains. One may also examine modes of policy overreaction in relation to policy moods (Kingdon 1995) and the “thermostat” model (Wlezien 1995). Related to that, one may rely on impression formation theories from social psychology in order to examine how members of the public make judgments about policy makers' overreactions. Another avenue is the link between policy overreaction and advocacy coalitions (Weible and Sabatier 2009), which may be seeking to institutionalize their preferences in the policy (overreaction) enacted. One may also explore the potentially positive and negative attributes of policy overreaction.

Future research may also adopt a fundamentally different approach, and instead of focusing on the psychology and cognitive biases of the individual policy maker, it may look at the contextual factors within which policy maker operates. Attention to psychological, cultural, historical, geographical and technological contexts does not clutter the explanation advanced here but, on the contrary, promotes in depth knowledge of the phenomenon under studied. Relatedly, one may look at the interaction between heterogeneous but bounded rational policy makers. This is because “Confidence is not just the emotional state of an individual. It is a view of other people's confidence, and of other people's perceptions of other people's confidence. It is

also a view of the world – a popular model of current events, a public understanding of the mechanism of economic change as informed by the news media and by popular discussions” (Akerlof and Shiller 2009, 55). This research direction may distinguish between policy makers who could each bring to the process some subset of the available public information, or between those who are privy to private signals about the case at hand.

Another avenue is to look at learning from policy overreaction by focusing on the quality of policy feedback (i.e., information precision and timeliness), and the consequences of policy overreaction in terms of the penalty imposed on policy makers by the general public. The extent to which the public is tolerant to policy errors when information is precise and timely may provide an indication as to the inclination of policy makers to avoid overreaction in future cases. Another path for future research may focus on a distinction between types of information produced by different events which may give way to a hypothesis that policy overreaction to one type of information may be distinct from policy overreaction to information of another type. A further possible direction may focus on the magnitude of policy overreaction and the variance across contexts of the subsequent correction/s in the long run. Future research may also look for patterns of policy overreaction cycles.

There is therefore reasonable ground to believe that a focus on the asymmetrical effects of positive and negative events and the overconfidence of policy makers regarding the precision of their information hold great promise in explaining the different modes of policy overreaction and their mechanisms for the coordination of people’s behavior. It is hoped that future research will benefit from the analytical framework advanced here and will continue to investigate the role of confidence and emotions in public policy dynamics.

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TABLE 1. MANIFESTATIONS OF POLICY OVERREACTIONS

<i>Types of Overreaction</i>	<i>Mechanisms for Changing and Coordinating People's Behavior</i>				
	<u>Inducement</u>	<u>Rules</u>	<u>Facts</u>	<u>Rights</u>	<u>Power</u>
Preemptive	—	—	+	—	—
Regulatory	+	+	+	+	+
“Calibrated”	—	—	+	+	+
Nearly-mandated	+	+	+	—	—

¹ Egypt's Pigs: What a Waste, *The Economist* 7 May, 2009; Swing Flu in Egypt: Panic or Foresight? *The Economist* 1 October 2009.

² Although overreaction is defined differently depending on the discipline and field, the shared meaning that has been proposed still revolves around excessive response.

³ The Phillip Curve represents the relationship between the rate of inflation and the unemployment rate.

⁴ For overviews of the relevant psychology literature on overconfidence, see Odean (1998) and Daniel, Hirshleifer and Subrahmanyam (1998).

⁵ For criticism of overconfidence research, see, for example, Gigerenzer (1991).

⁶ A classic example of overprediction is Dick Cheney's *One Percent Doctrine*, namely if there's a one percent chance that Pakistani scientists are helping al-Qaeda build or develop a nuclear weapon, the USA has to treat it as a certainty in terms of its response (Suskind 2007).

⁷ The most influential findings on the aforementioned patterns could be found in Griffin and Brenner (2004) who present five competing psychological accounts of probability calibration — optimistic overconfidence, confirmatory bias, case-based judgment, ecological models and error models.

⁸ On event concepts, see Casati and Varzi (2008).

⁹ This definition is a combination of Bierschbach and Stein's (2005, n. 2) definition of overenforcement and an interpretative strand. For the long running tension in policy analysis between the objective and interpretative strands of policy assessment, see Bovens, 't Hart and Kuipers (2006), as well as McConnell (2011).

¹⁰ Framing of an event as an imminent threat does not fall under this category. HIV/AIDS

message that we “all” at risk for HIV because of an epidemic of sizeable proportion springs in mind (Fitzpatrick and Milligan 1987; Fitzpatrick 2001).

¹¹ For the rich tapestry of persuasive techniques, see, Simon and Jones (2011).

¹² See also Fischhoff, Pidgeon and Fisks (1983).

¹³ The “spectacle” approach may actually be efficient, if the policy maker is right about public opinion, or if the big show actually distracts people from the problem. The “spectacle” would still be an overreaction because it would have mainly political benefits for the policy maker who gets it right or successfully takes credit.

¹⁴ For a review of theoretical perspectives on calibration, see, Griffin and Brenner (2004).

¹⁵ Israel's 22-day war on Gaza resulted in approximately 1300 Palestinian deaths

¹⁶ In Australia, nearly 70% of women under 28 were vaccinated with Gardasil, which has already proven to be effective in cutting cases of genital warts. Recent data show that new cases of genital warts among young women fell to almost a quarter of pre-campaign levels after three years. By contrast, in England, no significant change in genital warts was recorded, with 91,000 new cases (with the cost of €366 per female incident case) diagnosed each year (British Association for Sexual Health and HIV 2011). Both vaccines were available in 2008, and anger over the decision of the UK Department of Health to chose only a cervical cancer vaccine was recorded immediately after (Hawkes 2008).

¹⁷ Notable exceptions could be found in Pidgeon and Gregory (2004).