Policy Anti-Bubbles:
Policy Underreaction and Self-Reinforcing Processes*

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Abstract. This paper develops both the concept of policy anti-bubble and the analytical contours of its life-cycle dynamics by building on the behavioral theories of human choice and organization, as well as on robust findings in psychology, indicating that pessimism and negative affects exert a great deal of influence on decision making and risk-taking. A policy anti-bubble is a real and/or perceived policy underreaction which is propelled by self-reinforcing processes over an extended period of time. The behavioral understanding of the term advanced here points at a possible process by which different valences of affective states, situational factors, specific emotions, cultural or geographical factors, trigger the emergence of policy anti-bubbles. Self-reinforcing processes interact with the contagion of ideas and emotions to reinforce the lack of confidence in the policy, thereby leading to the undersupply of policy. This process may be interrupted following modest endogenous or exogenous perturbations, as well as following the reduction in negativity bias when the information environment becomes predominantly negative.

Keywords. Policy underreaction, Emotions, Pessimism, Contagion, Self-reinforcing processes, Human herding

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This paper conceptualizes chronic policy underreaction, such as the response of the U.S. federal government to the developments that led to the sub-prime crisis. The analysis is motivated by theoretical and empirical concerns on three fronts. First, standard studies of policy change emphasize incrementalism (Lindblom 1959), status quo (Tsebelis 2002) and path dependency (Pierson 2004) on the one hand, and sudden punctuations (Baumgartner and Jones 2009), on the other. However, they devote no attention to situations wherein policymakers, facing increased risks which involve escalating repeated warnings over an extended period of time and cannot therefore be blamed for disproportionate information processing (Jones and Baumgartner 2005), respond in a way that does not match the severity of the risk over the same period of time.

Second, a seminal study of public opinion and public policy suggests that, on average, the public adjusts its preferences for more or less policy in a way similar to a thermostat (Wlezien 1995; Soroka and Wlezien 2010). This model raises gaps which can be captured by the following questions: How can one explain cases where the general public supports less government spending for an extended period of time – and policymakers adjust spending accordingly – although the severity of the policy problem increases? How can one explain cases where the general public supports more spending for an extended period of time – during which the severity of the problem increases – but policymakers reduce spending?¹

Third, standard studies of the policy process point to the importance of emotions. Notable examples are studies dealing with the role of emotion in policy image (Kingdon 1995), emotion as a gateway to selective attention (Jones and Baumgartner 2005), and the emotional quality of a policy idea (Cox and Béland 2013). These studies ignore the
question of how the state of a particular (negative) emotion towards a particular policy can change over time, and to what extent such changes impact upon the supply of the policy at hand. These questions should be central to our field, but are not.

The modest aim of this paper is to develop both the concept of policy anti-bubble and the analytical contours of its life-cycle dynamics. A policy anti-bubble is a real and/or perceived policy underreaction or underinvestment which is propelled by self-reinforcing processes over an extended period of time. Policy underreaction refers to “systematically slow and/or insufficient response by policymakers to increased risk or opportunity, or no response at all” (Maor 2013, 3). Only the pursuit of such policies against existing knowledge to the contrary (i.e., the best available evidence at the time the policy is enacted) over an extended period of time should be considered a policy anti-bubble. This implies that not every policy response that is found to be an underreaction long after its enactment should be considered a policy anti-bubble. It also implies that wrongly adopting such a policy over an extended period of time due to a lack of correct scientific knowledge is not a policy anti-bubble. Although the definitions advanced here may refer to any given public policy, related policies may also become anti-bubbles as a result of self-reinforcing processes.

The paper builds on the behavioral theories of human choice and organization (Jones 2001; Jones and Thomas 2013), as well as on robust findings in psychology, indicating that pessimism and negative affects exert a great deal of influence on decision making and risk-taking (e.g., Chang, Chang, and Sanna 2009, 495). The argument advanced is that policy anti-bubbles may emerge as a result of disproportionate information processing by policymakers over an extended period of time (Jones and
Baumgartner 2005); when there is a wide gap between the level of benefits for different segments of society or for different actors in a polity (e.g., society at large vs. private firms), especially when this gap is accompanied by a significant risk and/or the presence of moral hazard in pursuing this policy, and when policymakers decide to free ride on international spillover in a particular policy field, rather than invest in this field.

The behavioral understanding of the term advanced here points to a possible process by which policy anti-bubbles may also occur when pessimism and/or negative emotions (e.g., fear, anxiety, sadness, grief, anger and hostility) pervade the policy system and/or sub-system in the wake of a sudden crisis or in a slow-motion mode; when situational factors – such as the vividness with which negative events are described or represented mentally (Damasio 1994; Hendrickx, Vlek and Oppewal 1989) – take hold in public opinion, or when specific emotions (e.g., fear and anxiety) lead individuals to make pessimistic risk assessments or select low risk/low reward options. In addition, negative news and/or social information (e.g., rumors, stigma, etc.) may lead people who belong to collectivist cultures (e.g., Asians or those who live in extreme climatic and geographical conditions) to expect worse outcomes for themselves, thereby triggering the emergence of a policy anti-bubble (Chang and Asakawa 2003; Chang, Chang and Sanna 2009; Tavassoli 2009; Triandis 1995). Self-reinforcing processes are thereafter integrated in a model of human herding as the key factor that propels the persistence of a policy anti-bubble. These processes interact with the contagion of ideas and negative emotions and with the mobilization of pessimism by elected and unelected policy entrepreneurs (Kingdon 1995) to reinforce the lack of confidence in the policy, thereby leading to the undersupply of policy. This process may be interrupted following modest perturbations.
(Pierson 2004), such as endogenous (e.g., a shift in public attention or declining pessimism) or exogenous ones (e.g., positive external events), as well as following a reduction in negativity bias when the information environment becomes predominantly negative (Soroka 2014).

This study lays the groundwork for thinking about policy anti-bubbles, and thereby, for theoretically answering the questions regarding a chronic undersupply of a public policy. It gives the concept of policy anti-bubble a robust analytical identity by conceptualizing it, and building a theory of what causes policy anti-bubbles and why they may likely be sustained for an extend period of time. The concept advanced here, in combination with the concepts of policy overreaction (Maor 2012), policy underreaction (Maor 2013), and policy bubbles (Jones, Thomas and Wolfe 2014; Maor 2014), create an emerging research agenda for both policy scientists and political psychologists, and lay the foundation for the study of the dynamics of non-proportional policy response.

The article proceeds as follows. The second section elaborates on the concept of policy underreaction and its measurement. The third section provides a rationale for integrating affect and emotion as sources of bias, rather than adaptation, in public policy processes. The fourth discusses the causes of the birth of policy anti-bubbles. The fifth elaborates on the self-reinforcing processes which interact with the contagion of ideas and emotions to reinforce the lack of confidence in the policy – an interaction which is at the heart of any policy anti-bubble. The sixth elaborates on the measurement of this phenomenon, and the final section presents an agenda for future research.

**Policy Underreaction and Its Measurements**
The concept of an anti-bubble originated as a term in physics to denote gas-liquid shells in which air tends to rise to the top, making the skin thinnest and most vulnerable at the bottom. This definition is not enlightening and therefore, it is not used in public policy and political science discussions. However, the term is common in finance where it refers to decelerating market devaluations following all-time highs (Johansen and Sornette 1999; See also Sornette 2003). This process may be propelled by pessimism (Johansen and Sornette 1999), or by some mechanism which produces positive gains to those who quickly sell the asset to others at a higher price.

A causal-explanatory understanding of a term requires defining “a concept by what explains it, or by what it explains” (Gerring 2001, 74). Opting for the former, the definition of policy anti-bubble specified earlier focuses on its origin and includes three components: (i) a real and/or perceived undersupply of a policy at the start of the anti-bubble or at an early stage of its development; (ii) a mechanism that shapes and sustains it as well as influencing its transformation, and (iii) a sufficient period through which the mechanism has to operate so that an anti-bubble will emerge. A policy anti-bubble always involves policy underreaction because of its self-reinforcing nature. According to Maor (2013), policy underreaction is a policy whose actual net utility is smaller than the counterfactual net utility, i.e., the net utility which may have occurred if there had been a response, and if this response had been sufficient and timely. Actual net utility refers to the difference between the actual objective and subjective benefits which are derived from the policy enacted, and the actual objective and subjective costs derived from this policy choice. Counterfactual net utility refers to the difference between the objective and subjective benefits that would have occurred if there had been a response, and if so, if this
response had been sufficient and timely, and the objective and subjective costs that would have been incurred if there had been a response, and if so, if this response had been sufficient and timely.

How can we know a policy anti-bubble if we see one? At the outset, there is, no doubt, difficulty in understanding what constitutes a policy underreaction over an extended period of time because of methodological problems, differing benchmarks and perceptions, variance over time, and more. I would argue that neglecting policy underreaction for reasons such as these is akin to refusing to engage in research where no perfect answers exist. In my opinion, the way forward involves an incremental, step-by-step move in the hope that we will be able to advance our understanding of the topic at hand.

Based on the definition advanced here, policy underreaction may be assessed by cost-benefit analysis and by subjective evaluations (i.e., perceptions) over time. Policy underreaction may also be measured by a comparison of policy outcomes with (national or international) standards developed by experts. For example, a government air quality policy may be compared with the World Health Organization’s recommendations for air quality standards which were developed by an international group of experts (e.g., Tosun 2013). Policy underinvestment over an extended period of time – a sub-category of policy anti-bubble – can be measured, for example, by international benchmarking of countries’ policies (e.g., Ezell and Atkinson 2011), and a comparison of investment intensities in public policies, that is, gross investment expenditures as a percentage of GDP (e.g., Tassey 2010). What we need for calculating this is the marginal effects of policy, rather than its average effects; well-defined outcomes which are targeted via policy and are
therefore part and parcel of policy statistics and are context-sensitive, as well as field-sensitive analyses of the data because low public investment/GDP rations, for example, do not have the same effect for every country and for every field in the policy sector under examination (e.g., Trajtenberg 2012).

**Why We Seek to Integrate Affect and Emotion in the Study of Policy Dynamics?**

Thought processes, decisions and everyday behaviors may be significantly affected by emotion and affect (Simon 1945). At the outset, dual models of information processing differentiate between the cognitive and affective systems (e.g., Finucane et al. 2002; Kahneman 2011). The former is analytical, slow and governed by rules and normative thought (Kahneman and Frederick 2002), whereas the latter is reflexive and quick as it relies on images, associative links and experiences rather than on thinking. Although the cognitive system may be able to detect biases caused by the affective system, for example, once exposed to statistical information (Kahneman 2011), time constraints and multi-tasking reduces its ability to do so (Isen and Geva 1987).

Emotion and affect influence behavior in two distinct ways. First, people anticipate and factor in their likely feelings about the potential consequences of different modes of actions. Second, people may be influenced by immediate emotions experienced at the moment of choice (e.g., Rick and Loewenstein 2010). Two interrelated streams of research ─ one concerns affect (i.e., good/bad feelings) which is represented by the affect heuristic, and another concerns affect-as-information ─ provide ample evidence of the impact affect and emotion have on subjective probabilities, value, and risk-benefit balance (for a review, see: Finucane 2013). The affect heuristic refers to people’s
tendency to base their judgment of a product, activity or policy on what they think and feel about it (e.g., Finucane, Alhakami, Slovic and Johnson 2000, 5). “If they feel good about a [policy], they tend to judge risks as low and benefits as high; if they feel bad about it, they may judge the opposite […]” (Peters 2011, 90). This tendency has been recorded by numerous political scientists and sociologists. For example, the emotional quality of an idea (i.e., its valence) explains why some ideas are more successful than others (Cox and Béland 2013).

The *affect-as-information* literature “asserts that affective reactions serve as information about what one likes or dislikes” (Clore and Palmer 2009, 22). According to this line of thought, Zajonc (1980, 1984), Bargh (1984) and LeDoux (1996) have demonstrated that affective reactions to stimuli are faster than cognitive evaluation, and therefore provide a crude assessment of the behavioral options people face. These assessments guide cognitive processes toward potentially high-priority concerns (e.g., Armony, Servan-Schreiber, Cohen and LeDoux 1997; de Becker 1997). The direct impact of affect on attitudes was also evident in the positive relationship recorded between positive affect and problem solving abilities (e.g., Ashby, Isen and Turken 1999; Isen 2001, 2010). Emotional arousal, for example, increases the accuracy and efficiency of decision making processes (Clore and Storbeck 2006).

An additional stream of research which tries to understand of the impact of specific feelings on decision making processes — the *Theory of Affective Intelligence* (Marcus, Sullivan, Theiss-Morse, and Wood 1995; Marcus, Neuman, and MacKuen 2000) — has produced some interesting findings. Fear and anxiety, for example, were found to trigger a surveillance processing system and thereby increase information
seeking and deliberation. Anger was found to be leading to heuristic or simplified decision-making (Bodenhausen, Sheppard, and Kramer 1994), as well as to a bias in favor of negative information (Huddy Feldman, and Cassese forthcoming). Perhaps most relevant to the concept developed here, Geva and Skorick (2006) incorporated emotion in the model of Cognitive Calculus of Decision (Geva, Mayhar, and Skorick 2000). They argued that “[…] negative emotions (e.g., fear and anger) reduce the cognitive capacity thereby decreasing the amount of information acquired and processed per choice [and that] these emotions introduce a thematic bias that affect the relevance of the information in correspondence with the theme of the emotion […]” (Geva and Garcia 2013, 7).

Among affects with the most powerful impact on humans, psychologists have demonstrated that “optimism and pessimism exert a great deal of influence on decision making, risk-taking, and physical and mental health” (Chang, Chang and Sanna 2009, 495). Johnson and Tversky (1983) have shown that people who read happy newspaper articles subsequently view adverse events as less likely, whilst those who read sad newspaper articles view such events as more likely. Antoniou, Doukas and Subrahmanym (2013, 1) have concluded that “in general, positive sentiment results in overly optimistic views, and vice versa” (see also Bower 1981, 1991; Wright and Bower 1992). The discussion so far implies that if the goal of policy scholars is to explain why people do what they do (Lupia, McCubbins and Popkin 2000, 7), people’s affect and emotion regarding the policy at hand must be integrated into their analytical frameworks. Attention now turns to a conceptual account of the emergence, growth and termination of a policy anti-bubble.
How Do Policy Anti-Bubbles Start?

Policy anti-bubbles may emerge as a result of disproportionate information processing by policymakers over an extended period of time (Jones and Baumgartner 2005). Long-term underestimation, by policymakers and the organizations they inhabit, of the strength of information indicating the severity of a policy problem, may lead to a misalignment between the attention they pay to the problem and the objective indicators of that problem (Jones 2001; Jones and Baumgartner 2005). This may occur, for example, due to the complexity of the policy problem (e.g., Tassey 2005). A policy anti-bubble may also emerge when there is a wide gap between the rates of policy benefits for different segments of society or for different actors in a polity (e.g., society at large vs. private firms), especially when this gap is accompanied by significant risk and/or the presence of moral hazard in pursuing this policy (e.g., Margolis and Kammen 1999). This path of the evolution of an anti-bubble signifies a calculated move by policymakers aimed at blocking one social group or an actor from asymmetrically reaping the benefits derived from a particular policy. A classic example is the long-term underinvestment in science and technology policies, possibly opening a wide gap between social and private rates of return on inventive activities, which, when coupled with a relatively high level of risk and the moral hazard in financing R&D, results in long-term underinvestment of policymakers in R&D (e.g., Tassey 2005; Trajtenberg 2012). Another calculated move by policymakers to underinvest in a policy for an extended period of time is the decision to free ride on international spillover, a common practice of many countries in the R&D policy area (e.g., Tassey 2005).
The behavioral understanding of the term advanced here points to a possible process by which policy anti-bubbles may occur when pessimism and/or negative emotions (e.g., fear, anxiety, sadness, grief, anger and hostility) pervade the policy system and/or sub-system in the wake of a sudden crisis or in a slow-motion mode. This process, especially when accompanied by a causal story (Stone 2001) and/or social construction (Schneider and Ingram 1993; 1997), may lead to the policy rules, policy tools and/or target populations (Schneider 2013, 223) being undervalued. This, in turn, may lead policymakers to choose an undersupply of this policy. This analogy is in line with inquiries into the impacts affective states have had on decision making which have compared different valences of affective states, that is, positive vs. negative vs. neutral (e.g., Arkes, Herren and Isen 1988; Isen and Geva 1987; Wright and Bower 1992). Focusing on negative affective states, Raghunathan and Pham (1999, 56-7) have emphasized three important streams of findings. First, negative affect may color the content of people’s decisions, that is, induce greater negativity into their judgments (e.g., Johnson and Tversky 1983; Carson and Adams 1980). Second, it may alter the process through which people make decisions, that is, interfere with people’s information processing (e.g., Ellis and Ashbrook 1988; Eysenck 1982). And third, it may influence decisions by shaping decision makers’ motives, for example, by introducing a concern for uplifting one’s mood (e.g., Morris and Reilly 1987; Zillmann 1988).

The aforementioned analogy is also in line with studies on the influence of affective states on public mood, defined as “the affective state that captures how individuals feel about the society in which they live” (Rahn 2000, 131) as well as on policy mood, defined as the general dispositions of the public regarding a public policy
Mood influences whether people focus on the forest or on the trees (Zadra and Clore 2011, 3): People in a negative mood tend to adopt a local perceptual style, as opposed to global perception generated by a positive mood (Gasper and Clore 2002). The fact that certain policies may generate negative emotional reaction (Cox and Béland 2013, 315) and negative mood, combined with the findings that policy mood has been an important determinant of U.S. public policy (e.g., Page and Shapiro 1983; Wlezien 1995; Erickson, MacKuen, and Stimson 2002; see also Burstein 2003 for a review) as well as policies of other governments (e.g., Franklin and Wlezien 1997; Quinn and Toyoda 2007), indicate the potential outcomes which may be derived from policy anti-bubbles generated by these psychological factors.

The birth of policy anti-bubbles may also be related to the finding that risk-related feelings and cognitive evaluations may not have identical or similar consequences for people’s behavior (Loewenstein, Weber, Hsee, and Welch 2001). In other words, risky decision making does not have to be essentially a cognitive activity, involving objective measures of outcomes (e.g., probability, severity, and so on). People’s emotional reaction to risk may depend, for example, on the vividness with which events are described or represented mentally (Damasio 1994), or on the personal exposure to or experience with outcomes (Loewenstein, Weber, Hsee, and Welch 2001, 275-6). These factors can determine emotional reactions to future outcomes. Let us elaborate this point with regard to the vividness of cases when social panics are concerned (Loewenstein, Weber, Hsee, and Welch 2001, 278-9). Panics at the societal level are usually set off by highly vivid cases that lead to concentrated media attention (Weinstein 1989, 46; Loewenstein, Weber, Hsee, and Welch 2001, 279). A hysterical reaction to immunization, for example,
may be accompanied by concentrated public concern which relies on a very few vivid cases of adverse effects. This, in turn, may lead people to avoid immunization — a response which is detached from any real change in the underlying risk. Later, the panic may abruptly dissipate following a sudden collapse of public concern. This example implies that a policy anti-bubble may be triggered by feelings, especially the interaction between anxiety, fear and subjective probabilities (e.g., David and Wessely 1995; Wessely 1987), or by exposure to a vividly frightening rumor.

To complicate matters, cultural differences between Europe and North America, on the one hand, and Eastern (Asian) countries, on the other, may also play a role in the emergence of different policy anti-bubbles. At the outset, Western cultures revolve around individualistic values, emphasizing the needs of the self over others (e.g., Greenwald 1980). Asian cultures, on the other hand, are considered collectivist, given their emphasis on group happiness and the happiness of significant others over the needs of the self (e.g., Markus and Kitayama 1991). In addition, extreme climate and geographical conditions may foster collectivist social orientation “through their limiting and motivating influence in social processes (e.g., the amount of time spent indoor), dependence on technology and economic activity” (Tavassoli 2009, 211; see also: Hofstede 1980; Triandis 1995). The need for disciplined behavior and personal control may foster cultural tightness, which, in turn, impacts upon individual behavior (Triandis 1995).

Because collectivist cultures promote self-criticism, defined as “a general sensitivity to negative self-relevant information” (Chang, Chang and Sanna 2009, 500), the tendency to expect worse outcomes for oneself versus others is prevalent among
Asian people (e.g., Chang and Asakawa 2003). Thus, “[…] Asians may be more pessimistically biased than European Americans” (Chang, Chang and Sanna 2009, 500; see also Chang 1996a, b, 2002; Hardin and Leong 2005). The Asian’s general sensitivity to negative self-relevant information, combined with the finding that high pessimism appears to be linked to feelings of hopelessness (Chang 2002), may be of importance in the early stages of anti-bubble birth. Negative news and/or social information (e.g., rumors, stigma, etc.) may lead people who belong to collectivist cultures to expect worse outcomes for themselves, thereby triggering the emergence of a policy anti-bubble. Under such circumstances, the policy anti-bubble may “travel” to states sharing a collectivist culture, thereby reflecting the vulnerability of one country to events that occur in other countries. This process is commonly known as international contagion (e.g., Claessens and Forbes 2004). Attention turns now to the feedback mechanism that propels the growth of a policy anti-bubble.

**How Do Policy Anti-Bubbles Grow?**

For a policy anti-bubble to grow, pessimism and/or overpessimism, other negative feelings, and collective delusions (e.g., willful blindness or information avoidance) and hysteria should propel self-reinforcement processes. These phenomena, which may emerge following negative events, behaviors, and information, and, due to the relative strength of negativity, may exert a long-lasting impact on memory (e.g., Ybarra and Stephen 1996) and psychological distress (Wells, Hobfolls, and Lavin 1999), as well as powerful effects on daily mood (David, Green, Martin, and Suls 1997), forecasting (Gilbert, Pinel, Wilson, Blumberg and Wheatley 1998), neurological processes (Smith,
Cacioppo, Larsen, and Chatrand 2003), and physiological ones (Taylor 1991). When accompanied by loss aversion behavior (e.g., Tversky, Slovic, and Kahneman 1990), people may tend to have stronger short-term reactions to negative events, behavior and information.

Emotional states can affect people’s cognitive assessment of risk (e.g., Johnson and Tversky 1983). “These cognitive evaluations, in turn, can affect the individual’s emotional states. Because these effects exert reciprocal self-reinforcing influences, there is a potential for self-reinforcing feedback effects” (Loewenstein, Weber, Hsee, and Welch 2001, 278). According to Lang (1995), for example, fear increases arousal and this, in turn, increases new fear. Furthermore, (collective) depression in the aftermath of a disaster may preclude attention and action. This may also characterize states in which important positive reinforcers regarding a particular policy, such as positive news, have been absent for a considerable time. In general, pessimism and over-pessimism as well as other negative emotions may trickle down from policymakers to the general public (or vice versa), subduing people’s appetite for risk and high expectations, thereby leading to the gradual inflation of a policy anti-bubble.

The longer the policy appears calibrated (Lichtenstein, Fishhoff, and Phillips 1981, 307) — that is, there is a relatively high correspondence between pessimistic policy predictions and their actual occurrence — the more over-pessimistic the policymakers become. The same process may occur with the general public. Policymakers and individuals who are over-pessimistic may put less effort into looking outside their social group when searching for new sources of information. They may also fail to draw on valuable outside information, even when that information could easily be obtained (Janis
In this “willful blindness”, “mounting warning signals [are] systematically cast aside or met with denial, evidence avoided or selectively reinterpreted, dissenters shunned” (Bénabou 2011, 1). Situations which are vulnerable to the development of such overly pessimistic expectations by policy makers and the general public may be recorded during catastrophic events, national grief, national and international failures, and so on. Such conditions, as well as weakening confidence in government leaders and political institutions, may render mobilization of pessimism possible. Undercurrents of anger and dissatisfaction amongst interested groups as well as previously uninterested groups may be mobilized by elected and/or unelected policy entrepreneurs (Kingdon 1995), outside the domain of political elites and government officials. Negative valence of media coverage regarding the policy at hand which may be accompanied by strategic manipulation of policy image is likely to precede changes in patterns of mobilization. A call for the government to turn its attention away from an issue and to block further allocation of resources may broaden the scope of a pessimistic and skeptical debate and undo long-standing institutions related to the policy at hand.

Serial Information Processing

Another mechanism which is generally responsible for self-reinforcing processes is serial information processing (Simon 1990). Attentional limitation implies that people cannot possibly be attuned to all the information available and to all dimensions of choice at any time. Once people pay attention to limited and/or negative information regarding the policy at hand, their decision to avoid the policy is determined. Afterwards, attention is shifted toward new issues — a movement termed “serial shift” (Jones 1994) — as new
information and dimensions of choice emerge. Self-reinforcing processes at the individual level are heavily affected by attention shifting (Baumgartner and Jones 2002). But how do individual-level regularities of emotion and perception get transmitted to organizations, political institutions and societies? Attention now turns to ideational and emotional contagion, and to human herding.

_Ideational and Emotional Contagion_

A move from parallel to serial processing is always accompanied by participants’ emotional arousal (Jones 1994), which, in turn, may result in shifts in attentiveness. When these shifts involve a public policy surrounded by negativity, emotional and ideational contagion may emerge. Person-to-person contagion of thought, spurred by a negative event or a change in the mode of thinking, may amplify pessimistic stories, rumors and stigmas regarding the policy, thereby feeding a policy anti-bubble. “Just as diseases spread through contagion, so does confidence, or the lack of confidence […] Epidemics of confidence or epidemics of pessimism may arise mysteriously simply because there was a change in the contagion rate of certain modes of thinking” (Akerlof and Shiller 2009, 56). As a policy is bashed, the demand for the policy declines faster and faster, reinforcing the stories and the common wisdom about the value of the policy, imbuing stories about the policy with no-go signs, and reaffirming people’s mental models (Ostrom 2005) regarding the policy at hand. Because people rarely make decisions in a social vacuum, the informational value of these stories becomes detrimental to the growth of a policy anti-bubble. Here, emotions may enter into the fray, affecting people’s choices in the relevant policy sub-system. In anti-bubbly situations, a
feeling prevails that everything can go wrong with a policy. When people’s confidence is weak and pessimism mushrooms, people’s activity in relation to the policy at hand will be subdued.

_Herd Behavior_

The most common decisions regarding people’s activity in a given policy area involve choosing a policy alternative and acting upon it, responding to a policy’s ability to affect goals, to the policy’s idea and to the policy’s symbolic meaning, and influencing policy making by demanding more or less policy. These decisions require information, some of which may be learned from others (e.g., institutions, friends, family and neighbors) through communication and persuasion, as well as through mimicking and cue-taking (Baumgartner and Jones 2002). As the lack of confidence in the policy and pessimism spread via emotional and ideational contagion, herding may emerge. “Herding occurs when individuals’ private information is overwhelmed by the influence of public information about the decisions of a herd or group” (Baddeley, Burke, Schultz and Tobler 2010, 2). In the case of policy anti-bubbles, sources of herding may include excessive pessimism and extreme risk aversion (e.g., Minsky 1986), uncertainty (Baddeley 2013, 227), and negative emotions, such as fear (Baddeley 2013, 229) and anxiety, a situation which “does not allow effective means of coping” (Öhman 2010, 724). In these situations, self-reinforcing processes gain explanatory force when there are strong sources of herding (e.g., Asch 1952; Banerjee 1992; Scharfstein and Stein 1990). Herding therefore constitutes an essential element in policy anti-bubbles. Self-reinforcing processes involve a correlation between human herding and policy payoffs. As long as
there is anticipation for lower policy payoffs, self-reinforcing processes of low hopes overcome self-correcting processes of high expectations. However, since persistent policy cost cannot occur forever, elements of diminishing returns, at some point in time, are bound to replace these self-reinforcing processes. Policy costs are likely to decline, and the policy anti-bubble may gradually or abruptly burst. Let us look briefly at lock-in effects and the role of the media before explaining the burst of policy anti-bubbles.

**Lock-in Effect and the Role of the Media**

Self-reinforcing processes may result in a lock-in effect (Pierson 2004) which occurs when policy underreaction deepens due to self-reinforcement. This may occur, for example, when external threats or shock paralyze decision makers, thereby leading to the maintenance of the status quo. Furthermore, loss aversion behavior (e.g., Tversky, Slovic, and Kahneman 1990), blame avoidance considerations (Weaver 1986; Hood 2010), problem denial (Cobb and Ross 1997), and congealed preferences (Riker 1980) may all make policy reversal very difficult. The establishment of coalitions which share deep beliefs and coordination patterns (Sabatier and Jenkins-Smith 1993, 1007), and the establishment of policy monopolies (Baumgartner and Jones 2009) may have the same effect. Self-reinforcement may also occur when people internalize the causal story which is strategically communicated by policy actors and shapes the policy problem (Stone 2011), and when they become emotionally and/or cognitively committed to the policy (underreaction) at hand. It may also emerge when government commitment to undersupplying the policy becomes the status quo due to bureaucratic incentives, when entrenched interests protect their gains from the undersupply of the policy.
The role of the media in underemphasizing or undermining the worth of policy, thereby creating a lock-in effect, is of paramount importance. The media may demote a policy by intensively reporting negative news about it and creating a disinvestment culture around it. For example, the U.S. media has intensively covered environmental disasters such as the Exxon Valdez oil spill in 1989, but has ignored successful implementation of environmental regulation, such as the improvement of U.S. surface water quality since 1960 (e.g., Lake Erie along with other waterways) and air quality since 1970 (Bailey 1993, 2002; Koger and Winter 2010, 20). Given that the media does have an influence on governing elites when salient issues directly experienced by the public are concerned (Soroka 2002), and that it has an influence on the salience of particular issues (McCombs 2005), one could reasonably expect that the negative information generated by the media might result in the undersupply of policy. The fact that media content, public opinion, and the design of political institutions tend to focus on negative information (Soroka 2014) may further exacerbate this process. According to an alternative causal path, commonly known as indexing theory (e.g., Bennett 1990; for empirical support see: Jones and Wolfe 2010), politicians, who may gain from the undersupply of policy, tell the media to write about the poor performance of the policy, the streams of costs derived from the policy, the policy’s negative forecasts, and so on. Politicians, according to this line of explanation, may manipulate the magnitude of negativity bias.

Negative information, supplemented by other sources, may contribute to the creation of familiarity bias (Tversky and Kahneman 1974), letting people think that they know and understand the intricate details of a policy. It may also create emotional
detachment from the policy, a decrease in the dispersion of opinions in society, and the formation of more pessimistic and/or over-pessimistic assessments of the policy. This process may be accelerated when intertwined with shifts in the socialization of negative emotions, that is, when these emotions are culturally scripted as to “when” to feel and “how” to express these feelings (e.g., Gordon 1981; Peterson 2006).

The creation of disenchantment with the policy and lowering expectation regarding its future may furthermore let people believe that the policy offers no potential, and that it will create streams of costs to those who subscribe to it. The derived skepticism may persuade people that the policy may be moving in one direction only, and this, in turn, may subsequently lead to self-reinforcing processes with the effects of degenerative policy spirals (Schneider and Ingaham 1997) and undersupply of the policy. In addition, lack of media attention and policy activities may also become entangled in cyclical feedback processes as it may lead to less policymaking activity, which, in turn, may lead to no media and public attention. A lock-in effect (and therefore, a policy anti-bubble) may therefore occur under the radar of the media. This may occur by slow-moving processes, when people’s pessimism or over-pessimism is amplified by self-attribution bias (e.g., Gervais and Odean 2001) and the illusions of control (Langer 1975), rather than by the media coverage of the policy at hand. Needless to say, different policy anti-bubbles are likely to have different self-reinforcing mechanisms, and the processes which are by and large responsible for these mechanisms may operate independently of one another.

**How Do Policy Anti-bubbles Burst?**
The cyclical process described above remains the same until self-reinforcing processes are interrupted or terminated. This may occur even following modest perturbations (Pierson 2004) for various reasons, such as endogenous (e.g., a shift in public attention, declining pessimism) as well as exogenous ones (e.g., positive external events). It may also occur because negativity bias shifts in periods of predominantly positive or negative information (Soroka 2014). According to Soroka (2014, 48):

The negativity bias is reduced when the information environment becomes predominantly negative. This helps explain why we are not endlessly negative – at the same point, when things are particularly bad, we start focusing on the positive. This finding opens up the possibility that negativity in politics is self-correcting.

A policy anti-bubble therefore embodies a self-reinforcing loop as a result of which, the deviation between the proportionate and non-proportionate policy response is amplified, and when the momentum of this loop is interrupted, the anti-bubble bursts. The burst of a policy anti-bubble can wreak havoc on the policy system, especially if the government is unable to meet the sudden growing demand for the policy at hand. The more severe the consequences of anti-bubble burst are, the more relevant the burst of the bubble is. Modeling the aforementioned dynamics is a major challenge facing policy scientists.

**Identifying Policy Anti-Bubbles**

A policy anti-bubble may be measured in similar ways to a bubble, but in the context of this article, one has to measure persistent negative news, pessimism and lack of confidence in the policy. An *attentional perspective* involves measuring the valence of
congressional/parliamentary and media concerns, and public opinion regarding the policy at hand, preferably over 50 years or more. A policy anti-bubble will be identified if congress/parliament, the media or public opinion builds up pessimistic concerns regarding a public policy and the others then follow. To gauge the anti-bubble effects, these trends may be compared with the budget allocation to the policy at hand over the same period (Jones 2001; Jones, Thomas, and Wolfe forthcoming). A transmission perspective for the identification of a policy anti-bubble involves measuring the operation of different transmission mechanisms in human herding. I refer here particularly to mechanisms by which people infer other people’s beliefs. Here, sentiment analysis of verbal and non-verbal communication in social networks, especially instant messaging, may capture emotional and social contagion (e.g., Feldman 2013). The process whereby social contagion spreads throughout social networks can also be investigated by using formal analysis, simulation, and data mining (Barash 2011). Finally, an attitudinal perspective for the identification of a policy anti-bubble revolves around studying pessimistic expectations and individuals’ lack of confidence through time (Shiller 2000). This can be done by distributing a questionnaire to a random sample of the population, experts in the relevant policy sub-field, as well as decision makers, and to compare the results across time and nations.

Conclusions

This paper provides theoretical support for the claims that different valences of affective states, situational factors, specific emotions, as well as cultural or geographical factors, trigger the emergence of policy anti-bubbles especially when accompanied by a causal
story (Stone 2001) and/or social construction (Schneider and Ingram 1993). The paper also supplies theoretical backing for the assertion that the key mechanisms for the growth of a policy anti-bubble are self-reinforcing and interact with the contagion of ideas and emotions to reinforce the lack of confidence in the policy, that various policy anti-bubbles may have different self-reinforcing mechanisms, that a policy anti-bubble cannot be sustained forever, and that a policy anti-bubble always involves undersupply of policy because it is self-reinforcing. To the best of my knowledge, these points have not been made before. If they are valid, and so are the conceptual arguments arrived at in studies of policy overreaction (Maor 2012), policy underreaction (Maor 2013) and policy bubbles (Jones, Thomas and Wolfe 2014; Maor 2014), this would suggest that there may be a coherent analytical framework of non-proportionate policy response. Deriving testable hypotheses from this analytical framework may be a daunting task.

Empirical scientists bent on testing concrete hypotheses regarding policy anti-bubble can try to gauge how cognitive and emotional factors interact to explain this phenomenon. In addition, because policy anti-bubbles may be deliberately cultivated in some policy systems and/or sub-systems, future research may delve into the nuances of policy makers’ reasons for doing so. Students of public policy can also focus on emotional and ideational contagion as the route from policy underreaction to policy anti-bubble. Emphasizing the appraisal process in the emergence of emotional contagion and taking into account a multitude of additional factors (e.g., habitual behavior dispositions, context, and situational constraints), one could look at how the state of emotion towards a particular policy changes over time, and the extent to which such changes impact upon the supply of the policy at hand. One may also test how public policies vary at the
starting point of the causal path leading to emotional contagion, and how policy events, situations, “stimuli” or person-policy interaction trigger emotional contagion which revolves around a specific policy. One could test the hypothesis that variation in policy familiarity generates different causal routes by which people develop action tendencies, physiological responses, expressive behavior and feelings towards public policies. This is because the more encounters people have with policies, the more automatic emotions become. One may also examine the role of goal congruence, coping potential and agency involvement in processes of emotional contagion around a particular policy. Using experimental manipulation that produces emotion-free and emotion-related policy outcomes, one may gauge the way people appraise information generated by the media regarding policy performance, the streams of costs derived from the policy, and the negative forecasts of the policy. Thereafter, one may examine the impact of people’s appraisals of the policy on their self-reported subjective experiences and the impact of these experiences on their demand for more or less policy. Based on between-cultures differences on optimism and pessimism, one may also examine how policy anti-bubbles follow a different pattern in the East vs. the West.

A different approach revolves around the description of emotion specifications (Clore and Ortony 2013). Here, the focus is less on emotional patterns of response (i.e., a process model) and more on the policy situations they represent. One may distinguish between policy outcomes, policy strategies, and target populations. One can be happy or sad about policy outcomes, can be proud or ashamed of policy strategies, and can like or dislike the target populations. The challenge of this approach is to distinguish emotions in
terms of their core situational meanings and to comprehend the extent to which they reflect reactions for coping with particular policy situations.

Another exciting direction for research may be based on two robust findings in psychology, namely, *negativity bias* (e.g., Taylor 1991; Skowronski and Carlston 1989), and *situationally determined optimism and pessimism* [or a combination of the situational component with the dispositional (e.g., genetically determined) one] (e.g., Chang, Bodem, Sanna, and Fabian 2011). These insights may bring to the fore two analytical dimensions of decision making in situations in which risk unfolds over time: (i) the valence of new information, and (ii) the degree of individual pessimism. Based on these variables, future research may hypothesize that people gripped by waves of pessimism, adjust their behavior differently, depending on the valence of new information they are exposed to and on their degree of pessimism. The more negative the valence is, the more people adopt a cautious pessimistic mindset and/or move from a cautious pessimistic mindset to a pessimistic or an overpessimistic one.
Bibliography


These gaps may be related to the facts that the value of a policy may be determined by rational as well as by political considerations (Kay 2014), and that policies may be valued or devalued for reasons which are unrelated to their ability to affect goals (Adelman 1964, 1988). Indeed, an analysis of 24 policy episodes in four sectors in six countries from the mid-1970s to the early 1990s has revealed that political evaluation of some public policies is often weakly related or completely unrelated to their programmatic performance (Bovens, ‘t Hart, and Peters 2001).

The most accepted definition of pessimism is Scheier and Carver’s (1985) view of this term as generalized negative outcome expectancies. Pessimism is most commonly viewed as inherently maladaptive, and related to detriments such as depressive symptoms, negative affect and psychological stress (Chang 1998; Chang, Chang and Sanna 2009, 496)

According to Finucane, Peters, and Slovic (2003, 328), affect refers to ““goodness” or “badness” (1) experienced as a feeling state […] (2) demarcating a positive or negative quality of a specific stimulus […]. Unlike emotion, we view affect as having the capacity to be subtle and to be without elaborate appraisal properties; unlike mood, we view affect as having a direct (rather than indirect) motivational effect”. Affect is therefore distinguished from emotion, which generally refers to particular feelings (e.g., sadness, anger) that are “intense, short-lived, and usually have a definite cause and clear cognitive content” (Forgas 1992, 230). Affect is also distinguished from mood which refers to feelings with low intensity, lasting a few minutes or several weeks and lacking a specific cause (Isen 1997).
It is important to recognize that “[…] from affect-as-information perspective, the critical factor is not affect itself, but its information value” (Clore and Palmer 2008, 26). This, in turn, depends on tacit attributions about the source and apparent meaning of the effect (Schwartz and Clore 1983; Clore and Storbeck 2006), as well as on contextual factors (Martin 2001).

For criticism on this stream of research, see Nadeau, Niemi, and Amato (1995), and Valentino, Hutchings, Banks, and Davis (2008).

Visual misrepresentations fall squarely under this category (e.g., Gilens 1999).

A network analysis has many advantages for measuring the diffusion of ideas, among which is the conceptualization of attitudes as interdependent. Scholars may undertake a qualitative and quantitative analysis of a combination of sociocentric (i.e., whole network) and egocentric (i.e., personal networks) data by applying network disturbance models which are derived from geographic, spatial analysis (e.g., Dow 1984; Dow, Burton and White 1982) and network effects models which focuses on adjustment to perceived values in an ego’s social context (Dow 2007). Regarding emotional contagion, scholars have often measured this construct by employing the Emotional Contagion Scale, or by assessing the extent to which people mimic others’ facial, vocal, and postural expressions and/or come to share other’s emotions (Hatfield, Forbes and Rapson 2014).

For neuroeconomic analyses of social learning and conformity specifically in the context of financial herding, see Baddeley (2013, 227-229).