

## The "Inherent Vices" of Policy Design: Uncertainty, Maliciousness, and Noncompliance

Michael Howlett 101,\* and Ching Leong<sup>2</sup>

Policy designs must not only "work" in the sense of accomplishing their goals but must also work in their intended fashion. Most research to date has focused on the former topic and dwells on the technical aspects of how various tools and instruments could be utilized to achieve the aims and goals of policymakers. This branch of research tends to underemphasize the difficulties inherent to policy making including policy contexts that are often highly uncertain, policymakers who fall short of an idealized version of high capacity, well-intentioned decisionmakers grappling with relevant public problems, and policy-takers who fail to comply with government wishes. These "inherent vices" of policy making are factors which contribute to policy volatility or the risk of policy failure. The paper stresses the need for improved risk management and mitigation strategies in policy formulation and policy designs to take these risks into account. It sets out and develops an approach borrowed from product failure management (in manufacturing) and portfolio management (in finance) to help better assess and manage these risks.

KEY WORDS: Public policy; risk analysis; uncertainty

## 1. INTRODUCTION: POLICY DESIGN AND THE INHERENT PROPENSITY OF POLICIES TO FAIL

"Inherent Vice — an exclusion found in most property insurance policies eliminating coverage for loss caused by a quality in property that causes it to damage or destroy itself."

International Risk Management Institute Glossary of Terms

"This glittering mosaic of doubt".

Thomas Pynchon, Inherent Vice (2009)

There are many problems in policy making that affect policy outcomes and serve as sources of failure

or harbingers of success (McConnell, 2010). These "policy risks" range from unpreparedness in agendasetting to nonlearning in policy evaluation and include poor decision making, policy implementation as well as problems in policy formulation (Howlett, 2012).

Policy "risk," however, is larger than this. That is, even if these tendencies - some already well-observed and researched in fields such as micro- and behavioral economics (Chapman, Milkman, Rand, Rogers, & Thaler, 2021; Friedman, 2002; Thaler, 2018) - toward poor preparation and nonlearning are constrained, there remain other risks of failure inherent in policy solutions which should inform policy designs but currently do not do so in a profound enough way

Studies of policy design to date instead have focused almost exclusively on activities which take place under assumptions of the "right" design conditions. Classical forms of policy analysis are nested within a tradition of policy design which has a

<sup>&</sup>lt;sup>1</sup>Department of Political Science, Simon Fraser University, Burnaby, British Columbia, Canada.

<sup>&</sup>lt;sup>2</sup>Lee Kuan Yew School of Public Policy, National University of Singapore, Singapore.

<sup>\*</sup>Address correspondence to Michael Howlett, Department of Political Science, Simon Fraser University, Burnaby BC Canada; howlett@sfu.ca

purposeful, instrumental character, where knowledge of the impact of specific policy tools is combined with government capacities to identify and implement the most suitable technical means to achieve a specific aim.

Put another way, this involves thinking about designs and designing where "positive" policy spaces allow policy making to be driven by knowledge and good intentions and where high levels of government legitimacy mean a high likelihood that the resulting policies will be obeyed by their targets among the population (Howlett, 2020a; Howlett & Mukherjee, 2017). In such situations of "optimal" design spaces (Chindarkar, Howlett, & Ramesh, 2017), policy formulation may be all about ensuring best knowledge or present-day evidence is marshaled toward developing policies with a high level of confidence that these will "work." That is, that they will be effective in altering target behavior in a manner which complies with government wishes so that policy expectations are met in the manner anticipated (Peters et al., 2018).

But these conditions of well-intentioned and well-informed governments and accommodating policy targets are often sorely lacking in practice (Howlett, 2020a, b; Jarvis & LeGrand, 2018). Not only are government decisions often undertaken in conditions of high uncertainty (Manski, 2011), but designs must deal with adverse behavior on the part of both policymakers and policy-takers (Cox, 2019; Howlett, 2021; 2020).

Policy designs need to address these "internal" policy risks head-on. The possibility not just of uncertainty—a perennial problem highlighted in the literature on wicked problems, for example (Levin, Cashore, Bernstein, & Auld, 2012)—but also that policymakers are often driven by malicious or venal motivations rather than socially beneficial or disinterested ones, and that policy targets have proclivities toward activities such as gaming, free-ridership, and rent-seeking rather than complying with government intentions (Howlett, 2020; Taylor, 2021) are omnipresent concerns that work to undermine policy effectiveness.

These tendencies must be curbed if even well-intentioned policies are to achieve their aims, and policy analysts need a conceptual framework allowing them to better grapple with, and avoid, these sources of policy volatility (Dudley & Xie, 2020; Feldman, 2018; Hoppe, 2017; Viscusi & Gayer, 2018a).

This article builds on research in the areas of risk and risk management to show how analysts and decisionmakers can deal with these kinds of risks. It shows how these internal types of risks need to be better identified and managed if policy designs are to be effective (Dudley et al., 2020). Toward this end, insights from other fields such as financial management and product manufacturing can be put to good use in the effort to mitigate these neglected or misunderstood risks.

# 2. THE INHERENT VICES OF POLICY DESIGN-UNPREPAREDNESS, UNCERTAINTY, MALICIOUSNESS, NONCOMPLIANCE, AND NONLEARNING

In the sense in which it is used in the insurance industry, an "inherent vice" is the quality of any substance or object which causes it to self-destruct, whether quickly or slowly (Rodda, 1949). Such vices are defined in relation to the risk they face—in art pieces, it could be a function of time or the unstable structure of the art piece itself, due to the paint or materials used; in maritime law it may be about the perishable nature of live animals, fruits, or grains or even simply the tendency of ships to sink (Mirowski, 2010; Rupprecht, 2016). The vice is inherent in the nature of the thing itself—the tendency of a paper-based archive to deteriorate over time as inks fade, or paper yellows and dries out, or of a cargo of fruit to rot. Insurers typically exclude these vices from compensations, meaning carriers and contractors must bear the burden of these risks themselves and guard against them. For example, tankers sailing in reef-filled waters can be designed with double-hulling and document archives can include electronic or nonpaper archives. Just as in the case of maritime conduct or art preservation, understanding the inherent sources of policy failure is important to policy design and to the development of measures to correct, offset or at least mitigate such risks (Howlett, 2012).

The extent to which these aspects of policy making feature in or affect a policy design can be said to constitute the "volatility" of that policy design or "mix" (Howlett & del Rio, 2015; Rogge & Reichardt, 2016). The idea of volatility is also present in the financial industry, with stock portfolio volatility being correlated with their risk profiles. Some policy mixes contain more risks than others and highly volatile mixes can be contrasted with more stable tools and mixes in which designs are more likely to approximate the ideal image often set out in the literature on the subject.

Designs featuring volatile portfolios require additional efforts to be made to offset that volatility or hedge against it, meaning the inclusion of more and different kinds of tools to bolster the primary set (Bali, Howlett, & Ramesh, 2021). When a policy requires the use of tools that are often subject to gaming, fraud, or misrepresentation, for example, additional procedural tools are required to build in accountability, monitoring, and auditing functions, so as to allow such policy mixes to operate effectively in the face of such vices (Blanc, 2018).

The five key risks listed in Table I are *inherent* in the sense that they are built into public policy making. These include "unpreparedness" "uncertainty," "maliciousness," "noncompliance," and "nonlearning" (Howlett, 2000; Lang, 2016).

While these are all important sources of policy failure, "unpreparedness" has been the subject of much work on foresight and issue management in government (Leigh, 2003; van der Steen & Twist, 2013) while "nonlearning" has long been in the bailiwick, and sights, of policy evaluation researchers (Wholey, Hatry, & Newcomer, 2010) and these risks are realtively well-known and managed against. The three neglected aspects of inherent policy-making risk within the policy literature are the uncertainties which exist around policy problems, malicious decision making, and the effects of poor public compliance with government intentions on policy outcomes (Howlett & Mukherjee, 2019; 2017a). Students of other fields such as public administration, comparative government, and specific areas such as tax policy have dealt with them for some time (Braithwaite, 2003; Scott, 1969; Simon, 1973) but their insights and strategies have not yet been adequately dealt with in policy studies.

The status of these last three problems as "inherent vices" in policy making is clear. First, with respect to uncertainty, as with art pieces, policies can deteriorate as a function of incremental changes over time, such as when the policy tools or instruments which are combined to create a policy solution fail to deliver that solution due to an unanticipated change in their external environment. Policies can be doomed from the start if no efforts at all are made to ensure they accommodate best evidence and practices in overcoming such uncertainties and dealing effectively with surprises (Howlett, 2019). Decisionmakers knowing they operate within this context may reduce uncertainties to a manageable level, quite easily in some circumstances—such as when they are dealing with well-known or "tame" kinds of problems

Table I. Sources of Policy Problems/Risk Management Matrix

	McConnell Criteria	Policy Stage/Task	Central Policy Risk	Cause/Source	Management Strategy (Procedural Tools)	Result
	Policy Failure	Agenda-Setting	Unpreparedness (Surprise)	Lack of Attention	Institutionalized foresight/Issue Reduced Surprise Management	Reduced Surprise
	Policy Failure	Policy Formulation	Uncertainty (Wickedness)	Lack of Knowledge	Institutionalized Policy Analysis/Risk Management/Modelling	Reduced Ignorance
Sources of Policy Volatility	Political Failure	Decision-Making	Maliciousness (Poor Decisions)	Self-Interestedness	Institutionalized Evidence-Based Policy-Making	Reduced Opportunity for Political or Personal Gain from Poor Decisions
	Programme Failure	Policy Implementation	Non-Compliance (Misaligned Target Behaviour)	Unknown Behavioural Mechanisms	Institutionalized Policy Design/ Policy Labs	Reduced Non-Compliance
	Programme Failure	Policy Evaluation	Non-Learning (poor learning)	Unknown Intervention Effects	Institutionalized Evaluation & Measurement	Separates Signal from Noise

(Parkhurst, 2016) - but not as well in others—such as novel viruses and pandemics that upset existing routines and highlight unknown problems and solutions (Capano, Howlett, Jarvis, Ramesh, & Goyal, 2020).

Second, not only are policy solutions and trajectories subject to uncertainties, they are also subject to abuses and manipulations which can undermine their ability to resolve problems (Howlett, 2019). False, biased, incorrect or misleading information can enter into political discussions and affect policy deliberations in undesirable ways (Dudley & Xie, 2020a; 2020b; Howlett, 2019; Jones, 2002; Simon, 1967; 1978). And the self-interested behavior of policymakers, which can lead them to place private gain ahead of the public good, often interferes with effective policy making in this way. Evidence of such malicious and malign policy behavior embodied in corruption, collusion, clientelism, and other forms of policy making such as negatively targeting certain groups or factions (Dahlström, Lindvall, & Rothstein, 2012; Legrand & Jarvis, 2014) is a pervasive trope in the popular media (Cappella & Jamieson, 1996) but often, although not always (Schneider & Ingram, 2019), ignored by policy analysts and critics.

And third, it is not just policymakers but also policy takers or "targets" who may not conform with stereotypes or even more well-founded expectations about policy compliance (Schneider & Ingram, 2005). "Targets" may comply with government wishes but can also evade, alter, or "vote with their feet" in ways which fail to conform with government intentions (Weaver, 2010, 2014, 2015). This noncompliance can have significant consequences not only in areas such as drug addiction or smoking which the feature stubborn adherence of old habits, but also in much more mundane circumstances such as tax collection, tax evasion, and regulatory venue-shopping, among many others (Braithwaite, 2003; Yackee & Yackee, 2010).

Any of these factors can cause policies to set off in the wrong direction right at the outset or "take on water" and gradually deteriorate over time. That the possibility of such outcomes is "inherent" in any policy-making situation, greatly increasing the level of volatility or chances of failure of any actions taken (Mueller, 2019). This makes dealing with their risks of central importance, as it has been in the case of studies of policy surprises or crises (Boin, Hart, Stern, & Sundelius, 2005) and the design of efforts to promote and deal with the issues surrounding effective pol-

icy evaluation (Pattyn & Bouterse, 2020; Sager, 2018).

Each of these three vices, the lessons from the existing literature concerning it and the implications of those findings for policy making is discussed in more detail below.

#### 3. LESSONS FROM THE EXISTING LITERATURE ON UNCERTAINTY, MALICIOUSNESS, AND NONCOMPLIANCE

#### 3.1. Uncertainty

Uncertainty is an inherent vice of policy making-which has been widely studied in diverse disciplines from psychology to organization theory but only rarely in a policy context which tends to operate, as Manski (2011 and 2013) put it, "with incredible certitude." In the policy world, much of the discussion around uncertainty has centered on the nature of what Simon (1973) has termed "ill-structured problems" or issues in which the nature of policy problems and solutions are unknown or little known. The contrast between "wicked" and "tame" problems, for example, has dominated thinking around uncertainty in the policy sciences and has influenced both policy studies and policy making (Churchman, 1967; Head, 2008a; Levin et al., 2012; Rittel & Webber, 1973).

Such unknowns surrounding epistemic quality of policy solutions, however, are but a part of a larger group of policy-making problems associated with the uncertainties policymakers face (Howlett & Nair, 2017; Morgan & Henrion, 1990). Uncertainties surrounding the choice of policy options, their consequences, confidence in the quality of available information, and contested and poorly known or understood values of multiple stakeholders, including decisionmakers, leave a great deal of ambiguity concerning what might be the correct action to follow in many cases, among other things allowing plentiful opportunities for self-interested interventions (Hansson, 1996; Knight, 1921; van der Sluijs, 2005).

Koppenjan and Klijn (2004) present a classification of such policy uncertainty focused on the interaction among actors and knowledge (or information)-related uncertainty for solving complex policy problems which is useful in this regard. They argue that three types of uncertainty exist, which policies must address. These include:

- Substantive uncertainty that relates to lack of relevant information related to the nature of the complex problem, and the different interpretations of information arising from different "frames of reference" of the social actors;
- (2) Strategic uncertainty that arises due to unpredictability of strategies deployed by different actors based on their perception of the problem and strategies likely to be deployed by other actors, and
- (3) Institutional uncertainty that arises owing to the complexity of interaction of different actors guided by institutional frameworks that is rules and procedures of the organizations they represent.

These uncertainties relate not just to the presence or absence of policy frames and solutions, but relate to the issues and risks related to the "valueladenness" of policy choices, which includes different actor perspectives on the worth and value of the knowledge and information being utilized for decision making, and the quality and nature of the presentation of arguments concerning preferred policy alternatives and pathways (Head, 2008b; Mathijssen, Petersen, Besseling, Rahman, & Don, 2008; Maxim & van der Sluijs, 2011; Webster, 2003). Strategies for better policy making therefore, need to understand these risks and policy designs to encompass them. This involves more than just the need to be able to design and adopt policies that are agile and flexible in order to deal with relatively normal "wickedness" or uncertainty (Capano & Woo, 2018); in more turbulent circumstances, such as where policy ideas and actors change frequently, and opportunities for abuse proliferate, policies must be also designed to withstand active and determined efforts to undermine or distort them (Bauer & Knill, 2014; Jordan & Matt, 2014). This means policies and policy making require additional and redundant resources and capabilities which allow them to change course as conditions change, including feedback mechanisms and procedures for automatic or semiautomatic adjustment (Baumgartner & Jones, 2002; Jacobs & Weaver, 2015; Pierson, 1992; Pierson, 1993).

#### 3.2. Maliciousness

Policy studies have even more rarely dealt with the second inherent vice, which is related to the desire of some self-interested parties, from decisionmakers to policy targets, to hijack, distort, or otherwise reorient public processes toward their own ends and goals (Habermas, 1974; Jones, 2002; Perl, Howlett, & Ramesh, 2018).

The existence of this kind of behavior has several aspects that are policy relevant. These range from the use of public authority to promote the interests of ethnic, religious, and other favored groups or specific sets of "clients" (Gans-Morse, Mazzuca, & Nichter, 2014; Goetz, 2007) or to penalize or punish others (Howlett et al., 2017). And they extend to the misuse of policies to enrich or otherwise benefit policy-makers and administrators themselves (Uribe, 2014), including manipulating target groups through votebuying or other forms of electoral pandering (Brancati, 2014; Manor, 2013).

Most perversions of the public interest such as corruption, for example, are organizational in nature and can be managed through a combination of traditional organizational and regulatory activity promoting accountability and transparency, such as the creation of anticorruption agencies and the development of more effective financial and recruitment controls. These might include limits on party funding and careful monitoring of government contracting and procurement activity.

These kinds of vices can often be corrected through the deployment of a range of policy instruments—mainly "procedural" tools (Howlett, 2000; 2019)—which can augment or bolster knowledge of policy problems, solutions and the positions of different policy actors and mitigate these concerns. While these techniques and strategies are relatively well-known in the public administration and anticorruption fields, the general lessons they have for policy making have yet to be incorporated into the mainstream policy sciences (Graycar, 2015; Graycar & Prenzler, 2013; Phillips & Levasseur, 2004).

#### 3.3. (Non)Compliance

Third, although many implementation studies have focused on problems related to administrative behaviors which lead to policy failures such as principle-agent chains (Ellig & Lavoie, 1995) and a range of "barriers to implementation," very little of this work has penetrated into policy studies. These barriers to implementation, from a lack of personnel or financial resources to burdensome historical practices and legal requirements, slow down or render implementation ineffective and have received some treatment in the field (Wu, Ramesh, Howlett, & Fritzen, 2017). But these studies fail to address other

significant issues relating to the noncompliance of target populations with government intentions which arecritical to policy making and effective policy design (De Montis, Ledda, & Caschili, 2016; Weaver, 2015) a subject which Weaver (2009) termed "the final frontier" of implementation research.

Indeed, overcoming compliance problems is fundamental to implementation success. This includes anticipating and dealing effectively with adverse or malicious behavior of policy "takers" who fail to comply or pervert government wishes and frustrate their intentions (Taylor, 2021). While such behavior has been an essential component of studies in fields such as law and accounting (Doig & Johnson, 2001; Howlett, 2018; Kuhn & Siciliani, 2013), it tends to be glossed over in studies of public policy (Howlett, 2020; 2021).

The subject of instrument deployment on target behavior, for example, has until recently been examined in only a cursory fashion and often under the burden of economistic assumptions about the motivations and behavior of policy targets (Parker, 2000; Stover & Brown, 1975). While earlier policy studies had a more well-rounded notion of the kinds of activities undertaken by policymakers toward targets (Edelman, 1988) and the highly political nature of the construction of sections of the populace as targets in the first place (Schneider & Ingram, 1990a, 1990b), these problematic aspects of policy making and studies of policy compliance were largely lost in the 1970s and 1980s as more heroic assumptions about the orderly (and meek) nature of human behavior prevailed (Radin, 2000). In this view policytakers were often seen as relatively benign or "static" targets who do not try, or at least do not try very hard, to evade policies or to profit from them (Braithwaite, 2003; Howlett, 2019; Marion & Muehlegger, 2007).

The accounts of the actions of bureaucrats and other implementers commonly found in the policy literature, for example, often suggested that the only real issue in policy compliance was one of correctly calibrating incentives and disincentives to encourage policy targets to comply with government aims when less coercive efforts at moral suasion failed (Howlett, 2018). However, this not only ignores aspects involved in the social and political construction of targets (Schneider & Ingram 1990a; 1990b), but also minimizes the complex behaviors that go into compliance—from levels of trust, to other social and individual behavioral determinants such as social norms (Bamberg & Moser, 2007; Howlett, 2019;

Thomas, Milfont, & Gavin., 2016). As many studies of the subject noted, however, even the most basic activities of governing such as collecting taxes involves a wide range of issues such as the legality and normative "appropriateness" of government's levying and collecting such taxes as well as citizen's perceptions of the legitimacy of them doing so (March & Olsen, 2004).

Such activities on the part of policy takers are key in determining the success of various government initiatives ranging from tobacco control to bus fare evasion (Delbosc & Currie, 2016; Kulick, Prieger, & Kleiman, 2016) and need to be "designed for," in the sense that determined noncompliance and gaming should be taken into account, along with many other such behaviors, such as free-ridership, fraud, and misrepresentation (Harring, 2016).

Grappling with this key question in the policy sciences therefore allows us to better understand the conditions of policy success and the kinds of designs and activities more likely to attain government goals with minimal effort and expenditure (Feeley, 1970; Mulford & Etzioni, 1978).

### 4. TOOLS FOR MITIGATING INHERENT RISKS OF POLICY MAKING

As the discussion of unpreparedness and nonlearning set out in Table I above has noted, studies of these kinds of inherent policy risks and attempts to mitigate them have shown that a variety of policy tools can be used in this effort. In the case of preparedness, tools such as the preparation of emergency plans, the establishment of agencies to forecast and bring emerging risks to the attention of government have been used, from Centers for Disease Control to central intelligence agencies in the case of national security issues (Lai, 2012). And many similar kinds of tools have been used to mandate policy evaluation and attempt to ensure that policy outcomes are monitored and appraised, such as regulatory oversight boards and comptroller generals (Dobell & Zussman, 1981; Dudley, 2020a).

The same is true of the three other inherent vices discussed in this article: uncertainty, maliciousness, and noncompliance. In the case of uncertainty policy volatility varies across time and is not always manifested in the same way and requires different means and methods to correct. For example, mixes of policy tools that rely heavily on markets to produce desired outcomes—such as private housing policy or private healthcare—are always vulnerable to

unpredictable swings in market behavior and are thus more highly volatile than their public alternatives (Bode, 2006). Such mixes are often highly resource intensive and require constant monitoring. Regulatory or organizationally based alternatives, on the other hand, may require less day-to-day supervision in this sense (Hood, 1983, 1986), although other kinds of uncertainty may figure prominently here, such as regulatory approaches which lock-in policies which are not as adaptable, resilient, or responsive as market-based ones might be.

When it comes to maliciousness, other fields such as industrial engineering and product design have also had to deal with issues such as mal- or incompetent design and engineering for quick profit or misuse of a product or service by customers. All of these fields have developed risk assessment procedures to help identify the extent of errors and abuse in order to support product management and to select the kinds of engineering techniques and development approaches needed to reduce or, as much as is possible, to eliminate such activities altogether.

Risk assessment of this type supports the decisionmakers (Altavilla & Garbellini, 2002). This can be done inductively by looking at past experience and classifying potential failure modes according to the severity of their consequences, for example. And this same logic can be applied to policy making in the form of, for example, anti-corruption agencies which can recommend on recruitment, pay, and other practices intended to remove opportunities and behaviors, or drive out corrupt officials and practices (Graycar, 2015; Graycar & Prenzler, 2013; Quah, 2007).

Finally, when designing for high levels of noncompliance, the appropriate response of governments is to create a "compliance regime" involving a mix of tools and elements (Weaver 2015). A basic regime of this kind includes such traditional utilitarian components as providing positive incentives for compliance, having negative incentives for noncompliance; and providing prohibitions and requirements with punishments attached. But it should also include less utilitarian ones such as providing information about what behavior is compliant, how to comply and the advantages of compliance; providing admonitions to comply on moral, self-interested, or other grounds as well as utilitarian ones related to individual cost-benefit calculations; providing resources to comply (which may be targeted to those who would otherwise lack those resources); and manipulating options and defaults (choice architectures) without substantially affecting the payoff to individuals of so doing (Weaver, 2015, p. 6)

#### 5. CONCLUSION: DESIGNING FOR RISKS

Risk problems are significant for the study and practice of policy design due to the implications they have for how likely it is for a policy to fail and why (McConnell, 2010). Some of these risks are "inherent" or internal to policy processes and some, like unpreparedeness and poor learning, have been addressed by the policy literature. That government intentions may be ill-informed, and state and governance knowledge bases and capacities limited, that decisions may not solely be oriented toward the creation of public value; and that policy targets may indulge in various forms of "misconduct" from fraud to gamesmanship, undermining government intentions of whatever kind—all these are only very rarely, if ever, examined in the policy sciences despite their prevalence in other fields of scholarly attention and inquiry (Howlett, 2021 forthcoming; Arestis & Kitromilides, 2010; Howlett, 2020).

Much policy design thinking can thus be rightly criticized for having neglected this *realpolitik* of uncertainty, adverse policy making and policy-taking behavior, and thus the problems these inherent vices create for policy making and policy designs (Colebatch, 2018; Howlett, 2019; Turnbull, 2018).

Solutions to these three vices do exist, of course, just as they do for unpreparedness and poor policy evaluation. Walker, Haasnoot, and Kwakkel (2013), for example, have highlighted four ways (overlapping to some extent) in which policies can be designed so as to limit their risks of failure. These include designing to enhance:

- (1) Resistance: planning for the worst possible case or future situation.
- (2) Resilience: making sure that the system can recover quickly whatever happens in the future.
- (3) Static robustness: aiming at reducing vulnerability in the largest possible range of conditions.
- (4) Dynamic robustness (or flexibility): planning to change policies over time, in case conditions change.

Solutions can also be envisioned by looking at policies as a portfolio of risks, analogous to what is done with investment portfolios in the case of the financial industry, where a portfolio logic is used to

deal with the uncertainties involved in market forecasting, and packages are tailored to specific risk preferences of consumers and investors (Archer & Ghasemzadeh, 1999; Project Management Institute, 2008; McFarlan, 1981; Olsson, 2008; Pellegrinelli, 1997; Sanchez, Robert, Bourgault, & Pellerin, 2009; Teller & Alexander, 2013). Preparing alternative policy options for decision-makers in this way, as in the financial sector, can make risks more transparent and allow policy-makers some choice in establishing the level of risk they are willing to face in adopting specific courses of action.

Dealing more seriously with problems around policy volatility and inherent vices in this way is necessary if policy design is to achieve its purpose of creating better and more effective policies. As set out in Table I, specific lessons can be drawn about how each of these risks can be managed. This can be done through a variety of means—from institutionalizing foresight agencies to deal with the risk of surprises affecting government agendas, to improving and mainstreaming evaluation and measurement activities to reduce the risk of poor or nonlearning occurring in policy evaluation (Dudley, 2020; Dudley & Xie, 2020b).

Although the policy sciences lag behind in this area at present, much can be learned from studies in other fields that have had to deal more often and more directly with the reasons why the artifacts they produce often fail. The new focus on behavior which has already been noted in recent works on the "behavioral turn" in the policy sciences (Leong and Howlett, 2020), for example, holds out much hope in this regard.

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#### REFERENCES

- Altavilla, A., & Garbellini, L. (2002). Risk assessment in the aerospace industry. *Safety Science*, 40, (1), 271–298.
- Archer, N. P., & Ghasemzadeh, F. (1999). An integrated framework for project portfolio selection. *International Journal of Project Management*, 17(4), 207–216.
- Arestis, P., & Kitromilides, Y. (2010). What economists should know about public policymaking? *International Journal of Public Policy*, 6(1/2), 136–153.
- Bali, A. S., Howlett, M., & Ramesh, M. (2021). Unpacking policy portfolios: Primary and secondary aspects of tool use in policy mixes. *Journal of Asian Public Policy*. https://doi.org/10.1080/ 17516234.2021.1907653

Bamberg, S., & Möser, G. (2007). Twenty years after Hines, Hungerford, and Tomera: A new meta-analysis of psycho-social determinants of pro-environmental behaviour. *Journal of Environmental Psychology*, 27 (1), 14–25.

- Baumgartner, F. R., & Jones, B. D. (2002). Positive and negative feedback in politics. In F. R., Baumgartner & B. D. Jones (Eds.), *Policy dynamics* (pp. 3–28). Chicago, IL: University of Chicago Press
- Bauer, M. W., & Knill, C. (2014). A conceptual framework for the comparative analysis of policy change: Measurement, explanation and strategies of policy dismantling. *Journal of Compara*tive Policy Analysis: Research and Practice, 16(1), 28–44.
- Blanc, F. (2018). From chasing violations to managing risks: Origins, challenges and evolutions in regulatory inspections. Northampton, MA: Edward Elgar Publishing.
- Bode, I. (2006). Disorganized welfare mixes: Voluntary agencies and new governance regimes in Western Europe. *Journal of Eu*ropean Social Policy, 16, (4), 346–359.
- Boin, A., Hart, P., Stern, E., & Sundelius, B. (2005). *The politics of crisis management: Public leadership under pressure*. Cambridge, MA: Cambridge University Press.
- Braithwaite, V. A. (2003). Taxing democracy: Understanding tax avoidance and evasion. Burlington, VT: Ashgate Pub Ltd.
- Brancati, D. (2014). Democratic authoritarianism: Origins and effects. *Annual Review of Political Science*, 17(1), 313–326.
- Capano, G., & Woo, J. J. (2018). Resilience and robustness in policy design: A critical appraisal. *Policy Sciences*, 37(4), 422– 440
- Capano, G., Howlett, M., Jarvis, D. S. L., Ramesh, M., & Goyal, N. (2020). Mobilizing policy (in)capacity to fight COVID-19: Understanding variations in state responses. *Policy and Society*, 39(3), 1–24.
- Cappella, J. N., & Jamieson, K.H. (1996). News frames, political cynicism, and media cynicism. The Annals of the American Academy of Political and Social Science, 546, 71–84.
- Chapman, G., Milkman, K. L., Rand, D., Rogers, T., & Thaler, R. H. (2021). Nudges and choice architecture in organizations: New frontiers. Organizational Behavior and Human Decision Processes, Nudges and Choice Architecture in Organizations, 163, 1–3.
- Chindarkar, N., Howlett, M., & Ramesh, M. (2017). Conceptualizing effective social policy design: Design spaces and capacity challenges. *Public Administration and Development*, 37(1), 3– 14
- Churchman, C. W. (1967). Wicked problems. *Management Science*, 14(4), B141–42 B141–42.
- Colebatch, H.K. (2018). The idea of policy design: Intention, process, outcome, meaning and validity. *Public Policy and Administration*, 33(4), 365–383.
- Cox, T. (2019). Muddling-through and deep learning for managing large-scale uncertain risks. *Journal of Benefit-Cost Analysis*, 10(2), 226–250.
- Dahlström, C., Lindvall, J., & Rothstein, B. (2012). Corruption, bureaucratic failure and social policy priorities. *Political Studies*, 61(3), 523–542.
- Delbosc, A., & Currie, G. (2016). Four types of fare evasion: A qualitative study from Melbourne, Australia. *Transportation Research Part F: Traffic Psychology and Behaviour*, 43, (4), 254–264
- De Montis, A., Ledda, A., & Caschili, S. (2016). Overcoming implementation barriers: A method for designing strategic environmental assessment guidelines. *Environmental Impact Assessment Review*, 61, 78–87.
- Dobell, R., & Zussman, D. (1981). An evaluation system for government: If politics is theatre, then evaluation is (mostly) art. *Canadian Public Administration*, 24, (3), 404–427.
- Doig, A., & Johnson, S. (2001). New public management, old populism and the policing of fraud. *Public Policy and Administration*, 16, (1), 91–111.

- Dudley, S. E., & Xie, Z. (2020a). Designing a choice architecture for regulators. *Public Administration Review*, 80, (1), 151–156.
- Dudley, S.E. (2020). The office of information and regulatory affairs and the durability of regulatory oversight in the United States. *Regulation & Governance*. https://doi.org/10.1111/rego. 12337
- Dudley, S. E., & Xie, Z. (2020b). Nudging the nudger: Toward a choice architecture for regulators. *Regulation & Governance*. https://doi.org/10.1111/rego.12329
- Edelman, M. J. (1988). Constructing the political spectacle. Chicago, IL: University of Chicago Press.
- Ellig, J., & Lavoie, D. (1995). The principle-agent relationship in organizations. In P. Foss (Ed.), Economic approaches to organizations and institutions: An introduction (pp. 267–295). Aldershot, UK: Dartmouth.
- Feeley, M. (1970). Coercion and compliance: A new look at an old problem. Law & Society Review, 4, (4), 505–519.
- Feldman, Y. (2018). The law of good people: Challenging states' ability to regulate human behavior. (1st ed.) New York: Cambridge University Press.
- Friedman, L. S. (2002). *The microeconomics of public policy*. Princeton, NJ: Princeton University Press.
- Gans-Morse, J., Mazzuca, S., & Nichter, S. (2014). Varieties of clientelism: Machine politics during elections. *American Jour*nal of Political Science, 58, (2), 415–432.
- Goetz, A.M. (2007). Manouevring past clientelism: Institutions and incentives to generate constituencies in support of governance reforms. Commonwealth and Comparative Politics, 45, (4), 403–424.
- Graycar, A., & Prenzler, T. (2013). Understanding and preventing corruption. New York: Palgrave Pivot.
- Graycar, A. (2015). Corruption: Classification and analysis. *Policy and Society*, 34, (2), 87–96.
- Habermas, J. (1974). Knowledge and human interests.. Boston, MA: Beacon Press.
- Hansson, S. O. (1996). Decision making under great uncertainty. Philosophy of the Social Sciences, 26, 369-386.
- Harring, N. (2016). Reward or punish? Understanding preferences toward economic or regulatory instruments in a cross-national perspective. *Political Studies*, 64, (3), 573–592.
- Head, B. (2008a). Wicked problems in public policy. *Public Policy*, 3, (2), 101–118.
- Head, B. (2008b). Three lenses of evidence-based policy. *Australian Journal of Public Administration*, 67, (1), 1–11.
- Hood, C. (1986). *The tools of government*. Chatham, UK: Chatham House Publishers.
- Hood, C. (1983). Using bureaucracy sparingly. *Public Administration*, 61, (2), 197–208.
- Hoppe, R. (2017). Heuristics for practitioners of policy design: Rules-of-thumb for structuring unstructured problems. *Public Policy and Administration*, 33, (4), 384–408.
- Howlett, M. (2000). Managing the 'Hollow State': Procedural policy instruments and modern governance. Canadian Public Administration, 43, (4), 412–431.
- Howlett, M. (2012). The lessons of failure: Learning and blame avoidance in public policy-making. *International Political Sci*ence Review, 33, (5), 539–555.
- Howlett, M., & Mukherjee, I. (2017). Design and non-design in policy formulation: Where knowledge meets power in the policy process. In *Handbook of policy formulation*. Cheltenham, UK: Edward Elgar.
- Howlett, M., & Mukherjee, I. (2017a). Handbook of policy formulation. Cheltenham, UK: Edward Elgar.
- Howlett, M., & Mukherjee, I. (2019). Handbook of policy design. New York: Routledge.
- Howlett, M., & Nair, S. (2017). The central conundrums of policy formulation: Ill-structured problems and uncertainty. In I. Mukherjee (Ed.), *Handbook of policy formulation*. (pp. 23–38). Cheltenham, UK: Edward Elgar.

- Howlett, M. (2020a). Challenges in applying design thinking to public policy: Dealing with the varieties of policy formulation and their vicissitudes. *Policy & Politics*, 48, (1), 49–65.
- Howlett, M., & del Rio, P. (2015). The parameters of policy portfolios: Verticality and horizontality in design spaces and their consequences for policy mix formulation. *Environment and Planning C*, 33, (5), 1233–1245.
- Howlett, M. (2020b). Dealing with the dark side of policy-making: Corruption, malfeasance and the volatility of policy mixes. In A. Graycar (Ed.), *Handbook on corruption, ethics and integrity in public administration* (pp. 67–79). Cheltenham, UK: Edward Elgar.
- Howlett, M. (2020). Dealing with the dark side of policy-making: Managing behavioural risk and volatility in policy designs. *Journal of Comparative Policy Analysis: Research and Practice*, 22, (6), 612–625.
- Howlett, M. (2021). Avoiding a panglossian policy science: The need to deal with the darkside of policy-maker and policytaker behaviour. *Public Integrity. forthcoming*, https://doi.org/ 10.1080/10999922.2021.1935560
- Howlett, M. (2018). Matching policy tools and their targets: Beyond nudges and utility maximisation in policy design. *Policy & Politics*, 46, (1), 101–124.
- Howlett, M. (2019). Volatility in policy mixes: A research agenda. Paper presented to the International Conference on Public Policy, Montreal.
- Jacobs, A. M., & Weaver, R. K. (2015). When policies undo themselves: Self-undermining feedback as a source of policy change. *Governance*, 28, (4), 441–457,
- Jarvis, L., & Legrand, T. (2018). The proscription or listing of terrorist organisations: Understanding, assessment, and international comparisons. *Terrorism and Political Violence*, 30, (2), 199–215.
- Jones, B. D. (2002). Bounded rationality and public policy: Herbert A. Simon and the decisional foundation of collective choice. *Policy Sciences*, 35, 269–284.
- Jordan, A., & Matt, E. (2014). Designing policies that intentionally stick: Policy feedback in a changing climate. *Policy Sciences*, 47, (3), 227–247.
- Knight, F.H. (1921). Risk, uncertainty, and profit. Boston, MA: Hart, Schaffner & Marx; Houghton Mifflin Company.
- Kuhn, M., & Siciliani, L. (2013). Manipulation and auditing of public sector contracts. *European Journal of Political Economy*, 32C, 251–267.
- Kulick, J., Prieger, J., & Kleiman, M.A.R. (2016). Unintended consequences of cigarette prohibition, regulation, and taxation. *International Journal of Law, Crime and Justice*, 46, 69–85.
- Lai, A.Y. (2012). Organizational collaborative capacity in fighting pandemic crises a literature review from the public management perspective. *Asia-Pacific Journal of Public Health*, 24, (1), 7–20.
- Lang, A. (2016). Collaborative governance in health and technology policy: The use and effects of procedural policy instruments. Administration & Society, 51, (2), 272–298.
- Legrand, T., & Jarvis, L. (2014). Enemies of the state: Proscription powers and their use in the United Kingdom. *British Politics*, 9, (4), 450–471.
- Leigh, A. (2003). Thinking ahead: Strategic foresight and government. Australian Journal of Public Administration, 62, (2), 3–10.
- Leong, C., & Howlett, M. (2020). Theorising the behavioural state, *Public Policy and Administration*.
- Levin, K., Cashore, B., Bernstein, S., & Auld, G. (2012). Overcoming the tragedy of super wicked problems: Constraining our future selves to ameliorate global climate change. *Policy Sciences*, 45, (2), 123–152.
- Manor, J. (2013). Post-clientelist initiatives. In K., Stokke & O. Törnquist (Eds.), *Democratization in the global south* (pp. 243–253). International Political Economy. London, UK: Palgrave Macmillan.

Manski, C. F. (2011). Policy analysis with incredible certitude. *The Economic Journal*, 121, (554), F261–F289.

- Manski, C. F. (2013). Public policy in an uncertain world: Analysis and decisions. Cambridge, MA: Harvard University Press.
- March, J. G., & Olsen, J. P. (2004). The logic of appropriateness. Oslo, Norway: ARENA Working Paper.
- Marion, J., & Muehlegger, E. (2007). Measuring illegal activity and the effects of regulatory innovation: A study of diesel fuel tax evasion (pp. RWP07–026). Cambridge, MA: John F. Kennedy School of Government Faculty Research Working Paper Series.
- Mathijssen, J., Petersen, A., Besseling, P., Rahman, A., & Don, H. (2008). *Dealing with uncertainty in policymaking*. The Hague, The Netherlands: CPB/PBL/Rand Europe.
- Maxim, L., & van der Sluijs, J.P. (2011). Quality in environmental science for policy: Assessing uncertainty as a component of policy analysis. *Environmental Science and Policy*, 14, 482–492.
- McConnell, A. (2010). Policy success, policy failure and grey areas in-between. *Journal of Public Policy*, 30, (03), 345–362.
- McFarlan, F.W. (1981). Portfolio approach to information systems. *Harvard Business Review*, 59, (5), 142–150.
- Mirowski, P. (2010). Inherent vice: Minsky, Markomata, and the tendency of markets to undermine themselves. *Journal of Insti*tutional Economics, 6, (4), 415–443.
- Morgan, M. G., & Henrion, M. (1990). Uncertainty: A guide to dealing with uncertainty in quantitative risk and policy analysis. Cambridge, UK: Cambridge University Press.
- Mueller, B. (2019). Why public policies fail: Policymaking under complexity. *Economia*, 21, (2), 311–323.
- Mulford, C. L., & Etzioni, A. (1978). Why they don't even when they ought to: Implications of compliance theory for policymakers. In *Policy research* (pp. 47–62). Leiden: E.J. Brill,
- Wholey, J.S., Hatry, H.P., & Newcomer, K.E. (2010). *Handbook of practical program evaluation*. (3 ed.). San Francisco: Jossey-Bass.
- Olsson, R. (2008). Risk management in a multi-project environment: An approach to manage portfolio risks. *International Journal of Quality & Reliability Management*, 25, (1), 60–71.
- Parker, C. (2000). Reducing the risk of policy failure: Challenges for regulatory compliance. Paris, France: OECD
- Parkhurst, Justin O. (2016). Appeals to evidence for the resolution of wicked problems: The origins and mechanisms of evidentiary bias. *Policy Sciences*, 49, (4), 373–393.
- Pattyn, V., & Bouterse, M. (2020). Explaining use and non-use of policy evaluations in a mature evaluation setting. *Humanities and Social Sciences Communications*, 7, (1), 1–9.
- Pellegrinelli, S. (1997). Programme management: Organising project-based change. *International Journal of Project Management*, 15, (3), 141–149.
- Perl, A., Howlett, M., & Ramesh, M. (2018). Policy-making and truthiness: Can existing policy models cope with politicized evidence and willful ignorance in a 'post-fact' world? *Policy Sci-ences*, 51, (4), 581–600.
- Peters, B.G., Ravinet, P., Howlett, M., Capano, G., Mukherjee, I., & Chou, M.H. (2018). *Designing for policy effectiveness: Defining and understanding a concept*. Cambridge, UK: Cambridge University Press.
- Pierson, P. (1992). Policy feedbacks and political change: Contrasting Reagan and Thatcher's pension reform initiatives. Studies in American Political Development, 6, 359–390.
- Pierson, P. (1993). When effect becomes cause: Policy feedback and political change. *World Politics*, 45, (4), 595–628.
- Project Management Institute. (2008). The standard for portfolio management. (2nd ed.). Newtown Square, PA: Project Management Institute.
- Quah, J.T.S. (2007). Anti-corruption agencies in four Asian countries: A comparative analysis. *International Public Management Review*, 8, (2), 73–96.
- Radin, B. A. (2000). Beyond Machiavelli: Policy Analysis Comes of Age. Washington, DC: Georgetown University Press.

Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4, (2), 155–169.

- Rodda, W.H. (1949). *Inland marine and transportation insurance*. Englewood Cliffs, NJ: Prentice Hall.
- Rogge, K.S., & Reichardt, K. (2016). Policy mixes for sustainability transitions: An extended concept and framework for analysis. *Research Policy*, 45, (8), 1620–1635.
- Rupprecht, A. (2016). Inherent vice': Marine insurance, slave ship rebellion and the law. *Race & Class*, 57, (3), 31–44.
- Sager, F. (2018). Policy evaluation and democracy: Do they fit? Evaluation and Program Planning, 69, 125–129.
- Sanchez, H., Robert, B., Bourgault, M., & Pellerin, R. (2009). Risk management applied to projects, programs, and portfolios. International Journal of Managing Projects in Business, 2(1), 14– 35
- Schneider, A., & Ingram, H. (2005). Deserving and entitled: Social constructions and public policy. Albany, NY: State University of New York.
- Schneider, A., & Ingram, H. (2019). Social constructions, anticipatory feedback strategies, and deceptive public policy. *Policy Studies Journal*, 47, (2), 206–236.
- Scott, J.C. (1969). The analysis of corruption in developing nations. Comparative Studies in Society and History, 11, (03), 315–341.
- Simon, H.A. (1978). Rationality as process and as product of thought. *The American Economic Review*, 68, (2), 1–16.
- Simon, H.A. (1973). The structure of ill structured problems. *Artificial Intelligence*, 4, (3–4), 181–201.
- Simon, H. (1967). The Logic of Heuristic Decision Making. In *The Logic of Decision and Action*, edited by Nicholas Rescher, 1–35. Pittsburgh: University of Pittsburgh Press.
- Taylor, J. (2021). Public officials' gaming of performance measures and targets: The nexus between motivation and opportunity. Public Performance & Management Review, 44, (2), 272–293.
- Teller, J., & Alexander, K. (2013). An empirical investigation on how portfolio risk management influences project portfolio success. *International Journal of Project Management*, 31, (2013), 817–829.
- Thaler, R.H. (2018). From cashews to nudges: The evolution of behavioral economics. American Economic Review, 108, (6), 1265–1287.
- Thomas, A.S., Milfont, T.L., & Gavin, M.C. (2016). A new approach to identifying the drivers of regulation compliance using multivariate behavioural models. *PLoS One*. https://doi.org/10.1371/journal.pone.0163868
- Turnbull, N. (2018). Policy design: Its enduring appeal in a complex world and how to think it differently. *Public Policy and Admin*istration, 33, (4), 357–364.
- Uribe, C.A. (2014). The Dark side of social capital re-examined from a policy analysis perspective: Networks of trust and corruption. *Journal of Comparative Policy Analysis: Research and Practice*, 16, (2), 175–189.
- Van der Sluijs, J. (2005). Uncertainty as a monster in the science-policy interface: Four coping strategies. Water Science and Technology: A Journal of the International Association on Water Pollution Research, 52, (6), 87–92.
- Van der Steen, M. A., & Twist, M. J. W. (2013). Foresight and longterm policy-making: An analysis of anticipatory boundary work in policy organizations in The Netherlands. *Futures*, 54C, 33–42.
- Viscusi, W. K., & Gayer, T. (2018). Behavioral public choice: The behavioral paradox of government policy. SSRN Electronic Journal. https://doi.org/10.2139/ssrn.3191387
- Walker, W. E., Haasnoot, M., & Kwakkel, J. H. (2013). Review: Adapt or perish: A review of planning approaches for adaptation under deep uncertainty. Sustainability, 5, 955–979.
- Weaver, K. (2010). But will it work? Implementation analysis to improve government performance. Washington, DC: Brookings Institution.

- Weaver, K. (2014). Compliance regimes and barriers to behavioral change: Compliance regimes and behavioral change. *Governance*, 27, (2), 243–265.
- Weaver, K. (2015). Getting people to behave: Research lessons for policy makers. *Public Administration Review*, 75, (6), 806–816.
- Weaver, K. (2009). Target compliance: The final frontier of policy implementation. Washington, DC: Brookings Institution.
- Webster, M. (2003). Communicating climate change uncertainty to policy-makers and the public. *Climatic Change*, 61, (1-2), 1–8.
- Wu, X., Ramesh, M., Howlett, M., & Fritzen, S.A. (2017). The public policy primer: Managing the policy process (2 ed.). New York: Routledge.
- Yackee, J. W., & Yackee, S.W. (2010). Administrative procedures and bureaucratic performance: Is federal rule-making 'ossi-

- fied"? Journal of Public Administration Research and Theory, 20, (2), 261–282.
- Stover, R. V., & Brown, D. W. (1975). Understanding compliance and noncompliance with law: The Contributions of utility theory. *Social Science Quarterly*, 56(3), 363–375.
- Schneider, A. L., & Ingram H. (1990a). Behavioural assumptions of policy tools. *Journal of Politics*, 52(2), 511–529.
- Schneider, A. L., & Ingram H. (1990b). Policy design: elements, premises and strategies. In S. S. Nagel (Ed.), *Policy theory and policy evaluation: concepts, knowledge, causes and norms* (pp, 77–102). New York: Greenwood.
- Phillips, S., & Levasseur, K. (2004). The snakes and ladders of accountability: Contradictions between contracting and collaboration for Canada's voluntary sector. *Canadian Public Administration*, 47(4), 451–474.