1. Legal cycles and stabilization rules

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INTRODUCTION

Inoculation is a fact of modern life. We inoculate ourselves against potential sickness like polio, meningitis, and the flu. We wear seat belts and motorcycle helmets. If we are prudent and able, we evacuate before a hurricane, buy insurance, and save for retirement. As in life, we inoculate in law. The (Justified) Precautionary Principle instructs that the risk of harm justifies regulation so long as the precaution does not paralyze beneficial action. Thus we regulate carbon emissions to inoculate ourselves against sickness and climate change, arsenic levels in drinking water to inoculate against poisoning, and risky financial products to inoculate against economic crisis. The success of the justified precautionary framework has ranged from excellent to poor. Without much paralysis we have reduced motor accident deaths, arsenic poisoning, and destitution, but a wide range of problems such as panicked reactions to public safety issues, Congressional budget showdowns, and periodic financial crises continue apace while any improvement remains elusive. The irony is that these types of problems tend to withdraw and return with regularity. Recurring patterns of salience then non-salience, crisis then no crisis, and social advance followed by social retreat can easily be seen in public life. In some cases these recurring patterns are sufficiently understood. Yet despite an understanding and anticipation of recurrence, the costs generated by cyclical problems persist and to a very large extent remain controversial.

For the past 200 years, economics has sought to develop a positive theory able to accurately describe periodic fluctuations in an economy, sometimes termed the ‘business cycle,’ and an associated normative theory aimed at smoothing those fluctuations and easing the burden of

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financial crisis. The theories have been fiercely debated and precise ideas remain largely unsettled, but a professional consensus has slowly emerged that prescribes some mixture of monetary and fiscal policy in addition to automatic stabilization by means of tax brackets, unemployment insurance, medical insurance, and social security payments. While monetary and fiscal policy instruments are more or less applied contingently with discretion, automatic stabilization policies are dramatically fixed with permanent legislation. As a consequence of permanent enactment, automatic stabilization policies are mostly insulated from the short-term legislative pathologies that result from cognitive bias and interest group politics.¹ Lawmakers are not required to renew unemployment insurance or social security legislation in response to prevailing economic conditions, and funds are permanently allocated from national budgets. At the same time, precise allocations adapt to external conditions on an ongoing basis. All of this works toward smoothing fluctuations in an economy.

Just as the economy fluctuates and presents the pattern of business cycles, rules fluctuate and present the pattern of legal cycles. More importantly, the identification of legal cycles permits the lawmaker to respond with stabilization rules that can address short-term legislative pathologies. Lawmakers have historically responded to legal cycles with patchwork repeal, amendment, and new enactment. Generally, patchwork lawmaking responds to legislative needs with relatively incomplete solutions when more complete and efficient solutions are available, and though each patchwork response introduces an opportunity for a beneficial policy update, each correspondingly hazards social loss. Madison remarked that '[t]o trace the mischievous effects of mutable government would fill a volume.'² This chapter asserts that social losses from suboptimal responses to legal cycles can be characterized along two primary dimensions: losses due to inefficient interest group activity

¹ On indexing tax brackets, see Chapter 3 of this volume. While the values of the indexes themselves are not permanently fixed, Congress adopted the general framework of tying the index to inflation and has been using it since 1981. Shaviro speculates that this approach remains politically uncontroversial because, at present with low inflation, 'it just doesn't matter enough to be worth fighting over' *Infra* at 72. On the other hand, he provides an example of indexing the Alternative Minimum Tax, which appears to evidence a political controversy that eventually resolved with permanent indexing because both sides saw no clear advantage of continually adjusting and taking political credit along the way. *Infra* at 72.

² *The Federalist Papers*, No. 62.

(aggregation costs) and losses due to policy errors that are largely driven by the types of cognitive biases endemic to change (error costs). In other words, the costs generated by problematic legal cycles tend, in the main, to remain frustratingly high because of the pleading of special interests as well as cognitive error-inducing change.³ The key to solving this problem is to create laws that discourage repeated and socially costly behaviors, but remain flexible enough to accommodate the cyclical legal environments in which those behaviors flourish.

In contrast to patchworking legislative solutions with repeals, amendments, and new enactments, stabilization rules can avoid extreme forms of interest group activity and cognitive error. But they, too, can lead to inaccurate policy. This is because the identification of legal cycles involves predicting whether a given legal environment will return. If the prediction is wrong, stabilization rules will be of little use. Even if the legal environment returns, it may exhibit new and unaccounted features that stabilization rules cannot address ahead of time (Kydlund and Prescott 1977). On the other hand, the prediction may prove correct or sufficiently correct for implementing a beneficial stabilization policy. Given the uncertainty surrounding the identification of legal cycles, stabilization costs and benefits can be considered in expected terms, where the expected benefit of stabilization considers the expected cost of its potential imprecision. This net value of stabilization, in turn, can be analyzed as a trade-off against the expected value of patchworking with repeals, amendments, and new enactments. In the midst of a completely unpredictable legal environment, stabilization rules will remain under-specified or erroneous. In this case, the legal environment is not cyclical by definition and will require a legislative response along historical patterns or with temporary lawmaking strategies (Fagan 2013a). In sum, one can imagine three stylized settings for stabilization rules: a best case setting where the legal cycle is perfectly identified, a middle case setting where the legal cycle is identified in expected terms, and a worst case setting where the legal cycle is nonexistent. The first two present an opportunity for implementing welfare-enhancing stabilization rules.

A number of fine-tuned assertions can be drawn from this three-setting framework, but it is useful to state the bottom-line conclusion first: in cyclical legal domains where we expect the costs of patchworking to involve extremely costly interest group activity, we should opt for

³ I use cognitive errors loosely to refer to the types of errors that result from various behavioral biases (so termed in behavioral economics) or from excessive information costs (so termed in rational choice decision theory). The results are general enough to encompass both classification types.

stabilization rules. Examples include areas of budget law⁴ and environmental law, especially with respect to climate change. Similarly, when we expect the costs of patchworking to involve sufficiently costly cognitive error, then we should also stabilize. Examples here include areas of national security law and health law (such as policy responses to disease outbreaks). Finally, some lawmaking domains, such as banking law and criminal sentencing, can be characterized by high levels of both aggregation and error costs. In those and similar domains, stabilization rules will also likely perform better than traditional patterns of lawmaking.

TRADING OFF IMPRECISION, BUT NOT ALWAYS

Automatic stabilizers of the business cycle are elegant. They offset fluctuations in aggregate economic activity without further government intervention or new policy, and they avoid the messy burdens associated with intervening or making new policy, all while continually deriving the benefits of earlier political and lawmaking activity. In Chapter 8, Levmore notes that spending programs are durable because future legislators will not undo them. In addition, he notes that durability can be achieved by, among other strategies, creating good law. Laws that are ‘so obviously efficiency-enhancing’ are kept in place by successive lawmakers (*infra*, 174). Stabilizing transfer programs are of course spending programs and, from the perspective of optimal stabilization theory, they are good laws. They achieve durability through their character as spending programs and as efficiency-enhancing stabilizers of the business cycle.⁵ What makes their efficiency properties so obvious is that their

⁴ In Chapter 2 Kamin discusses how lawmakers use debt limits, shutdowns, and sequester to further strategic goals. While Kamin discusses the various benefits that a threat of crisis may bring, he notes that in extreme cases such as debt limits, any potential benefits are outweighed by excessive potential costs. In this case, if not others, stabilization rules may prove socially beneficial. Relatedly, Farber discusses in Chapter 4 the importance of increasing the credibility of commitments because negotiations can fail when parties believe that an agreement will not remain in place over time. As we shall see, stabilization rules can increase commitment credibility and lead to increases in social welfare.

⁵ To the extent that various stabilizing programs lead to unsustainable deficit levels and lead to net social costs themselves, they are of course, welfare reducing over the long term and hence bad laws. I simply want to abstract from their success with achieving short- to medium-term stabilization, which is their explicit purpose, and apply that abstraction to lawmaking.

usage is fully specified and adapted to a cyclical pattern that is perfectly identified. Put differently, the cyclical pattern of the economy is transparent and measurable, which permits a sufficiently precise prescriptive response for stabilizing it. With respect to payment programs, one can easily discern a path from an economic event to a payment of funds. For example, an economic downturn may lead to business closures, which leads to unemployment, which leads to lower levels of consumption. But unemployment leads to insurance payments that help stabilize consumption levels and buoy the economy upwards. Tax bracketing works the same way and with the same level of transparency and precision. All of this is because the cyclical pattern is sufficiently identified. Macroeconomic fluctuation is an empirical regularity that has been identified with national output or some other economic measure. Trigger events such as becoming unemployed or moving into a new tax bracket are precisely defined by law and are directly addressed with insurance payments or changes to corporate and personal tax levels. The end result is that during peaks, we pay out less unemployment and tax more. During troughs, we pay out more unemployment and tax less.

Several assertions can be drawn from the business cycle example. Better-defined cyclical patterns lead to lower imprecision costs and increase the performance of stabilization rules. Equipped with good information, stabilization rules can be optimally configured to avoid doing too much or too little. By accurately defining the parameters of the cyclical pattern, its peaks and troughs can be smoothed with rules. However, good information is not enough; it must be used effectively. Performance of stabilization rules can be improved by precisely specifying trigger events such as 'being unemployed' or 'changing tax brackets.' The more precise the specification, the more direct can be the response. Unemployment can be met with insurance, and decreased income with decreased taxes. A direct response to precisely defined trigger events places a downward pressure on imprecision costs because the response will avoid doing too much or too little. Thus, unemployment is targeted with a measured insurance payment that mirrors a wage; a change in income with a proportionate change in tax liability. These assertions carry over to legal cycles. The lower will be the imprecision costs associated with implementing stabilization rules as (i) an understanding of the legal cycle increases, (ii) the precision of specifying a trigger event increases, and (iii) the directness of the response to that event increases. In the best case setting, the cycle is fully understood, trigger events are precisely specified, and responses to them are direct. Consider now some examples in law.

ENVIRONMENTAL LAW

Like budget law, environmental law related to climate change generates intense and costly interest group activity. Skeptics complain that ‘climatologists have a vested interest in whipping up fears of global warming because the greater the fears, the more research grants climatologists can obtain ... [yet] the other side of this coin is that [skeptics’ own research] is financed by the energy industries’ (Posner 2004, 53). Environmental groups have sought to leverage the power of special interests by monetizing green energy, expanding research and development in alternatives, and by generally pursuing a strategy of aligning producer incentives with climate concerns. Still, environmental and energy interests continue to clash due in part to the cyclical pattern of climate change and a scientific deficiency in fully understanding its complex processes. For example, a recent study authored by a group of researchers at NASA found that Antarctic ice formation increased by 112 billion tons of ice per year from 1992 to 2001 and slowed to an increase of 82 billion tons per year between 2003 and 2008 (Zwally et al. 2015). While new ice formation may represent regional cooling, it may instead represent regional warming, which leads to increased moisture and snowfall that later freezes. Similarly, deforestation has increased levels of carbon dioxide in the atmosphere, but those increases may have led to increased growth within remaining forests. Both examples present complex challenges for measuring causality. With respect to temperature, it remains unclear if a warming trend will continue despite several years of record highs. Between 1900 and 1910, global average temperature declined; between 1940 and 1980 it remained stable. Greenhouse gases were growing during both of those periods. This means that while emissions impact temperature, so do other factors. In short, climate science has yet to master the forces that affect climate, and as noted by leading climatologists Gavin Schmidt and David Archer, ‘[t]here is certainly room for further debate on the definition of “dangerous”’ (Schmidt and Archer 2009). Despite this deficiency, a scientific consensus generally accepts that the Earth has been growing warmer within the past 50 years at a rate much higher than most other periods throughout its history, that this rate increase is largely due to an uptick in fossil fuel consumption and other human emissions, and that if the rate of growth continues then greenhouse gases in the atmosphere will double within a century or less (Schmidt 2010).

Architects of climate stabilization rules can largely avoid the debate among skeptics, alarmists, and climate scientists. This is because policy-makers who stabilize are less interested in the ‘correct’ answer to climate science and are more interested in expanding the bargaining set between opposing groups. It is clear that there exists some level of doubt surrounding the magnitude of the warming threat, which is sufficient to enable fossil fuel industry groups to advance plausible claims that warming dangers are being exaggerated. On the other hand, there is sufficient evidence that growing emissions levels are increasing greenhouse gases, which can lead to elevated warming, which in turn generates substantial social loss from receding coastlines, reduced agricultural output, adaptive infrastructure spending, and clean-up costs. Still, climatic metrics fluctuate. At each downturn or upturn of the data, interest groups can leverage those turns to pressure patchwork amendments, repeals, or new enactments. Instead of addressing fluctuating metrics with patchworking, stabilization rules can provide for flexible limits to emissions, deforestation, and similar factors based upon the trending direction and magnitudes of temperature or other metrics. So conceived, stabilization rules smooth the cyclical pattern of climate policy.

For example, wind and solar tax credits can be modified to increase in amount when average annual temperatures are trending upward and decrease in amount when temperatures are trending downward. The trend itself can be represented by a ratio of predicted trend temperature (comparable to potential output in macroeconomics) to predicted temperature.⁶ Likewise, public investment in sea walls, evacuation routes, public transport, secondary housing, and infrastructure generally can increase when sea levels are trending upward and decrease otherwise. An emissions tax or gasoline tax can be tied to targets set by U.S. commitments to international agreements or other pledges related to limiting a global temperature increase to some amount above pre-industrial levels. As temperature trends upward, the emissions tax increases; as it trends downward, the emissions tax decreases. Skeptics and special interests that insist that average annual temperatures are not trending upward are marginally less likely to oppose an emissions tax that depends upon average annual increases. After all, if the increase fails to materialize, then so will the tax. At the same time, alarmists who insist that temperatures are trending upward due to emissions, are marginally

⁶ If the ratio is greater than 1, then temperature is trending upward; otherwise downward. The trend period must be set for a sufficient length of time to capture the linear growth and decay contained within the cyclical temperature pattern observed over time.

less likely to oppose a tax that does not address emissions when temperatures are trending downward. Clearly the measurement of the trend will be an issue because of incomplete science. In other words, the trigger event precipitating the change in tax rate will necessarily be imprecise until science better defines the complex dynamics of temperature. However, parties at this stage can negotiate a length of time for describing upward and downward trends. Trigger events can be defined as an upward or downward trending temperature of x years. The idea is that laws can be made contingent on future developments.

The benefit of developing an emissions tax with a stabilization rule is that it shifts the debate from whether there should or should not be a tax, which has been based largely upon historical and predicted data, to how to best design a law that could lead to a tax if fluctuations in the climate continue to trend upward. The same can be said for other policies like fossil fuel subsidies, solar and wind tax credits, public investment in environmental damage mitigation, incentives for research and development in clean energy, and others. By tying climate change policies to fluctuations in the climate, environmental stabilization rules expand the bargaining set, reduce the ability of interest groups to rely on conflicting science, and smooth patchwork patterns of lawmaking. Of course the task of precisely defining trends in climatic quality so that a bargain can be reached and policies arrive soon enough to mitigate losses presents a challenge. Trends may need to be measured over 10- or 20-year periods, for example, which could marginally shrink the bargaining set. Still, trigger events like upward or downward trends in temperature need only be sufficiently precise to yield efficiency-enhancing stabilization rules and place a marginally downward pressure on socially costly interest group activity in this area. It may be that a 10- or 20-year trend can satisfy both sides.

BUDGET LAW

Given the study of the business cycle and the development of counter-cyclical measures in the twentieth century, perhaps the most intuitive forms of stabilization rules are derived from budget law. Though governments have engaged in protracted efforts to find the right method to control public spending and budget deficits, budget law continues to generate acute and costly interest group activity on a periodic basis. Ideally, financial policy smoothes revenue patterns by permitting deficits during a recession and surpluses during a boom (Barro 1979). However, lawmakers have little incentive to accumulate surpluses during a boom

and refrain from spending during a recession. When recession comes, contractionary policy is usually considered politically and economically unappealing. Both pressures lead to deficit bias. Several countries, notably Switzerland, have implemented a stabilization rule to counter that bias. Following a public referendum in 2001, Switzerland amended its constitution and implemented its 'debt brake' two years later. The rule sets expenditure limits to a precise and easily understood trigger event: a cyclical economic factor multiplied by the public revenue estimate. The cyclical factor is simply the ratio of predicted trend-GDP to predicted GDP. If the ratio is greater than 1, then the economy is predicted to be above trend, and otherwise below trend (Bodmer 2006). The cyclical factor multiplied by the public revenue estimate represents the expenditure limit during the budget period. At the end of the year, this calculation is recomputed with actual figures. Any difference is credited or debited into an adjustment account.⁷ The debt brake has performed well: the government has reduced its debt-to-GDP ratio from 50.7 percent (in 2004) to 34.9 percent (in 2014) despite experiencing a severe downturn following the Great Recession in 2009.

Unlike the American expenditure limit, the Swiss limit is not derivative of a debt ceiling that must be periodically negotiated by a legislature, which is influenced by special interest groups that are able to pursue credible hold-up strategies (*infra* Kamin, Chapter 2; Farber, Chapter 4). The most recent negotiation suspended the debt limit until March 2017. Current policy debate focuses on the broad economic damage that can result from negotiation failure and often points to the 2011 downgrade of U.S. debt as a warning. The Government Accountability Office (GAO), for example, has stressed that investors systemically avoid government debt with maturities nearing exhaustion of the current limit (GAO 2015). The GAO recommends either (i) providing the executive with authority to raise the limit, subject to a motion of Congressional disapproval, (ii) delegating broad authority to the executive to spend as necessary to fund enacted laws, or (iii) linking action on the debt limit to the budget

⁷ Compare to the sequestration approach of across-the-board spending cuts for the current period regardless of the spatial location of the economy within the business cycle. By contrast, the debt brake rule typically leads to a balanced budget over the course of a business cycle, but still provides for emergency spending funded outside of the adjustment account for addressing severe downturns such as the 2008 recession. It also provides that if the adjustment account runs a deficit of more than 6% of last year's spending, then it must be corrected in the next three years.

resolution. Because these recommendations focus exclusively on restraining Congress from using the debt limit as a negotiation tool, they generally ignore the cyclical economic environment within which budget law is written. The third presents some of the components of a stabilization rule. Consider the GAO's suggestion for its design:

The passage of the budget resolution by each chamber could automatically generate identical pieces of legislation changing the debt limit to the amount contained within the resolution. This legislation would be automatically deemed to have passed each chamber of Congress and would immediately be presented to the President for signature (GAO 2015, 42).

This design sets the precise trigger event as 'passage of the budget resolution.' That event triggers a direct response of 'automatic passage of necessary debt limit legislation.' Apart from potential presentment issues, the design is attractive because it forces legislators to bear the political costs of raising the debt limit at the moment that they receive the political benefits of spending. However, its automatic elimination of recurring debt limit negotiations only addresses long-run structural deficits to the extent that legislators spend less to avoid the political costs of increasing the debt limit. So long as spending is sufficiently favored by special interests, deficits will continue to mount even during times of upwardly trending public revenues. The GAO's stated purpose of eliminating negotiation of the debt ceiling is to limit potential broad economic damage. However, Standard and Poor's downgraded U.S. debt four days after the debt limit was *renegotiated* and increased by the Budget Control Act of 2011. This suggests that broad economic damage results from increased debt and not negotiation failure. To the extent that defanging debt ceiling negotiations increases debt, then the proposed rule may actually lead to increased economic damage. In any case, the suggested rule does not stabilize existing patterns of budget law, which may generate 'long run economic consequences [that] will outweigh whatever benefits interest groups now receive' (Farber and Frickey 1991, 36). To address that concern, a stabilization rule must be responsive to fluctuations in the economy. Debt limit negotiations should be eliminated by legislatively tying the limit to revenue estimates that are adjusted for upward and downward trends in the economy. Tying increases the credibility of commitments to budget agreements and helps avoid the costs of brinkmanship (see Farber, Chapter 4, p. 106). Though the GAO's suggestion of tying the debt limit to passage of a budget resolution provides an immediate fix to the interest group politics of debt limit

legislation, the fix may do little to curb the long-run economic consequences of mounting deficits.

In addition to annual expenditures, fiscal stimulus itself can be tied to economic indicators. For example, Kamin (2014, 24) documents how the American Recovery and Reinvestment Act of 2009 (ARRA) largely failed because its stimulus amounts were based upon erroneous point estimates of unemployment. Kamin suggests that the ARRA would have better achieved its purpose if it had tied stimulus payments to unemployment rates. He further observes that stimulus broadly conceived (state fiscal aid, infrastructure spending, tax cuts, and length of unemployment) can be tied to economic indicators in order to free Congress from limited agenda space, multiple veto points, and strategic disagreement (and still reach required CBO scoring). While well-designed legislation that responds to fiscal uncertainty ‘cannot be seen as strong bonds that can save policymakers from a siren song,’ Kamin notes that it can solve issues of coordination, information processing, and promote realization of shared goals (Kamin 2004, 24). In the context of intense rent-seeking, a budgetary stabilization rule can expand the bargaining set among groups that care about longer-term outcomes, be introduced at a strategic point in time where interest group influence may be less, and benefit from an anchoring bias once it is set in place. If it performs well over time, then its evidenced efficiency properties will enhance its durability further as seen with automatic stabilizers. Consider how stabilization rules reduce rent-seeking costs in the abstract before turning to further examples in national security and health law.

PATCHWORK AND STABILIZATION COMPARED

Public choice scholarship views the political process as a market where interest groups pay for laws in terms of benefits. While ‘[o]ur best picture of the [legislative] process ... is a mixed model in which constituent interest, special interest groups, and ideology’ all play a role (Farber and Frickey 1991, 33), the market analogy is useful for comparing the cost structure of patchworking with stabilizing. If interest groups are paying for laws in terms of benefits, then they presumably will pay in the form of bearing similar levels of costs for laws or groups of laws that achieve the same purpose. So if a series of patchwork amendments has the same outcome as a stabilization rule, then interest groups will pay equivalent costs for both. It is important to stress that equivalence of decision-making costs between patchworking and stabilization requires that patchwork patterns of amendment, repeal, and new legislation must produce an

identical stream of benefits under a stabilization rule. This is clearly not true of the idealized worst case setting for stabilization rules, namely lawmaking domains where legal cycles are nonexistent. In those domains, patchwork lawmaking strategies are superior from the perspective of social welfare. Patchworking will likely be welfare enhancing in the following cases: where a regulated technology is transforming rapidly, changes in social norms are causing compliance to increase, interest groups are concealing information, and the legislature is addressing new risks. In those scenarios welfare is often enhanced further with temporary rules (Fagan and Faure 2011; Ranchordás 2014). This is true because no legal cycle can be discerned, or sufficiently precise triggers for legislating an efficient stabilizing response cannot be set. Stabilization rules therefore will be inefficient or meaningless.

In other settings where legal cycles can be discerned and stabilization rules can be fruitfully applied, legislative bargaining costs of patchworking and stabilizing will approach equivalence. It is their costs external to the lawmaking process that can dramatically diverge. Apart from external costs borne by other groups, sufficiently long-run costs unhinged from a meaningful discount rate or overwhelming costs from various types of catastrophe may be borne by the beneficiary interest group that thwarted or propounded the legislation in the first place (Posner 2004). For these reasons a law may appear efficient when viewed over a short enough horizon, but its long-run negative consequences such as catastrophic debt default or climatic disruption appear obvious when viewed over time. All concerned groups may understand the problem, but remain powerless to resolve it. When cyclical patterns of short-termism produce long-run social costs for rent-seekers and society, stabilization rules can offer some relief.

Stabilization rules that directly respond to trigger events exert downward pressure on this loss-generating form of interest group activity. Where downturns in the legal environment would normally call for amendment, repeal, and new enactment to fill a legal vacuum or address a modified legal landscape, stabilization rules are specified *ex ante* and work as counter-cyclical measures. Because they are specified *ex ante*, they are enacted at moments in time where interest groups may hold less influence as compared to critical lawmaking moments where interest groups may hold greater influence. For example, following 9/11, the insurance lobby successfully pushed for a government backstop to terrorism insurance. Congress passed the Terrorism Risk Insurance Act, which set temporary triggers (Terrorism Risk Insurance Act of 2002, Pub. L. No. 107-297). At sunset four years after the crisis, the triggers were renewed, but with lower thresholds (Terrorism Risk Insurance Act

Extension of 2005, Pub. L. No. 109-144). This suggests that interest groups hold greater influence at critical lawmaking moments and that enactment of rules during less critical moments reduces that influence.

That stabilization rules are specified *ex ante* also takes advantage of discount rates and uncertainty surrounding future outcomes in a socially positive way. Costly interest group influence will bear marginally less upon contingent legislation, which may or may not impact their interests at some point in the future. Moreover, the negotiation of contingencies may expand the bargaining set among all affected groups. For example, one group may accept a lower compliance level in a healthy state of the world, but demand a higher level in a less healthy state. The other group may accept a higher compliance level in a less healthy state, but demand a lower level in a healthy state. Stabilization rules can facilitate this type of bargain (Fagan 2016). Finally, stabilization rules are automatic legislation in the sense that their counter-cyclical response requires no overt action by the legislature apart from earlier enactment. This means that interest group influence is limited either to the moment of enactment or to future attempts to amend or repeal the stabilization rule. Consider the latter. Amendment and repeal will be increasingly pushed, as the stabilization rule is increasingly costly to the interest group. However, if the rule is producing socially beneficial effects, it will benefit from anchoring bias and any legislative transition will be seen as a taking. As the longevity of the rule increases, it becomes entrenched and more costly to dislodge. Similarly, as the efficiency properties of the stabilization rule become increasingly effectuated, its mandate becomes more durable. Of course this requires a convention, or developed custom, of not revisiting these controversies if some groups remain unappeased throughout the stabilization process. Law made contingent on future facts must be allowed to run its course; if not, costly interest group activity will not be reduced.

RECURRING PATTERNS OF AVAILABILITY

Sunstein (2006) observes that climate change policies have received relatively little support in the United States largely because climate disaster falls too far outside of the public imagination. He compares climate disaster with terrorism, and maintains American anti-terrorism measures such as the Patriot Act and Iraq War are strongly influenced by vivid images of what might happen when the risks actually occur. Sunstein concludes that climate change precautions will increase as the

familiarity, salience, and ease of imagining disaster increase. Precautionary climate change and anti-terrorism policies are strongly influenced by rules of thumb, and those rules are based upon what is cognitively available. In an ideal world, responses to risk are based upon precise levels of costs and benefits derived from complete information. When information is incomplete, efficient responses to risk balance expected costs against expected benefits. In practice, however, people tend to rely on certain heuristics to simplify their inquiry (Tversky and Kahneman 1974). When they use an availability heuristic, 'they assess the magnitude of risks by asking whether examples of harm can be easily brought to mind' (Sunstein 2006, 198). Examples of harm that are familiar, recently experienced, and salient are more easily imagined.

Salience helps explain differences across time in risk-related behavior (Loewenstein and Mather 1990). For example, demand for insurance spikes following natural disasters like floods and earthquakes, but declines steadily from that point onward as vivid memories recede (Slovic 2000). In the aftermath of yet another round of floods and earthquakes, demand spikes again before trending downward once more. The salience of disaster prompts a response, and the availability heuristic therefore creates a cyclical pattern of responsive behavior tracked to recurring salient events. It is well established that the availability heuristic leads not just to a response, but to an inefficient response. Harms that are more easily imagined lead to overestimation of their recurrence; harms that are less easily imagined lead to underestimation. Policies that are based upon erroneous estimations will either do too much or too little as a result. For example, recurring terrorist attacks that move on- and off-screen can lead to a pattern of over- and under-responsiveness to national security threats. With each terrorist attack, the public and lawmakers may be induced by an availability heuristic to respond with inefficient levels of domestic surveillance or war that leads to social loss. Recurring outbreaks of disease or food contaminations can lead to similar patterns of inefficient behavior.

Earlier literature on legislative timing rules sought to correct over-responsive behavior induced by availability heuristics with temporary legislation (Gersen 2007). However, the literature limited its analysis of availability's impact to new risks and not recurring risks. Temporary legislation is appropriate when dealing with new risks that generate availability bias because no cyclical pattern of law is yet discernible. A temporary timing rule mitigates doing too much because it lasts for a shorter length of time. As information surfaces about the risk, it can be incorporated into future periods of lawmaking. In addition to passively

waiting for new information, lawmakers can introduce temporary legislation strategically in order to induce a change in behavior that reveals further information useful for lawmaking (Fagan 2013a, 137). Where legal environments are more stable and information more complete, permanent rules tend instead toward efficiency. Recurring patterns of risk sit somewhere in the middle. They present unstable legal environments because risk patterns are cyclical. However, they present more information because the risk pattern is known. In this setting, stabilization rules tend to enhance social welfare.

Recall that stabilization rules are increasingly efficient as (i) an understanding of the legal cycle increases, (ii) the precision of specifying a trigger event increases, and (iii) the directness of the response to that event increases. A significant challenge for stabilization rules to effectively smooth uneven patterns of lawmaking due to availability is to accurately distinguish between new risk, no risk, and recurring risk. If the risk is truly new or nonexistent, then there exists no legal cycle. Unlike recurring risks, new risks are optimally addressed with other types of timing rules such as temporary legislation. Yet proper risk identification presents a challenge because an availability heuristic can induce an over-responsiveness that may drive erroneous classification. Recurring risks may be inaccurately classified as new risks and lead to inefficient rules that do too much. New risks may be inaccurately classified as recurring risks and lead to inefficient rules that do too little.

Consider for a moment the blunted approach of addressing availability. Once the bias is identified, the entire risk itself is addressed. While a blunted approach eliminates the biased response, it may do so at the expense of the rational response. Optimal stabilization rules directly respond to that portion of risk tainted by availability and do nothing more. Although the response must be sufficient to dissuade the public and policymakers from over-responsiveness, a measured response or public knowledge that the risk has been considered and a response could be forthcoming if a precise event is triggered may be sufficient to ease concerns and the bias. With this framework in mind, consider how stabilization rules may assist in designing optimal national security law.

NATIONAL SECURITY LAW

Contemporary national security law is characterized in part by precaution. However, precautionary measures are costly. So long as the expected benefits of precaution outweigh their costs, then precautionary measures are efficiently taken. Still, an efficient precautionary principle

applied to national security cost-benefit analysis raises measurement complexities, especially in the context of complete catastrophes resulting from nuclear or biological terrorism (Posner 2004). Even in the context of large-scale cyberterrorism or regional attacks on life, which Posner classifies as less than catastrophic events, costs are difficult to measure because they are largely systemic or involve controversial value-of-life assessments. All of this means that good arguments can be made to maximize precaution without considering its offsetting costs. After all, catastrophic and lesser attacks can lead to extremely high costs that remain largely without limit. On the other hand, the budget constraints for taking precautions are obviously limited and become increasingly so during economic downturns or from structural shifts in policy. Thus, while maximum precaution may be a first-best solution, it is worth exploring how to economize nonetheless. While the analysis has focused on stabilizing patchwork legislation to this point, the same principles apply for stabilizing patchwork patterns of regulatory and executive decision-making.

Consider the optimal allocation of security personnel to federal property overseas. Ideally, all locations would receive a high level of protection. However, security resources are constrained and must be allocated. Typically, those resources are allocated on the basis of some measure of threat level so that security policy depends upon the estimated threat. Suppose the policy-inducing measure of threat level consists of two components: a true threat level based upon sound analysis, and a false or weak threat factor, which modifies that level based upon an availability heuristic. Since salience taints sound risk assessment, all true threat levels are either underestimated or overestimated according to how easily a potential threat can be imagined. If actual security threats materialize unevenly over time, then security personnel decisions fluctuate with recently experienced threats.

Now suppose that there exists a pattern of attack in Region A followed by attack in Region B, and the second attack is usually preceded by an intelligence signal. In practice the true threat level is based upon numerous inputs, but for exposition assume that this pattern provides the basis for estimating the true threat level for Region B. Again for exposition, suppose that there is also a false threat factor, or simply a weak signal, such as a social media event that triggers protests. With no intelligence signal, a stabilization rule will ignore a false threat factor completely and correctly ignore the overestimation of the threat when a media event triggers protests in Region A, for instance. As a result, the rule correctly declines to increase security in Region B. This is because the rule increases security personnel based upon the estimated true threat

level, which relies upon a preceding attack in Region A and usually upon an intelligence signal about a future attack on Region B. The fact that there is no clear intelligence about a future attack on Region B leads to the security lapse once B is attacked. Paradoxically, correcting for the availability heuristic can lead to an unwanted result, because if security were increased in Region B when the media event developed in Region A, then security would have been efficiently increased before the attack. For this reason, optimal stabilization rules address risk-estimation errors due to availability by ignoring probable false threat factors, but with delayed action. Delay is an optimal response to the explicit recognition that the costs of inaccurately distinguishing between new risk, recurring risk, or no risk are greater than the error costs of inaccurately perceiving an availability bias when developing stabilization rules for national security. Generally, if the costs of doing too little are sufficiently high, efficient design of stabilization rules that target availability bias benefit from building in a delayed response.

Consider the same scenario with a delayed response in the shadow of availability bias. A media event emerges in Region A followed by an attack. A similar media event emerges in Region B, but with no intelligence signaling an imminent threat. Instead of immediately dismissing the media event in Region A as a false threat factor to Region B in an attempt to correct for availability bias, dismissal is delayed, the true threat level is modified upward, and the resultant policy increases security. This is an optimal response because the recurring false threat factor is probabilistically false and may actually predict increased threat. Given sufficiently high expected costs of threats, which is a distinguishing property of most national security policies, the optimal response requires treating probable availability bias as true for a sufficient length of time.

Legal cycles of contemporary national security law susceptible to availability remain weakly defined because one cannot adequately distinguish between no risk, new risk, or recurring risk given the high costs of doing too little.⁸ As a result, it may seem that stabilization rules offer few efficiency gains to security policy. Still, a delayed elimination of weak signals, or likely false factors, can lead to gains in social welfare. Availability leads to precautionary circumspection where the policy is

⁸ When risks cannot be adequately distinguished and the contemplated response to a trigger event itself can be overly costly in an expected value sense, say, for example, by launching a broad war that may or may not be successful in response to a terrorist attack, then delayed decisionmaking can mitigate the availability component of risk assessment.

circumspect not only of the risk, but also of the precautionary measure. National security stabilization rules optimally address a cyclical pattern of unclear risks by treating all risks as true, even those tainted by availability. However, precaution should be partitioned into response to the probable true risk and the over-response to the probable availability bias. Once the precautionary period has passed, the over-response partition of precautionary measures is efficiently withdrawn. Of course setting an optimal precautionary period presents additional challenges, which should tend to decrease over time as experience is gained from addressing particular threats, or put differently, as the legal cycle becomes better defined.⁹

HEALTH LAW (OUTBREAKS)

Early empirical work on the availability heuristic found evidence of fluctuating panic for outbreaks of AIDS and herpes, where panic is defined as ‘a situation in which public concern for a problem temporarily rises to a level either out of proportion to the problem’s objective magnitude, or out of line with prior and future levels of concern’ (Loewenstein and Mather 1990, 171). It is important to note that the true severity of an outbreak can only be identified *ex post*, which means that panic can only be assessed against an objective magnitude of an outbreak or future levels of concern over an outbreak by comparing the panic level with the outbreak’s impact after its effects are apparent. Even comparison to a prior level of concern may provide little value for efficient decision-making if the outbreak proves to be more severe than its prior manifestation. Because the true severity of an outbreak can only be evaluated *ex post*, any assessment of the value of addressing panic against outbreaks must be made in expected terms. Similar to national security law, outbreak law presents commensurability issues. While outbreaks of serious diseases like Ebola do not lead to complete catastrophe as defined by Posner (2004), they can lead to a number of deaths. Value-of-life

⁹ This is a familiar problem to the timing rules literature. Earlier work has described the challenge of setting the optimal length of temporary legislation. Fagan (2013b) presents a model where optimal length is determined through an iterative process. Legislators lead with a temporary rule, observe the population’s response, and then optimally respond with the appropriate length. The model assumes a two-period model in order to abstract from modeling an infinite process, but any number of interactions can be understood as efficient so long as the information produced by the population is socially valuable for rulemaking.

assessments are controversial and can produce significant political challenges for an executive. Those challenges may be faced even when the executive responds correctly to availability bias because the public understands that outbreak severity is probabilistic. Still, even though the accuracy of a panic-induced response can only be assessed *ex post*, decision-makers can benefit from a delayed correction of availability bias.

Consider the optimal response to an Ebola outbreak, where that response depends upon the expected severity of the outbreak. Suppose expected severity depends on two components: the true severity level, which can only be observed *ex post* in period 2, and a false severity factor, which modifies the true severity level due to availability bias in period 1. Since salience taints sound risk assessment, all true severity levels are either underestimated or overestimated according to how easily the potential severity of an outbreak can be imagined. If *ex post* severity levels materialize unevenly over time, then response decisions fluctuate with recent materialized severity. To correct that response, policymakers can partition expected true severity from expected false severity. Given that the true severity level can only be realized in period 2, the availability bias may or may not be 'out of line with prior and future levels of concern' (Loewenstein and Mather 1990, 171). It can only be probabilistically out of line given past patterns of outbreaks and other predictive inputs. Following the early stages of an outbreak that produces availability bias, policymakers address probable risk severity by doing too much or too little. Any attempt to mitigate outbreak severity is inefficient if the true risk severity is low. Any attempt to mitigate probable availability bias is inefficient if the true risk severity is high.

The optimal response therefore is to treat probable availability bias as true for a sufficient length of time. Once the precautionary period has passed, the over-response partition of the precautionary measure is efficiently withdrawn. Like national security law, the challenge of setting an optimal precautionary period tends to decrease over time as the legal cycle becomes better defined. Equipped with a better-defined legal cycle, policymakers can replace patchwork decisionmaking with optimal stabilization rules that partition true risk from probable false risk and address the latter with delay.¹⁰ Naturally, if the citizenry panics despite the government's rational delayed response, then the policy may not be sustainable. However, the intuition here is that if the policy is framed as

¹⁰ Note that better-defined legal cycles can additionally address contingencies within the true risk partition itself. For example, future effort towards combating true risk severity is a cost-benefit question that depends on many factors including improved medicine or cheaper travel, which may reduce or magnify

a stabilization strategy in the face of uncertainty, panic can be avoided. By way of analogy, citizens understand that a two-alarm fire does not cause the fire department to send all its resources to the known emergency. Delayed response is one step; a yet more sophisticated policy is to announce what would trigger greater and yet greater responses. These triggers comprise a stabilization strategy.

BANKING LAW

Generally, patchwork rulemaking simultaneously generates varying levels of costs across multiple cost categories. Although laws pertaining to the environment and budget can generate availability in addition to rent-seeking, and laws pertaining to national security and health can generate rent-seeking in addition to availability, a preponderant cost classification characterizes those examples more easily. Other examples, such as banking law and criminal sentencing, can be better understood as hybrid.

Given the cyclical pattern of economic activity, banking law exhibits a cyclical pattern of lawmaking. Separation of investment and commercial banking activity followed the Great Depression and ended during the tail end of the 1990s technology boom. Corporate board responsibilities and financial disclosure requirements were increased only three or four years later following an economic downturn. The economy surged again. Several years of growth were followed by the Great Recession, which led to Dodd-Frank.

Contemporary lawmaking tends to treat economic crisis with *ex post* emergency legislation or delegated oversight powers. Of course this pattern of lawmaking leads to rules that do too little or too much because the social value of a financial rule depends upon the spatial location of the economy within the business cycle. For example, a rule that fully separates investment and commercial activity through legislation like Glass-Steagall, or partially separates activity through a Volcker Rule or something similar, may appear inefficient during a boom. It is well established that controls on financial markets promote risk reduction at the expense of investment. This means that controls are beneficial when reducing risk is more socially valuable than reducing investment; controls are socially costly otherwise. Assuming that social welfare is enhanced by stimulation during a downturn and accumulation during a boom,

outbreak mitigation costs. To address this concern, spending levels can be tied to per-person mitigation costs or some other varying measure of outbreak mitigation.

financial controls optimally fluctuate across time. Financial stabilization rules will be efficient compared to patchwork amendments, repeals, and new enactments to the extent that precise trigger events for responsive controls can be identified. To the extent that early signposts which trigger more control or less control can be identified, banking law can optimally smooth uneven economic output and patchwork patterns of lawmaking. This area of law is plagued by both extreme interest group activity because of its high stakes and availability bias, and because of its need to address vivid economic crises. Stabilization rules diminish costly interest group activity by expanding the bargaining set among groups that care about longer-term outcomes, by being introduced at strategic points in time where interest group influence is less, and by benefiting from an anchoring bias once they are set in place. They diminish availability bias by reducing the need for new rules following crises because stabilizing rules are already in place to address the crisis prior to or immediately following its occurrence. That the social value of rules depends upon the condition of the economy applies to all rules that face a trade-off between the value of reducing risk and the value of increasing risk-taking.

CRIMINAL SENTENCING

As a final stabilization example, briefly consider criminal sentencing. Especially in states where model guidelines have not been adopted, legislators can present themselves as ‘tough on crime’ and advocate tougher rules on sentencing despite a prevailing optimal level of penalties. Or a short-lived crime wave can increase availability bias and lead to over-responsiveness. Federal guidelines suffer from the same exposure. Although the initial guidelines were primarily based upon sentencing patterns, several patchwork amendments driven in part by politics have introduced tougher penalties. Patchwork amendments introduce opportunities for beneficial policy updates (to increase penalties for observed increases in crime for example), but amendments correspondingly hazard updates in penalty levels that inefficiently respond to public pressure and availability bias. By tying guideline intervals of imprisonment length and fine amounts to observed crime levels, pressures from political opportunism and availability bias will marginally decrease.

Consider finally that the 2015 amendments adjusted the 1987 fine amounts for inflation because ‘monetary losses in current offenses reflect, to some degree, a lower degree of harm and culpability’ (U.S. Sentencing Commission 2015, 12). If fines deter crime based in part on the degree of harm, or if fines provide the offender with a conduit for

retribution, then the precision of those fines matters for optimal deterrence and symmetrical retribution. Given continued inflation, the amendments will surely need re-patching to continue to achieve those goals.

CONCLUSION

Legal cycles are ubiquitous throughout nearly all areas of codified law. Historically, lawmakers have suboptimally treated legal cycles with patchwork patterns of amendment, repeal, and new enactment. Stabilization rules smooth patchwork patterns of lawmaking by *ex ante* compelling a well-defined contingent response to future trigger events. As a threshold matter, lawmakers must possess sufficient knowledge of the legal cycle. As that knowledge increases, the precision of trigger events and the directness of a contingent response can be increased. Because stabilization rules smooth patterns of lawmaking, they exhibit a number of welfare-enhancing effects. They check socially costly rent-seeking by expanding the bargaining set among groups that care about longer-term outcomes, by being introduced at strategic points in time where interest group influence is less, and by benefiting from an anchoring bias once they are set in place. They check socially costly over- and under-responsiveness to risk by reducing the need for patchwork rules. Salient events are automatically addressed prior to or immediately following their occurrence in response to precise triggers established *ex ante*. There exists an opportunity for stabilization wherever there exists a sufficiently defined legal cycle currently governed by patchwork lawmaking. Examples can be seen across environmental law, budget law, national security law, health law, banking law, and criminal sentencing.

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