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## Insurance Demand Anomalies and Regulation

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**In recent years, it has become increasingly clear that risk aversion alone cannot explain individuals' demand for insurance. From the perspective of risk aversion, individuals tend to purchase insurance when they should not, refuse to purchase insurance when they should, prefer sub-optimal payouts and allow irrelevant considerations to influence their insurance preferences. This article considers the normative implications of these insurance demand anomalies. It argues that while they are generally the result of consumer mistakes, they may also reflect sophisticated decision making. Given these conflicting explanations, the article explores a spectrum of "libertarian paternalistic" regulatory interventions in insurance markets.**

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For almost half a century, economists assumed, with little empirical foundation, that the purchase of insurance was explained entirely by risk aversion. Risk aversion stems from the decreasing marginal utility of wealth, meaning that each additional dollar improves an individual's well-being less than the previous dollar. As a result, people can maximize their expected utility by spending a small amount in the present to protect against the risk of a large monetary loss in the future, so long as the expected value of the future payment is roughly equivalent to the present payment (Mossin 1968).

It has become increasingly clear in recent years that risk aversion is a remarkably poor explanation for how and why individuals purchase insurance. From the perspective of risk aversion, individuals tend to purchase insurance when they should not, refuse to purchase insurance when they should, strongly prefer suboptimal insurance payout schemes and allow completely irrelevant considerations to dramatically influence their insurance purchasing preferences. Although these deviations from classical theory are often labeled "anomalies," their number and persistency have come to belie this characterization (Cutler and Zeckhauser 2004).

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Despite the wealth of evidence documenting deviations between consumer demand and classical theory, the normative implications of this research have received only minimal attention from scholars and policy-makers. To be sure, some commentators suggest that insurance demand anomalies raise regulatory concerns (Kunreuther et al. 1978; Kunreuther and Pauly 2005, 2004). Underlying this sentiment is often the unarticulated notion that consumers who select insurance in ways that are inconsistent with the predictions of classical theory are making a mistake, meaning that they would behave differently were it not for cognitive or informational limitations (Johnson et al. 1993). Other prominent commentators have suggested that insurance demand anomalies cannot always be dismissed as mere mistakes, but may actually reflect sophisticated and informed choice (Cutler and Zeckhauser 2004; Krantz and Kunreuther 2007). This conceptualization of consumer demand for insurance raises thorny normative implications for the role of regulatory intervention.

This article explores these competing theories of consumer demand for insurance. It (1) reviews empirical research documenting four observed deviations from classical insurance theory that potentially raise regulatory issues, (2) offers two competing explanations for each anomaly and (3) considers various “libertarian-paternalistic” approaches to improving insurance markets without interfering with the emotional value that insurance can provide to consumers (Sunstein and Thaler 2003).

## INSURANCE DEMAND ANOMALIES

Over the past several decades, empirical research from both the laboratory and the real world has repeatedly shown that risk aversion does a poor job of explaining consumers’ actual insurance decisions. At least four such deviations from classical theory raise potential regulatory issues: bimodal demand for catastrophe insurance, enthusiasm for insurance against small financial risks, preferences for low deductibles and willingness to purchase nonpecuniary loss insurance.

### Bimodal Demand for Catastrophe Insurance

Risk aversion fares poorly in its predictions about how individuals purchase insurance against low-probability, high-magnitude risks. According to classical theory, consumers should generally find insurance against such risks desirable, so long as premiums are actuarially reasonable. This is because money should have a larger impact on individuals’

overall utility after a large financial loss than it has prior to such a loss. Differences in consumers' willingness to purchase such insurance should be attributable either to different degrees of risk aversion or levels of wealth.

Contrary to these predictions, individuals frequently display surprisingly little interest in purchasing catastrophe insurance (McClelland, Schulze, and Coursey 1993). For instance, researchers found that homeowners living in earthquake-prone areas of California had not invested even minimal effort to learn about available insurance options (Kunreuther et al. 1978). Individuals' apathy toward insurance was not a product of any expectation that they would receive post-disaster government aid. This pattern persists even in markets where insurance premiums are state subsidized. For example, many property owners living in flood-prone areas do not purchase federal flood insurance, which is both highly subsidized and often legally required (Kunreuther and Pauly 2004).

At the same time, consumers do display substantial enthusiasm for some forms of catastrophe insurance, depending on how the underlying risks are framed or the salience of those risks. Thus, consumers are sometimes strongly drawn to terrorism insurance and insurance against the so-called "dread diseases" such as cancer. In fact, subjects were willing to pay more than twice as much for flight insurance covering "terrorism" and "mechanical failure" than similar subjects were willing to pay for flight insurance covering losses for "any reason" (Johnson et al. 1993). Consumers also tend to display relative enthusiasm for the purchase of earthquake and flood insurance in the immediate aftermath of earthquakes and floods, respectively (Slovic et al. 1977).

### Enthusiasm for Insurance against Small Financial Risks

Ironically, risk aversion also does not fare well at predicting individuals' willingness to purchase insurance against small financial risks. According to classical theory, such insurance should generally not be valuable because low-magnitude losses do not meaningfully impact overall wealth levels. Additionally, loading costs for such insurance are generally high due to the frequency with which claims must be managed. As a result, the level of risk aversion necessary to explain the rational purchase of these forms of insurance is implausible (Rabin 2000).

In contrast to these theoretical predictions, consumers routinely display substantial enthusiasm for insurance against small financial risks. One study documented that 57% of households who were offered insurance against the risk of having to pay repair costs for their phone lines

purchased it. The cost of such insurance was 45 cents per month, whereas its expected value was 26 cents per month (Cicchetti and Dubin 1994). A similar willingness to insure against low-magnitude losses is apparent in ordinary homeowners and automobile policies, which provide coverage for fallen tree removal, broken windshield repair and rental car fees (Schwarcz 2007). Perhaps the most omnipresent example is the extended product warranty for consumer durables, which numerous stores successfully offer to customers at exorbitant rates (Chen, Kalra, and Sun 2009).

### Preferences for Low Deductibles

According to classical theory, policyholders should generally favor coverage with large deductibles (Mossin 1968). In part, this is because lowering deductibles results in the purchase of insurance against small financial risks. But large deductibles also disproportionately reduce the costs of insurance coverage for two additional reasons. First, they reduce moral hazard by requiring the policyholder to pay the first dollars of any loss. Second, they may limit the risk of adverse selection because low deductibles are disproportionately valuable to high-risk individuals.

Despite these potential savings, consumers routinely select surprisingly low deductibles. A recent study found that a substantial majority of consumers select a deductible of \$500 rather than \$1,000, even though the marginal cost of this additional coverage is approximately four times its expected value (Sydnor 2009). At least partially in response to these preferences, some personal lines insurers do not offer deductibles higher than \$1,000 for property coverage and most such insurers do not offer deductibles at all for liability insurance. Consumers' preferences for low deductibles also appear to be relatively intense. Thus, massive consumer outcry in the 1970s forced the Pennsylvania Insurance Commissioner to withdraw a proposal to raise the minimum deductible for automobile policies from \$50 to \$100 (Cummins and Weisbart 1978).

### Willingness to Purchase Insurance against Nonpecuniary Losses

Most forms of insurance do not compensate consumers for losses that neither directly nor indirectly decrease wealth levels. For instance, homeowners insurance does not compensate policyholders for the emotional trauma that accompanies the loss of one's home and personal possessions. Law and economics scholars often attribute the absence of such nonpecuniary loss insurance to consumer disinterest (Priest 1987; Shavell 1987). Increasingly, though, research suggests that supply-side problems

may better explain the general absence of nonpecuniary loss insurance (Avraham 2005). In fact, in at least two markets where nonpecuniary loss insurance is offered, consumers enthusiastically purchase it (Hanson and Croley 1995).

Consider first the market for juvenile life insurance. Approximately 15% of people under 18 have some form of life insurance (Cutler and Zeckhauser 2004). Two million stand-alone juvenile life insurance policies were sold in 2004, with premiums averaging \$213 per year and policies paying out an average death benefit of \$35,310 (Martin 2005). It is implausible to explain such juvenile life insurance as constituting protection against financial risk. In fact, the death of a child generally results in a substantial increase in wealth because it relieves parents of child-rearing costs. Recent estimates place this cost at \$9,000 a year for families earning less than \$57,000 annually, \$12,000 a year for families earning between \$57,000 and \$98,500 annually and \$21,000 a year for families with a yearly income above \$98,500 (Lino and Carlson 2009). And the financial costs of a child's death are generally small; most health insurance plans cover mental health treatment expenses and federal law provides some measure of protection to employees who need to take bereavement leave.<sup>1</sup> Although the average funeral costs \$6,500, one can plan a modest funeral for substantially less (Solomon 2007).

Another example of commonly purchased nonpecuniary loss insurance is Uninsured/Underinsured Motorists Coverage ("UIM" coverage). In the event of an accident with an uninsured or underinsured motorist, UIM coverage pays the amount the insured would have been able to recover from a tortfeasor with sufficient liability insurance to pay for damages. Because tort plaintiffs can recover emotional distress damages from defendants, policyholders with UIM coverage can also recover insurance proceeds for such losses (Hanson and Croley 1995).

Consumers' apparent demand for insurance against nonpecuniary losses is not necessarily incompatible with classical theory. This is because it is possible that a nonpecuniary loss might increase an individual's marginal utility of wealth (Shavell 1987). An emotional loss might make financial expenditures more desirable, as in the case of the so-called "retail therapy." Similarly, a loss of physical capabilities might

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1. The Mental Health Parity and Addiction Act of 2008, which took effect January 1, 2010, requires that employer-provided health insurance plans offer mental health benefits that are no more restrictive than those requirements placed on medical benefits. 29 U.S.C. § 1185a (2008). With respect to bereavement leave, the Family Medical Leave Act ("FMLA") provides a right to unpaid leave for parents suffering from depression due to the loss of a child. *Stubl v. T.A. Systems, Inc.*, 984 F. Supp. 1075 (E.D. Mich. 1997).

increase the marginal utility of wealth by, for instance, requiring an avid athlete to substitute toward more expensive hobbies.

However, these explanations for consumers' demand for juvenile life insurance and UIM insurance are largely implausible. In the case of juvenile life insurance, it is simply hard to imagine that a child's death increases the utility people derive from spending money (Priest 2003), particularly since a child's death generally increases overall wealth levels. Although there may indeed be individual instances where a nonpecuniary loss from an automobile accident increases marginal utility of wealth, it seems telling that UIM insurance does not link insurance payments to factors that might plausibly track the subjective value of money. Such factors might include whether emotional distress is attributable to the temporary experience of physical pain (which should not impact the marginal utility of wealth) or to partial or total disability (which might plausibly impact marginal utility of wealth). Simply put, UIM's provision of full insurance for all forms of pain and suffering that are recoverable in tort law seems overly broad if consumers are merely trying to transfer wealth to states of the world where they enjoy a comparatively large marginal utility of wealth.

## TWO COMPETING EXPLANATIONS FOR INSURANCE DEMAND ANOMALIES

Observed insurance demand anomalies can be explained in two basic ways. The first, which can be labeled the *mistake hypothesis*, explains them by reference to consumers' lack of complete information and/or their limited cognitive abilities. According to the mistake hypothesis, consumer insurance decisions reflect the fact that time is scarce, cognitive resources are finite and information is limited. If these obstacles could be overcome, consumer insurance decisions would better reflect the predictions of classical theory. In other words, according to the mistake hypothesis, risk aversion is perfectly defensible as a normative theory of insurance purchasing, even though it largely fails as a descriptive theory.

The second explanation for insurance demand anomalies is that they stem not from the limits of consumers but from the limits of classical theory. This explanation, which can be labeled the *incompleteness hypothesis*, is premised on the notion that classical theory, with its focus on the decreasing marginal utility of wealth, fails to fully capture the benefits of insurance. Consumer behavior, from this perspective, is not the result of mistakes driven by limited information or cognition. Rather,

even sophisticated consumers with full information would deviate from the predictions of classical theory under the incompleteness hypothesis.

The available evidence provides strong support for the mistake hypothesis. Much of the anomalous insurance demand described in the previous section appears to be driven by consumers' incomplete information or analytically limited heuristics. At the same time, the incompleteness hypothesis is also a plausible explanation for some of the anomalous consumer demand observed in real insurance markets. In particular, insurance demand anomalies can be explained as sophisticated consumer efforts to manage emotions such as anxiety, regret and loss aversion. These negative emotions are not necessarily an artifact of manipulative insurance sales or marketing.<sup>2</sup> Other sophisticated consumer strategies—such as committing to a forced-savings strategy—may also explain some seemingly irrational consumer behavior.

### Understanding Consumers' Bimodal Demand for Catastrophe Insurance

The mechanisms underlying consumers' bimodal demand for catastrophe insurance are relatively well-understood in the decision making literature. First, most people tend to assess probabilities based in part on the cognitive salience and availability of the underlying event being estimated. Although this heuristic serves them well with respect to high-probability events, it results in the overweighting of salient low-probability risks such as terrorism and the underweighting of mundane low-probability risks such as dying in a car accident (Johnson et al. 1993; Slovic, Fischhoff, and Lichtenstein 1981; Viscusi 1992). Second, people tend to employ a sequential threshold approach to insurance decision making. Under this approach, they refuse to consider the desirability of insurance when they perceive the probability of the underlying risk to be below a threshold level (Kunreuther et al. 1978; Slovic et al. 1977).

These mechanisms for consumer decision making about catastrophe insurance provide strong support for the mistake hypothesis.<sup>3</sup> Indeed,

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2. Of course, this is not to suggest that manipulative insurance sales or marketing could not lead one to purchase insurance in order to manage emotions. Indeed, insurers may frequently create anxiety where none previously existed by virtue of presenting the option of insurance in the first place. This prospect may itself have important regulatory implications, particularly with respect to the regulation of insurers' marketing practices.

3. Although market forces might mitigate the impact of such mistakes, they would not eliminate them. Private insurers generally have little incentive to help consumers overcome mistakes that result in the purchase of too little catastrophe insurance. This is because supply-side problems limit insurers' capacity to profitably sell such coverage, meaning that it is typically supplied by government entities (Jaffee and Russell 1997).



consumers' biased estimates of low-probability risks are unambiguously mistakes. Simply put, probability assessments based on the cognitive availability and salience of a risk will produce objective and systematic errors when applied to low-probability risks. The sequential approach to insurance decision making is similarly consistent with the mistake hypothesis. Although it may save time and energy to ignore the need for insurance when one perceives a risk to be sufficiently small, consumers with infinite time and cognitive resources would not do so.

While the mistake hypothesis likely explains a large percentage of consumers' bimodal demand for catastrophe insurance, at least some portion of this demand may be better explained by the incompleteness hypothesis. In particular, consumers' sequential threshold approach to purchasing catastrophe insurance may actually reflect the sophisticated use of insurance to reduce the anxiety associated with the prospect of a potential catastrophic loss (Krantz and Kunreuther 2007). Consumers' refusal to investigate insurance against risks below threshold probability levels can be interpreted as a lack of interest in insurance against risks that do not induce anxiety. For consumers who are not particularly risk averse, such insurance is genuinely undesirable under classical theory, so long as loading costs are non-negligible. In contrast, consumers' willingness to investigate and purchase insurance against risks whose perceived probability exceeds threshold levels may reflect the fact that such risks generate anxiety that insurance could alleviate.

Suppose, for instance, that a consumer was not worried about earthquakes. Even under classical theory, such a person might rationally decide not to purchase insurance with some loading cost. Now consider how this person's behavior might change in the wake of a salient earthquake. Even though he knows that an earthquake is no more likely now than it was before, he constantly worries about the financial effect an earthquake would have on his family. From the perspective of risk aversion, he should nonetheless be no more willing to purchase earthquake insurance now than he was prior to the recent earthquake. But from the perspective of reducing anxiety, such insurance may be more valuable after the salient earthquake than it was before that earthquake.

#### Understanding Consumer Demand for Insurance against Small Financial Risks

Perhaps the most plausible explanation for consumers' enthusiasm for insurance against small financial risks involves "mental accounting"



(Rabin and Thaler 2001). Mental accounting posits that individuals tend to evaluate risks in isolation, without appreciating the relevance of external factors—such as overall wealth and other risks to which one is exposed. A risk that is small in the context of one's overall wealth may thus appear quite large, seemingly justifying the purchase of insurance. Mental accounting also results in people tending to ignore the “law of large numbers,” which states that aggregating individual bets will tend to reduce the chances that actual outcomes deviate from predicted outcomes. Individuals may therefore overweight the desirability of insuring against commonly faced risks. For instance, although the risk that a newly purchased stereo will break may be moderate, the risk that an unusually large percentage of one's consumer goods will break is generally quite small.

The mental accounting explanation supports the mistake hypothesis because it suggests that consumers' enthusiasm for insurance against small financial risks stems from their reliance on an imperfect heuristic.<sup>4</sup> Mental accounting may be a valuable tool for cognitively limited people to make financially sensible decisions in daily life, but it produces systematic errors with respect to financial decisions that importantly depend on larger financial context. Purchasing insurance against a small financial risk is precisely such a decision—whether or not a particular gamble is “small” depends on broader context. Were consumers endowed with perfect information and cognitive resources, they would surely realize this.

Mental accounting, however, is not the only explanation for consumers' surprising demand for insurance against small financial risks. Another, nonmutually exclusive, explanation is loss aversion (Rabin and Thaler 2001). Loss aversion posits that the pain individuals feel due to a loss substantially outweighs the pleasure they feel from an equivalent gain (Tversky and Kahneman 1991). From the perspective of loss aversion, insurance against low-magnitude risks may help to reduce the potential for emotional unpleasantness if insurance premiums are not themselves experienced as a loss. Recent models suggest that this may well be so, in part because such premiums are within people's

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4. Market forces do not undermine the mistake-based explanation for consumers' demand for insurance against small financial risks. No firm would have an incentive to correct this type of mistake, because doing so would simply decrease consumers' willingness to purchase insurance against small financial risks. And because this form of insurance is typically sold as a voluntary add-on to other products, a firm's attempt to capture market share by informing or debiasing consumers would not help that firm capture additional business (Gabaix and Laibson 2006).

control and are not surprise events (Koszegi and Rabin 2007; Sydnor 2009).

In contrast to mental accounting, loss aversion is more consistent with the incompleteness hypothesis than the mistake hypothesis, as it suggests that consumers may be seeking to rationally manage their emotions when they purchase insurance against small financial risks. Knowing that losses cause large amounts of emotional distress, individuals choose to purchase insurance against these risks so they can avoid the possibility of such unpleasantness. As a result, the pain from paying for the removal of a fallen tree or purchasing a replacement iPod can be avoided through the relatively painless process of purchasing insurance.

### Explaining Consumer Demand for Low Deductibles

A number of different explanations have been advanced for consumers' persistent preference for modest deductibles, most of which are consistent with the mistake hypothesis.<sup>5</sup> One recent theory suggests that consumers prefer moderate deductibles because they are simply miscalculating expected values by incorrectly "anchoring" on the size of the deductible (Shapira and Venezia 2008). According to this theory, insurance consumers calculate the expected payout of a policy by first aggregating expected losses, and then subtracting the deductible from this amount. Three different experiments found that subjects—students with a background in economics who were provided with an explanation of deductibles—consistently made this error in attempting to price policies in a simulated insurance market. A second explanation for consumers' preference for low deductibles is that consumers make an analytical mistake, rather than a numeric mistake, by reasoning that a low deductible increases their chances of "getting something" if they suffer a loss. Consumers thus mistakenly think of insurance as "an investment" (Cutler and Zeckhauser 2004; Kunreuther and Pauly 2005). Yet a third explanation is that individuals overestimate the likelihood of a loss and thus the

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5. These mistake-based explanations are consistent with a competitive marketplace. It is unlikely that a competing insurer would find it worthwhile to inform or debias consumers who were mistakenly selecting excessively low deductibles. This is because newly sophisticated consumers could adjust their behavior and avoid their deductible mistake without switching to the firm that invested in debiasing or informing them (Gabaix and Laibson 2006). For example, a State Farm consumer who realized that he was making a mistake by maintaining a \$500 deductible after watching an Allstate advertisement trumpeting the cost savings from high deductible plans could simply stick with State Farm but increase his deductible to \$5,000.

value of a low deductible (Murray 1972; Pashigan, Schade, and Menefee 1966).

Once again, however, it is at least theoretically possible to explain consumers' preferences for low deductibles in a manner that supports the incompleteness hypothesis rather than the mistake hypothesis. Some theorists have speculated that consumers' preference for low deductibles represents a sophisticated strategy to reduce regret (Braun and Muermann 2004). Regret in this context refers to the disutility that individuals experience when their decisions turn out to be incorrect from an ex post perspective. A regret-averse person would experience disutility from having purchased a high-deductible policy if he does indeed suffer a loss. As a result, one can formally show that, under certain relatively uncontroversial assumptions, perfectly sophisticated individuals whose utility functions incorporate regret-minimization would "hedge their bets" when loading costs are sufficiently high, purchasing a lower deductible than they otherwise might in order to mitigate the prospect of regret.

Another explanation for consumers' preferences for low deductibles that supports the incompleteness hypothesis is that such deductible choices represent a rational forced-savings strategy. It is well known that consumers often have trouble saving funds and preserving lines of credit (Littwin 2008). For such consumers, purchasing low deductibles may be a rational strategy to ensure that they have the financial capacity to make important repairs when they need to do so. Unlike a more conventional savings strategy, the benefit of low deductibles is that they involve a single, up-front, investment that is relatively hard to undo in the face of temptation. The insurance contract essentially ensures that consumers can only "withdraw" these funds in the event of a genuinely serious loss.<sup>6</sup>

### Explaining Demand for Insurance against Nonpecuniary Losses

Recall that consumer demand for insurance against nonpecuniary loss is both theoretically consistent with classical theory and often (wrongly)

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6. One researcher directly asked subjects why they chose the deductibles they did. For those who chose \$50 deductibles, answers included (i) "it was the smallest possible," (ii) "it gave general protection," (iii) "it was the best deal" and (iv) "any accident I have will be less than \$200 since I am a careful driver." For those who chose \$100 deductibles, explanations included (i) their agent or bank chose it, (ii) this option was cheaper, (iii) "could always squeeze out \$100," (iv) "makes for fewer claims and that's better" and (v) "never had any accidents where I had to pay" (Murray 1972). These explanations seem to provide more support for the mistake hypothesis than the incompleteness hypothesis, though they are obviously difficult to interpret.

claimed not to exist in practice. For both reasons, few scholars have given much thought to what, other than changes in individuals' marginal utility of wealth, might explain demand for nonpecuniary loss insurance where it does exist. As above, however, explanations consistent with both the mistake hypothesis and the incompleteness hypothesis are plausible.

It is entirely possible that people who demand nonpecuniary loss insurance are simply making mistakes. For instance, people may overestimate the extent to which a nonpecuniary loss will increase their need for wealth. Thus, those who purchase juvenile life insurance may overestimate the likelihood that they will need to (or want to) take an extended period of time off from work, or need extensive therapy in the event of a child's death. Indeed, there is strong evidence that people exaggerate the duration of losses that involve high affect (Gilbert et al. 2002). Alternatively, people may analyze the need for insurance against a potential risk without distinguishing between pecuniary and nonpecuniary losses at all. This prospect is supported by evidence that financial decisions are often reflexive, and thus impacted simultaneously by logical processes (which might dictate the purchase of insurance for pecuniary risks) and emotional processes (which might conflate pecuniary and nonpecuniary risks given that such losses are often felt simultaneously) (Bossaerts 2009; Lo and Repin 2002). It is also supported by laboratory research finding that a substantial majority of research subjects treated insurance against pecuniary and nonpecuniary losses exactly the same when presented with a set of hypothetical insurance transactions (Avraham 2005).

At the same time, there are at least two potential explanations for consumer demand for nonpecuniary loss insurance that are consistent with the incompleteness hypothesis. First, people may view insurance as a form of "consolation" against the risk of loss. On this account, insurance provides a form of emotional support when a loss occurs by providing "symbolic value" or "redemption for the lost object" (Hsee and Kunreuther 2000). Alternatively, it is possible that individuals desire nonpecuniary loss insurance due to a desire to distribute resources from a high-utility state of the world to a low-utility state of the world. From this perspective, individuals care not just about maximizing expected utility, but also about equalizing their overall utility levels across different states of the world. This preference can be understood as a corollary to the Rawlsian notion that it is preferable to distribute goods behind a veil of ignorance equally unless departing from that strategy increases the welfare of the worst-off individual (Hanson and Croley 1995).

## LIBERTARIAN PATERNALISM AND REGULATING INSURANCE DEMAND

What is the optimal role of government in response to insurance demand anomalies in insurance markets? On one hand, the mistake hypothesis appears to explain most of the observed deviations from classical insurance theory better than the incompleteness hypothesis. To the extent that this is so, aggressive regulatory intervention designed to correct these mistakes and foreclose their exploitation by firms may be warranted. On the other hand, the incompleteness hypothesis provides a theoretically plausible explanation for understanding a subset of each consumer demand anomaly previously discussed. Deviations from classical theory may consequently represent, to some degree, sophisticated consumer behavior. This account vastly complicates the normative case for regulatory interventions that would limit consumer choice, as it requires pitting the interests of some sophisticated consumers against the interests of other consumers who are (unknowingly) making mistakes.<sup>7</sup>

Given these competing forces, this section considers various libertarian-paternalistic responses to insurance demand anomalies (Sunstein and Thaler 2003). The basic premise of libertarian paternalism is that government interventions can simultaneously preserve choice while nudging consumers toward welfare-enhancing decisions. The range of such interventions is vast, and exists along something of a spectrum between libertarianism and paternalism. For instance, product disclosure requirements are closer to the libertarian side of the spectrum; because disclosure requirements merely inform consumers about objective facts, they are highly consistent with libertarian principles. Closer to the paternalistic side of the spectrum are interventions that seek to take advantage of behavioral tendencies, such as status quo bias and framing effects.

Although all forms of libertarian paternalism maintain choice, more aggressive forms of such regulation are often objectionable to ardent libertarians because they require the government to determine presumptively welfare-maximizing choices and attempt to “manipulate” consumers into making those choices (Glaeser 2006; Klick and Mitchell 2006). Additionally, aggressive forms of libertarian paternalism may

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7. One can legitimately question the extent to which government regulation should always respect the preferences of sophisticated consumers, particularly where those preferences stem from the desire to manage emotions such as anxiety, regret and loss aversion. But interventions designed to manipulate genuine consumer preferences for the benefit of those consumers are more troubling than interventions designed to correct consumer mistakes because they undermine the premise of welfare economics and the related concept of consumer sovereignty (Kaplow and Shavell 2001).

impose a “psychic tax” on consumers who seek to exercise choices inconsistent with encouraged decisions, causing them to experience emotional displeasure because they feel as if they acted “badly” or inappropriately (Glaeser 2006). In cases where the presumptively welfare-maximizing decision merely decreases a risk rather than eliminating it, this psychic tax may also harm people who make the encouraged choices, causing them anxiety over the underlying risk.

Because insurance demand anomalies appear to stem more from consumer mistakes than sophisticated consumer behavior, more aggressive forms of libertarian paternalism may be appropriate. However, it is particularly important to avoid the prospect that aggressive forms of libertarian paternalism will impose a psychic tax on insurance consumers. This is because as a key reason for avoiding traditional paternalism with respect to consumers’ insurance decisions is that these decisions may be motivated by reasonable emotional, or psychic, considerations.

#### Libertarian Paternalism and Catastrophe Insurance

As explained earlier, many consumers apparently make mistakes in failing to purchase insurance against catastrophes such as earthquakes, floods and hurricanes. These mistakes are particularly troubling because they may generate negative externalities, such as increasing the need for government aid. Although better disclosure could potentially limit consumer mistakes in this domain, the potential of such disclosure is ultimately limited. The most obvious form of improved disclosure would communicate the actual likelihood of a disaster to counteract consumers’ tendency to underestimate nonsalient or cognitively available risks (Kunreuther and Pauly 2004). Unfortunately, mere numeric disclosures are unlikely to be particularly effective. Affect-laden approaches are often necessary to trigger consumers’ willingness to consider the purchase of insurance in the sequential model of insurance. Yet disclosures that sought to “scare” people into purchasing such insurance would impose a large psychic tax upon both those that chose not to purchase insurance and those that capitulated.

One promising libertarian-paternalistic approach would encourage insurers to offer (in addition to any existing options) bundled disaster coverage for several different low-probability risks, such as floods and earthquakes (Kunreuther and Pauly 2004). Even if consumers underestimated the probability of each event individually, the combined probability of any event occurring may be sufficient to overcome the threshold level of probability that inhibits even the consideration of

insurance in the sequential model of choice. The key limitation of this proposal is that few consumers face even a small probability of exposure to both earthquakes and floods, so consumers are likely to consider such bundled insurance only in terms of the peril to which they are actually exposed.

To overcome this limitation, a related proposal would encourage insurers to offer (in addition to any existing options) disaster coverage for contract periods longer than a year, such as 5 or even 10 years (Slovic et al. 1977). As with insurance that bundled different types of risks, such a policy might overcome errors generated by the sequential model of insurance by raising a risk above the requisite threshold for consumers to consider insuring against it. "Instead of describing the chances of 100-year flood as .01 per year, one could note that an individual living in a particular house for 25 years faces a .22 chance of suffering 100-year damage at least once" (Slovic et al. 1977). This approach would be more likely than the bundling of different types of disaster coverage to overcome threshold probabilities, as most risks do not differ substantially intertemporally.

An alternative approach is to permit insurers to bundle disaster insurance with other forms of insurance that consumers tend to purchase too much of relative to classical theory. Consider one recent proposal designed to increase the purchase of health insurance among overly optimistic youths. It would permit insurers to offer "tontines," which are essentially potential lottery rewards that become available if the insured low-probability event does not transpire (Baker and Siegelman 2009). This strategy seeks to counteract underinsurance against catastrophic risks by exploiting consumers' seeming excess enthusiasm for tontines. It also helps limit the prospect that consumers may not be drawn to catastrophe insurance because they incorrectly view it as an investment that tends not to pay out. This approach has the benefit of almost completely avoiding psychic costs.

### Libertarian Paternalism and Insurance against Small Risks

Disclosure strategies represent one potentially promising approach to limiting consumer mistakes with respect to the purchase of insurance against high-probability, low-magnitude risks. For instance, a disclosure could inform consumers of the percentage of purchasers who actually use their warranties (Nalebuff and Ayres 2003). Alternatively, firms could be required to disclose the loss ratio—the percentage of premiums that are actually used for payouts—of this insurance (Bar-Gill 2007). Both



approaches would better inform consumers about the expected value of this insurance and would, at the very least, make them realize that it is not a good “investment.”

Consumer mistakes could also be limited by individual-use disclosure, which provides consumers with specific information about their own product use patterns (Bar-Gill 2007). Many credit and debit card providers already provide consumers with an annual summary of purchases in different categories (Sunstein and Thaler 2003). One such category is “consumer goods,” though this category is frequently not broken down any further. Credit and debit card companies could be required to separately account for “consumer warranties” and merchants could be required to report any repairs they provide under such warranties. With these mechanisms in place, consumers could receive an annual and five-year summary of the costs and benefits of all consumer warranties they purchased.

This particularized form of disclosure would help consumers overcome some of the limitations associated with mental accounting by framing the purchase of consumer insurance policies in larger context. Consumers who routinely purchase this form of insurance could see the law of large numbers in action. Moreover, given advances in information technology, this form of regulation may not be particularly expensive to implement. Even if the start-up costs of this disclosure regime were significant, they might be appropriate given the money that consumers currently spend on product warranties.

### Libertarian Paternalism and Deductibles

To the extent that consumers are making mistakes by selecting excessively low deductibles, traditional disclosure-oriented strategies are not likely to prove effective. The basic problem is that the reason why people should prefer high deductibles is hard to explain briefly and simply (Kozup and Hogarth 2008). Government regulation could nonetheless seek to nudge consumers toward purchasing higher deductibles through framing effects and forced choice.

First, insurers could be required to state deductibles in terms of a percentage of overall policy limits, in addition to absolute dollars. Thus, a homeowners insurance policy that provides \$250,000 of coverage for a dwelling would be framed as providing a deductible of .2% of the policy limit, or \$500. This framing should communicate to policyholders the small amount of risk they currently hold, and nudge them to think about whether they could reasonably retain a larger amount of risk.

Second, insurers could be required to provide consumers with an initial set of prices for deductibles of .5%, 1% and 2% of policy limits. They could also be required to provide consumers with the option of a deductible up to 5% of policy limits. These reforms would increase consumer awareness regarding the potential cost savings associated with higher deductibles: most consumer insurance markets are quite competitive on price (Harrington 2002), so insurers would likely be forced to pass on to consumers the lower costs of high-deductible policies. Additionally, decision making research has found that people often tend to select “middle” options when they are given multiple options arrayed along a spectrum (Shafir, Simonson, and Tversky 1997). Forcing insurers to increase the number of choices at the upper range of plausible deductible values should consequently increase the percentage of consumers who select a higher deductible.

Third, insurers could be required to disclose the percentage of consumers who take advantage of small deductibles in the event of small claims. Many consumers choose not to make a claim when their loss is not substantially larger than their deductible because they worry that doing so will increase future premiums (Kunreuther and Pauly 2005). If insurers were forced to disclose an estimate of how frequently this occurs, many consumers would presumably realize that the true cost of a low deductible includes the additional premium that will be paid in the future as a result of taking advantage of a low deductible when small claims occur.

### Libertarian Paternalism and Nonpecuniary Loss Insurance

Libertarian-paternalistic interventions can also limit mistakes concerning nonpecuniary loss insurance. In the juvenile life insurance market, improved disclosure is the most obvious intervention. Insurers could be required to disclose the projected decreased costs associated with the death of a child, especially for families saving for college expenses. Perhaps less controversially, insurers could be required to disclose the legal protections afforded to grieving parents, including the possibility of Family Medical Leave Act (FMLA) leave in the event of depression and the requirement of mental health parity in many health insurance policies. Unfortunately, these disclosure strategies pose a potentially large risk of creating a psychic tax. Asking people to imagine the relative value of money in the event of their child’s death may itself generate unpleasant emotions. This is true irrespective of whether the disclosure dissuades them from purchasing such insurance. It is also possible that disclosure

strategies of this type might have the incidental effect of discouraging the purchase of other forms of insurance—such as ordinary life insurance—that are sold by the same agents, even when government policy ought to nudge people toward purchasing more, rather than less, of such coverage.

Less affect-laden contexts in which consumers purchase nonpecuniary loss insurance may be more amenable to effective libertarian paternalism that avoids psychic taxes. For instance, insurers could be required to offer consumers the option of less extensive UIM insurance that only covers pecuniary tort damages, but not pain and suffering damages. Additionally, regulators could insist that consumers who wish to purchase complete UIM coverage, which would include emotional distress damages, do so through an endorsement. That structure—which has already been tried in New Jersey<sup>8</sup>—effectively sets the default as limited UIM insurance that covers only pecuniary losses, and requires consumers seeking nonpecuniary loss insurance to opt out of this default (Yeh and Schmit 2001). Because consumers often do not opt out of defaults (referred to as “status-quo bias”), this approach could nudge consumers away from paying for nonpecuniary loss insurance while simultaneously preserving their freedom to do so. In New Jersey, only 20% of drivers opted out of the default to full UIM coverage. In Pennsylvania, where consumers who did not want full UIM coverage were required to select an endorsement in exchange for a partial refund, 75% of consumers stayed with the default of full UIM insurance (Krantz and Kunreuther 2007).

## CONCLUSION

Decisions about insurance are among the most difficult that consumers face. They require individualized predictions about the likelihood and magnitude of highly unlikely, and largely unfamiliar, future events. Faced with such complex decisions, it is hardly surprising that consumers frequently make mistakes. At the same time, insurance is a complicated and emotionally laden product, and simplistic explanations of consumer behavior seriously risk undermining some of the genuine value that insurance provides to consumers. Libertarian paternalism, which encourages presumptively reasonable insurance decisions while preserving choice, has an under-explored potential to navigate these competing interests.

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8. The New Jersey scheme did permit suit for non-economic damages in the case of a few statutorily defined serious injuries (Yeh and Schmit 2001).

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