

REGULATING CONSUMER DEMAND IN INSURANCE MARKETS

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Abstract

In recent years it has become increasingly clear that risk aversion cannot by itself explain 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, 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 many observed deviations from traditional theory are likely the result of mistakes, in the sense that consumers would act differently if they possessed perfect information and cognitive resources. From this perspective, regulatory interventions designed to improve consumer decision-making about insurance are potentially desirable. At the same time, the article argues that some insurance demand anomalies may actually reflect sophisticated consumer behaviour. In some cases, seemingly puzzling insurance decisions may help consumers manage emotions such as anxiety, regret and loss aversion, while in other cases they may represent valuable commitment strategies. Because consumers' insurance decisions may reflect sophisticated rather than mistaken decision-making, regulatory interventions that limit consumer choice are normatively troubling. Given these conflicting explanations for risk aversion's failure as a descriptive theory of consumer demand in insurance markets, the article explores a spectrum of 'libertarian-paternalistic' regulatory interventions. It argues that regulatory strategies that aim to encourage presumptively welfare-maximising insurance decisions without restricting individual choice represent a promising and normatively defensible opportunity for improving consumer behaviour in insurance markets.

For almost half a century, economists assumed, with little empirical foundation, that the purchase of insurance was explained entirely by risk aversion within Expected Utility Theory (EUT).¹ According to this theory, people who purchase insurance enjoy diminishing marginal utility as their wealth increases, meaning that each additional dollar improves their well-being less than the previous dollar.² 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.³

It has become increasingly clear in recent years that risk aversion alone cannot explain how and why individuals purchase insurance.⁴ From the perspective of risk

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¹ See generally J. Von Neumann and O. Morgenstern, *Theory of Games and Economic Behavior* (1964). Technically, EUT does not require any particular utility function. Recent behavioural work has sought to explain insurance decisions by including within the utility function unconventional variables, such as the prospect of regret or loss aversion. Such models do not explain insurance by reference to risk aversion, even if they do fall within the general domain of EUT. As such, references to 'traditional' or 'classic' EUT in the text should not be understood to encompass such recent behavioural innovations to EUT.

² See S. Shavell, *Foundations of Economic Analysis of Law* (2004) at 596.

³ See J. Mossin, 'Aspects of Rational Insurance Purchasing' (1968) 76 *Journal of Political Economy* 533.

⁴ From a descriptive perspective, the failure of traditional EUT is not cabined to insurance decisions but applies to individual risk-based decisions more generally. The leading competing theory of individual decision-making under uncertainty is Prospect Theory. See generally D. Kahneman and A. Tversky, 'Prospect Theory: An Analysis of Decision Under Risk' (1979) 47 *Econometrica* 263 at 263-270; A. Tversky

aversion, individuals tend to purchase insurance when they should not, refuse to purchase insurance when they should, strongly prefer sub-optimal insurance payout schemes and allow completely irrelevant considerations to dramatically influence their insurance purchasing preferences.⁵ Although these deviations from EUT are often labelled ‘anomalies’, their number and persistency have come to belie this characterisation.⁶

Despite the wealth of empirical research documenting insurance demand anomalies, the normative implications of this consumer behaviour have received only minimal attention from scholars and policymakers.⁷ To be sure, some commentators suggest that deviations from traditional EUT raise regulatory concerns.⁸ Underlying this sentiment is often the unarticulated notion that consumers who select insurance in ways that are inconsistent with standard theory are making a mistake, meaning that they would behave differently were it not for cognitive or informational limitations.⁹ Other prominent commentators have suggested that consumer behaviour inconsistent with traditional EUT cannot always be dismissed as mere mistakes, but may actually reflect sophisticated and informed choice.¹⁰ From the perspective of welfare economics, this conceptualisation of consumer demand for insurance raises thorny normative implications for the role of regulatory intervention.¹¹

This article explores these competing theories of consumer demand for insurance. Part 1 begins with a review of empirical research documenting four observed insurance demand anomalies that potentially raise regulatory issues. First, consumer demand for catastrophe insurance is generally bimodal, with consumers tending either to exhibit surprisingly little interest in such insurance or bizarre enthusiasm for it. Second, consumers routinely purchase insurance against small financial risks that imply preposterous levels of risk aversion. Third, consumers typically prefer excessively low

and D. Kahneman, ‘Advances in Prospect Theory: Cumulative Representations under Uncertainty’ (1992) 5 *Journal of Risk and Uncertainty* 297. For another interesting general theory of decision-making under uncertainty, see D. Krantz and H. Kunreuther, ‘Goals and Plans in Decision Making’ (2007) 2 *Judgment and Decision Making* 137. See also G. Lowenstein et al., ‘Risk as Feelings’ (2001) 127 *Psychological Bulletin* 267 at 267-271.

⁵ See generally Part 1 *infra*.

⁶ In the words of two leading insurance economists, deviations from traditional EUT ‘are not minor anomalies but reflect a systematic tendency for insurance in practice to differ from insurance in theory.’ D. Cutler and R. Zeckhauser, ‘Extending the Theory to Meet the Practice in Insurance’, *Brookings-Wharton Papers on Financial Services* (2004) at 3, available at: <http://muse.jhu.edu/journals/brookings-wharton_papers_on_financial_services/v2004/2004.1cutler.html> (last visited March 15, 2010). Matthew Rabin and Richard Thaler describe risk aversion-based explanations of insurance decisions as ‘plainly wrong and frequently misleading’. See M. Rabin and R. Thaler, ‘Anomalies: Risk Aversion’ (2001) 15 *Journal of Economic Perspectives* 219 at 230. They analogise economists’ defences of traditional EUT to a Monty Python sketch in which a pet shop owner attempts to convince a disgruntled customer that the bird he recently purchased is not dead, despite the customer beating the dead parrot on the store counter. *Id.*, at 230.

⁷ See, for example, Cutler and Zeckhauser, above n. 6, at 43 (stating that the normative relevance of consumer insurance anomalies ‘is a task for future efforts’); Krantz and Kunreuther, above n. 4, at 163 (briefly discussing the prescriptive implications of their theory of consumer demand anomalies from the standpoint of how consumers should purchase insurance, but noting that their ‘framework ... raises a host of difficult prescriptive questions [and] we provide a sampler here but note that most of the answers are beyond the scope of this paper and should be addressed by future research’); Rabin and Thaler, above n. 6, at 230 (noting that traditional EUT is quite attractive as a normative theory of how to purchase insurance without exploring this issue). This is noteworthy given that the original developers of EUT, Von Neumann and Morgenstern, viewed it as a normative theory. See C. Guthrie, ‘Better Settle Than Sorry: The Regret Aversion Theory of Litigation Behavior’ (1999) *University of Illinois Law Review* 43 at 49.

⁸ The commentator who has explored this issue most thoroughly is Howard Kunreuther. See generally nn. 13, 16, 18, 68, 131.

⁹ See, for example, E. Johnson et al., ‘Framing, Probability Distortions, and Insurance Decisions’ (1993) 7 *Journal of Risk and Uncertainty* 35 at 36 (‘The recognition that consumer perceptions and decision processes are imperfect and manipulable could be used to support insurance regulation and prohibition of certain types of insurance.’). For further discussion of the definition of a mistake, see Part 2 *infra*.

¹⁰ Cutler and Zeckhauser, above n. 6, at 43 (‘Given the importance that [insurance] consumers attach to minimizing regret and anxiety, there is a strong argument that such concepts should be given a role in our normative theories.’); Krantz and Kunreuther, above n. 4, at 141 (‘When important and stable extra-financial goals motivate insurance purchase, one might regard the decision as *anomalous* from a financial decision, but quite rational from a broader perspective of multiple goals.’).

¹¹ See Part 3 *infra* for a more extensive discussion of this issue.

deductibles from the perspective of standard theory. Finally, consumers occasionally (though infrequently) purchase non-pecuniary loss insurance in ways that cannot be convincingly explained by anticipated changes in their marginal utility of wealth.

Part 2 then offers two competing explanations for these deviations from standard EUT. First, it argues that most anomalous demand in insurance likely reflects consumers' ignorance about insurance and limited cognitive resources when it comes to making insurance purchasing decisions. Second, and perhaps more controversially, it claims that some component of this demand may reflect consumers' sophisticated management of their emotional needs. In particular, consumers deviating from the classical precepts of EUT may be using insurance to provide themselves with 'peace of mind', reduce regret from uninsured losses and counteract the negative feelings associated with loss. In other cases, they may make seemingly irrational insurance decisions that offset the consequences of their limited self-control.

Part 3 concludes by considering various 'libertarian-paternalistic' approaches to improving insurance markets.¹² It argues that such regulatory strategies, which aim to improve consumer decision-making without limiting individual choice, are an appropriate response to Part 2's conflicting diagnoses of consumer decision-making in insurance markets. That is because they simultaneously reduce the likely incidence of consumer mistakes while allowing consumers that are not making mistakes to continue purchasing insurance according to their genuine preferences.

1 Deviations from Traditional Expected Utility Theory in Insurance Demand

Over the last several decades, empirical research from both the laboratory and the real world has repeatedly shown that the traditional EUT explanation of risk aversion does a poor job of explaining consumers' actual insurance decisions. This part provides a brief overview of four deviations from standard theory in insurance markets: bimodal consumer demand for catastrophe insurance, enthusiasm for insurance against small financial risks, preferences for low deductibles and willingness to purchase non-pecuniary loss insurance.¹³

1.1 Bimodal Demand for Catastrophe Insurance

Traditional EUT fares poorly in its predictions about how individuals purchase insurance against low-probability, high-magnitude risks. According to standard theory, consumers should generally find insurance against such risks desirable, so long as premiums are actuarially reasonable.¹⁴ 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.

¹² See C. Sunstein and R. Thaler, 'Libertarian Paternalism Is Not an Oxymoron' (2003) 70 *University of Chicago Law Review* 1159; C. Sunstein and R. Thaler, *Nudge* (2008). For criticisms of and responses to libertarian paternalism, see E. Glaeser, 'Paternalism and Psychology' (2007) 73 *University of Chicago Law Review* 133 at 150; G. Mitchell and J. Klick, 'Government Regulation of Irrationality: Moral and Cognitive Hazards' (2006) 90 *Minnesota Law Review* 1620 at 1627-1641; G. Mitchell, 'Libertarian Paternalism Is an Oxymoron' (2005) 99 *Northwestern University Law Review* 1245; C. Hill, 'Anti-Anti-Anti Paternalism' (2007) 2 *New York University Journal of Law and Liberty* 44.

¹³ For a more complete description of seeming anomalies in individuals' purchasing decisions, see H. Kunreuther and M. Pauly, *Insurance Decision-Making and Market Behavior* (2005) at 27-49; W.H. Van Boom, 'Insurance Law and Economics: An Empirical Perspective', in M. Faure and F. Stephen (eds.), *Essays in the Law and Economics of Regulation* (2008).

¹⁴ Indeed, according to traditional EUT, risk-averse individuals should always purchase insurance that is fairly priced. See L. Eeckhoudt et al., *Economic and Financial Decisions Under Risk* (2005) at 51 (describing Mossin's theorem).

Contrary to these predictions, individuals frequently display surprisingly little interest in purchasing catastrophe insurance.¹⁵ 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.¹⁶ Individuals' apathy towards insurance was not a product of any expectation that they would receive post-disaster government aid.¹⁷ This pattern persists even in markets where insurance premiums are state subsidised. For example, many property owners living in flood-prone areas do not purchase federal flood insurance, which is both highly subsidised and often legally required.¹⁸

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.¹⁹ Thus, consumers are sometimes strongly drawn to terrorism insurance and insurance against so-called 'dread diseases' such as cancer.²⁰ They also tend to display relative enthusiasm for the purchase of earthquake and flood insurance in the immediate aftermath of earthquakes and floods, respectively.²¹

This consumer interest in limited forms of insurance against low-probability, high-magnitude risks often defy explanatory factors based on traditional EUT, such as differences in the magnitude or probability of potential losses. One study documented that a group of subjects was willing to pay more than twice as much for flight insurance covering 'terrorism' and 'mechanical failure' than similar groups of subjects were willing to pay for flight insurance covering losses for 'any reason'. The study reported similar distortions in subjects' willingness to pay for general health insurance compared to health insurance for a specific, vivid ailment and for general trip insurance compared to travel terrorism insurance.²²

1.2 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 traditional EUT, such insurance should generally be undesirable. This is because low-magnitude losses do not meaningfully impact overall wealth levels, and hence the expected impact of an insurance payout on overall utility should not differ substantially from the impact on

¹⁵ See generally G. McClelland et al., 'Insurance For Low Probability Events: A Bimodal Response to Unlikely Events' (1993) 7 *Journal of Risk and Uncertainty* 95 at 95-96.

¹⁶ See H. Kunreuther et al., *Disaster Insurance Protection: Public Policy Lessons* (1978) at 236-243. Recent evidence confirms these results: prior to the 1989 California earthquake, 34% of homeowners told surveyors that earthquake insurance was not necessary. See R. Palm, *Earthquake Insurance: A Longitudinal Study of Homeowners Insurance in California* (1995). After the earthquake, only 5% of respondents said earthquake insurance was not necessary. *Id.*

¹⁷ See Kunreuther et al., above n. 16.

¹⁸ See *id.* See generally H. Kunreuther and M. Pauly, 'Neglecting Disaster: Why Don't People Insure Against Large Losses?' (2006) 20 *Journal of Risk and Uncertainty* 5 at 6 (discussing consumers' tendency to not purchase insurance for low-probability, high-loss events).

¹⁹ The relevance of framing to consumers' insurance decisions extends well beyond the context of low-probability insurance. For instance, consumers are much more willing to purchase any form of insurance if it is framed as 'insurance' rather than as payment to avoid a loss. See P.J.H. Schoemaker and H. Kunreuther, 'An Experimental Study of Insurance Decisions' (1979) 46 *Journal of Risk and Insurance* 603 at 612; J.C. Hershey and P.J.H. Schoemaker, 'Risk Taking and Problem Context in the Domain of Losses: An Expected Utility Analysis' (1980) 47 *Journal of Risk and Insurance* 111 at 130.

²⁰ Johnson et al., above n. 9, at 35. Individuals in the United States have demonstrated surprising enthusiasm for terrorism insurance, especially in the wake of 9/11. See Wharton Risk Center, *TRIA and Beyond: Terrorism Risk Financing in the United States* (2005).

²¹ See P. Slovic, *The Perception of Risk* (2000) at 14.

²² Johnson et al., above n. 9, at 35. Earlier research has similarly suggested that people pay significantly too much for flight insurance. See R. Eisner and R. Strotz, 'Flight Insurance and the Theory of Choice' (1961) 69 *Journal of Political Economy* 355. Some recent research suggests that risk preferences may not, in fact, be stable across contexts and that people exhibit greater risk aversion in their home deductibles than in their auto deductibles. See L. Barseghyan et al., 'Are Risk Preferences Stable Across Contexts? Evidence from Insurance Data' (June 2009), available at: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1220663>. This finding itself is inconsistent with traditional EUT.

utility of paying insurance premiums.²³ If such insurance were actuarially fair, a risk-averse person might nonetheless be slightly inclined, or at least indifferent, to purchasing it. But, in practice, loading costs for insurance against small financial risks 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.²⁴

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.²⁵ 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.²⁶ Perhaps the most omnipresent example is the extended product warranty for consumer durables, which numerous stores successfully offer to customers at exorbitant rates.²⁷ Laboratory experiments have similarly documented the preference of subjects for insuring against high-probability, low-cost events.²⁸

1.3 Preferences for Low Deductibles

According to traditional EUT, policyholders should generally favour coverage with large deductibles.²⁹ In part, the logic for this result mirrors the logic for why policyholders should not demand insurance for small financial risks: because even large deductible levels are typically small relative to individuals' overall wealth, opting for such deductibles does not increase the risk of a large loss but does dramatically decrease loading costs. But large deductibles also disproportionately reduce the costs of insurance coverage in two ways. First, they reduce moral hazard by requiring the policyholder to pay the first dollars of any loss.³⁰ Second, they may limit the risk of adverse selection because low deductibles are disproportionately valuable to high-risk individuals.³¹ These factors contribute to make the cost savings from high deductibles much greater, on the whole, than the benefit conferred by a low deductible.

Despite these potential savings, consumers routinely select surprisingly low deductibles. A recent study found that a substantial majority of consumers in both automobile and homeowners insurance markets 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.³² At least partially in response to these preferences,

²³ See M. Rabin, 'Diminishing Marginal Utility of Wealth Cannot Explain Risk Aversion', in D. Kahneman and A. Tversky (eds.), *Choices, Values and Frames* (2000) 202 at 202-208.

²⁴ See id.

²⁵ C. Cicchetti and J.A. Dubin, 'A Microeconomic Analysis of Risk Aversion and the Decision to Self-Insure' (1994) 102 *Journal of Political Economy* 169 at 172.

²⁶ See D. Schwarcz, 'A Products Liability Theory for the Judicial Regulation of Insurance' (2007) 48 *William and Mary Law Review* 1389 at 1414.

²⁷ See Cutler and Zeckhauser, above n. 6, at 3, 25-28 ('[I]nsurance against small-cost consumer durables is among the most profitable items sold by commercial electronics stores', yet 'the purchase of this insurance seems hard to justify.').

²⁸ One well-known study simulated an insurance decision by having subjects choose a red or blue ball from an urn. See Slovic, above n. 21, at 56-57. The blue ball represented a hazard against which study participants could insure. By varying the ratio of colored balls, experimenters could manipulate the probability of loss. Contrary to standard theory, subjects strongly preferred to insure against high-probability, low-cost events. See id. This result was consistent among different populations and was replicated across a number of different experimental designs. Id., at 62-67.

²⁹ Mossin, above n. 3, at 561-563.

³⁰ See K. Abraham, *Distributing Risk* (1986) at 15.

³¹ See P. Siegelman, 'Adverse Selection in Insurance Markets: An Exaggerated Threat' (2004) 113 *Yale Law Journal* 1223 at 1265-1266.

³² See J. Sydnor, '(Over)insuring Modest Risks' (Draft, December 2009) at 2-3, available at: <<http://wsomfaculty.case.edu/sydnor/deductibles.pdf>> (last visited March 15, 2010); see also Kunreuther and Pauly, above n. 13, at 28.

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.³³ 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 \$100.³⁴

1.4 Willingness to Purchase Insurance against Non-Pecuniary Losses

Most forms of insurance do not compensate consumers for losses that neither directly nor indirectly decrease wealth levels.³⁵ For instance, homeowners insurance does not compensate policyholders for the emotional trauma that often accompanies the loss of one's home and personal possessions. Law and economics scholars often attribute the absence of such non-pecuniary loss insurance to consumer disinterest.³⁶ Increasingly, though, research suggests that supply-side problems may better explain the general absence of non-pecuniary loss insurance.³⁷ In fact, in at least two markets where non-pecuniary loss insurance is offered, consumers enthusiastically purchase it.³⁸

Consider first the market for juvenile life insurance. According to the American Council of Life Insurers, approximately 15% of people under 18 have some form of life insurance.³⁹ Another source reports that 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 \$35,310.⁴⁰ Of course, it is possible that this form of insurance protects policyholders against financial risk.⁴¹ The death of a child may lead to funeral expenses, therapy costs and a temporary inability to work.⁴² But these explanations are largely implausible. In fact, the death of a child generally results in a

³³ See Sydnor, above n. 32, at 7, 9-10; Kunreuther and Pauly, above n. 13, at 28.

³⁴ See J.D. Cummins and S.N. Weisbart, *The Impact of Consumer Services on Independent Agency Performance* (1978).

³⁵ For the purposes of this article, the term 'non-pecuniary loss' refers only to losses that neither directly nor indirectly impact wealth. As such, losses that do not directly impact wealth but which increase the need for wealth because they create the need for medical care or similar expenditures that are necessary to restore one's physical or emotional capacities are classified as pecuniary losses. Cf. S. Shavell, *Economic Analysis of Accident Law* (1987) at 228-231 (defining non-pecuniary loss insurance).

³⁶ This claim if often made in connection with the desirability of emotional distress damages in tort law from the perspective of ideal insurance (rather than deterrence). See G. Priest, 'The Current Insurance Crisis and Modern Tort Law' (1987) 96 *Yale Law Journal* 1521 at 1547; Shavell, above n. 35, at 230-231.

³⁷ See J. Hanson and S. Croley, 'The Nonpecuniary Costs of Accidents' (1995) 108 *Harvard Law Review* 1785 (exploring the supply-side problems that insurers may face in providing such insurance). Two recent experiments provide direct support for consumers' willingness to purchase non-pecuniary loss insurance. One recent study found that a substantial majority of research subjects treated insurance against pecuniary and non-pecuniary losses exactly the same when presented with a set of hypothetical insurance transactions. See R. Avraham, 'Should Pain-and-Suffering Damages be Abolished from Tort Law? More Experimental Evidence' (2005) 55 *University of Toronto Law Journal* 941 at 962. In a second study, subjects were given the option of purchasing an insurance policy that would pay the \$200 purchase price of a vase if it broke in shipment. Half of the subjects were told that they 'fell in love with the vase at first sight' and it 'feels precious to you', while the other half was told, 'you don't have any special feeling for this vase'. C. Hsee and H. Kunreuther, 'The Affection Effect in Insurance Decisions' (2000) 20 *Journal of Risk and Uncertainty* 141 at 149. Subjects were willing to pay almost twice as much to insure the highly-valued vase, compared to the less-valued vase. Further experiments revealed that this effect could not be explained by subjects' perceived wealth differentials in the two treatments; the result replicated itself even when the item to be insured had zero market value. See *id.*, at 151-152.

³⁸ See generally Hanson and Croley, above n. 37.

³⁹ See Cutler and Zeckhauser, above n. 6, at 40.

⁴⁰ See J. Martin, 'Kids Life Insurance: A Pint-Sized Mistake', *Money* (September 28, 2005). Life insurance for children is even more frequently sold as a rider to an adult's life insurance policy. *Id.*

⁴¹ In some cases, there may be other reasons to purchase juvenile life insurance. In particular, because many policies do not require medical tests, parents of a child with potential health problems may wish to purchase coverage to ensure that life insurance is available to the child in his or her adult years. This explanation, however, is clearly insufficient to explain the prevalence of juvenile life insurance.

⁴² See V. O'Connell, *Wall Street Journal* (January 30, 1996) at 12C (describing insurers' marketing of life insurance for children).

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 \$98,500.⁴³ Moreover, the financial costs of a child's death are generally small: most health insurance plans cover mental health treatment expenses,⁴⁴ and federal law provides some measure of protection to employees who need to take bereavement leave.⁴⁵ Although the average funeral costs \$6,500, one can plan a modest funeral for substantially less.⁴⁶

Another example of commonly purchased non-pecuniary loss insurance is Uninsured/Underinsured Motorists Coverage ('UIM' coverage).⁴⁷ 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.⁴⁸ Because tort plaintiffs can recover emotional distress damages from defendants, policyholders with UIM coverage can also recover insurance proceeds for emotional distress (in addition to financial losses).⁴⁹ Admittedly, the relative percentage of UIM payouts that are compensation for non-pecuniary loss is not clear, as the average UIM payment is approximately the same as average economic loss.⁵⁰ But UIM coverage is designed so that there are certainly some, and perhaps many, cases where payments exceed economic loss.

Consumers' apparent demand for insurance against non-pecuniary losses is not necessarily incompatible with traditional EUT.⁵¹ This is because it is possible that a non-pecuniary loss might increase an individual's marginal utility of wealth.⁵² An emotional loss might make financial expenditures more desirable, as in the case of so-called 'retail

⁴³ M. Lino and A. Carlson, United States Department of Agriculture, Center for Nutrition Policy and Promotion, *Expenditure on Children by Families 2009* (Pub. No. 1528-2008 2009), available at: <<http://www.cnpp.usda.gov/ExpendituresonChildrenbyFamilies.htm>> (last visited March 15, 2010). These figures exclude college costs and other parental expenditures made for children after age 17. Admittedly, families without savings or any sources of financing might find it hard to pay for funeral expenses, but a quick internet search suggests that many funeral service providers offer financing to consumers.

⁴⁴ The Mental Health Parity and Addiction Act of 2008, which took effect on 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). Additionally, many states have similar laws. See National Conference of State Legislatures, *State Laws Mandating or Regulating Mental Health Benefits* (February 2009), available at: <<http://www.ncsl.org/IssuesResearch/Health/StateLawsMandatingorRegulatingMentalHealthB/tabid/14352/Default.aspx>> (last visited March 15, 2010).

⁴⁵ See, for example, *Stubl v. T.A. Systems, Inc.*, 984 F.Supp. 1075 (E.D. Mich. 1997) (holding that the Family Medical Leave Act ('FMLA') applies to parents suffering from depression due to the loss of a child). However, it is notable that the FMLA only provides leave to individuals whose grief rises to a significant level of clinical depression. See 29 U.S.C. § 2601 et seq. Furthermore, the FMLA only provides for unpaid leave. *Id.*

⁴⁶ See C. Solomon, 'Plan a Funeral for \$800 or Less', *MSN Money*, available at: <<http://articles.moneycentral.msn.com/RetirementandWills/PlanYourEstate/HowToPlanAFuneral.aspx>>.

⁴⁷ See Hanson and Croley, above n. 37, at 1862-1863; Tom Baker, 'Insurance in Sociolegal Research' (working paper on file with the author).

⁴⁸ See R. Jerry, *Understanding Insurance Law* (2001, 3rd ed.) at 1034.

⁴⁹ See *id.*

⁵⁰ See Insurance Research Council, *Closed Claims Study* (2002) at 72.

⁵¹ See P.J. Cook and D.A. Graham, 'The Demand for Insurance and Protection: The Case of Irreplaceable Commodities' (1977) 91 *Quarterly Journal of Economics* 143.

⁵² See Shavell, above n. 35, at 228-231. As Shavell explains, '[i]f nonpecuniary losses will not result in a person valuing money more, then under the expected utility maximizing insurance policy he will not arrange for coverage against the nonpecuniary losses; coverage will be restricted to pecuniary losses, if any. Thus a person might not insure against the loss of his family portrait and might limit coverage against loss of a toe to medical expenses.' *Id.*, at 230. By contrast, '[i]f the value a person will place on money will increase as a result of a nonpecuniary loss, optimal insurance coverage will exceed pecuniary loss. Thus a person may purchase greater coverage against the possibility of being crippled than an amount equal only to the costs of medical treatment and forgone earnings.' *Id.* See also A. Schwartz, 'Proposals for Products Liability Reform: A Theoretical Synthesis' (1988) 97 *Yale Law Journal* 353 at 362-367; P.M. Danzon, 'Tort Reform and the Role of Government in Private Insurance Markets' (1984) 13 *Journal of Legal Studies* 517 at 521.

therapy'. Similarly, a loss of physical capabilities might increase the marginal utility of wealth, for instance, by encouraging an avid athlete to substitute towards more expensive hobbies.⁵³

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.⁵⁴ This is particularly true given that a child's death generally increases overall wealth levels, which tends to reduce the marginal utility of wealth. In the case of UIM insurance, there may indeed be individual instances where a non-pecuniary loss will increase the marginal utility of wealth. But 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 the 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 over-broad if consumers are merely trying to transfer wealth to states of the world where they enjoy a comparatively large marginal utility of wealth.

2 Competing Explanations for Observed Insurance Demand

Part 1 provides strong evidence that risk aversion within the traditional EUT framework poorly describes how individuals tend to make insurance decisions. These deviations from standard theory can be explained in two basic ways. The first, which can be labelled the *mistake hypothesis*, explains these insurance demand anomalies by reference to consumers' lack of complete information and/or their limited cognitive abilities.⁵⁵ According to the mistake hypothesis, consumer insurance decisions reflect the fact that time is scarce, cognitive resources are finite and information is limited.⁵⁶ If these obstacles could be overcome, consumer insurance decisions would better reflect the predictions of traditional EUT. In other words, according to the mistake hypothesis, classical EUT is perfectly defensible as a normative theory of insurance purchasing, even though it largely fails as a descriptive theory.

The second explanation for the anomalies canvassed in Part 1 is that they stem not from the limits of consumers but from the limits of traditional EUT itself. This explanation, which can be labelled the *incompleteness hypothesis*, is premised on the notion that classical EUT fails to fully capture the benefits of insurance. Consumer behaviour, from

⁵³ See Shavell, above n. 35, at 228-231.

⁵⁴ See G. Priest, 'The Problematic Structure of the September 11th Victim Compensation Fund' (2003) 53 *DePaul Law Review* 527 at 536-537 ('It makes no general sense for a parent to reduce the family's financial position while the child is alive in order to enhance its financial position after the child dies; indeed, the reverse. Thus, there is no economic reason to purchase life insurance on a child.').

⁵⁵ See Sunstein and Thaler (2003), above n. 12, at 1162; see also C. Jolls, C. Sunstein and R. Thaler, 'A Behavioral Approach to Law and Economics' (1998) 50 *Stanford Law Review* 1471 (outlining various mistakes that fit this definition). Sunstein and Thaler include in their definition of a mistake consumer decisions that people would change if they had unlimited self control. This component of their definition is omitted based on the objection, articulated by Claire Hill, that it is impossible to characterise a lack of self control as a true mistake. See Hill, above n. 12, at 446-447. Hill's argument could be interpreted to extend further, to the proposition that it is usually impossible to characterise any decision as a mistake. This, in her view, is because preferences are constructed to such a degree that they do not exist outside of their informational and cognitive framing. See *id.*, at 447-448. Hill is surely correct that it is often difficult to say whether or not a particular decision is a result of a mistake, as identifying a mistake requires us to consider how a person would have decided in a parallel universe in which they had full information and unlimited cognitive resources. That this is difficult in individual cases, however, does not mean that the concept of a mistake is not normatively useful.

⁵⁶ See Kunreuther and Pauly, above n. 18, at 9-16 (developing a model in which consumers rationally forego the process of thoroughly investigating their insurance options because of the search costs associated with doing so).

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 prescriptions of standard theory under the incompleteness hypothesis.

This part argues that the available evidence provides strong support for the mistake hypothesis. Much of the ‘anomalous’ insurance demand described in Part 1 appears to be driven by consumers’ incomplete information or analytically-limited heuristics. Consumers generate systematically incorrect probability assessments and estimates of harm, invoke incorrect analytical constructs to measure the value of insurance and even make basic mathematical mistakes. Such errors, this part shows, could persist even in competitive insurance markets.

At the same time, this part argues that the incompleteness hypothesis is also a plausible explanation for some of the ‘anomalous’ consumer demand observed in real insurance markets. It argues that the insurance demand anomalies described in Part 1 can plausibly be explained as sophisticated consumer behaviour to manage emotions such as anxiety, regret and loss aversion. Moreover, the capacity of insurance to address these negative emotions is not necessarily an artefact of manipulative insurance sales or marketing.⁵⁷ Rather, it may be a sophisticated and informed strategy on the part of consumers to manage emotions that exist independently of insurers’ (and their agents’) sales efforts. Other sophisticated consumer strategies – such as committing to a forced-savings strategy – may also explain some seemingly irrational consumer behaviour.

2.1 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, individuals’ strategies for assessing probabilities produce systematic biases when it comes to low-probability events. 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 produces systematic errors with respect to low-frequency events.⁵⁸ In particular, it results in the overweighting of salient low-probability risks such as terrorism, as well as events that have recently occurred. At the same time, it leads to the underweighting of mundane low-probability risks such as dying in a car accident, as well as risks that have not transpired in recent memory.

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.⁵⁹ This threshold is different for different people and can itself be manipulated. Unless the likelihood of a loss is perceived to cross this threshold, the consumer will not even consider the desirability of insuring against it, regardless of its anticipated magnitude.⁶⁰

These mechanisms for consumer decision-making about catastrophe insurance provide strong support for the mistake hypothesis. Indeed, 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

⁵⁷ 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. These scenarios may have important regulatory implications, particularly with respect to the regulation of insurers’ marketing practices. See T. Baker, *Insurance Regulation and Behavioral Economics* (June 4, 2010) (draft on file with the author). But the point here is merely that insurance can be used to manage emotions that exist independently of any manipulative or unfair marketing or sales practices.

⁵⁸ See Slovic, above n. 21, at 13-14, 107; see generally W. Kip Viscusi, *Fatal Tradeoffs: Public and Private Responsibilities for Risk* (1995) at 117-122. Various factors can contribute to the salience of a low-probability event, including recent instances of the event, media coverage of the event and the effect associated with the event. See Johnson et al., above n. 9, at 38.

⁵⁹ See generally Kunreuther et al., above n. 16, at 241; Slovic, above n. 21, at 56-57.

⁶⁰ See Slovic, above n. 21, at 56-57.

systematic errors when applied to low-probability risks. The sequential approach to insurance decision-making is similarly consistent with the mistake hypothesis. Although this heuristic likely saves time and energy, consumers with infinite time and cognitive resources would not ignore the desirability of insurance when they perceived the probability of a risk to fall below some arbitrary threshold. Doing so might result in the failure to purchase insurance whose expected benefit *exceeded* its expected cost, as might be the case when such insurance is governmentally subsidised.⁶¹

Although market forces might mitigate the impact of such mistakes, they would not eliminate them. In fact, insurers may even exploit consumers' biased estimates of the probability of salient risks to sell more coverage, as they do when they sell 'dread disease' insurance or flight insurance.⁶² While insurers might conversely attempt to help consumers overcome mistakes that result in the purchase of too little insurance (as in the case of mundane risks), any such efforts would obviously not be fully effective. Perhaps even more importantly, private insurers often have little incentive to debias and inform consumers in this context, as supply-side problems limit the desirability of selling coverage for catastrophic risks.⁶³ As a result, most forms of catastrophic risk insurance – including flood and earthquake insurance – are largely supplied by the government, thereby muting market forces that might correct consumer mistakes.

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*.⁶⁴ There is good evidence that insurance is valuable to consumers precisely because it provides 'peace of mind'.⁶⁵ Consider consumers' willingness to purchase 'probabilistic insurance', which, in the event of a covered loss, pays with some probability less than one.⁶⁶ Subjects find such insurance remarkably unattractive, demanding 'about a 30% reduction in the premium to compensate them for a 1% chance that their claim will not be paid'.⁶⁷ This distaste for probabilistic insurance can be explained by its failure to eliminate the anxiety that accompanies contemplating the prospect of a loss. Other studies support this interpretation, finding that subjects' reported concern that they might lose a valuable object better explained their willingness to purchase insurance against that risk than their probability assessments about that risk.⁶⁸

To the extent that the value of insurance stems from anxiety reduction, consumers' sequential threshold approach to catastrophe insurance may reflect sophisticated and

⁶¹ See section 1.1 *supra*.

⁶² See J.D. Hanson and D.A. Kysar, 'Taking Behavioralism Seriously: Some Evidence of Market Manipulation' (1999) 112 *Harvard Law Review* 1420.

⁶³ See D. Jaffee and T. Russell, 'Catastrophe Insurance, Capital Markets, and Uninsurable Risks' (1997) 64 *Journal of Risk and Insurance* 205 (explaining why insurers prefer not to insure against catastrophic risks).

⁶⁴ See Krantz and Kunreuther, above n. 4, at 140-141 ('[P]urchasing flight insurance at the airport may, for some people, provide "peace of mind" and for the purpose of such anxiety reduction may be preferred to drinking alcohol at an airport bar.').

⁶⁵ This is consistent with insurers' marketing practices that associate the company with stability, comfort and family. See generally T. Baker, 'Constructing the Insurance Relationship: Sales Stories, Claims Stories and Insurance Contract Damages' (1994) 72 *Texas Law Review* 1395 at 1403-1407 (surveying the various 'sales stories' that insurers use in their advertising, and noting the pervasiveness of themes such as promising, trust and security).

⁶⁶ P. Wakker, R. Thaler and A. Tversky, 'Probabilistic Insurance' (1997) 15 *Journal of Risk and Uncertainty* 7 at 9.

⁶⁷ *Id.*

⁶⁸ C. Schade, H. Kunreuther, and K.P. Kass, 'Probability Neglect and Concern in Insurance Decisions with Low Probabilities and High Stakes' (April 14, 2004), available at: <<http://opim.wharton.upenn.edu/risk/downloads/rain%20%20paper%20%20apr01.pdf>> (last visited March 15, 2010). See also P. Slovic, B. Fischhoff and S. Lichtenstein, 'Informing the Public About the Risks From Ionizing Radiation' (1981) 41 *Health Physics* 589 at 591 ('[P]eople often attempt to reduce the anxiety generated in the face of uncertainty by denying the uncertainty, thus making the risk seem so small that it can safely be ignored or so large that it clearly should be avoided.').

informed behaviour.⁶⁹ 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.⁷⁰ For consumers who are not particularly risk-averse, such insurance would genuinely be undesirable under traditional EUT, so long as loading costs were non-negligible. By contrast, consumers' willingness to investigate insurance against risks whose perceived probability exceed threshold levels may reflect the fact that such risks generate anxiety that insurance could alleviate.

Consider the example of earthquake insurance. Suppose that a consumer is not worried about earthquakes, perhaps because he perceives himself to live in an area where earthquakes are exceedingly unlikely. Even under traditional EUT, such a person may rationally decide not to purchase insurance with some loading cost.⁷¹ Now consider how this person's behaviour 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 frequently worries about the effect an earthquake would have on his family, especially when he sees a news story about the recent earthquake.⁷² From the perspective of standard theory, 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 now be very valuable.

In sum, consumers' bimodal demand for catastrophe insurance can largely be attributed to informational or cognitive limitations. But the incompleteness hypothesis cannot be rejected based on the available evidence, at least for some consumers. Classical EUT fails to account for the anxiety-reducing value of insurance,⁷³ and this incompleteness may partially explain why it fails to predict bimodal consumer demand for insurance against low-probability, high-magnitude risks. To be sure, specific cases may be better explained by one hypothesis or the other: clearly the person who pays more for terrorism insurance than insurance against all risks is making a mistake. But, in the aggregate, some component of consumers' bimodal demand for catastrophe insurance may reflect sophisticated decision-making rather than systematic mistakes.

2.2 Understanding Consumer Demand for Insurance Against Small Financial Risks

Consumers' enthusiasm for insurance against small financial risks is less well understood than their bimodal demand for catastrophe insurance. The most intuitive explanation for this phenomenon is that consumers overestimate the probability of loss in these situations and thus think they are getting a 'good deal'.⁷⁴ But this explanation does not withstand scrutiny. First, the extent to which consumers would need to overestimate probabilities in order to believe they were breaking even by purchasing insurance is often quite large.⁷⁵ This is because consumers typically purchase insurance against small

⁶⁹ For a related point in the administrative law context, see M. Adler, 'Fear Assessment: Cost Benefit Analysis and the Pricing of Fear and Anxiety' (2004) 79 *Chicago-Kent Law Review* 977 (arguing that cost-benefit analysis in the regulatory context should include fear assessment).

⁷⁰ See Slovic, above n. 21, at 56-57.

⁷¹ See Eeckhoudt et al., above n. 14, at 5, 45-47. An alternative explanation, which is not strictly consistent with traditional EUT, is that individuals budget specific amounts for insurance purchases and consequently often believe that they cannot afford additional insurance. See Kunreuther and Pauly, above n. 13, at 19-20.

⁷² Of course, one might object that people's worries are themselves irrational. But the point here is merely that the decision to purchase insurance as a means of managing these emotions is not itself a mistake. Whether or not the emotions one is seeking to manage are themselves somehow irrational does not impact this narrower question.

⁷³ It is possible to amend classical EUT such that one's utility function incorporates the anxiety-reducing function of insurance.

⁷⁴ See B.P. Pashigan, L. Schkade, and G. Menefee, 'The Selection of an Optimal Deductible for a Given Insurance Policy' (1966) 39 *Journal of Business* 35.

⁷⁵ Z. Shapira and I. Venezia, 'On the Preferences for Full-Coverage Policies: Why Do People Buy Too Much Insurance?' (2008) 29 *Journal of Economic Psychology* 747 (noting that people would need to believe that accidents were four times more probable than they are for overestimation to explain their preferences for low deductibles).

financial risks at the time of sale, as an add-on to a primary purchase. Competition to supply such insurance consequently tends to be minimal, producing large gaps between the cost of this insurance and its expected payouts.⁷⁶ Second, people actually tend to do a good job of estimating probabilities with respect to risks that occur frequently and can be observed.⁷⁷ Third, some consumers – though perhaps not many – presumably understand that companies would not offer insurance unless the cost of buying it exceeded the expected payout.⁷⁸

A more plausible explanation is that consumers' demand for insurance against small financial risks stems from 'mental accounting'.⁷⁹ Mental accounting posits that individuals tend to evaluate risks in isolation, without appreciating the impact that external factors may have on those risk evaluations.⁸⁰ Consequently, a risk that is small in the context of one's overall wealth may appear large in isolation. 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.⁸¹ Individuals may therefore overweight the desirability of insuring against commonly-faced risks. For instance, although an individual may perceive risk when considering whether a newly purchased stereo will break, she ought to perceive little risk when considering the expected costs of all her consumer goods breaking in a particular year.

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. 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.⁸² 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 realise this.

Market forces do not undermine the mistake-based explanation for consumers' demand for insurance against small financial risks. No firm has an incentive to correct this type of mistake, because doing so would simply decrease consumers' willingness to purchase insurance against small financial risks. In addition, 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. Rather, it would allow consumers to adjust behaviour and avoid the costs of such insurance without switching to the debiasing or informing firm.⁸³

Mental accounting, however, is not the only explanation for consumers' surprising demand for insurance against small financial risks. Another, non-mutually exclusive, explanation is loss aversion.⁸⁴ Loss aversion posits that the pain individuals feel due

⁷⁶ See Cutler and Zeckhauser, above n. 6, at 5.

⁷⁷ See Sunstein and Thaler (2008), above n. 12, at 74-75; Slovic, above n. 21, at 6-7.

⁷⁸ See Cutler and Zeckhauser, above n. 6, at 45 ('People who ask why the store is willing to sell [durable goods] insurance will conclude that it is only because the warranty makes money.').

⁷⁹ See Rabin and Thaler, above n. 6, at 227.

⁸⁰ See R. Thaler, 'Mental Accounting Matters' (1999) 12 *Journal of Behavioral Decision Making* 183.

⁸¹ Slovic, above n. 21, at 11.

⁸² Thus, Kunreuther and Krantz are clearly correct when they emphasise that mental accounting is not always irrational. See Kunreuther and Krantz, above n. 4, at 159. Many heuristics are perfectly rational in the sense that they make decision-making easier and generally produce reliable beliefs, but they nonetheless systematically produce mistakes in the sense that people would change their mind were all informational and cognitive limitations eliminated.

⁸³ For an extended treatment of this argument, see X. Gabaix and D. Laibson, 'Shrouded Attributes, Consumer Myopia, and Information Suppression in Competitive Markets' (2006) 121 *Quarterly Journal of Economics* 505.

⁸⁴ Rabin and Thaler, above n. 6, at 226. To be sure, other explanations – some of which are canvassed in other parts of this paper – may also explain consumers' demand for insurance against high-probability, low-magnitude risks. For instance, consumers may purchase such insurance to reduce potential regret should a good they purchase break. See section 2.3 *infra*. The normative implications of this explanation are particularly confounding, however, because regret may well be endogenous to the offer of insurance. In other words, consumers might not feel regret, or anticipate that they might feel regret, if they were

to a loss substantially outweighs (usually by a factor of 2-1) the pleasure they feel from an equivalent gain.⁸⁵ From the perspective of loss aversion, insurance against high-probability, low-magnitude risks may help to reduce the potential for emotional unpleasantness stemming from losses.⁸⁶ This depends on whether insurance premiums are themselves experienced as a loss. But recent models suggest that many people do not experience insurance premiums as losses, in part because such premiums are within their control and are not ‘surprise’ events.⁸⁷

In contrast to mental accounting, loss aversion is more consistent with the incompleteness hypothesis than the mistake hypothesis. Knowing that even small losses can cause large amounts of emotional distress, consumers reasonably insure against them. By doing so they avoid the potential unpleasantness of paying for the removal of a fallen tree or purchasing a replacement iPod through the relatively painless process of purchasing insurance.⁸⁸

2.3 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.⁸⁹ 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.⁹⁰ 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. This approach substantially exaggerates the value of a low deductible by failing to take into account its irrelevance if a loss does not occur.⁹¹ The theory finds support in three different experiments, each of which 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.⁹²

never offered the option of purchasing insurance in the first place. The text of this paper seeks to avoid this endogeneity problem by discussing the management of emotions that are largely exogenous to the insurance decision.

⁸⁵ See Tversky and Kahneman, ‘Loss Aversion in Riskless Choice: A Reference-Dependent Model’ (1991) 106 *Quarterly Journal of Economics* 1039 at 1053-1054; Tversky and Kahneman, above n. 4 (incorporating loss aversion into prospect theory). Whether a prospect is considered a potential ‘loss’ or ‘gain’ depends partly on how it is framed.

⁸⁶ Some studies suggest that consumers may purchase warranties in order to reduce the anxiety they feel about the prospect of a product breaking. See R. Hogarth and H. Kunreuther, ‘Decision Making Under Ignorance: Arguing With Yourself’ (1995) 10 *Journal of Risk and Uncertainty* 15; Lowenstein et al., above n. 4.

⁸⁷ See B. Koszegi and M. Rabin, ‘Reference Dependent Risk Attitudes’ (2007) 97 *American Economic Review* 1047; Sydnor, above n. 32, at 4.

⁸⁸ Rabin and Thaler, above n. 6, at 224-226.

⁸⁹ 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”. See M. L. Murray, ‘Empirical Utility Functions and Insurance Consumption Decisions’ (1972) 39 *Journal of Risk and Insurance* 31. These explanations seem to provide more support for the mistake hypothesis than the incompleteness hypothesis, though they are obviously difficult to interpret.

⁹⁰ Shapira and Venezia, above n. 75, at 749, 754-756. One additional explanation, not considered in the text, is that consumers substantially overestimate the risk of loss. See Pashigan et al., above n. 74. For similar reasons to those described above, this explanation seems unlikely, given the amount of overestimation that would be needed and the fact that people are relatively familiar with the risk of a car accident. See Shapira and Venezia, above n. 75, at 748 (noting that this explanation assumes that people anticipate two accidents a year, which is substantially greater than average).

⁹¹ See Shapira and Venezia, above n. 75, at 749.

⁹² In particular, they priced policies with deductibles at well below the rate necessary to make a profit, but priced policies without deductibles in a manner consistent with earning a reasonable return. See id.

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'.⁹³ This explanation is consistent with a number of other observed deviations from traditional EUT that this article does not focus on, such as consumer demand for 'tontines'⁹⁴ – which bundle insurance policies with a lottery – and consumers' willingness to simultaneously hold annuities and life insurance.⁹⁵

These mistake-based explanations are consistent with a competitive marketplace. It is certainly conceivable that a competing insurer would find it worthwhile to inform or debias consumers who were mistakenly selecting excessively low deductibles.⁹⁶ But such market corrections are unlikely, because newly-sophisticated consumers could adjust their behaviour and avoid their deductible mistake without switching to the firm that invested in debiasing or informing them.⁹⁷ For example, a State Farm consumer who realised 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. Indeed, it is much more likely that a consumer would react in this way than switch to Allstate, as switching carriers involves transaction costs that staying with the same carrier does not.⁹⁸

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.⁹⁹ Regret in this context refers to the disutility that individuals experience when their decisions turn out to be incorrect from an ex post perspective. For instance, a person who decides not to purchase an extended warranty (perhaps after having read this article) might nonetheless regret that decision if the product she purchases breaks shortly after purchase. There is modest direct evidence that avoiding regret influences various decisions about risk, most notably decisions regarding whether to receive a vaccination.¹⁰⁰

⁹³ See Kunreuther and Pauly, above n. 13, at 28; Cutler and Zeckhauser, above n. 6.

⁹⁴ See T. Baker and P. Siegelman, 'Enticing Low Risks into the Health Insurance Pool', University of Pennsylvania Institute for Law and Economics Research Paper No. 09-07 (July 28, 2009), available at: <<http://www.ssrn.com/abstract=1350423>> (last visited March 15, 2010).

⁹⁵ See Cutler and Zeckhauser, above n. 6, at 13 ('[L]ife insurance and annuities cater to mutually exclusive circumstances: living too long and living too short. One would not expect the same person to want both instruments in force at the same time.').

⁹⁶ See, for example, R. Epstein, 'Human Errors and Market Corrections' (2006) 73 *University of Chicago Law Review* 111 at 119-120 (discussing situations in which sellers in a market will invest to correct consumer misperceptions).

⁹⁷ See Gabaix and Laibson, above n. 83. An alternative explanation for why firms might not invest in informing consumers about the benefits of large deductibles is that they anticipate that doing so will result in other firms doing the same. In that event, the only benefits a firm can derive from informing consumers in this way stem from their position as a first-mover, which may not be large enough to offset the costs of such an information campaign. See O. Bar-Gill, 'The Behavioral Economics of Consumer Contracts' (2008) 92 *Minnesota Law Review* 749 at 760.

⁹⁸ See Bar-Gill, above n. 97. It is also possible that the hypothetical consumer might pay lower premiums by sticking with State Farm than switching. Because a lower percentage of State Farm customers than Allstate customers would understand the benefits of low deductibles, given Allstate's advertising campaign, the profits generated by State Farm's larger cadre of unsophisticated consumers might partially cross-subsidise sophisticated consumers. See id.

⁹⁹ See M. Braun and A. Muermann, 'The Impact of Regret on the Demand for Insurance' (204) 71 *Journal of Risk and Insurance* 737. For another attempt to reconcile consumers' deductible choices with rational behaviour, see A. Cohen and L. Einav, 'Estimating Risk Preferences from Deductible Choice' (2007) 97 *American Economic Review* 745 at 779-781.

¹⁰⁰ See Braun and Muermann, above note 99, at 743 (discussing T. Conolly and J. Reb, 'Omission Bias in Vaccination Decisions' (2003) 91 *Organizational Behavior and Human Decisions Processes* 186).

Hypothesising that consumers seek to avoid regret explains a variety of observed insurance decisions, including the preference for a relatively low deductible.¹⁰¹ 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-minimisation 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.¹⁰² Such actors are not making a mistake in the sense that they would alter their decisions with better information or more cognitive resources.

Another explanation for consumers’ preferences for low deductibles that supports the incompleteness hypothesis is that such deductible choices represent a rational forced-savings strategy.¹⁰³ It is well known that consumers often have trouble saving funds for a rainy day and, in some cases, tend to exhaust lines of credit because they have difficulty resisting spending.¹⁰⁴ 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 consumers that they can only ‘withdraw’ funds in the event of a genuinely serious loss.¹⁰⁵

2.4 Explaining Demand for Insurance Against Non-pecuniary Losses

Recall that consumer demand for insurance against non-pecuniary loss is both theoretically consistent with traditional EUT and often (wrongly) claimed not to exist in practice. For both reasons, few scholars have given much thought to what, other than changes in the marginal utility of wealth, might explain demand for non-pecuniary loss insurance where it does exist.¹⁰⁶ As above, however, explanations consistent with both the mistake hypothesis and the incompleteness hypothesis are plausible.

It is entirely possible that people who demand non-pecuniary loss insurance are simply making mistakes. For instance, people may overestimate the extent to which a non-pecuniary 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 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 (often labelled ‘durability bias’).¹⁰⁷ Alternatively, people may analyse the need for insurance against a potential risk without distinguishing between pecuniary and non-pecuniary 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 non-pecuniary risks given

¹⁰¹ Others have attempted to use regret to explain the simultaneous preference for insurance and lotteries. See, for example, D.E. Bell, ‘Regret in Decision Making Under Uncertainty’ (1982) 30 *Operations Research* 961.

¹⁰² See Muermann and Braun, above n. 99, at 739.

¹⁰³ This is not dissimilar to sophisticated hyperbolic discounters who make rational purchasing decisions given their awareness of their susceptibility to hyperbolic discounting. See S. DellaVigna and U. Malmendier, ‘Contract Design and Self-Control: Theory and Evidence’ (2004) 119 *Quarterly Journal of Economics* 353.

¹⁰⁴ See, for example, A. Littwin, ‘Beyond Usury: A Study of Credit Card Use and Preference Among Low-Income Consumers’ (2008) 86 *Texas Law Review* 451 at 466-478.

¹⁰⁵ In that sense, low deductibles may be similar to one recent set of proposals that would encourage ‘self-directed cards that would equip consumers to resist more effectively the temptation of credit cards’, for instance by allowing consumers to set effective credit limits and other pre-commitment devices. *Id.*, at 455, 478-500.

¹⁰⁶ See Part 1 *supra*.

¹⁰⁷ See D.T. Gilbert et al., ‘Durability Bias in Affective Forecasting’, in T. Gilovich et al. (eds.), *Heuristics and Biases: The Psychology of Intuitive Judgment* (2002).

that such losses are often felt simultaneously).¹⁰⁸ It is also consistent with experimental evidence demonstrating that consumers are equally willing to purchase insurance against pecuniary and non-pecuniary risks.¹⁰⁹ For similar reasons to those canvassed earlier, such mistakes might persist even in a competitive marketplace.¹¹⁰

At the same time, there are at least two potential explanations for consumer demand for non-pecuniary 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 not only pays money in the event of a loss but also provides a form of emotional support through ‘symbolic value’ or ‘redemption for the lost object’.¹¹¹ This interpretation explains both peoples’ willingness to pay more for insurance against emotionally-valuable items and their related willingness to incur comparatively high expenses to recover insurance proceeds in the event of a loss to such items.¹¹² By contrast, it is hard to explain peoples’ increased willingness to incur collection costs as resulting from some error about the magnitude or probability of the underlying loss.

Alternatively, it is possible that individuals desire non-pecuniary 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 maximising expected utility but also about equalising their overall utility levels across different states of the world. In other words, they are risk-averse with respect to bets concerning overall utility levels rather than simply with respect to bets involving wealth. Such risk aversion stems not from the decreasing marginal utility of wealth but rather from a corollary to the Rawlsian notion that it is preferable to distribute goods equally behind a veil of ignorance unless departing from that strategy increases the welfare of the worst-off individual.¹¹³

3 Libertarian Paternalism and Regulating Insurance Demand

Part 2 raises competing implications for assessing the optimal role of government in response to deviations from the traditional EUT framework in insurance markets.¹¹⁴ On one hand, the mistake hypothesis appears to explain most of the observed insurance demand anomalies 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.¹¹⁵ The desirability of such intervention would turn primarily on practical factors such as the potential effectiveness of regulation, its direct and indirect costs and the harm to consumers in the absence of regulation.

On the other hand, the incompleteness hypothesis provides a theoretically plausible explanation for understanding a subset of each consumer demand anomaly identified in

¹⁰⁸ See, for example, P. Bossaerts, ‘What Decision Neuroscience Teaches Us About Financial Decision Making’ (2009) 1 *Annual Review of Financial Economics* 383 (summarising modern literature on the subject); H. Tzieropoulos et al., ‘The Rationale Behind Irrational Decisions’, *Frontiers in Behavioral Neuroscience*, Conference Abstract: 41st European Brain and Behaviour Society Meeting 2009; A.W. Lo and D.V. Repin, ‘The Psychophysiology of Real-Time Financial Risk Processing’ (2002) 14 *Journal of Cognitive Neuroscience* 323.

¹⁰⁹ See Avraham, above n. 37, at 946-950.

¹¹⁰ In particular, it is possible that no firm would have any incentive to limit consumers’ overestimation of the financial consequences of non-pecuniary losses or emphasise the distinction between pecuniary and non-pecuniary losses. This is because it is unclear how doing so would enhance the business of the firm that invested in informing/debiasing such consumers, given that these consumers would not need to switch to the other firm in order to benefit from this advice.

¹¹¹ See Hsee and Kunreuther, above n. 37, at 146-147.

¹¹² See id., at 149-150 (explaining why the market value hypothesis cannot explain the ex post willingness to incur costs to collect claims but can theoretically explain ex ante willingness to do so).

¹¹³ See Hanson and Croley, above n. 37, at 1812-1834. As Hanson and Croley show, while Rawls’ argument applies to how to distribute goods across multiple individuals, it can be extended to the decision about how to distribute goods across time with respect to a single individual. See generally id.

¹¹⁴ See Cutler and Zeckhauser, above n. 6, at 20 (noting that ‘behavioral explanations’ for deviations from classical EUT ‘make normative analysis difficult’, while adding that ‘[f]ortunately for us, our analysis has a descriptive, not a normative, purpose’).

¹¹⁵ On the tendency of firms to exploit consumer errors, see generally Hanson and Kysar, above n. 62.

Part 1. Deviations from standard theory may consequently represent, to some degree, sophisticated consumer behaviour. 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.¹¹⁶ To be sure, one can legitimately question the extent to which government regulation should always respect the preferences of sophisticated consumers, particularly where these preferences stem from the desire to manage emotions such as anxiety, regret and loss aversion.¹¹⁷ 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.¹¹⁸ Rather than confronting the propriety of such regulations directly, this part simply assumes that such regulation is less justifiable than regulation designed to correct genuine consumer error.¹¹⁹

Given these competing forces, this part considers various libertarian-paternalistic responses to consumer deviations from traditional EUT in insurance markets.¹²⁰ The basic premise of libertarian paternalism is that government interventions can simultaneously preserve choice while nudging consumers towards 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. Similarly, selecting presumptively desirable defaults when defaults are impossible to avoid is likely unobjectionable to many libertarians.¹²¹ Closer to the paternalistic side of the spectrum are interventions that seek to take advantage of behavioural tendencies, such as status quo bias and framing effects, to ‘nudge’ people towards presumptively welfare-promoting decisions and/or ‘debias’ them.¹²²

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.¹²³ Additionally, aggressive forms of

¹¹⁶ Of course, it might well be justifiable to limit consumer choice even if that would foreclose genuinely attractive options for some consumers. But it is undeniable that identifying when this is the case is complicated, turning on the relative effectiveness of alternative regulatory strategies, the harm to consumers whose choices were limited, the benefits to consumers whose mistakes were prevented and numerous other factors.

¹¹⁷ But compare Adler, above n. 69 (arguing that regulatory policy ought to take into account the fear associated with death, illness and injury, in addition to the actual risks of these events transpiring).

¹¹⁸ See L. Kaplow and S. Shavell, *Fairness Versus Welfare* (2006). According to the standard welfarist account, normative analysis ought to predict the consequences of policies, evaluate their impact on the welfare of all relevant persons and then aggregate these welfare impacts. This approach defines welfare as the satisfaction of preferences. Welfare economics does allow for the possibility that consumers will make mistakes. See *id.*, at 411-412. But it rejects the notion that preferences that are not mistakes should be manipulated by government actors for consumers’ ‘own good’. ‘To trump preferences is, in essence, to redefine individuals’ well-being in a manner that substitutes some other preferences – ones that are cleansed, so to speak – for individuals’ actual preferences.... But such an approach is troubling from the perspective of welfare economics because the moral force and appeal of welfare economics lies in promoting the actual well-being of people, not in advancing some hypothetical notion of satisfaction that is distinct from that of the individuals who are the objects of our concern.’ See *id.*, at 419-420.

¹¹⁹ For a compelling critique of welfare economics, see D. Farber, ‘What, if Anything, Can Economics Say About Equity?’ (2003) 101 *Michigan Law Review* 1791.

¹²⁰ See Sunstein and Thaler (2003), above n. 12.

¹²¹ See Glaeser, above n. 12, at 149-156 (discussing changes in default rules and other forms of soft paternalism).

¹²² See generally Sunstein and Thaler (2008), above n. 12. See also C. Sunstein and C. Jolls, ‘Debiasing through the Law’ (2006) 35 *Journal of Legal Studies* 199.

¹²³ See generally Glaeser, above n. 12, at 150; Mitchell and Klick, above n. 12. Nor are these the only criticisms of more aggressive forms of libertarian paternalism. Mitchell and Klick argue that soft paternalism can create a cognitive hazard by decreasing people’s incentives to take care and debias themselves. But this does not seem like a compelling point in the present context, given the apparent problems that consumers experience in the status quo even without such interventions. Additionally, it seems implausible that

libertarian paternalism may 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.¹²⁴ 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.

This part considers a variety of libertarian-paternalistic responses to each of the four insurance demand anomalies emphasised in this article, including more aggressive forms of libertarian paternalism.¹²⁵ This approach is sensible for several reasons. First, as Part 2 suggests, the mistake hypothesis likely explains a much higher proportion of the deviations from traditional EUT than the incompleteness hypothesis. Comparatively intrusive forms of regulation may therefore be sensible. Second, as explored more fully below, disclosure-based responses are limited in their capacity to correct the consumer errors described in Part 2, which often do not stem from a lack of information in the first place. Finally, designing effective disclosures is notoriously difficult, especially under conditions of risk and uncertainty.¹²⁶

In considering relatively aggressive libertarian-paternalistic interventions, this part nonetheless seeks to remain cognizant of the downsides of such regulation, particularly the prospect that aggressive forms of libertarian paternalism may impose a psychic tax.¹²⁷ This potential side effect of libertarian paternalism is especially concerning given that a key reason for attempting to avoid paternalism with respect to consumers’ insurance decisions is that these decisions may be motivated by reasonable emotional, or psychic, considerations.

3.1 Libertarian Paternalism and Catastrophe Insurance

As explained in Part 2, 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 can increase government costs in the wake of a catastrophe.¹²⁸ They may also create additional, related mistakes. Without insurance, individuals often fail to take protective measures against catastrophic risk, such as weather-proofing their homes, because the cost of doing so is immediate but the benefit is speculative and hard to assess. Insurance coverage can concretise the expected benefits of such precautions by impacting insurance premiums. In sum, there are particularly strong justifications for government policies that attempt to limit consumer mistakes about disaster insurance, and regulation should conceivably encourage all consumers to purchase such insurance in order to limit potential externalities.¹²⁹

Although better disclosure could potentially limit consumer mistakes in this domain, the potential of such disclosure is ultimately limited. The most obvious form

consumers would choose to take less care in their insurance decisions given the interventions described herein. Most of these interventions would not appear to the consumer as government interventions, but would simply alter the way that information was presented to them in their market interactions.

¹²⁴ See Glaeser, above n. 12, at 150.

¹²⁵ Compare Krantz and Kunreuther, above n. 4, at 164 (‘In the preceding, we have emphasized consumer education partly in the spirit of libertarian paternalism and partly in the pragmatic belief that the issues involved here are too diverse and changeable to permit effective regulation.’ (citation omitted)).

¹²⁶ See Slovic, above n. 21, at 166 (Although ‘better information about risk is crucial to making better personal decisions ... it may be quite difficult to create effective informational programs. Doing an adequate job means finding cogent ways of presenting complex, technical material that is clouded by uncertainty and subject to distortion by the listener’s preconceptions – or misconceptions – about the hazard and its consequences.’). O. Ben-Shahar & Carl Schneider, ‘The Failure of Mandated Disclosure’ (Draft, March 2010), available at: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1567284> (last visited July 14, 2010).

¹²⁷ See Glaeser, above n. 12, at 150.

¹²⁸ This includes both direct disaster insurance and increased use of more general elements of the social safety net, such as Medicaid and unemployment insurance.

¹²⁹ For these reasons, this section focuses on regulatory responses to this component of the bimodal demand for high-probability, low-magnitude insurance rather than the inverse potential problem that people purchase too much such insurance in certain circumstances.

of improved disclosure would communicate the actual likelihood of a disaster to counteract consumers' tendency to underestimate risks that are not salient or cognitively available.¹³⁰ Unfortunately, mere numeric disclosures are unlikely to be particularly effective. Research suggests that more affect-laden approaches are often necessary to trigger consumers' willingness to consider the purchase of insurance in the sequential model of insurance.¹³¹ Yet disclosures that sought to 'scare' people into purchasing 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.¹³² Even if consumers underestimated the probability of each event individually, the combined probability of any event occurring might be sufficient to overcome the threshold level of probability that inhibits even the consideration of insurance in the sequential model of choice.¹³³ 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 five or even ten years. 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. As one prominent commentator explains, 'instead of describing the chances of a 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'.¹³⁴ 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.¹³⁵

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 traditional EUT.¹³⁶ Consider one recent proposal designed to increase the purchase of health insurance among overly optimistic youths. It would permit – and perhaps even encourage – insurers to offer 'tontines', which are essentially potential lottery rewards that become available if the insured low-probability event does not transpire.¹³⁷ This strategy seeks to

¹³⁰ See Kunreuther and Pauly, above n. 18, at 14-15 (proposing better disclosure about loss probabilities and loading costs as one response to consumers' tendency not to insure against large losses).

¹³¹ See Sunstein and Jolls, above n. 122, at 207-216.

¹³² See Kunreuther and Pauly, above n. 18, at 16. A more paternalistic intervention would be to require that insurers bundle such insurance with homeowners insurance. See H. Kunreuther and M. Pauly, 'Rules Rather Than Discretion: Lessons from Hurricane Katrina' (2006) 33 *Journal of Risk and Uncertainty* 101; H. Kunreuther, 'Has the Time Come for Comprehensive National Disaster Insurance?', in R.J. Daniels, D.F. Kettl and H. Kunreuther (eds.), *On Risk and Disaster: Lessons from Hurricane Katrina* (2006) 175 at 175-203. This option would deprive consumers of the choice to purchase ordinary homeowners insurance without disaster insurance. Given the analysis in Part 2 suggesting that consumers may be making defensible choices in deciding not to purchase disaster insurance, such paternalism is harder to justify than the interventions suggested here. However, to the extent that libertarian paternalism does not effectively induce the purchase of disaster insurance, such interventions may, in fact, be justified, especially given the potential externalities associated with the purchase of disaster insurance.

¹³³ See Kunreuther and Pauly, above n. 18, at 16. One might sensibly object that there is no need for regulatory intervention on this ground, as insurers would already be using this bundling strategy to increase sales to the extent that it were effective. But this objection ignores the point, made earlier, that insurers have various supply-side reasons why they may not want to sell disaster insurance. See section 2.1 *supra*. Additionally, bundled insurance policies would transfer to the insurer the risk of new information surfacing during the coverage period that changes the probability or magnitude of the threat. This seems most likely for hurricane insurance, where global climate change does appear to be shifting our understanding of the underlying risk.

¹³⁴ See Slovic, above n. 21, at 71.

¹³⁵ This is not true of all risks, particularly those that may be impacted by global warming.

¹³⁶ See Slovic, above n. 21, at 71.

¹³⁷ See Baker and Siegelman, *supra* note 94, at 5-10.

counteract underinsurance against catastrophic risks by exploiting consumers' seeming excess enthusiasm for tontines. It also helps counteract 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.¹³⁸ This approach has the benefit of almost completely avoiding psychic costs.

3.2 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. One sensible strategy to decrease consumer errors would be to require disclosure of the percentage of consumers who actually use the warranties they purchase.¹³⁹ Alternatively, firms could be required to disclose the loss ratio – the percentage of premiums that are actually used for payouts – of this insurance.¹⁴⁰ Both approaches would better inform consumers about the expected value of this insurance and would, at the very least, help them realise that it is not a good 'investment'.¹⁴¹

In addition to improved product disclosure, consumer mistakes could also be limited by individual-use disclosure, which provides consumers with specific information about their own product use patterns.¹⁴² Recall that a primary mistake that consumers may make when they purchase insurance against small financial risks is mental accounting, in which small risks are not considered in larger context. These errors could be limited through strategic use of the disclosures that credit and debit card companies provide to consumers.¹⁴³ Many card providers already provide consumers with an annual summary of purchases in different categories.¹⁴⁴ 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 to the card company any repairs they actually provide under such warranties. With these mechanisms in place, consumers could receive an annual and five-year summary of the costs and benefits of consumer warranties they purchased. With some further coordination, these reports could conceivably be aggregated across a consumer's different credit and debit cards.

This particularised 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. Although such a disclosure regime would be unlikely to change behaviour quickly, over time it would allow consumers to assess the value of these types of insurance products for themselves. Moreover, given advances in information technology, this form of regulation may not

¹³⁸ See section 2.1 *supra*.

¹³⁹ See B. Nalebuff and I. Aïres, *Why Not?* (2003) at 181 (proposing that firms that sell consumer warranties inform consumers about the prospect that they will make a claim on those warranties); J. Sovern, 'Toward a New Model of Consumer Protection' (2006) 47 *William and Mary Law Review* 1635 at 1635-1644, 1703 (similar proposal in rebate context).

¹⁴⁰ See O. Bar-Gill, 'Informing Consumers About Themselves', NYU Law and Economics Research Paper No. 07-44 (August 2007) at 33, 53-57, available at: <http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1056381> (last visited April 8, 2010).

¹⁴¹ In order to be effective, the number of disclosures must be limited to a small number of truly important pieces of information. See generally R. Craswell, 'Taking Information Seriously: Misrepresentation and Nondisclosure in Contract Law and Elsewhere' (2006) 92 *Virginia Law Review* 565.

¹⁴² See Bar-Gill, above n. 140, at 37, 43-60 (exploring the distinction between product characteristic disclosures and consumer use-pattern disclosures).

¹⁴³ This proposal is only a slight variant of the RECAP disclosure proposals that Sunstein and Thaler describe in *Nudge*. See Sunstein and Thaler (2008), above n. 12, at 93-94.

¹⁴⁴ See Sunstein and Thaler (2008), above n. 12, at 143.

be particularly expensive to implement.¹⁴⁵ Even if the start-up costs of this disclosure regime were significant, they might be appropriate given the amount of money that consumers currently spend on product warranties.¹⁴⁶

3.3 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: it implicates moral hazard, adverse selection and the nature of risk aversion. Rather than a straight-forward disclosure, however, government regulation could seek to nudge consumers towards 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.¹⁴⁷ Thus, a homeowners insurance policy that provides \$250,000 of coverage for a dwelling would be framed as providing a deductible of 0.2% of the policy limit, or \$500. This framing should communicate to policyholders the small amount of risk they currently hold on to and nudge them to think about whether they could reasonably retain a larger amount of risk. It should also focus them on the analytically-relevant question from the perspective of risk aversion: how much risk do they want to retain, and how much do they want to transfer to the insurer?

Second, insurers could be required to offer any deductible up to at least 5% of policy limits and to provide consumers with an initial set of prices for deductibles of 0.5%, 1% and 2%.¹⁴⁸ Doing so would obviously increase consumer choice. More importantly, though, it would increase consumer awareness regarding the potential cost savings associated with higher deductibles – most consumer insurance markets are quite competitive on price,¹⁴⁹ 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.¹⁵⁰ 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, and finally, insurers could be required to disclose the percentage of consumers who take advantage of small deductibles in the event of small claims. Research suggests

¹⁴⁵ At present, much of the relevant information is already sorted and presented to consumers by credit card companies. It would certainly not be difficult to require these companies to separately break down payments for warranties. However, it might well be costly to require card companies that do not already provide an annual summary to do so. Perhaps even more importantly, it might be costly to create a system whereby merchants kept track of which cards consumers used to make purchases and reported back any repairs associated with those warranties. Many merchants currently do store the card information of consumers for purposes of data analysis and facilitating returns, but it is unclear how difficult it would be to require them to report repair expenses back to the card company.

¹⁴⁶ See T. Chen et al., ‘Why Do Consumers Buy Extended Service Contracts?’ (2009) 36 *Journal of Consumer Research* 611 (stating that consumers spent approximately \$15 billion dollars on extended service contracts in 2005 and that consumers spent \$8.3 billion dollars on warranties for computers, computer electronics and major appliances alone in 2007).

¹⁴⁷ See O.R. Holsti, *Public Opinion and American Foreign Policy* (1995) (noting that survey respondents often believe that foreign aid is too high when told of the absolute number, but think that it is too low when told of the percentage of GDP that went to foreign aid).

¹⁴⁸ Yet another option is to require that insurers disclose the percentage of consumers choosing each deductible option. See I. Ayres et al., ‘Evidence from Two Large Field Experiments That Peer Comparison Feedback Can Reduce Residential Energy Usage’, National Bureau of Economic Research Working Paper No. 15386 (September 2009). Of course, this is only a sensible idea if other reforms begin to encourage consumers to choose larger deductibles.

¹⁴⁹ See S. Harrington, ‘Effects of Prior Approval Rate Regulation in Auto Insurance’, in J.D. Cummins (ed.), *Deregulating Property-Liability Insurance* (2002) at 285; S. D’Arcy, ‘Insurance Price Deregulation: The Illinois Experience’, in J.D. Cummins (ed.), *Deregulating Property-Liability Insurance* (2002) at 248.

¹⁵⁰ See, for example, E. Shafir et al., ‘Reason-based Choice’, in W.M. Goldstein and R.M. Hogarth (eds.), *Research on Judgment and Decision Making: Currents, Connections and Controversies* (1997) 69, at 83.

that 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.¹⁵¹ If insurers were forced to disclose an estimate of how frequently this occurred, many consumers would presumably realise that the true cost of a low deductible is not just in the additional premium that is paid upfront but also in the additional premium that will be paid in the future as a result of taking advantage of this low deductible when small claims occur.

These strategies should be relatively costless to adopt and nudge people towards decisions that are more consistent with standard theory. At the same time, this approach should produce virtually no psychic tax and does not prevent sophisticated consumers from continuing to opt for low deductibles.

3.4 Libertarian Paternalism and Non-Pecuniary Loss Insurance

Libertarian-paternalistic interventions can also limit mistakes concerning non-pecuniary loss insurance. In the juvenile life insurance market, improved disclosure is the most obvious intervention.¹⁵² 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 FMLA leave in the event of depression and the requirement of mental health parity in many health insurance policies. To the extent that demand for this form of insurance stems from consumers' confusion of emotional and financial loss, insurers might be required to disclose how policyholders typically use their insurance proceeds after a child's death.

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, though perhaps unlikely, that this approach would signal that insurance is somehow an inappropriate form of consolation, thereby undermining the potential value that some people genuinely experience when they receive insurance proceeds after a non-financial loss. Finally, disclosure strategies of this type might end up having 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 towards purchasing more, rather than less, of such coverage.

Less affect-laden contexts are more amenable to effective libertarian-paternalistic interventions that reduce consumer errors regarding non-pecuniary loss insurance without imposing psychic taxes. Consider the purchase of Uninsured/Underinsured Motorists insurance. Here, insurers could be required to offer consumers the option of less extensive UIM insurance that covers only 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 Jersey¹⁵³ – effectively sets the default as limited UIM insurance that covers only pecuniary losses and requires consumers seeking non-pecuniary loss insurance to opt out of this default. Because consumers often do not opt out of defaults (referred to as 'status quo bias'), this approach could nudge consumers away from paying for non-pecuniary loss insurance while simultaneously preserving their freedom to do so.¹⁵⁴ In New Jersey, only 20% of drivers opted out of the default to full UIM coverage.

¹⁵¹ See Kunreuther and Pauly, above n. 13, at 29.

¹⁵² As before, the effectiveness of such disclosure regulation hinges on the avoidance of excessive disclosure. See n. 141.

¹⁵³ The New Jersey scheme did permit suit for non-economic damages in the case of a few statutorily defined serious injuries. For a more detailed overview of both the New Jersey and Pennsylvania schemes, see J. Yeh and J. Schmit, 'Auto Insurance Claims in New Jersey', in E.L. Lascher and M.R. Powers (eds.), *The Economics and Politics of Choice in No-Fault Insurance* (2001) at 139-157.

¹⁵⁴ See Sunstein and Thaler (2008), above n. 12, at 8, 12-13.

Compare this to Pennsylvania, where consumers who did not want full UIM coverage were required to select an endorsement in exchange for a partial refund. Required to opt out in order to select the more limited coverage, 75% of consumers stuck with the default of full UIM insurance.¹⁵⁵

4 Conclusion

Decisions about insurance are among the most difficult that consumers face.¹⁵⁶ They require individualised 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 behaviour 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.

¹⁵⁵ See Kunreuther and Krantz, above n. 4, at 160.

¹⁵⁶ See H. Jackson, 'Regulation in a Multisectoral Financial Services Industry: An Exploratory Essay' (1999) 77 *Washington University Law Quarterly* 319, at 330-31.

