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UTILITY THEORY

Rank- and Sign-Dependent Linear Utility Models for Binary Gambles, by R.D. Luce

Binary SEU, prospect theory, and rank-dependent utility are generalized to event weights that depend on the event and on whether or not its consequence is preferred to the status quo and to the alternative consequence. The special cases are characterized, and the representation is axiomatized qualitatively. Assuming utility is additive over joint receipt of gambles, several topics are investigated: differences among buying and selling prices and choice indifference; differences between judged and choice indifferences; a reason people may buy both lotteries and insurance; and the form of utility for money, namely, power functions on either side of the status quo. *Journal of Economic Theory*, Vol. 53, No. 1 (February 1991), pp. 75-100. (Reprinted with permission of Academic Press, Inc.).

A Revealed Preference Theory for Expected Utility, by Edward J. Green (University of Minnesota and University of Pittsburgh) and Kent Osband (RAND Corporation and International Monetary Fund)

Standard axiomatizations of expected-utility theory envision an agent with fixed probability assessments who can be observed to choose actions from varying opportunity sets (for instance, pairs of lotteries). These axiomatizations also envision that the agent's preferences among these actions depend on the state of nature only through clearly defined and observable consequences. This viewpoint may be unnecessarily restrictive as a basis for applying and evaluating the theory. We study instead the pattern of choices from a fixed set of actions as probability assessments change. Convexity and integrability conditions characterize maximization of expected state-dependent utility. *Review of Economic Studies*, Vol. 58 (4), No. 196 (July 1991), pp. 677-96. (Reprinted with the permission of The Review of Economic Studies Limited).

Decision Making Over Time and Under Uncertainty: A Common Approach, by Drazen Prelec (Harvard Business School) and George Loewenstein (Carnegie Mellon University)

This paper considers a number of parallels between risky and intertemporal choice. We begin by demonstrating a one-to-one correspondence between the behavioral violations of the respective normative theories for the two domains (i.e., expected utility and discounted utility models). We argue that such violations (or preference reversals) are broadly consistent with three propositions about the weight that an attribute receives in both types of multiattribute choice. Specifically, it appears that: (1) if we add a constant to all values of an attribute, then that attribute becomes less important; (2) if we proportionately increase all values of an attribute, or if we change the sign of an attribute, from positive to negative, then that attribute becomes more important. The generality of these propositions, as well as the constraints they would impose on separable representations of multiattribute preferences, is discussed. *Management Science*, Vol. 37, No. 7 (July 1991), pp. 770-86. (Reprinted with permission of *Management Science*)

A More General Measure of Risk Aversion When Utility is State Dependent, by D. Kelsey and G.L. Nordquist

In this paper, the authors propose a method for comparing risk aversion within the state-dependent utility model. This model is useful for analyzing economic problems relating to health or life. The authors extend the Arrow-Pratt measure of risk aversion to the case where utility is state-dependent. Their measure is a generalization of earlier methods of comparing risk aversion in this context, since it agrees with them where they are defined, but can be applied to a much larger class of utility functions. The authors show how their analysis can be applied to a simple model of demand for insurance. *Oxford Economic Papers*, Vol. 43, No. 1 (January 1991), pp. 59-74. (Reprinted with permission of the *Journal of Economic Literature*).

On the Use of Capacities in Modeling Uncertainty Aversion and Risk Aversion, by Alain Chateauneuf (Université de Paris)

Schmeidler (1989) and Yaari (1987) have proposed models where attitudes towards uncertainty (or risk) are characterized by not necessarily additive probabilities, and are therefore kept separate from attitudes towards wealth. The axiomatics of both models include a comonotonicity axiom the interpretation of which is delicate. Here, assuming as Yaari that the decision maker displays a constant marginal utility of wealth, we show that the comonotonicity axiom can be significantly weakened while being intuitively meaningful, and that it is dispensable when characterizing some forms of strong uncertainty (or risk) aversion. This investigation is performed within a simpler but possibly more intuitive framework than Schmeidler's and Yaari's. *Journal of Mathematical Economics*, Vol. 20, No. 4 (1991). (Reprinted with permission of North-Holland Publishing Company).

PROBABILITY THEORY

Dispersive Equity and Social Risk, by Peter C. Fishburn (AT&T Bell Laboratories) and Rakesh K. Sarin (University of California, Los Angeles)

Dispersive equity is concerned with the impact of life-threatening risks from alternative policy decisions on homogeneous groups in a population. It is not addressed to the disutility of various numbers of fatalities that might occur, but rather to how fatalities are distributed over the groups. Although dispersive equity has long been recognized as an important component of some policy decisions, it has received little formal treatment within the matrix of salient factors for such decisions. Our purpose is to advance its formal development.

This is done within a formulation based on probability distributions over potential fatality sets. The formulation gives rise to four distinct but not independent equity concepts: individual risk equity, group risk equity, dispersive equity, and social outcome equity. Each of these is analyzed, but special attention is given to dispersive equity. The paper also comments on relationships between total equity and its four components, and between total equity and the disutility of various numbers of fatalities. *Management Science*, Vol. 37, No. 7 (July 1991), pp. 751-69. (Reprinted with permission of *Management Science*).

RUIN THEORY

The Probability of Ruin in a Process With Dependent Increments, by S. David Promislow (York University, Ontario, Canada)

We generalize some results of Gerber concerned with the probability of ruin in a linear model. In particular, we remove the boundedness restriction for the underlying distribution, allow for a weaker convergence condition for the coefficients in the infinite order case, and relax the stationarity requirement of the model. *Insurance: Mathematics and Economics*, Vol. 10, No. 2 (July 1991), pp. 99-107. (Reprinted with permission of the North-Holland Publishing Company).

HEALTH CARE AND INSURANCE

Simulating Health Expenditures Under Alternative Insurance Plans, by Joan L. Buchanan, Emmett B. Keeler, John E. Rolph, and Martin R. Holmer (The Rand Corporation)

A simulation model that estimates individual health care spending as a function of the structure of indemnity-type insurance plans is presented. The behavioral models that form the basis for this work were developed as part of RAND's Health Insurance Experiment, (HIE), a randomized clinical trial. The randomized design and statistical methods provided estimates of the effects of insurance on use, uncontaminated by sickness or selection effects. The demand for medical care was modelled using episodes of treatment.

Within the simulation, episodes occur independently and randomly through time according to a Poisson process with rates depending on individual characteristics and insurance. Empirical results from the HIE indicate that insurance primarily affects individual decisions to seek treatment (episode frequency), but has only minimal effects on episode costs. The response to changes in price (insurance) is modelled as a Bernoulli censoring process on episode frequency. The model is used to address issues on the effective design of insurance plans. *Management Science*, Vol. 37, No. 9 (September 1991), pp. 1067-90. (Reprinted with permission of *Management Science*).

Benign Moral Hazard and the Cost-Effectiveness Analysis of Insurance Coverage, by M.V. Pauly and P.J. Held

When a medical intervention is found to be cost effective, what level of insurance coverage should apply to it? The optimal level of coverage may be less than or greater than full coverage of medical care costs; a finding of cost effectiveness for a service does not necessarily imply full coverage or coverage at the same rate as other services. If there is some imperfection in the ability to translate higher insurance benefits into higher insurer revenues, the optimal level of coverage will be greater the higher the degree of moral hazard applying to the service. *Journal of Health Economics*, Vol. 9, No. 4 (1990), pp. 447-61. (Reprinted with permission of the *Journal of Economic Literature*).

Monitoring Physicians: A Bargaining Model of Medical Group Practice, by R.H. Lee

This paper challenges the proposition that large physician-owned groups will be inefficient because of failures to control opportunism. A bargaining model implies that even large partnerships will make efficient resource and monitoring decisions. In addition, opportunism has much the same payoff for employees and partners. The data show that most large medical practice organizations are physician owned. Empirical analysis of nine forms of monitoring by large groups generally show no clear link between monitoring and ownership. There is one exception. Physician-owned firms tend to base compensation on productivity, which may help explain the continued dominance of professional partnerships. *Journal of Health Economics*, Vol. 9, No. 4 (1990), pp. 463-81. (Reprinted with permission of the *Journal of Economic Literature*).

A Model of Capitation, by T.M. Selden

This paper presents a theoretical model of capitation contracts. The consumer's ex ante choice of medical plan is derived under flexible assumptions about provider-patient decision-making. The optimal medical plan is shown to combine full insurance with a provider payment system that is a mixture of capitation and partial reimbursement of provider costs. This solution strongly parallels the "mixed payment" system derived by R. Ellis and T. McGuire in the context of prospective payment, though the optimal medical plan derived here may in fact be preferred to that solution in a world

with endogenous admissions. *Journal of Health Economics*, Vol. 9, No. 4 (1990), pp. 397-409. (Reprinted with permission of the *Journal of Economic Literature*).

Optimal Payment Systems for Health Services, by R.P. Ellis and T.G. McGuire

Demand-side cost sharing and the supply-side reimbursement system provide two separate instruments that can be used to influence the quantity of health services consumed. For risk-averse consumers, optimal payment systems - pairs of insurance and reimbursement plans - are characterized by conflict rather than consensus between patient and provider about the quantity of treatment. A model of conflict resolution based on bargaining theory is used to represent the outcome when the payment system creates divergences between desired demand and desired supply. Using that model, the authors describe the optimal combination of insurance and reimbursement systems that maximize consumer welfare. *Journal of Health Economics*, Vol. 9, No. 4 (1990), pp. 375-96. (Reprinted with permission of the *Journal of Economic Literature*).

GOVERNMENT INSURANCE PROGRAMS

Special Issue on Deposit Insurance Reform, *Journal of Banking and Finance*, Vol. 15, Nos. 4/5 (September 1991). This journal issue contains fourteen papers on the topic of deposit insurance reform. The papers were presented at a conference on deposit insurance reform at New York University's Solomon Center on May 17, 1991.

Risk-Taking Incentives of Banks and Risk-Adjusted Deposit Insurance, by Lawrence G. Goldberg and T. Harikumar (University of Miami)

The manager of a depository institution is shown to exhibit risk-taking behavior under the current insurance arrangement. Perfect monitoring or risk-based deposit insurance would eliminate this incentive if information were symmetric between bank managers and the insuring agency. Absent symmetric information, it is shown that a recently suggested scheme, where insurers collect insurance premiums based on projected and actual risk levels, does not control the risk-taking incentive. The only way to control this incentive through insurance rates is to levy a relatively high premium, which is not actuarially fair. *The Journal of Financial Research*, Vol. XIV, No. 3 (Fall 1991), pp. 233-39. (Reprinted with permission of *The Journal of Financial Research*).

SOCIAL INSURANCE

Unemployment Insurance and the Rate of Re-Employment of Displaced Workers, by Bruce Chelimsky Fallick (University of California, Los Angeles)

The rate of transition from unemployment to re-employment for a sample of displaced workers is estimated using a semiparametric specification which allows the effects of unemployment insurance benefits to vary over time. Three results which would be missed by more restrictive specifications demonstrate the value of this approach: (1) The effects of UI benefits decline and eventually disappear as the date of expiration approaches, (2) Expiration of UI benefits are an inadequate explanation of the spikes commonly observed in nonparametric sample hazard rates for re-employment, (3) UI benefits do not significantly affect the rate at which a displaced worker becomes re-employed in his or her previous industry, but reduce the rate for transitions to other industries. The Review of Economics and Statistics, Vol. LXXIII, No. 2 (May 1991), pp. 228-35. (Reprinted with permission of the North-Holland Publishing Company).

Population Aging and Social Security: A Politico-Economic Model of State Pension Financing, by R.K. von Weizsäcker

This paper attempts to provide a positive, politico-economic explanation of actual social security policies. An overlapping generations framework integrating individual utility maximization and government maximization of expected political support is devised. The relation between net economic position, public policy parameters, and individual voting probabilities is made explicit by referring to the logit model of qualitative choice. Optimal state pension policies are characterized, relating such diverse factors as population aging, political power distribution, social solidarity, and income taxation. *Public Finance*, Vol. 45, No. 3 (1990), pp. 491-509. (Reprinted with permission of *Public Finance*).

PENSIONS AND OTHER EMPLOYEE BENEFITS

Relative Measurement Errors Among Alternative Pension Asset and Liability Measures, by Mary E. Barth (Harvard Business School)

This study investigates the measures of pension assets and liabilities disclosed under SFAS 87 to determine which most closely reflect those that investors implicitly assess when they value the firm. Several measures considered to have conceptual merit are disclosed under SFAS 87, but no single method has been deemed most appropriate. The attributes of the three asset and five liability measurement alternatives disclosed and the controversies surrounding the FASB's deliberations on these alternatives are considered in the research design. Because the pension asset and liability issues in SFAS 87 relate to measurement and reflect a variety of unresolved questions, an approach directly comparing measurement error across alternatives is used. The research design utilizes relevance and reliability, two primary accounting choice characteristics advanced by the FASB. These two attributes are operationalized by the variances and levels of differences between alternative measures and the implied investors' assessment.

Although several measures of pension assets and liabilities are found to be significant in explaining firm market value, differences among the alternatives are also significant. The fair value of plan assets and the accumulated benefit obligation each exhibit less measurement error than other alternatives for the entire sample. The projected benefit obligation has less measurement error variance for subsamples in which the salary progression rate includes expected inflation and productivity changes. These findings suggest that (1) footnote disclosures are closer to those assessed in market valuations than are the measures recognized in the balance sheet and (2) investors appear to include expectations about future salary progression in assessing pension liabilities, but view the projected benefit obligation measure as noisy. *The Accounting Review*, Vol. 66, No. 3 (July 1991), pp. 433-63. (Reprinted with permission *The Accounting Review*).

Overfunded Defined Benefit Pension Plan Settlements Without Asset Reversions, by In-Mu Haw and Kooyul Jung (Texas Christian University) and Steven B. Lilien (Baruch College)

This study examines why firms settle their overfunded defined benefit pension plans. Under the new accounting standard (FASB Statement No. 88), companies 'settling' their overfunded pension plan can immediately recognize a portion of deferred pension gain as current earnings. Focusing on settlement transactions unaccompanied by asset reversions, we examine financial characteristics of settlement firms, including earnings, debt covenants, management incentive compensation, and firms' risk and financial structures. Our results suggest that firms undertake settlement to offset a decline in earnings and mitigate restrictive debt covenant constraints. However, a settlement firm's systematic risk (beta) does not change after settlement. *Journal of Accounting and Economics*, Vol. 14, No. 3 (June 1991), pp. 295-320. (Reprinted with permission of North-Holland Publishing Company).

Pension Benefits and Male-Female Wage Differentials, by James E. Pesando and Morley Gunderson (University of Toronto) and John McLaren (Princeton University)

Female members of defined benefit pension plans will receive greater pension benefits than males with identical work and earnings histories, since females have greater longevity. Yet females have higher turnover rates and lower earnings, both of which serve to reduce pension benefits relative to those received by males. We illustrate the net effect, on pension benefits in defined benefit plans, of gender differences in longevity, turnover, and wages. We conclude that females tend to receive lower pension benefits and therefore that pension benefits are more likely to exacerbate than to reduce the male-female wage gap. *Canadian Journal of Economics*, Vol. XXIV, No. 3 (August 1991), pp. 536-50. (Reprinted with permission of the *Canadian Journal of Economics*).

The Market for Tax Benefits - Evidence From Leveraged ESOPs, by Douglas A. Shackelford (University of North Carolina)

This paper examines the competitiveness of the financial markets with respect to taxes. A unique set of interest rates from leveraged ESOPs enables precise measures of the effect of a debt subsidy of prices. I find that the market shifts most of the tax benefits to borrowers, indicative of an elastic supply curve for lenders. Lenders are compensated for incremental costs, such as reductions in tax rates and barriers to entry. Evidence is also presented that ESOP lenders are high taxpaying banks, suggesting the existence of a tax clientele. *Journal of Accounting and Economics*, Vol. 14, No. 2 (June 1991), pp.117-45. (Reprinted with permission of North-Holland Publishing Company).

ESTATE PLANNING AND DISTRIBUTION

Modeling Charitable Giving Using A Box-Cox Standard Tobit Model, by R. Hamilton Lankford and James H. Wyckoff (State University of New York, Albany)

There is a large literature investigating the determinants of charitable giving, in particular, price and income elasticities. We find that many of the most often reported results from this literature rely on a model specification that is inappropriate when applied to recent Federal Tax File data. We develop a standard Tobit model with a Box-Cox transformation parameter that nests a number of other specifications. The Box-Cox model yields estimates of price elasticities and expected charitable contributions that differ from those obtained using the typical specification. Additionally, we find that the use of sample weights provides potentially important policy insights. *The Review of Economics and Statistics*, Vol. LXXIII, No. 3 (August 1991), pp. 460-70. (Reprinted with permission of North-Holland Publishing Company)

Charitable Bequests and Estate Taxes, by David Joulfaian (U.S. Department of Treasury)

This paper examines the effects of the estate tax on charitable bequests using estate tax records for decedents in 1986 filed during the years 1986 through 1988. It focuses on the pattern of aggregate charitable bequests, bequests to six categories of charitable organizations, as well as the effect of the estate tax deduction on the number of categories of charitable bequests. The findings suggest that higher tax rates induce more giving and increase the number of categories of bequests. The results also indicate that the pattern of bequests is influenced by the terminal wealth and its composition, and by marital wealth and its composition, and by marital status, age, and gender. *National Tax Journal*, Vol. XLIV, No. 2 (June 1991), pp. 169-80. (Reprinted with permission of the *National Tax Journal*).

INSURER MANAGEMENT AND REGULATION

Solvency Regulation and the Property-Liability "Insurance Cycle," by Ralph A. Winter

Fluctuations in the supply of property-liability insurance may be exacerbated by regulation. To limit insolvencies, regulators constrain insurers against writing an excessive quantity of insurance relative to net worth. Revenue is used as a measure of aggregate quantity. In a competitive market with inelastic demand, a constraint on the ratio of revenue to net worth yields a catastrophe process for price dynamics. Indirect evidence supports the argument that the current form of solvency regulation is destabilizing. *Economic Inquiry*, Vol. XXIX, No. 3 (July 1991), pp. 458-71. (Reprinted with permission of *Economic Inquiry*).

Combining Quota-Share and Excess of Loss Treaties on the Reinsurance of n Independent Risks, by Lourdes Centeno and Onofre Simoes (Universidade Técnica de Lisboa, Portugal)

In this paper, we seek to find the optimal retentions for an insurance company which intends to reinsure each of n risks belonging to its portfolio, by means of a pure quota-share treaty, a pure excess of loss treaty or any combination of the two. The criterion chosen to the selection of the optimal programme is the maximization of the adjustment coefficient, attending to the relationship existing between this coefficient and Lundberg's upper bound of the ruin probability. *Astin Bulletin*, Vol. 21, No. 1 (April 1991), pp. 41-55. (Reprinted with permission of the *Astin Bulletin*).

Reinsurance Retention Levels for Property/Liability Firms-A Managerial Portfolio Selection Framework, by Yoram Kroll (Hebrew University) and David Nye (University of Florida)

This paper presents a managerial portfolio selection model which analyzes the reinsurance decision of the ceding insurer. Alternative goal functions for management are assumed and then comparative statics, as well as illustrative numerical examples are used to develop testable implications concerning the optimal proportional reinsurance retention level for property/liability insurance firms. *Insurance: Mathematics and Economics*, Vol. 10, No. 2 (July 1991), pp. 109-123. (Reprinted with permission of North-Holland Publishing Company).

Credibility Models With Time-Varying Trend Components, by Johannes Ledolter (The University of Iowa), Stuart Klugman (Drake University), and Chang-Soo Lee (The University of Iowa)

Traditional credibility models have treated the process generating the losses as stable over time, perhaps with a deterministic trend imposed. However, there is ample evidence that these processes are not stable over time. What is required is a method that allows for time-varying parameters in the process, yet still provides the shrinkage needed for sound ratemaking. In this paper we

use an automobile insurance example to illustrate how this can be accomplished. *Astin Bulletin*, Vol. 21, No. 1 (April 1991), pp. 73-91. (Reprinted with permission of the *Astin Bulletin*).

A Simple Parametric Model For Rating Automobile Insurance or Estimating IBNR Claims Reserves, by Thomas Mack (Munich Re)

It is shown that there is a connection between rating in automobile insurance and the estimation of IBNR claims amounts because automobile insurance tariffs are mostly cross-classified by at least two variables (e.g. territory and driver class) and IBNR claims run-off triangles are always cross-classified by the two variables accident year and development year. Therefore, by translating the most well-known automobile rating methods into the claims reserving situation, some known and some unknown claims reserving methods are obtained. For instance, the automobile rating method of Bailey and Simon produces a new claims reserving method, whereas the model leading to the rating method called "marginal totals" produces the well-known IBNR claims estimation method called "chain ladder". A drawback of this model is the fact that it is designed for the number of claims and not for the total claims amount for which it is usually applied.

As an alternative for both, rating and claims reserving, we describe a simple but realistic parametric model for the total claims amount which is based on the Gamma distribution and has the advantage of providing the possibility of assessing the goodness-of-fit and calculating the estimation error. This method is not very well known in automobile insurance although a satisfactory application is reported - and seems to be completely unknown in the field of claims reserving, although its execution is nearly as simple as that of the chain ladder method. *Astin Bulletin*, Vol. 21, No. 1 (April 1991), pp. 92-109. (Reprinted with permission of the *Astin Bulletin*).

Distribution of Surplus in Life Insurance, by Henrik Ramlau-Hansen (Baltica Insurance Company, Ltd., Ballerup, Denmark)

This paper discusses distribution of surplus in life insurance within a general Markov chain framework. A conservative interest rate and a conservative set of transition intensities are used for reserving purposes whereas more realistic assumptions are used for the purpose of distributing surplus. The paper examines various actuarial aspects of distributing surplus through either cash bonuses, terminal bonuses or increased benefits. The results are illustrated by some examples. *Astin Bulletin*, Vol. 21, No. 1 (April 1991), pp. 56-71. (Reprinted with permission of the *Astin Bulletin*).

LIABILITY RULES

The Economics of Liability, *Journal of Economic Perspectives*, Vol. 5, No. 3 (Summer 1991). This journal issue contains six papers presented at a symposium on the economics of liability held at Stanford Law School in May 1990.

Optimal Claim Behaviour For Third-Party Liability Insurances with Perfect Information, by N.P. Dellaert, J.B.G. Frenk and E. Voshol (Erasmus University, Rotterdam, Netherlands)

In this paper we analyse the optimal claim behaviour of a policy holder having a third-party liability insurance in which one is allowed to decide at the end of an insurance year which damages occurred during that year should be claimed. This analysis can only be carried out in detail in case the damages are negative exponentially distributed. Moreover, we present some computational results using an existing bonus-malus system and a horizon of 10 and 25 years and compare these results with similar computations for a corresponding third-party liability insurance in which the policy holder has to decide within a limited time period after the accident to claim or not to claim. *Insurance: Mathematics and Economics*, Vol. 10, No. 2 (July 1991), pp. 145-51. (Reprinted with permission of North-Holland Publishing Company).

Workers' Compensation and Moral Hazard, by Georges Dionne (Université de Montréal) and Pierre St-Michel (Commission de la santé et de la sécurité du travail du Québec)

Two types of moral hazard have been determined. The first type is related to self-prevention activities affecting probabilities of accidents. The second type relates to the agent's activities whenever the accident occurs. Our objective consists of presenting an empirical measure of the significance of this second type of moral hazard in the workers' compensation market. The main challenge in isolating moral hazard consists of dividing into two parts the total variation in recovery time with respect to changes in insurance coverage: (1) the variation of consumption corresponding to a given level of information; and (2) the variation of consumption due to greater asymmetrical information. The methodology used in this study separates these two variations. *The Review of Economics and Statistics*, Vol. LXXIII, No. 2 (May 1991), pp. 236-44. (Reprinted with permission of the North-Holland Publishing Company).

Medical Malpractice: An Empirical Examination of the Litigation Process, by Henry S. Farber (Massachusetts Institute of Technology) and Michelle J. White (University of Michigan)

New data on medical malpractice claims against a single hospital in which a direct measure of the quality of medical care is available are used to investigate the roles of the negligence rule and incomplete information in the dispute settlement process in medical malpractice. We find that the quality of medical care (negligence) is an extremely important determinant of defendants' medical malpractice liability. More generally, we find that the data are consistent with a model in which plaintiffs are poorly informed ex ante about whether there has been negligence, file suit to gather information, and either drop the case if they find that negligence was unlikely or settle for a positive payoff if they find that negligence was likely. We also find that the

cases are resolved earlier in the litigation process when the parties are more certain, one way or the other, about the likelihood of negligence. *Rand Journal of Economics*, Vol. 22, No. 2 (Summer 1991), pp. 199–217. (Reprinted with permission of the *Rand Journal of Economics*).

Uncertain Litigation and Liability Insurance, by Bharat Sarath (University of Pennsylvania)

Legal penalties and liability insurance seem to have counteracting effects on the incentives of a potential injurer to take due care. However, if legal penalties are set efficiently and implemented perfectly, unrestricted access to insurance can be optimal. In contrast, if the standards of guilt assessment are uncertain, the size of the legal penalties may act as a spur to litigation. Therefore, the penalties required to maintain incentives when access to insurance is unlimited may provoke too much litigation, and as a consequence, the costs of ensuring due care may decline when insurance is restricted by mandate. *Rand Journal of Economics*, Vol. 22, No. 2 (Summer 1991), pp. 218–31. Reprinted with permission of the *Rand Journal of Economics*).

On the Effectiveness of Liability Rules When Agents Are Not Identical, by Winand Emons (University of Basel) and Joel Sobel (University of California, San Diego)

This paper is about accidents involving two risk-neutral parties. Both parties engage in actions that are profitable but affect the magnitude of possible bilateral accidents. We analyse how the action choices can be decentralized by liability rules that assign the accident costs to the two parties. If we allow for punitive damages, we can implement the first-best actions by a liability better off in the event of an accident than in the event of no accident. We provide conditions under which this problem does not arise. *Review of Economic Studies*, Vol. 58 (2), No. 194 (April 1991), pp. 375–90. (Reprinted with permission of The Review of Economic Studies Limited).

Market Share Liability and Economic Efficiency, by A.M. Marino

This paper examines the efficiency properties of a strict liability rule that dictates that firms share damages according to their market shares in cases where the injured party cannot identify the specific producer causing harm. In a model of Nash oligopoly, the author shows that the rule is not efficient and that under this rule the second-best market structure type is oligopoly rather than the limiting cases of perfect competition or monopoly. The author also conducts normative analysis by presenting other sharing rules that can improve upon aggregate welfare as compared to the market share liability rule. *Southern Economic Journal*, Vol. 57, No. 3 (January 1991), pp. 667–75. (Reprinted with permission of the *Journal of Economic Literature*).

SAFETY AND LOSS CONTROL

Measuring Risk Reduction Benefits with Discounted Longevity, by Robert F. Bordley (General Motors Research Laboratories, Warren, Michigan)

There are many ways to assess the benefits and costs of risk-reduction policies. This paper shows that discounted longevity as a measure of benefits and the negative of net output as a measure of costs can be deduced from the Shepard and Zeckhauser utility-maximization model. *Operations Research*, Vol. 38, No. 5 (September-October 1990), pp. 815-19. (Reprinted with permission of *Operations Research*).

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