The Statement by Vasanthakumar N. Bhat, Professor of Management and Management Science, Lubin School of Business, Pace University, New York, NY 10038

Mr. Chairman, Members of the Committee, Counsel, I very much appreciate the opportunity to be here to discuss joint and several liability reforms. Even though, I use the term 'reforms', it does not mean that changes to tort rules result in any improvements in the system from the point of view of the injured. However, most of these changes are extremely favorable to the wrongdoers. My primary purpose today is to provide an overview of empirical research on the impact of joint and several liability reforms.

With a view to compensate the injured fully, the states have traditionally held that wrongdoers are liable for damages "jointly and severally" irrespective of their degree of culpability. Under the doctrine of joint and several liability, an injured can sue all responsible parties and recover from each payments in proportion to their faults (several liability) or the injured can sue any one and recover the total payments even if the wrongdoer is only partially responsible for the injury (joint liability). Even though one wrongdoer may pay the full amount, he or she can sue other wrongdoers for their share of payments. The doctrine of joint and several liability effectively transfers the burden of underpayments away from the injured and on to wrongdoers. As of October 1999, thirty-five states have amended the traditional joint and several liability doctrine. Five states have abolished joint liability. Others have restricted its application depending on the degree of fault by the injured or wrongdoer.

The scarcity of data makes it difficult to provide any definitive conclusions about the impact of joint and several liability doctrine on product liability and medical

malpractice. However, available data on insurance premiums indicates that there is absolutely no reason to change this doctrine in the Commonwealth of Pennsylvania. Changes in direct written premiums for auto liability, auto collision and comprehensive, product liability, and other liability between 1995 and 1999 for Pennsylvania have been much lower than for the nation as a whole. In fact, direct premiums written for auto liability, product liability, and other liability decreased during 1995-1999 even though liability related costs rose during the same period. Medical malpractice payments by physicians in Pennsylvania during 1996-2000 rose by only 27.5 percent while they grew by 39 percent for the nation as a whole.

Scholarly research indicates that under certain circumstances the joint and several liability rule is economically more efficient than other types of allocations of payments by wrongdoers. The EPA Administrator and the Assistant U.S. Attorney General during the Reagan Administration strongly urged Congress to retain the joint and several liability rule for environmental damages because this doctrine encouraged settlement. This has been proven to be true by subsequent empirical and theoretical research. Scholarly research is divided, however, about which rule will force the defendant to work harder to reduce injuries. Empirical studies do not provide any definitive conclusions about the impact of the joint and several liability rule on tort filings and insurance premiums. In other words, reforms to joint and several liability rules do not achieve what they are supposed to achieve and as a result provide no significant economic benefits to defendants. State Court cases involving joint and several liability in lawsuits were found to be a mere 4.1 for every 1000 cases in 1988.

Most liability insurance policies bought by businesses and physicians only have limits on payments to the injured and pay for unlimited legal defense. Insurance companies spend a major portion of their premiums for defense related costs. In medical malpractice, insurance companies spend more on legal and related costs than on payments to the injured. On the other hand, an injured person does not get compensated for legal expenses. Therefore, there is no question that a joint and several liability reform will be devastating to the injured. They will have to not only suffer injuries, but bear the burden of insolvencies of wrongdoers as well. In short, modification to joint and several liability rule amounts to telling the injured to use his or her compensation for legal costs rather than for much needed health and living expenses.

Every car owner in the United States currently pays premiums for uninsured motorists coverage to compensate for losses caused by wrongdoers with no or underinsured coverage. In 1993, product liability insurance premiums were a mere 11 cents per 100 dollars of retail sale in Pennsylvania. This is a more efficient coverage for a person living in Pennsylvania than the coverage obtained by every individual buying his own accident insurance policy. In addition, studies show that tort pays for only a small fraction of costs of injuries. New restrictions on tort rules in favor of wrongdoers will only further nationalize tort costs, a policy that is grossly inconsistent with our cherished values. Governments would bear the financial costs through additional SSI and welfare benefits. I shall be happy to answer any questions you have.

THE IMPACT OF THE JOINT AND SEVERAL LIABILITY DOCTRINE ON PRODUCT LIABILITY AND MEDICAL MALPRACTICE*

May 11, 2002

DR. VASANTHAKUMAR N. BHAT
435 Waite Street, Hamden, CT 06517
(vbhat@att.net)

[Dr. Vasanthakumar N. Bhat has a Ph.D from the Yale University and is a member of the faculty at the Lubin School of Business, Pace University, New York. He is the author of several scholarly articles and books including the book, Medical Malpractice: A Comprehensive Analysis (Westport, CT: Auburn House, 2001)]

THE IMPACT OF THE JOINT AND SEVERAL LIABILITY DOCTRINE ON PRODUCT LIABILITY AND MEDICAL MALPRACTICE

EXECUTIVE SUMMARY

This report* examines the impact of reforms[1] to the "joint and several" liability doctrine on product liability and medical malpractice. With a view to compensate the injured fully, the states have traditionally held that wrongdoers are liable for damages "jointly and severally" irrespective of their degree of culpability. Under the doctrine of joint and several liability, an injured can sue all responsible parties and recover from each payments in proportion to their faults (several liability) or the injured can sue any one and recover the total payments even if the wrongdoer is only partially responsible for the injury (joint liability). Even though one wrongdoer may pay the full amount, he or she can sue other wrongdoers for their share of payments. The doctrine of joint and several liability effectively transfers the burden of underpayments away from the injured and on to wrongdoers. As of October 1999, thirty-five states have amended the traditional joint and several liability doctrine. Five states have abolished joint liability. Others have restricted its application depending on the degree of fault by the injured or wrongdoer.

The scarcity of data makes it difficult to provide any definitive conclusions about the impact of joint and several liability doctrine on product liability and medical malpractice. However, available data on insurance premiums indicates that there is absolutely no reason to change this doctrine in the Commonwealth of Pennsylvania. Changes in direct written premiums for auto liability, auto collision and comprehensive, product liability, and other liability between 1995 and 1999 for Pennsylvania have been much lower than for the nation as a whole. In fact,

---

* This report is prepared for and funded by the Pennsylvania Trial Lawyers Association ("PaTLA"). However, the views expressed in this report are my own.

direct premiums written for auto liability, product liability, and other liability decreased during 1995-1999 even though liability related costs rose during the same period. Medical malpractice payments by physicians in Pennsylvania during 1996-2000 rose by only 27.5 percent while they grew by 39 percent for the nation as a whole.

Scholarly research indicates that under certain circumstances the joint and several liability rule is economically more efficient than other types of allocations of payments by wrongdoers. The EPA Administrator and the Assistant U.S. Attorney General during the Reagan Administration strongly urged Congress to retain the joint and several liability rule for environmental damages because this doctrine encouraged settlement. This has been proven to be true by subsequent empirical and theoretical research. Scholarly research is divided, however, about which rule will force the defendant to work harder to reduce injuries. Empirical studies do not provide any definitive conclusions about the impact of the joint and several liability rule on tort filings and insurance premiums. In other words, reforms to joint and several liability rules do not achieve what they are supposed to achieve and as a result provide no significant economic benefits to defendants. State Court cases involving joint and several liability in lawsuits were found to be a mere 4.1 for every 1000 cases in 1988.

Most liability insurance policies bought by businesses and physicians only have limits on payments to the injured and pay for unlimited legal defense. Insurance companies spend a major portion of their premiums for defense related costs. In medical malpractice, insurance companies spend more on legal and related costs than on payments to the injured. On the other hand, an injured person does not get compensated for legal expenses. Therefore, there is no question that a joint and several liability reform will be devastating to the injured. They will have to not only suffer injuries, but bear the burden of insolvencies of wrongdoers as well. In short, modification

to joint and several liability rule amounts to telling the injured to use his or her compensation for legal costs rather than for much needed health and living expenses.

Every car owner in the United States currently pays premiums for uninsured motorists coverage to compensate for losses caused by wrongdoers with no or underinsured coverage. In 1993, product liability insurance premiums were a mere 11 cents per 100 dollars of retail sale in Pennsylvania. This is a more efficient coverage for a person living in Pennsylvania than the coverage obtained by every individual buying his own accident insurance policy. In addition, studies show that tort pays for only a small fraction of costs of injuries. New restrictions on tort rules in favor of wrongdoers will only further nationalize tort costs, a policy that is grossly inconsistent with our cherished values. Governments would bear the financial costs through additional SSI and welfare benefits.

BACKGROUND

This report examines the impact of the joint and several liability doctrine on product liability and medical malpractice. Under the doctrine of joint and several liability, if a person causes an injury concurrently with another person, any one of them can be held liable for payment of the entire judgement. When joint liability is eliminated, then each individual can be held liable only to the extent of damages attributable to his percentage of fault.

Tort rules have three objectives. The first objective is to deter behavior that causes injuries. Second is to exact retribution against wrongdoers. Third is to compensate victims for their injuries. Even though some countries go to the extent of holding wrongdoers criminally responsible, we use the tort system, in most cases, to discourage injury-causing behavior.

Tort rules can deter behavior that causes injuries at the least possible cost to the society by making wrongdoers who can prevent or reduce injuries most economically to pay for resulting injuries. For example, suppose an injury resulting in damages valued at $50,000 can be eliminated or reduced by the defendant (either a manufacturer in a product liability or a physician in a medical malpractice lawsuit) by spending $50. By holding the defendant responsible for the entire damage, society as a whole can reduce costs of injuries at the least possible cost. Just because some manufacturers or physicians involved in high-risk activities have to pay higher costs for damages does not make changes to tort rules essential. Tort rule changes to decrease the costs of injuries can perpetuate accident-causing behavior among manufacturers and physicians by reducing the economic incentives for preventative measures. Tort rules also provide an accident insurance to the victims by making manufacturers and physicians pay for costs of injuries. If there were no tort rules, everyone will be forced to buy their own accident insurance to compensate for injuries caused by others.

Even though, tort rules are intended to provide compensation for medical care, work loss and other related expenses related to injuries, the liability system plays only a small role in compensating injured Americans. According to a study by RAND Institute for Civil Justice, the tort liability system pays about 11 percent of costs of injuries; the other 89 percent is paid by other sources with the individual's own health insurance being the major contributor. Only in motor vehicle injuries does the liability system play a major role by accounting for 22 percent of all compensation annually[2].

It is easy to provide arguments in favor and against tort laws. However, before we make any changes to tort rules, it essential to evaluate whether current laws are inconsistent with the social objectives and whether insurance systems are unable to operate.

DATA

Data as to the extent of tort litigation in the Commonwealth of Pennsylvania or in the US is limited. The Department of Justice estimates that Tort cases constitute about 1 in 10 of all civil cases in the state courts[3]. The most recent data available on the various types of tort cases disposed in State courts by sampled Pennsylvania counties are given below[4]:

Tort Cases in Major Counties of Pennsylvania in 1992

County	All torts	Auto	Premises liability	Product liability	Medical malpractice	Toxic Substances
Allegheny, PA	5,430	3,058	1,279	218	343	187
%	100	56.31	23.55	4.01	6.32	3.44
Philadelphia, PA	18,283	10,970	3,456	150	551	852
%	100	60.00	18.90	0.082	3.01	4.66
USA	100	60.1	17.3	3.4	4.9	1.6

The majority of tort lawsuits in the Commonwealth of Pennsylvania and the U.S. are clearly auto and premises liability.

Changes in direct insurance premiums for various lines of insurance in Pennsylvania and nation as a whole are as follows[5]:

Direct Insurance Premiums for Various Lines of Liability Insurance

Line of Insurance	Pennsylvania			USA		
	1995	1999	% change	1995	1999	% change
Auto Liability	3,895	3,887	-0.02	79,833	83,487	4.58
Collision/Comprehensive	1,865	2,379	27.56	42,320	54,538	28.87
Medical malpractice*	276	352	27.5	2,797	3,889	39.0
Product liability	113	76	-32.64	2,159	1,791	-17.04
Other liability	1,106	996	-9.95	21,905	23,398	6.82

*Total physician claim payments for 1996 and 2000 respectively. Data on total premiums paid not available. Source: National Practitioner Data Bank Annual Report. *Dollars in million.*

The growth in all lines of liability insurance premiums in Pennsylvania is lower than those for the entire nation. Product liability and other liability premiums are less in 1999 than in 1995. During the same time, the increase in costs for liability insurance and related items during 1995 and 1999 are as follows:

Cost of living	9.32%
Medical care	13.65%
Motor vehicle body repair	14.7%

In other words, the direct premiums for liability related insurances are much lower in 1999 than in 1995, even though the costs of liability related items have gone up during the same time. Total claim payments for medical malpractice rose only by 27.5 percent while for the whole nation the growth was 39 percent.

Most liability insurance policies purchased by physicians and businesses pay for unlimited legal defense. As a result, a major portion of the premiums is paid for defense and cost containment expenses, including the investigation of fraud. The percentage of incurred loses spent on defense and cost containment expenses in 1999 as reported by the Insurance Information Institute are as follows[6]:

General liability excluding products liability	30.6%
Medical malpractice	43.2%
Products liability	34.1%
Total liability lines	13.1%

The above percentages indicate that insurance companies use an enormous sum of money for defending liability lawsuits. Note that in general liability, medical malpractice, and product liability lawsuits, companies spend more than 30 cents of every dollar of incurred expenses on

legal costs. In medical malpractice, for example, insurance companies spend about 40 percent of premiums on claim payments but an even higher proportion on legal costs to defend the case. In case of an injured, legal costs come out of the compensation he receives for his medical and other related expenses, and lost wages. Therefore, requiring an injured to sue each and every wrongdoer is tantamount to telling an injured to use his compensation on legal expenses rather than on much needed medical and living expenses.

A recent study by J. Robert Hunter indicates that product liability insurance is a mere 11 cents for every 100 dollars of retail sales in the Commonwealth of Pennsylvania in 1993[7]. This empirical data directly refutes claims by the business community that the repeal of joint liability will result in lower prices and the creation of new jobs.

JOINT AND SEVERAL LIABILITY

The doctrine of joint and several liability is an ancient legal principle used by the English courts to assign responsibility when more than one defendant act in concert to cause harm to a plaintiff. Defendants act in concert when they act independently of each other but with knowledge what others are doing to achieve some goal. Fraud, collusion, and embezzlement represent some early examples of joint tort. Under the doctrine of joint and several liability, if one defendant commits an unlawful act, then it is an unlawful act of all defendants. Therefore, when one of the defendants is unable to pay for the damages, then all other defendants are held responsible for that defendant's portion of the damages in addition to their own. This doctrine, which began with concert of action situations, was later expanded to tortuous conduct of more than one individual. The joint and several liability rules in various states as of October 1998 are given in Appendix 1. Only a few states have abolished the joint and several liability rule

completely. Most states have, however, changed the rule by limiting the circumstances to which this rule can be applied. Even though joint and several liability can hold some wrongdoers for the entire payment of an injury, most states in some form provide recourse to ones who made the payments to collect from others who did not pay. According to Anderson[8], 44 states and the District of Columbia provide some right to unpaid share of the damages. However, the major obstacle to such recovery may be the ability of the codefendants to pay.

The paramount objective of tort rules is to reimburse victims the costs of injury. Therefore, the joint and several liability doctrine requires that when one of the wrongdoers cannot pay his or her share of the damages, other wrongdoers, and not the injured, should be responsible for the damages. Proponents of joint and several liability claim that this rule ensures that an injured is fully compensated for losses. The joint and several rule is also useful in states where some parties are immune from liability because of their status as a nonprofit, religious, or government organization. Some argue that it may be justified to apply the joint and several rule for economic damages so that costs of damages are not borne by the injured; however, only the several rule should be applied to non-economic damages. Such an application, however, would put minors, senior citizens and homemakers at a severe disadvantage.

ECONOMIC ANALYSIS

Most economic analysis concludes that a joint and several liability rule is more economically efficient under certain circumstances than only a several liability rule. Basically, there are two methods to allocate liability. Based on the traditional joint and several liability allocation doctrine, each wrongdoers are jointly and severally responsible for the entire payments. The alternative method of allocating payments is by proportionate liability method.

Under this regime, each wrongdoer is responsible only to the extent of injury done by him. The payments received by the injured would be the same in both methods if it were not the fact the injured is not able to collect payments from some wrongdoers as they are missing, insolvent or the expected share of liability does not justify the cost of litigation. Under these circumstances, the injured will collect less than his full share of compensation. Therefore, the paramount question is who should bear the cost of an injury when a defendant is not able to make payment. Richard W. Wright presents a powerful argument using the corrective justice principles that the wrongdoer is the one who should be responsible for the full payment. According to Wright[9], each wrongdoer is fully responsible for the full payment because "some other person also tortuously contributed to the same injury does not logically or otherwise eliminate or reduce each tortfeasor's responsibility for the entirety of the injury that was proximately caused by her tortuous behavior . . . ". Just because another person is also responsible for the injury does not influence the wrongdoer's full responsibility for the injury. It only provides the basis for deciding how to allocate payments among wrongdoers. In short, we can conclude from Wright that it is not unfair that wrongdoers who caused a plaintiff's injury be required to pay the entirety of plaintiff's recoverable damages, regardless of the number of other wrongdoers who are also a cause of the injury.

Deterrence is a major goal of tort rules. In order for optimal allocation of responsibility to occur, each party needs to internalize all costs of injury. However, joint and several liability rule may skew such an allocation. According to Landes and Posner[10], for optimal deterrence, the allocation of expected costs before accidents is more important than allocation of actual costs after accidents. Landes and Posner conclude that "if ex ante, each defendant bears a cost (an expected cost) of liability, each defendant is deterred even if all but one pay nothing" and "the

common law is seen approximating some rather subtle and not entirely intuitive economic distinctions." The empirical study by Viscusi[11] reinforces Landes and Posner conclusion as he finds that settlement and trial decisions are consisted with the behavior modeled under rational economic considerations.

The Superfund or the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) uses of the joint and several liability doctrine when it comes to recovering costs of contaminated sites. Lee Thomas[12], EPA Administrator and F. Henry Habicht II[13], Assistant Attorney General, Land and Natural Resources Division of the Justice Department (both of the Reagan administration) strongly argued for joint and several liability doctrine because it encourages defendants to settle and maximizes recovery which is in the public interest. A recent theoretical and empirical work by Chang and Sigman[14] conclude that joint and several liability does not discourage settlement and even encourages settlement. In addition, they find that likelihood of settlement rather than litigation grows with the number of defendants. According to Tietenberg[15], potentially responsible parties put more effort into reducing potential accidents under joint and several liability than with pure several liability because responsible parties may be subjected to a higher expected share of damages under joint and several liability regime. However, according to Narayan[16], a defendant is likely to work harder under the proportionate liability regime. There is no consensus on this point.

EMPIRICAL STUDIES

There are not many empirical studies relating to the impact of joint and several liability. The summary of studies analyzing the impact of joint and several liability is presented in Table 1. According to a study by Schmit and others, cases involving joint and several liability

represented a mere 0.41 percent of state and federal court cases reported in Lexis for 1988[17]. A study by Han-Duck Lee and others[18] examined the effect of changes to joint and several liability doctrine on the tort filings per 100,000 people after the reform. The empirical analysis indicates a statistically significant increase in the filings year prior to the reform. However, only a weak conclusion can be drawn about the reduction of tort filings per 100,000 people after the reform. As a result, whether or not reforms to joint and several liability doctrine reduce tort filings is not clear. The study by Barker[19] finds that joint and several liability reform reduces loss ratios and systematic risks. The study by Blackmon and Zeckhauser[20] finds that reforms have no impact on losses and reduced (very weak) premiums. The studies by Bhat[21] find that reform increases medical malpractice payment frequencies, increases delay in payments, increases physician malpractice premiums and has no impact on hospital premiums. However, his study finds that reforms do reduce malpractice payments. The study by Browne and Puelz[22] find that reforms increase individual automobile bodily injury liability claims paid.

Congress enacted the Private Securities Litigation Reform Act (PSLRA) in December 1995 with the objectives of "reduction of abusive litigation" and "reduction of coercive settlements" in class action securities litigation. Reforms in addition to others included replacement of joint and several liability with proportional liability under certain circumstances. The number of lawsuits, however, increased after the reform. The average number of securities class action lawsuits per year rose to 204 during 1997-99 from 176 during 1991-93[23].

We indicate results showing reforms increasing malpractice premiums, losses, payments, and delays in italics in Table 1. What is most evident from Table 1 is that reforms to joint and several liability rules do not achieve what they are supposed to achieve and provide no significant economic benefit to defendants.

Table 1: Effect of Joint and Several Liability Doctrine Modification: Summary of Research Results

Authors	Outcome	Results
Jon T. Schmit and others, An Analysis of Litigation Claiming Joint and several Liability, The Journal of Risk and Insurance, 1991, 58(2):397-417	Number of state and federal cases for 1963-1988	*Cases involving joint and several liability represented just 4 cases per 1000 state court cases in 1988.*
Han-Duck Lee and others, How Does Joint and Several Tort Reform Affect the Rate of Tort Filings? Evidence from the State Courts, The Journal of Risk and Insurance, 1994, 61(2):295-316	Tort filings per 100,000 populations from 1984 to1989	*Statistically significant increase in tort filings during the year previous to reform. Support for reduction in filings after reform is weak. The effectiveness of the reform is unclear.*
D. K. Barker, An Empirical Analysis of the Effects of Product Liability Laws on Underwriting Risk, The Journal of Risk and Insurance, 1991, 58(1):63-79	Annual dividend-adjusted loss ratios from 1977 to 1986 Total underwriting risk Relative risk Systematic risk	States without reform have statistically significant increase in loss ratios. *No statistically significant impact whether or not the state adopted the doctrine of enterprise liability on total underwriting risk.* *No statistically significant impact* States without reform have statistically significant increase in systematic risk
G. Blackmon and R. Zeckhauser, State Tort Reform Legislation: Assessing Our Control of Risks, in Tort Law and the Public Interest, Peter H. Schuck (Ed.) (New York: W.W.Norton & Co., 1991)	Changes in malpractice insurance premiums 1985-1988 & Change in malpractice insurers' losses from 1985 to 1988	Reform of joint and several liability doctrine reduces premiums (very weak impact) *and has no impact on the losses.*
V.N. Bhat, Medical Malpractice, (Westport, CT: Auburn house, 2001)	Malpractice payments per 1000 physicians Malpractice payments Delay Physician and hospital malpractice premiums	*Reform increases payment frequency* Reform reduces payment amounts. *Reform increases delay in payment* *Reform increases physician malpractice premiums and has no impact on hospital premiums.*
M.J.Browne and others, Statutory Rules, Attorney Involvement, and Automobile Liability Claims, *The Journal of Risk and Insurance,* 1996, 63(1), 77-94	Individual automobile bodily injury liability paid	*Reform increases individual automobile bodily injury liability paid.*

Results in italics indicate reforms having no impact or increasing tort filings, increasing premiums or losses, increasing delays etc.

Appendix 1

Joint and Several Liability Rule (as of October, 1998)

No change	*Abolished totally*	*Abolished for defendants 50 percent or less liable*	*Abolished with exceptions for various types of cases*	*Limited application*
Alabama	Alaska	Arizona	California	Connecticut
Arkansas	Louisiana	Iowa*	Colorado	Georgia
Delaware	Utah	Montana	Florida	Indiana
Kansas	Vermont	New Hampshire	Hawaii	Kentucky
Maine	Wyoming	New York	Idaho	Minnesota
Maryland		Ohio	Illinois**	Mississippi
Massachusetts		Texas	Michigan	Missouri
North Carolina		Wisconsin	Nebraska	New Jersey
Oklahoma			Nevada	New Mexico
Pennsylvania			New York	South Dakota
Rhode Island			North Dakota	
South Carolina			Oregon	
Tennessee			Washington	
Virginia				
West Virginia				

* For economic damages only **Held unconstitutional

Source: The Fact Book, 1999: Property/Casualty Insurance Facts, (New York, NY: Insurance Information Institute, 1999), p.61-2

Endnotes

---

[1] Just because I use the term 'reform' does not mean changes to tort rules result in any improvements in the system from the point of view of the injured. However, most of these changes are extremely favorable to the wrongdoers.

[2] G. Eads and P.Reuter, *Designing Safer Products: Corporate Response to Product Liability Law and Regulation,* (Santa Monica, CA: Rand Institute for Civil Justice, 1983)

[3] Office of Justice Programs, *Civil Justice Survey of State Courts, 1992*, (Washington, DC: U.S. Department of Justice, April 1995), NCJ-153177, p.1

[4] Ibid. 1

[5] The III Insurance Fact Book, 1997 and 2001 (New York, NY: Insurance Information Institute)

[6] The III Insurance Fact Book, 2001 (New York, NY: Insurance Information Institute, 2001)

[7] J. Robert Hunter, Product Liability Insurance Experience 1984-1993, (Washington, DC: Consumer Federation of America, 1995)

[8] Kristian E. Anderson, 1985, The Right to Contribution for Response Costs Under CERCLA, Note, *Notre Dame Law Review*, 60:345-69

[9] Richard W. Wright, Allocating Liability Among Multiple Responsible Causes: A Principled Defense of Joint and Several Liability for Actual Harm and Risk Exposure, *21 U.C. Davis L.Rev.* p.1153 (1988)

[10] William M. Landes and Richard A. Posner, 1980, Joint and Multiple Tortfeasors: An Economic Analysis, *Journal of Legal Studies*, 9:517-55

[11] W.K. Viscusi, The Determinants of the Disposition of Product Liability Claims and Compensation for Bodily Injury, Journal of Legal Studies, 20:147-177

[12] Statement of Lee Thomas, EPA Administrator, *Superfund Reauthorization, Judicial and Legal Issues: Oversight Hearings Before the Subcommittee on Administration*, Law and Government Relations of the House Committee on Judiciary, 99th Congress, 5-6 (1985)

[13] Statement of F. Henry Habicht II, Assistant Attorney General, Land and Natural Resources Division, *Superfund Improvement Act of 1985, Hearing on S 51 Before the Senate Committee on the Judiciary, 99th Congress*, 18, 22 (1985)

[14] H.F. Chang and H. Sigman, Incentives to Settle Under Joint and Several Liability: An Empirical Analysis of Superfund Litigation, NBER Working Paper No. 7096, April 1999

[15] Tom H. Tietenberg, Indivisible Toxic Torts: The Economics of Joint and Several Liability, Land Economics, Nov. 1989, 65(4):305-320

[16] V.G. Narayan, An Analysis of Auditor Liability Rules, Journal of Accounting Research, 1994, 32:39-60

[17] Jon T. Schmit and others, An Analysis of Litigation Claiming Joint and several Liability, *The Journal of Risk and Insurance*, 1991, 58(2):397-417

[18]Han-Duck Lee and others, How Does Joint and Several Tort Reform Affect the Rate of Tort Filings? Evidence from the State Courts, *The Journal of Risk and Insurance*, 1994, 61(2):295-316

[19] D. K. Barker, An Empirical Analysis of the Effects of Product Liability Laws on Underwriting Risk, The Journal of Risk and Insurance, 1991, 58(1):63-79

[20] G. Blackmon and R. Zeckhauser, State Tort Reform Legislation: Assessing Our Control of Risks, in Tort Law and the Public Interest, Peter H. Schuck (Ed.) (New York: W.W.Norton & Co., 1991)

[21] V.N. Bhat, Medical Malpractice, (Westport, CT: Auburn house, 2001)

[22] M.J.Browne and others, Statutory Rules, Attorney Involvement, and Automobile Liability Claims, *The Journal of Risk and Insurance,* 1996, 63(1), 77-94

[23] *http://securities.stanford.edu/index.htm*