

# Our model thus far has assumed...

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- ◆ So far, our model has assumed:
  - ◆ People are **rational**
  - ◆ Injurers **pay damages in full**
    - They don't run out of money and go bankrupt
  - ◆ There are no **regulations** in place other than the liability rule
  - ◆ There is no **insurance**
  - ◆ **Litigation is costless**
- ◆ We can think about what would happen when each of these assumptions is violated

# Assumption 1: Rationality

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- ◆ Behavioral economics: people systematically misjudge value of probabilistic events
- ◆ Daniel Kahneman and Amos Tversky, “Prospect Theory: An Analysis of Decision under Risk”
  - ◆ 45% chance of \$6,000 versus 90% chance of \$3,000
  - ◆ Most people (86%) chose the second
  - ◆ 0.1% chance of \$6,000 versus 0.2% chance of \$3,000
  - ◆ Most people (73%) chose the first
  - ◆ But under expected utility, either  $u(6000) > 2 u(3000)$ , or it's not
  - ◆ So people don't actually seem to be maximizing expected utility
  - ◆ And the “errors” have to do with how people evaluate probabilities

# Assumption 1: Rationality

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- ◆ People seem to overestimate chance of unlikely events with well-publicized, catastrophic events
- ◆ Freakonomics: people fixate on exotic, unlikely risks, rather than more commonplace ones that are more dangerous

# Assumption 1: Rationality

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- ◆ People seem to overestimate chance of unlikely events with well-publicized, catastrophic events
- ◆ Freakonomics: people fixate on exotic, unlikely risks, rather than more commonplace ones that are more dangerous
- ◆ How to apply this: accidents with power tools
  - ◆ Could be designed safer, could be used more cautiously
  - ◆ Suppose consumers underestimate risk of an accident
  - ◆ Negligence with defense of contributory negligence: would lead to tools which are very safe when used correctly
  - ◆ But would lead to too many accidents when consumers are irrational
  - ◆ Strict liability would lead to products which were less likely to cause accidents even when used recklessly

# Assumption 1: Rationality

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- ◆ Another type of irrationality: unintended lapses
- ◆ “Many accidents result from tangled feet, quavering hands, distracted eyes, slips of the tongue, wandering minds, weak wills, emotional outbursts, misjudged distances, or miscalculated consequences”

## Assumption 2: Injurers pay damages in full

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- ◆ Strict liability: injurer internalizes expected harm done, leading to efficient precaution
- ◆ But what if...
  - ◆ Harm done is \$1,000,000
  - ◆ Injurer only has \$100,000
  - ◆ So injurer can only pay \$100,000
  - ◆ But if he anticipates this, he knows  $D \ll A$ ...
  - ◆ ...so he doesn't internalize full cost of harm...
  - ◆ ...so he takes inefficiently little precaution
- ◆ Injurer whose liability is limited by bankruptcy is called **judgment-proof**

# Example of judgment-proofness

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- ◆ Owner of an oil tanker
- ◆ Any accident would be an environmental catastrophe, doing \$50,000,000 of harm
- ◆ Upgraded navigation system would cost \$225,000, and reduce likelihood of an accident from 1/100 to 1/500
  - ◆ Precaution reduces expected harm from \$500,000 to \$100,000, costs \$225,000, so efficient to take precaution
  - ◆ If company would be forced to pay \$50,000,000 after an accident, then under strict liability, would choose to buy new nav system
- ◆ Suppose the business is only worth \$5,000,000
  - ◆ If there's an accident, pay the \$5,000,000 and go out of business
  - ◆ Now nav system reduces expected damages from \$50,000 to \$10,000 – not worth the cost
  - ◆ So judgment-proof business would take too little precaution

# Assumption 3: No regulation

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- ◆ What stops me from speeding?
  - ◆ If I cause an accident, I'll have to pay for it
  - ◆ Even if I don't cause an accident, I might get a speeding ticket
- ◆ Similarly, fire regulations might require a store to have a working fire extinguisher
- ◆ Regulations supply additional incentive to take precaution

## Continuing the example of judgment-proofness from before...

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- ◆ We saw, if business is only worth \$5,000,000, liability does not create enough incentive to upgrade nav system
- ◆ Now suppose government passes regulation requiring modern navigation systems on all oil tankers
  - ◆ If business doesn't upgrade, 1 in 5 chance of being caught by safety inspector and having to pay a \$1,000,000 fine
- ◆ Now, combining liability with regulation...
  - ◆ Upgrade: cost of new nav system is \$225,000, expected damages are \$10,000 → private cost is \$235,000
  - ◆ Don't upgrade: expected damages are \$50,000, expected government fine is \$200,000 → private cost is \$250,000
  - ◆ Liability + regulation gives enough incentive to take precaution, even though either one alone would not be enough

## Assumption 3: No regulation

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- ◆ When liability  $>$  injurer's wealth, liability does not create enough incentive for efficient precaution
- ◆ Regulations which require efficient precaution solve the problem
- ◆ Regulations also work better than liability when accidents impose small harm on large group of people

## Assumption 4: No insurance

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- ◆ We assumed injurer or victim actually bears cost of accident
- ◆ When injurer or victim has insurance, they no longer have incentive to take precaution
- ◆ But, insurance tends not to be complete

# Assumption 4: No insurance

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- ◆ Insurance reduces incentive to take precaution
  - ◆ Moral hazard
- ◆ Insurance companies have ways to reduce moral hazard
  - ◆ Deductibles, copayments
  - ◆ Increasing premiums after accidents
  - ◆ Insurers may impose safety standards that policyholders must meet

# Assumption 5: Litigation costs nothing

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- ◆ If litigation is costly, this affects incentives in both directions
  - ◆ If lawsuits are costly for victims, they may bring fewer suits
  - ◆ Some accidents “unpunished” → less incentive for precaution
  - ◆ But if being sued is costly for injurers, they internalize more than the cost of the accident
  - ◆ So more incentive for precaution

# An example from Polinsky, “An Introduction to Law and Economics”

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- ◆ I hit you with my car and did \$10,000 worth of damage
  - ◆ We both know I was negligent
  - ◆ But courts aren't perfect
  - ◆ If we go to trial, **80% chance I'll be found liable**, 20% I won't
  - ◆ If I'm held liable, damages are correctly set at \$10,000
  - ◆ So on average, if we go to trial, **you expect to recover \$8,000**
- ◆ But if we go to trial, we both have to hire lawyers
  - ◆ Suppose this **costs us each \$3,000**
  - ◆ Now your expected gain from going to trial is  $\$8,000 - 3,000 = 5,000$
  - ◆ And my expected cost is  $\$8,000 + 3,000 = 11,000$

# Why does costly litigation matter?

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- ◆ Under strict liability...
  - ◆ We said injurers internalize cost of accidents → efficient precaution
  - ◆ But this assumes **cost of being sued = damage done**
  - ◆ If courts are unpredictable and litigation is costly, private cost of being sued for damages could be > or < cost of accident
  - ◆ Which could lead to **too much or too little precaution**
- ◆ But also...
  - ◆ If we can't settle out of court and cases go to trial...
  - ◆ ...then social cost of an accident includes both the harm done, **and the resources expended during the trial!**
  - ◆ If trial costs \$6,000, then social cost of the accident isn't \$10,000, but \$16,000 – which increases the efficient level of precaution

# With costly litigation comes possibility of “nuisance suit”

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- ◆ Nuisance suit – lawsuit with no legal merit, purely meant to extract an out-of-court settlement
  - ◆ Suppose trial costs \$10,000 for plaintiff but \$50,000 for defendant
  - ◆ If case goes to trial, plaintiff will get nothing
  - ◆ Threat points are -10,000 and -50,000
  - ◆ Gains from cooperation if settlement reached are 60,000
  - ◆ If gains are split evenly, defendant pays settlement of \$20,000, even though case had no merit

# Who pays the costs of a trial?

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- ◆ In U.K., loser in a lawsuit often pays legal expenses of winner
  - ◆ Discourages nuisance suits
  - ◆ But also discourages suits where there was actual harm that may be hard to prove
- ◆ In U.S., each side generally pays own legal costs
  - ◆ But some states have rules that change this under certain circumstances

# Who pays the costs of a trial?

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- ◆ Rule 68 of Federal Rules of Civil Procedure
  - “At any time more than 10 days before the trial begins, a party defending against a claim may serve upon the adverse party an offer [for a settlement]...
  - If the judgment finally obtained by the offeree is not more favorable than the offer, the offeree must pay the costs incurred after the making of the offer.”**
- ◆ “Fee shifting rule”
- ◆ Example
  - ◆ I hit you with my car, you sue
  - ◆ Before trial, I offer to settle for \$6,000, you refuse
  - ◆ If you win at trial, but damages are only \$5,000...
  - ◆ ...then under Rule 68, you would have to pay me for all my legal expenses after I made the offer

# Who pays the costs of a trial?

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- ◆ Rule 68 does two things to encourage settlements:
  - ◆ Gives me added incentive to **make a serious settlement offer**
  - ◆ Gives you added incentive to **accept my offer**
- ◆ But not actually as generous as it sounds
  - ◆ Not all expenses are covered
- ◆ Asymmetric
  - ◆ Plaintiff is penalized for rejecting defendant's offer
  - ◆ Defendant is not penalized for rejecting offer from plaintiff

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# More twists on liability

# Vicarious Liability

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- ◆ **Vicarious liability** is when one person is held liable for harm caused by another
  - ◆ Parents may be liable for harm caused by their child
  - ◆ Employer may be liable for harm caused by employee
- ◆ **Respondeat superior** – “let the master answer”
- ◆ Employer is liable for torts of employee **if employee was acting within the scope of his employment**

# Vicarious Liability

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- ◆ Gives employers incentive to...
  - ◆ be more careful **who they hire**
  - ◆ be more careful **what they assign employees to do**
  - ◆ **supervise** employees more carefully
- ◆ Employers may be better able to make these decisions than employees...
- ◆ ...and employees may be judgment-proof

# Vicarious Liability

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- ◆ Vicarious liability can be implemented through...
  - ◆ **Strict liability rule**: employer liable for any harm caused by employee (as long as employee was acting within scope of employment)
  - ◆ **Negligence rule**: employer is only liable if he was negligent in supervising employee
- ◆ Which is better? It depends.
  - ◆ If proving negligent supervision is too hard, strict vicarious liability might work better
  - ◆ But an example favoring negligent vicarious liability...

# Joint and Several Liability

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- ◆ Suppose you were harmed by accident caused by two injurers
- ◆ **Joint liability**: you can sue them both together
- ◆ **Several liability**: you can sue each one separately
  - ◆ Several liability **with contribution**: each is only liable for his share of damage
- ◆ **Joint and several liability**: you can sue either one for the full amount of the harm
  - ◆ Joint and several liability **with contribution**: the one you sued could then sue his friend to get back half his money

# Joint and Several Liability

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- ◆ **Joint and several liability** holds under common law when...
  - ◆ Defendants acted together to cause the harm, or...
  - ◆ Harm was indivisible (impossible to tell who was at fault)
- ◆ Good for the victim, because...
  - ◆ No need to prove exactly who caused harm
  - ◆ Greater chance of collecting full level of damages
    - Instead of suing person most responsible, could sue person most likely to be able to pay

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# Punitive damages

# Inconsistency of damages

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- ◆ Damage awards vary greatly across countries, even across individual cases
- ◆ We saw last week:
  - ◆ As long as damages are correct **on average**, random inconsistency doesn't affect **incentives** (under either strict liability or negligence)
- ◆ But, if appropriate level of damages isn't well-established, more incentive to spend more fighting

# One problem with inconsistent damages: more incentive to fight hard

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- ◆ Example: each side can hire cheap lawyer or expensive lawyer
- ◆ Cheap lawyer costs \$10, expensive lawyer costs \$45
- ◆ If two lawyers are equally good, expected judgment is \$100
- ◆ If one is better, expected judgment is doubled or halved

		<i>Defendant</i>	
		Cheap	Expensive
<i>Plaintiff</i>	Cheap Lawyer	90, -110	40, -95
	Expensive Lawyer	155, -210	55, -145

# Punitive damages

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- ◆ What we've discussed so far: **compensatory damages**
  - ◆ Meant to “make victim whole”/compensate for actual damage done
- ◆ In addition, courts sometimes award **punitive damages**
  - ◆ Additional damages meant to punish injurer
  - ◆ Create stronger incentive to avoid initial harm
- ◆ Punitive damages generally not awarded for innocent mistakes, but may be used when injurer's behavior was **“malicious, oppressive, gross, willful and wanton, or fraudulent”**

# Punitive damages

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- ◆ Calculation of punitive damages even less well-defined than compensatory damages
- ◆ Level of punitive damages supposed to bear “**reasonable relationship**” to level of compensatory damages
  - ◆ Not clear exactly what this means
  - ◆ U.S. Supreme Court: punitive damages more than **ten times** compensatory damages will attract “close scrutiny,” but not explicitly ruled out

## Example of punitive damages: Liebeck v McDonalds (1994) (“the coffee cup case”)

- ◆ Stella Liebeck was badly burned when she spilled a cup of McDonalds coffee in her lap
- ◆ Awarded \$160,000 in compensatory damages, plus \$2.9 million in punitive damages
- ◆ Case became “poster child” for excessive damages, but...

# Liebeck v McDonalds (1994)

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- ◆ Stella Liebeck dumped coffee in her lap while adding cream/sugar
  - ◆ Third degree burns, 8 days in hospital, skin grafts, 2 years treatment
  - ◆ Initially sued for \$20,000, mostly for medical costs
  - ◆ McDonalds offered to settle for \$800
- ◆ McDonalds serves coffee at 180-190 degrees
  - ◆ At 180 degrees, coffee can cause a third-degree burn requiring skin grafts in 12-15 seconds
  - ◆ Lower temperature would increase length of exposure necessary
  - ◆ McDonalds had received 700 prior complaints of burns, and had settled with some of the victims
  - ◆ Quality control manager testified that 700 complaints, given how many cups of coffee McDonalds serves, was not sufficient for McDonalds to reexamine practices

# Liebeck v McDonalds (1994)

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- ◆ Rule in place was comparative negligence
  - ◆ Jury found both parties negligent, McDonalds 80% responsible
  - ◆ Calculated compensatory damages of \$200,000
  - ◆ times 80% gives \$160,000
  - ◆ Added \$2.9 million in punitive damages
  - ◆ Judge reduced punitive damages to 3X compensatory, making total damages \$640,000
  - ◆ During appeal, parties settled out of court for some smaller amount
- ◆ Jury seemed to be using punitive damages to punish McDonalds for being arrogant and uncaring

# What is the economic purpose of punitive damages?

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- ◆ We've said all along: with perfect compensation, incentives for injurer are set correctly. So why punitive damages?
- ◆ Example...
  - ◆ Suppose manufacturer can eliminate 10 accidents a year, each causing \$1,000 in damages, for \$9,000
  - ◆ Clearly efficient
  - ◆ If every accident victim would sue and win, company has incentive to take this precaution
  - ◆ But if some won't, then not enough incentive
  - ◆ Suppose only half the victims will bring successful lawsuits
  - ◆ Compensatory damages would be \$5,000; company is better off paying that than taking efficient precaution
  - ◆ One way to fix this: award **higher damages** in the cases that are brought

# This suggests...

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- ◆ Punitive damages should be related to compensatory damages, but higher the more likely injurer is to “get away with it”
  - ◆ If 50% of accidents will lead to successful lawsuits, total damages should be 2 X harm
  - ◆ Which requires punitive damages = compensatory damages
  - ◆ If 10% of accidents lead to awards, damages should be 10 X harm
  - ◆ So punitive damages should be 9 X compensatory damages
- ◆ Seems most appropriate when injurer’s actions were deliberately fraudulent, since may have been based on cost-benefit analysis of chance of being caught

## To wrap up tort law, a funny story from Friedman...

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“A tort plaintiff succeeded in collecting a large damage judgment.

The defendant’s attorney, confident that the claimed injury was bogus, went over to the plaintiff after the trial

and warned him that if he was ever seen out of his wheelchair he would be back in court on a charge of fraud.

The plaintiff replied that to save the lawyer the cost of having him followed, he would be happy to describe his travel plans.

He reached into his pocket and drew out an airline ticket –

to Lourdes, the site of a Catholic shrine famous for miracles.”

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How should we think about  
the legal process itself?

# We've been thinking of normative goal of minimizing social costs

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- ◆ Property law
  - ◆ Goal was to allocate resources/entitlements efficiently...
  - ◆ ...or, to minimize inefficiencies due to misallocation
- ◆ Contract law
  - ◆ Goal was to further facilitate trade...
  - ◆ ...or, to decrease inefficiencies due to unrealized Kaldor-Hicks improvements
- ◆ Tort law
  - ◆ Goal was explicitly to minimize social costs...
  - ◆ ...which consist of cost of accidents plus cost of precaution

# Implicitly, we've generally been assuming two things so far

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- ◆ The legal system **works flawlessly**
  - ◆ Whatever theoretical goal we set, we can implement correctly
  - ◆ (In tort law, we've considered effect of errors)
- ◆ The legal system **costs nothing**
- ◆ Gave us nice theoretical results for achieving efficiency
  - ◆ Example: strict liability when injurer activity matters a lot; negligence when both sides' precaution matters a lot
- ◆ Next: what additional concerns are there when trying to put a legal structure in place to enforce these ideas?

# What is the goal of the legal system itself – i.e., how we implement the rules we chose?

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- ◆ Start with the best possible benchmark
  - ◆ Theoretically perfect rules, implemented flawlessly and costlessly
  - ◆ That's obviously the best we can hope to do
  
- ◆ How does reality differ?
  1. Rules actually implemented won't be the perfect ones
    - ◆ Imperfect rules will lead to imperfect incentives, leading to less-than-perfectly-efficient actions and outcomes
    - ◆ Think of any loss of efficiency due to imperfections in legal system as **error costs**
  2. Actual system won't be costless – **administrative costs**
    - ◆ Goal of legal system: minimize sum of these two costs

# Administrative costs and error costs

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- ◆ Administrative costs
  - ◆ Hiring judges, building courthouse, paying jurors...
  - ◆ **More complex process → higher cost**
- ◆ Error costs
  - ◆ Any legal process is imperfect
  - ◆ **Errors** are any judgments that differ from theoretically perfect ones
  - ◆ An error in computing damages after the fact only affects distribution, not efficiency
  - ◆ But **anticipated errors affect incentives**, which may lead to actions which aren't efficient
  - ◆ **Error costs** are costs of distortions in actions people take (precaution, activity levels, etc.) due to flaws in legal system

# The goal of the legal process

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- ◆ So theoretically, the efficient legal process is the one that minimizes the sum of...
  - ◆ The **direct costs** of administering the system, and
  - ◆ The **economic effects of errors** due to process not being perfect
- ◆ We've already seen the tradeoff between these two types of costs
  - ◆ Tradeoff between "simpler" versus "more complex" rules
  - ◆ We've seen this several times

# We've already seen tradeoff between administrative and error costs

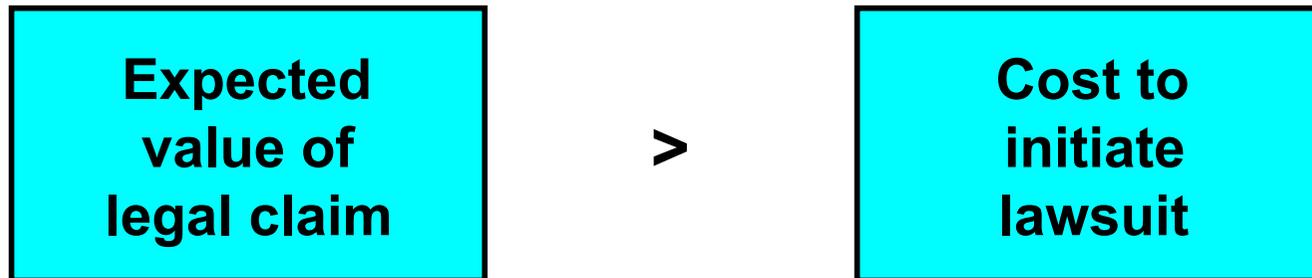
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- ◆ Whaling law – “fast fish/loose fish” vs. “iron-holds-the-whale”
  - ◆ FF/LF: lower administrative costs (fewer disputes)
  - ◆ IHTW: lower error costs (better incentives for whaling)
- ◆ Privatizing ownership of land
  - ◆ Expanding property rights adds admin costs (boundary maintenance)
  - ◆ But lowers error costs (better incentives for efficient use of resource)
  - ◆ Demsetz: privatize when gains outweigh costs
  - ◆ Same as: pick system with the lower sum of admin + error costs

# Another application: how costly should it be to sue somebody?

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- ◆ Worth it for victim to sue if



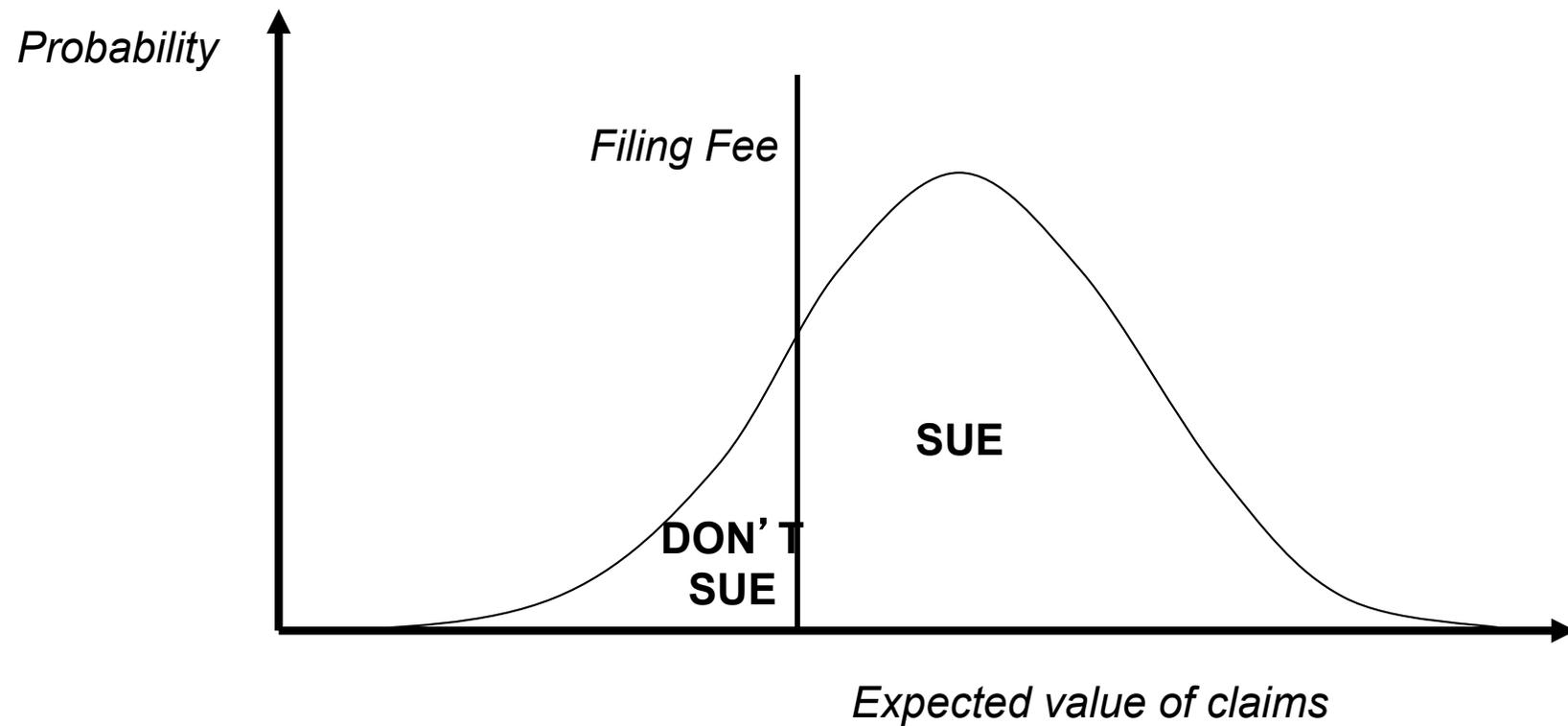
- ◆ Probability of winning at trial, times expected judgment...
- ◆ Or likelihood of a settlement, times expected amount...
- ◆ Minus costs expected to be incurred

- ◆ “Filing fees”

# Filing fees

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- ◆ Expected value of claims should vary widely



# So what level of filing fees is efficient?

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- ◆ The efficient legal system minimizes the sum of **administrative costs** and **error costs**
  - ◆ Higher filing fees → fewer lawsuits → **lower administrative costs**
  - ◆ But, higher filing fees → more injuries go “unpunished”  
→ greater distortion in incentives → **higher error costs**
  - ◆ Filing fee is set optimally when these balance on the margin:
    - Marginal cost of reducing fee = marginal benefit
    - Administrative cost of an additional lawsuit = error cost of providing no remedy in the marginal case

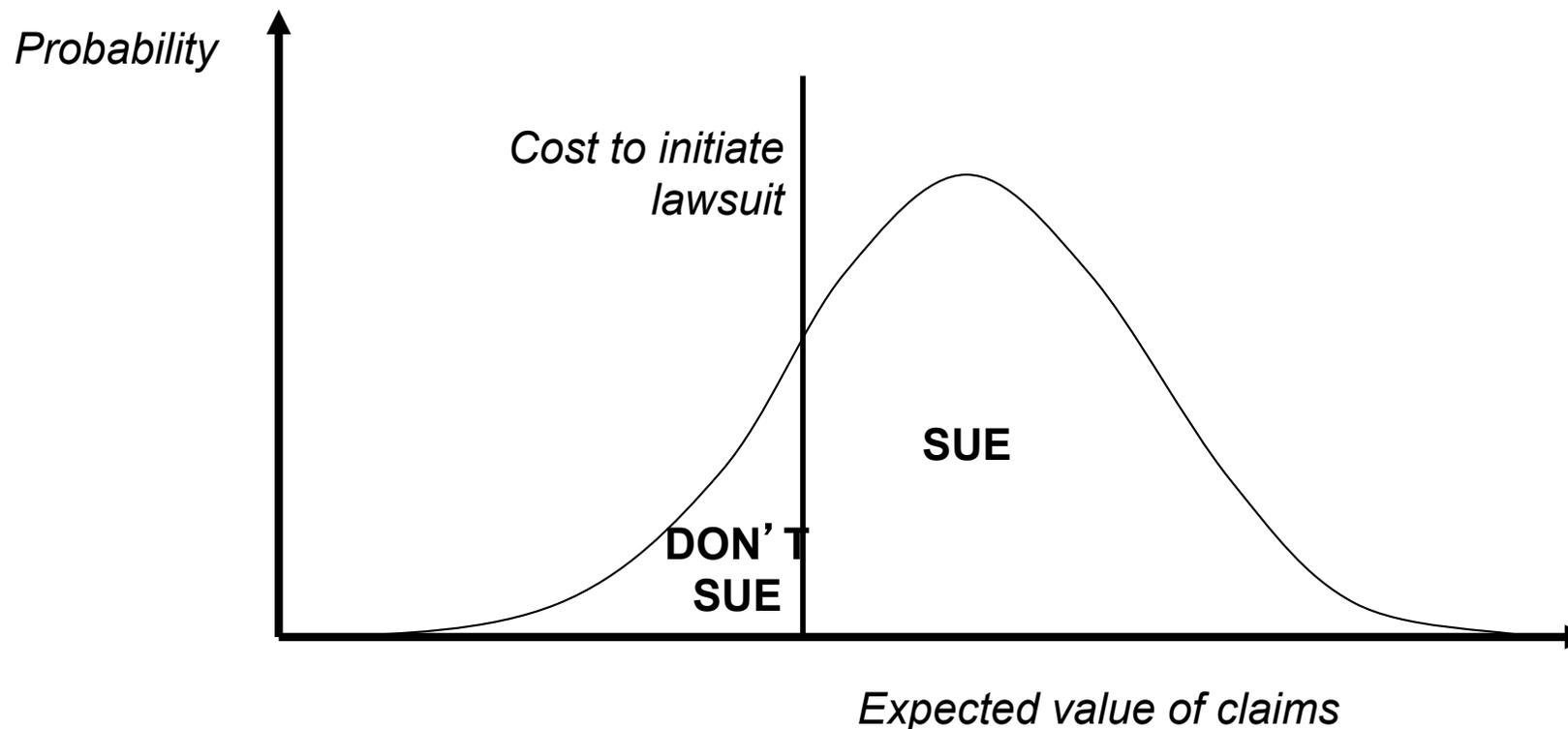
# How high should filing fees be?

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- ◆ Error costs
  - ◆ If we're only concerned with **efficiency**, we don't care about distributional effects
  - ◆ That is, we don't care if a particular victim is or isn't compensated
  - ◆ So the size of error costs depends on how much peoples' **behavior** responds to the incentives caused by liability
- ◆ “The social value of reducing errors depends on whether the errors affect production or merely distribution”
  - ◆ When errors have large incentive effects, filing fees should be low
  - ◆ When errors have small incentive effects, efficiency requires higher filing fees

# Class Action Lawsuits

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- ◆ As long as there is **any** cost to litigation, some harms will be too low to justify a lawsuit
  - ◆ When harm is small to each individual but large overall, one solution is a **class action lawsuit**

# Class Action Lawsuits

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- ◆ One or more plaintiffs bring lawsuit on behalf of a large group of people harmed in a similar way
  - ◆ Example: California lawsuit over \$6 bounced-check fee
- ◆ Court must “certify” (approve) the class
  - ◆ Participating in a class-action suit eliminates victim’s right to sue on his own later
  - ◆ If suit succeeds, court must then approve plaintiff’s proposal for dividing up the award among members of the class
- ◆ Class-action suits are desirable when **individual harms are small** but **aggregate harms are large**...
  - ◆ Especially when avoidance of liability has **strong incentive effect**
  - ◆ But there’s also a danger

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and warned him that if he was ever seen out of his wheelchair he would be back in court on a charge of fraud.

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to Lourdes, the site of a Catholic shrine famous for miracles.” 50

# Survey of Litigation



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Stony Brook Workshop on Law and Economics

Based on K. E. Spier, "Litigation," Chapter 4 in Mitchell Polinsky & Steven Shavell, Eds., *The Handbook of Law & Economics*, North Holland.

# Outline for Talk

- Settlement Bargaining with Two Litigants
  1. A Screening Model
  2. A Dynamic Extension
  3. A Signaling Model
  4. Mechanism-Design
- Some Implications
  1. Case Selection
  2. Loser-Pays Rules
  3. NEV Claims and Credibility
  4. Contingent Fees for Attorneys

# Settlement Bargaining with Two Litigants

# Preliminaries

- Notation:

A plaintiff ( $P$ ) seeks compensation from a defendant ( $D$ ).

$x$  The **expected judgment** if the case goes to trial.

(e.g. the product of the probability that the plaintiff will win and the damages conditional upon her winning.)

$c_p$  **P's cost** of bring the case to trial.

$c_d$  **D's cost** of fighting back.

- For now we'll assume:

$c_p$  and  $c_d$ , are exogenous.

$$x - c_p > 0$$

The “American Rule”

Common discount factor,  $\delta$ .

# 1. A Simple Screening Model

- Bebchuk (1984).
- Timing:
  1.  $D$  privately observes  $x$ .
$$x \in [\underline{x}, \bar{x}]$$
$$f(x), F(x)$$
  2.  $P$  makes a single take-it-or-leave-it offer,  $S$ , before trial.
  3.  $D$  accepts or rejects the offer.

If  $D$  accepts, the payoffs are:  $\{S, -S\}$
  4. Trial.

The payoffs are:  $\{x - c_p, -x - c_d\}$

## Screening, cont.

- Solve game backwards.
- At stage 3,  $D$  accepts  $S$  if and only if  $S \leq \delta(x + c_d)$ , or:

$$x \geq \hat{x} = \delta^{-1}S - c_d$$

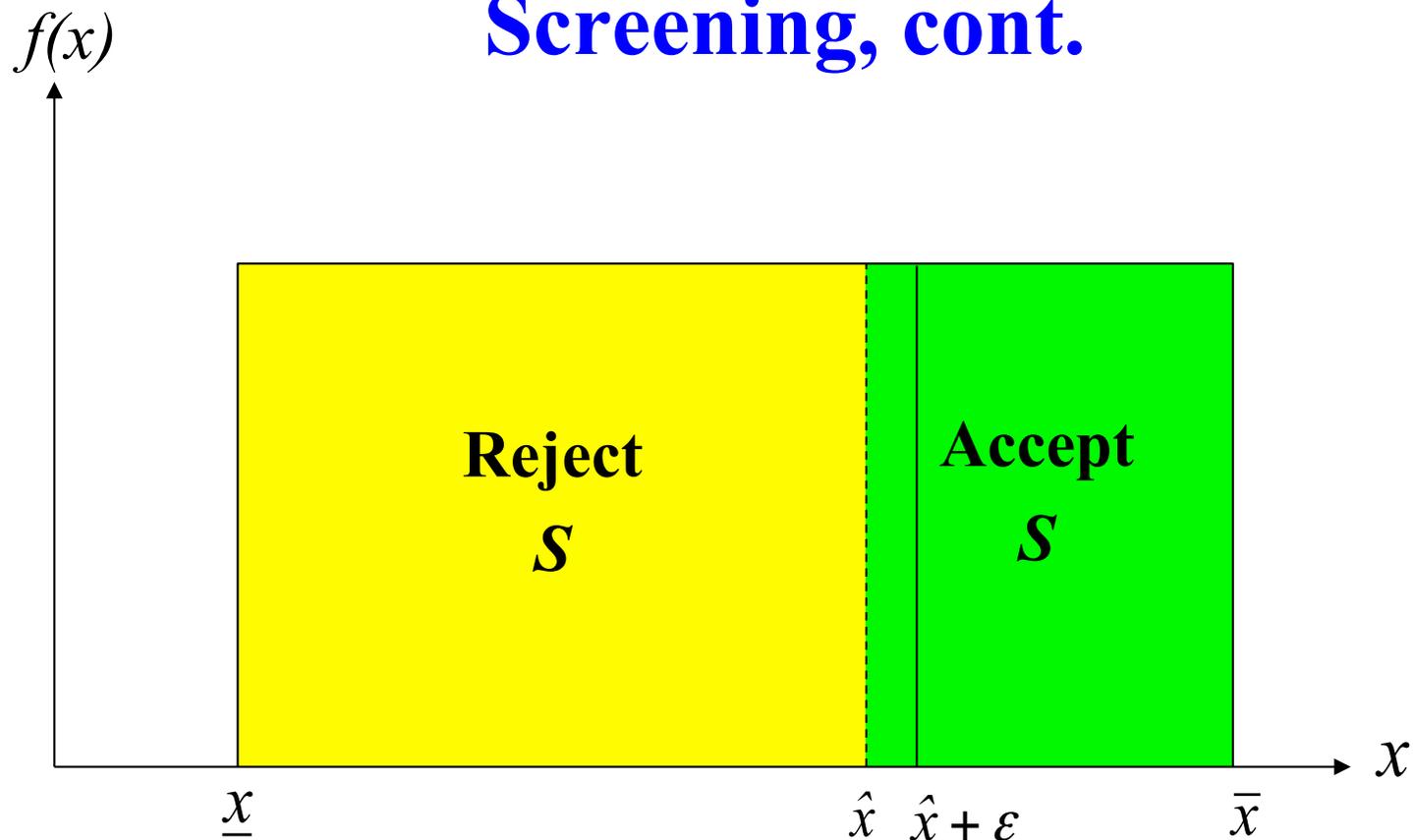
- We can write  $P'$ 's optimization problem as a function of this cutoff:

$$\underset{\hat{x} \leq \bar{x}}{\text{Max}} \int_{\underline{x}}^{\hat{x}} \delta(x - c_p) f(x) dx + [1 - F(\hat{x})] \delta(\hat{x} + c_d)$$

- The **first-order condition**:

$$1 - F(\hat{x}) - (c_p + c_d) f(\hat{x}) = 0.$$

## Screening, cont.



Suppose P raises the cutoff by  $\epsilon$ .

The **benefit**:  $[1 - F(\hat{x})]\epsilon$

The **cost**:  $f(\hat{x})\epsilon (c_p + c_d)$

The first-order condition reflects this tradeoff.

## 2. A Dynamic Extension

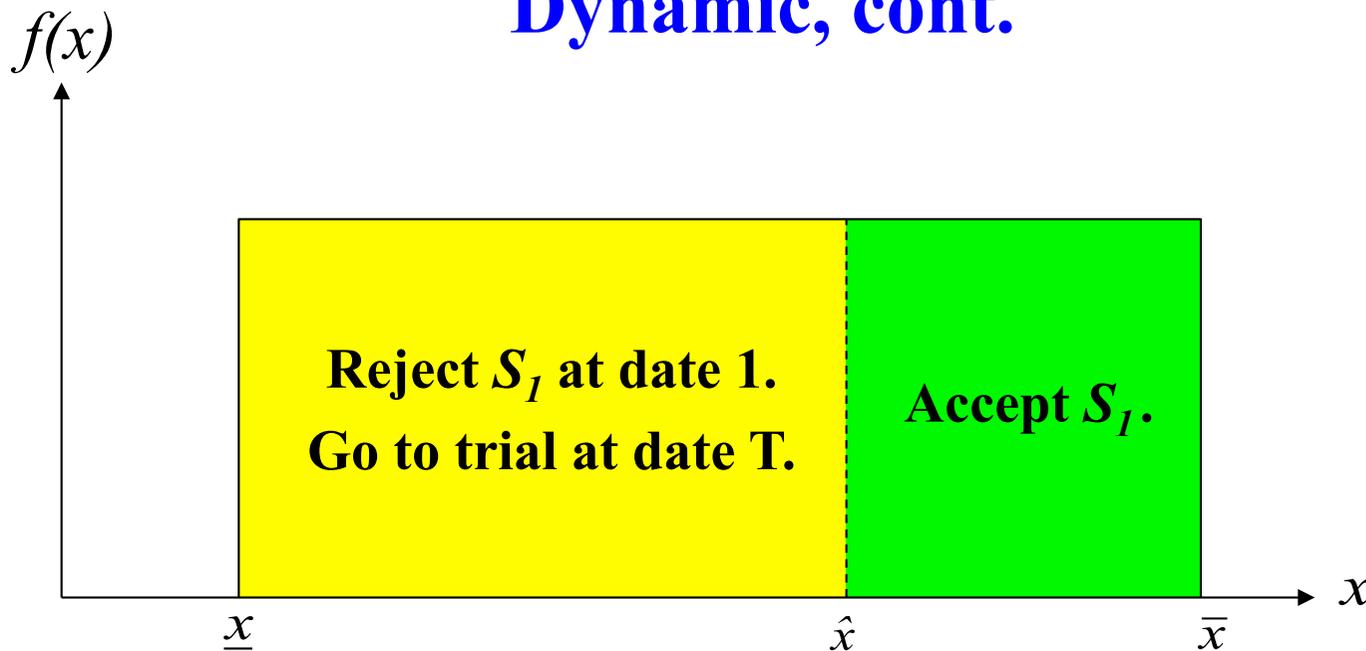
- Spier (1992).
- $S_1, S_2, \dots, S_{T-1}$  before a costly trial at date  $T$ .
- **Full commitment benchmark:**
  - Suppose that  $P$  can **commit** to the sequence of offers.
  - The  $D$ 's have the same preference orderings over the settlement offers. A defendant prefers  $S_i$  to  $S_j$  if and only if:

$$\delta^{i-1}S_i < \delta^{j-1}S_j .$$

- $P$  might as well commit to a take-it-or-leave-it offer at date 1:

$$S_1 = \delta^{T-1} (\hat{x} + c_d)$$

## Dynamic, cont.



- **Is this full commitment strategy sequentially rational?**
  - No. If  $S_1$  is rejected, the plaintiff would like to lower the offer to the remaining defendants!
  - Expecting this, the high types wouldn't accept  $S_1$ .
- **So what should the plaintiff do?**
  - Wait until the last period and offer  $S_{T-1} = \delta(\hat{x} + c_d)$ .



**They'll settle  
right here.**

### 3. A Simple Signaling Model

- Reinganum and Wilde (1986).
- Separating equilibrium of the signaling game:
  - Unique under Cho and Kreps (1987) “D1.”
  - D’ s offer perfectly reveals his type:

$$S(x) = \delta(x - c_p)$$

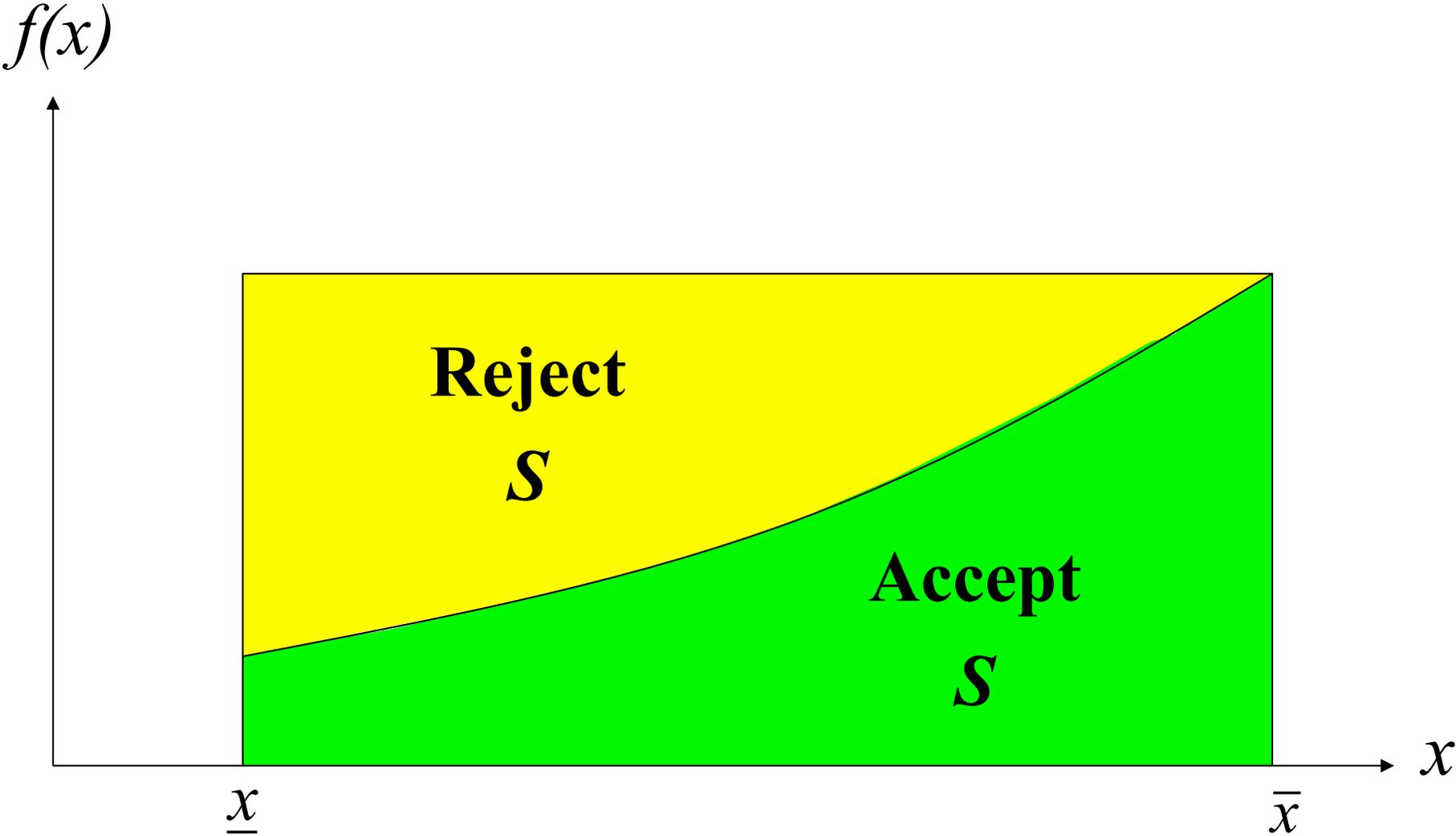
- $P$  is indifferent and mixes between accepting and rejecting:

$$\pi(x) = e^{-(\bar{x}-x)/(c_p+c_d)}$$

- This comes from incentive compatibility.

$$\begin{aligned} \pi(x)\delta(x - c_p) + [1 - \pi(x)]\delta(x + c_d) \\ \geq \pi(\tilde{x})\delta(\tilde{x} - c_p) + [1 - \pi(\tilde{x})]\delta(x + c_d) \end{aligned}$$

# Signaling , cont.



## 4. Mechanism Design

- Spier (1994) and others have used mechanism-design techniques to consider a more general class of bargaining games.

$$\{S(\tilde{x}), \pi(\tilde{x})\}$$

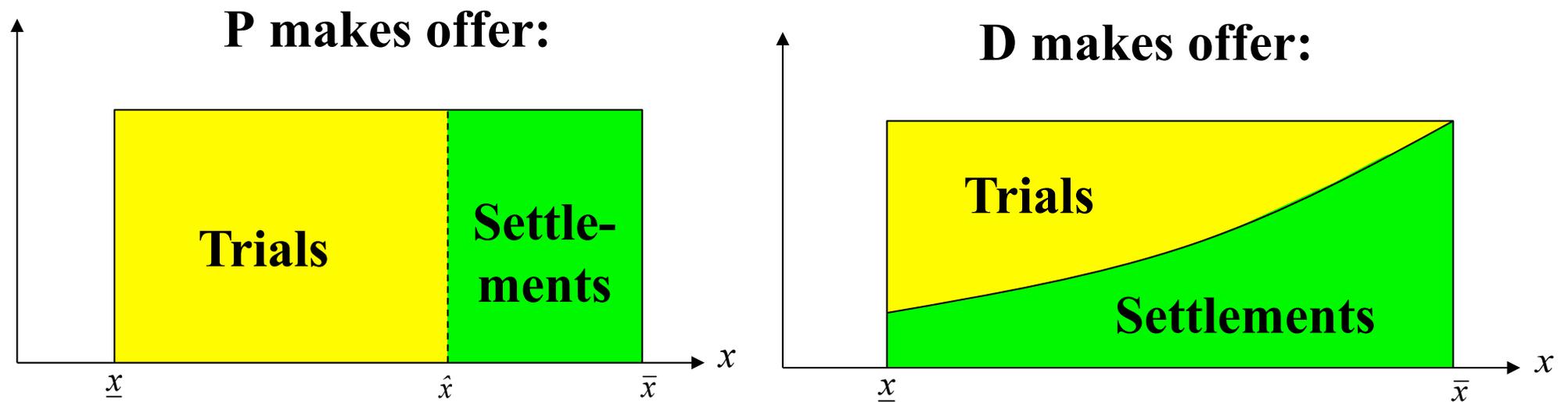
- **There does not exist an efficient bargaining mechanism when litigation costs are small.**
- Suppose that there exists an “efficient” bargaining mechanism in which all cases settle out of court:  $\pi(x) = 1$  for all  $x$ .
  - $S(x)$  must be the same for all types; call it  $S^*$ .
  - All  $D$  types must prefer  $S^*$  to going to trial:  $S^* \leq \underline{x} + c_d$
  - $P$  must prefer receiving  $S^*$  to going to trial:  $S^* \geq E(x) - c_p$
  - This implies:  $E(x) \leq \underline{x} + c_p + c_d$ .

# Applications



# 1. Case Selection

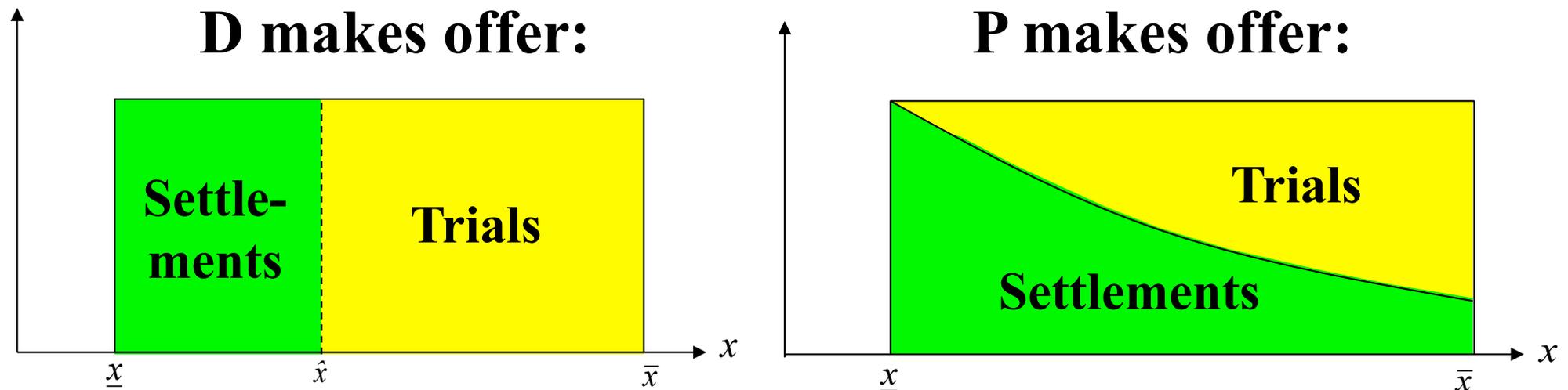
- Recall the equilibria in the simple models with a **privately informed Defendant**:



- In both screening and signaling models, weak defendants are more likely to settle and strong defendants are more likely to go to trial.

## Case Section, cont.

- This result is sensitive to **who has the private information**, however.
- **If P had private information** then the results would flip:



- Plaintiffs with weak cases (low  $x$ 's) are more likely to settle and those with strong cases (high  $x$ 's) are more likely to go to trial.

## 2. Loser-Pays Rules

- Let  $x$  be the probability that the plaintiff will win at trial.
- At trial, the payoffs are:  $\{x - (1-x)(c_p + c_d)\}, -x - x(c_p + c_d)\}$
- Suppose  $P$  makes a single offer,  $S$ , to  $D$ .
- This offer corresponds to a cutoff,  $x^{ER}$ , where

$$S = \delta [x^{ER} + x^{ER}(c_p + c_d)]$$

- $P$ 's choice of cutoff satisfies the first-order condition:

$$\frac{1 - F(x^{ER})}{f(x^{ER})} = \frac{c_p + c_d}{1 + c_p + c_d}$$

- This is **higher cutoff than before**, implying a **higher litigation rate under the English Rule**.

### 3. NEV Claims and Credibility

- Suppose there is symmetric information and that  $x - c_p < 0$ .  
Can the plaintiff succeed in extracting a settlement offer?
  - Going to trial isn't credible – the plaintiff would drop the case instead. Knowing this, the defendant won't pay.
- What if the litigation costs are divided among “ $T$ ” periods?
  - Bebchuk (1996).
  - In the last round, P has a credible claim when:
$$x - c_p / T > 0.$$
  - In a random-offeror framework, the case would settle for:
$$S_{T-1} = x + (c_d / 2T) - (c_p / 2T).$$
  - Working backwards,
$$S_1 = x + (c_d / 2) - (c_p / 2).$$

## 4. Contingent Fees for Attorneys

- Suppose the plaintiff is working with an attorney. It would be in their **joint interest** to reject settlement offer with  $S < x - c_p$ .
- The plaintiff and the attorney often have different **individual preferences**, however. Suppose:

$\alpha$  The attorney's fractional share of the litigation cost.

$\theta$  The attorney's share of the judgment or settlement.

- The attorney is indifferent between settling and trial when:

$$\theta S = \theta x - \alpha c_p$$

so the least the lawyer is willing to accept is:

$$x - (\alpha/\theta)c_p.$$

- Similarly, the least the plaintiff is willing to accept is:

$$x - [(1-\alpha)/(1-\theta)]c_p.$$

## Contingent Fees, cont.

- If  $\alpha = \theta$  then there is no conflict of interest between the attorney and client.
  - The case will settle for the same amount regardless of who retains control.
- Now suppose instead that  $\alpha = 1$  and  $\theta = 1/3$ .
  - The least attorney is willing to accept:  $x - 3c_p$ . If the attorney retains discretion over settlement, he would tend to “sell out” for too little. He is a weak negotiator.
  - The least the plaintiff is willing to accept:  $x$ . The contingent fee makes the plaintiff into a tougher negotiator! This can serve the interests of both the client and the lawyer.
- More generally, **contracts assigning residual claims and control rights have important strategic effects in bargaining.**