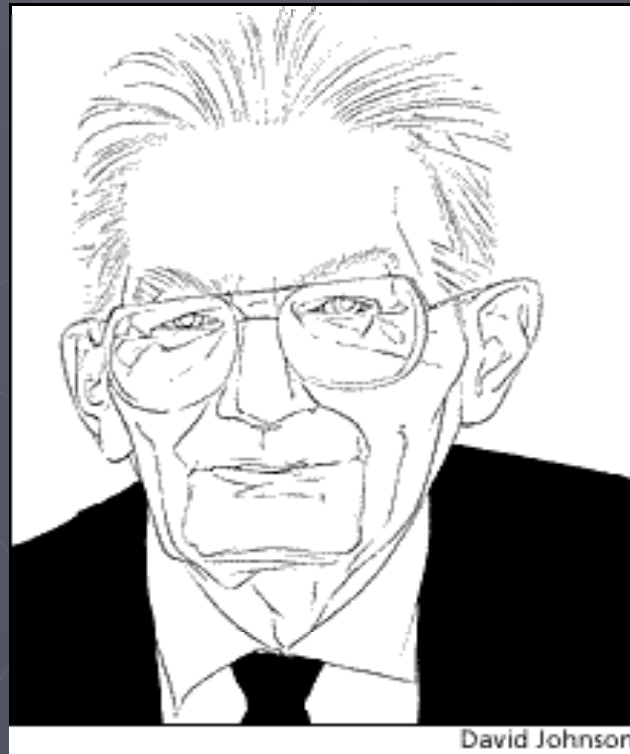


# Ronald Harry Coase

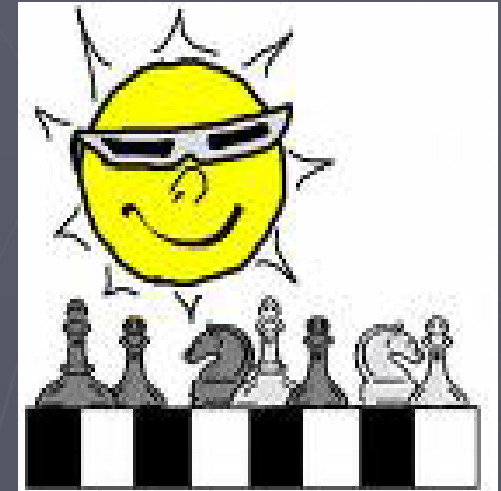


b. 1910

## Ronald H. Coase

- ▶ December 29, 1910 – Born in Willesden, England, just outside of London.
- ▶ Father was a telegraphist in the Postal Office, as was his mother prior to marriage. Both left school at age 12, but were literate.
- ▶ Coase's parents were primarily interested in sports, including tennis, cricket, soccer, and bowling.
- ▶ Neither of his parents held any interest in academia.

- ▶ Coase was an only child.
- ▶ Alone, but never lonely.  
*Played chess against himself growing up.*
- ▶ He suffered weakness in his legs, for which his doctors ordered he wear “irons” around his legs.



## Background – Influenced by – Contributions – Impact - Critique

- ▶ Aged 11, Coase was taken to a phrenologist.
- ▶ Phrenologist correctly judges intelligence, fails to predict Coase as Nobel Prize Winner.
- ▶ Phrenologist's assessment: Coase is *intelligent*, possesses *business acumen*, in need of *more aggression, confidence, and concentration*. Well-suited for accountancy, commercial banking, science.



## Background – Influenced by – Contributions – Impact - Critique

- ▶ Entered secondary school after passing required examinations one year behind his peers, aged 12. Kilburn Grammar School awarded him a scholarship.
- ▶ Admired his geography teacher, Charles Thurston, who taught *Wegner's hypothesis* on the movement of the continents before it was widely accepted.



## Background – Influenced by – Contributions – Impact - Critique

- ▶ Entered London School of Economics (LSE) in 1929
- ▶ Pursued studies in History → Chemistry → Commerce (Economics)
- ▶ Interested in law
- ▶ Did not like *Mathematics ...*
- ▶ Awarded University of London's *Sir Ernest Cassel Travelling Scholarship* for 1931-32



London School of Economics  
Aerial view

## Background – Influenced by – Contributions – Impact - Critique

- ▶ Under scholarship, studied the structure of American Industries in the U.S. by visiting factories and businesses (1931-32)
- ▶ Asked: “Why are industries organized in different ways?”
- ▶ Inspired Coase’s development of a new concept of economic analysis, involving *transaction costs* and an explanation of *why there are firms*



## Background – Influenced by – Contributions – Impact - Critique

- ▶ Eminent LSE professor, Arnold Plant quoted Sir Arthur Salter: “The normal economic system works itself.”
- ▶ Introduced Coase to Adam Smith’s *Invisible Hand*, Coase claims Smith’s ideas changed his life.
- ▶ Was intrigued by the notion competitive economic system could be coordinated by the *pricing system* and committed himself to studying Value & Distribution (Microeconomics)



Adam Smith's *Invisible Hand*  
(aka, the profit motive)

## Early 20<sup>th</sup> Century:

- ▶ Prevailing view of Western economists in the 1930's: No deliberate coordination of production necessary outside of market forces.
- ▶ Russian Revolution of 1917 – Goal to centralize all production in “one big factory.” (Lenin)
- ▶ Coase set out to investigate these two problems:
  - 1.) Why do certain types of organizations, such as firms, exist?
  - 2.) Why is each firm a certain size?

Nobel Prize in Economics, 1991:

- ▶ " ... for his discovery and clarification of the significance of transaction costs and property rights for the institutional structure and functioning of the economy."

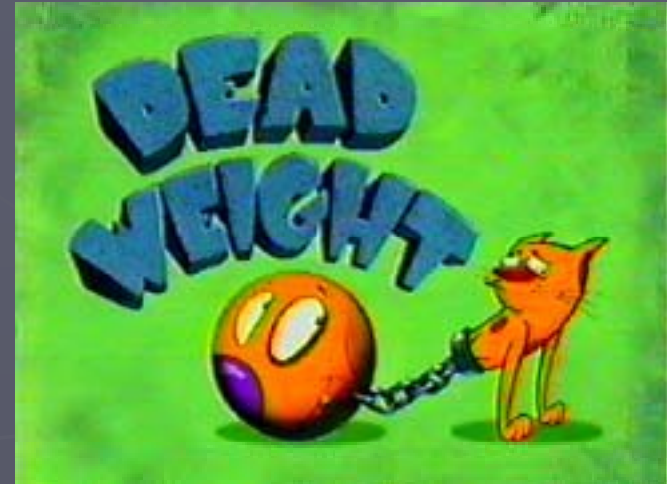


- ▶ *The Nature of the Firm* (1937)
- ▶ Introduced the idea of Transaction Costs. Costs of entering, executing, and monitoring contracts and managing organizations.
- ▶ Existential: Why firms exist
- ▶ Size: Why they vary in sizes
- ▶ Imagine: If transaction costs were zero, no firms would exist. All resource allocation would take place through interactions based on simple contracts between and amongst individuals.

- ▶ *The Problem of Social Cost* (1960)
- ▶ Defines the role of property rights in firms and markets
- ▶ **Property rights**: If a property right is well defined, if it can be transferred from one party to another, if the transaction costs in an agreement where the right is transferred are equal to zero, then the use of resources does not depend on which party initially held the right. (An exception is made for a difference in wealth between the two parties.)

- ▶ Coase's ideas are relevant in a discussion of **Externalities**. Arthur Pigou is credited with developing the concept of externalities.
- ▶ An *externality* is an example of a case when competitive equilibrium is not efficient, so that total surplus is not maximized and dead weight loss (DWL) arises.

# Dead Weight Loss (DWL)



- ▶ Inefficiency of a market due to tax or monopoly. "Lost" or "unrealized" consumer surplus, producer surplus, revenue (as in tax), or other benefit because certain transactions are prevented from occurring.

## Government intervention can eliminate DWL:

- ▶ Command-control: Pre-determined output level. *May be only option, but inefficient.*
- ▶ Market-based: Impose “Pigouvian tax”
  - A Pigouvian tax is “a tax levied upon each unit of pollution in an amount just equal to the marginal damage it inflicts upon society at the efficient level of output.”
  - The proper level of taxation is very difficult to estimate. Relies on perfect information, which is difficult to collect and measure and is likely not constant.

Two market-based frameworks eliminate the DWL associated with externalities:

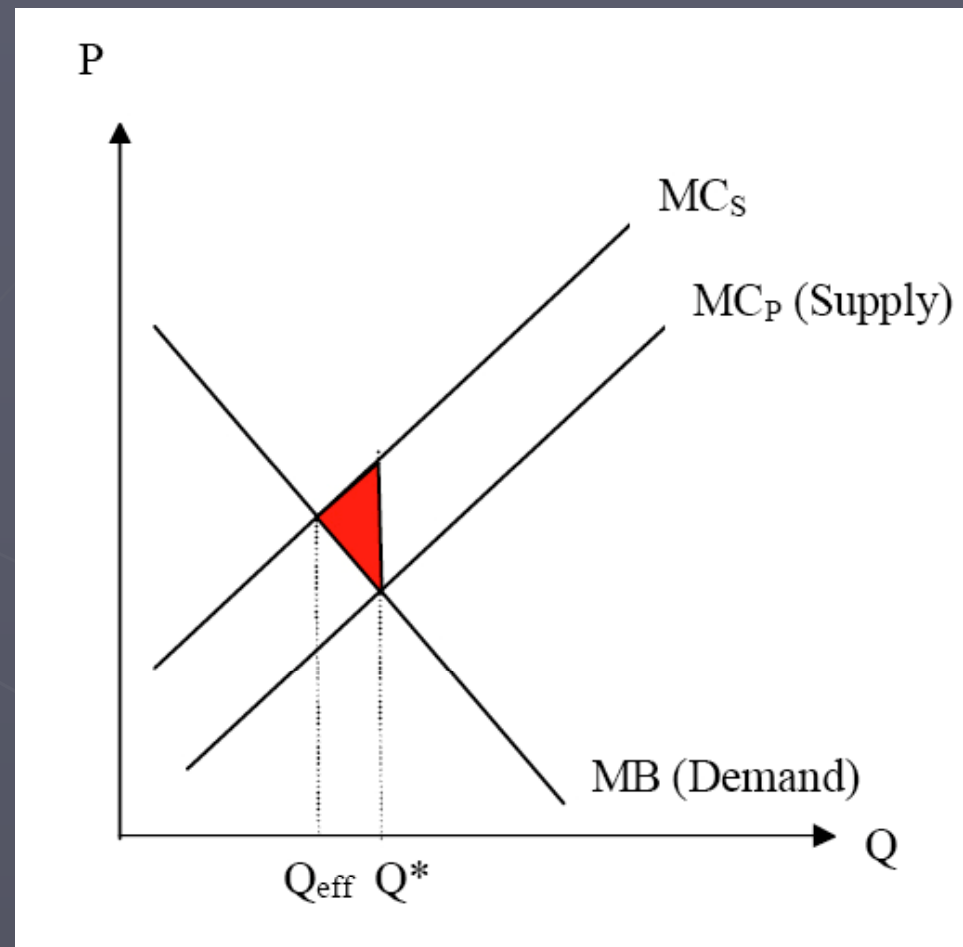
1.) Pigouvian Tax

2.) Coase Theorem (Bargaining)

*\*Idea: Internalize the externality, so that private marginal costs (benefits) are equal to social marginal costs (benefits).*

- ▶ **Negative externality**: A cost of an activity that falls on people other than those who pursue the activity. *Worth noting, optimal amount of negative externality is not zero.*
- ▶ Example 1: Pollution – The polluting firm generates costs in the form of environmental damage, and harms to health of other people, not necessarily those who purchase its output.
- ▶ Example 2: Barking dog – The neighbors of the dog's owner suffer from the noise.

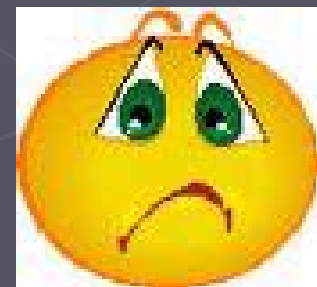
- ▶ Suppose that automobile industry generates external costs (in the form of pollution) of \$x per unit (per car produced).



**Negative externality of \$x per unit of output**

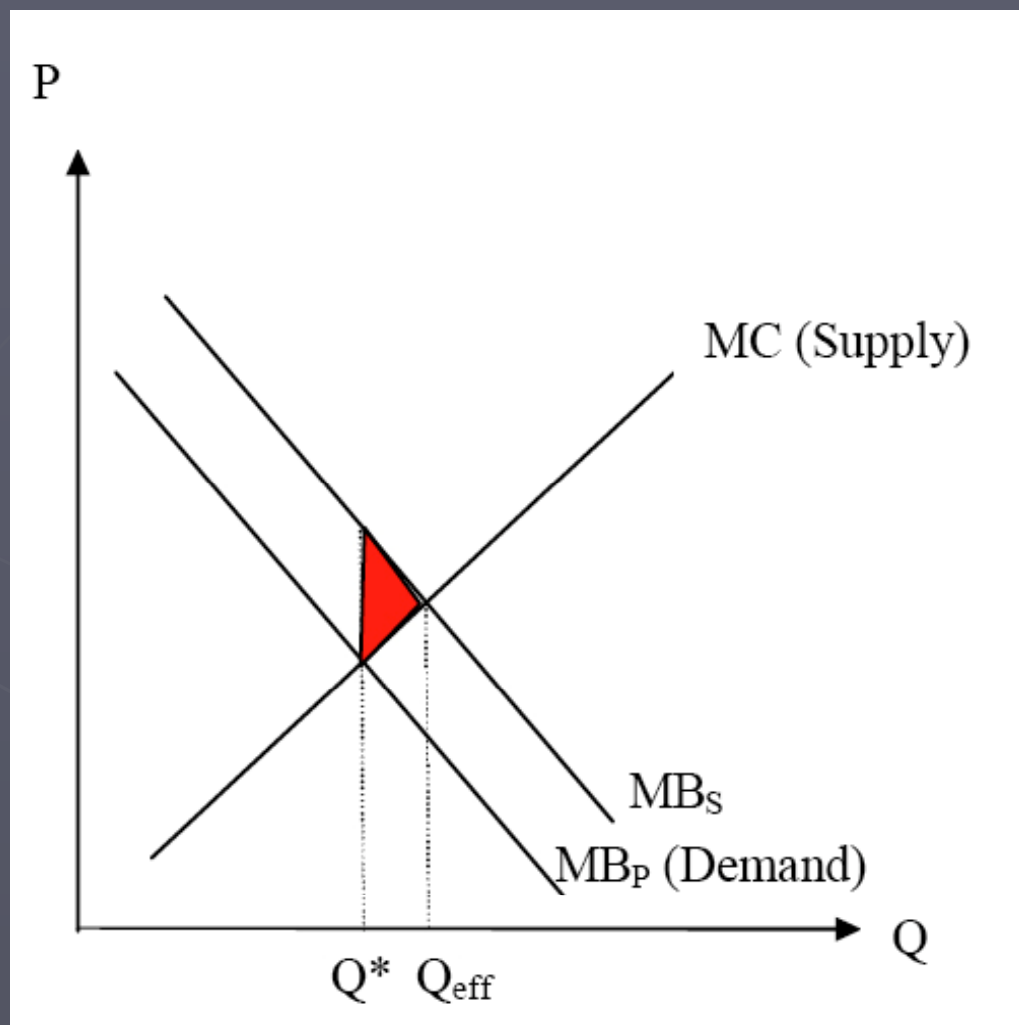
## In the case of NEGATIVE EXTERNALITIES:

- ▶ Summary: In the case of negative externalities, the equilibrium output is inefficiently high.
- ▶ Action: In order to improve social welfare, we must eliminate DWL by reducing output.



- ▶ Positive Externality: A benefit of an activity received by people other than those who pursue the activity.
- ▶ Example 1: Education – It is often argued that there is extra benefit from education that is received by people other than those who purchase the education. They argue that educated people generate benefit for their coworker, friends, children, etc.
- ▶ Example 2 – Your neighbor's rose garden

- ▶ Suppose that the education sector generates external benefits of \$x per unit (per student who graduates).



Positive externality of \$x per unit of output

## In the case of POSITIVE EXTERNALITIES:

- ▶ Summary: In the case of positive externalities, the equilibrium output is too low.
- ▶ Action: In order to improve social welfare, we must eliminate DWL by increasing output.



## RECALL:

- ▶ Imposing a tax of \$ $t$  per unit of a good reduces output.
- ▶ Equilibrium output with taxes can be determined by solving:

$$P_B = t + P_S$$

- ▶ \*Subscript “b” for buyer, “s” for seller

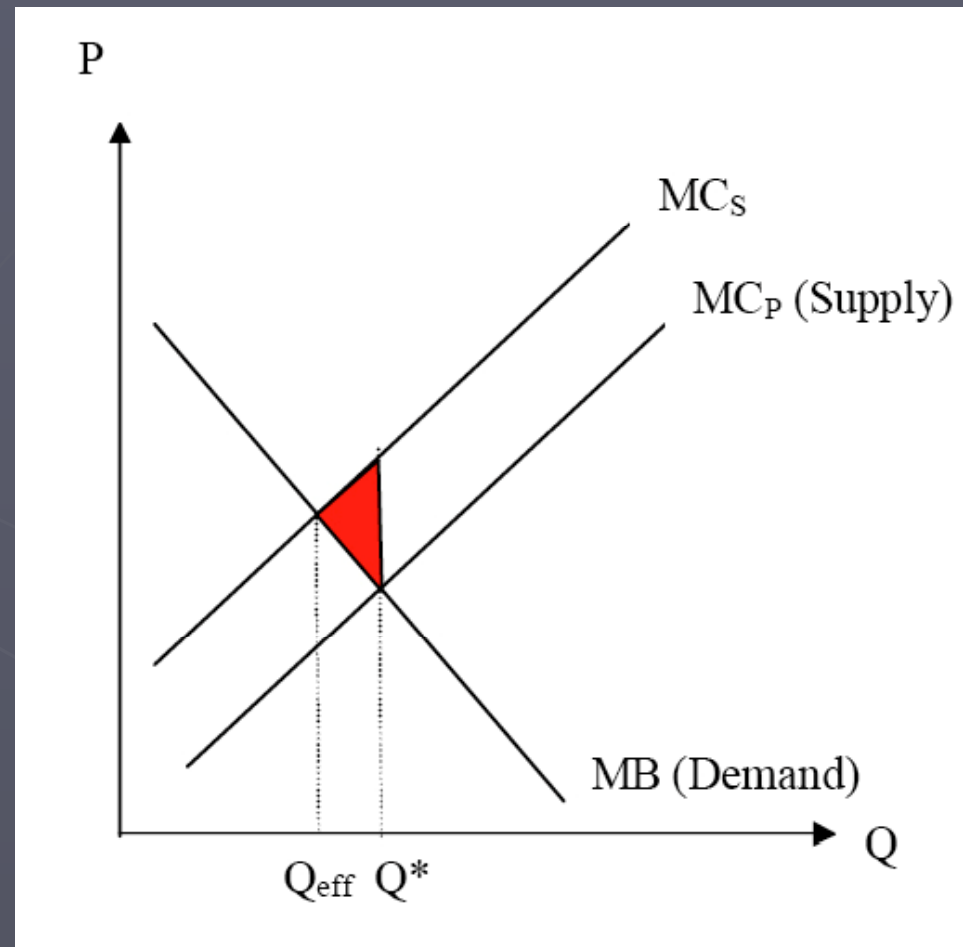
## CONSIDER this SIMPLE MODEL:

- ▶ The case if negative externalities of \$x per unit. To find the efficient output, we find the intersection of marginal social costs and the demand curve, or:

$$P_B = x + P_S$$

- ▶ *See graph with negative externality. Next slide.*

- ▶ Suppose that automobile industry generates external costs (in the form of pollution) of \$x per unit (per car produced).



**Negative externality of \$x per unit of output**

In this model, tax per unit, '\$t':

- ▶ Will equal exactly \$x per unit
- ▶ Will eliminate DWL
- ▶ Can result in efficient output
- ▶ *Problems with the model: estimations & collection of information costly.*

- ▶ Similarly, in the case of a **positive externality**, a subsidy at the size of the externality will result in efficient output in efficient output
- ▶ Equilibrium output with subsidy is found by:

$$P_B = P_S - Sub$$

- ▶ Efficient output level is obtained when:

$$P_B = P_S - x$$

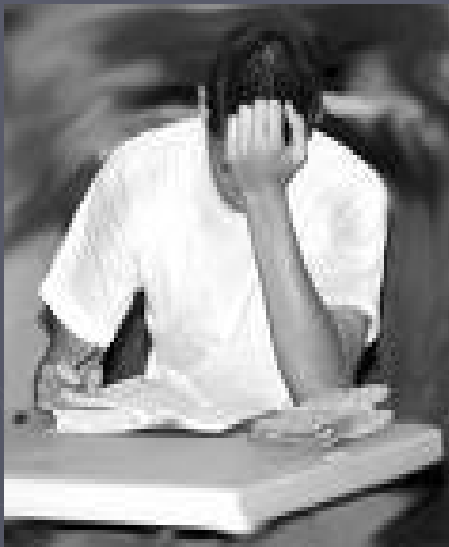
- ▶ So the subsidy is exactly equal to \$x per unit.

Another approach, sans government involvement. **BARGAINING!**

- ▶ *When only a few people are involved, in a market without many consumers and producers, it is possible to solve the problem of externalities and achieve an efficient output by **bargaining**.*
- ▶ **Coase Theorem:** Regardless of how property rights are assigned with an externality, the allocation of resources will be efficient when the parties can **costlessly bargain** with each other. Let's illustrate this theorem.

- ▶ A “private property right” is a legally established title to the sole ownership of a scarce resource that is enforceable in courts.
- ▶ Private property rights offer alternative market-based framework for solving the problem posed by externalities.
- ▶ For example, they allow victims of negative externalities to sue offending party for compensation of damage caused.

Brad is a grad student; he likes to study in a quiet environment. His neighbor, Roxanne, prefers to listen to her favorite rock band, *System of a Down*. She turns the volume up pretty high.



## Background – Influenced by – **Contributions** – Impact - Critique

	Low	Medium	High	Extra high
Roxanne	1	11	16	19
Brad	20	15	5	0
Total surplus	21	<b>26</b>	21	19

- ▶ This table outlines the payoffs for Brad and Roxanne as a function of the volume of her music:
- ▶ Total surplus is **maximized** when the volume is medium, so this is the **socially optimal (efficient)** level of output (measured in volume).

Background – Influenced by – **Contributions** – Impact - Critique

	Low	Medium	High	Extra high
Roxanne	1	11	16	19
Brad	20	15	5	0
Total surplus	21	<b>26</b>	21	19

**Scenario A:** Suppose Roxanne has the right to make as much noise as she wants and bargaining is impossible. She selects 'Extra High, and her payoff is **'19.'**

**Scenario B:** Suppose Brad has the right to a quiet environment, and he has management or cops maintain the peace. He chooses 'Low,' with a payoff of **'21.'**

## Background – Influenced by – **Contributions** – Impact - Critique

	Low	Medium	High	Extra high
Roxanne	$1 + 18 = 19$	$11 + 8 = 19$	$16 + 3 = 19$	19
Brad	$20 - 18 = 2$	<b><math>15 - 8 = 7</math></b>	$5 - 3 = 2$	0
Total surplus	21	<b>26</b>	21	19

- ▶ **Scenario C:** Suppose Roxanne has the right to make as much noise as she wants, but the two neighbors can bargain.
- ▶ Roxanne has rights, Brad will pay her to reduce the volume. He will compensate her until her level of satisfaction reaches '**19.**'
- ▶ Brad pays Roxanne \$8, so she sets the volume on 'medium.' Total surplus is optimal at '**26.**'

Background – Influenced by – **Contributions** – Impact - Critique

	Low	Medium	High	Extra high
Roxanne	1	<b><math>11 - 5 = 6</math></b>	$16 - 16 = 1$	$19 - 20 = -1$
Brad	20	$15 + 5 = 20$	$5 + 15 = 20$	$0 + 20 = 20$
Total surplus	21	<b>26</b>	21	19

- ▶ **Scenario D:** Suppose Brad has the right to quiet as before, but the two neighbors can bargain.
- ▶ Brad has rights, Roxanne will pay him to let her play music. She will compensate him until his level of satisfaction reaches '20.'
- ▶ Roxanne pays Brad \$5, and she sets her volume on 'medium.' Total surplus is optimal at '26.'

# Impact

- ▶ Law and Economics is important field of modern economics.
- ▶ Contract theory.

# Critique

- ▶ Bargaining is not costless in most cases of externalities, when many people are involved.

# Questions

- ▶ Give example of negative externality from your own experience.
- ▶ Give example of a positive externality from you own experience.
- ▶ Drivers impose externalities on others when they operate a vehicle. Can this problem be resolved through bargaining? Consider your experiences as a driver.
  - Most laws exist because of externalities.