Coase Theorem & Coasian bargaining

Definition – Negotiations between private parties can bring a socially optimal outcome when property rights are well-defined and there is costless bargaining.

Source: Gruber, J. (2018). *Public Finance & Public Policy*

Intuition – Economist Ronald Coase theorized that, given the right conditions, any dispute can be settled privately to find a solution that is optimal for all. A negative externality, such as pollution, can be controlled if the polluter is willing to compromise. If a factory, for example, has the right to pollute, people who are negatively affected by the pollution can pay the factory to stop. If the factory does not own the right to pollute, it will incur a cost by either reducing production and/or paying out damages, depending on which option costs the factory less. In theory, the externality will be reduced regardless of who possesses property rights.

Technical

The Coase Theorem has **four potential problems.** Because of these, Coasian solutions are unlikely to remedy most market failures caused by externalities.

Assignment: Property rights are sometimes poorly defined. For example, smokers might believe they have the right to smoke in public while nonsmokers believe they have the right to clean air in public.

Holdout: In a Coasian solution, a party may be financially compensated to reduce an externality. If an externality is produced by many parties, any one party possesses power over the others, creating the holdout problem. The last few individuals to be payed to reduce the externality have greater leverage and may demand a higher payment, which adds additional costs to the transaction.

Free Rider: In a solution that involves payment by many groups, some groups may avoid paying their fair share. They can free ride off the contribution of others and further disincentivize the whole group to pay, which makes achieving the full social optimum impossible.

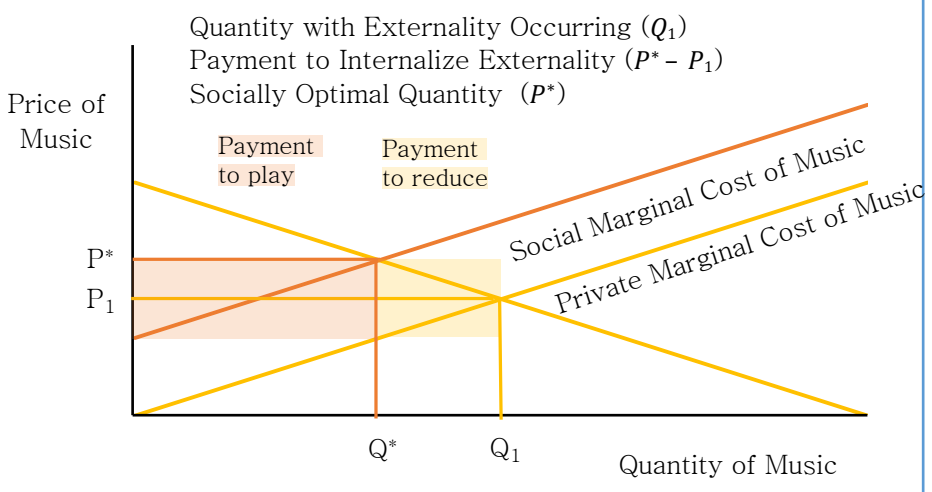
Transaction Costs & Negotiating Problem: Negotiations always involve some transaction costs. Sometimes they are greater than the value of obtaining the social optimum. Asking your neighbors to turn down their loud music, let alone paying them, are both uncomforting and. if lawyers are involved, expensive scenarios.

Source: Gruber, J. (2018). *Public Finance & Public Policy*

Real-world aspects – Coasian bargaining can be an effective way to settle simpler problems. However, broad reaching externalities such as widespread pollution or climate change cannot be solved privately to create a socially optimal outcome. For example, acid-rain in New England can be attributed to pollution caused by coal burning in the Midwest. However, assigning blame to individual power plants and accurately recompensating northeastern citizens for the damage caused by acid-rain is impossible to accomplish using Coasian bargaining. Powerful forces in the private sector can more easily exploit public goods than individuals. The need for state and federal protection of public parks is an example of why not all negotiations are Coasian. Even with government intervention, the socially optimal outcome is not always reached.

Source: Gruber, J. (2018). *Public Finance & Public Policy*

Graphical – Coasian solutions to externalities



Coasian theory suggests the payment required in order to achieve a social optimum (Q^*, P^*) does not depend on to whom property rights are assigned. So long as property rights are assigned, the optimum will be reached. In a society that enforces the right to play loud music, a trumpet player will be paid by his neighbor to reduce his trumpeting from Q_1 to Q^*. In a society that upholds the right to quiet, the trumpeter will pay his neighbor in order to play Q^* of music. In each scenario, parties value opportunity cost as part of their decision-making process and will be willing to compromise at Q^*, P^*. For the right payment, the socially optimal amount of loud music will be reached.

Practice questions

1. Let's suppose there is a tour company in the Napa Valley whose guided hikes pass through a vineyard. The tour company pays the grape farmer a small fee to lead hikers through his vineyards. Each hike generates the tour company $400 of revenue with an increasing marginal cost. The farmer discovers that every time a group passes through his field, $200 worth of grapes are eaten by hungry hikers. Following the Coase Theorem, the farmer charges the tour company an additional $200 per pass in order to account for his grape losses. To maximize profit, how many hikes per week did the tour company initially guide through the vineyard? How many will they send after the Coasian solution? Refer to the chart below.

# of Hike Tours per Week	Revenue	Costs	Profit	Grape Losses	Profit (Post-Coase)
1	400	100	300	200	100
2	800	200	600	400	200
3	1200	400	800	600	200
4	1600	750	850	800	50
5	2000	1100	900	1000	-100
6	2400	1600	800	1200	-400

2. Suppose the tour company from Question 1 owns the right to guide hikes through ten other vineyards in the Napa Valley. Each hike generates 400$ in revenue with an increasing marginal cost. Every hike causes $25 worth of damage to each of the ten vineyards it passes through. If the company currently runs 5 hiking tours per week, what is the minimum each of the ten vineyard owners can pay the tour company to decrease the externality to four hikes per week? Refer to the first three columns of the table in Question 1.

3. Identify two assumptions of the Coase Theorem that might hinder negotiations between the tour company and grape farmers in question 2. Explain your reasoning.

Numerical solutions: **1.** Initially 5 tours, After Coasian bargaining 2 or 3 tours. **2.** If 10 vineyards each pay the tour company $5 per week, the company will decrease its hikes from 5 to 4.