

Rent-Seeking: a classroom game and some implications

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Agenda

- 1. Competition for a telephone license - a classroom game**
- 2. In search for the optimal strategy**
- 3. What can we learn from the game?**



1. Competition for a telephone license - a classroom game

Rules of the game

- Each team has starting capital of 32.000 €.
- Each team represents a firm that can apply for a telephone license worth 16.000 €.
- A consulting firm helps you with your application. It charges 1.000 € per day.
- You have to decide how many days you want them to work on your application.
- Every team has 13 cards of the same suit (♣, ♠, ♥ or ♦). For every day you want to employ the consulting firm, put one card aside. I will come around and collect it.
- The government allocates the license in a simple lottery. (I will shuffle all cards and pick one card at random. The suit of the card chosen determines the winner.)
- The winner of the license receives 16.000 €, the others get nothing.
- The teams cannot see how many cards the others hand in.
- The winner of the license is announced in public.
- The first rounds ends. The game has a total of three rounds.

- Our currency: 1.000 € = 1





2. In search for the optimal strategy

The optimization problem of the firm

- The expected profit of a single team i per round is given by:

$$E[\Pi] = p_i R - x_i c$$

with: Π = Profit

R = Value of the license (16.000 €)

x_i = number of days the consulting firm works on the application

c = costs of 1.000 € per day for the consulting firm.

- The probability that team i receives the license is given by.

$$p_i = \frac{x_i}{\sum_{i=1}^n x_i}$$

➡ What is the optimal effort for preparing the application?

i.e. How many cards should each team hand in?

The payoff matrix

# of cards of others	Number of cards played by player i					
	0	1	2	3	4	5
0	0	15 000	14 000	13 000	12 000	11 000
1	0	7 000	8 667	9 000	8 800	8 333
2	0	4 333	6 000	6 600	6 667	6 429
3	0	3 000	4 400	5 000	5 143	5 000
4	0	2 200	3 333	3 857	4 000	3 889
5	0	1 667	2 571	3 000	3 111	3 000
6	0	1 286	2 000	2 333	2 400	2 273
7	0	1 000	1 556	1 800	1 818	1 667
8	0	778	1 200	1 364	1 333	1 154
9	0	600	909	1 000	923	714
10	0	455	667	692	571	333
11	0	333	462	429	267	0
12	0	231	286	200	0	-294
13	0	143	133	0	-235	-556
14	0	67	0	-177	-444	-790
15	0	0	-118	-333	-632	-1 000

The payoff matrix (with best-response highlighted)

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The profit-maximizing strategy of the single firm

- The optimal strategy depends on the choice of the other firms.
- General solution for this game (so-called Nash-equilibrium):

$$\sum_{i=1}^n x_i = \frac{n-1}{n} R$$

- In our game, the each firm
 - pays for three consulting days (costs of 3.000 €)
 - has the same chance of winning the license.
 - expects a net profit of 1.000 €.
(per round)
- The total costs for preparing applications amount to 12.000 € (per round).
- The net gain for society is only 4.000 € (per round).
- 75 % of the potential net gain are wasted!



3. What can we learn from the game?

The concept of rent-seeking (Gordon Tullock, 1967, 1980)

The agents:

- Firms and interest groups lobby the government to restrict competition in their favor.
- Politicians are willing to „sell“ political rents to interest groups or firms paying for them.

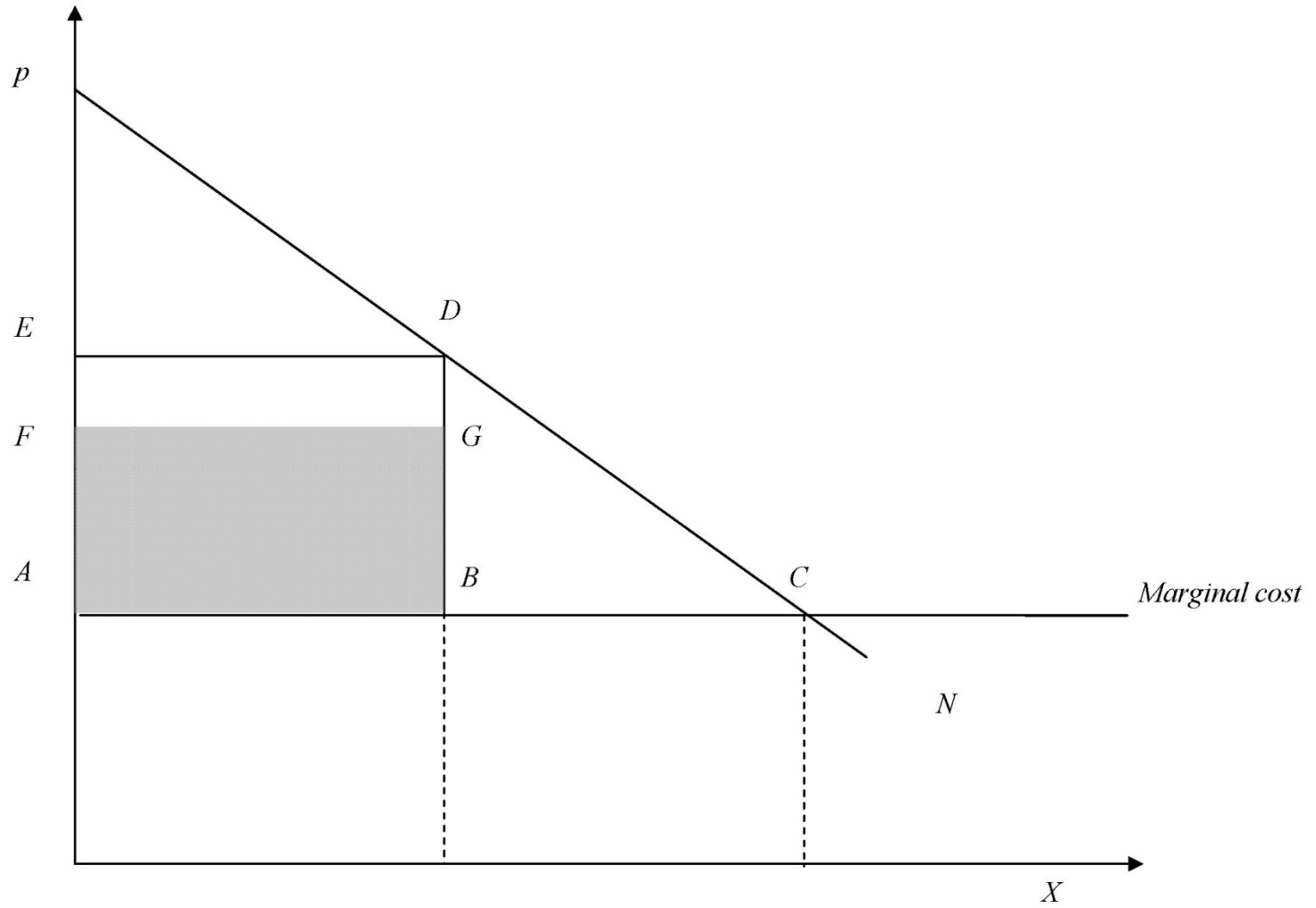
The typical instruments :

- Granting monopoly power
- Restricting market entry for others
- It is important to note that restrictions may also apply to the labor market (e.g. youth unemployment in some southern European countries).

The consequence:

- Next to the social costs of market restrictions, there are social costs from rent-seeking.

Figure 2: The social cost of rent-seeking



The economics of rent-seeking

Why do the resources spent on rent-seeking represent social waste?

- The agents earning money in the rent-seeking competition are usually fully employed (consulting firms, lawyers).
- The additional demand from rent-seekers raises prices and crowds out the demand of others.
- Competition in markets for political rents is wasteful because there is no gain that can compensate for the expenditures.
 - Nothing additional is produced.
 - No investment in saving costs is made.
- Most rents are redirected to agents who are not poor.

The economics of rent-seeking (2)

What is a good system to allocate licenses?

- Auctions when there is heterogeneity in production costs or quality among firms.
- A lottery with $p_i = 1/N$ for all firms:
 - Costs of registering for the lottery should be small.
 - Every firm can register only once.
 - Additional effort has no effect on p_i .

Rent-seeking in the real world

What general lessons can we learn from the theory of rent-seeking?

- The model gives a good description of corruption.
- Many politicians love discretionary power.
- Countries with rich natural resources and weak institutions suffer from **„the resource curse“**.
- Strong institutions prevent rent-seeking and foster growth by
 - restricting discretionary political power
 - making political decisions transparent



Thank you very much for your attention and cooperation!

Are there any questions?