2025 World Congress of the ECONOMETRIC SOCIETY

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Advantage for Sale:

Endogenous Asymmetry in Sequential Auctions

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Outline

1. Introduction

1.1. Motivation

Many market mechanisms in which potential buyers compete to trade with a seller, or suppliers compete for a buyer, have a recurring nature

Paper purchases for public schools

Medicine for public hospitals, etc.

Many contracts grant the beneficiary in period t some formal advantage in the competition in period $t + 1$

Real state: tenants holds statutory rights of first refusal (ROFR)

Corporate agreements: minority shareholders may have preemptive rights to purchase additional shares before outsiders

intellectual property contracts: licensees may negotiate clauses granting them renewal or expansion rights before the asset is offered to others

Some advantages are exogenously imposed (mandated by law)

Others are endogenously included in the contracts (ROFR)

1. Introduction

1.2. Research question

In recuring auctions:

Should a seller treat all potential buyers symmetrically or should she give an advantage to past winners?

If giving and advantage is profitable, what should be the optimal advantage?

Previous version of this paper:

- Considers two sequential auctions
- Compares Myerson (1981)'s traditional optimal auction design applied in each period with the "competitive advantage" mechanism, which allows the winner in the of the first auction to match the winning bid in the second auction
- Finds that in the context of power distributions, the competitive advantage mechanism increases seller's expected revenue

This version:

- Proposes the "Advantage-for-sale" (AFS) class of mechanisms:
- The winner in period $t-1$ may receive a specific advantage in period t auction
- Determines the optimal AFS mechanism that maximizes expected per-period revenue

1. Introduction

1.3. Literature

Auction asymmetries are largely **exogenous asymmetries**:

- Differing distributions: Masking & Riley (2000), Cantilon (2008)
- Information asymmetries: Xu and Cavallo (2022)
- Typically finds that **asymmetries hurt the seller**

Asymmetries **arising endogenously**:

- Sequential procurements: winners at t invest and gain technological advantage at $t+1$: Cisternas and Cavello (2022)
- Cost synergies lead to winner's advantage: De Silva et al. (2005)
- **Asymmetries emerge indirectly, from bidders' behavior** rather than from the seller's strategic design

Seller grants **preferential treatment**:

- ROFR: ex-ante agreements granting a bidder the right to match the best offer may lead to inefficiencies: Bikhchandani et al. (2005)
- But **negotiation between the seller and one buyer can increase their joint supply**: Burguet and Perry (2009, 2014): **One period, two bidders**

This paper: Characterizes the **optimal endogenous advantage in n bidders repeated auctions**

2. The model setup

2.1. Overview

Infinite repeated game with $n+1$ risk-neutral players:

one seller

n potential buyers (bidders)

$\delta \in [0,1)$: discount factor

At each period the seller has one unit of an indivisible, non-durable good for sale

The seller does not value the goods (w.l.o.g.)

Seller's goal: maximize per period revenue

Seller selects auction mechanism $M \in \mathcal{M}$ to be applied in every period

At each period t, each buyer $i \in N = \{1, \dots, n\}$ privately draws value v_i^t

Values are are i.i.d. across buyers and periods, $F(v)$ on $\mathcal{V} = [\underline{v}, \overline{v}]$, $f(v) > 0$,

F satisfies the MHR (monotone hazard rate condition): $f(v)/(1-F(v))$ non-decreasing

2. The model setup

2.1. Overview

$$\boldsymbol{v} = (v_1^t, \dots, v_n^t)$$

$$F_{\boldsymbol{v}}(\boldsymbol{v}) = \prod_{i=1}^{n} F(v_i^t)$$

$$f_{\boldsymbol{v}}(\boldsymbol{v}) = \prod_{i=1}^{n} f(v_i^t)$$

Buyers cannot resell

If i wins the good at period t and pays p^t, his utility is

$$u_i^t(v_i^t) = v_i^t - p^t$$

And it is zero otherwise

Each buyer wants to maximize their own discounted expected utility

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2. The model setup

2.2. The Advantage-for-sale mechanism

The auction allocation and transfer rules in each period t may **depend on the identity of the buyer who won the auction in period $t-1$**

The **winner** in period $t-1$ may receive a pre-specified **advantage** in the period t

All other bidders (the losers) are treated symmetrically

the mechanism offers a single, well-defined advantage for the winner, and that advantage is the only element that shapes an endogenous asymmetry in the following period auction

By the Revelation Principle we can focus on direct revelation mechanisms:

At the beginning of each period t, buyers simultaneously announce their t-period valuations

2.2. The Advantage-for-sale mechanism

By the Revelation Principle we can focus on direct revelation mechanisms:

> At the beginning of each period t, buyers simultaneously announce their t-period valuations

All monetary transfers must be cleared each period

Auction rules do not distinguish between the losers of the previous period auction

The seller may choose to set **reservation prices** that could **depend on whether the buyers was a winner or a loser** in the previous auction

If the good is not sold in period t, the bidder who had the advantage in the that period retains that advantage in period $t + 1$

$\boldsymbol{v} = \boldsymbol{v^t} = (v_1^t, \dots, v_n^t)$ vector of buyers' value announcements in period t

$\omega \in \{1, \dots, n\}$: the identity of the bidder with advantage in period t

2. The model setup

2.2. The Advantage-for-sale mechanism

$\boldsymbol{v} = \boldsymbol{v}^{\boldsymbol{t}} = (v_1^t, \dots, v_n^t)$ vector of buyers' value announcements in period t

$\omega \in \{1, \dots, n\}$: the identity of the bidder with advantage in period t (state variable)

Auction mechanism:

(i) Allocation function $p(\boldsymbol{v}|\omega) \in [0,1]^n$: $p_i(\boldsymbol{v}|\omega)$: probability the good is allocated to buyer i

$$\sum_{i=1}^{n} p_i(\boldsymbol{v}|\omega) \leq 1, \qquad p_i(\boldsymbol{v}|\omega) \geq 0, \qquad \forall i, \omega \in N, \forall \boldsymbol{v} \in \mathcal{V}^n \qquad (F)$$

(ii) Monetary transfers rule $x(\boldsymbol{v}|\omega) \in \mathbb{R}^n$: $x_i(\boldsymbol{v}|\omega)$: expected monetary transfers from buyer i to seller

$\mathcal{M}$: set of feasible mechanisms that $M = (p, x)$ that satisfy (IR) and (IC) constraints

2.3. Timing

1. Period $t = 1$ starts. Seller publicly announces and commits to mechanism $M \in \mathcal{M}$

   Bidder $i = 1$ has the advantage ($\omega = 1$, w.l.o.g.)

2. Period $t > 1$.

   (a) Values v_i privately realized. Buyers simultaneously choose whether to participate in period t auction

   Participating buyers simultaneously place their bids

   (b) Good allocated and transfers made according to M. Period t payoffs realized

   (c) State variable ω is updated if there is a winner

   (d) Period $t + 1$ starts

3. The optimal mechanism

3.1. Benchmark

Independent auction mechanisms: static optimum

Bidders have strictly increasing virtual value functions

$$c(v) = v - \frac{1 - F(v)}{f(v)}$$

The seller maximizes expected per-period revenue by implementing second-price auctions with reserve price $r_{IND} = c^{-1}(0)$

The good is sold to the bidder with highest realized valuation v if the value is positive, otherwise the seller keeps the good.

(Myerson, 1981)

3. The optimal mechanism

3.2. Recursive problem and feasible mechanisms

Fix a mechanism $M \in \mathcal{M}$. Let:

$p_i(s_i, v_{-i}|\omega)$ be the probability i wins the good if he announces s_i, given v_{-i}, ω

$x_i(s_i, v_{-i}|\omega)$ the corresponding allocation

$p_0(s_i, v_{-i}|\omega)$ the probability the seller keeps the good

$\overline{U}_W(p, x)$ the expected present value of starting a period as a winner (of the previous auction)

$\overline{U}_L(p, x)$ as a loser

The net value of the winning advantage is:

$$\Delta\overline{U}(p, x) = \overline{U}_W(p, x) - \overline{U}_L(p, x)$$

Then, for the bidder with advantage, $U_i(p, x, v_i|\omega = i) = \max_{s_i \in \mathcal{V}_i} \int_{\mathcal{V}_{-i}} \left[p_i(s_i, v_{-i}|\omega)\left(v_i + \delta\Delta\overline{U}(p, x)\right) - x_i(s_i, v_{-i}|\omega)\right] f_{v_{-i}}(v_{-i})dv_{-i} + \delta\overline{U}_L(p, x) + \delta\Delta\overline{U}(p, x) \int_{\mathcal{V}_{-i}}[p_0(s_i, v_{-i}|\omega)] f_{v_{-i}}(v_{-i})dv_{-i}$

And for the others: $U_i(p, x, v_i|\omega \neq i) = \max_{s_i \in \mathcal{V}_i} \int_{\mathcal{V}_{-i}} \left[p_i(s_i, v_{-i}|\omega)\left(v_i + \delta\Delta\overline{U}(p, x)\right) - x_i(s_i, v_{-i}|\omega)\right] f_{v_{-i}}(v_{-i})dv_{-i} + \delta\overline{U}_L(p, x)$

3. The optimal mechanism

3.2. Recursive problem and feasible mechanisms

Therefore, in any symmetric equilibrium, the expected continuation values are:

$$\overline{U}_W(p,x) = \int_{\mathcal{V}} U_i(p,x,v_i|\omega = i)f(v_i)dv_i, \qquad \forall i \in N$$

$$\overline{U}_L(p,x) = \int_{\mathcal{V}} U_i(p,x,v_i|\omega = j)f(v_i)dv_i\,, \qquad \forall i,j \in N, i \neq j$$

This problem resembles a one-period auction in which:

(i) the value $\boldsymbol{v_i}$ of all bidders is increased by $\boldsymbol{\delta\Delta U(p,x)}$

(ii) the bidder who currently has the advantage has an extra payoff term

$$\boldsymbol{\delta\Delta U(p,x) \int_{\mathcal{V}_{-i}} p_0(s_i, v_{-i}|\omega) f_{v_{-i}}(v_{-i}) dv_{-i}}$$

The AFS creates a reward that is earned by winning the period-t auction, and this entitles the winner to **favorable treatment** in the following auction.

The seller creates a new "product" (the winner's advantage $\delta\Delta U(p,x)$) and bundles this advantage with the period-t good

This **new product is endogenously created by the seller**, leveraging on his **ability to design an asymmetric auction**

3. The optimal mechanism

3.2. Recursive problem and feasible mechanisms

Mechanism $M = (p, x)$ is individually rational (IR) if $\forall i, \omega \in N,\ \forall v_i \in \mathcal{V}_i$

$$U_i\,(p, x, v_i|\omega) \geq \boldsymbol{\delta \overline{U}_L(p, x)} \quad (IR)$$

M is incentive compatible if, $\forall i, \omega \in N, i \neq \omega, \forall v_i, s_i \in \mathcal{V}_i$ (current losers)

$$\int_{\mathcal{V}_{-i}} \left[p_i(v_i, v_{-i}|\omega)\left(v_i + \delta\Delta\overline{U}(p, x)\right) - x_i(v_i, v_{-i}|\omega)\right] f_{v_{-i}}(v_{-i})dv_{-i} \geq$$
$$\int_{\mathcal{V}_{-i}} \left[p_i(s_i, v_{-i}|\omega)\left(v_i + \delta\Delta\overline{U}(p, x)\right) - x_i(s_i, v_{-i}|\omega)\right] f_{v_{-i}}(v_{-i})dv_{-i} \quad (IC_L)$$

and, $\forall \omega \in N, \forall v_\omega, s_\omega \in \mathcal{V}_\omega$ (current winner)

$$\int_{\mathcal{V}_{-i}} \left[p_i(v_i, v_{-i}|\omega)\left(v_i + \delta\Delta\overline{U}(p, x)\right) - x_i(v_i, v_{-i}|\omega)\right] f_{v_{-i}}(v_{-i})dv_{-i} +$$
$$\delta\Delta\overline{U}(p, x)\int_{\mathcal{V}_{-i}} [p_0(v_i, v_{-i}|\omega)] f_{v_{-i}}(v_{-i})dv_{-i} \geq$$
$$\int_{\mathcal{V}_{-i}} \left[p_i(s_i, v_{-i}|\omega)\left(v_i + \delta\Delta\overline{U}(p, x)\right) - x_i(s_i, v_{-i}|\omega)\right] f_{v_{-i}}(v_{-i})dv_{-i} +$$
$$\delta\Delta\overline{U}(p, x)\int_{\mathcal{V}_{-i}} [p_0(s_i, v_{-i}|\omega)] f_{v_{-i}}(v_{-i})dv_{-i} \quad (IC_W)$$

The seller's problem is to select a mechanism $M = (p, x)$ that maximizes the expected per period revenue

$$U_0(p, x) = \int_{\mathcal{V}} \sum_{i=1}^{n} x_i(\boldsymbol{v}|x) f_{\boldsymbol{v}}(\boldsymbol{v})d\boldsymbol{v}$$

Subject to $(F), (IR), (IC_L), (IC_W)$

3. The optimal mechanism

3.2. Recursive problem and feasible mechanisms

A mechanism $M = (p, x)$ is *feasible* if it satisfies conditions $(F), (IR), (IC_L), (IC_W)$

Define the conditional probability of victory of i with valuation v_i when ω has the advantage:

$$Q_i(p, v_i|\omega) = \int_{\mathcal{V}_{-i}} p_i(\boldsymbol{v}|\omega) f_{v_{-i}}(v_{-i}) dv_{-i}$$

Lemma 1. The mechanism $M = (p, x)$ is feasible if and only if:

$\forall i, \omega \in N, \forall \tilde{v}_i, v_i \in \mathcal{V},\ \tilde{v}_i \leq v_i \Rightarrow Q_i(p, \tilde{v}_i|\omega) \leq Q_i(p, v_i|\omega)$ (I)

$\forall i, \omega \in N, \forall \tilde{v}_i, v_i \in \mathcal{V},\ U_i(p, x, v_i|\omega) = U_i\left(p, x, \underline{v}\middle|\omega\right) + \int_{\underline{v}}^{v_i} Q_i(p, \tilde{v}_i|\omega) d\tilde{v}_i$ (II)

$\forall i, \omega \in N,\ U_i\left(p, x, \underline{v}\middle|\omega\right) \geq \delta \overline{U}_L(p, x)$ (III)

$\forall i, \omega \in N, \forall \boldsymbol{v} \in \mathcal{V}^n,\ \sum_{i=1}^{n} p_i(\boldsymbol{v}|\omega) \leq 1,\ \ p_i(\boldsymbol{v}|\omega) \geq 0$ (IV)

(Myerson, 1981)

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3. The optimal mechanism

3.2. The optimal mechanism

Lemma 2. The seller wants to choose a mechanism that maximizes:

$$\int_{\mathcal{V}} \left\{ \sum_{i=1}^{n} \left[v_i - \frac{1 - F(v_i)}{f(v_i)} \right] p_i(\boldsymbol{v}|\omega) \right\} f_{\boldsymbol{v}}(\boldsymbol{v}) d\boldsymbol{v} + \delta\left[\overline{U}_W(p,x) - \overline{U}_L(p,x)\right]$$

Insights:

If $\delta = 0$, then the symmetric auction is optimal: the seller wants to allocate the good to the bidder with the highest value if his virtual value is positive, otherwise the seller keeps the good

When $\delta > 0$, then **the seller could potentially benefit from implementing an asymmetric auction** that provides an advantage to the winner of the previous period

Trade-offs: Inefficiency:

- The good may be sold to the winner of the previous auction when there is another bidder with higher valuation
- This **misallocation increases $\overline{U}_W$ and decreases $\overline{U}_L$, making all bidders willing to bid more each period to gain the advantage $\overline{U}_W - \overline{U}_L$**
- It increases the second summand at the cost of decreasing the first
- We prove it **benefits the seller**

3. The optimal mechanism

3.2. The optimal mechanism

Lemma 2. The seller wants to choose a mechanism that maximizes:

$$\int_{\mathcal{V}} \left\{ \sum_{i=1}^{n} \left[v_i - \frac{1 - F(v_i)}{f(v_i)} \right] p_i(\boldsymbol{v}|\omega) \right\} f_{\boldsymbol{v}}(\boldsymbol{v}) d\boldsymbol{v} + \delta\left[\overline{U}_W(p,x) - \overline{U}_L(p,x)\right]$$

Insights:

When $\delta > 0$, The **seller now has one important additional degree of freedom to increase her payoff: she gains from shifting payoff from the losers to the winner**

Define the *adjusted virtual functions*

$$c_i(v_i|\omega) = \begin{cases} v_i - (1-\delta)\dfrac{1 - F(v_i)}{f(v_i)} & \text{if} \quad i = \omega \\ v_i - \left(1 + \dfrac{\delta}{n-1}\right)\dfrac{1 - F(v_i)}{f(v_i)} & \text{if} \quad i \neq \omega \end{cases}$$

3. The optimal mechanism

3.2. The optimal mechanism

Lemma 3. Suppose that, for each $\omega \in N, p: \mathcal{V}^n \to [0,1]^n$ maximizes

$$\int_{\mathcal{V}^n} \left[\sum_{i=1}^{n} c_i(v_i|\omega)\right] f_v(\boldsymbol{v}) d\boldsymbol{v}$$

subject to: (I) and (IV)

Define for all $\boldsymbol{v} \in \mathcal{V}^n, i, \omega \in N, i \neq \omega$

$$x_i(\boldsymbol{v}|\omega) = p_i(\boldsymbol{v}|\omega)\left(v_i + \delta\Delta_p\right) - \int_{\underline{v}}^{v_i} p_i(s_i, v_{-i}|\omega) ds_i \quad \text{(V)}$$

$$x_\omega(\boldsymbol{v}|\omega) = p_\omega(\boldsymbol{v}|\omega)\left(v_i + \delta\Delta_p\right) + p_0(\boldsymbol{v}|\omega)\delta\Delta_p - \int_{\underline{v}}^{v_w} p_\omega(s_\omega, v_{-\omega}|\omega) ds_\omega \quad \text{(VI)}$$

where $\Delta_p = \int_{\underline{v}}^{\bar{v}} \int_{\underline{v}}^{\tilde{v}_i} \int_{\mathcal{V}^{n-1}} [p_i(s_i, v_{-i}|\omega = i) - p_i(s_i, v_{-i}|\omega \neq i)] f_{v_{-i}}(v_{-i}) dv_{-i} ds_i d\tilde{v}_i$

Then, (p, x) is an optimal auction.

It is optimal to allocate the good to the bidder with the highest adjusted virtual value if positive, and keep the good otherwise.

3. The optimal mechanism

3.2. The optimal mechanism

Let $M(v|\omega) \equiv \{i \in N | 0 \leq c_i(v_i|\omega) = \max_{j \in N} c_j(v_j|\omega)\}$

Theorem. The optimal mechanism. Let $p : \mathcal{V}^n \times N \to [0,1]^n$ satisfy:

$$p_i(\boldsymbol{v}, \omega) = \begin{cases} \dfrac{1}{|M(\boldsymbol{v}|\omega)|} & \text{if} \quad i \in M(v|\omega) \\ 0 & \text{otherwise} \end{cases}$$

and

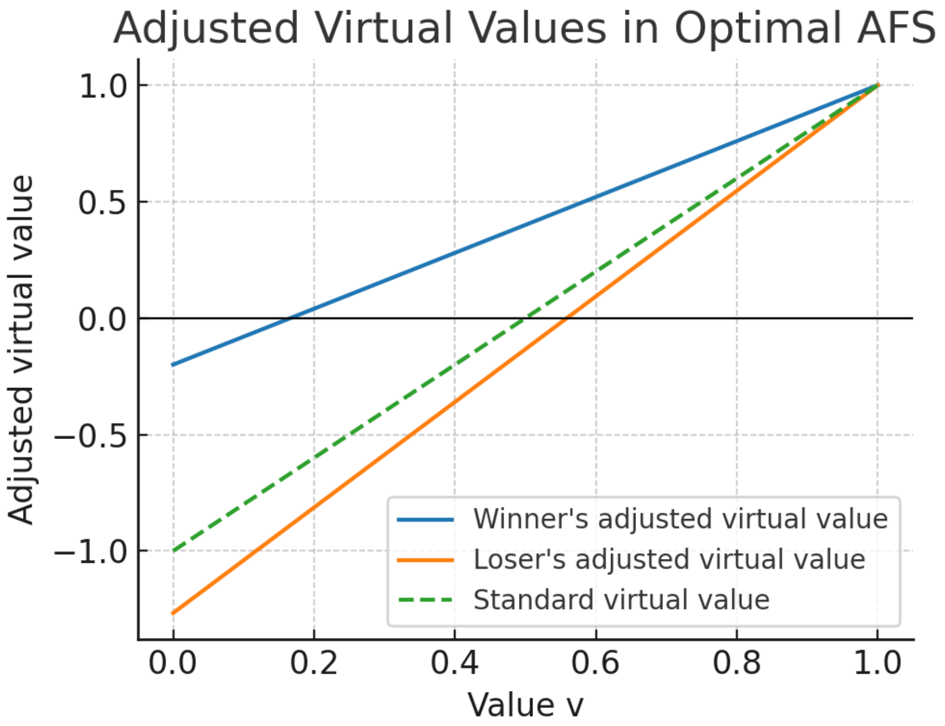
$x: \mathcal{V}^n \times N \to \mathbb{R}^n$ is given by (V) and (VI) for all $i, \omega \in N$ and $v \in \mathcal{V}$.

Then (p, x) represents an optimal auction mechanism.

3. The optimal mechanism

3.2. The optimal mechanism

(i) For $\delta > 0, i, \omega \in N, i \neq \omega, \quad c_\omega(v|\omega) > c(v|\omega) > c_i(v|\, i)$.



3. The optimal mechanism

3.2. The optimal mechanism

Insights:

(i) For $\delta > 0, i, \omega \in N, i \neq \omega,\qquad c_\omega(v|\omega) > c(v|\omega) > c_i(v|\ i)$.

(ii) As $\delta \to 1$, and $n \to \infty,\ p_0(\boldsymbol{v}, \omega) = 0$
It is optimal for the seller to never keep the good
The mechanism works as if it were selling the future good to the winner of today's good with reselling option once she observes her next period value.
Similar to a Principal-Agent model were the P sells the activity to the A at a fixed price

(iii) The lower the number of participants, the more likely the standing winner will win again

4. Simple implementation

4.1. The matching-price mechanism

Definition. ***The Matching-price asymmetry-creation competitive-advantage rule.***

The winner of the first auction can guarantee winning the second auction by matching its equilibrium price.

Consider now only two sequential auctions

There is no advantage in the first auction

The winner of the first auction has the matching-price competitive advantage

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4. Simple implementation

4.2. Second-price second auction

PROPOSITION 6. *Condition for the revenue dominance of the asymmetry-creation mechanism*. *In the asymmetry-creation model $\mathcal{M}_{31}$ with a second-price mechanism in the second auction and $n \geq 3$ players, the new mechanism yields a higher payoff to the auctioneer than the traditional first-price auction with no reserve price if and only if:*

$$2(n-1)\int_a^b F(y)^{n-2}dy - \frac{4n^2-7n+2}{n-1}\int_a^b F(y)^{n-1}dy + \frac{2n^2-3n}{n-1}\int_a^b F(x)^n dx > 0$$

In particular, ***this condition is satisfied for the uniform distribution and the entire class of power functions*** *$F(x) = x^\rho$, with $\rho \geq 1, n \geq 2$.*

4. Simple implementation

4.3. First-price second auction

PROPOSITION 9. ***Superiority of the Asymmetry-creation mechanism in the uniform distribution case.*** *In the asymmetry-creating model* $\mathcal{M}_{33}$ *with a first-price second auction using the optimal reserve price and identical and independent uniform distributions on* $[0,1]$ *for the players' values, the new mechanism always yields a higher payoff to the auctioneer than the traditional first-price auction with no reserve price.*

Furthermore, it yields a higher payoff than the traditional first-price auction with optimally chosen reserve price if there are at least $n = 3$ *players.*

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4. Simple implementation

4.3. First-price Second auction

n	No reserve price			Optimal reserve price			Optimal reserve price in the traditional model & no reserve price in the competitive advantage model
	Traditional Model	New mechanism	Percentage gain	Traditional model	New mechanism	Percentage gain	Percentage gain
	$R_t(n)$	$R_c(n)$	$\frac{R_c(n)-R_t(n)}{R_t(n)} \times 100$	$R_t(n,r)$	$R_c(n,r)$	$\frac{R_c(n,r)-R_t(n,r)}{R_t(n,r)} \times 100$	$\frac{R_c(n)-R_t(n,r)}{R_t(n,r)} \times 100$
3	1.00000	1.05556	16.67	1.06250	1.07506	1.18	-0.65
4	1.20000	1.23125	14.06	1.22500	1.24000	1.22	0.51
5	1.33333	1.35333	12.00	1.34375	1.35724	1.00	0.71
6	1.42857	1.44246	10.42	1.43304	1.44422	0.78	0.66
7	1.50000	1.51020	9.18	1.50195	1.51100	0.60	0.55
8	1.55556	1.56337	8.20	1.55642	1.56373	0.47	0.45
9	1.60000	1.60617	7.41	1.60039	1.60634	0.37	0.36
10	1.63636	1.64136	6.75	1.63654	1.64144	0.30	0.29
11	1.66667	1.67080	6.20	1.66675	1.67083	0.25	0.24
12	1.69231	1.69578	5.73	1.69235	1.69580	0.20	0.20
13	1.71429	1.71724	5.33	1.71430	1.71725	0.17	0.17
14	1.73333	1.73588	4.97	1.73334	1.73589	0.15	0.15
15	1.75000	1.75222	4.67	1.75000	1.75222	0.13	0.13

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5. Real-world advantage mechanisms

5.1. Right of First Refusal

Brazil, (Terracap): illegal occupants are granted the right to match the winning bid to regularize their ownership

Brazil: Advance purchase of privatized public companies

Germany: agricultural and forestry land sales often prioritize local farmers or neighbors through preemptive rights

France: privatizations and land redistribution programs occasionally grant occupants the right to purchase properties under similar conditions

India: matching rights are also utilized in real estate, particularly in cases involving long-term tenants or informal occupants, as part of efforts to ensure equitable treatment and minimize disputes during the regularization of properties

Argentina & Mexico: To legalize informal settlements

Australia: to allow existing operators to maintain continuity of investment in mining or petroleum exploration areas

Note: Typical goal is fairness, not revenue!

5. Real-world advantage mechanisms

5.2. Greenshoe Mechanisms in Sovereign Debt Auctions

Enables additional post-auction allotments—typically to original winning bidders—at pre-established conditions

Post-Auction Option Facility

Brazil: Segunda volta

Note: The post-auction option does not involve a second competitive bidding process

5.3. Brazilian Treasury Direct incentive mechanism

Brazil

Note: First direct application of the mechanism

6. Conclusion

Advantage granting is a feature of several real-world contracts

In many cases, it is a legal requirement

But in other cases it is a feature of negotiation

We show in our paper that this feature may be profitable to the seller in a repeated auction framework

We find the optimal auction design with endogenous asymmetry

Compare it to the basic Mayerson framework to understand how the optimal advantage looks like:

- Higher (adjusted) virtual valuation for the previous winner
- Lower reservation prices for the winner

We also discuss a simpler implementation of the competitive advantage principle by means of a matching price mechanism and show that:

- It improves sellers revenue for specific distributions (w/ enough competition)
- It ensures the object is always sold