

Naked Exclusion with Minimum-Share Requirements

Zhijun Chen

and

Greg Shaffer

University of Auckland

University of Rochester

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Introduction

- minimum-share requirements in contracts: what are they?
 - a stipulation that says that the buyer must give the seller some minimum share of its total purchases.
 - i.e., you agree to buy at least $s\%$ of your total purchases from me.
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 - exclusive dealing is a limiting case (under exclusive-dealing, you agree not to buy from anyone else besides me ... $s = 100\%$).
- we consider an incumbent seller's use of such contracts to deter efficient entry when there are economies of scale.

Main findings

- building on previous work by Rasmusen et al (1991), Segal and Whinston (2000), and Simpson and Wickelgren (2007), we find that
- minimum-share requirements in contracts can be profitable even when
 - exclusive dealing would not be profitable
 - buyers can breach their contracts without having to pay damages
 - buyers can coordinate their accept or reject decisions

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- minimum-share requirements in contracts can be profitable even when
 - exclusive dealing would not be profitable
 - buyers can breach their contracts without having to pay damages
 - buyers can coordinate their accept or reject decisions
- we show that these contracts can be anti-competitive even if the exclusionary conduct fails to deter entry or raise the entrant's costs.

Background

- exclusionary vertical contracts have a long and controversial history in U.S. and European competition law and are of continuing importance
 - they are featured in many of the more prominent recent antitrust cases
 - U.S. v. Microsoft [253 F.3d 34 (2001)]
 - Conwood v. United States Tobacco [290 F.3d 768 (2002)]
 - U.S. v. Visa [344 F.3d. 229 (2003)]
 - LePage's Inc. v. 3M [324 F.3d. 141 (2003)]
 - U.S. v. Dentsply [399 F.3d. 181 (2005)]
 - Masimo Corp. v. Tyco Health Care [Nos. 07-55960, 9th Cir. 2009]]
 - Case COMP/E-1/38.113 - Prokent-Tomra, 2006
 - Case COMP/37.990 - Intel, 2009

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- then, throughout the 1950's, 60's and 70's, these views came under increasing attack from authors whose arguments were traceable to the University of Chicago oral tradition associated with Aaron Director (e.g., the writings of Richard Posner, Robert Bork, etc.)

- the Chicago school's attack was two-pronged
 - first, it was argued that the traditional concern was illogical; rational firms would not engage in the practice for anti-competitive reasons
 - second, it was argued that there were efficiency-enhancing reasons for why firms might want to write such contracts

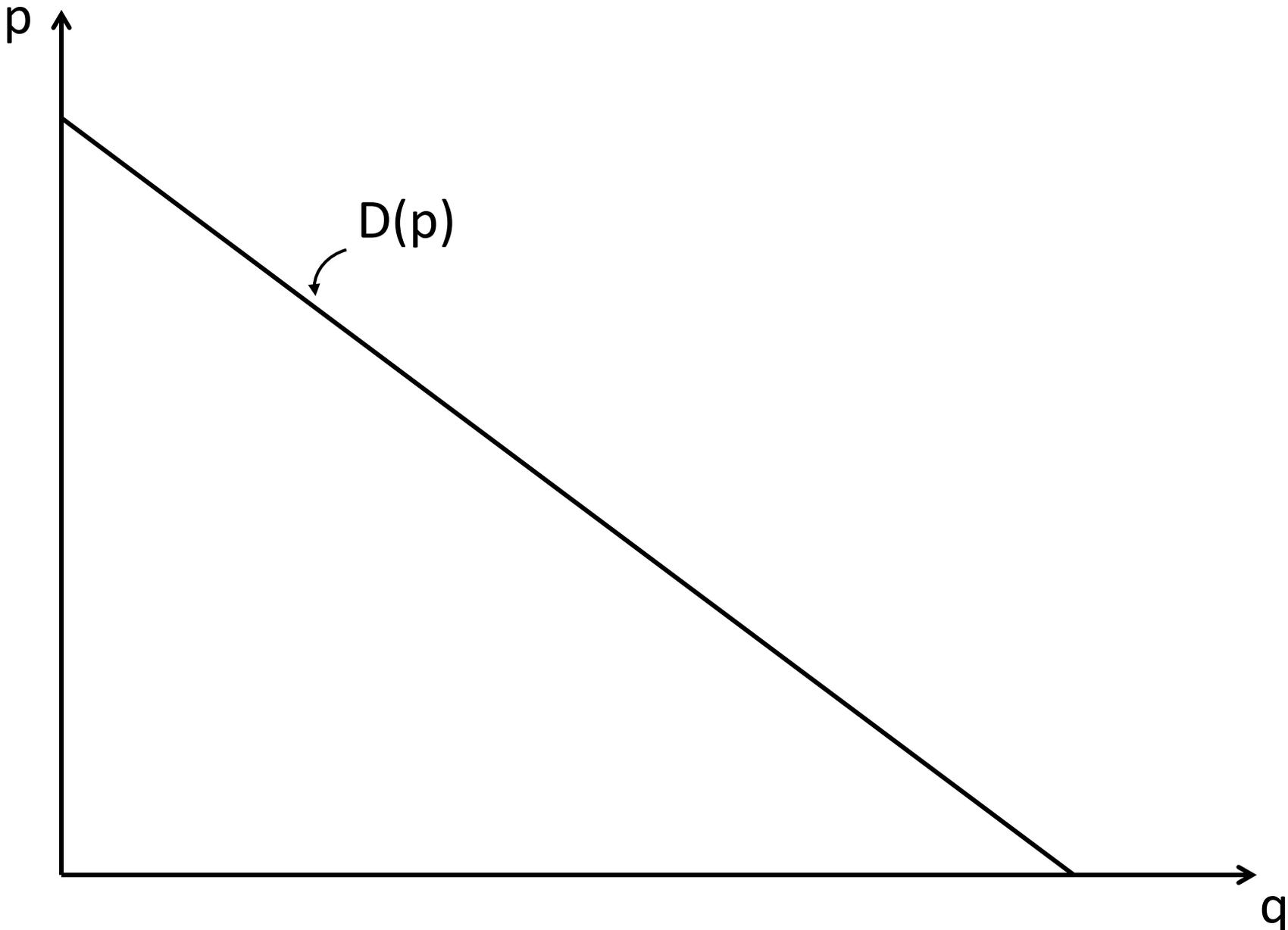
Chicago school

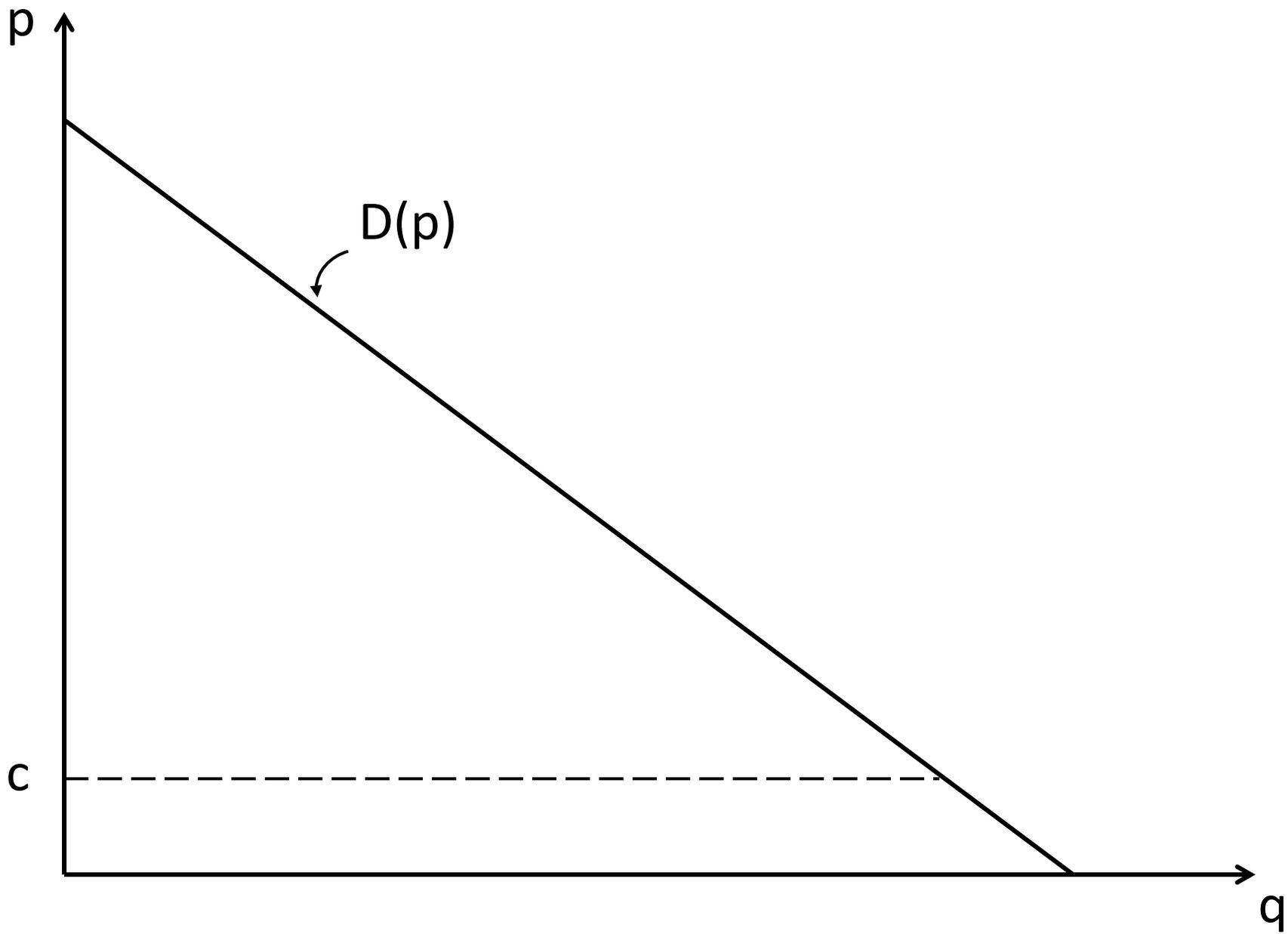
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 - second, it was argued that there were efficiency-enhancing reasons for why firms might want to write such contracts
- the Chicago school's arguments were enormously influential and continue to affect markedly current courts' views of these practices.

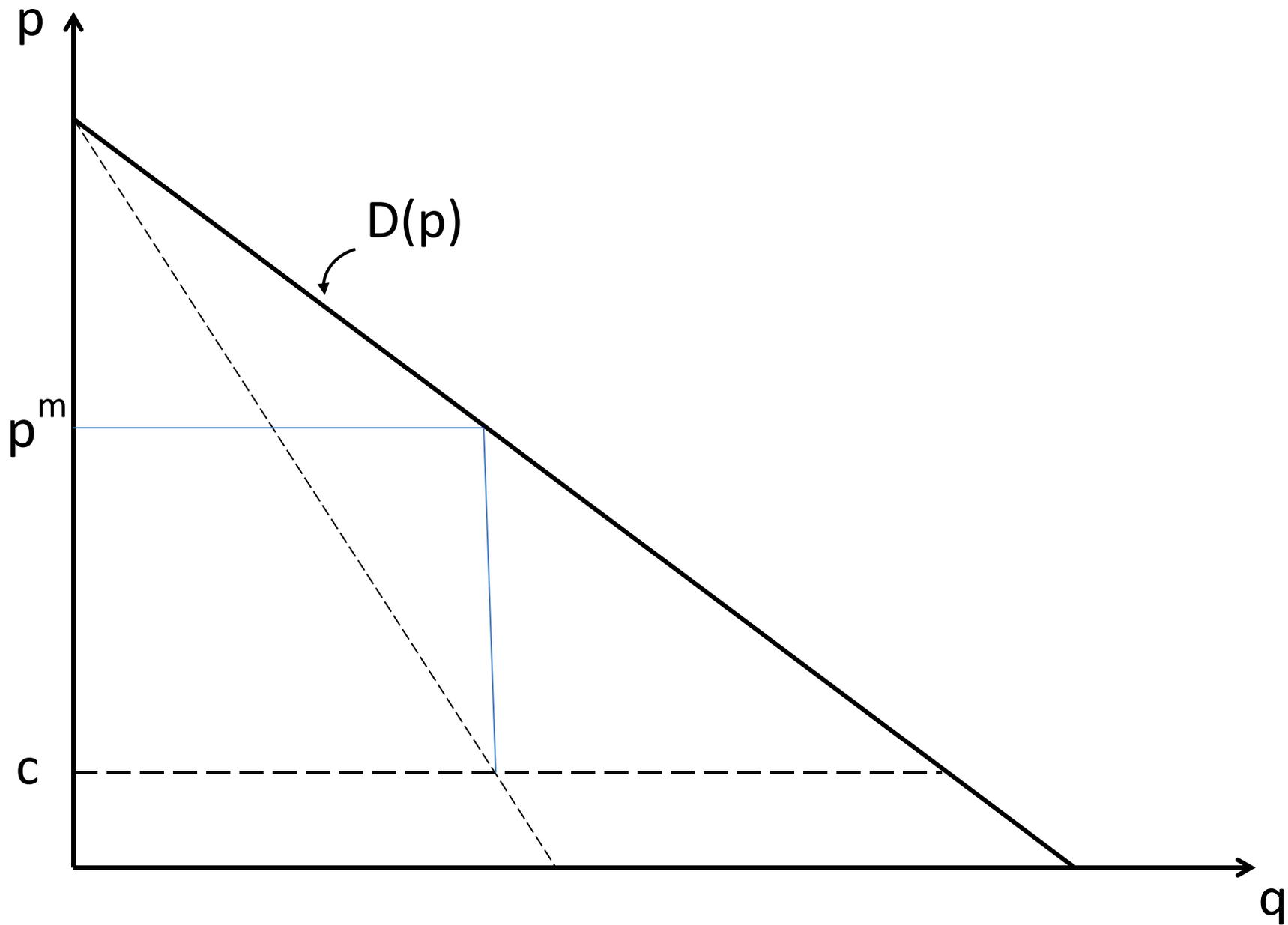
- it is not enough to ask why a seller might want to offer an exclusive, one must also ask why a buyer would agree to such an arrangement
 - if the motive is to knock out a rival in order to dampen competition (and capture the monopoly profit for itself), then surely agreeing to exclusive dealing would make the buyer worse off all else being equal
 - it follows that the buyer would have to be compensated
 - there will not be enough surplus created after entry is deterred both to compensate the buyer and at the same time make the seller better off.

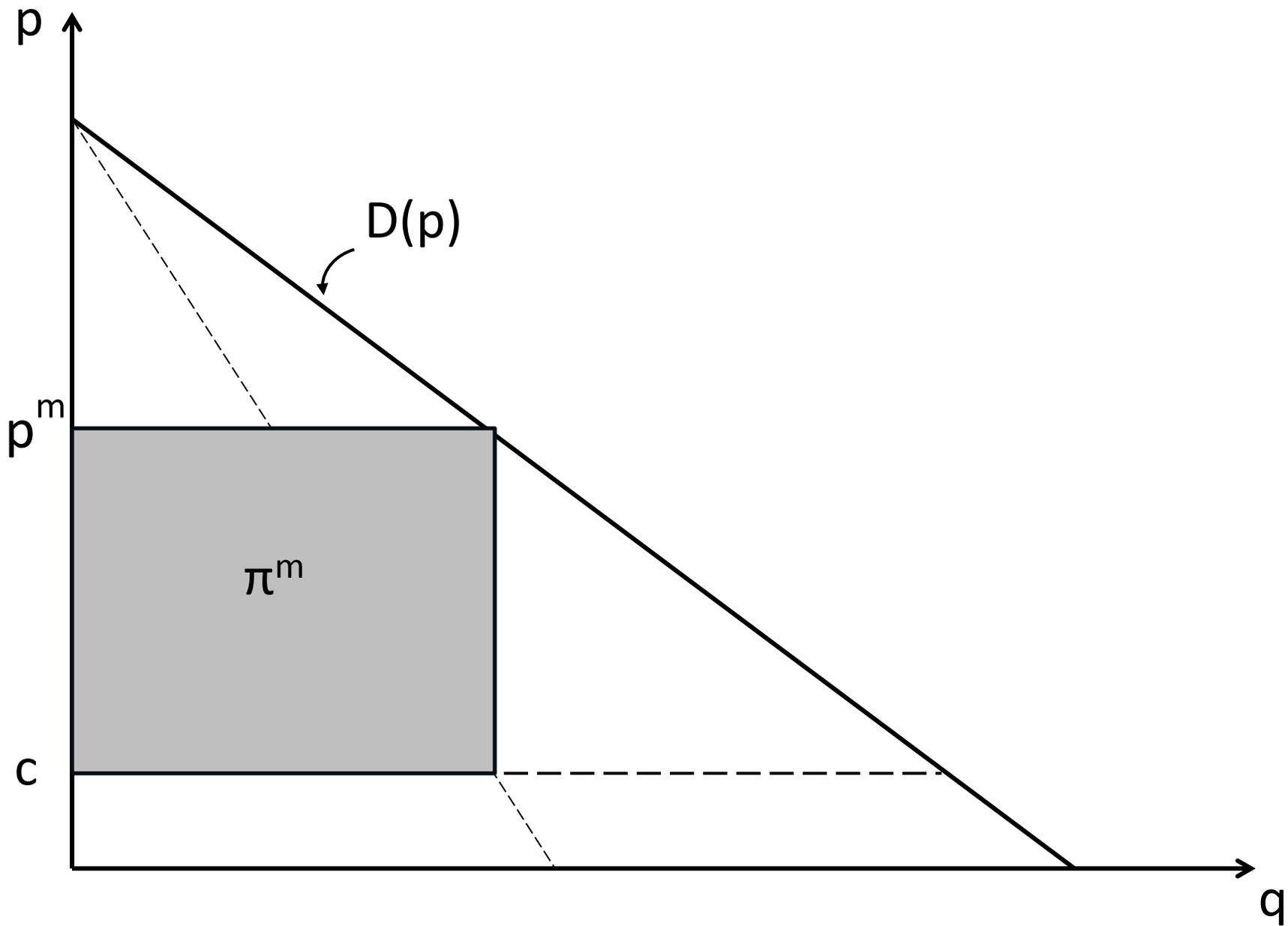
Illustration

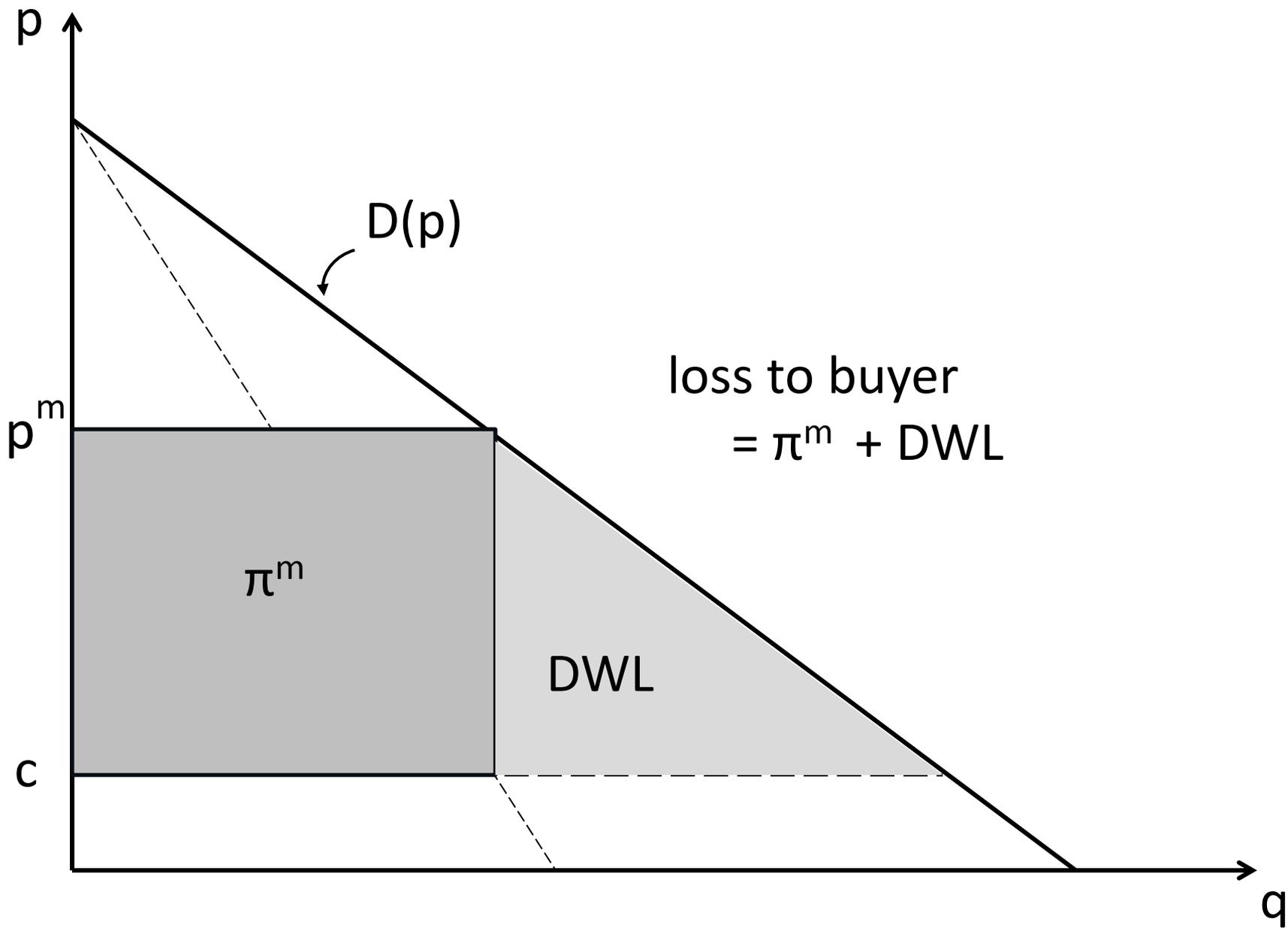
- an incumbent competes against a potential entrant. The incumbent's marginal cost is c , the entrant's marginal cost is $\underline{c} < c$.
- suppose that if the entrant comes into the market, competition between the two sellers will result in a per-unit price of c to the buyer.
- can the incumbent profitably exclude the entrant by inducing the buyer to sign an exclusive contract (i.e., induce the buyer to agree that she will not buy from the entrant)?

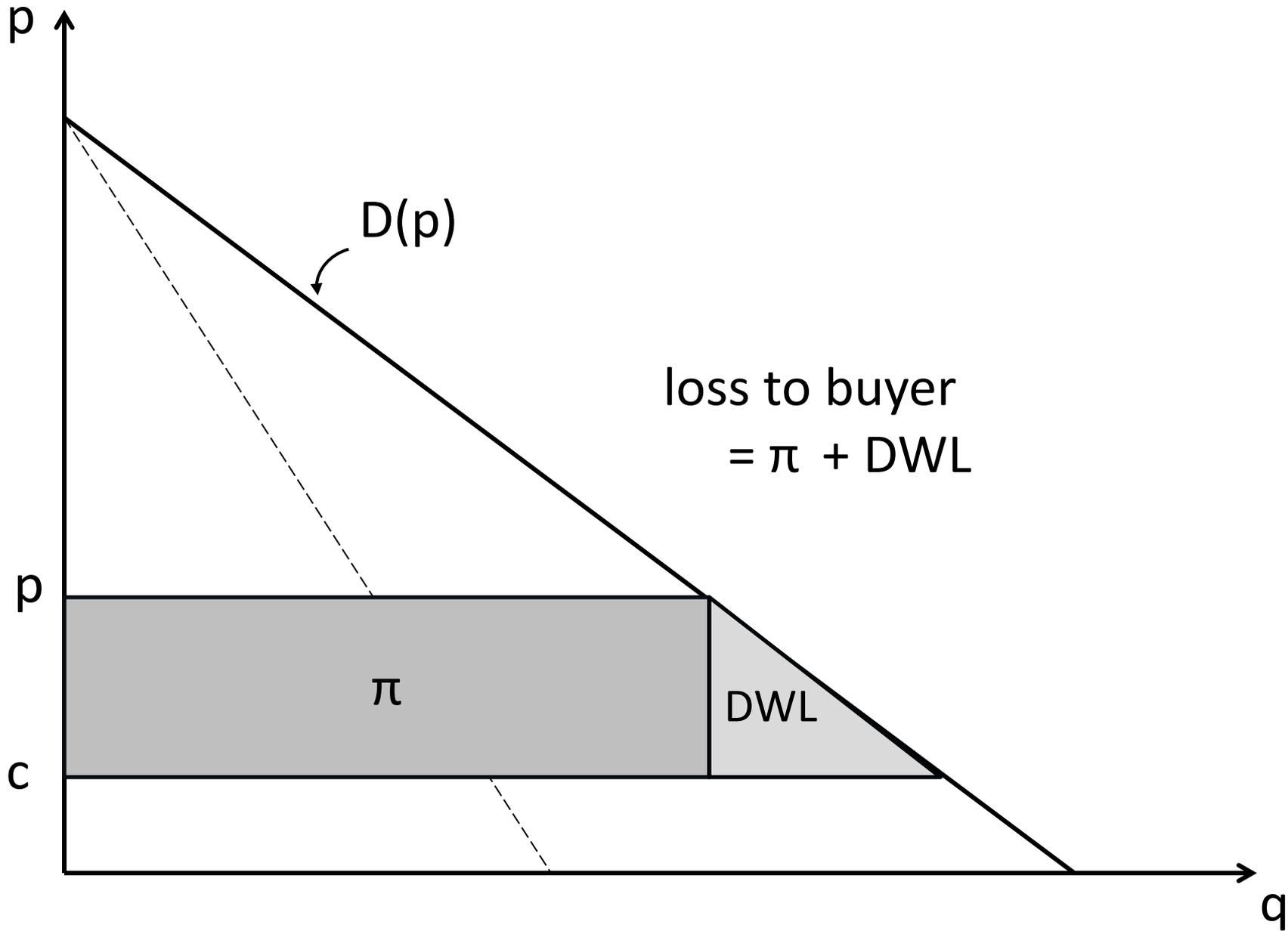












Revisit the logic

- beginning in the mid 1980's, the infiltration of game theory into economics allowed researchers to formally model oligopolistic markets.
 - many old questions in the field were revisited, using formal models
 - among those were questions concerning exclusionary vertical contracts

Externalities across buyers

- Rasmusen, Ramseyer, and Wiley (1991), “Naked Exclusion”
 - suppose that there are several buyers just like the one in the example, and that the entrant’s technology is such that it will need to sell to some minimum fraction of them in order to reach a viable scale. Then, depending on beliefs, the incumbent may be able to induce buyers to agree to its exclusive contract for a very small payment

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- Landeo and Spier (2009), “Naked Exclusion: An Experimental ...”
 - communication does indeed reduce the incidence of exclusion in experimental settings

Competition policy

- two opposing views
 - exclusive contracts can create efficiency-enhancing benefits
 - reduce risk associated with long-lived investments by either party
 - provide incentives for retailers to aggressively promote the manufacturer's brand
 - eliminate an externality that may exist between manufacturers either in the provision of demand-enhancing services or in investments in cost-reducing activities
 - exclusive contracts can deter entry that would otherwise be efficient
 - can take advantage of a lack of coordination among buyers

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 - one might be tempted to think of a minimum-share requirement as a weaker version of exclusive dealing (i.e., if a fully-exclusive contract would be allowed, then so would a partially-exclusive contract, but the latter might be permissible even if the former would not be)
 - this begs the question—why would a seller who wants to exclude its rival offer buyers contracts that specify a share of less than a 100%?

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- a seller may prefer to offer a partial exclusionary contract (i.e., a share requirement of less than 100%) over a fully exclusionary contract — even when the seller's intent is to nakedly exclude.
- partial exclusionary contracts can be more anticompetitive than fully exclusionary contracts —at least in some cases.
- partial exclusionary contracts can be anticompetitive even when the exclusion is not successful (entrant is competing in the market).

Understanding the buyer's incentive is key

- an incumbent competes against a potential entrant. The incumbent's marginal cost is c , the entrant's marginal cost is \underline{c} . Suppose $c > \underline{c}$. Suppose also that if the entrant comes into the market, competition between the two sellers will result in a per-unit price of c to the buyer.
- can the incumbent profitably exclude the entrant by inducing buyers to sign a partial exclusionary contract $C = \{s, x, p\}$
 - s is the minimum share the buyer must purchase from the seller
 - x is the inducement needed to get the buyer to accept
 - p is the per-unit price at which the seller commits to sell

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 - $p_a = sp + (1 - s)c$ (if the entrant is not foreclosed)
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 - p (if the entrant is foreclosed)
- note that this distinction would not arise under exclusive dealing (we will exploit this distinction in what follows)

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- whereas her surplus if she does not agree to the contract is $S(c)$
- thus, to induce this buyer to accept, the incumbent must offer
 - $x \geq S(c) - S(p_a) + (1 - \alpha_1)(S(p_a) - S(p))$

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- Each buyer receives less than $S(c)$ — this is how partial exclusionary contracts differ from fully exclusionary contracts!

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 - under exclusive dealing, the seller has to compensate each buyer for the full loss in surplus due to the rival's exclusion
 - with partial exclusionary contracts, the seller can exploit externalities across buyers — exclusion can be 'purchased' relatively cheaply
 - each buyer only has to be compensated for its marginal contribution to the exclusion of the rival seller
 - the negative externalities imposed on it by other buyers accepting the seller's contract are not compensated

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- turns exclusion story from a coordination game to a prisoner's dilemma

The Model

- three kinds of players: an incumbent firm (I), a potential entrant (E), and $N \geq 2$ homogenous and independent buyers
- each buyer has a downward-sloping demand $q(\cdot)$
- I has marginal cost c , E has marginal cost $\underline{c} < c$; the entrant therefore has cost advantage $\delta \equiv c - \underline{c}$
- E must incur fixed cost for entry $f \in (0, N\delta q(c))$, where f has distribution $G(\cdot)$ and density function $g(\cdot)$

Timing of the game

- period 1: I offers each buyer exclusionary contract $C = \{s, x, p\}$, where s the minimum share, p per-unit price, x lump-sum payment
- period 2: Buyers decide whether to accept or reject the offer
- period 3: E learns the value of f and decides whether or not to enter
- period 4: I and E (if active) compete a la Bertrand by setting prices. If a buyer has agreed to I 's exclusionary contract, then it must buy at least s share from the incumbent at the price p when entry occurs, but can buy the remaining $1 - s$ share from the entrant at a price c .

- $\pi(p) = (p - c)q(p)$ denotes incumbent's profit
- $S(p)$ denotes buyer's surplus
- $D(p) \equiv S(c) - S(p) - \pi(p)$ denotes deadweight loss
- 'free buyer' if buyer has not signed the incumbent's contract
- 'captive' buyer if buyer has signed the incumbent's contract

Pricing game

- no entry: free buyers pay p_m and obtain $S(p_m)$ in surplus
captive buyers pay p and obtain $S(p) + x$ in surplus.
- with entry: free buyers pay c and obtain $S(c)$ in surplus
captive buyers pay $p_a = sp + (1 - s)c$ and obtain $S(p_a) + x$ in surplus

Entrant's entry decision

- if E does not enter, then E earns zero.
- if E enters, then E incurs cost f and earns $n(1-s)\delta q(p_a)$ from captive buyers and $(N-n)\delta q(c)$ from free buyers
- therefore, it is profitable for E to enter if and only if

$$f \leq \Pi_E(n, s) \equiv n(1-s)\delta q(p_a) + (N-n)\delta q(c).$$

- the probability of entry is thus $\alpha_n = G(\Pi_E(n, s))$

Buyers' accept or reject

- if all buyers reject contract offer, then entry occurs with probability one and each buyer earns $S(c)$
- but notice that I can choose x such that each buyer prefers to accept its contract even if all other buyers reject it

$$(1 - \alpha_1)S(p) + \alpha_1 S(p_a) + x > S(c),$$

or in other words, I can always choose $x > x^*(s, p)$, where

$$x^*(s, p) \equiv S(c) - ((1 - \alpha_1)S(p) + \alpha_1 S(p_a))$$

Characterization of Equilibria

- with some weak assumptions on the distribution of f , one can show
 - if $x > x^*(s, p)$ then the unique coalition-proof equilibrium is for all buyers to accept the contract
 - if $x < x^*(s, p)$ then the unique coalition-proof equilibrium is for all buyers to reject the contract

Contractual Externalities

- when the incumbent pays $x^*(s, p)$, each captive buyer obtains a surplus strictly lower than $S(c)$:

$$\begin{aligned}U_A(N) &= (1 - \alpha_N)S(p) + \alpha_N S(p_a) + x^*(s, p) \\ &= S(c) - (\alpha_1 - \alpha_N)(S(p_a) - S(p))\end{aligned}$$

- for each captive buyer, acceptance of contract contributes to partial exclusivity by reducing probability of entry from one to α_1
- whereas acceptance by other $N - 1$ buyers imposes negative externalities by reducing likelihood of entry from α_1 to α_N , thereby bringing an expected welfare loss of $(\alpha_1 - \alpha_N)(S(p_a) - S(p))$

Contractual Externalities

- each captive buyer is compensated for its own contribution to exclusion, however negative externalities imposed by other buyers are not compensated
- the incumbent can potentially exploit this externality

Main Result

Proposition

There exists a contract offer $C = \{s, x, p\}$ such that the incumbent earns positive expected payoff in the PCPNE of the continuation game, with $s \in (0, 1)$, $p > c$, and $x > x^(s, p)$*

Entry, Prices, and Welfare

- a distinguishing feature of the model is that entry occurs with positive probability (but less than one) even though the seller engages in exclusionary conduct and would prefer that entry not occur
- the possibility thus arises that the seller and the entrant (or rival seller) may co-exist in the market with each having positive sales, despite the seller's exclusionary conduct
- nevertheless, the exclusionary contracts will still be anticompetitive

Conclusion

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- a feature of the model is that welfare may be harmed even if exclusionary conduct does not deter entry or raise E 's costs
- however interpretation of our results for policy should be tempered. We have only shown that minimum-share requirements can be anticompetitive, not that they actually are in any given setting