Vertical Practices Facilitating Exclusion

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December 3, 2012

UT Austin

1. **Introduction**
2. Context
3. Model
4. Analysis
5. Extensions
6. Policy

Research question

- Research Question:

  "How might vertical practices that are NOT about exclusive dealing generate exclusion, of a more efficient rival, by an incumbent?"

- Approach:

  Objective is to build a theoretical structure to inform observation, that is straightforward enough to have a chance of estimation etc

  - In this talk, use RPM as a motivating example

- Why is this interesting?
  1. US Supreme Court:
     - *Dr Miles* 1911 – per se violation of §1
     - *Leegin* 2007 – overturns *Dr Miles*, now rule of reason
  2. European Vertical Restraint Guidelines released 2010
  3. A lot of work on pro-competitive theories in 80s/90s, some work on facilitation of collusion.
  4. Need for better developed theories of harm.

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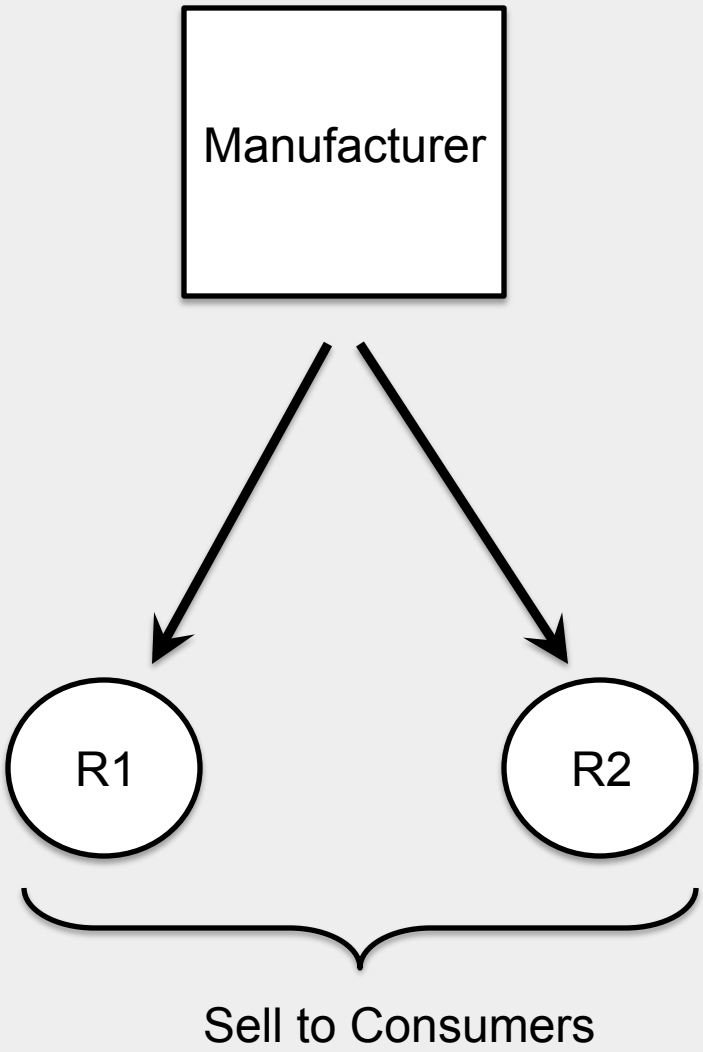
Research question

- What is Minimum Resale Price Maintenance? (RPM)



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Vertical Practices Facilitating Exclusion

Empirical Relevance

From Overstreet (1983), Resale Price Maintenance, FTC Staff Report

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TABLE 3

Price Comparisons Prepared by the Maryland Pharmaceutical Association and the Baltimore Retail Druggists Association*

Product	Fair Trade Prices	D.C. Free-Trade Prices
Aspirin:		
100 Bayer	$0.59	$0.46
100 Squibb	.54	.47
100 St. Joseph	.49	.43
100 APC Co.	.39	—
Toothpaste:		
Colgate	.47	.33
Ipana	.47	.33
Pepsodent	.47	.39
Phillips	.39	.27
Squibb	.47	.39
Lyons	.47	.33
Ammident	.53	.47
Clordent	.69	.53
Afco	.47	.39
Pebammo	.49	.39
Shaving cream:		
Colgate	.53	.47
Barbasol	.39	.33
Palmolive	.53	.41
Burmashave	.40	.33
Molle	.43	.37
Noxzema	.59	.47
Mennen	.53	.43
Gillette	.43	.37
Williams	.47	.37
Hair tonics:		
Wildroot	.48	.43
Kreml	.57	.43
Vitalis	.49	.33
Vaseline	.47	.39
Jeris	.49	.39
Lucky Tiger	.48	.39
Liquid shampoo:		
Admiration	.49	.43
Breck	.60	.53
Wonder	.48	—
Drene	.57	.47
Kreml	.59	.47
Liquid shampoo continued		
Laco	.43	.39
Conte Castille	.49	.33
Packers	.48	.43
Watkins Coconut	.48	.39
Richard Hudnut	1.00	.79
Wildroot	.48	.44
Woodbury's	.43	.29
Halo	.57	.43
Fitch	.59	.47
Deodorants:		
Veto	.59	.53
Arrid	.63	.47
Fresh	.59	.43
Sanite	.39	.38
Chad	.43	.39
Coty	1.00	—
Hush	.49	.43
Mum	.59	.39
Odorono	.48	.37
Barz	.39	.33
Five-day pads	.59	.47
Ydoro	.59	.43
Zipp	.50	.47
Stoppette	.60	.47
Dyrad	.49	.37
Mennens	.59	.41
Amolin	.59	.47
Heed	.59	.47
Hand lotions:		
Hinds	.49	.39
Italian Balm	.45	.37
Cashmere Bouquet	.43	.37
Frostilla	.47	.43
Jergens Lotion	.49	.31
Trushay	.49	.33
Pacquin	.49	.39

Source: Standard Drug Co., Washington, D.C.

* Study of Monopoly Power, Hearings Before the Antitrust Subcommittee of the Committee on the Judiciary, House of Representatives, 82nd Congress, 2nd Session, on Resale Price Maintenance, Serial No. 12, February 1952, p. 124.

Empirical Relevance

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Research question

- Punchline:

Minimum resale price maintenance can be a way to force retailers to internalize the effects of upstream entry on industry profits. If retailers let an entrant in, the profits in which they share (via RPM) get dissipated away.

- Underlying economics:

Sharing rents to induce internalize a competitive externality.

- Point generalizes to many other forms of practice, e.g.

- Loyalty payments (Alleged in *Intel* litigation)
- Sales territories (An issue in *Sylania*)
- Agency and MFN (At issue in *e-books* settlement)
- Group boycotts (at issue in *Klors*)

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Research question

- At least in context of RPM, this is not a new idea but is somewhat forgotten

  - Cassady 1939: "*…manufacturers are now in a real sense their allies, the distributors are willing (nay, anxious!) to place their sales promotional effort behind these products, many times to the absolute exclusion of non-nationally advertised products*"

  - Yamey 1966: "*Resale Price Maintenance can serve the purposes of a group of manufacturers acting together in restraint of competition by being part of a bargain with associations of established dealers to induce the latter not to handle the competing products of excluded manufacturers*."

  - Kennedy, J. in *Leegin* 2007: "*A manufacturer with market power, by comparison, might use resale price maintenance to give retailers an incentive not to sell the products of smaller rivals or new entrants.*"

- Pro-competitive theories: Telser 60, Posner 75, Matthewson and Winter 84, Klein and Murphy 88, Deneckere, Marvel and Peck 96,97, Winter 09

- Collusive theories: Shaffer 91, O'Brien and Shaffer 92, Julien and Rey 07, Rey and Verge 09

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Research question

- Road Map
  - Instances of exclusionary RPM
  - Baseline model
  - Analysis
  - Extensions
  - Policy implications

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Research question

- Examples of ‘exclusionary’ resale price maintenance (from Yamey 1969 and Bowman 1955):
    - Sugar
    - Whisky
    - Wallpaper
    - Enameled Iron Ware
    - Watch Cases
    - Spark Plugs
    - Fashion Patterns

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Research question

Exclusion in Whisky

- The Distilling and Cattle Feeding Company [*US v. Greenhut*, 1892 U.S. Dist. Ct]

  - Company: "*purchased or leased or otherwise obtained control of 70 distilleries, which had theretofore been competing, separate distilleries, and so operated them as to produce 77,000,000 gallons of distillery product, which output comprised about 75-100 of the total production of the distilleries of the United States*"

  - 1890 entered into distribution contract: "*the defendants, six months after date, promised to repay to Kelly & Durkee five cents per proof gallon of defendants' products then purchased, upon condition that said purchasers …, from date of voucher or purchase to time of payment, shall buy exclusively such kind of goods as are produced by defendants from some one of their agents designated, and shall not sell the same at prices lower than said dealers' list prices*"

- Note: use of explicit rebates, explicit conditioning on exclusivity, and explicit timeframe
- Non-exclusivity does not constitute breach...

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Research question

Exclusion in Sugar

- The American Sugar Company
  - Trust formed in 1887 combining sugar refining operations controlling 80 per cent of industry capacity
  - Rising to 95 per cent of capacity by 1892
  - In 1895 wholesale grocers association proposes RPM
  - Zerbe reports proposal came in the form of “a threat and a bribe”
  - Arbuckle enters in 1898, although has to create own distribution in some areas, and excluded in others
  - Mix of raising rivals costs and exclusion

(American and Arbuckle form a cartel soon after that lasts till WWI)

(Zerbe (1969), Eichner (1969), Marvel and McAfferty (1985))

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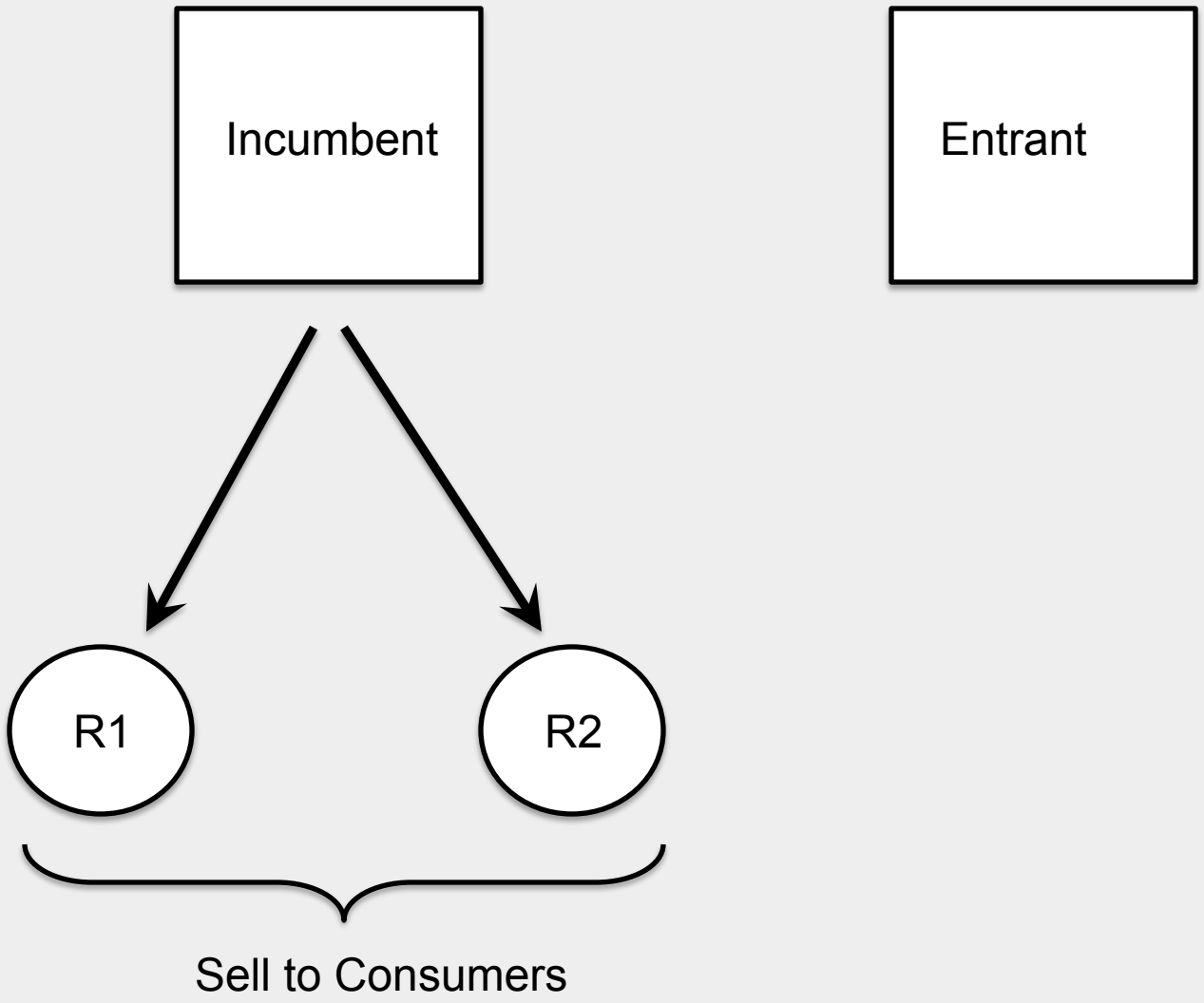
Baseline Model



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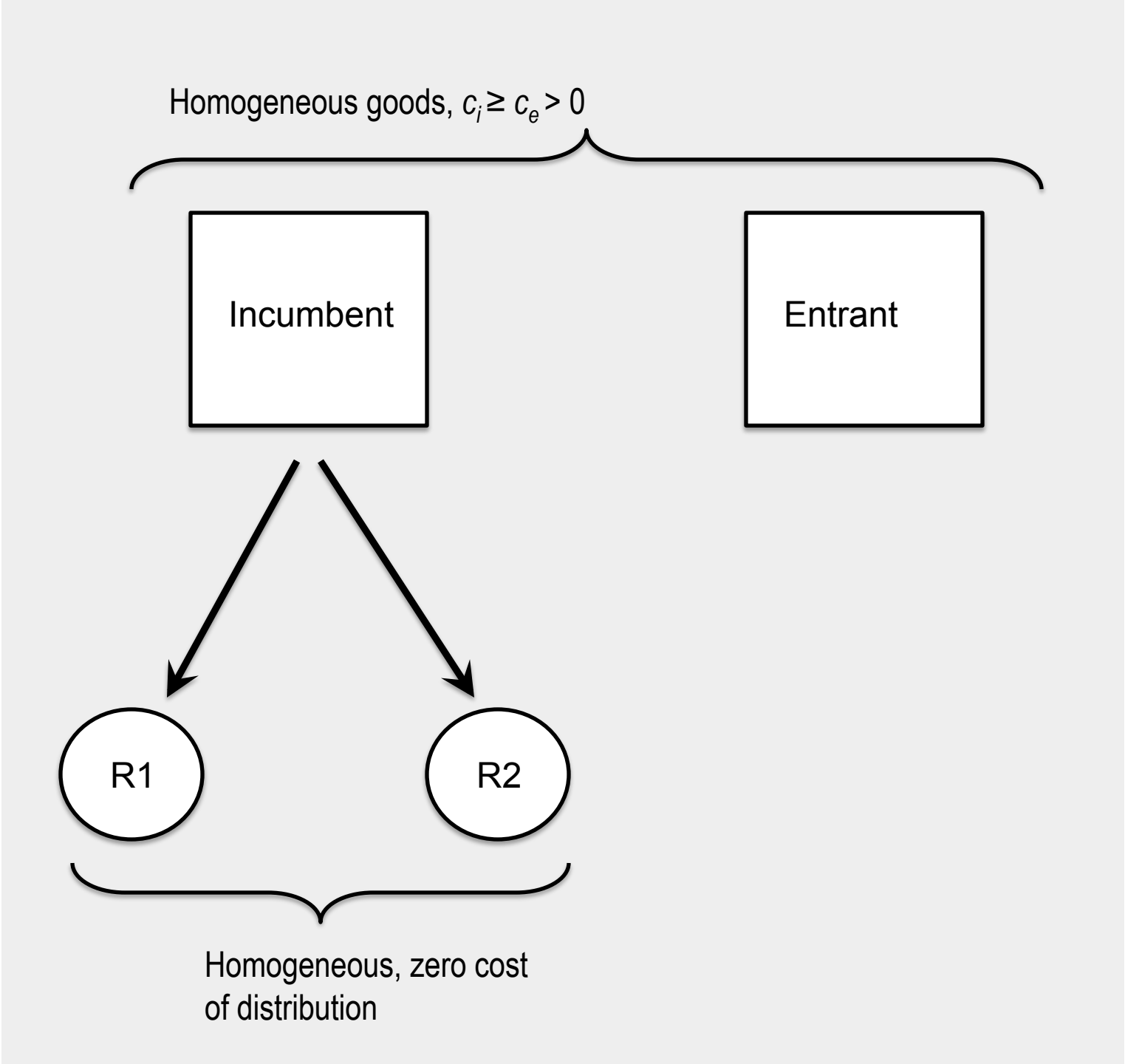
Baseline Model



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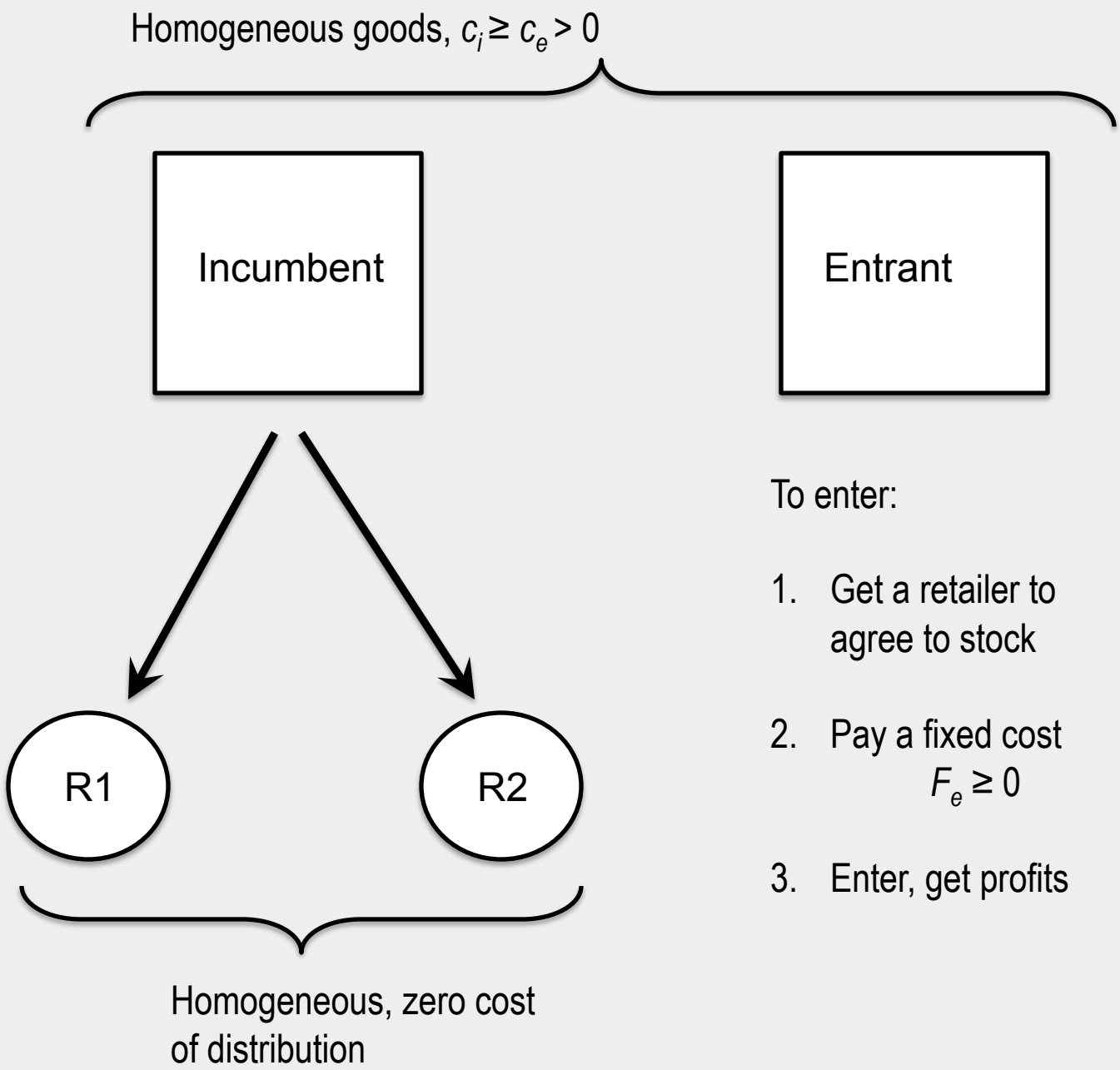

To enter:

1. Get a retailer to agree to stock
2. Pay a fixed cost $F_e \geq 0$
3. Enter, get profits

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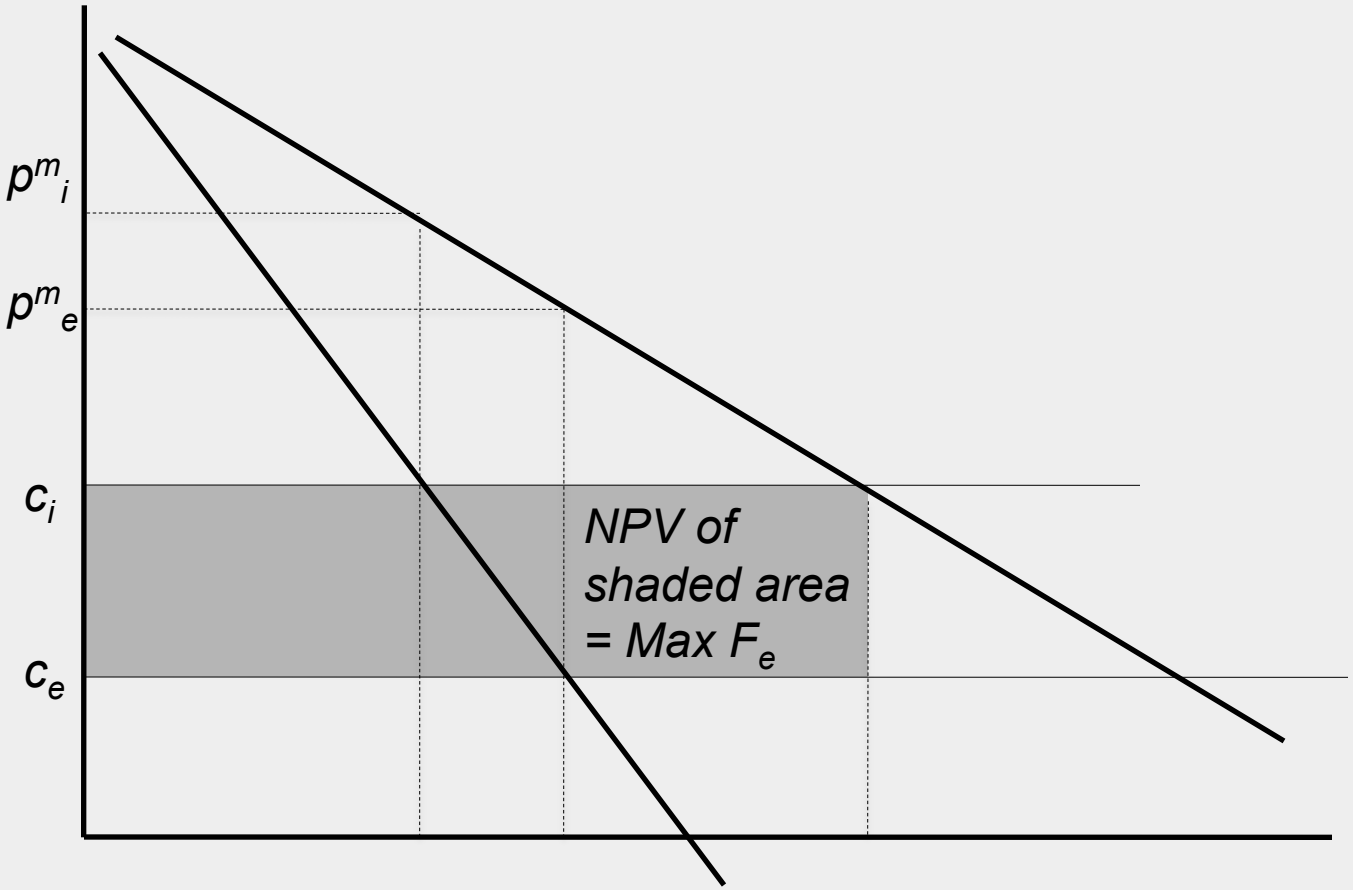
Baseline Model

- Further assumptions:
- Fixed costs are set so that entry in competitive industry is profitable
- Entrant's monopoly price is above the incumbents costs



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Baseline Model

- Structure of play:

- Infinite horizon, δ is the common, per-period discount rate, ($\delta > 1/2$)

- Each period, incumbent offers (p_i,w_i) retail and wholesale price
    - Define RPM as occurring when this leads to a price different from what unrestricted competition between retailers would generate.
    - Cannot differ across retailers or units
    - No commitment outside of period

- Entrant competes similarly if established in the market

- Entrant, before retail presence established can offer a lump sum payment *R* to retailer
    - This assumption makes exclusion hardest

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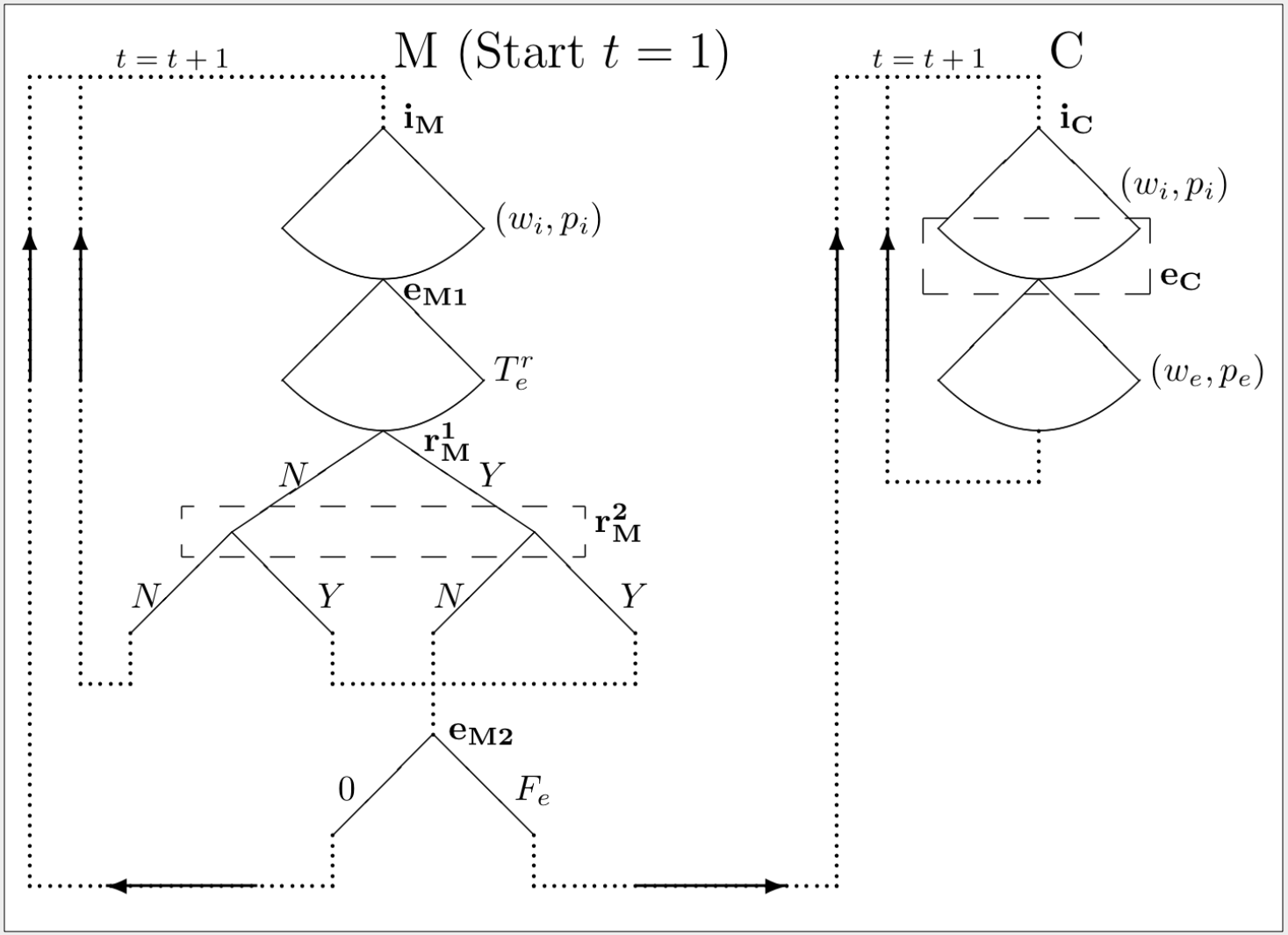
Baseline Model

- Structure of play:



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Analysis

- Equilibrium: Markov Perfect Nash Equilibrium

- Incumbent:
  - wholesale and retail prices in states M and C
- Entrant:
  - wholesale and retail prices in states M and C
  - lump sum transfer R and whether to incur fixed cost of entry in M
- Retailer j:
  - Yes or No to entrant's offer to stock

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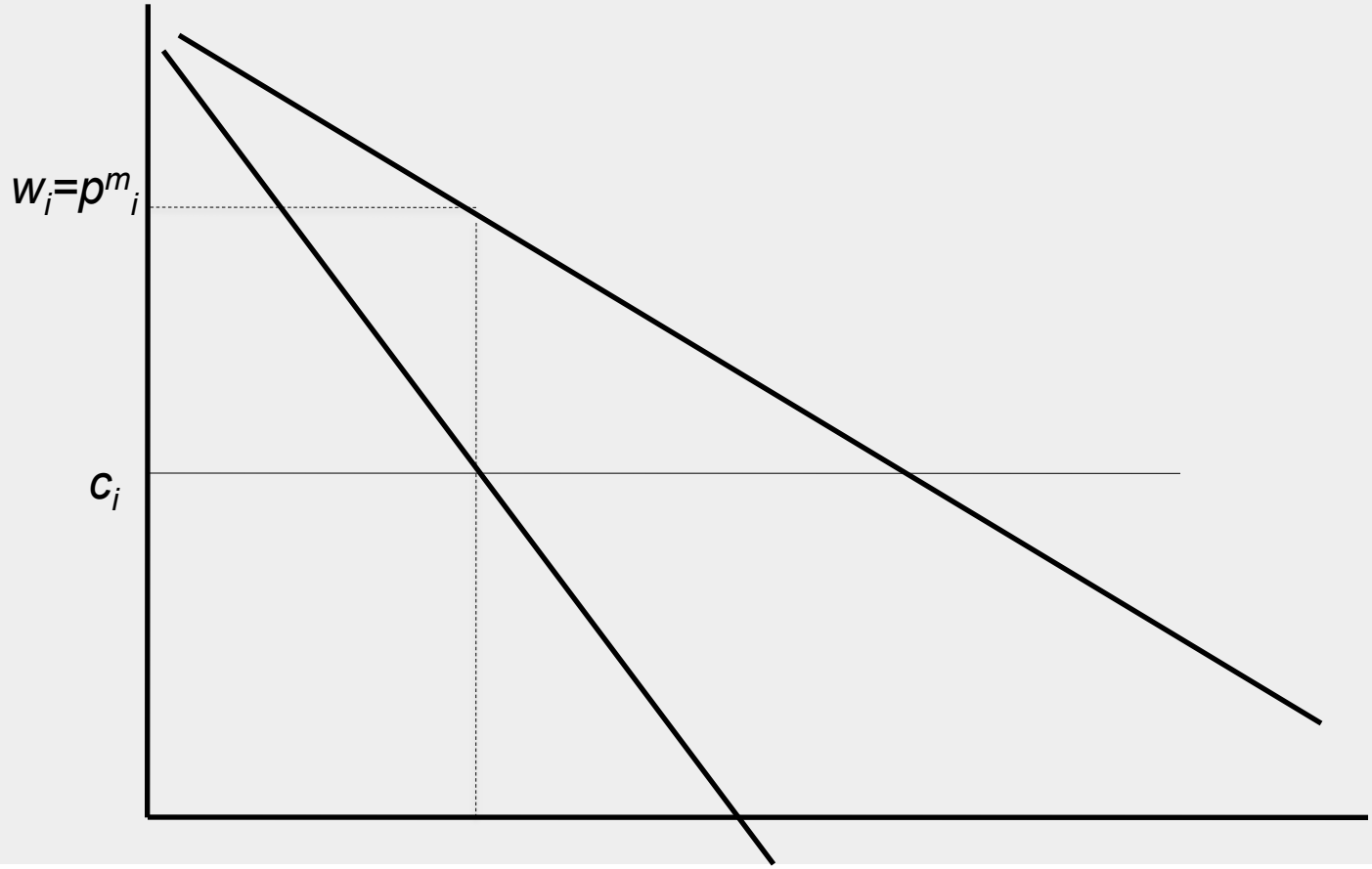
Baseline Model

- No Entrant benchmark

No Entrant

- Incumbent sets Wholesale price equal to monopoly
- Retailers compete away the retail margin
- No role for RPM



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Analysis:

- Objective of analysis:
  - Find exclusionary equilibria
  - Work out necessary and sufficient conditions for existence
  - Use this as a basis for working out how big a problem it could be

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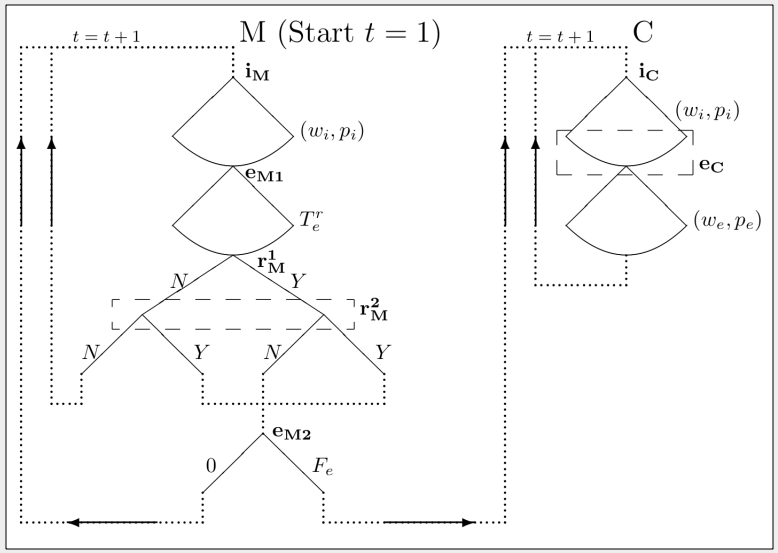
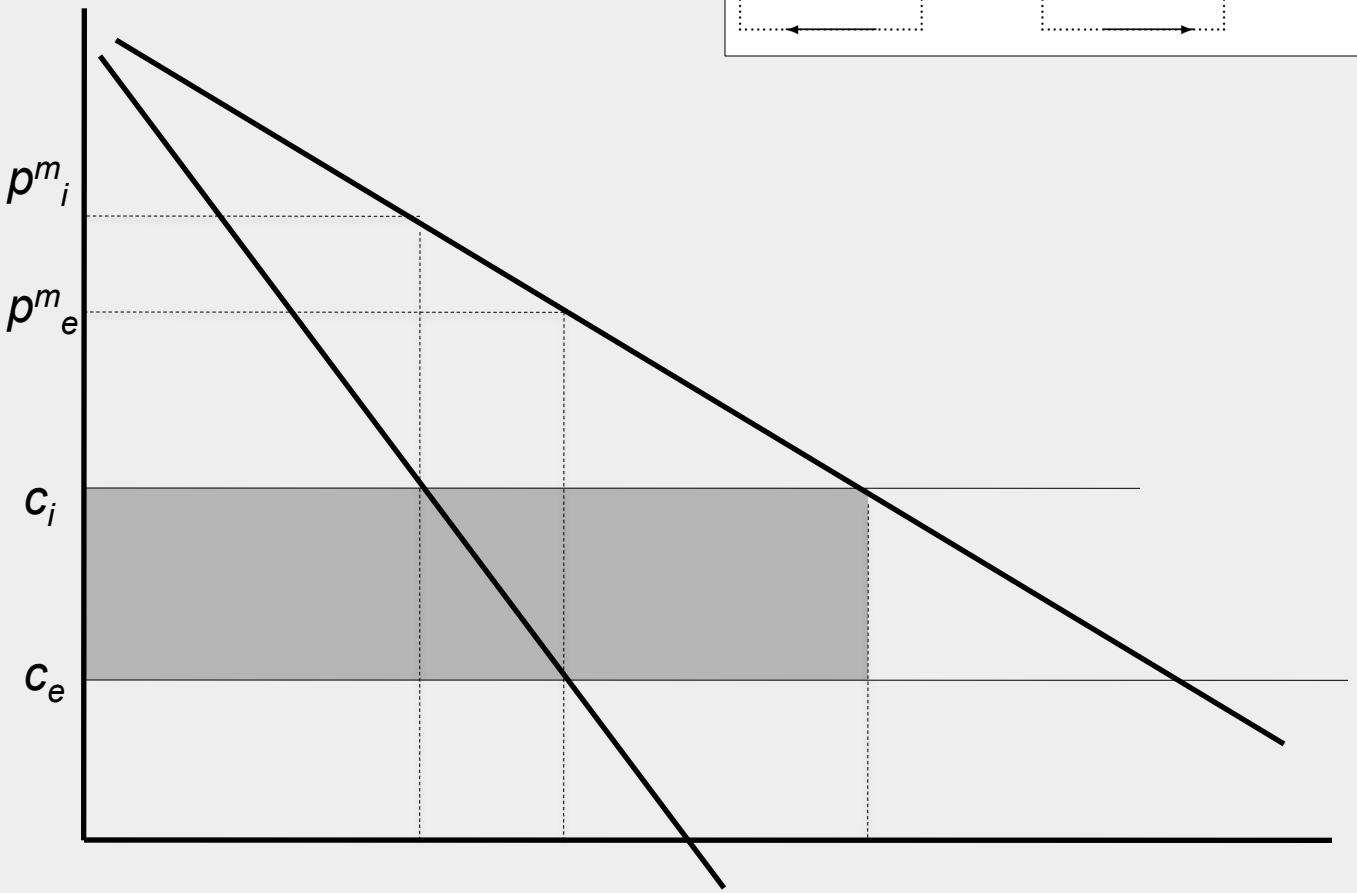
Analysis:

Post-Entry Play

(State “C”)

- Post-entry: wholesale prices and retail prices equal to incumbent marginal cost





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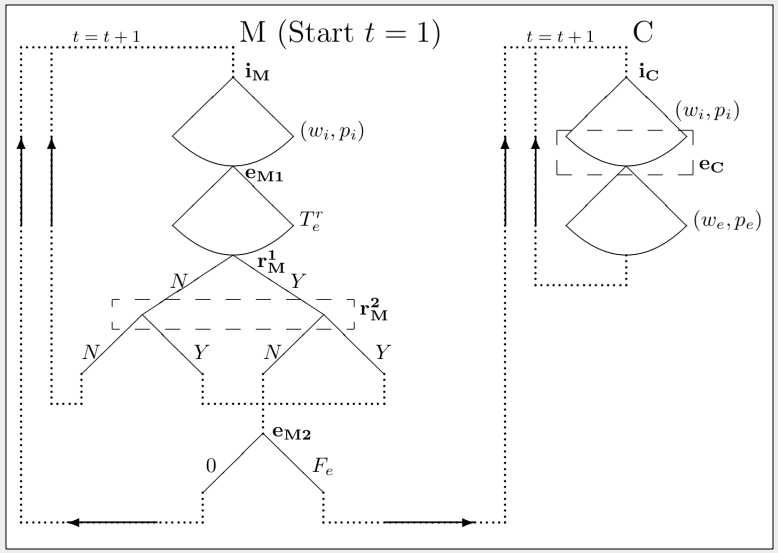
Analysis:

A no-exclusion equilibrium always exists

- A no-exclusion equilibrium exists always.

Proof:

- Post-entry: no retailer margin
- π(N,Y) = 0
    - no payoff and no margin post entry



	N	Y
N	$\pi(N,N)$ $\pi(N,N)$	$\pi(Y,N)$ $\pi(N,Y)$
Y	$\pi(N,Y)$ $\pi(Y,N)$	$\pi(Y,Y)$ $\pi(Y,Y)$

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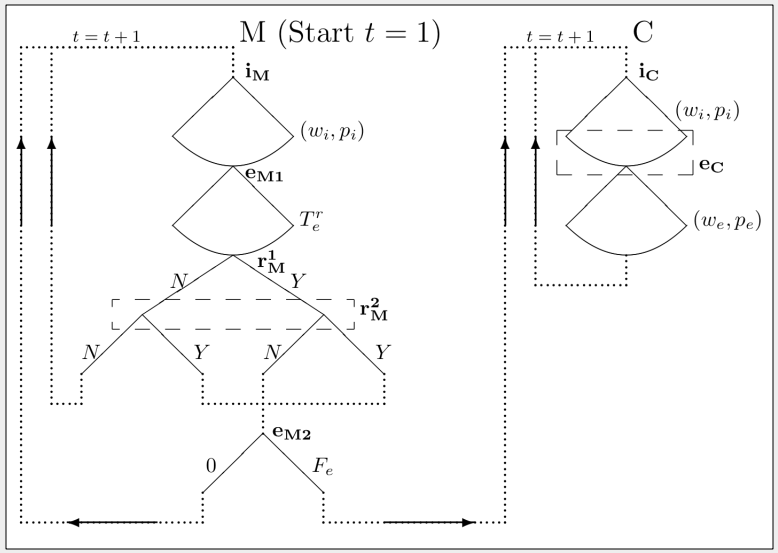
Analysis:

Exclusionary Equilibrium

- When is N,N also an equilibrium?



	N	Y
N	$\pi(N,N)$ $\pi(N,N)$	$\pi(Y,N)$ $\pi(N,Y)$
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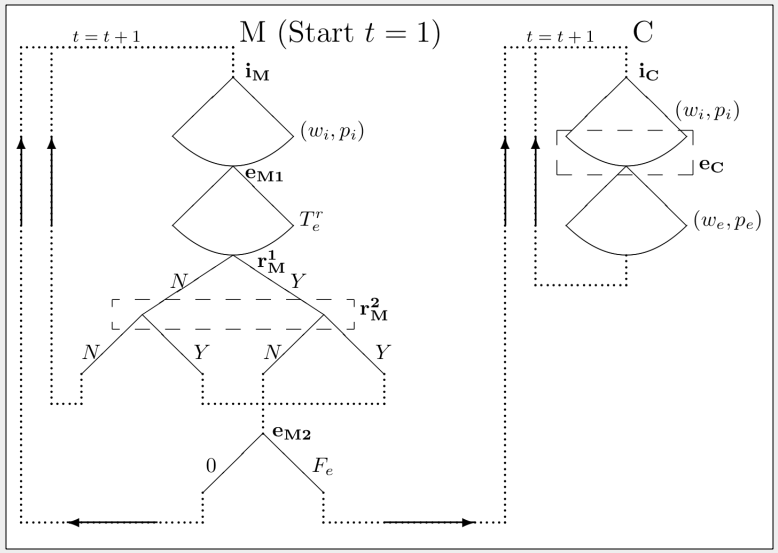
Analysis:

Exclusionary Equilibrium

- When is N,N also an equilibrium?
- Need: π(N,N) > π(Y,N)
- Look at maximal π(Y,N) entrant can generate; then
- Look at maximal π(N,N) incumbent can generate.



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Analysis:

Exclusionary Equilibrium

	N	Y
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Y	$\pi(N,Y)$ $\pi(Y,N)$	$\pi(Y,Y)$ $\pi(Y,Y)$

- When is N,N also an equilibrium?
- Need: $\pi(N,N) > \pi(Y,N)$
- Look at maximal $\pi(Y,N)$ entrant can generate; then
- Look at maximal $\pi(N,N)$ incumbent can generate.

Maximal $\pi(Y,N)$:

$$\underbrace{[\delta/(1-\delta)]\,(c_i-c_e)q(c_i)}_{\text{post entry bertrand}} \quad - \quad F_e$$

Price when undercut = $\min(\, p_i \,,\, p^m_e \,)$

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Analysis:

Exclusionary Equilibrium

	N	Y
N	$\pi(N,N)$ $\pi(N,N)$	$\pi(Y,N)$ $\pi(N,Y)$
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- Need: $\pi(N,N) > \pi(Y,N)$
- Look at maximal $\pi(Y,N)$ entrant can generate; then
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Maximal $\pi(N,N)$:

$$[1/(1-\delta)]\ [1/N]\ (p_i-c_i)q(p)$$

- Set $w_i = c_i$
- What to set p_i ?

$$[1/(1-\delta)]\ [1/N]\ (p_i-c_i)q(p)\ -\ [\ [\delta/(1-\delta)]\ (c_i-c_e)q(c_i)\ -\ F_e\ ]$$

- Solution: $p_i = p^m_i$

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Analysis:

Exclusionary Equilibrium

Central Result

- When is N,N also an equilibrium?
- Need: $\pi(N,N) > \pi(Y,N)$

	N	Y
N	$\pi(N,N)$ $\pi(N,N)$	$\pi(Y,N)$ $\pi(N,Y)$
Y	$\pi(N,Y)$ $\pi(Y,N)$	$\pi(Y,Y)$ $\pi(Y,Y)$

An exclusionary equilibrium exists if and only if

$$\underbrace{[1/(1-\delta)]\,[1/N]\,(p^m_i - c_i)q(p^m_i)}_{\text{Use RPM to share profits}} \geq \underbrace{[\delta/(1-\delta)]\,(c_i - c_e)q(c_i)}_{\text{Bertrand post-entry}} - F_e$$

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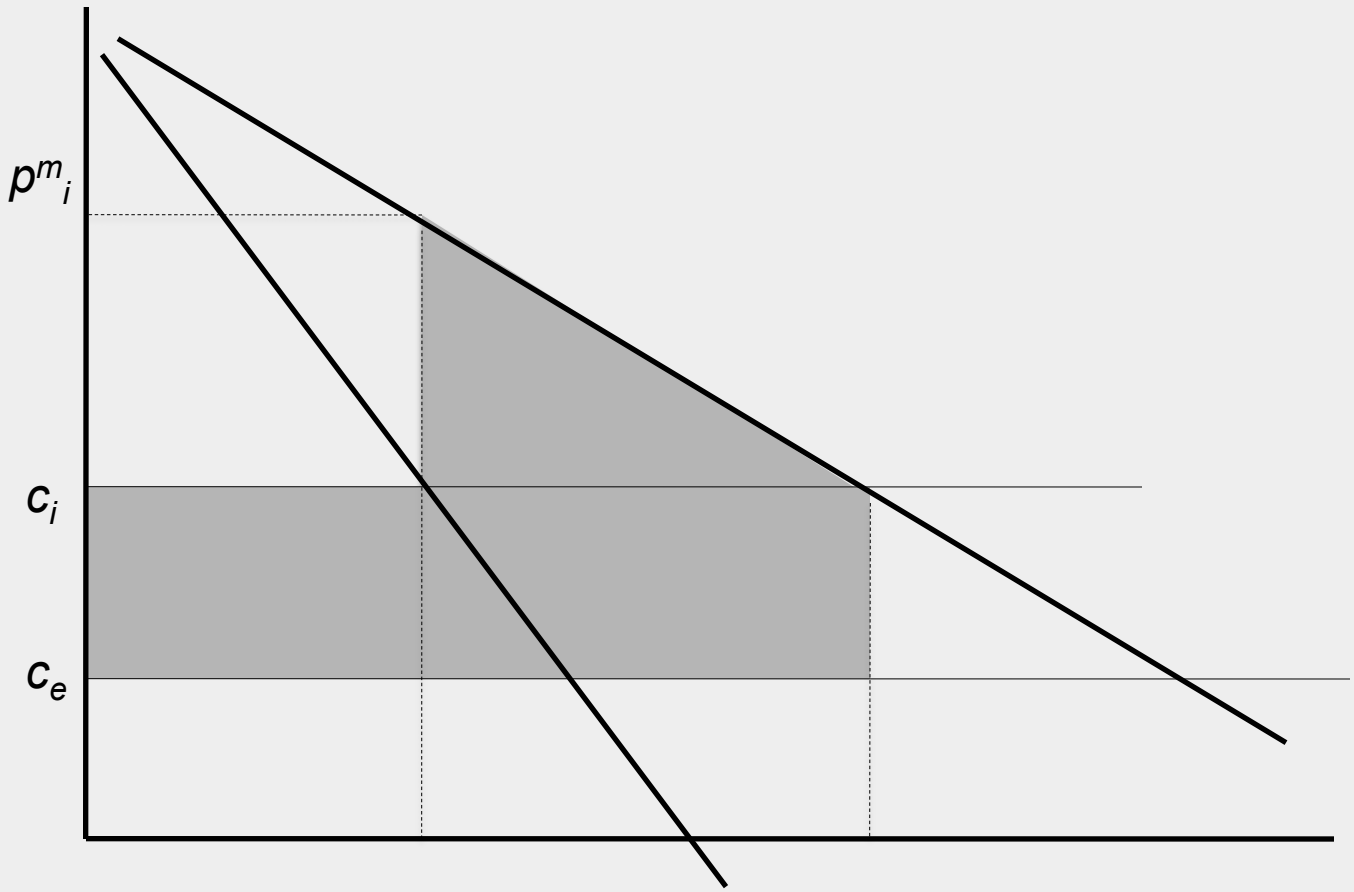
Analysis:

- Consumer surplus
- Producer surplus (less amortized fixed costs)

Exclusionary Equilibrium

Welfare Loss



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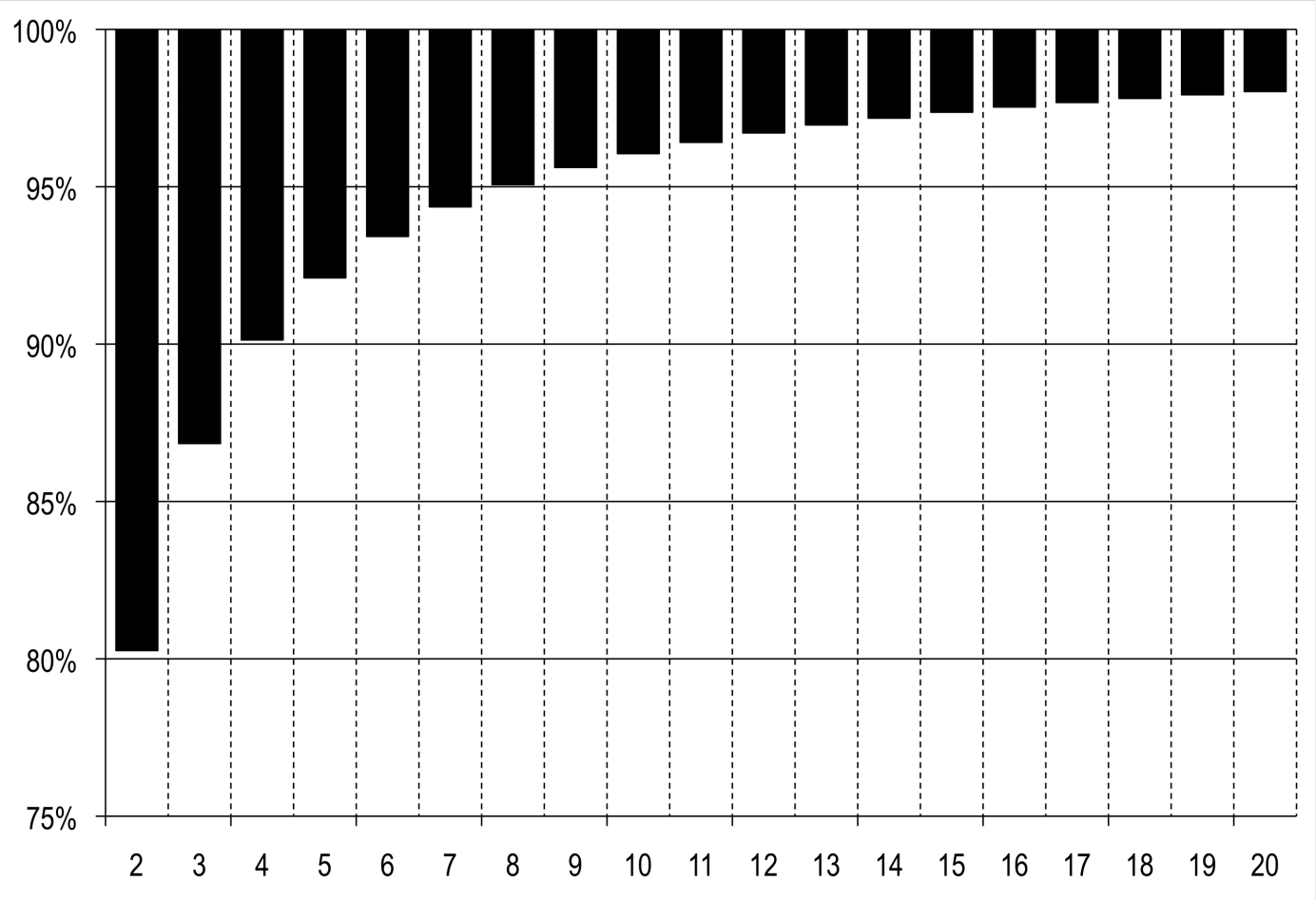
Analysis:

Range of Exclusion

By number of retailers in the market



Demand: q = 10 – p, Incumbent's MC = 4, δ = 0.95

Vertical axis is range of entrant's MC that can be excluded, as a % of incumbent's MC

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Extensions:

Three Extensions:

- Generalize to other vertical practices
- Differentiation
- Relax the MPNE assumption:
    - Why can't the entrant exclude the incumbent after entry? Wouldn't retailers agree to this?
    - Allow for collusion among: i) manufacturers; and ii) retailers

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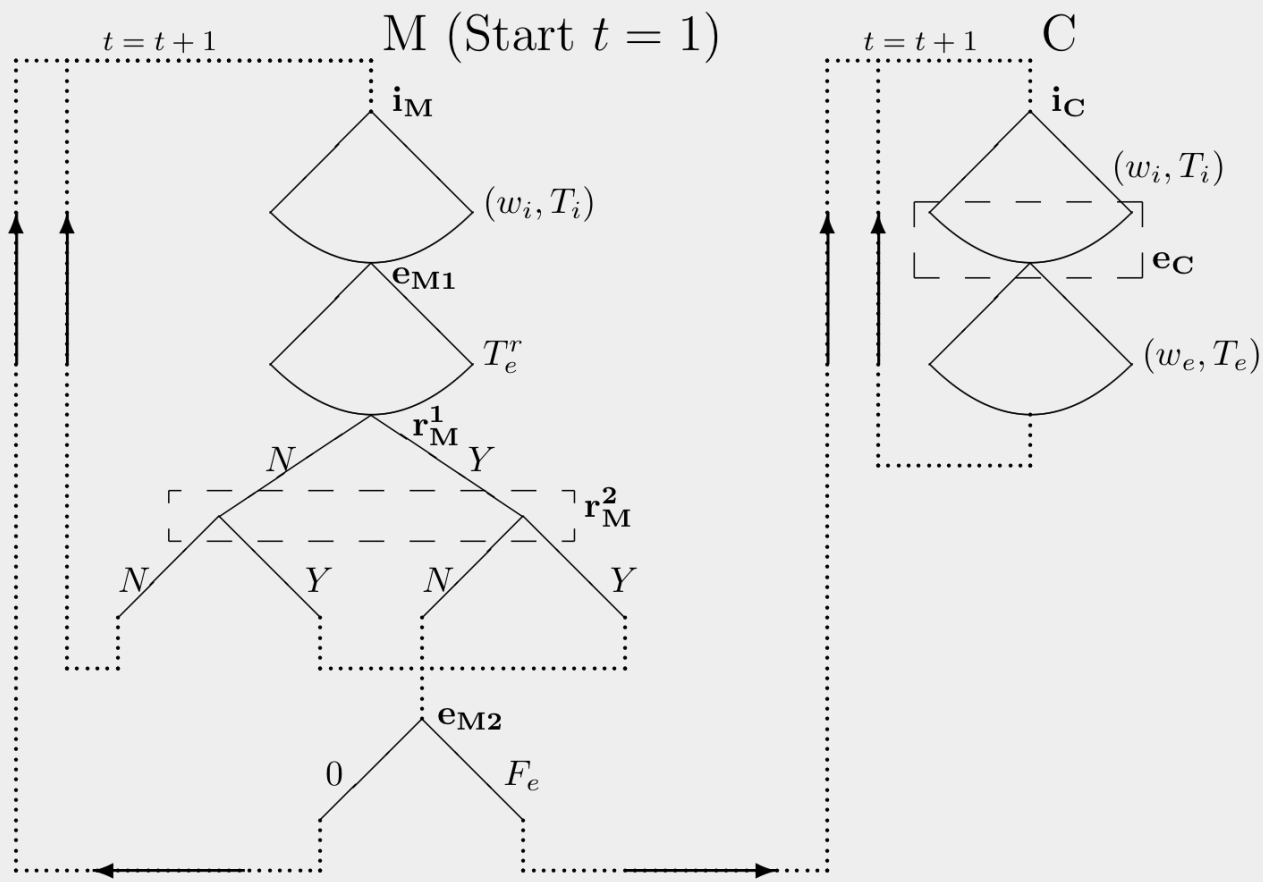
Extensions:

Generalization:

Loyalty discounts and differentiation



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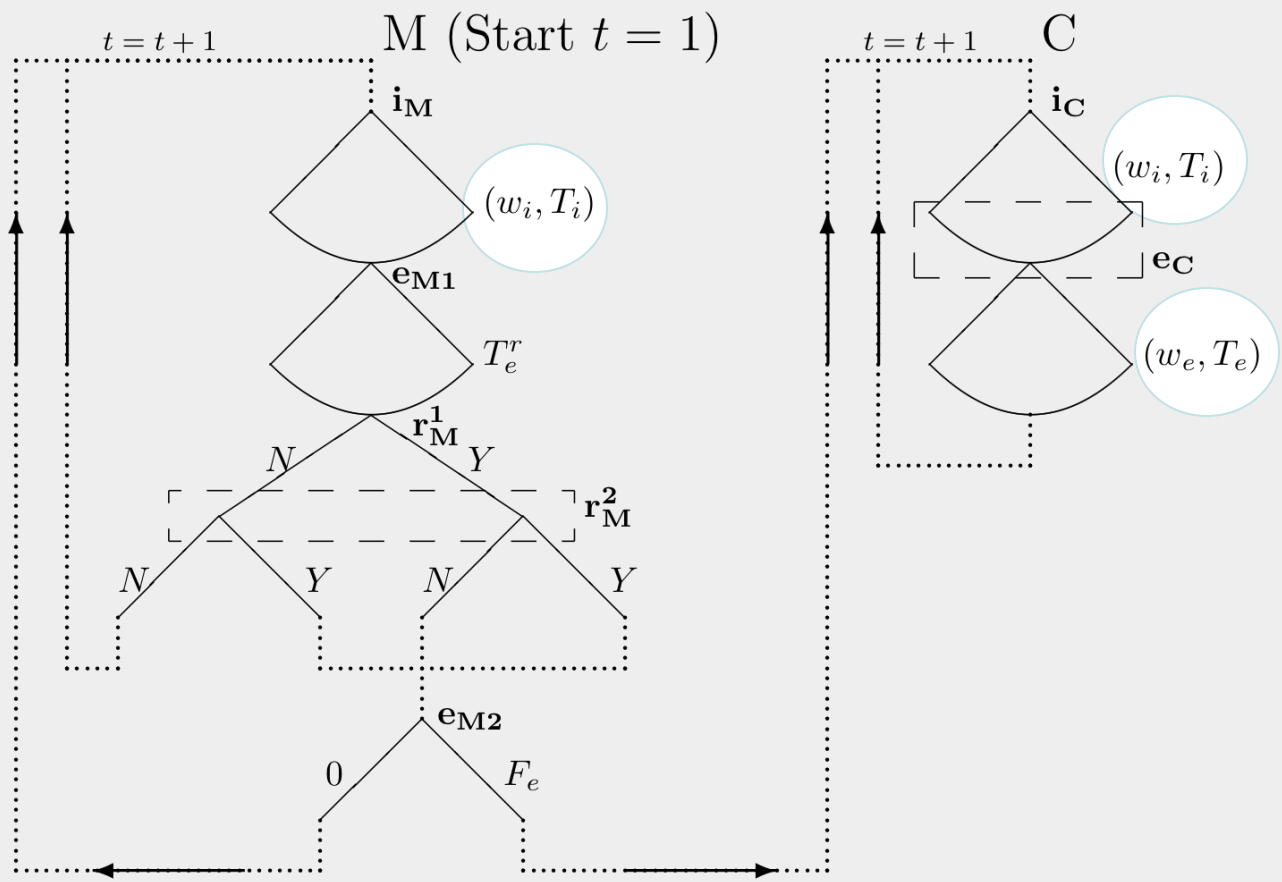

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Extensions:

Generalization:

Loyalty discounts and differentiation

To show:

- No incentive to offer the loyalty payments in the post-entry game

- Transfers induce exclusion:

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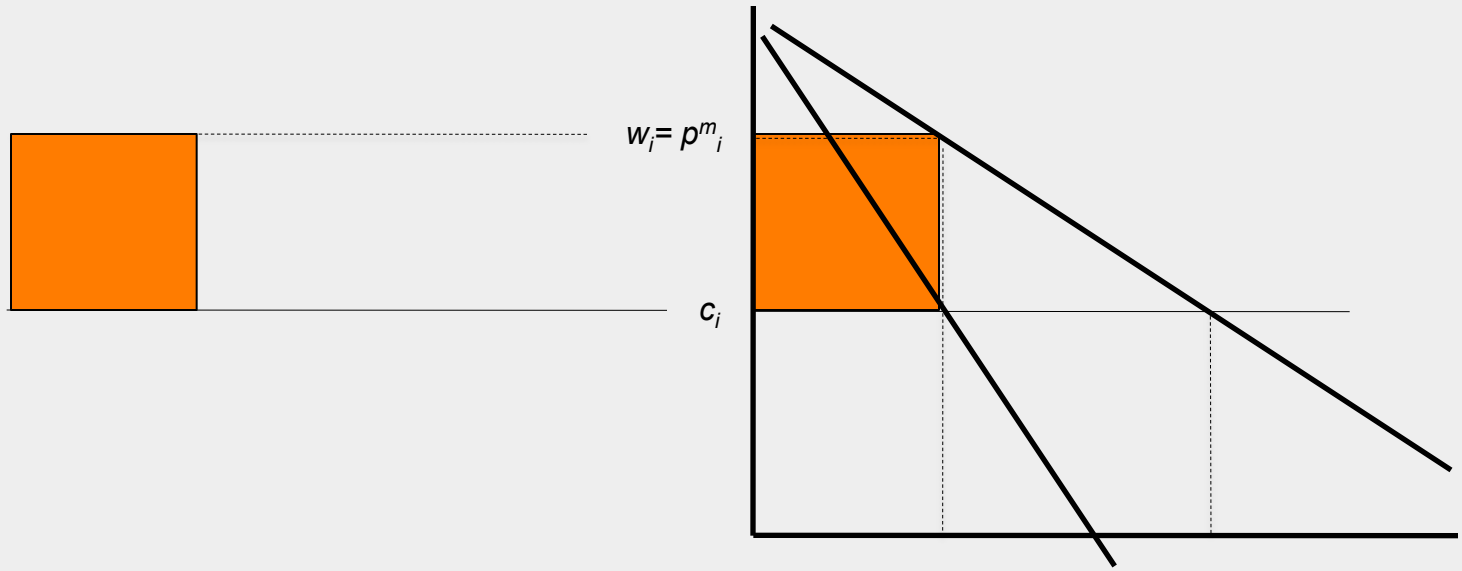
Extensions:

Generalization:

Loyalty discounts and differentiation

- Transfers induce exclusion:



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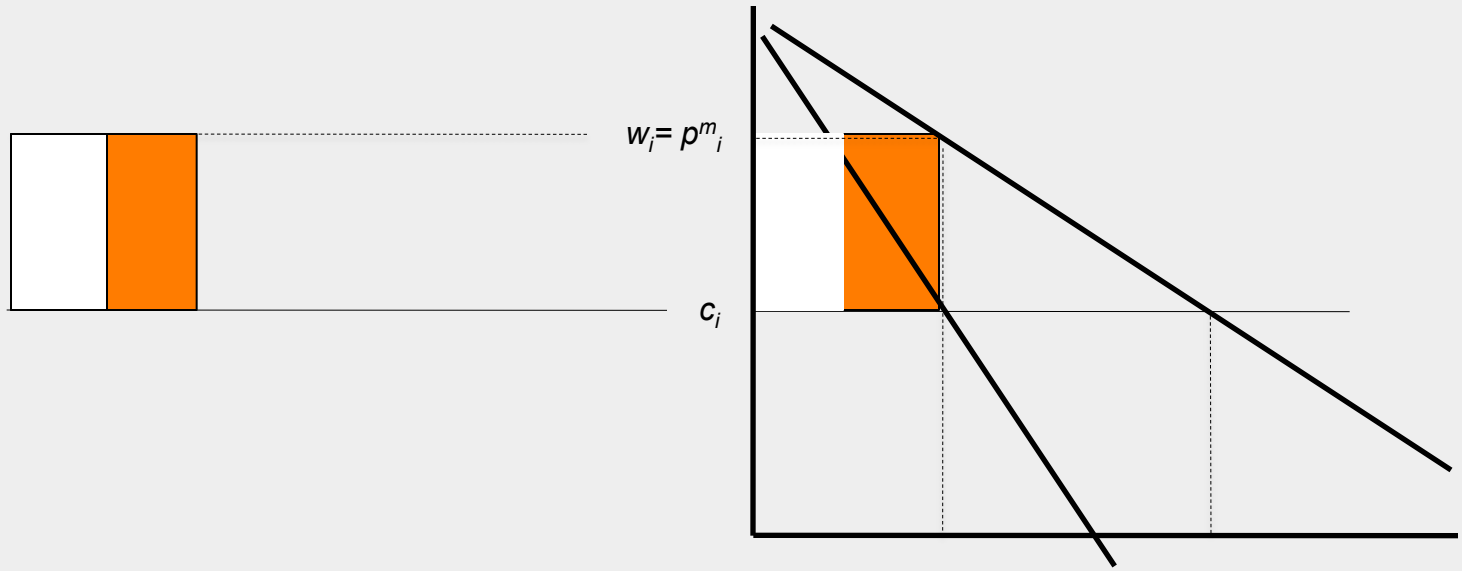

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Extensions:

Generalization:

Loyalty discounts and differentiation

- Transfers induce exclusion:

  - Accounting:

= Max incumbent can transfer to a retailer in a period

What happens once the incumbent responds to entry?

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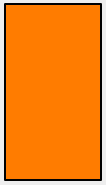
Extensions:

Generalization:

Loyalty discounts and differentiation

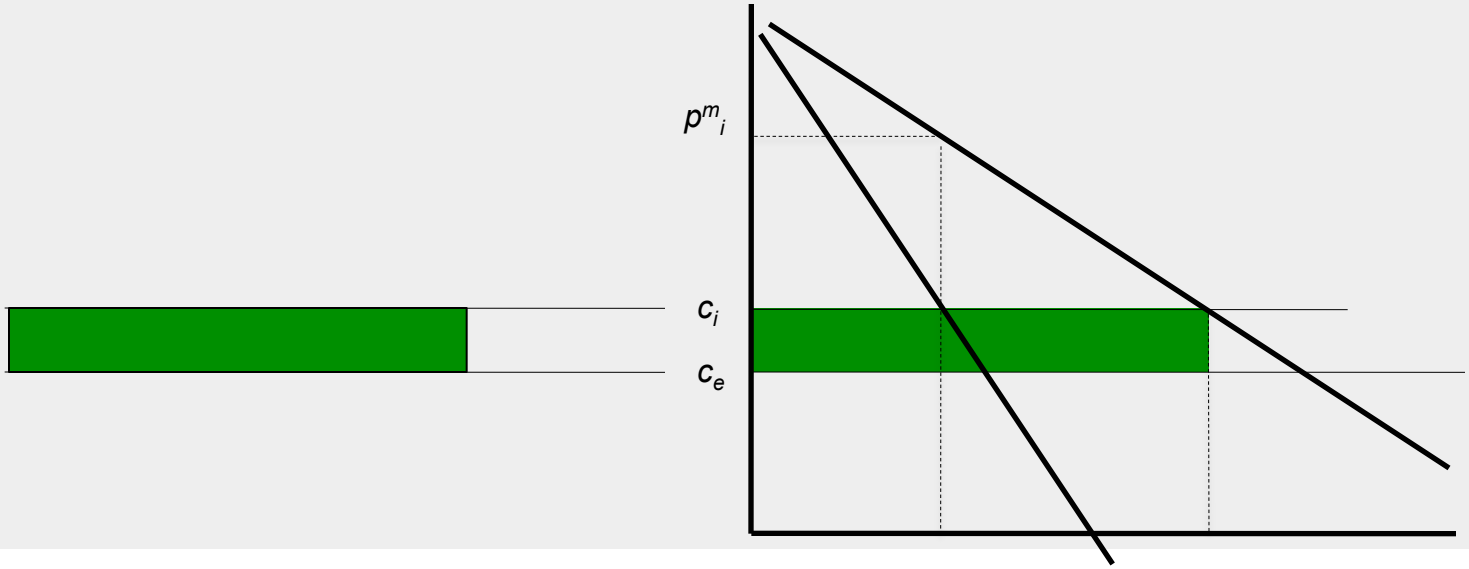
- Transfers induce exclusion:

• Accounting:



= Max incumbent can transfer to a retailer in a period

What happens once the incumbent responds to entry?



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Extensions:

Generalization:

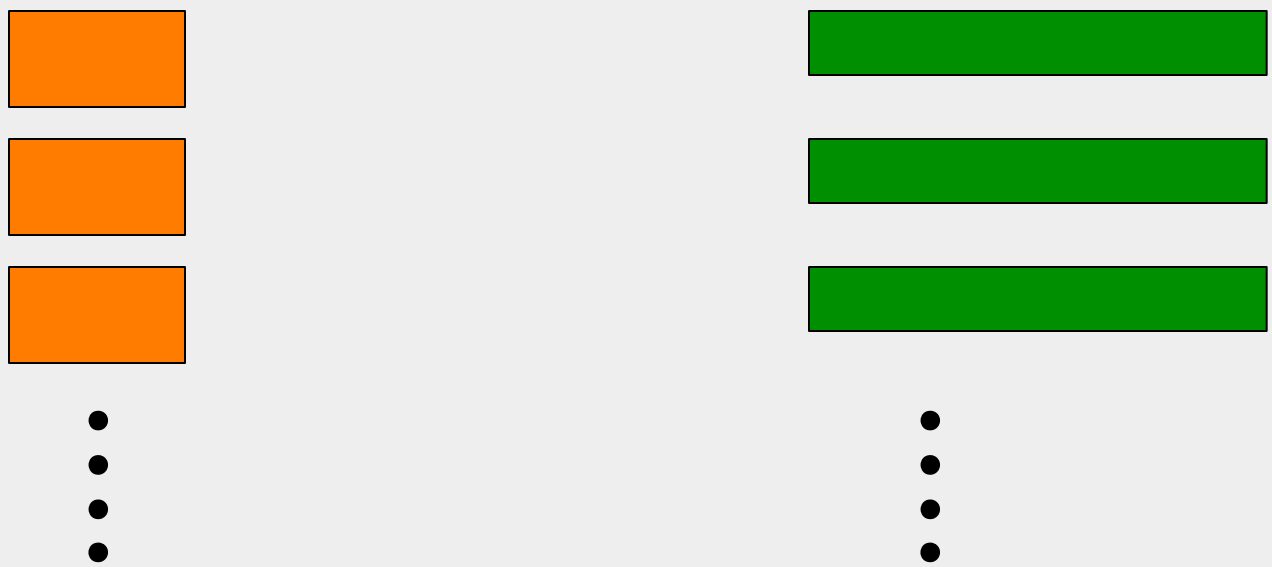
Loyalty discounts and differentiation

- Transfers induce exclusion:

• Accounting: Adding up what a retailer can get if retailer's action is…

Do not accommodate, given no other retailer accommodates

Accommodate, given no other retailer accommodates



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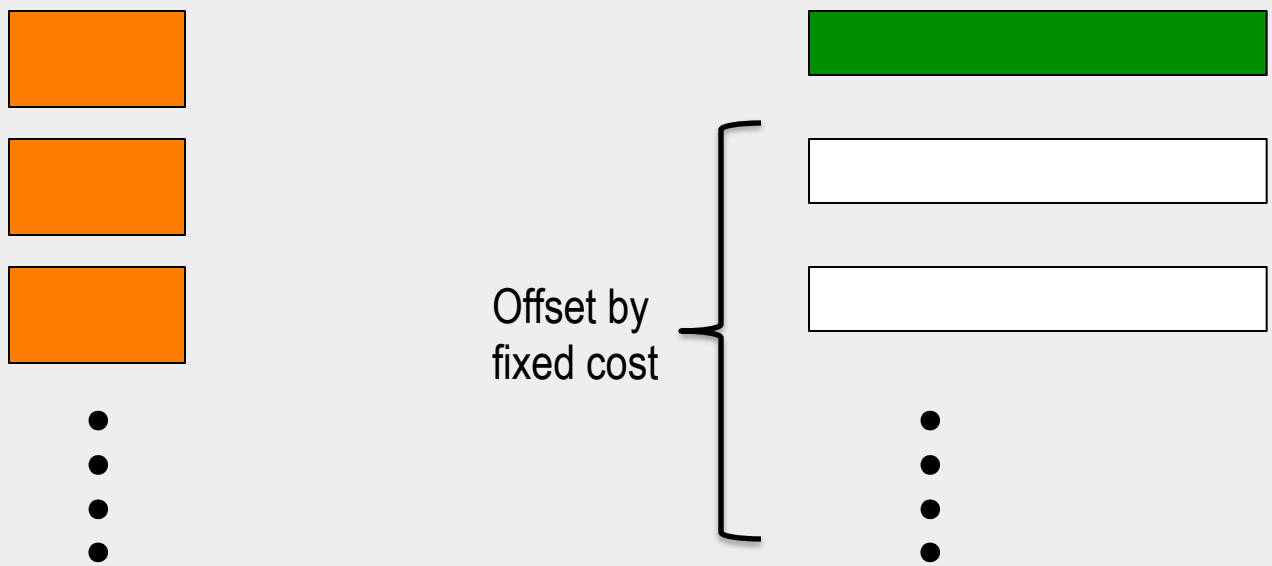

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Extensions:

The point being that the details of the institutions change but the economics is unchanged:

Generalization:

Formalism yields:

Loyalty discounts and differentiation

Proposition 1 *An exclusionary equilibrium (one in which the entrant does not enter) exists if and only if*

$$\frac{\pi_i^M - \pi_i^C}{n(1-\delta)} \geq \frac{\pi_e^C}{1-\delta} - F_e \tag{1}$$

(Note the differentiation implicit in this expression…)

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Extensions:

We show that product differentiation (at either retail or manufacturer level) can make exclusion easier (over some range)

Product Differentiation

Idea:

Hotelling line – manufacturers differentiated

(RPM Case)

An exclusionary equilibrium exists if and only if

$$\underbrace{\text{Use RPM to share profits}}_{\text{(Independent of Diff)}} \geq \underbrace{\text{Bertrand post-entry}}_{\text{Goes either way}} - F_e$$

Balance of:
- Softening competition
- Business stealing.

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Law, policy and screens

Three Points:

- Underlying structure that can link different fact patterns and vertical practices: as far as exclusion is concerned

- Direction on screens

- Framework for rule of reason analysis / damage assessment

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Law, policy and screens

Common framework:

Leegin

"The manufacturer has a number of legitimate options to achieve benefits similar to those provided by vertical price restraints. A manufacturer can exercise its Colgate right…

…A manufacturer can impose territorial restrictions on distributors and allow only one distributor to sell its goods in a given region. Our cases have recognized, and the economics literature con- firms, that these vertical nonprice restraints have impacts similar to those of vertical price restraints;…

…There is like- wise little economic justification for the current differential treatment of vertical price and nonprice restraints."

- This paper illustrates a common framework as applied to exclusionary outcomes.

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Law, policy and screens

Leegin: screens

"The source of the restraint may also be an important consideration.

*If there is evidence retailers were the impetus [*898] for a vertical price restraint, there is a greater likelihood that the restraint facilitates a retailer cartel or supports a dominant, inefficient retailer. See Brief for William S. Comanor et al. as Amici Curiae 7-8.*

If, by contrast, a manufacturer adopted the policy independent of retailer pressure, the restraint is less likely to promote anticompetitive conduct…

…<u>It makes all the difference whether minimum retail prices are imposed by the manufactures in order to evoke point-of-sale services or by the dealers in order to obtain monopoly profits.</u>"

(*Leegin* at 897-898, underlined part citing Posner, 2001, at 177)"

In our framework, exclusion works to advantage of both retailers and incumbent. Further, anecdotal evidence suggests may be initiated by either.

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Law, policy and screens

- Is the accommodation of a retailer important?
    - free-entry at retailer level or ability to by-pass retailers at reasonable cost negates the claim

Revised screens

- Is there market power on part of incumbent?
    - *Leegin* also makes this point.

- Does competition reduces industry rents?
    - need to think about exit of the incumbent, and post entry equilibrium

- Are retailer's quasi-rents eroded by competition?
    -Corollary: does adding an extra-retailer make exclusion harder?

- Need to be careful when considering whether differentiation.

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Law, policy and screens

Rule of reason and damages

Sylvania: “Under [the rule of reason], the factfinder weighs all of the circumstances of a case in deciding whether a restrictive practice should be prohibited as imposing an unreasonable restraint on competition”

- Need to organize the facts. So models are useful.

- To reconcile pro-competitive and anti-competitive elements need a model.

- “I do not understand how, in the absence of free-riding (and assuming competitiveness), an established producer would need resale price maintenance.” Justice Breyer in *Leegin* (dissent).

- Consider sugar: even if it is implausible to consider service, need a framework for assessing damages…

    - Demand
    - View of post-entry competition
    - Measures of costs

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Conclusion

Minimum resale price maintenance can be a way to force retailers to internalize the effects of upstream entry on industry profits. If retailers let an entrant in, the profits in which they share (via RPM) get dissipated away.

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Conclusion

Thanks

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Extensions:

Why can't the entrant exclude the incumbent after entry? Wouldn't retailers agree to this?

Entrant excludes incumbent

This involves changing the equilibrium concept away from Markov Perfect Nash.

- Even with this extension, exclusion may occur…

- use the general formulation:

- the entrant's will need, for exclusion:

$$\pi_e^M - nT_e = \pi_e^M - n\pi_i^C \geq \pi_e^C$$

Proposition 1 *Suppose that $\pi_e^M - n\pi_i^C \geq \pi_e^C$. Then an exclusionary equilibrium (one in which the entrant does not enter) exists if and only if*

$$\frac{\pi_i^M - \pi_i^C}{n(1-\delta)} \geq \frac{\pi_e^M - n\pi_i^C}{1-\delta} + \frac{\pi_i^C}{1-\delta} - F_e \tag{3}$$

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Extensions:

Comparison with collusion

Manufacturer Cartel

Collusion:

- Useful to think about when exclusion is likely relative to other conduct we might care about.
- First consider accommodation, entry and collusion among manufacturers
- At technical level relaxing MPNE
- Want to consider collusion without transfers – otherwise entrant just buys the incumbent…
- Consider a market division scheme (same set-up as Harrington 91)

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Comparison with collusion

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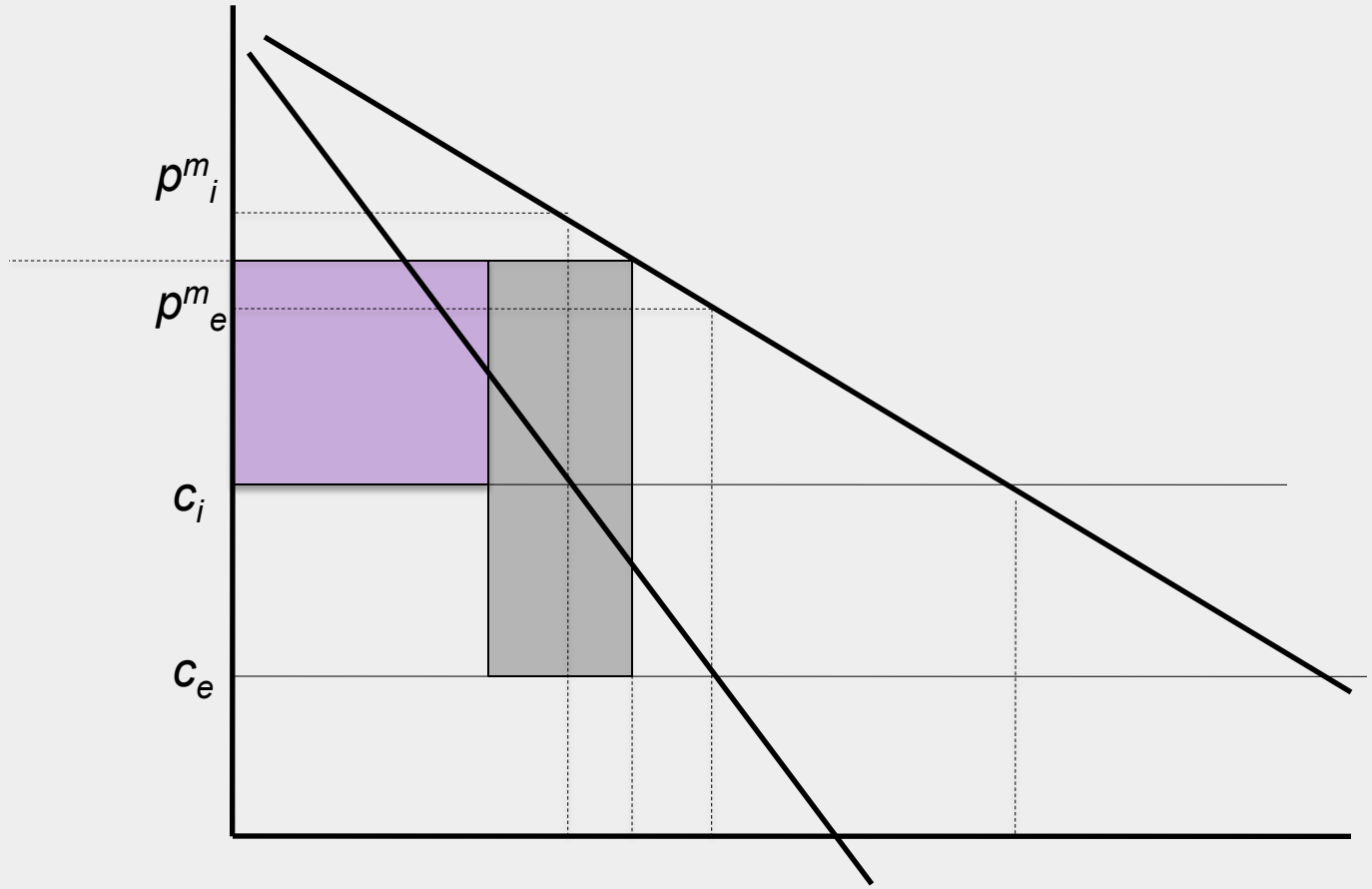
Collusion via market division following entry:

Look for the incumbent optimal scheme sustainable via a grim-trigger strategy.

Derive a bound



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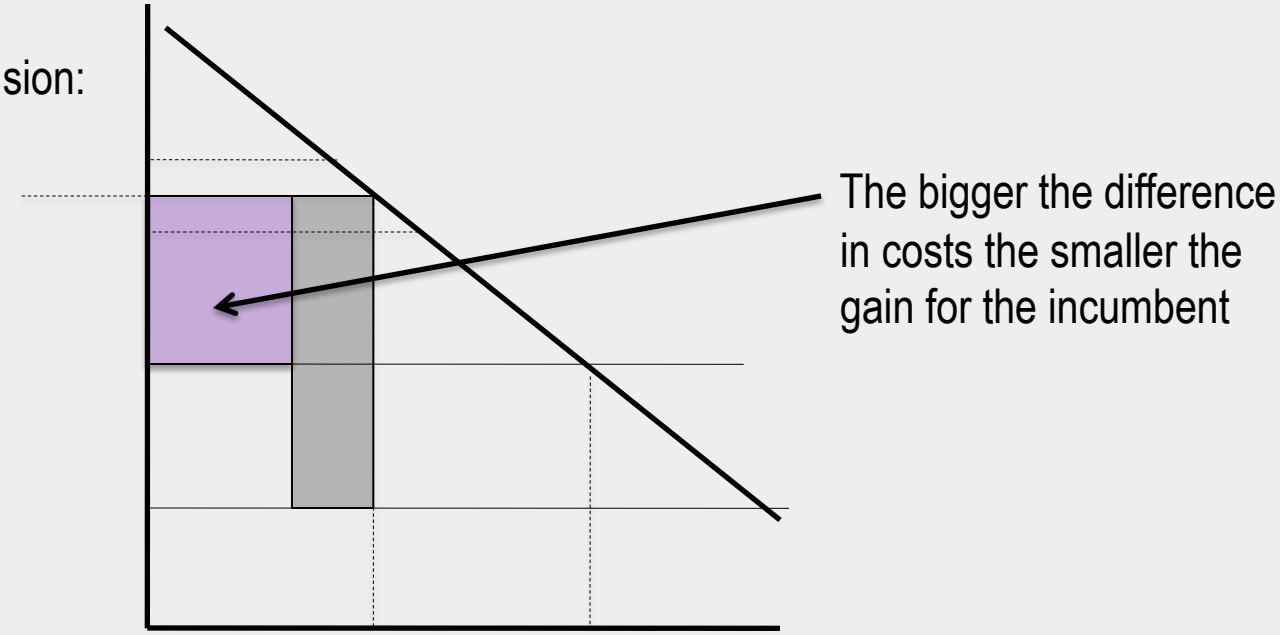
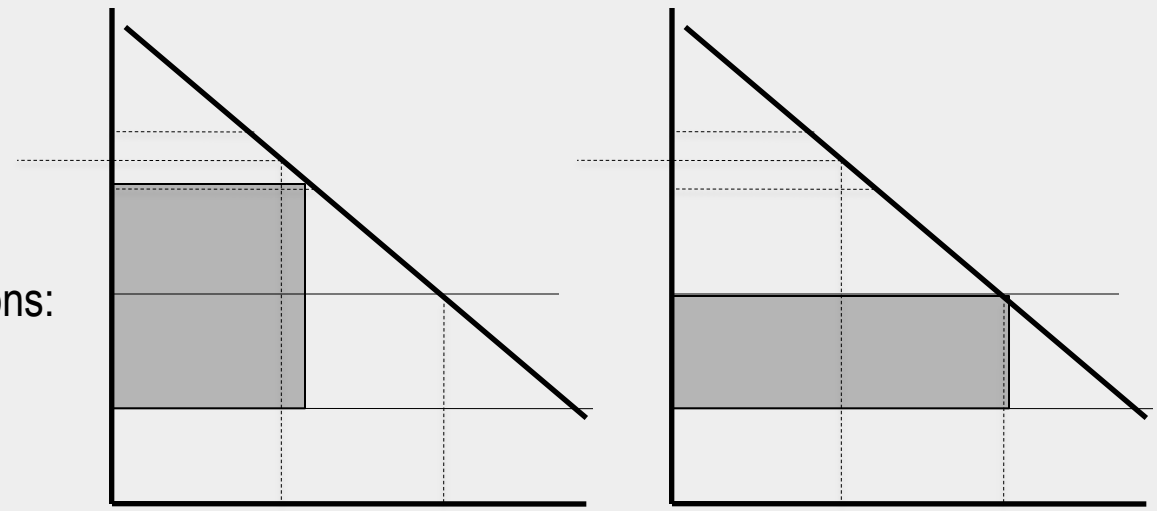


Deviations:



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Extensions:

Comparison with collusion

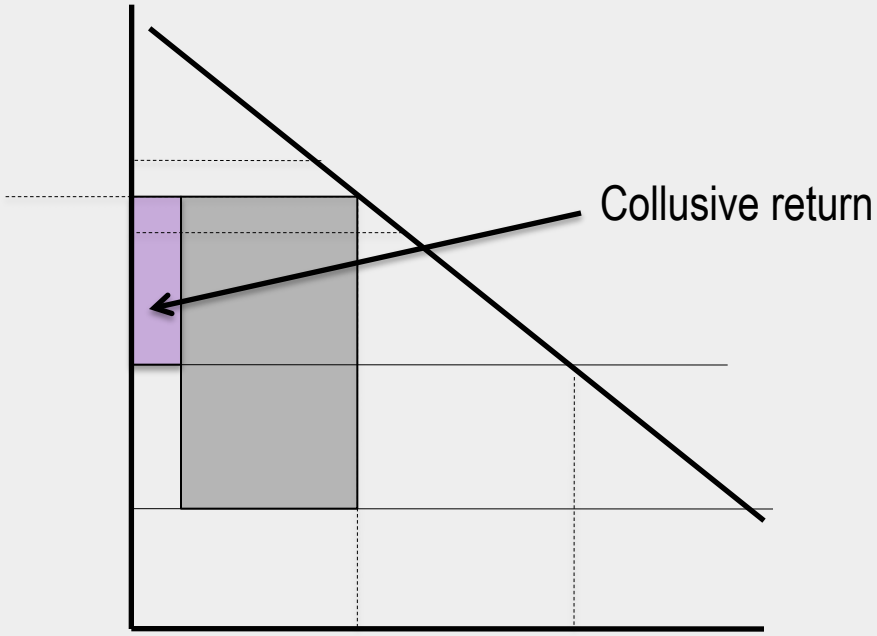
Manufacturer Cartel

Collusion:

• Useful to think about when exclusion is likely relative to other conduct we might care about.

• Answer:

• Relative to a market division scheme, exclusion is most preferred when fixed costs of entry are high, and differences in marginal costs are big.



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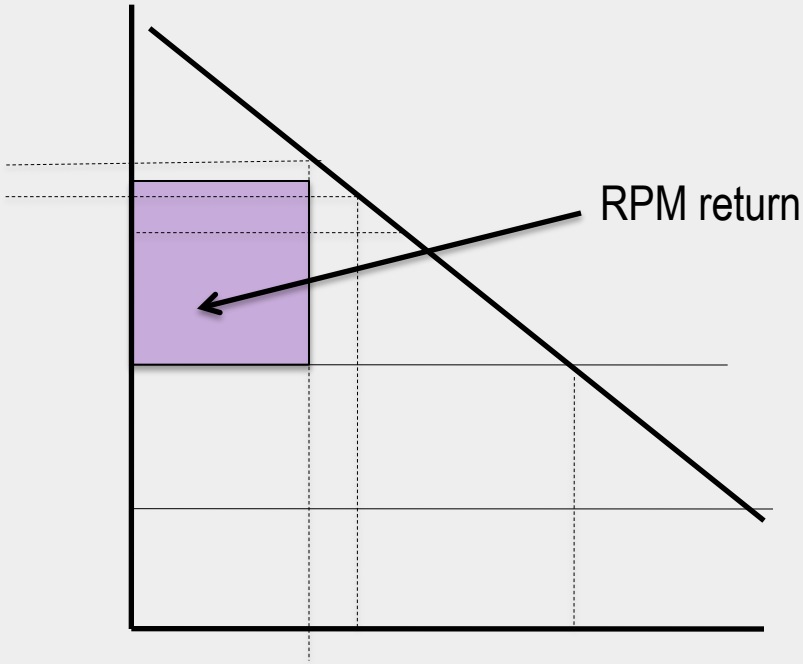

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Extensions:

Comparison with collusion

Retailer Cartel

Collusion:

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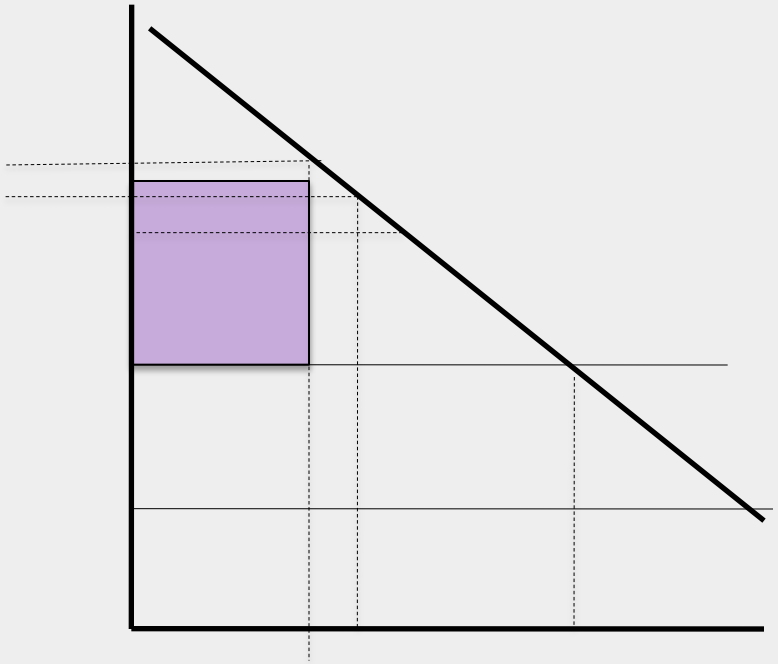
• Answer:

• Relative to a market division scheme, exclusion is most preferred fixed costs of entry are high, and differences in marginal costs are big.



• Note that as the number of entrants increase the attractiveness of exclusion would increase.

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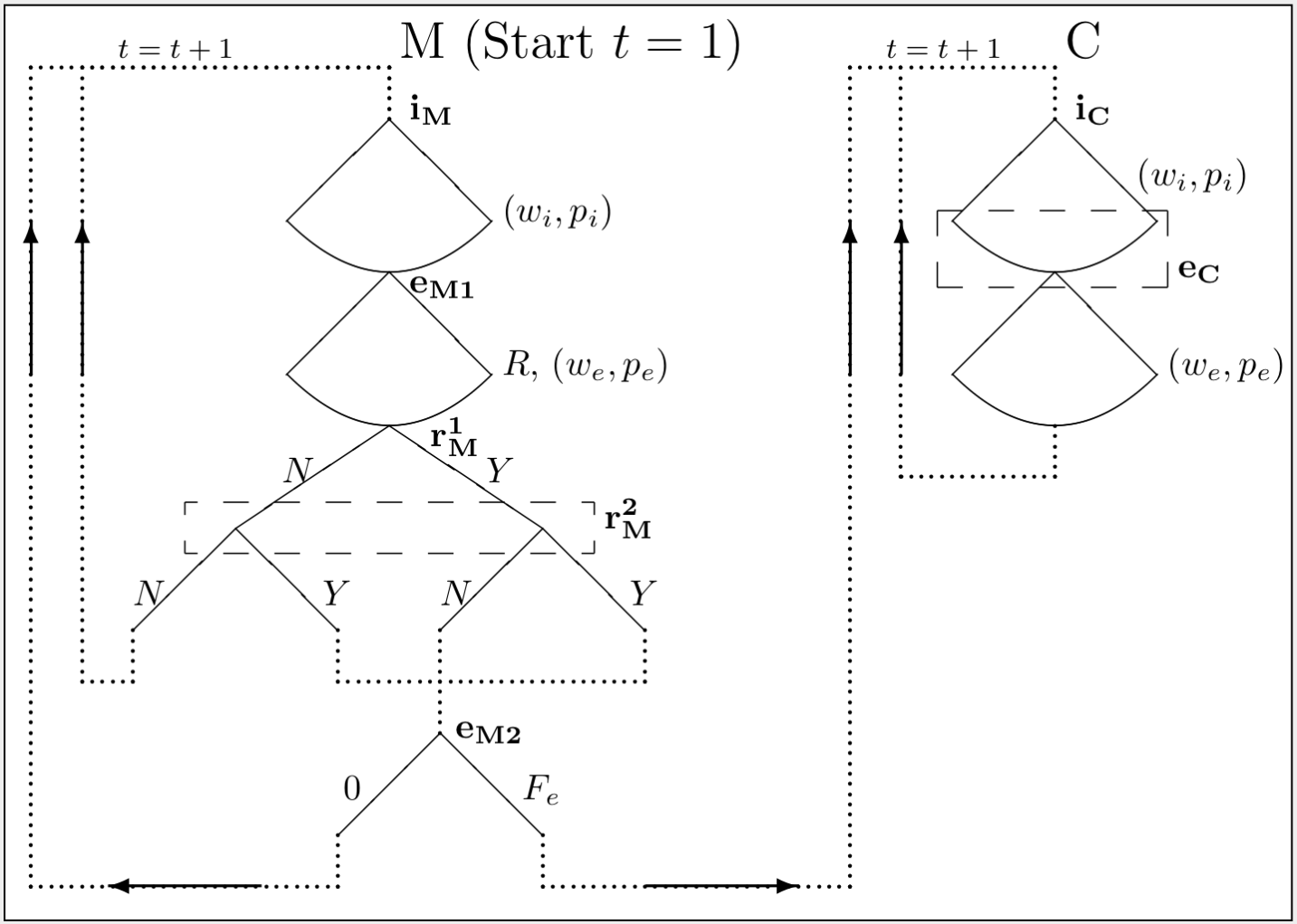
Baseline Model

• Structure of play:



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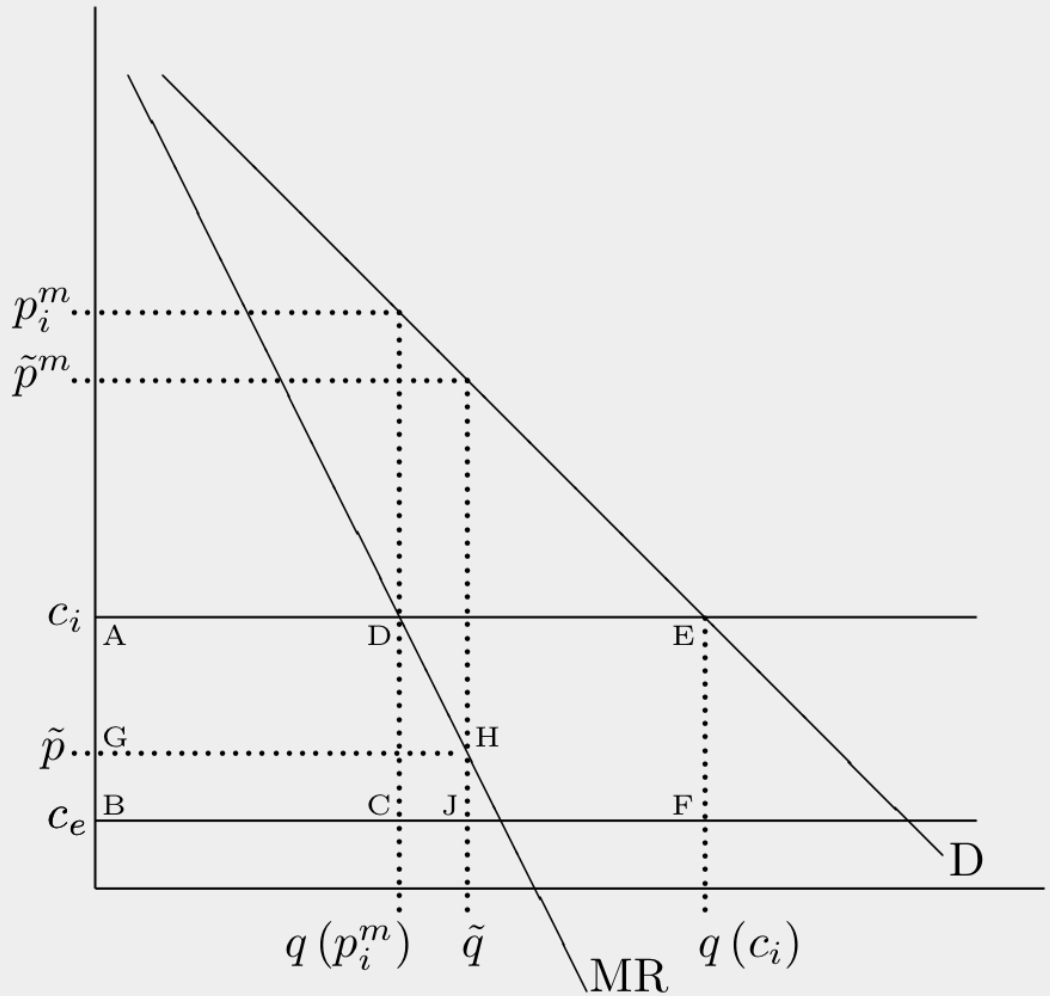
Comparison with collusion

Retailer Cartel

Collusion:

- Now want to think about the effects of a cartel among retailers



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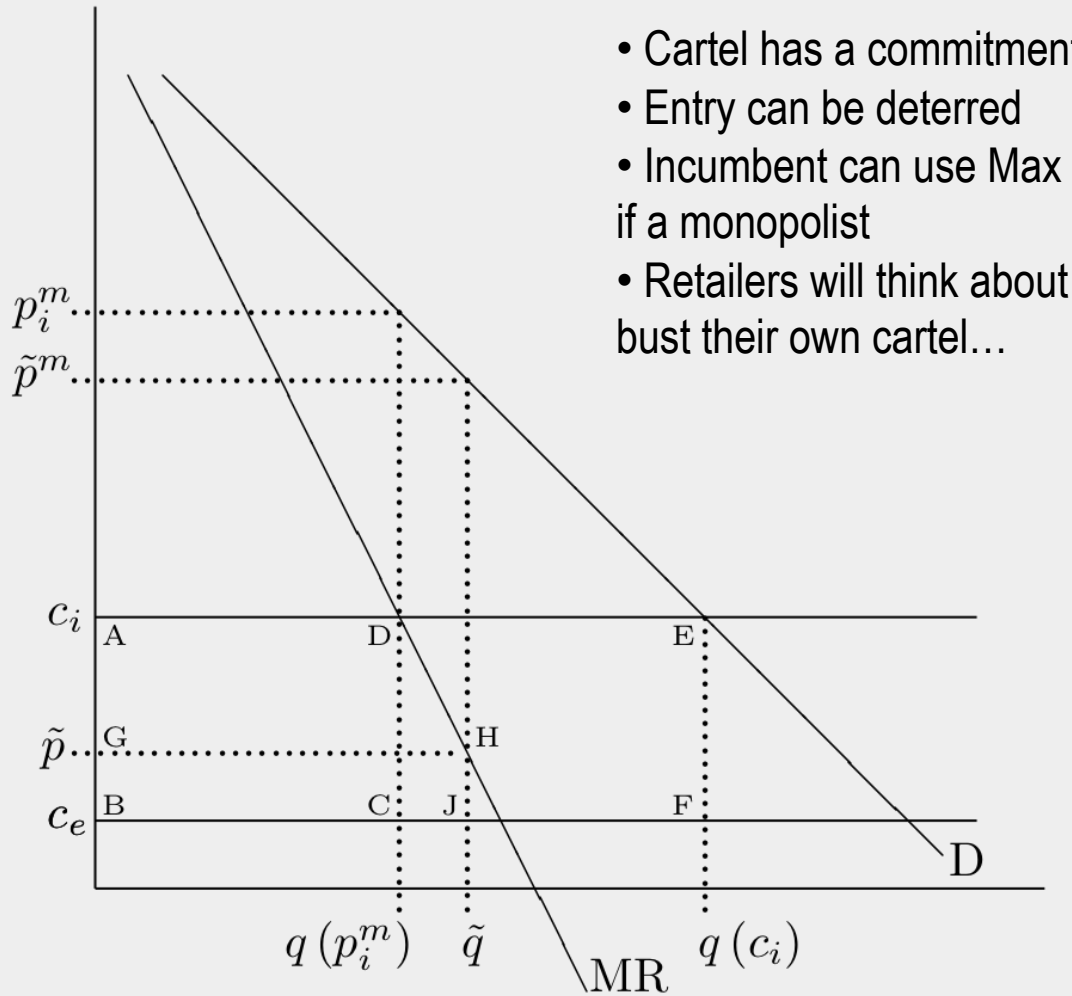

- Cartel has a commitment problem
- Entry can be deterred
- Incumbent can use Max RPM to fix if a monopolist
- Retailers will think about ways to bust their own cartel…

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