Exclusionary Minimum Resale Price Maintenance

John Asker and Heski Bar-Isaac

NYU, Stern School of Business

This version of the slide deck is for audiences who want the ideas without the technical details. A more detailed version aimed at economists and similarly inclined folks can be found following slide 36.

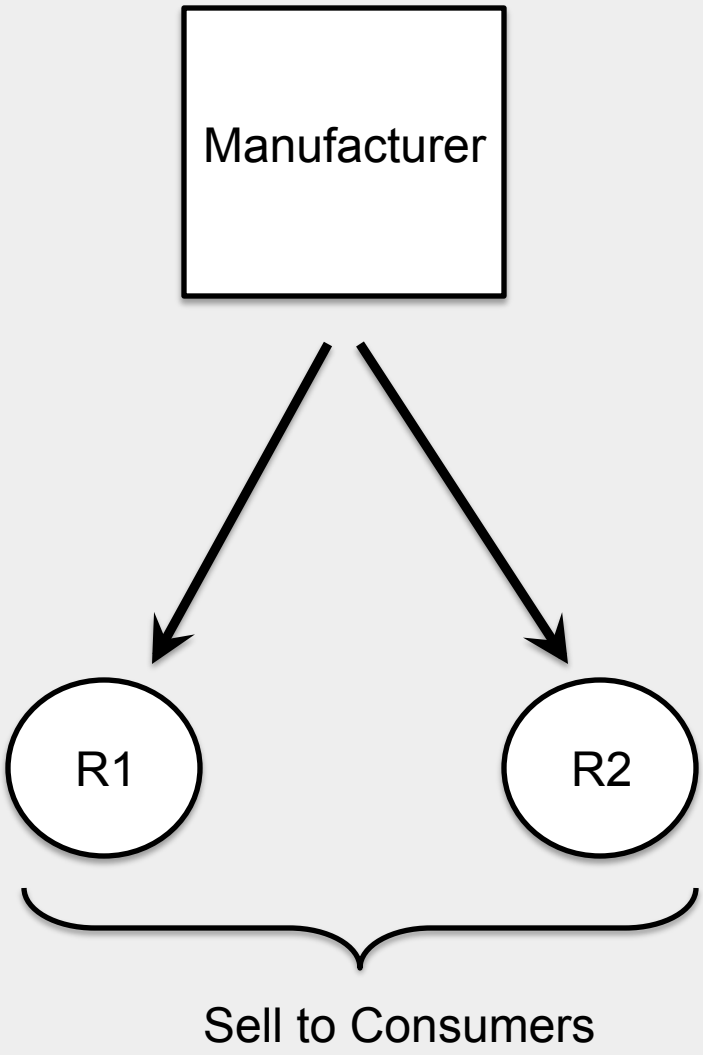
April 4, 2011

NY City Bar

1. **Introduction**
2. Framework
3. Analysis
4. Relevance
5. Policy
6. Conclusion

Establishing common ground

- What is Minimum Resale Price Maintenance? (RPM)



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Research question

- Research Question:

  1. "Can RPM be an exclusionary mechanism?"
  2. "How might this work?"
  3. "When might we look for it?"

- Approach:

  Objective is to build a theoretical structure to inform observation

- 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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Basic story

- Basic story to come out of the analysis here:

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.

Gives foundations for:

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.*"

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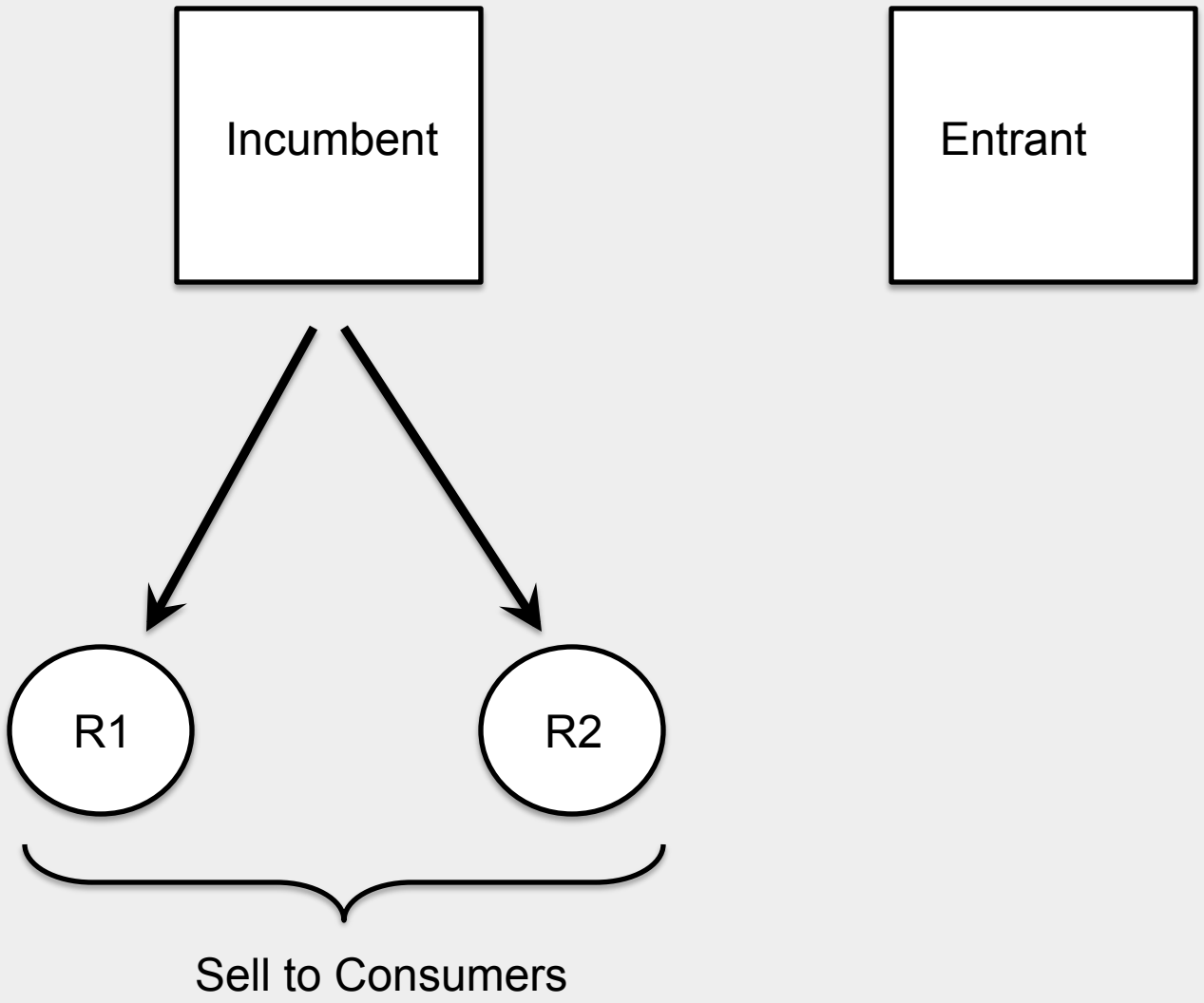
Baseline Model



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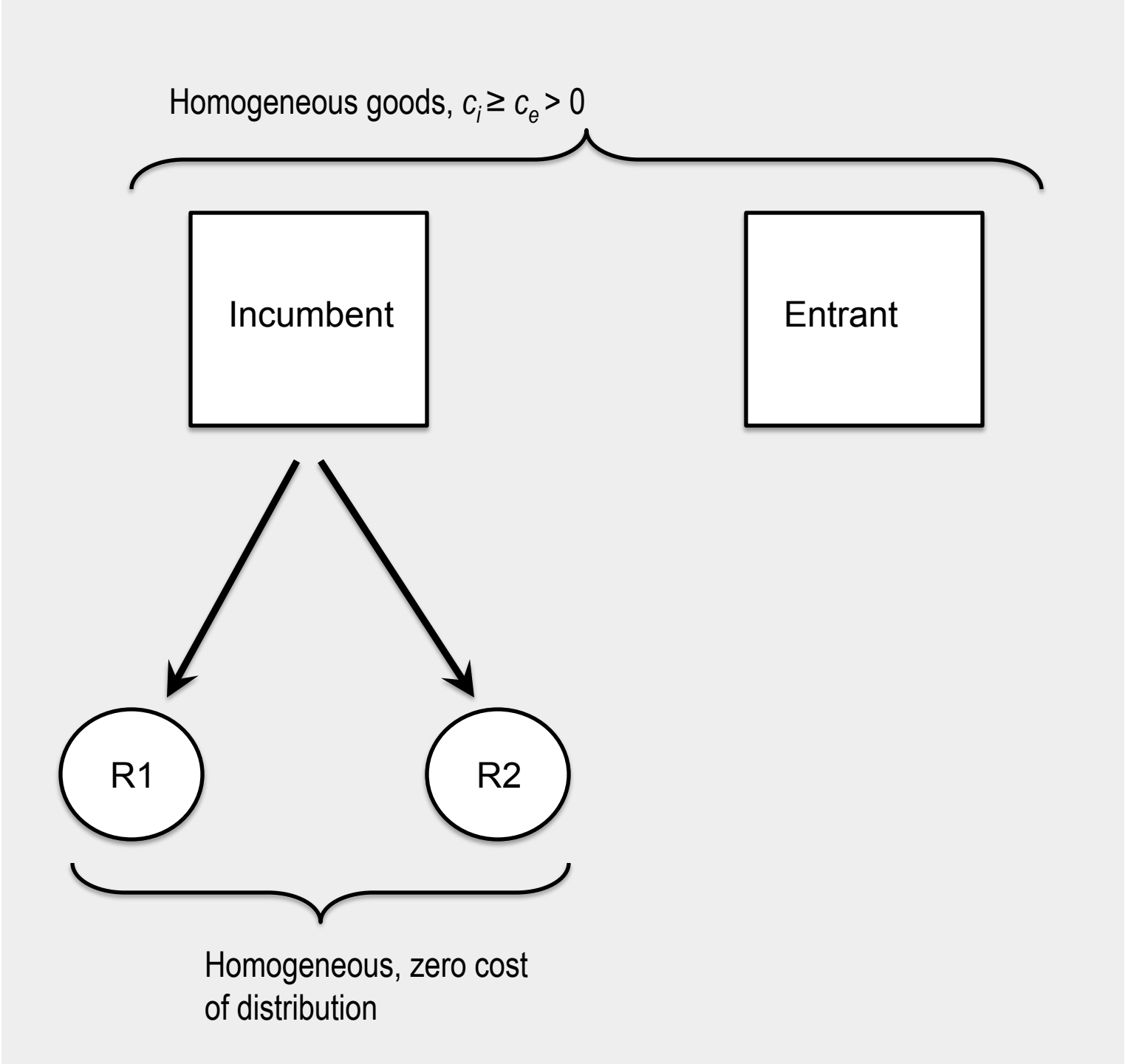

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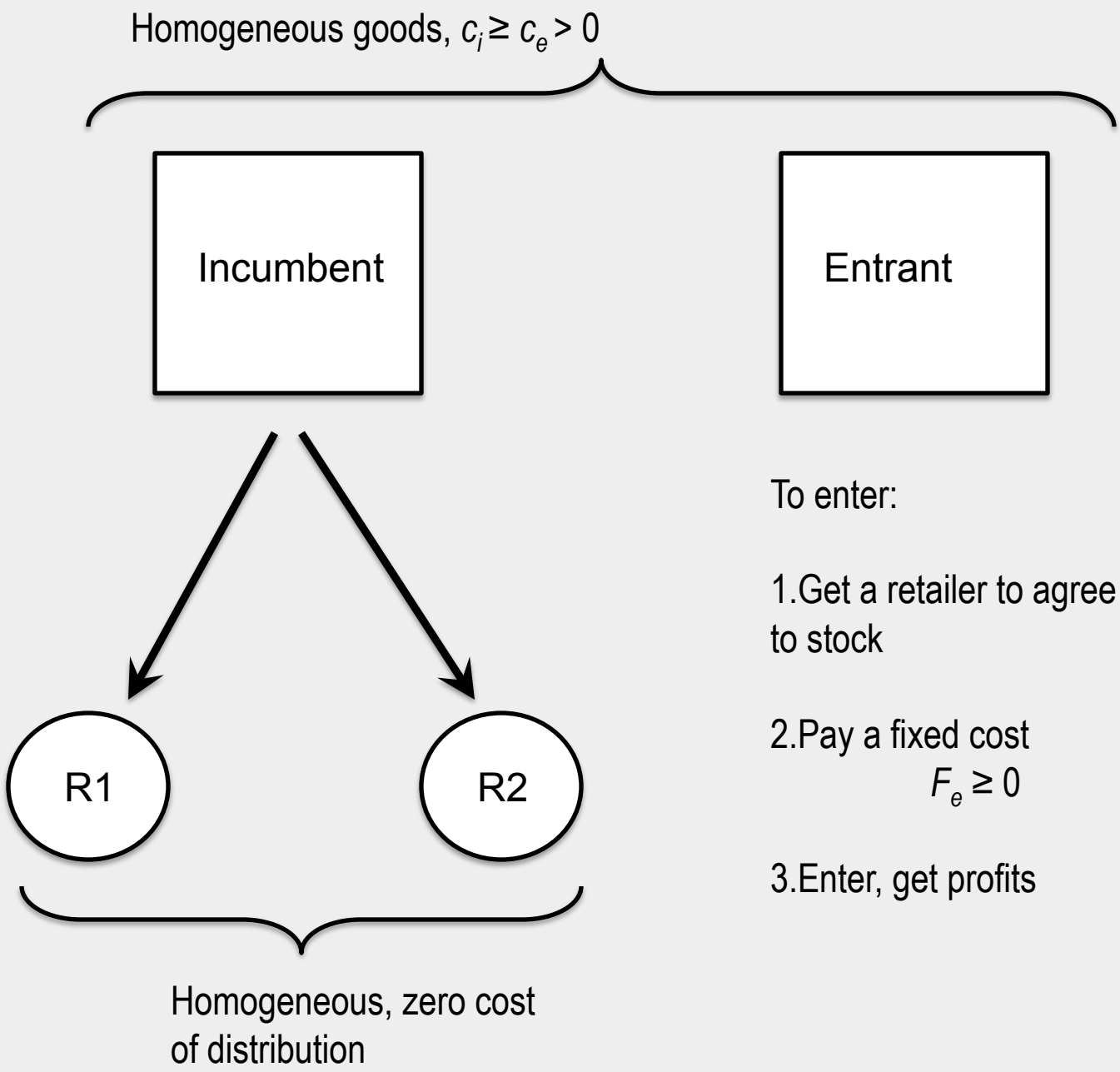

To enter:

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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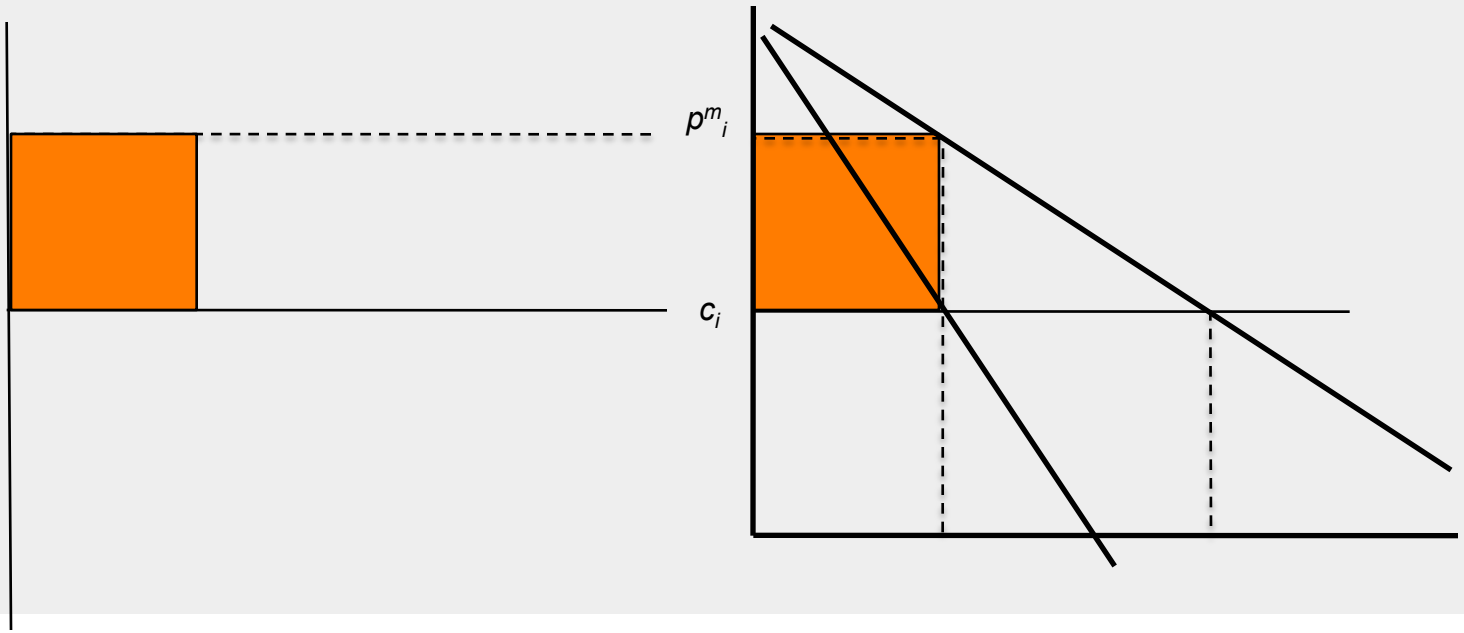
Baseline Model: Analysis

- Work through what happens:
  - If no entry possible
  - If RPM is used
  - If entry occurs



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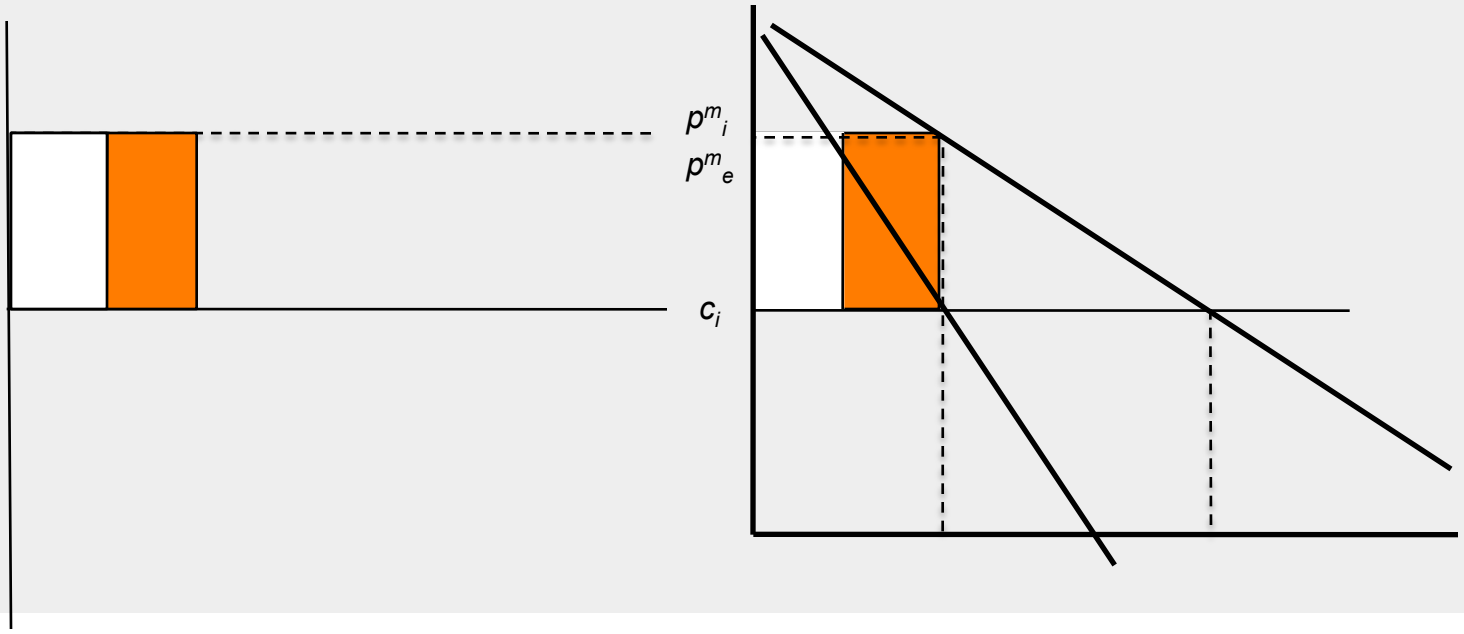
Baseline Model: Analysis

- Accounting:
  - What is the most that an Incumbent can transfer to a retailer via RPM?



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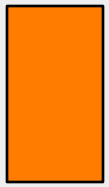
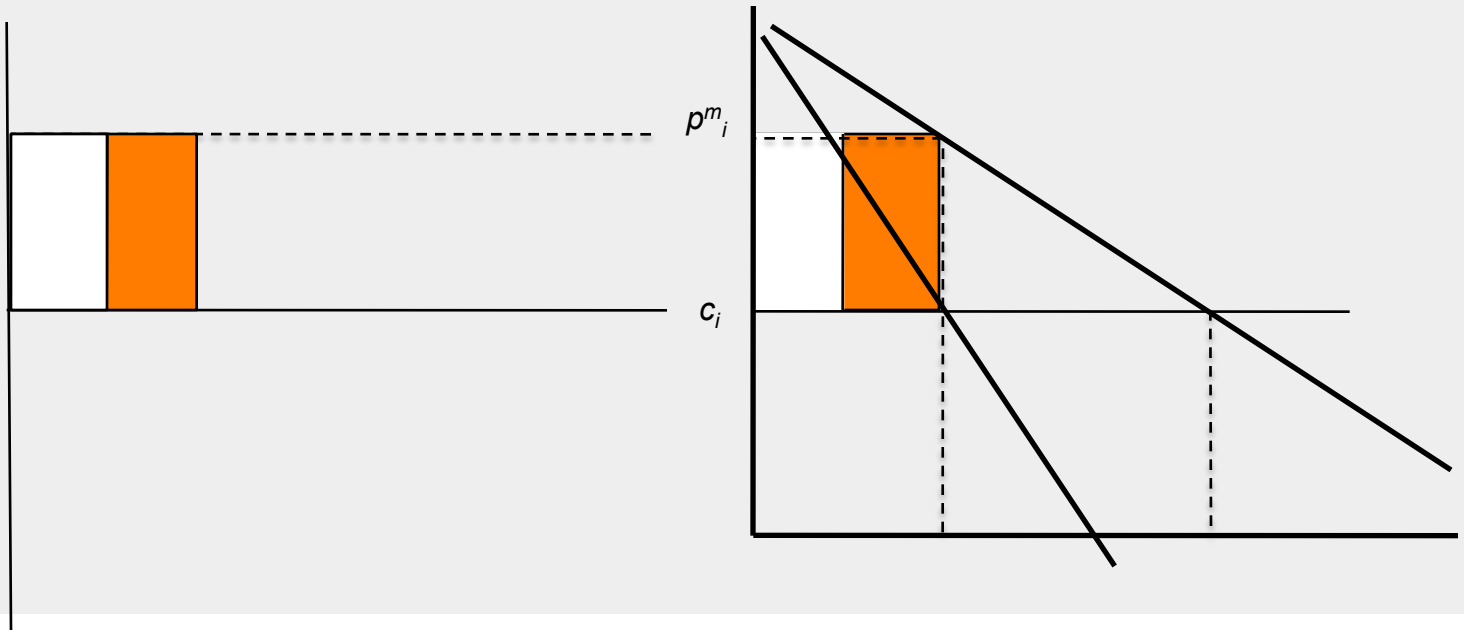
Baseline Model: Analysis

- Accounting:



= Max Incumbent can transfer to a retailer



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Baseline Model:

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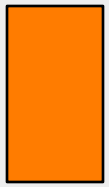
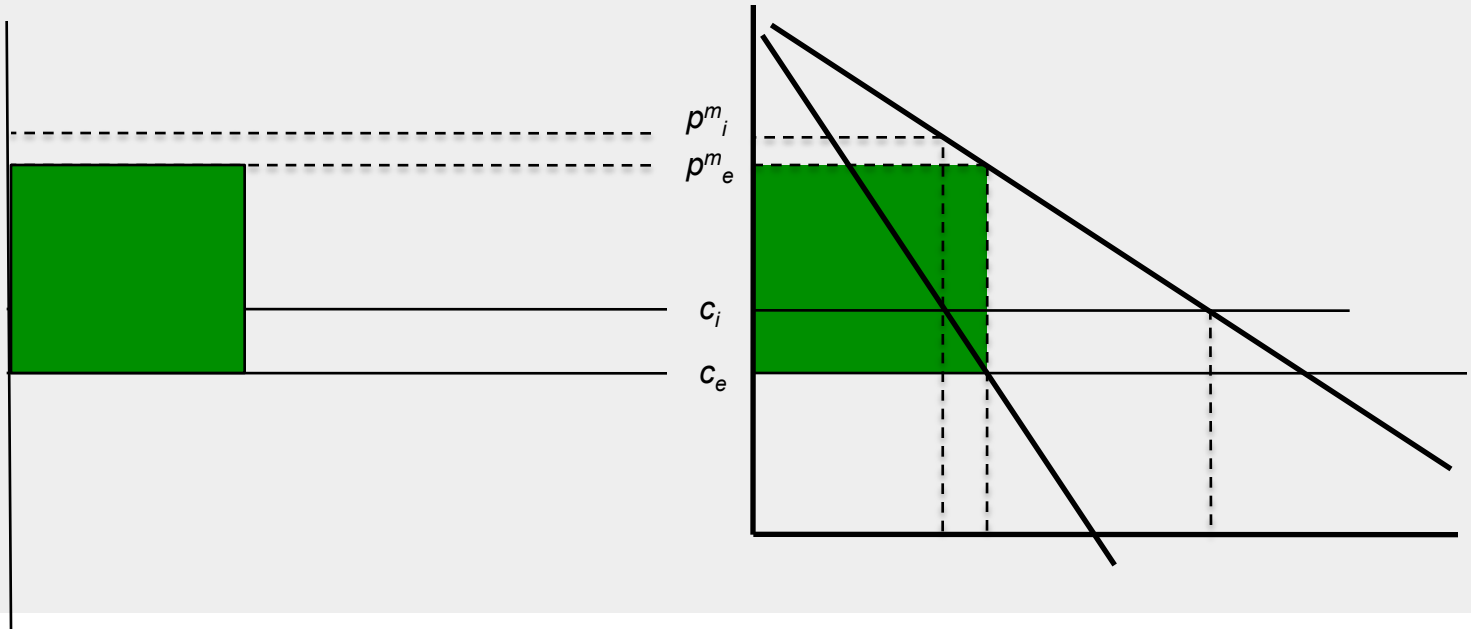
- Accounting:



= Max Incumbent can transfer to a retailer

What happens if Entrant enters?



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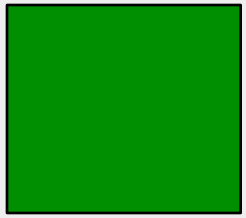
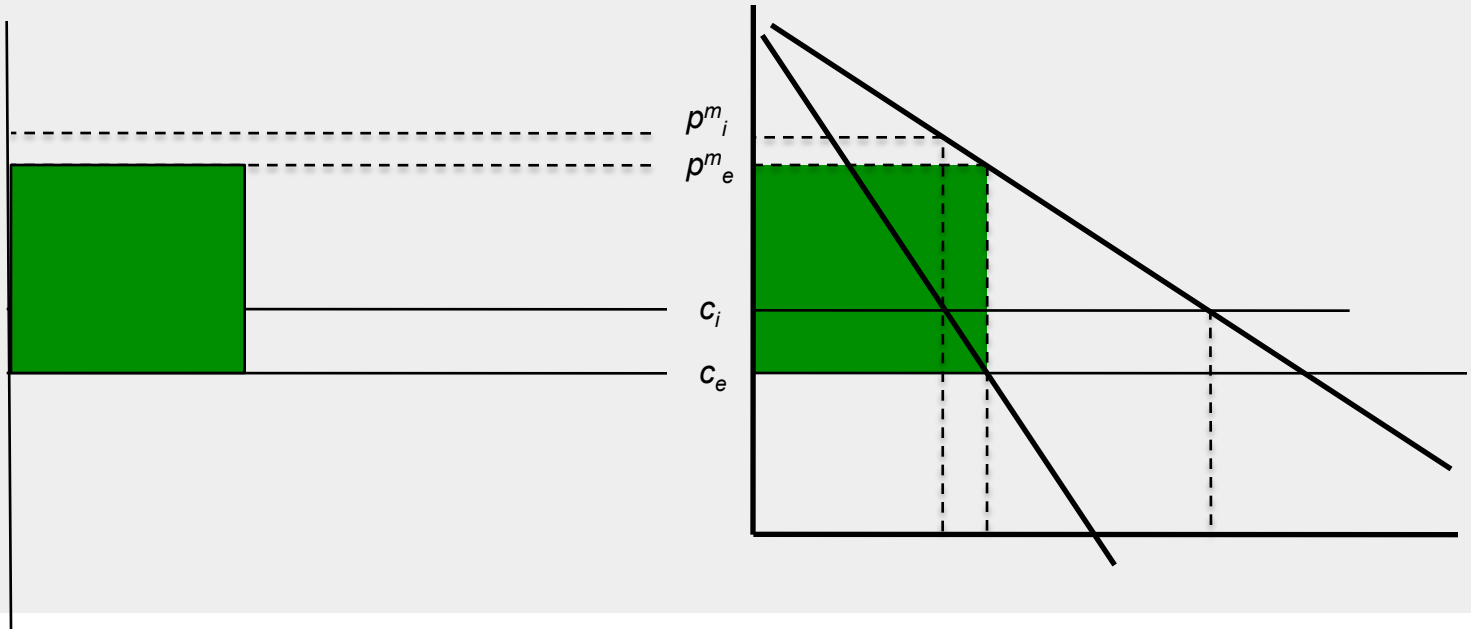
Baseline Model: Analysis

- Accounting:

= Max incumbent can transfer to a retailer



= Profit from entry, when undercut the incumbent



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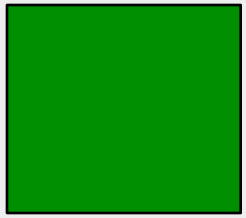
Baseline Model:

Analysis

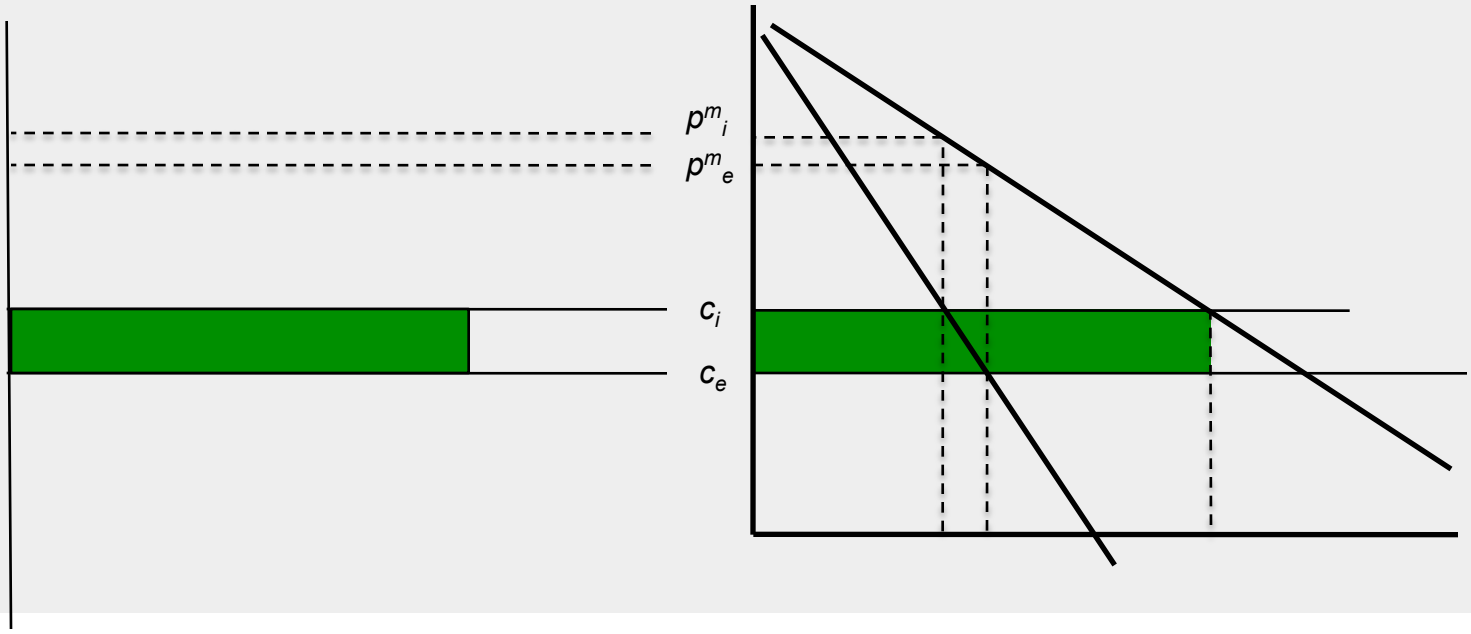
- Accounting:

= Max incumbent can transfer to a retailer



= Profit from entry, when undercut the incumbent

What happens once the incumbent responds to entry?



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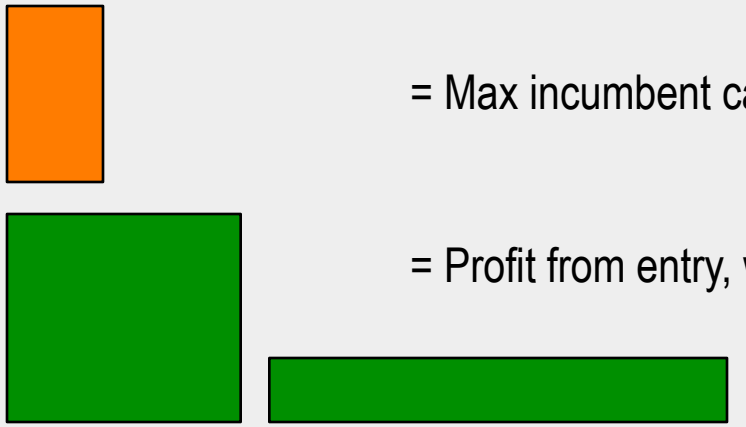
Baseline Model: Analysis

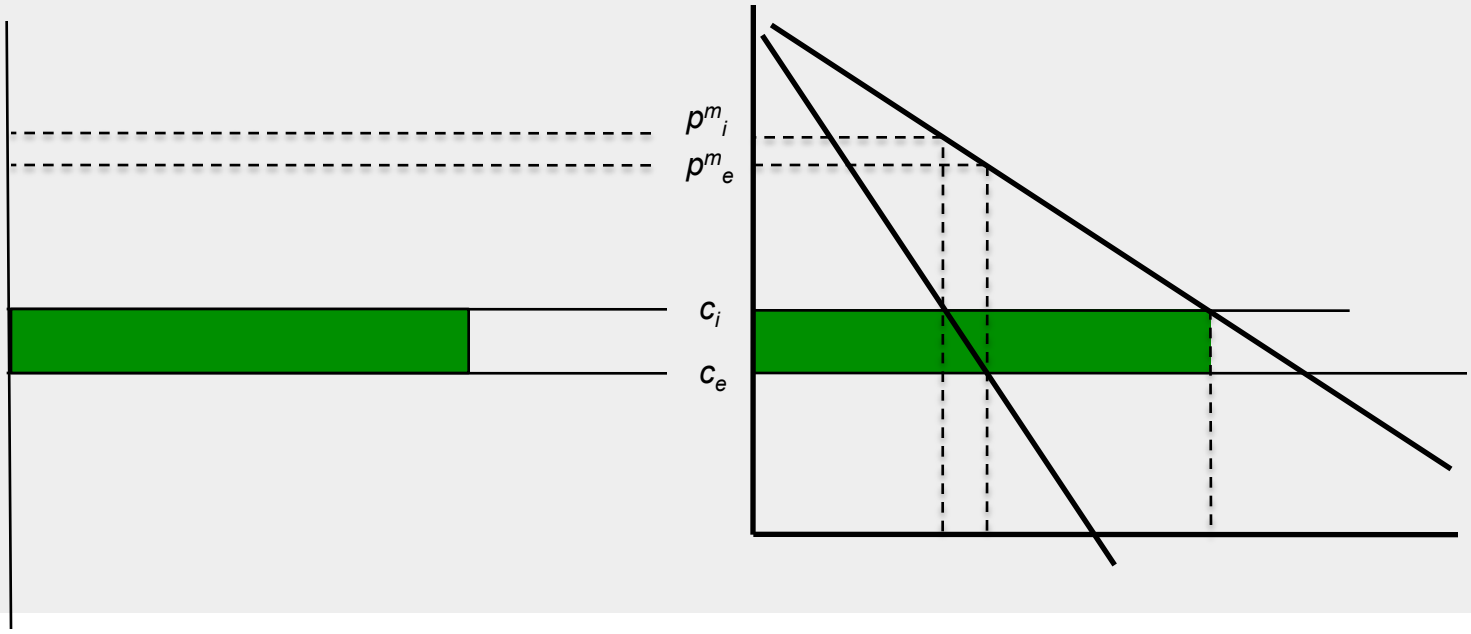
- Accounting:



= Max incumbent can transfer to a retailer

= Profit from entry, when undercut the incumbent

+ profit one incumbent adjusts price following entry



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Baseline Model:

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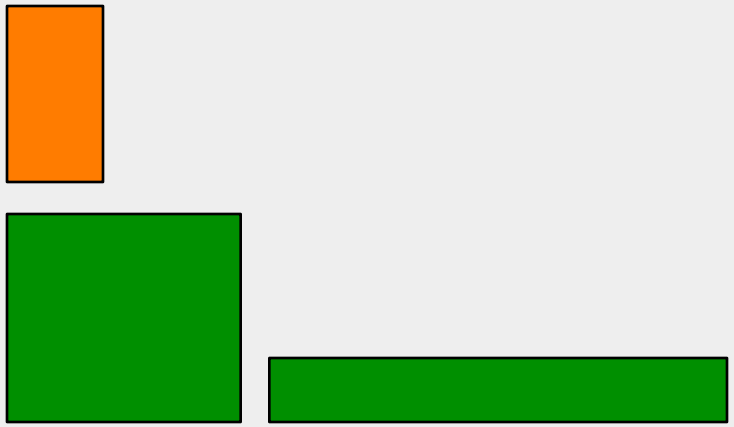
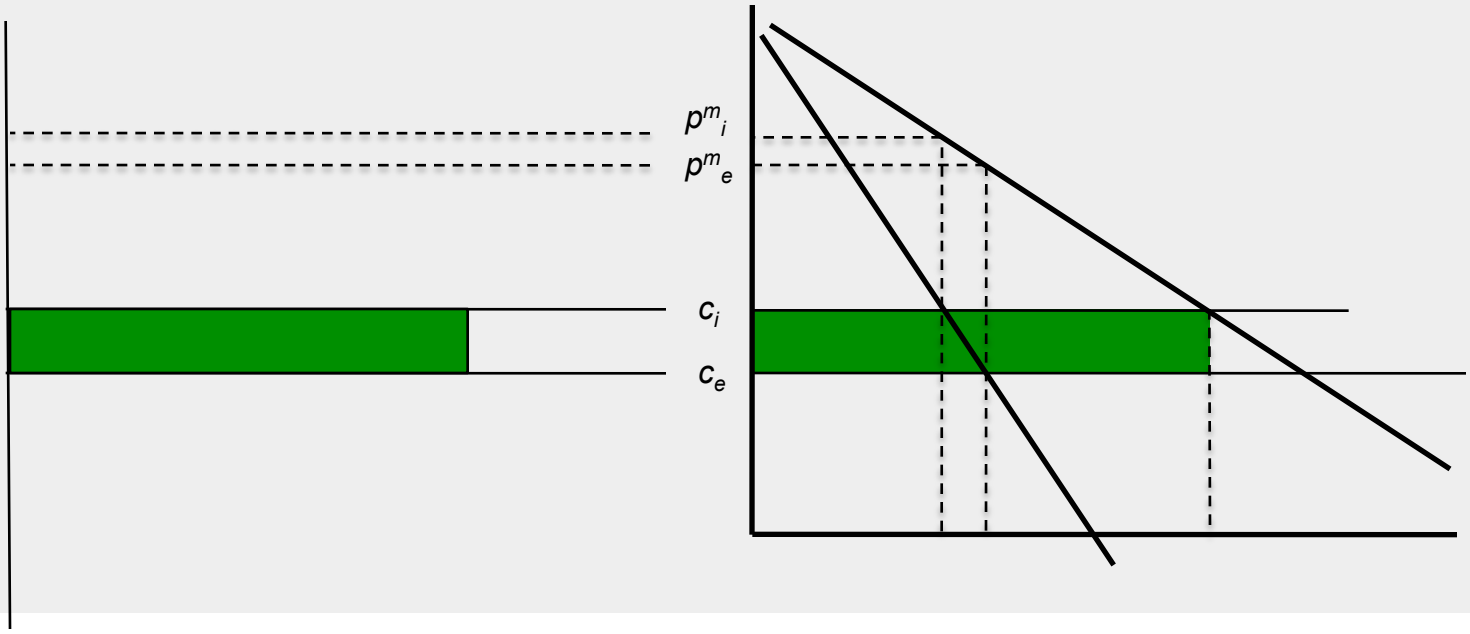
- Accounting:





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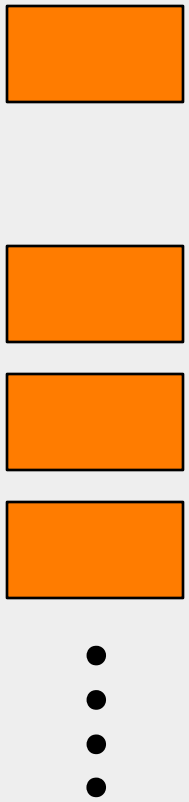
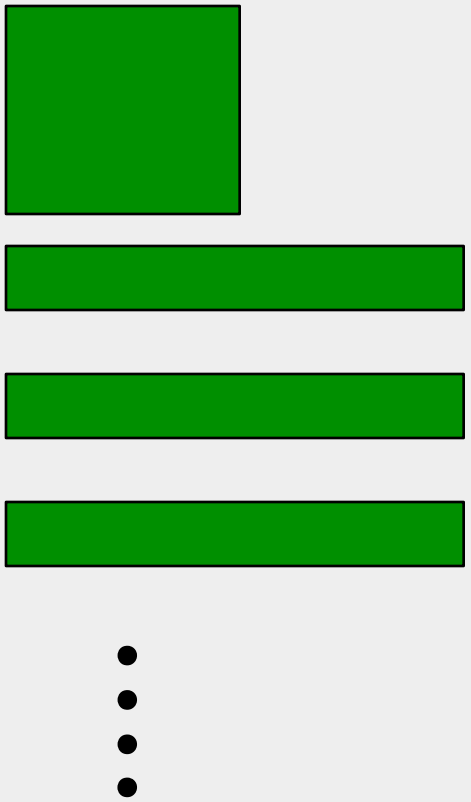
Baseline Model: Analysis

- 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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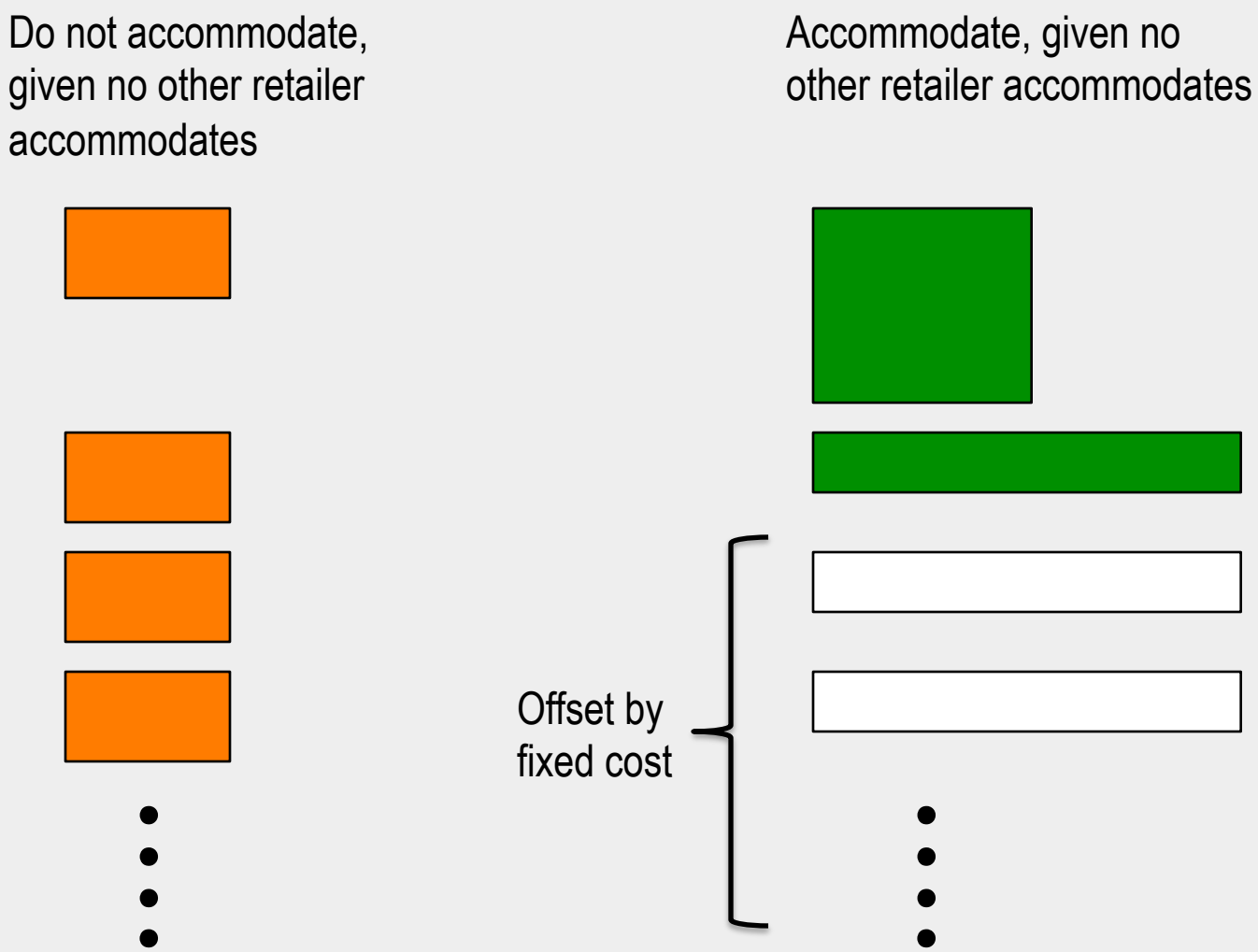
Baseline Model

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

The effect of a sufficiently high fixed cost in this example is exclusion



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Baseline Model

Formal Statement of Necessary and Sufficient Conditions for Exclusionary Equilibrium

An exclusionary equilibrium exists if and only if

$$\underbrace{[1/(1-\delta)]\,[1/N]\,(p^m_i - c_i)q(p^m_i)}_{\text{NPV of profits shared with retailer via RPM}} \geq \underbrace{(p^m_e - c_e)q(p^m_e)}_{\text{Entrant's profit from undercutting}} + \underbrace{[\delta/(1-\delta)]\,(c_i - c_e)q(c_i)}_{\text{NPV of post-entry competition}} - F_e$$

(This is proposition 1 in our paper).

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Geneology

- This is not a new idea but is somewhat forgotten

  - 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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Comments

Conditions for Exclusionary Equilibrium

An exclusionary equilibrium exists if and only if

NPV of profits shared with retailer via RPM	≥	Entrant's profit from undercutting	+	NPV of post-entry competition	-	F_e

Robustness:

- Still get exclusion if there if product differentiation
  - Product differentiation may make exclusion easier in some cases

- Different forms of post-entry conduction can still lead to exclusion

- Demand conditions influence the extent, but not possibility, of exclusion

- Can get exclusion is fixed cost is zero, more on this later.

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Conditions for Exclusionary Equilibrium

An exclusionary equilibrium exists if and only if

NPV of profits shared with retailer via RPM	≥	Entrant's profit from undercutting	+	NPV of post-entry competition	-	F_e

Other observations:

- Exclusion benefits both retailers and incumbents

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Empirical Relevance

- Empirical Relevance

- Does this ever happen?

- How big could the impact be?

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Empirical Relevance

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

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TABLE 8

Industries Represented by Members of American Fair Trade Council*

Kitchen utensils	Razors and razor blades
Photographic equipment	Automotive tires and chains
Automotive vision products	Kitchen furniture (stoves)
Fishing tackle	Jewelry
Outboard motors	Automotive chemicals
Cutlery, personal	Sanitary and facial tissues
Abrasives	Silverware
Tapes and dispensers and glue	Hosiery
	Firearms
Sweepers, mops, and brooms	Smokers' requisites
Scales	Fabrics
Hair toiletries	Toilet requisites
Insecticides and household chemicals	Automotive lubricating equipment
Cleansers, polishes, and soaps	Hardware and tools
	Office accessories and supplies
Clocks, watches and bands	Books and greeting cards
Cosmetics and perfumes	Rubber specialties
Dentist supplies	Floor covering
Automotive ignition products	Bicycles
Camping equipment	Gloves
Knit goods and underwear	Shoe cleansers and polishes
Glassware and pottery	Paints and varnishes
Lighting equipment	Luggage
Proprietary medicines	Automotive heaters
Compacts and cases	Sporting goods
Mattresses	Leather goods
Pens and pencils	Farm equipment and supplies
Household electric applicances	Clothing (suits and coats)

*Source: Study of Monopoly Power. Hearings Before the Antitrust Subcommittee of the Committee on the Judiciary, House of Representatives, 82 Congress, 2nd Session, on Resale Price Maintenance, Serial No. 12, February 1952, p. 722.

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
Amident	.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

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

Toothpaste:		
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Palmolive	.53	.41
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Molle	.43	.37
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Mennen	.53	.43
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Empirical Relevance

• 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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Empirical Relevance

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

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Empirical Relevance

Exclusion in Sugar

- The American Sugar Company
  - Trust formed in 1887 combing sugar refining operations controlling 80 per cent of industry capacity
  - Rising to 95 per cent of capacity by 1982
  - 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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Empirical Relevance

Range of Exclusion

Set fixed cost to zero

An exclusionary equilibrium exists if and only if

$$\underbrace{[1/(1-\delta)]\,[1/N]\,(p^m_i - c_i)q(p^m_i)}_{\text{NPV of profits shared with retailer via RPM}} \geq \underbrace{(p^m_e - c_e)q(p^m_e)}_{\text{Entrant's profit from undercutting}} + \underbrace{[\delta/(1-\delta)]\,(c_i - c_e)q(c_i)}_{\text{NPV of post-entry competition}}$$

- Setting $p^m_e = p^m_i$ provides a bound on lowest MC

$$(c_i - c_e) < (p^m_i - c_i)q(p^m_i) \,/\, [\, N\, q(c_i)\,]$$

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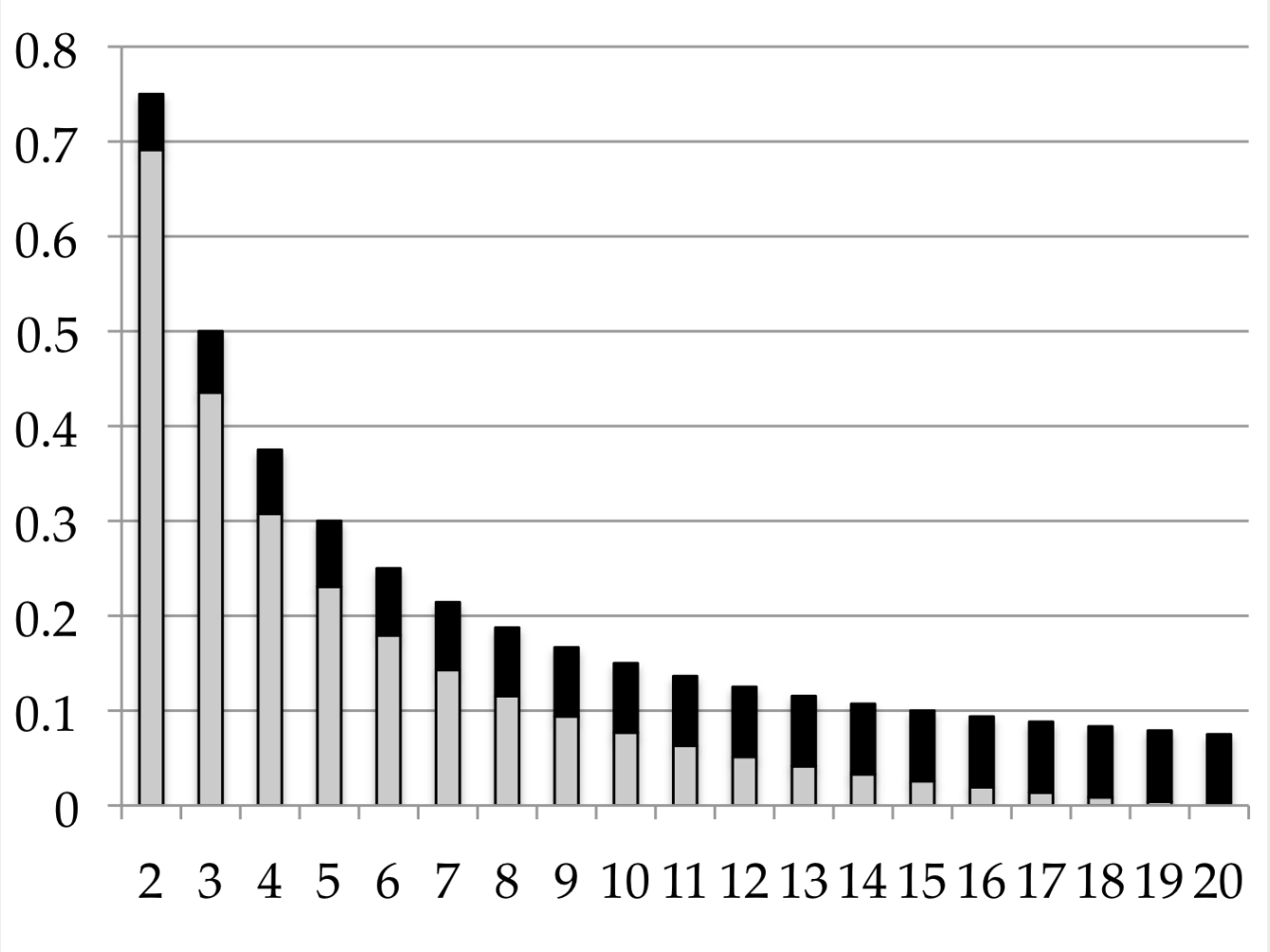
Range of Exclusion



Demand: q = 10 – p
Incumbent's MC = 4, Vertical axis is (4 - MC of excluded)

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Law, policy and screens

Leegin

"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…(Leegin at 897-898)

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. (Leegin at 898 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

European Guidelines on Vertical Restraints

[226] The possible competition risk of maximum and recommended prices is firstly that the maximum or recommended price will work as a focal point for the resellers and might be followed by most or all of them. A second competition risk is that maximum or recommended prices may facilitate collusion between suppliers.

No mention of exclusion, RPM on matters on the “intensive” margin (pricing) and no consideration of “extensive” margin (entry).

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2. Framework
3. Analysis
4. Relevance
5. **Policy**
6. Conclusion

Conclusion

- Framework by which RPM can be argued to be exclusionary
- Empirically relevant issue
- Framework indicates economically significant harm is possible
- Current law and policy more focused in collusion on the intensive margin (prices) rather than effect on the extensive margin (exclusion)
  - probably economists are at fault for this

Take Away:

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. This provides an incentive to not accommodate entrants.

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Exclusionary Minimum Resale Price Maintenance

John Asker and Heski Bar-Isaac

NYU, Stern School of Business

This version of the slide deck is for economists and folks that want to see more technical details.

April 4, 2011

City Bar New York

1. **Introduction**
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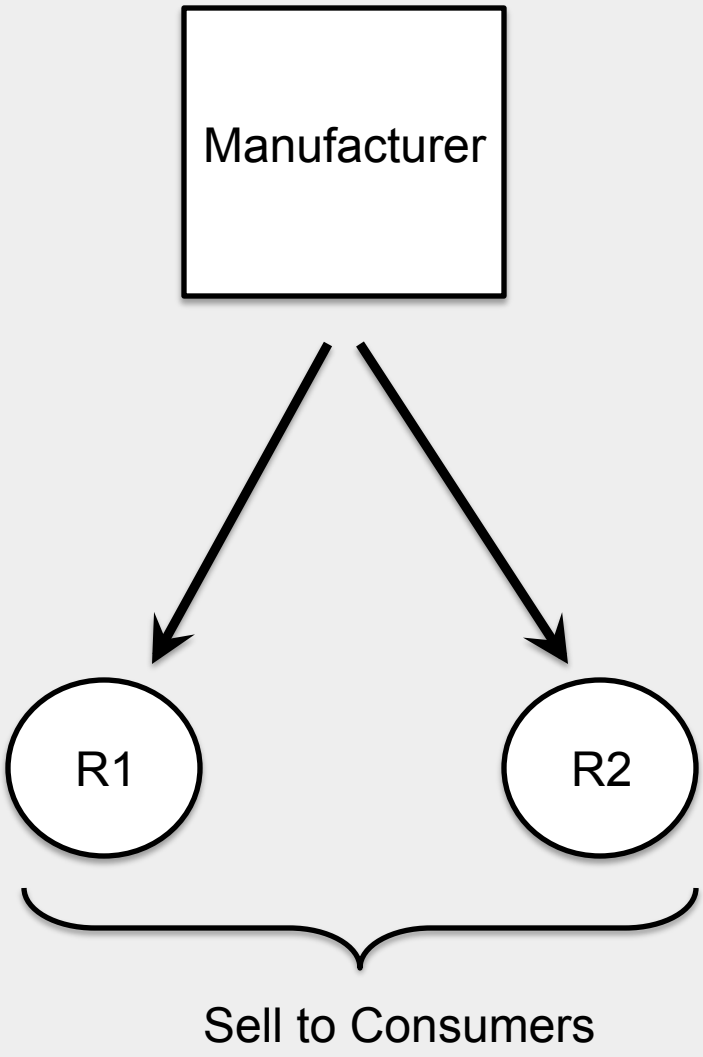
Research question

- What is Minimum Resale Price Maintenance? (RPM)



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Research question

- Research Question:

  1. "Can RPM be an exclusionary mechanism?"
  2. "How might this work?"
  3. "When might we look for it?"

- Approach:

  Objective is to build a theoretical structure to inform observation

- 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

- Basic story to come out of the analysis here:

> 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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Research question

- 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

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Research question

Exclusion in Sugar

- The American Sugar Company
    - Trust formed in 1887 combing sugar refining operations controlling 80 per cent of industry capacity
    - Rising to 95 per cent of capacity by 1982
    - 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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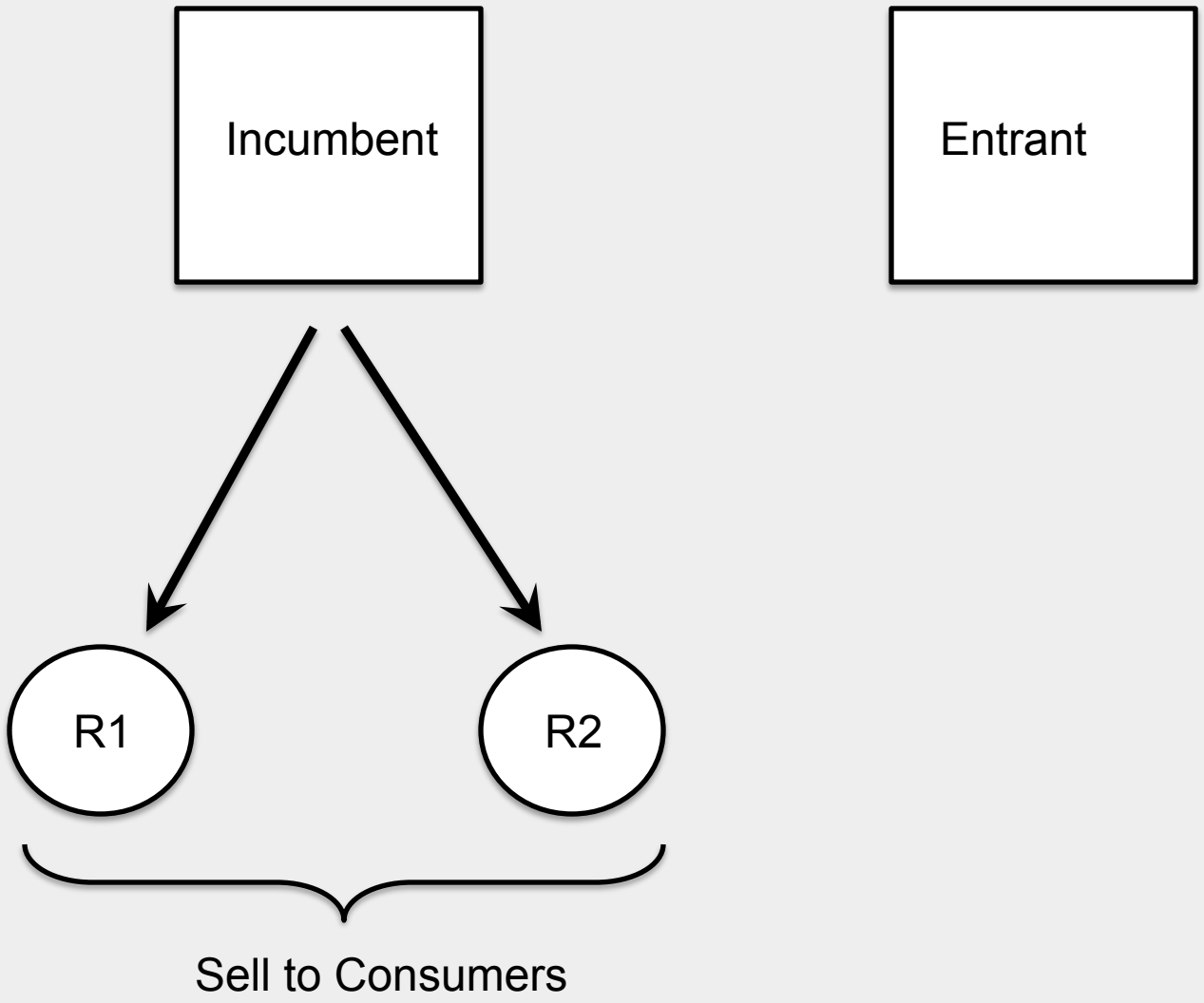
Baseline Model



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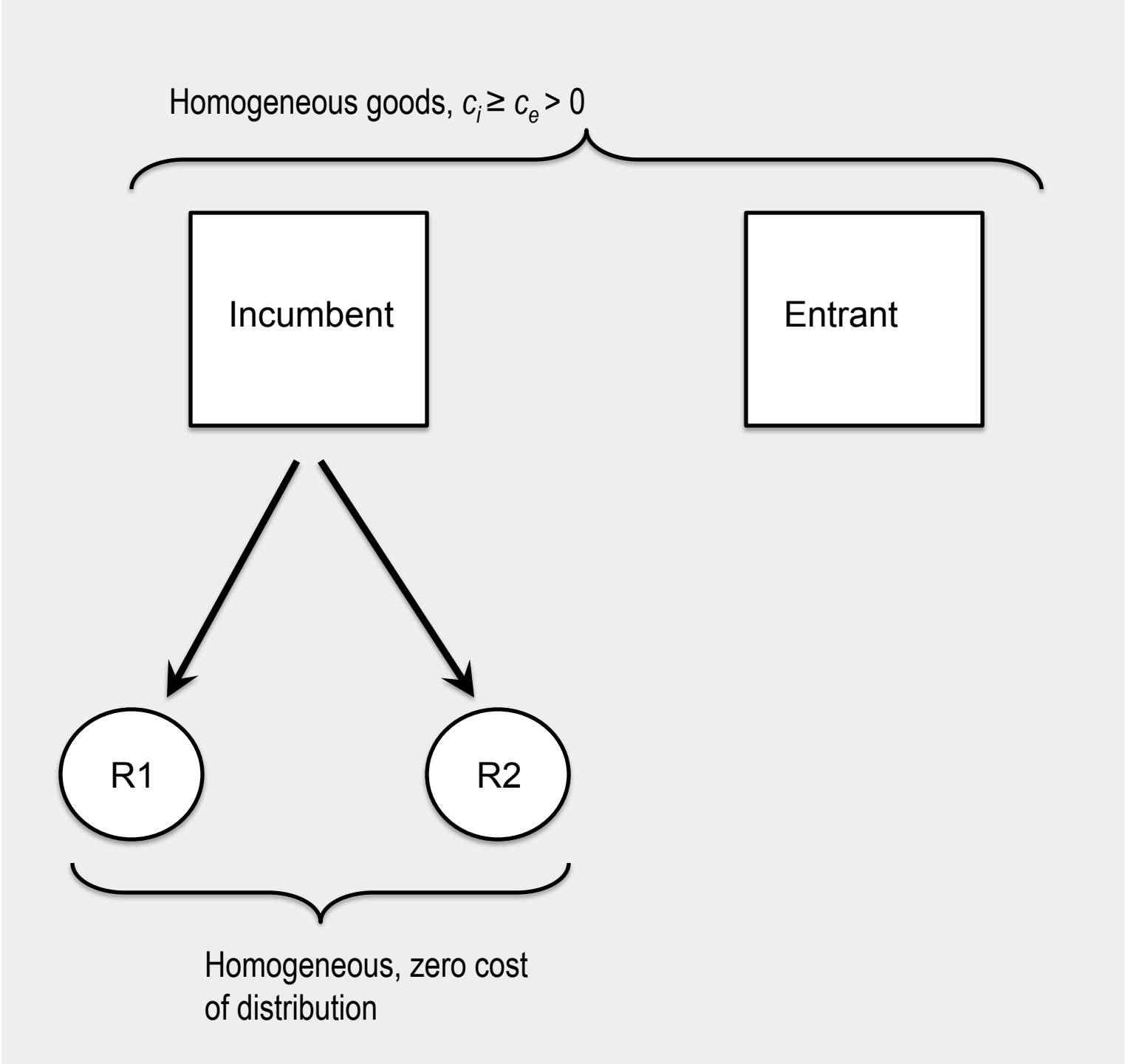
Baseline Model



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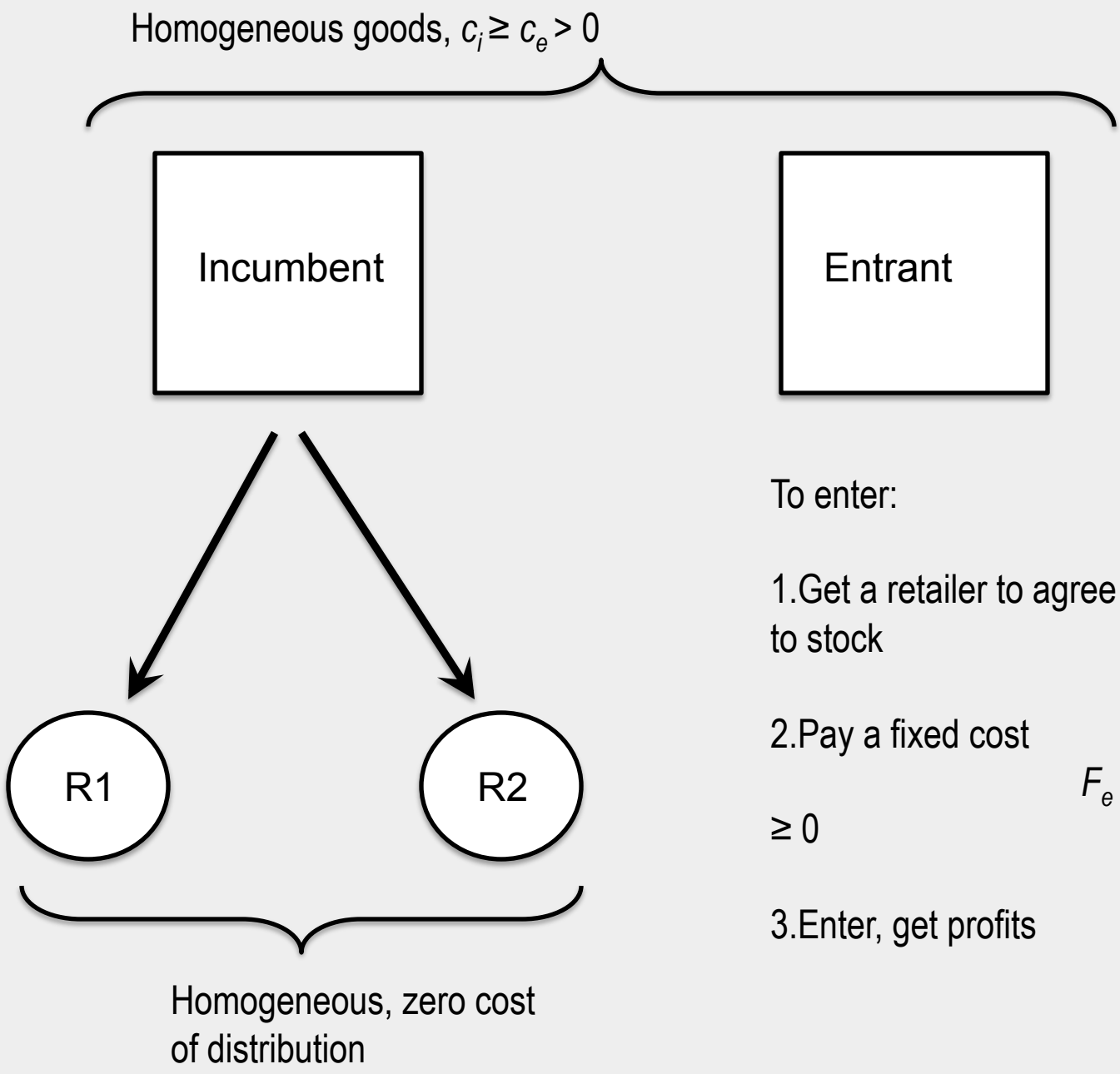
Baseline Model



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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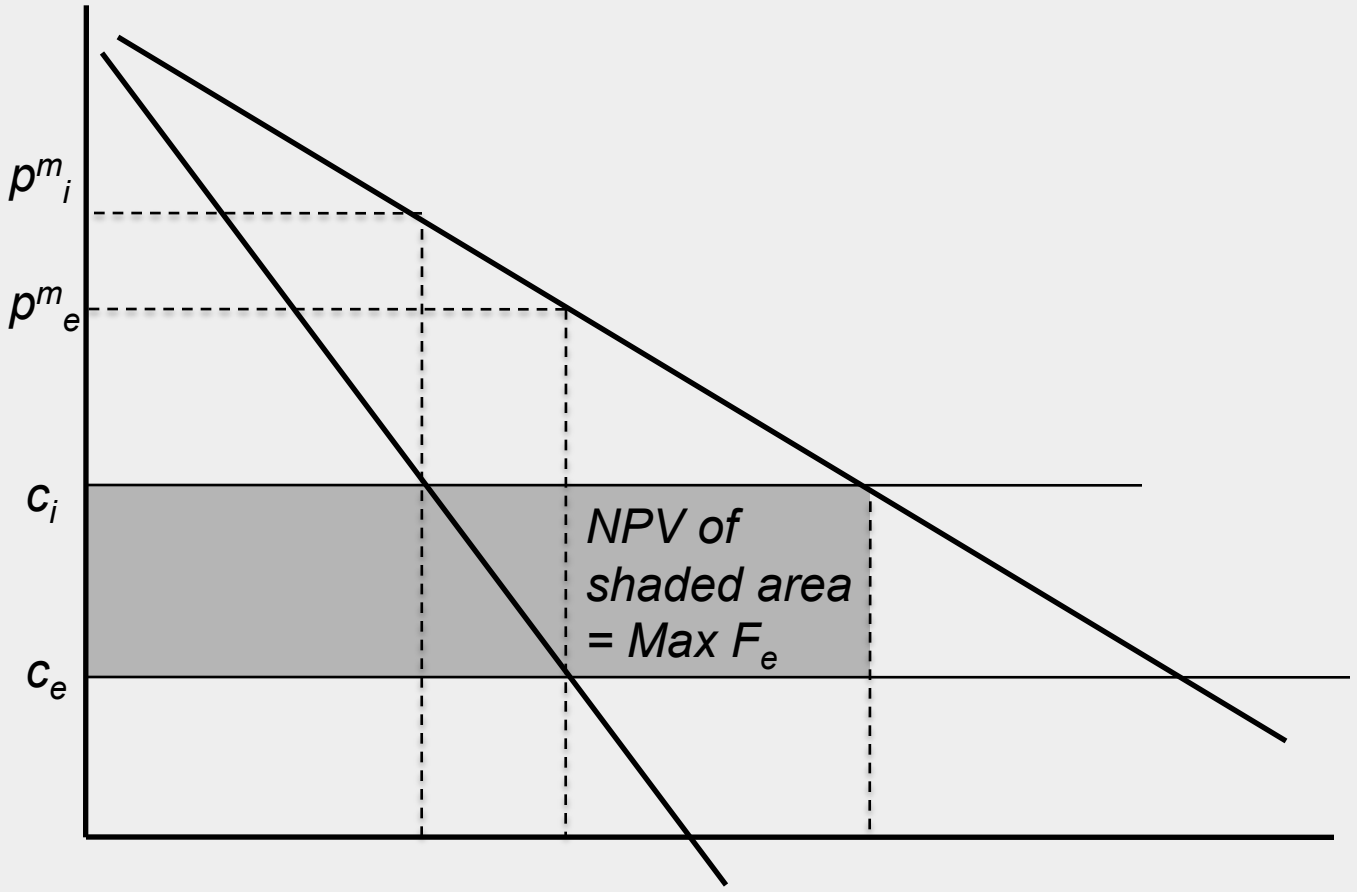
Baseline Model

- 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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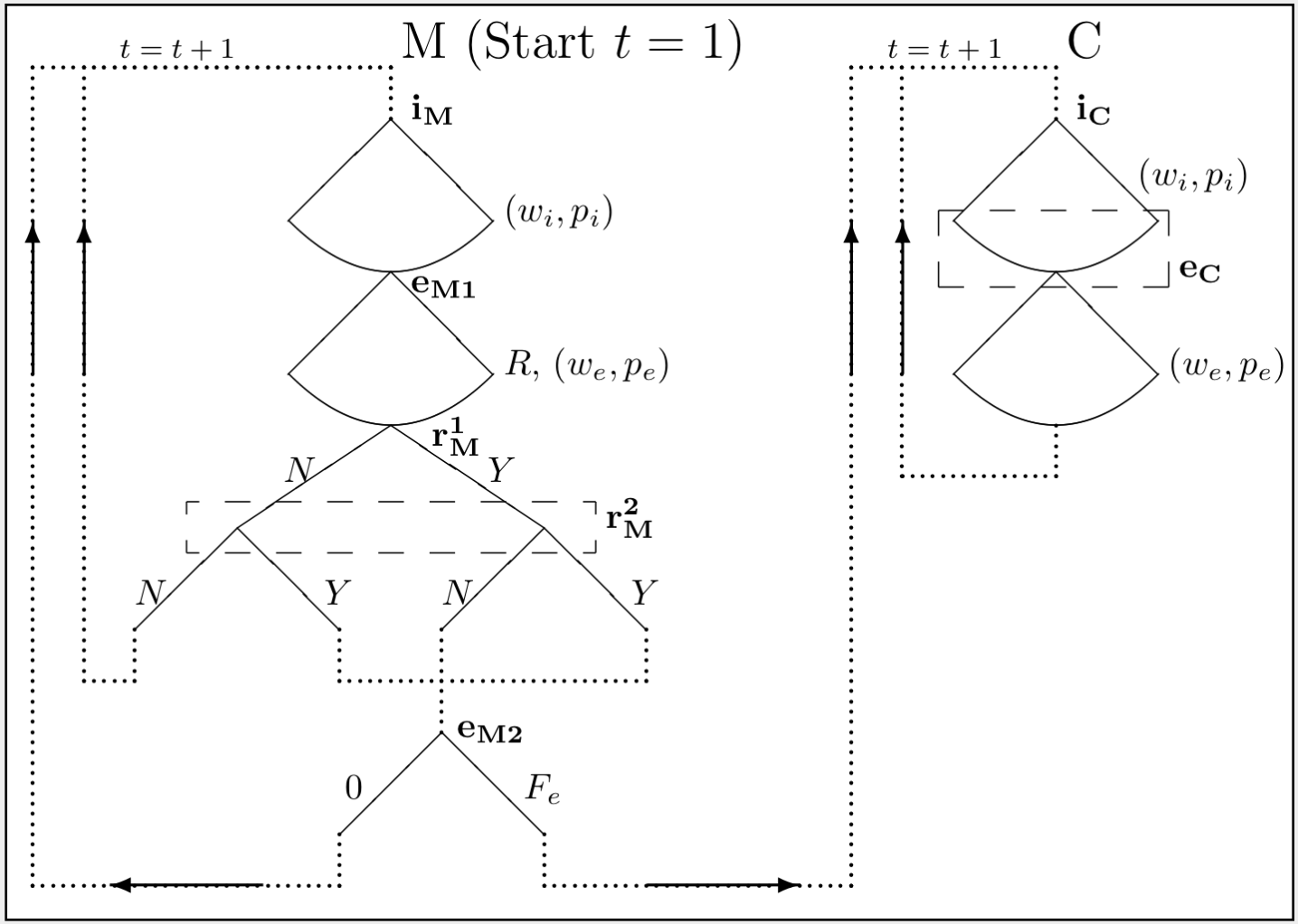
Baseline Model

- 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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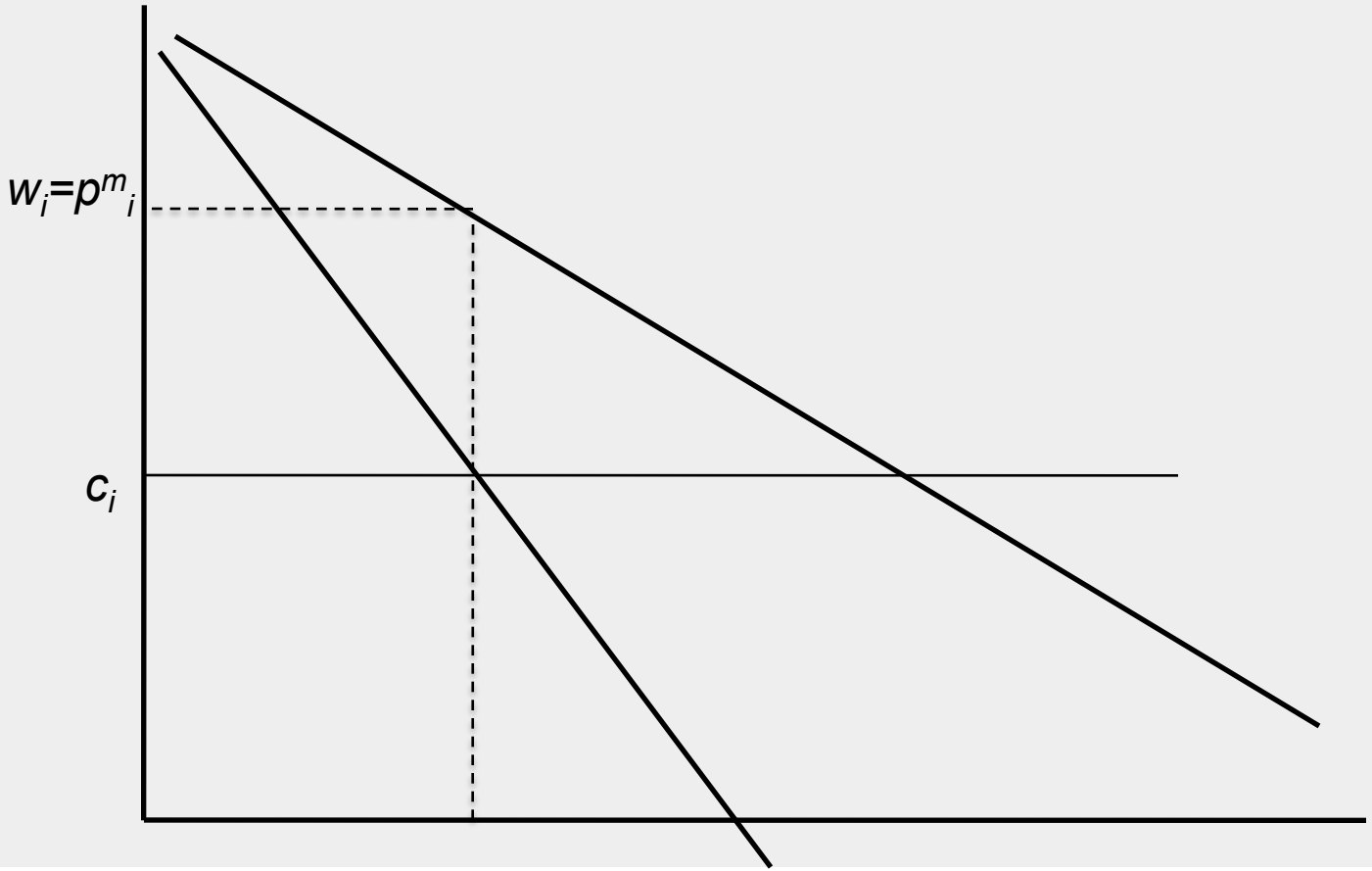
Baseline Model

- 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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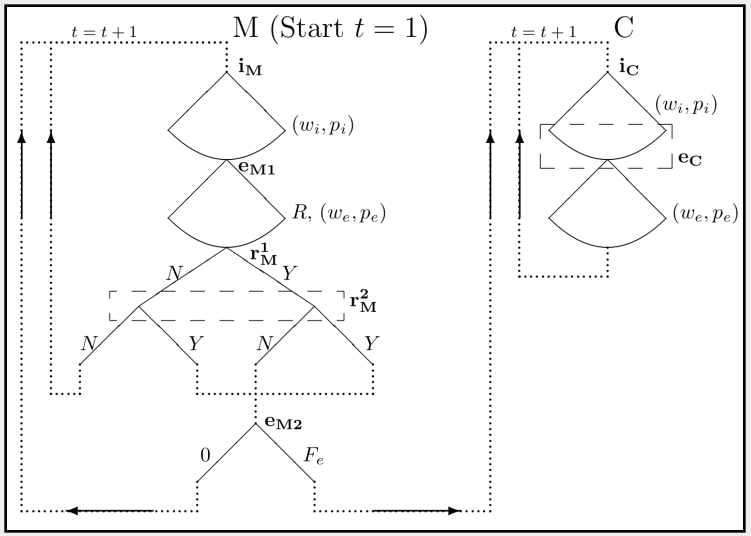
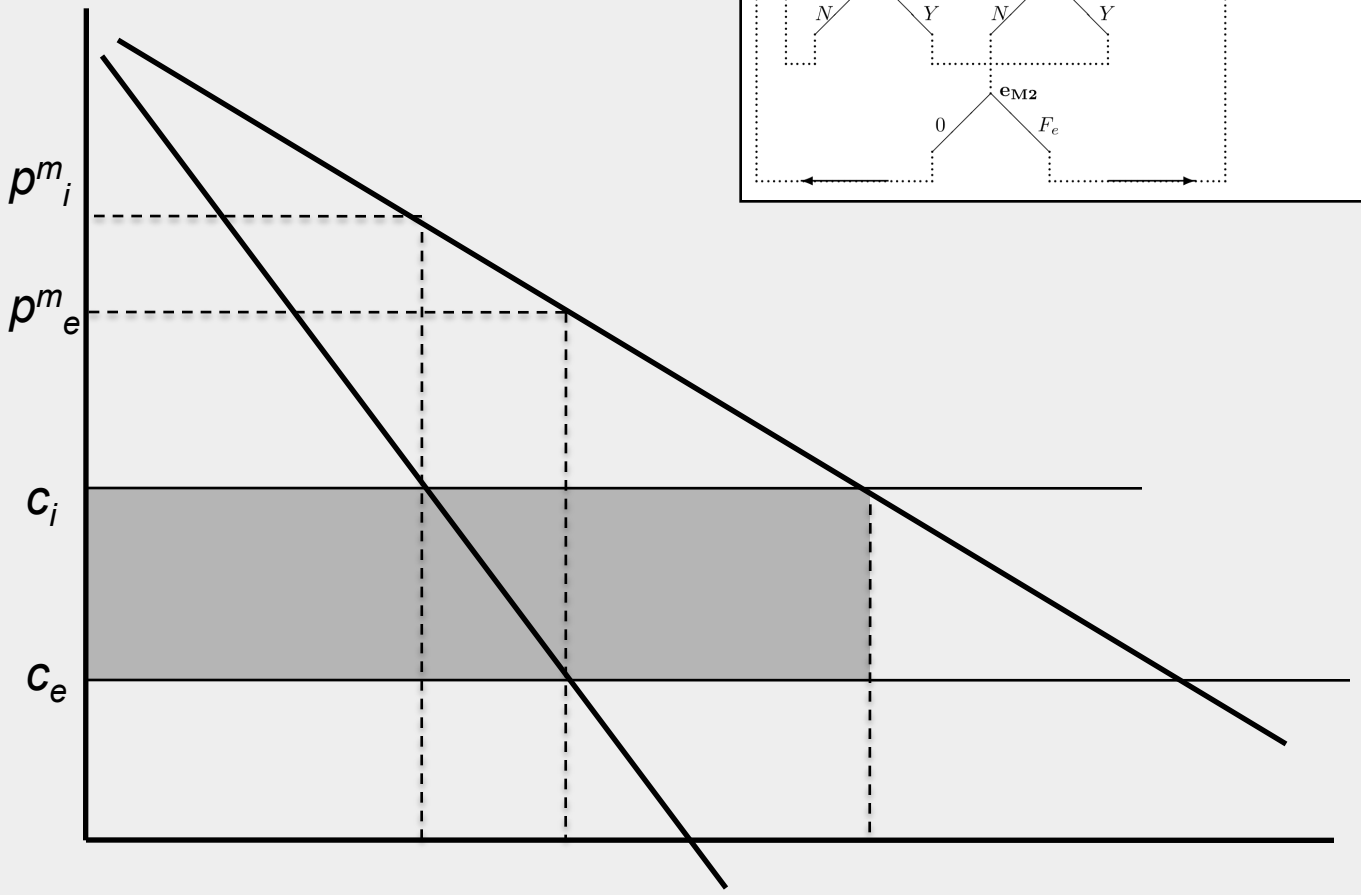
Analysis:

Post-Entry Play

(State “C”)

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





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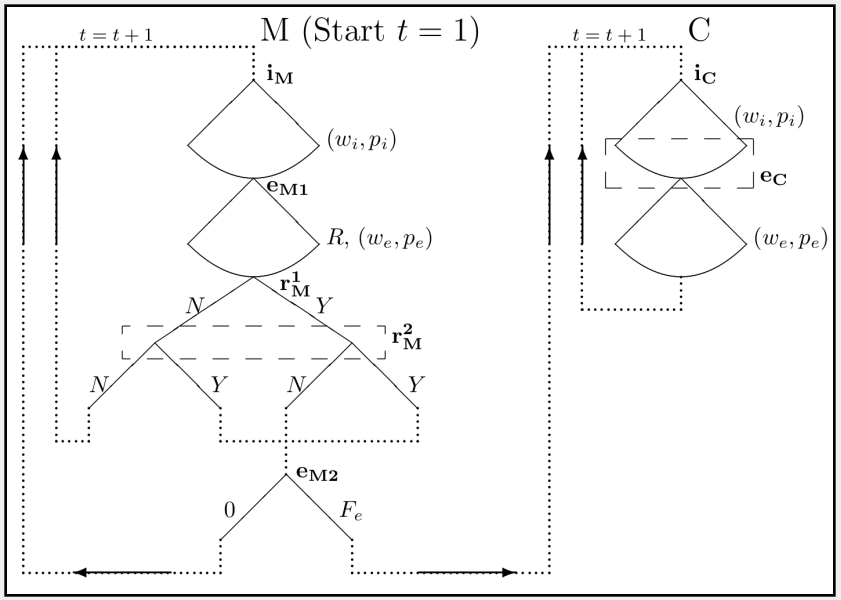
Analysis:

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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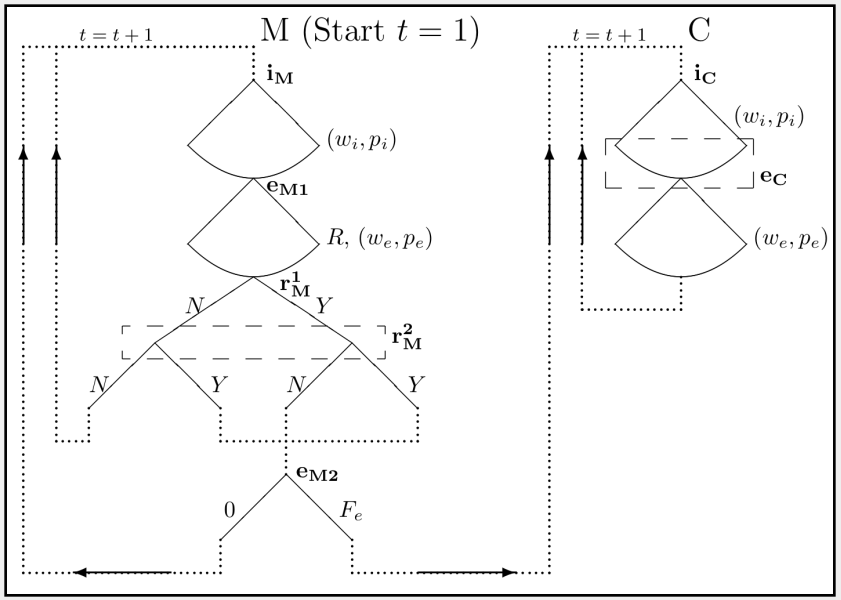
Analysis:

Exclusionary Equilibrium

- When is N,N also an equilibrium?



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

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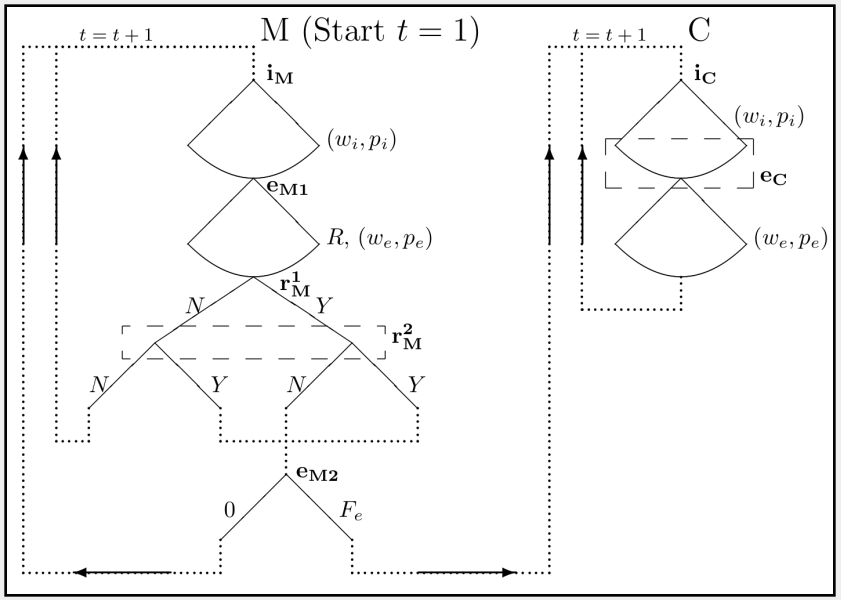
Analysis:

Exclusionary Equilibrium

- When is N,N also an equilibrium?
- 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.



	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?
- Need: π(N,N) > π(Y,N)
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	N	Y
N	$\pi(N,N)$ $\pi(N,N)$	$\pi(Y,N)$ $\pi(N,Y)$
Y	$\pi(N,Y)$ $\pi(Y,N)$	$\pi(Y,Y)$ $\pi(Y,Y)$

Maximal π(Y,N):

$$\underbrace{(p - c_e)q(p)}_{\text{undercut in current period}} + \underbrace{[\delta/(1-\delta)]\,(c_i - c_e)q(c_i)}_{\text{post entry bertrand thereafter}} - F_e$$

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

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Analysis:

Exclusionary Equilibrium

- 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.

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

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 ?

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

- 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

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

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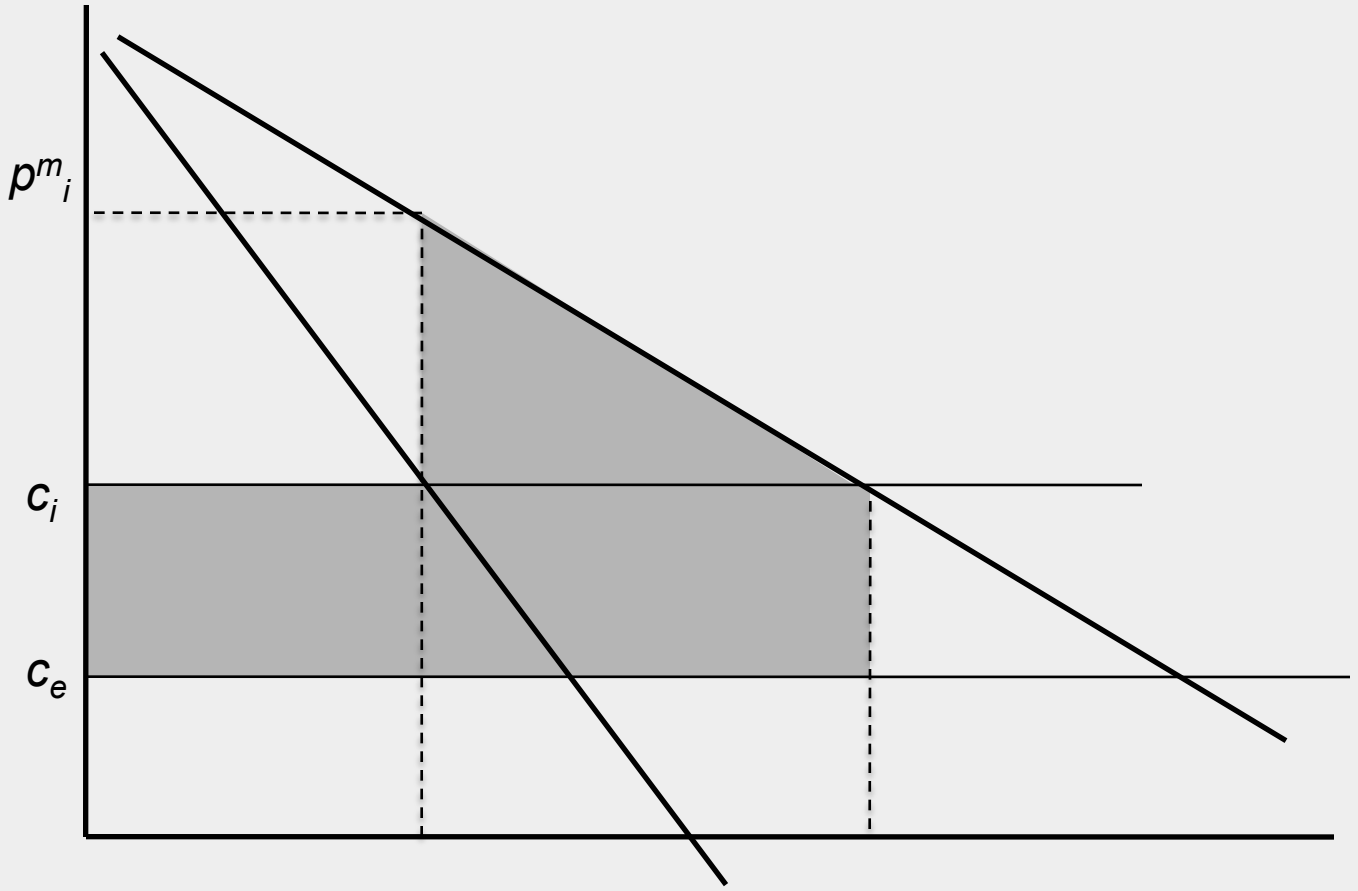
Analysis:

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

Exclusionary Equilibrium

Welfare Loss



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Analysis:

Set fixed cost to zero

Exclusionary Equilibrium

An exclusionary equilibrium exists if and only if

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

Range of Exclusion

- Highest MC able to be excluded is c_i
- Lowest MC implicitly defined by setting inequality to equality
- Setting $p^m_e = p^m_i$ provides a bound on lowest MC

$$(c_i - c_e) < (p^m_i - c_i)q(p^m_i) / [\, N\, q(c_i)\,]$$

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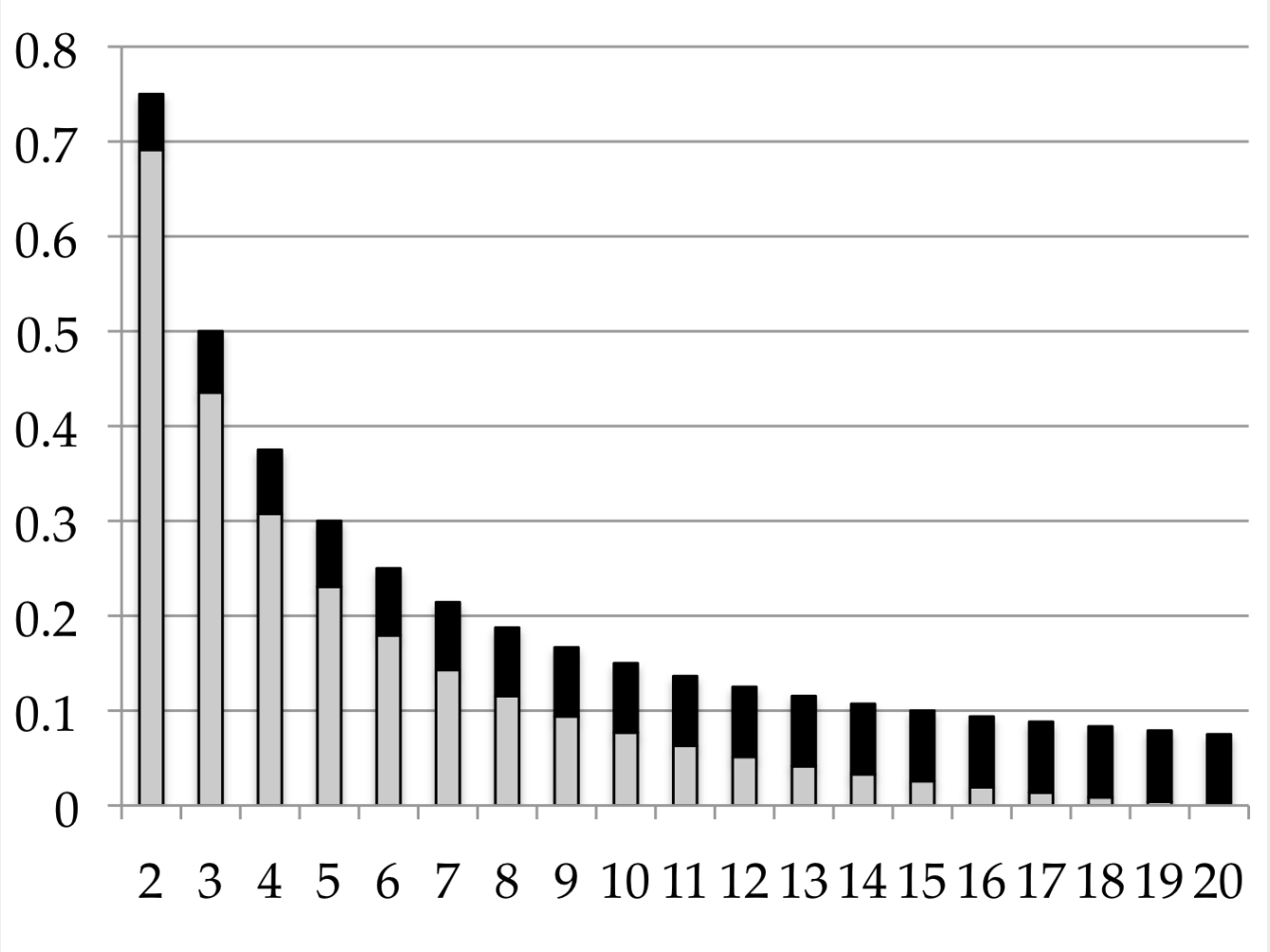
Analysis:

Exclusionary Equilibrium

Range of Exclusion



Demand: q = 10 – p
Incumbent's MC = 4, Vertical axis is (4 - MC of excluded)

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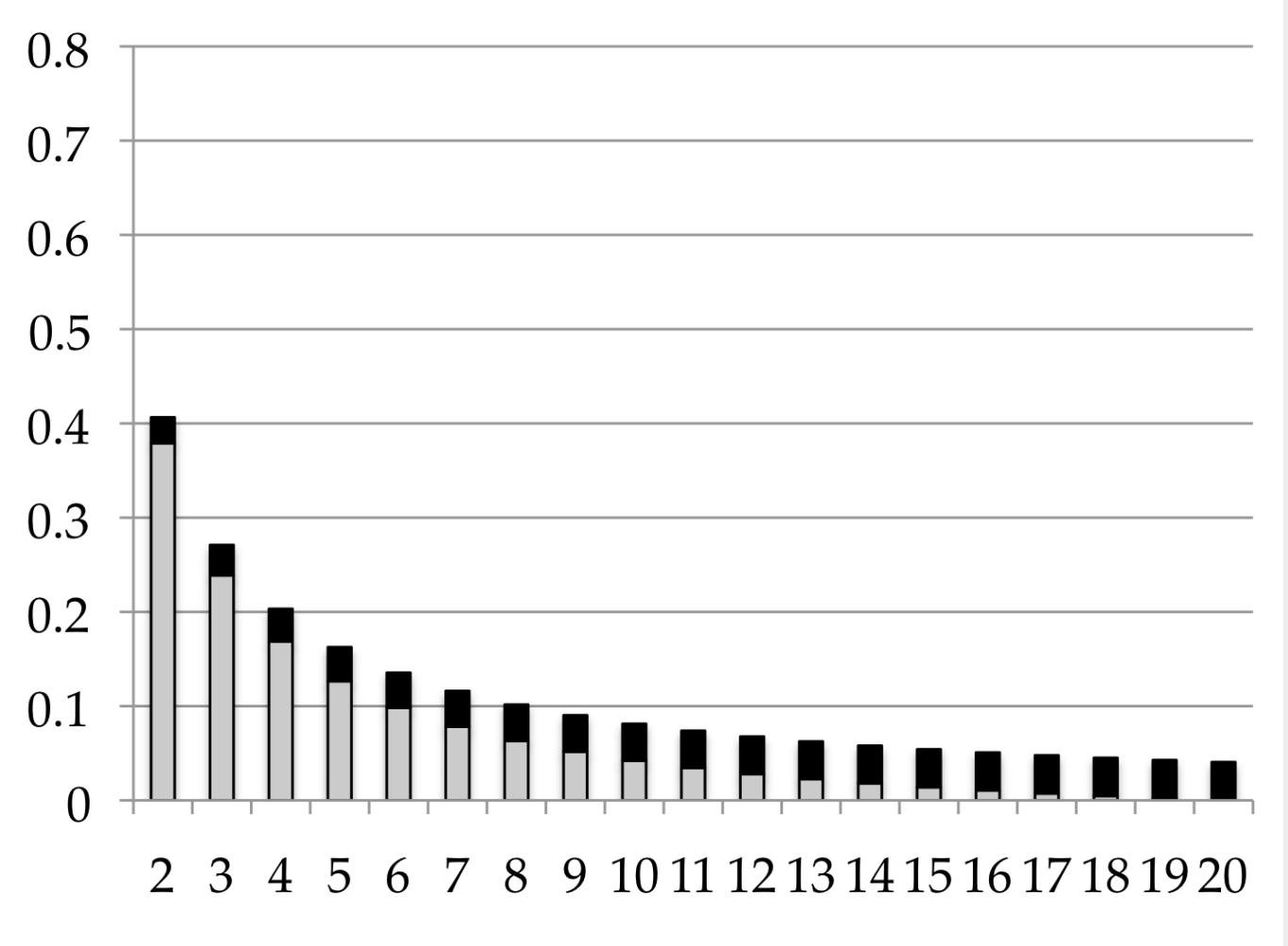
Exclusionary Minimum Resale Price Maintenance

Analysis:

Exclusionary Equilibrium

Range of Exclusion



Demand: constant elasticity, same incumbent price as linear
Incumbent's MC = 4, Vertical axis is (4 - MC of excluded)

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Extensions:

Three Extensions:

- 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
- Extend the baseline model to accommodate differentiation

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Extensions:

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

The post-entry price of entrant is found by solving

$$\tilde{p}_e^* = \arg \max_{(\tilde{p}_e, \tilde{w}_e)} (\tilde{w}_e - c_e)\, q(\tilde{p}_e)$$

subject to

IC:
$$\frac{1}{1-\delta}\frac{1}{n}(\tilde{p}_e - \tilde{w}_e)\, q(\tilde{p}_e) \geq (\tilde{p}_e - c_i)\, q(\tilde{p}_e)$$

IR:
$$\frac{1}{1-\delta}\frac{1}{n}(\tilde{p}_e - \tilde{w}_e)\, q(\tilde{p}_e) - (\tilde{p}_e - c_i)\, q(\tilde{p}_e) > \frac{1}{1-\delta}(c_i - c_e)\, q(c_i)$$

Which simplifies to

$$\tilde{p}_e^* = \arg \max_{\tilde{p}_e \geq c_i} (\tilde{p}_e - c_e)\, q(\tilde{p}_e) - (1-\delta)\, n\, (\tilde{p}_e - c_i)\, q(\tilde{p}_e)$$

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Exclusionary Minimum Resale Price Maintenance

Extensions:

Why can't the entrant exclude the incumbent after entry?

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Proposition 1A Suppose that $\frac{1}{1-\delta}\frac{1}{n} > 1$. Then, an exclusionary equilibrium (one in which the entrant does not enter) exists if and only if

$$F_e + \frac{1}{1-\delta}\frac{1}{n}\left(p_i^m - c_i\right) q\left(p_i^m\right) \geq \left(p_e^m - c_e\right) q\left(p_e^m\right) + \frac{\delta}{1-\delta}\left[\left(\tilde{p}_e^* - c_e\right) q\left(\tilde{p}_e^*\right) - (1-\delta)\, n\left(\tilde{p}_e^* - c_i\right) q\left(\tilde{p}_e^*\right)\right]. \tag{5}$$

Table 1A: Exclusion by the Incumbent and Entrant

$q = 10 - 0.5p$, $c_i = 5$				Does Entrant	Does Incumbent	Range of F_e
δ	n	c_e	Max F_e	Exclude Incumbent?	Exclude Entrant?	excluded (if any)
0.95	19	4	150	No	Yes	[144.9, 150]
0.95	18	4	150	Yes	Yes	[149.2, 150]
0.95	17	4	150	Yes	No	–
0.70	3	4	25	Yes	Yes	[19.0, 25]
0.70	2	4	25	Yes	No	–
0.95	19	4.5	75	Yes	Yes	[74.6, 75]
0.95	18	4.5	75	Yes	No	–
0.95	19	3.5	225	No	No	–
0.95	18	3.5	225	No	Yes	[216.5, 225]
0.95	17	3.5	225	Yes	Yes	[223.6, 225]
0.95	16	3.5	225	Yes	No	–

Note: $max\{F_e\} = \frac{1}{1-\delta}\left(c_i - c_e\right) q\left(c_i\right)$, i.e. the largest fixed cost consistent with entry without exclusion

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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Extensions:

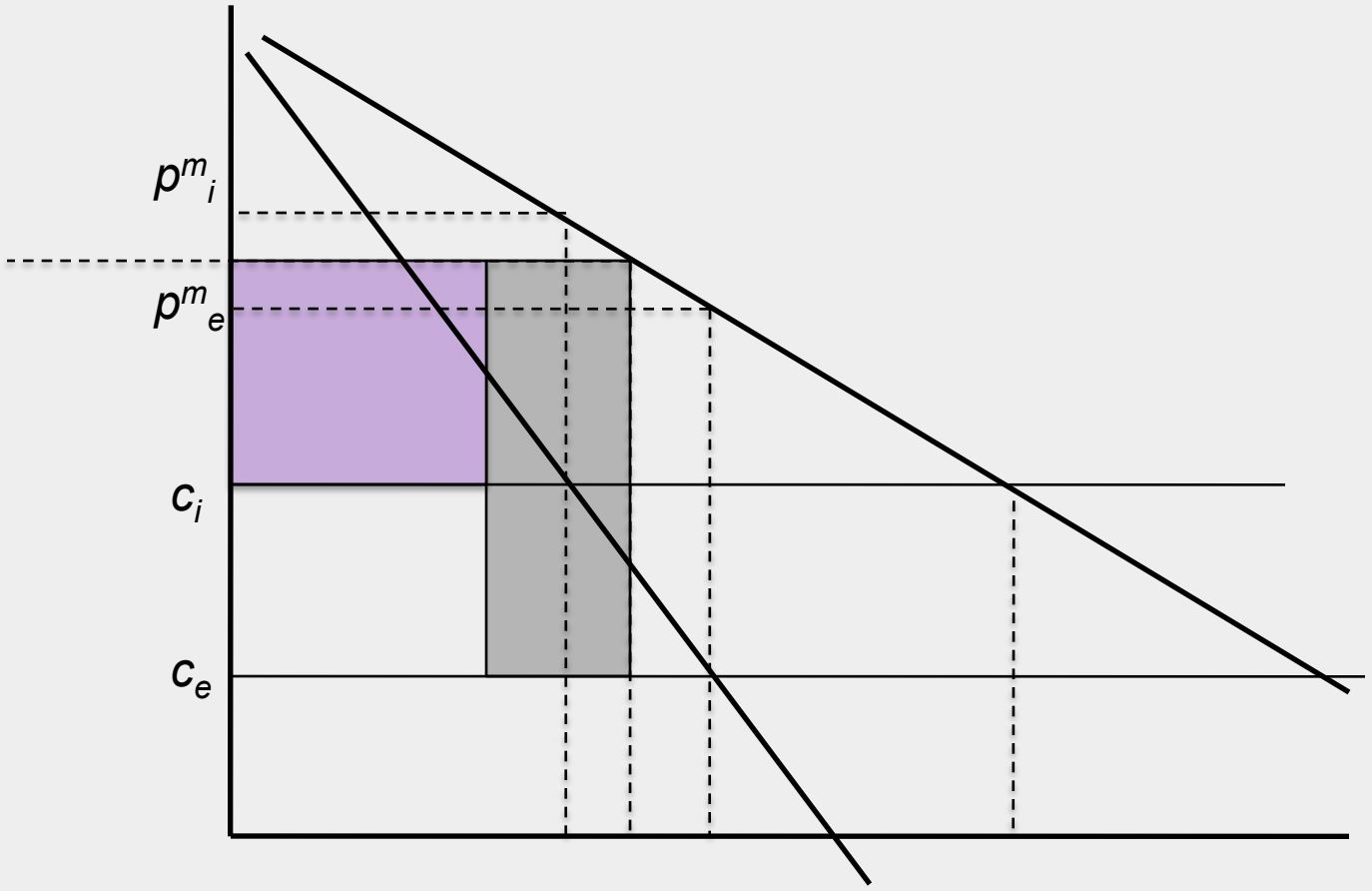
Comparison with collusion

Manufacturer Cartel

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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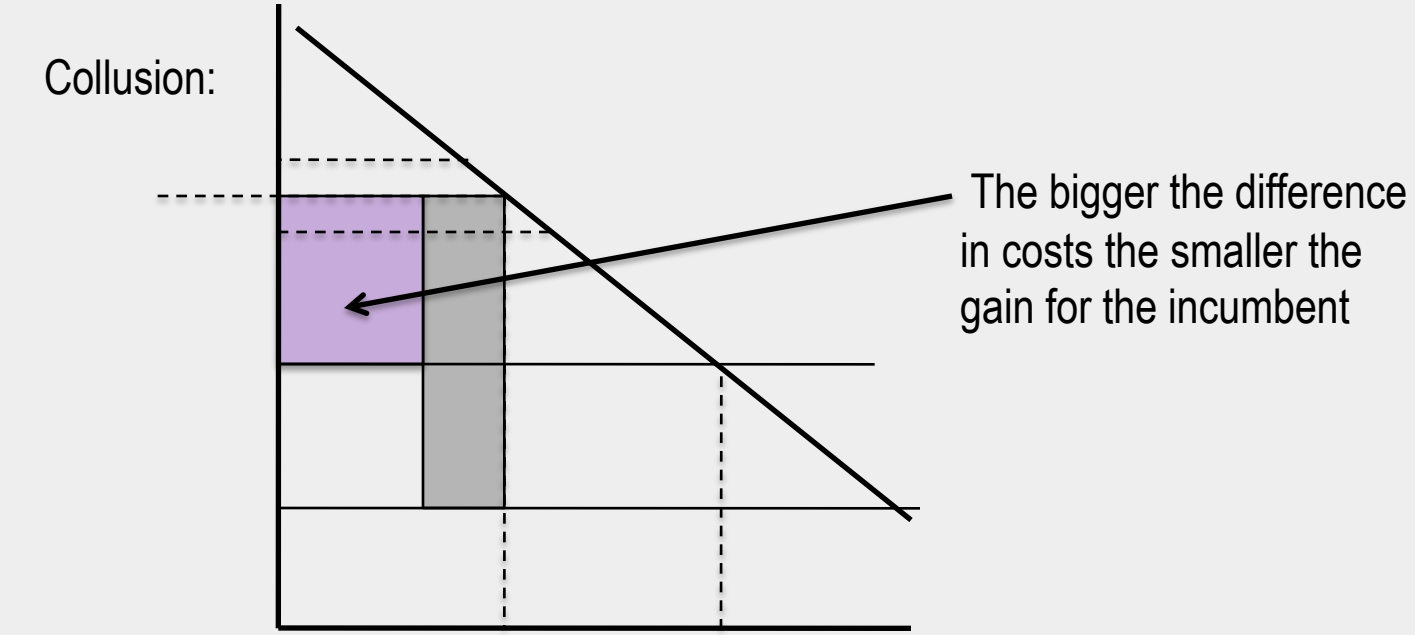
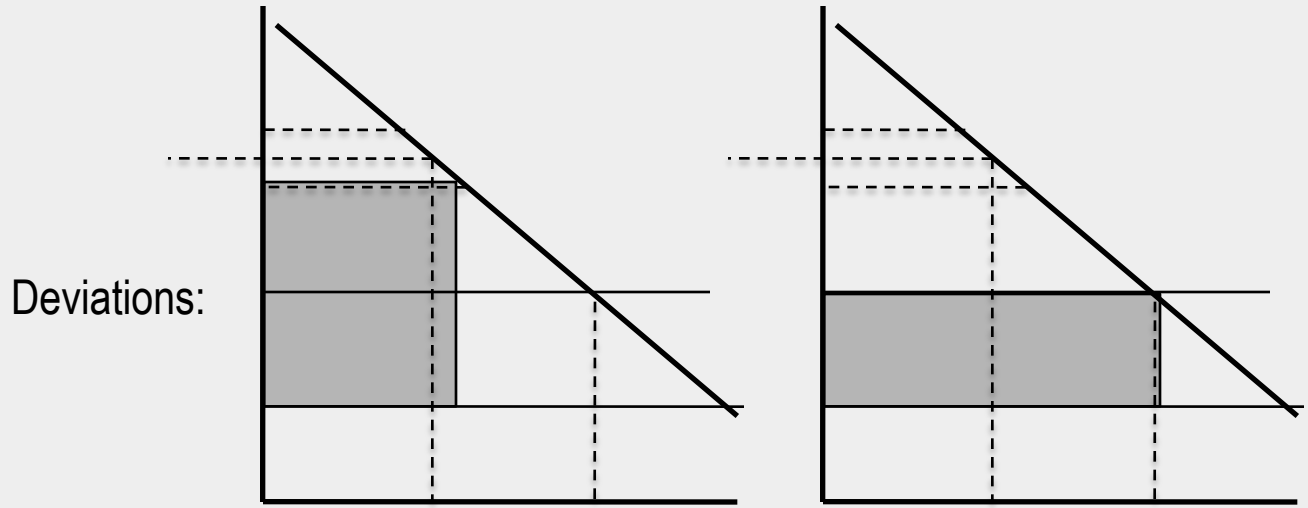
Extensions:

Comparison with collusion

Manufacturer Cartel





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6. Policy

Extensions:

Comparison with collusion

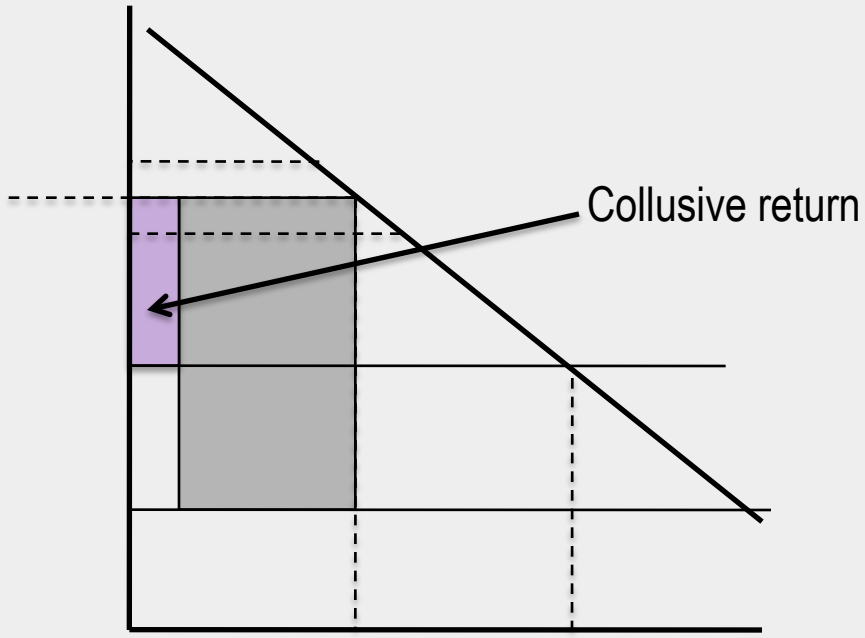
Manufacturer Cartel

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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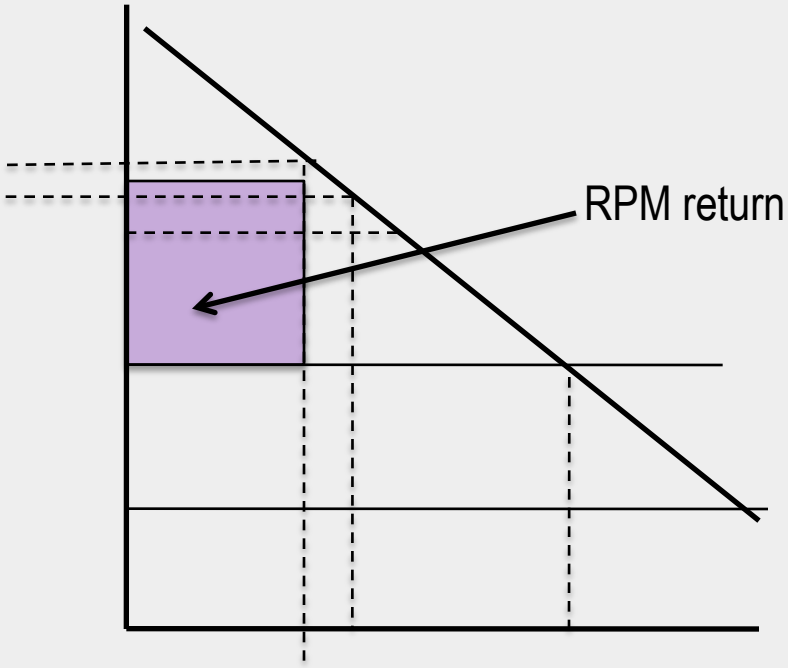

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Retailer Cartel

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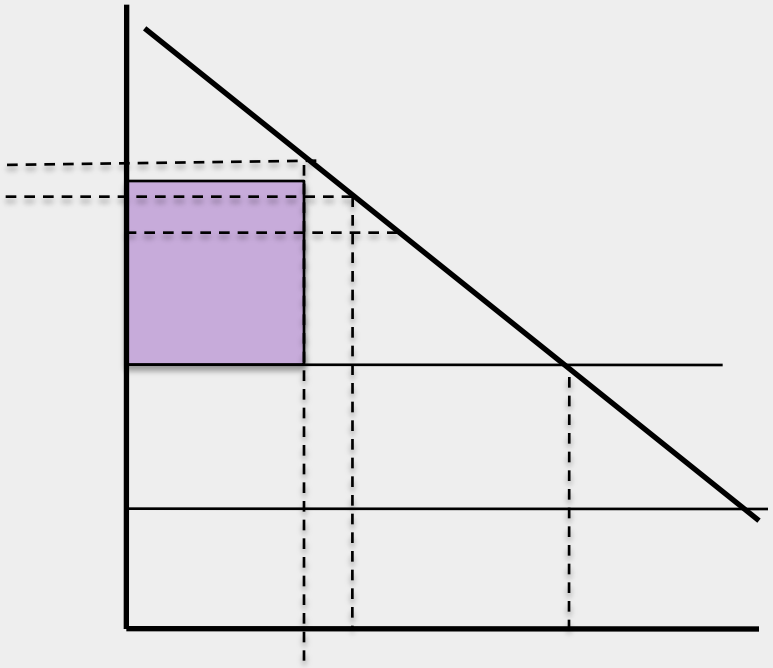

• Note that as the number of entrants increase the attractiveness of exclusion would increase.

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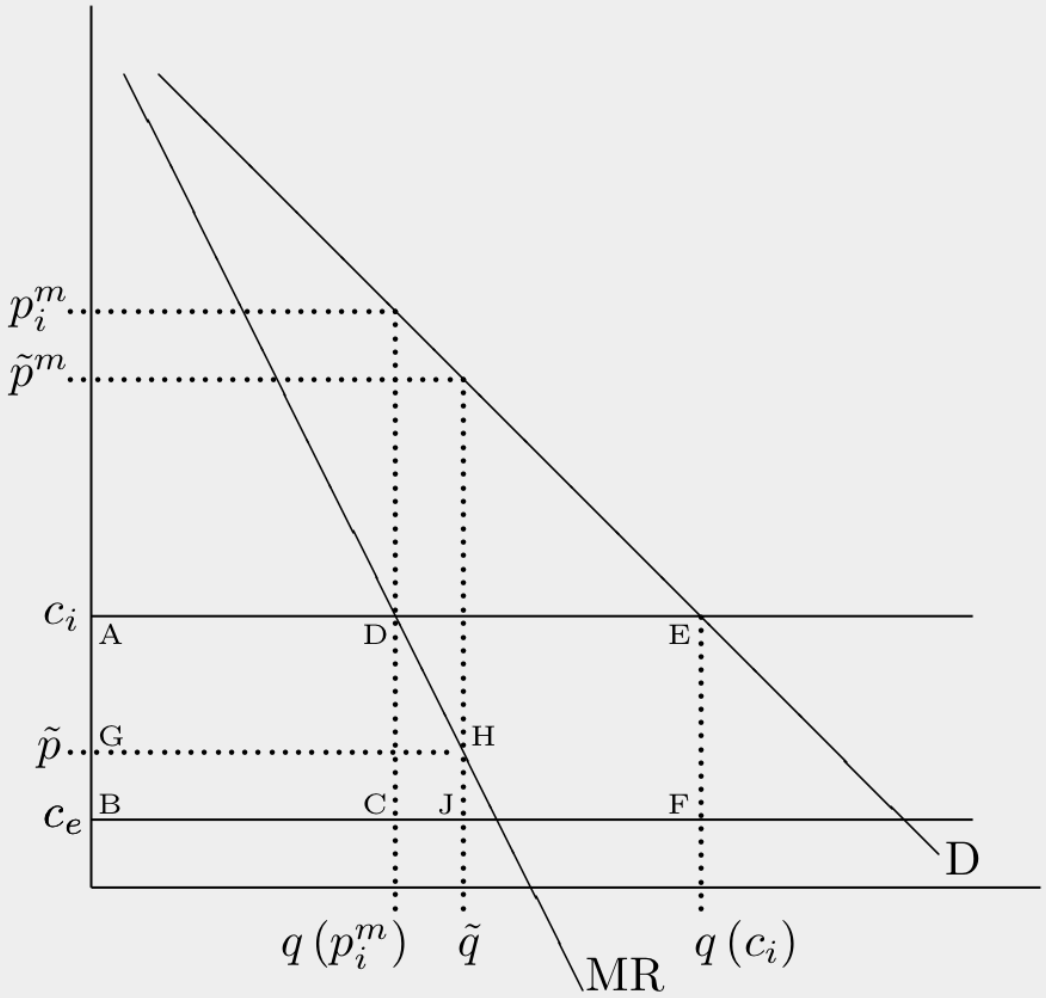
Collusion:

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



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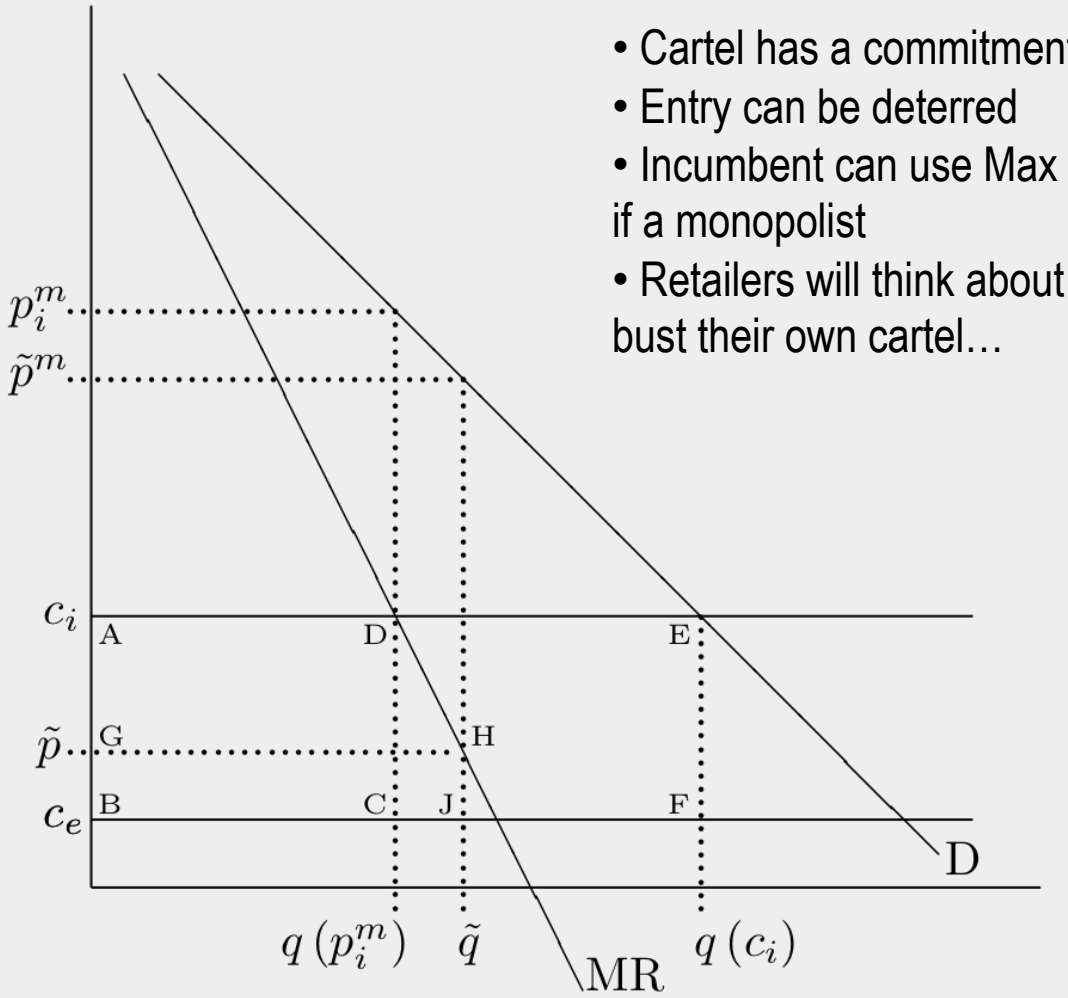

- Cartel has a commitment problem
- Entry can be deterred
- Incumbent can use Max RPM to fix if a monopolist
- Retailers will think about ways to bust their own cartel…

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

An exclusionary equilibrium exists if and only if

Use RPM to share profits ≥ Undercut + Bertrand post-entry - F_e

(Independent of Diff) Decresing in Dff Goes either way

Balance of:
- Softening competition
- Business stealing.

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Extensions:

Policy and screens

Caution in suggested screens?

- Manufacture vs retailer initiated
    - *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.* (Leegin citing Posner, 2001)
- Competition
    - If measure competition using x-elasticities then we stress caution in saying competition is good.
    - HHI's, or C4 etc might actually be more useful.
- Ease of vertical integration
    - Implicitly assume away vertical integration, but might be a useful screen in assessing strength of entry barrier.
- Bound gives a quick litmus test of empirical relevance.

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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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