JOHNS HOPKINS BLOOMBERG SCHOOL of PUBLIC HEALTH

Market Power

Health Economics Lecture 8

Outline

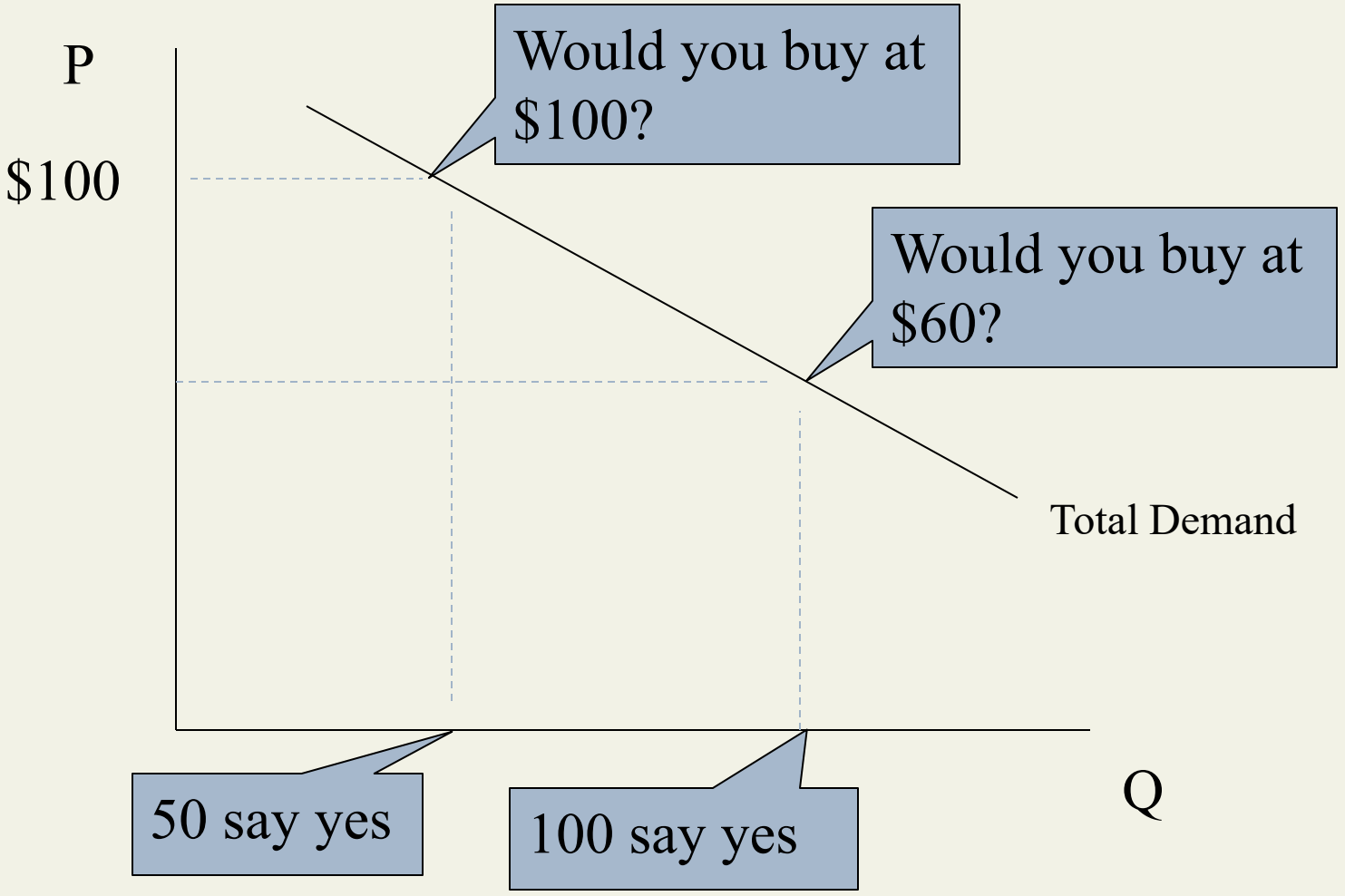
- Why the fuss about market power
  - Monopoly theory
- Cost shifting
- Monopoly hospitals meet monopsony MCOs
- Theories about non-profit hospitals
  - Nonprofit optimizing
  - Cost control

Section 1: Why care about power?

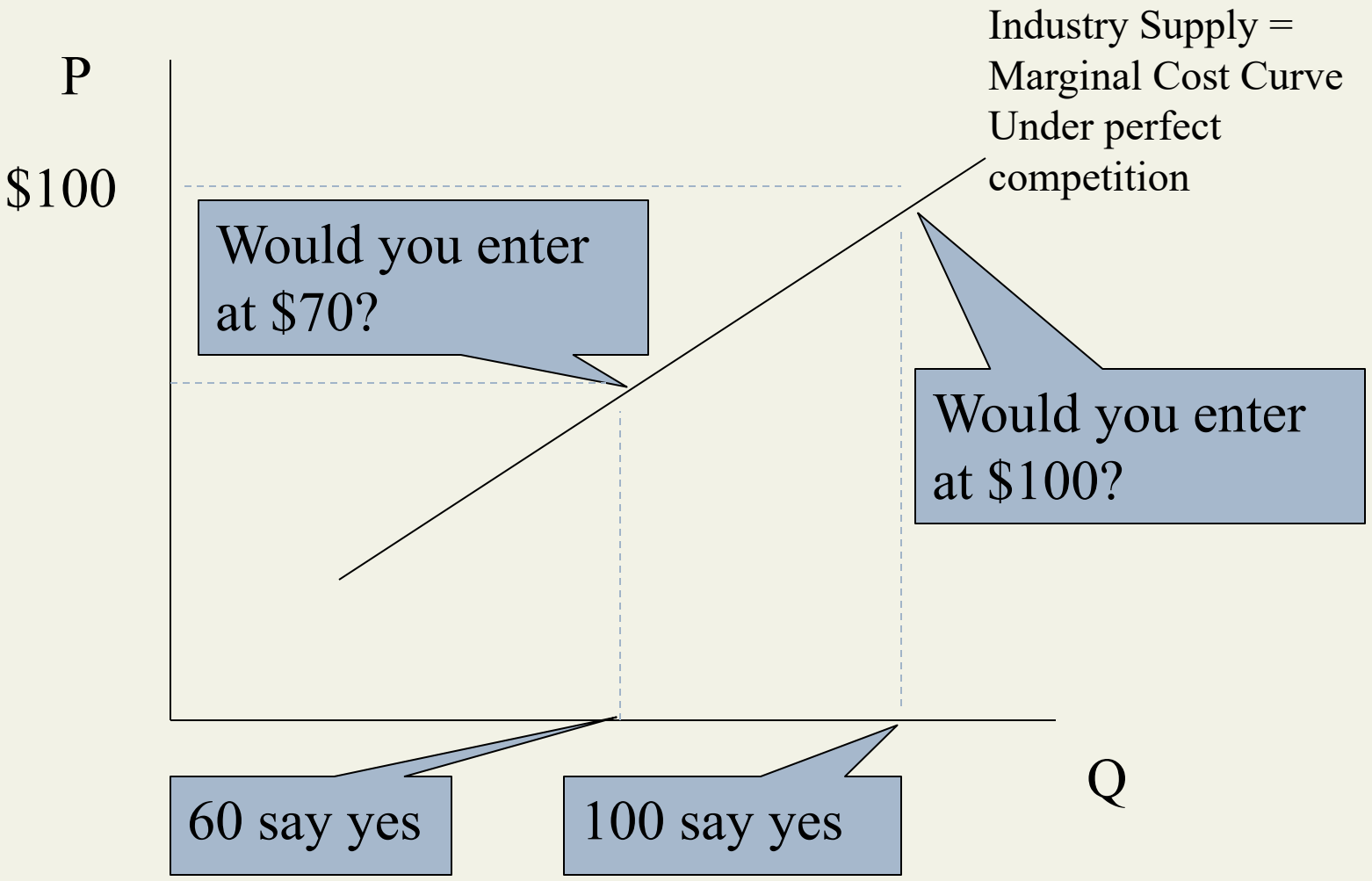
How market power lowers social welfare

- Goal is marginal benefit=marginal cost
  - Achieved where competitive supply meets competitive demand
- Monopolists have the power to charge prices that are higher than marginal cost
- Monopolist restricts supply to get their optimal price
- Society is deprived of goods whose marginal benefit exceeds their marginal cost

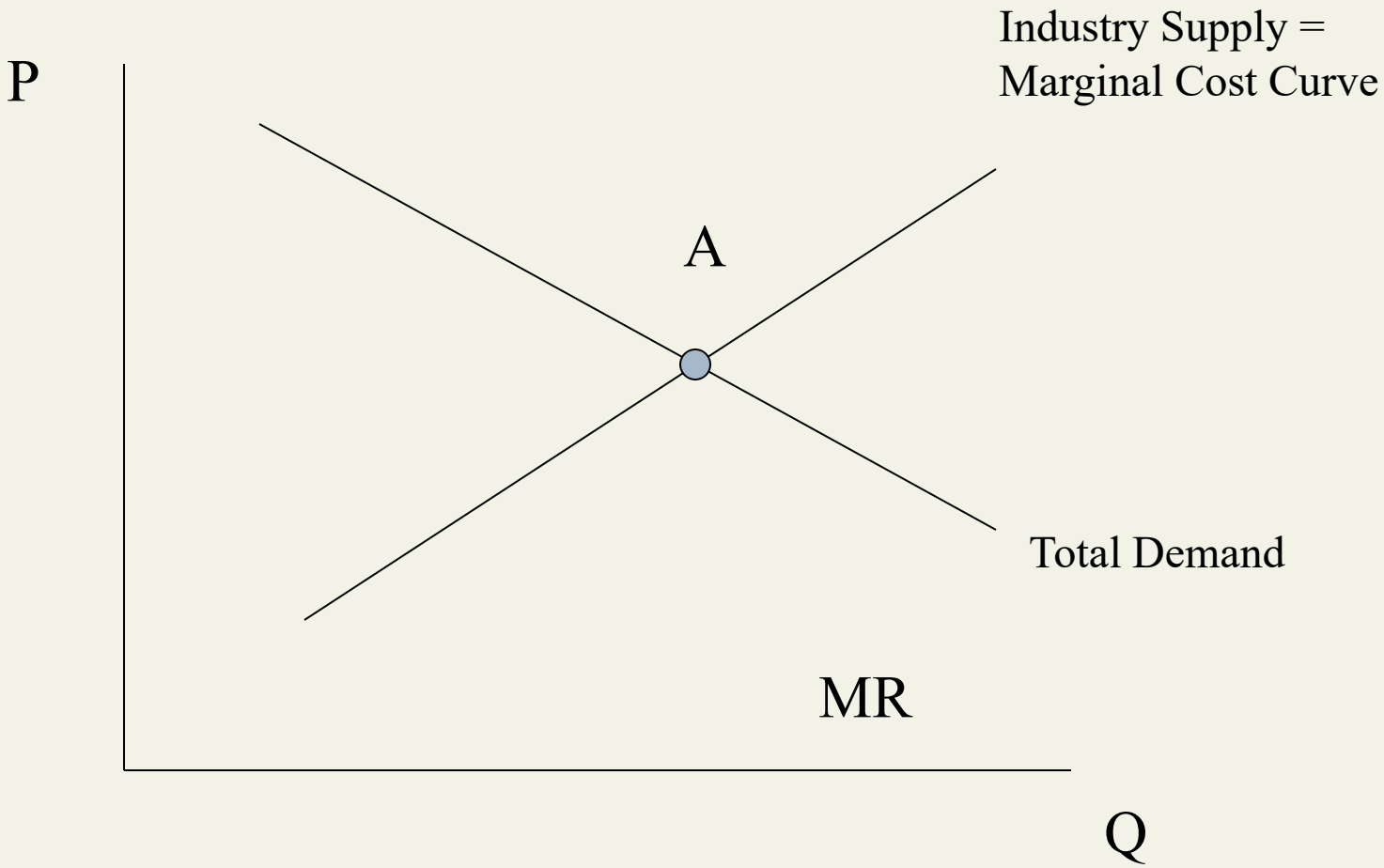
Demand curves as auctions



Supply curves as auctions



Competitive equilibrium



Can't move right. Can't move left. Why?

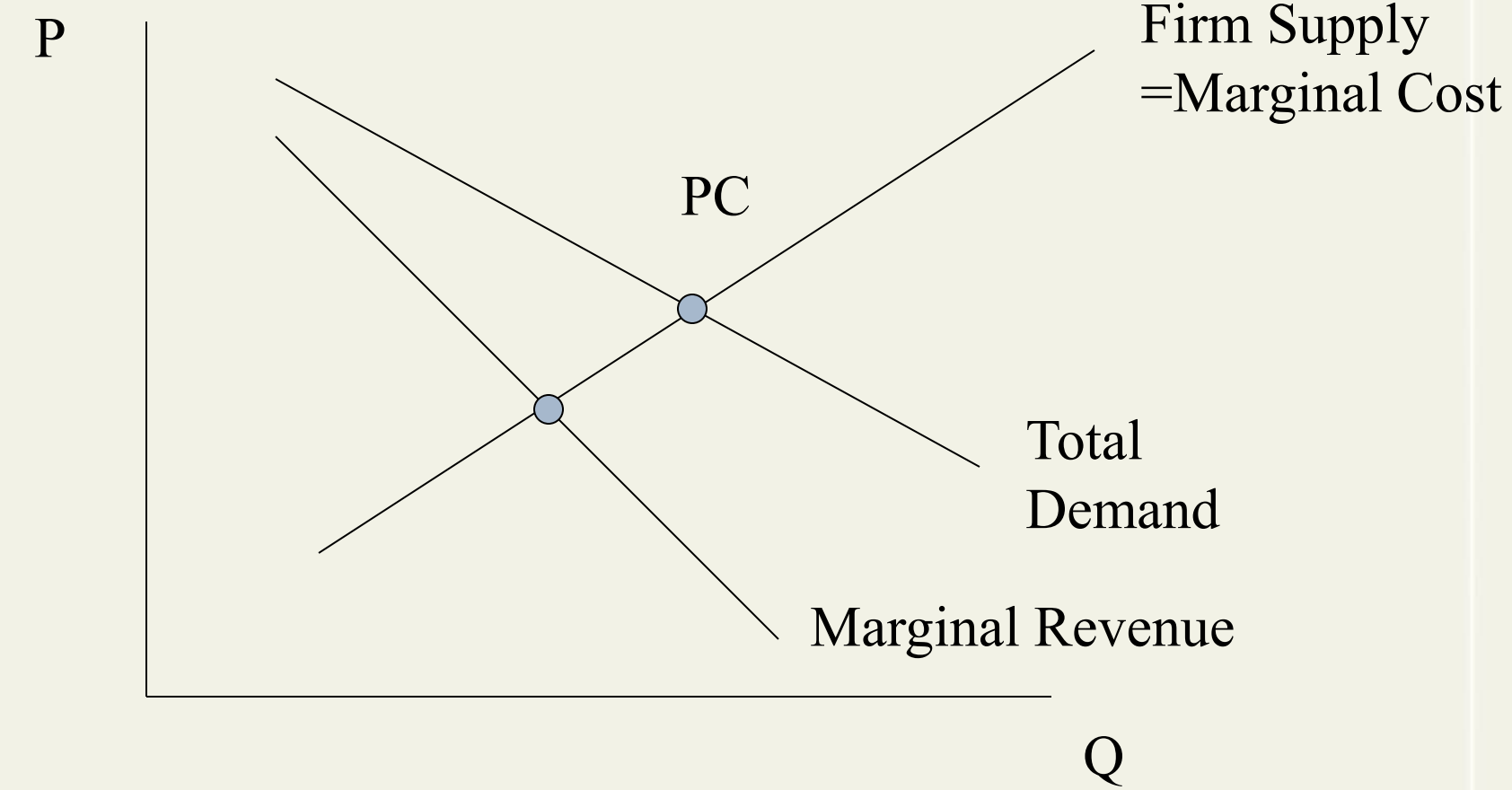
For ONE firm in a competitive industry

- The market price is not affected by their entry
- The demand curve looks FLAT to the single firm
  - They are price takers
  - In competition, each firm must scale itself to have optimal number of workers and capital to produce an output that breaks even when sold at market price
- Their decision is “Should I enter?”

For one monopolist

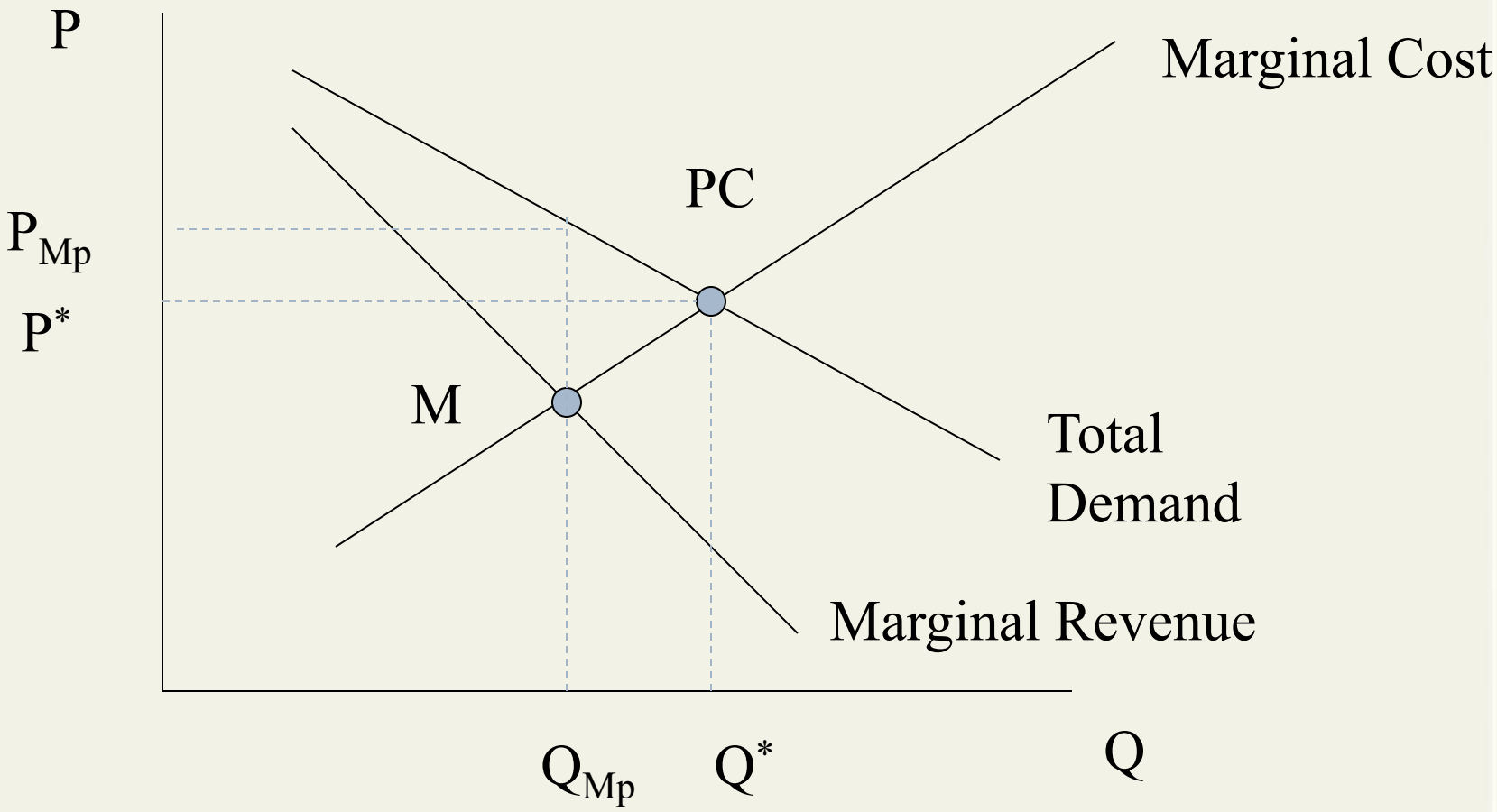
- Link between “What price?” and “What quantity?”
- They see the entire market demand curve
- The demand curve SLOPES DOWN for monopolist
  - Revenue = P x Q
  - But demand curve means P depends on Q
    - $P(Q)= A-\theta Q$
  - Revenue $=AQ-\theta Q^2$
  - Marginal Revenue= $dR/dQ=A-2\theta Q$
- The 101st unit produced leads to price reductions for the prior 100

Marginal revenue

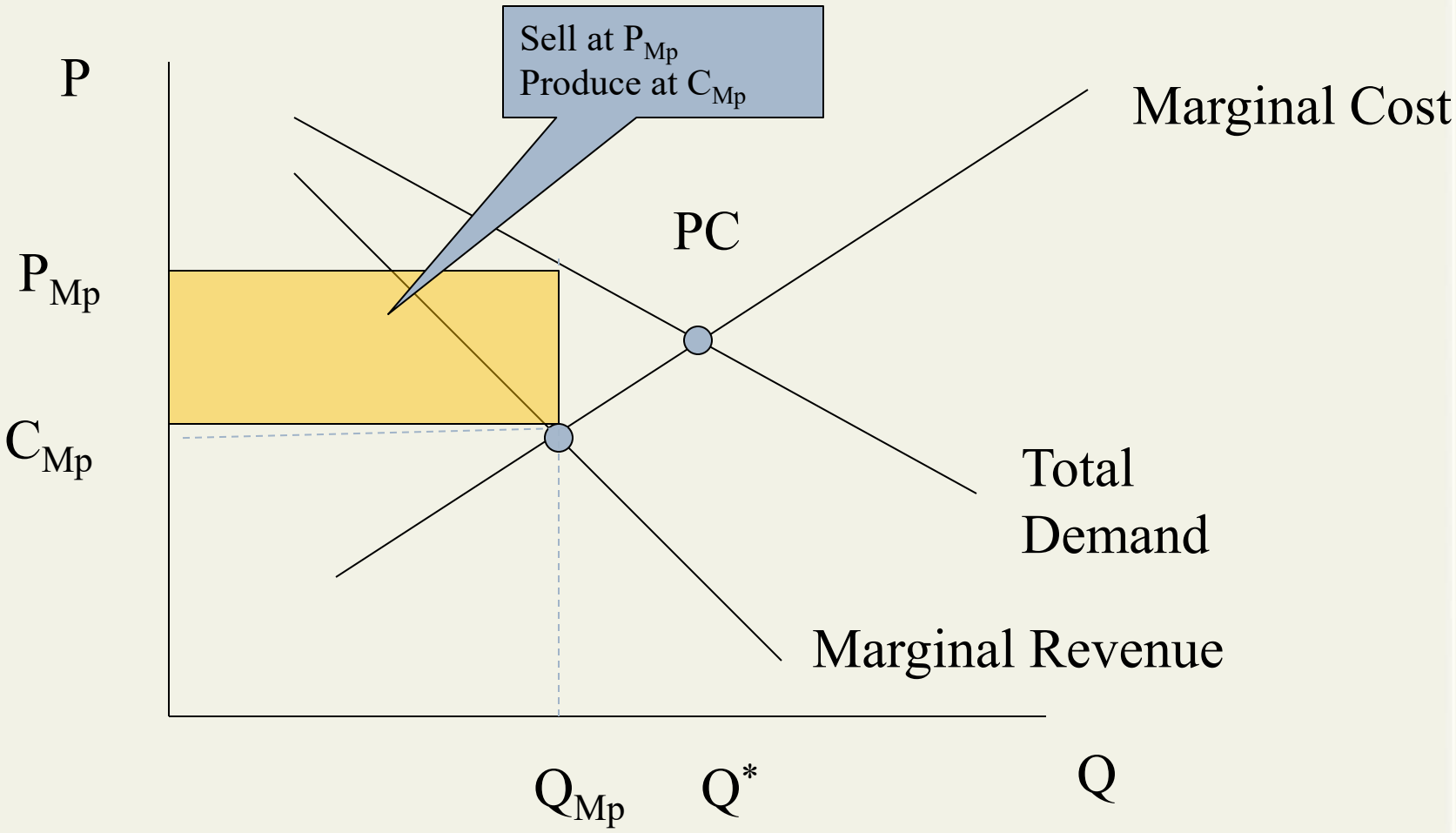


PC is Perfect competition price and quantity

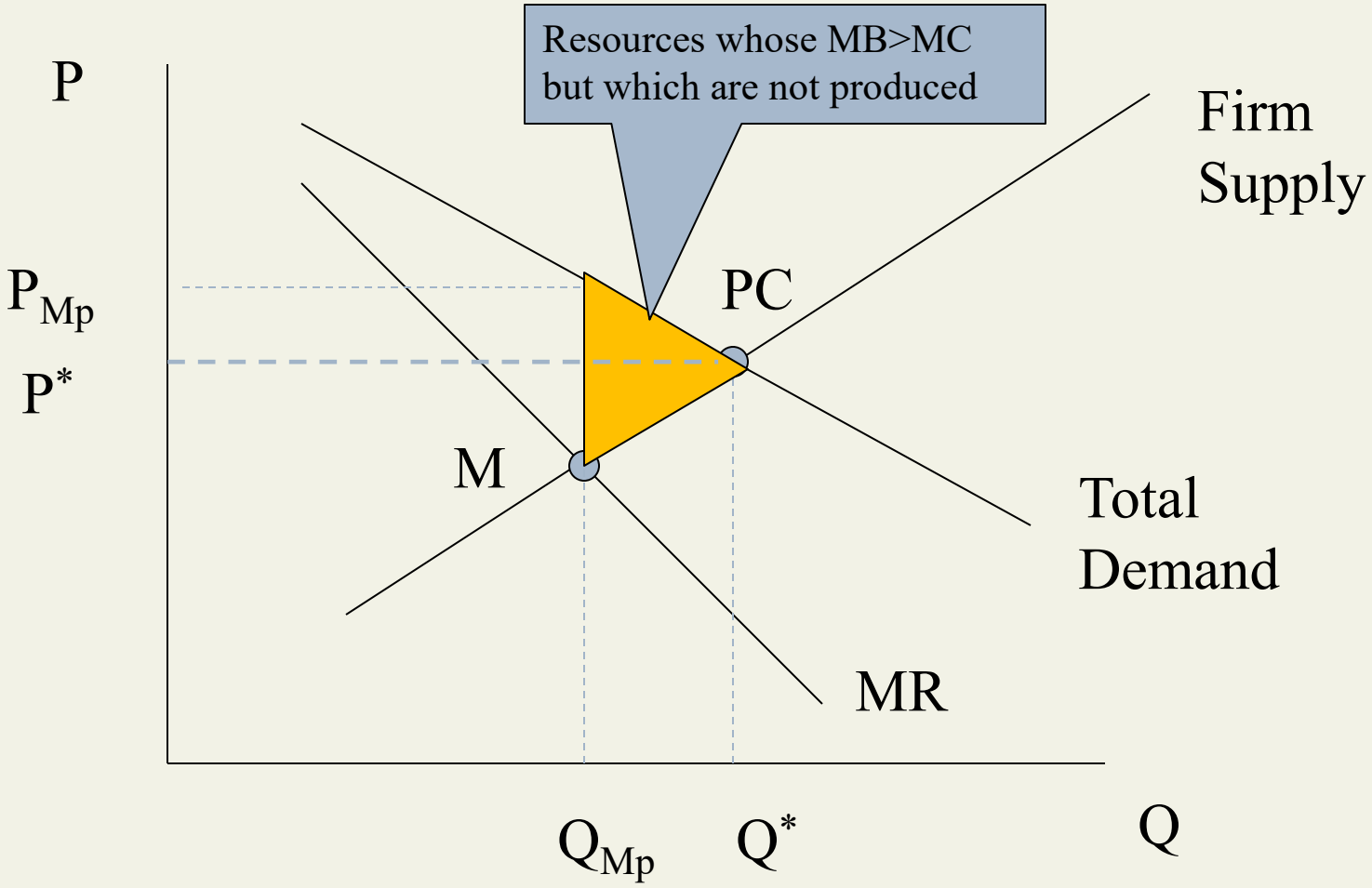
Monopolist equilibrium



Monopolist windfall profit



Lost surplus



Why care about market power

- Society could be made better off if lost surplus is actually produced
- Does the monopolist deserve their windfall profit?
  - Usually not
  - Monopolists never see it that way
- Natural monopolies need to exist
  - Standardized computer operating system (DOS)
  - One company to string copper phone wire
- Unnatural monopolies granted by state officials
  - Firms court politicians to get market power

Pareto optimal policies vs. Monopoly

- Destroying a monopoly
  - Make monopolist worse off to make society better off
  - Hence antitrust laws
- In setting up unnatural monopolies
  - Make monopolist better off to make society worse off
    - BUT will do this if rewarding monopolist serves societal interest
      - Patent protection (Drug invention)
      - Standard setting (Computer software)
    - OR (*cynically)* if rewarding monopolist is politically expedient

Part 2: Cost shifting

The case for monopoly hospitals

- Should society tolerate concentrated hospital markets?
- Yes, if concentration results in provision of some public good
  - Common tradeoff in policy

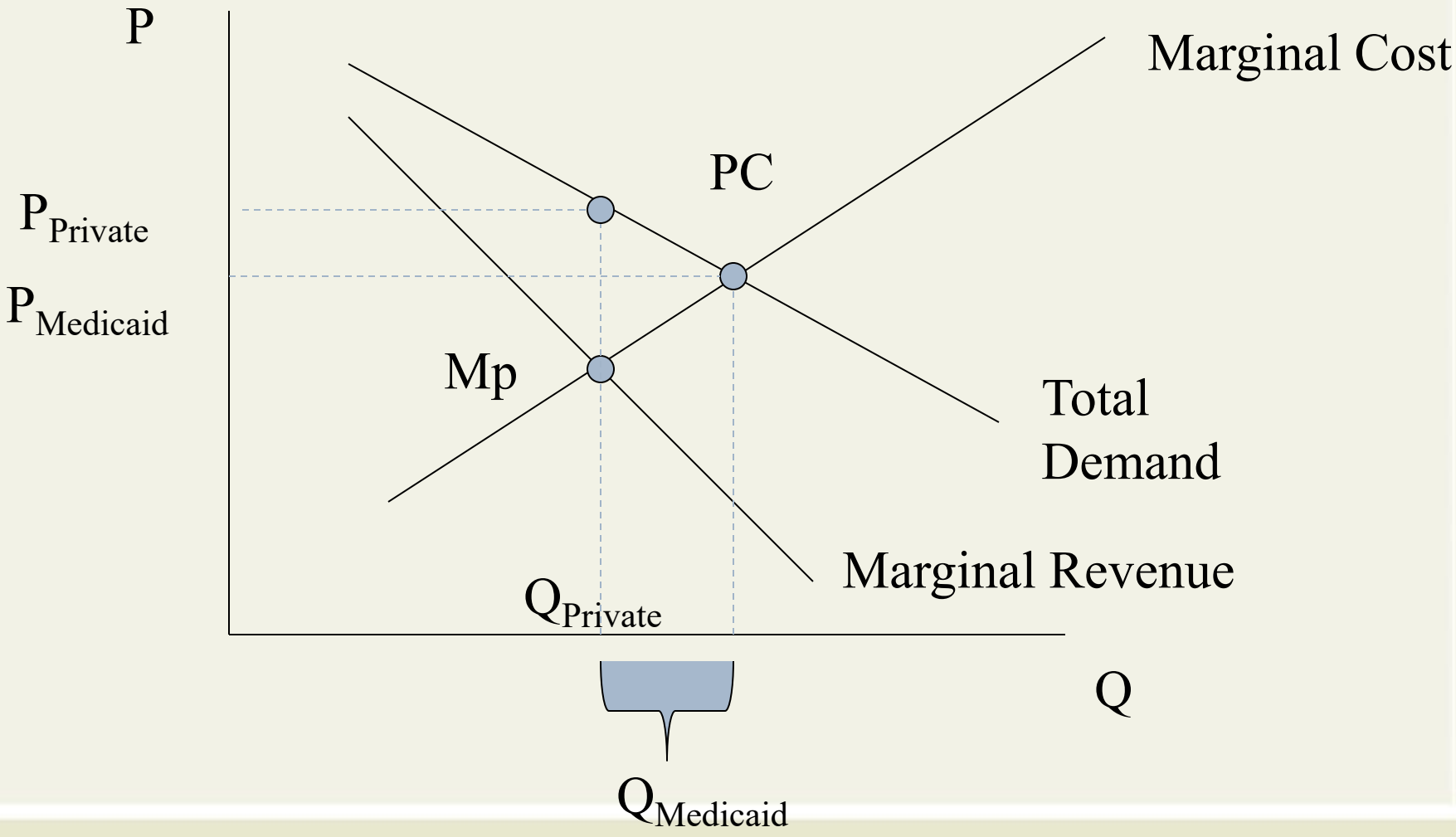
Cost shifting as a public good

- Society views hospital beds for the poor as a public good
  - Plan A: Tax citizens and use money to buy beds for poor at a price chosen by Govt (Medicaid)
  - Plan B: Permit hospitals to merge on condition that they sell beds to Medicaid at marginal cost AND offer charity care to the uninsured

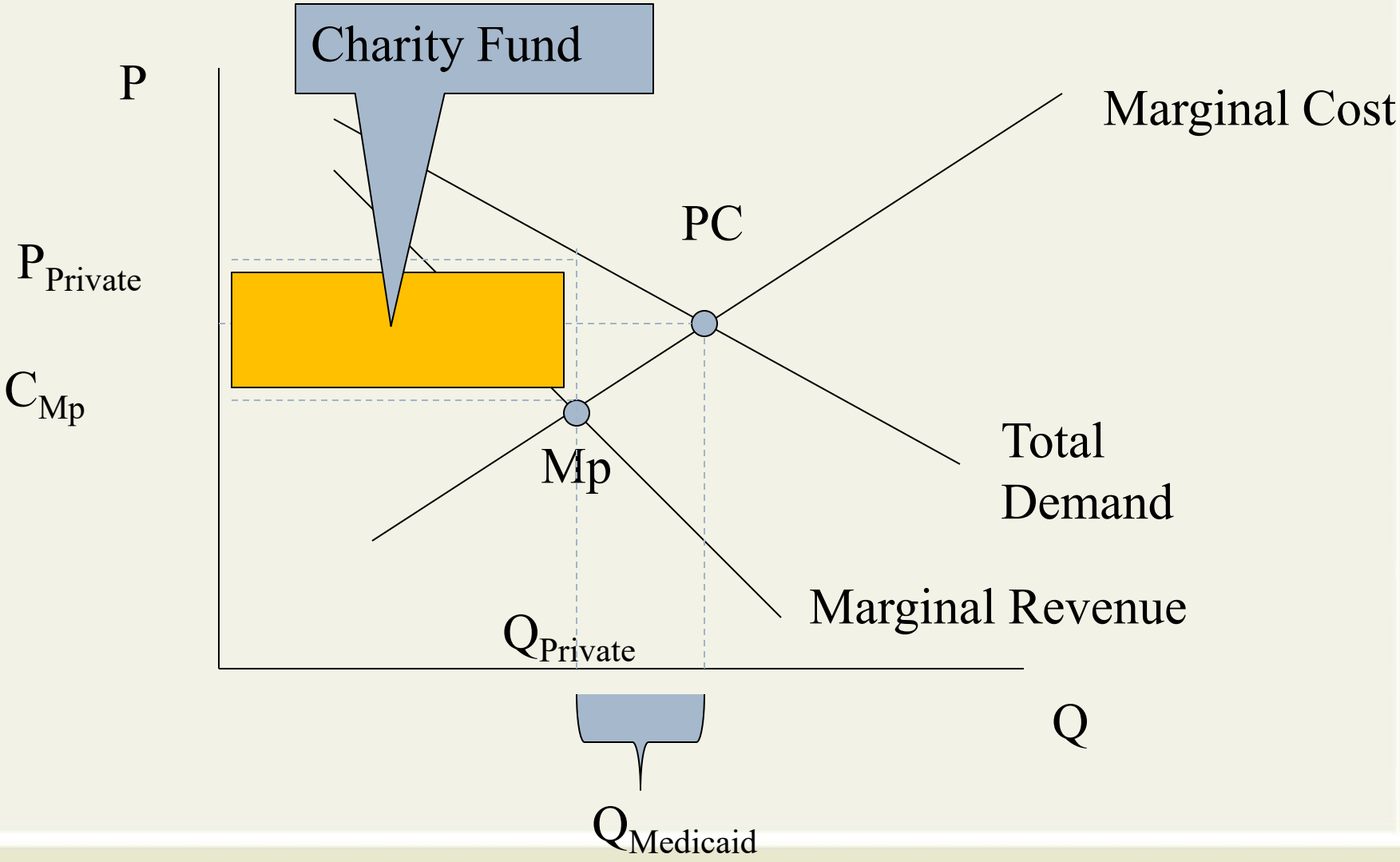
Letting Hospitals Charge Monopoly Prices

- Builds up a “Charity Fund” (=windfall profits)
- Medicaid’s large size can over power hospitals to tap into this charity fund to sell cheaper beds
  - Can Medicaid force the price all the way to cost?
  - Can Medicaid force the price to below cost?
- Look at Comp Statics.

Monopolist price discrimination



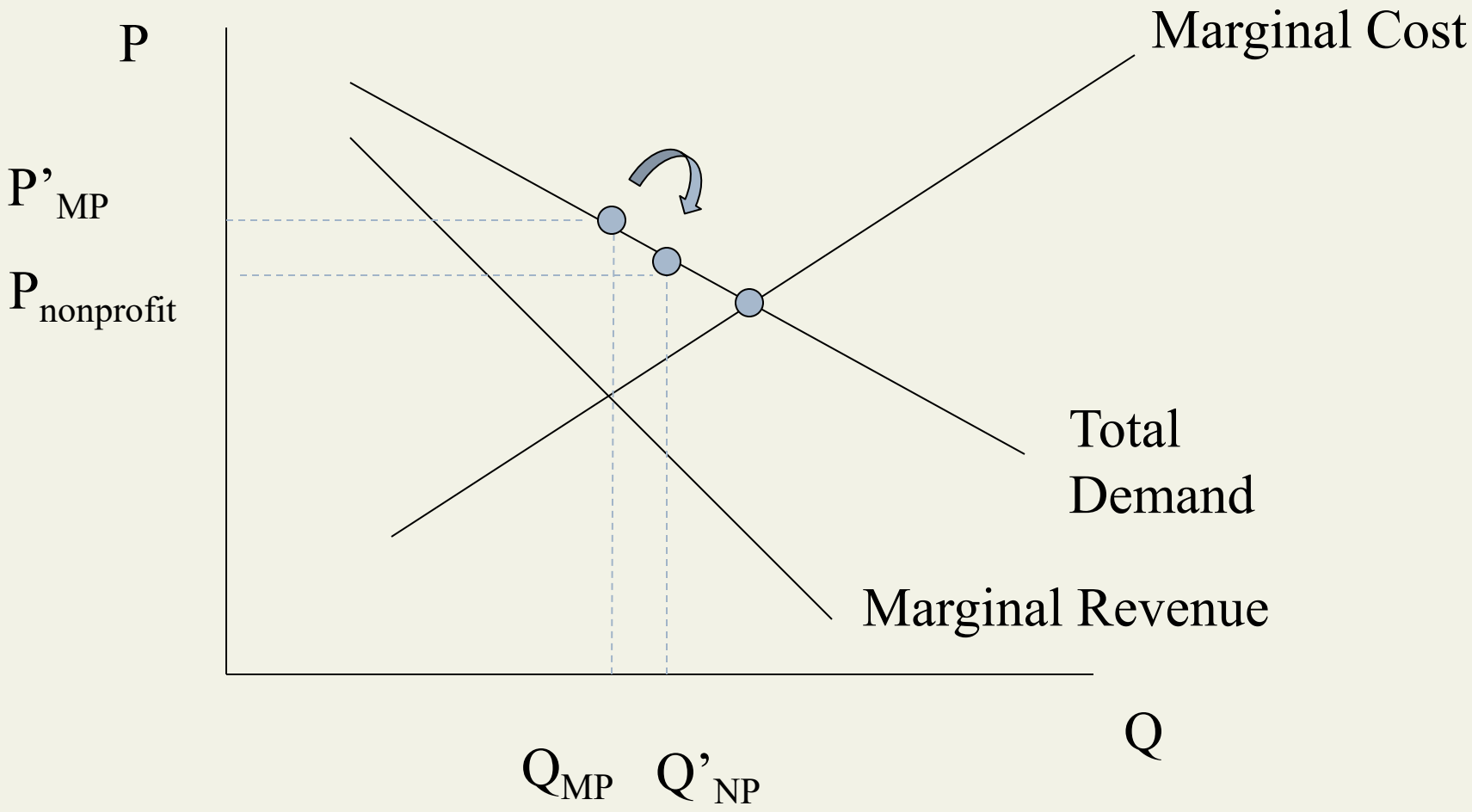
Monopoly profits support charity



Theory of cost shifting

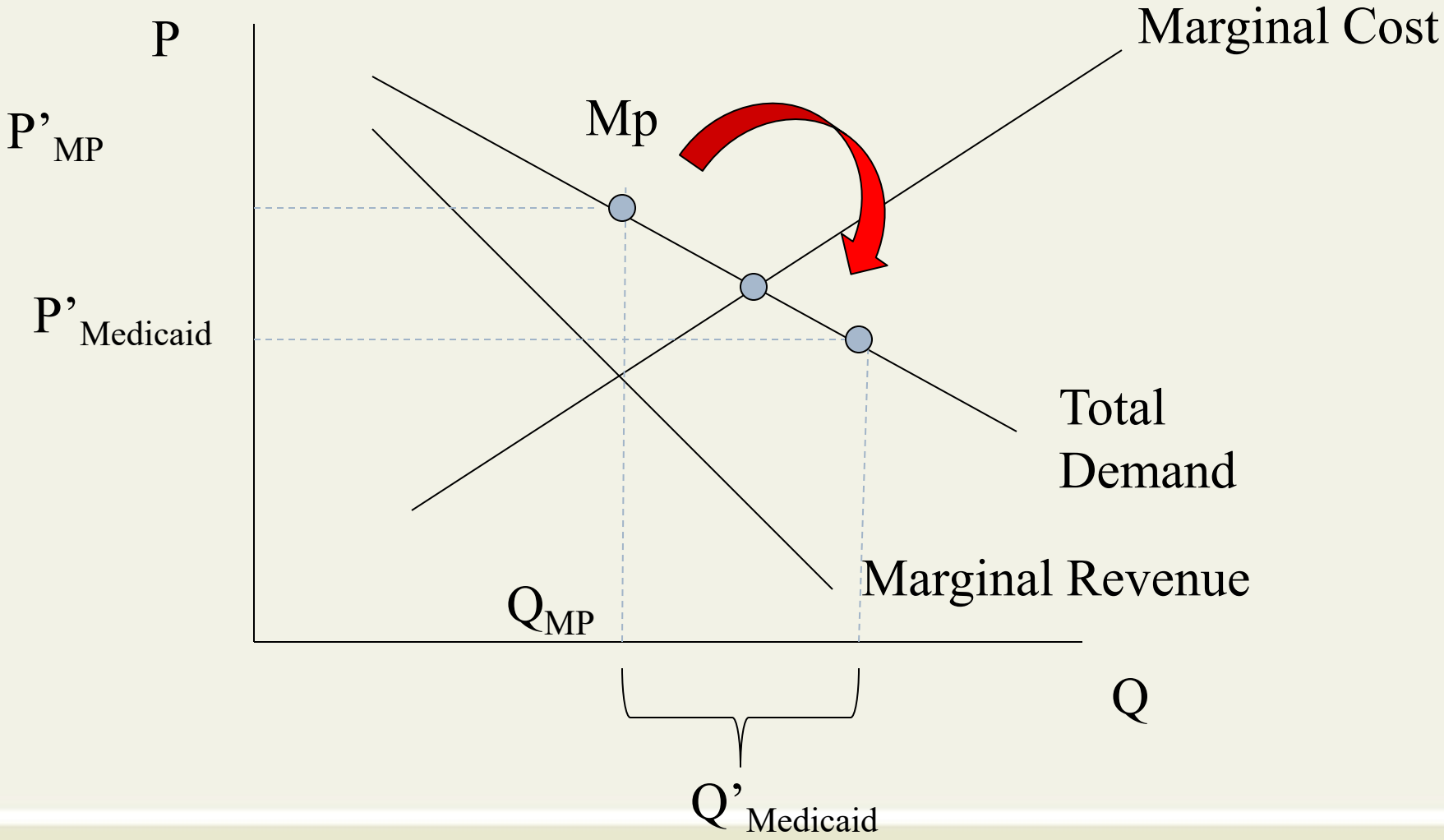
- Theory that if Medicaid reduces it's payment below marginal cost, hospital will raise its price to private insurers
- Controversial
  - There is only one monopoly price to charge private insurers and hospitals should already be charging it
  - What if hospitals are non-profit and soft hearted?

Hypothetical case 1: Move from for profit monopoly hospitals to non profit pricing



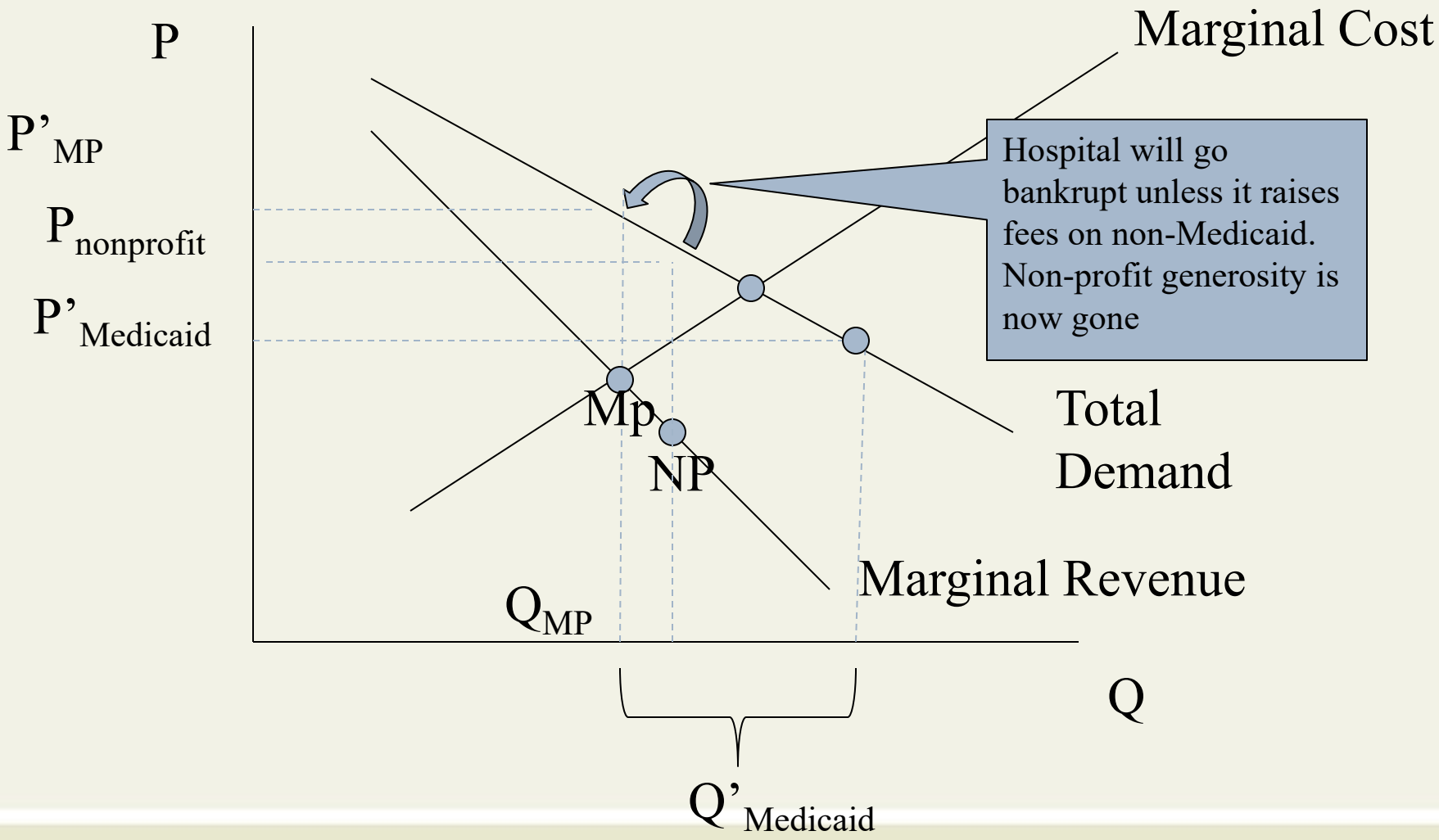
Is this new equilibrium possible? Is it better for society?

Hypothetical case 2: Going from for profit monopoly hospitals and no Medicaid pricing to a dual market with a discount Medicaid price and a private monopoly price



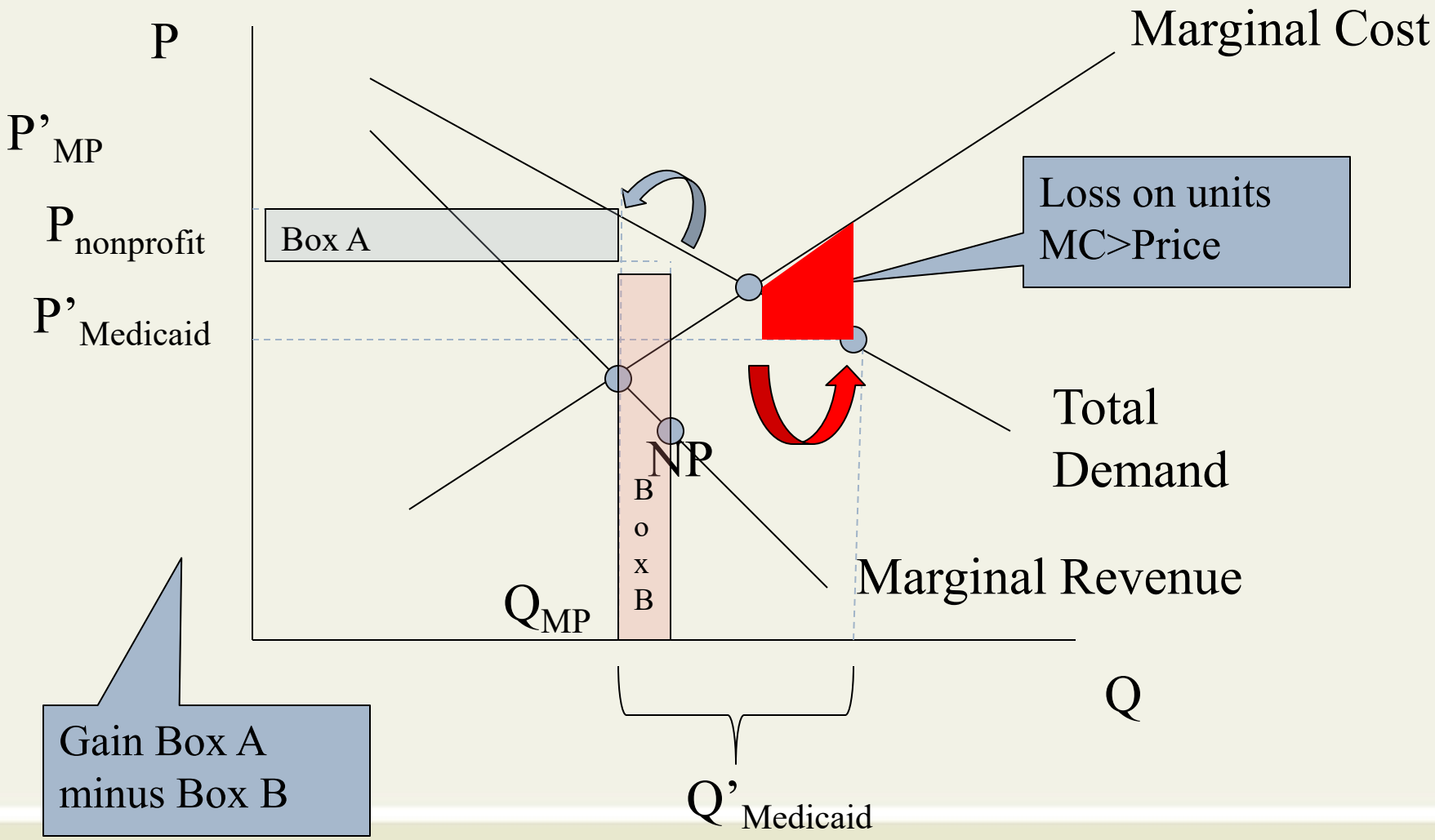
Is this new equilibrium possible? Is it better for society?

Hypothetical case 3: Going from non-profit pricing to dual pricing (Medicaid discount price and Private Monopoly price)

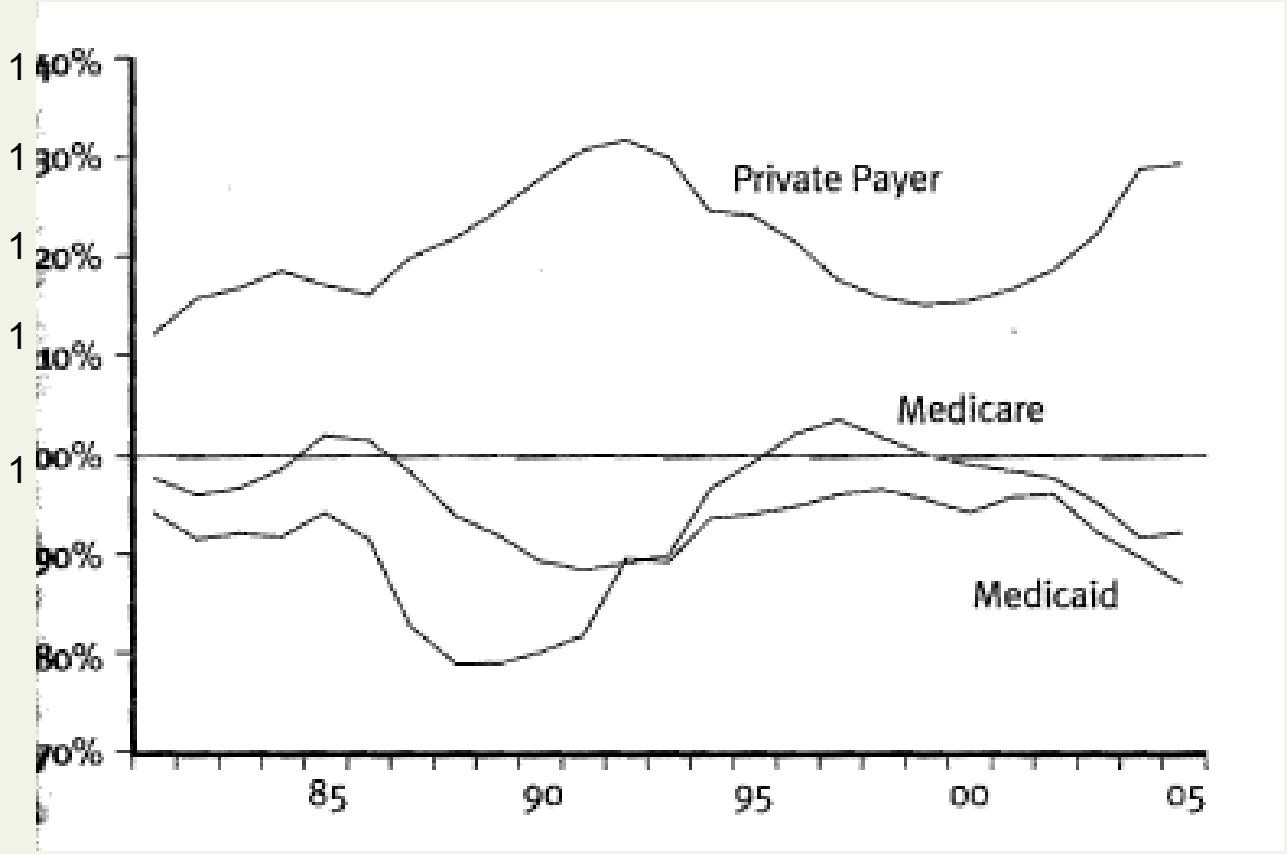


Is this new equilibrium possible? Is it better for society?

Spot the cost shifting. (Box A Minus Box B) is used to pay for the subsidy to Medicaid (red trapezoid)

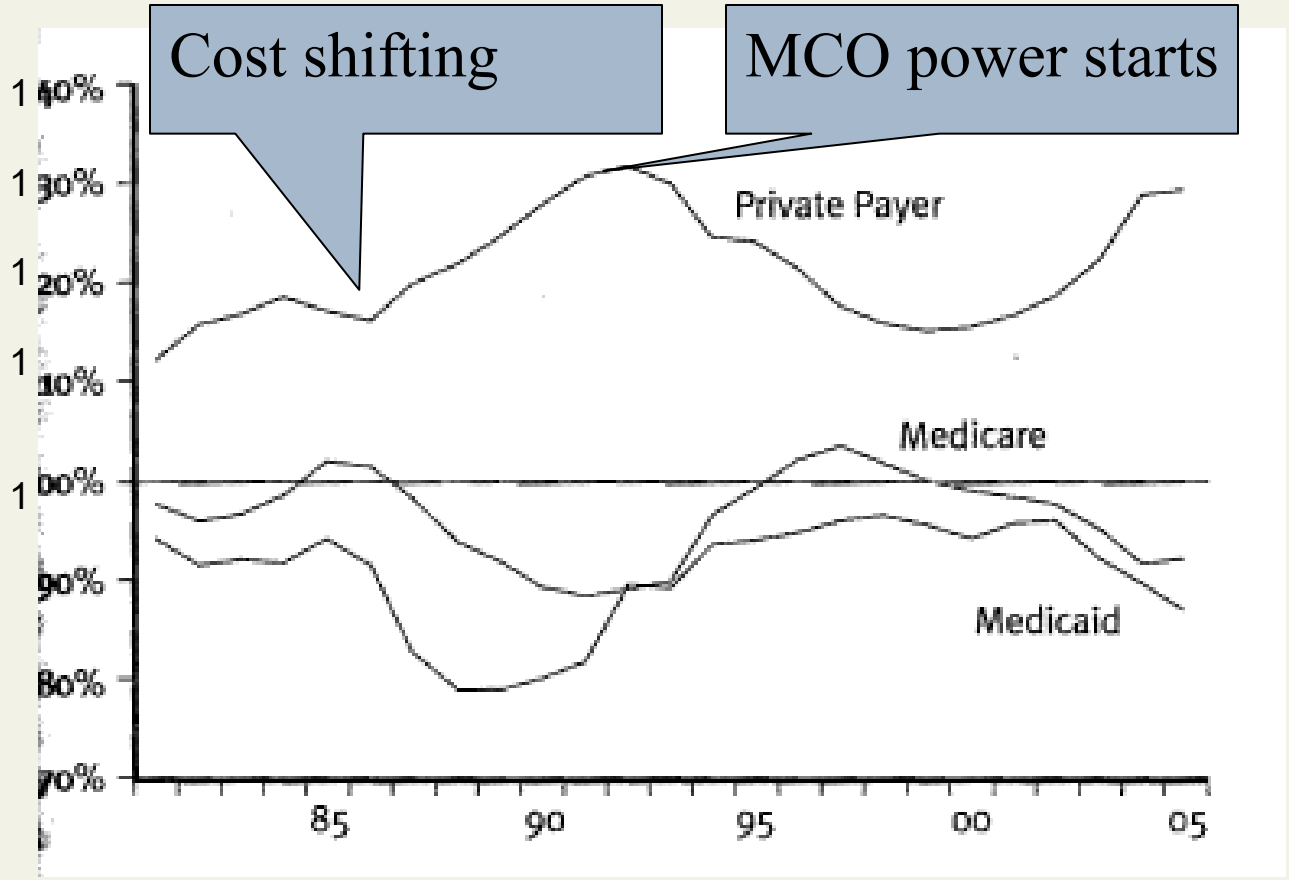


US Data on Payment /Cost



Hospital Payment to Cost Ratios in US
(Rice p. 191)

Evidence of Cost Shifting



Hospital Payment to Cost Ratios in US
(Rice p. 191)

Part 3: Market power in health systems

Who has power and why?

- Insurers
  - Law of large numbers
  - Efficiency if scale ~10,000 +
  - Using their power they can negotiate down fees and force more capitation and risk bearing onto providers
- Hospitals
  - Learning by doing
  - Better to specialize in certain procedures
  - Need to grow to bargain with aggressive insurers

Definitions

- Concentration
  - High concentration means few firms
  - High concentration means low competition
- Herfindahl Hirschman Index (HHI)
  - Let s_i be the market share of firm i
  - $HHI=\sum s^2_i$
  - In a theoretical monopoly HHI = 100^2=10,000
  - In a duopoly HHI=50^2+50^2=5000
  - If 100 equal hospitals HHI=100 etc.
- Department of Justice threshold for disallowing mergers= post merger HHI of 1800.

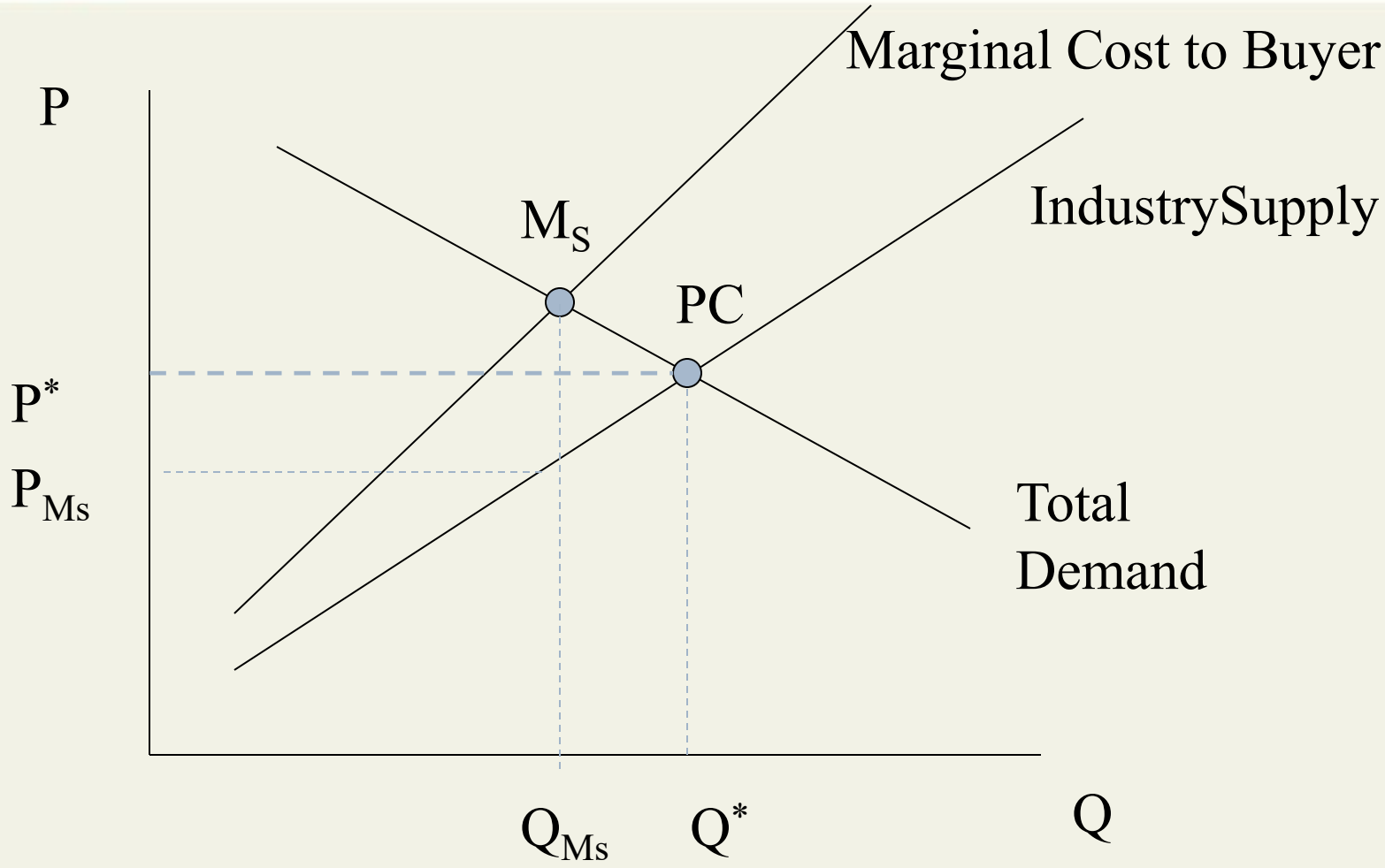
Empirical data (Rice p.185)

- Managed care changed the nature of hospital competition
- Prior to 1990
  - Low concentration led to (wasteful) quality competition
    - Insurance did not force price reductions
    - Hospitals competed with wood paneling and lots of scanners and ICUS
    - “Medical arms race”
- After 1990 (MCO era)
  - Low concentration led to price concessions
  - MCOs succeed more where there are more hospitals

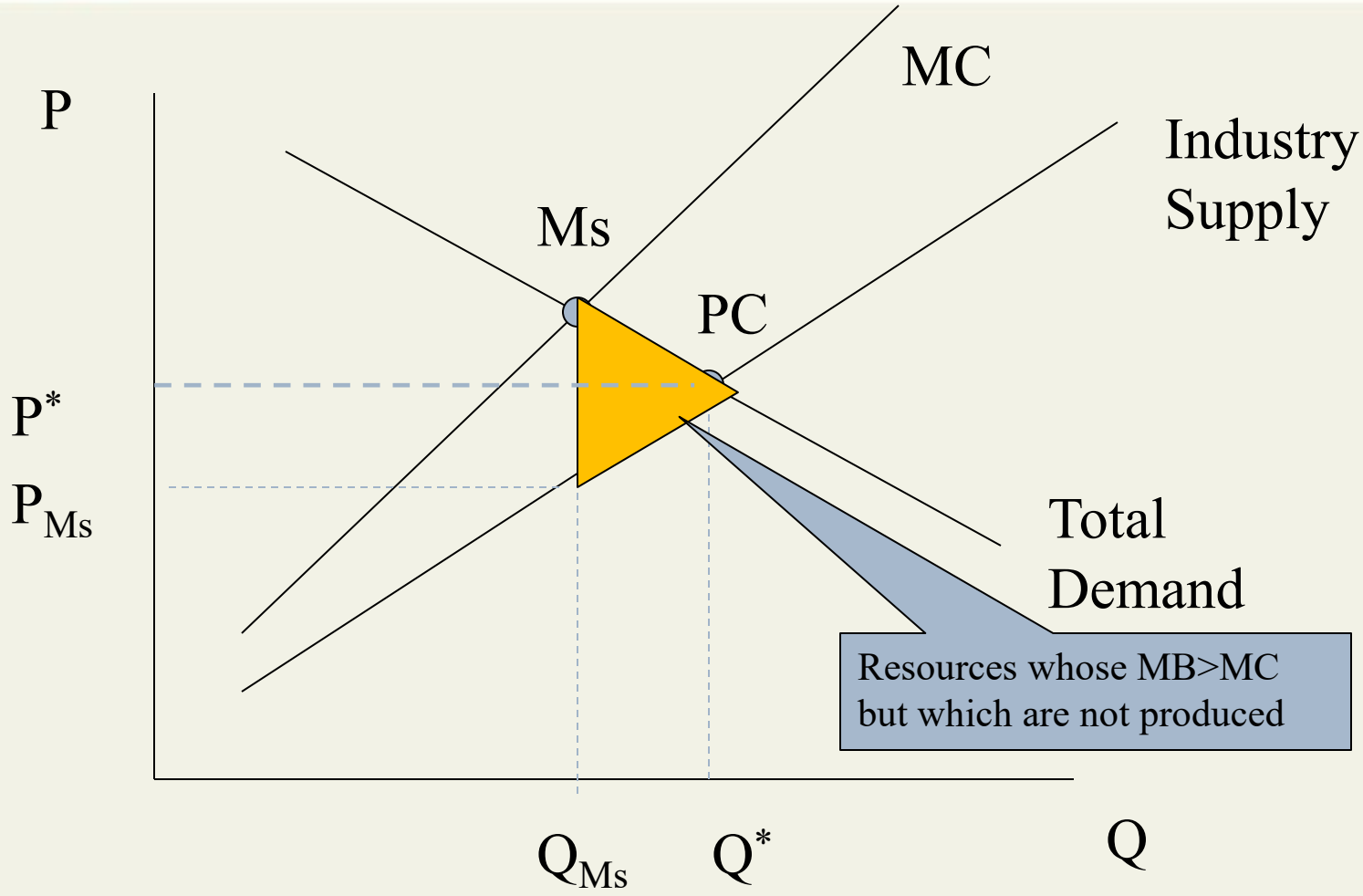
MCO era hospital mergers

- Hospital markets with low concentration had to consolidate to bargain with MCOs
- Market moved towards a model of oligopoly hospitals selling beds to oligopsony MCOs
  - MCOs buy beds and resell them to patients
  - Buying cheaper beds can make MCO more money
- Need theory of monopsony

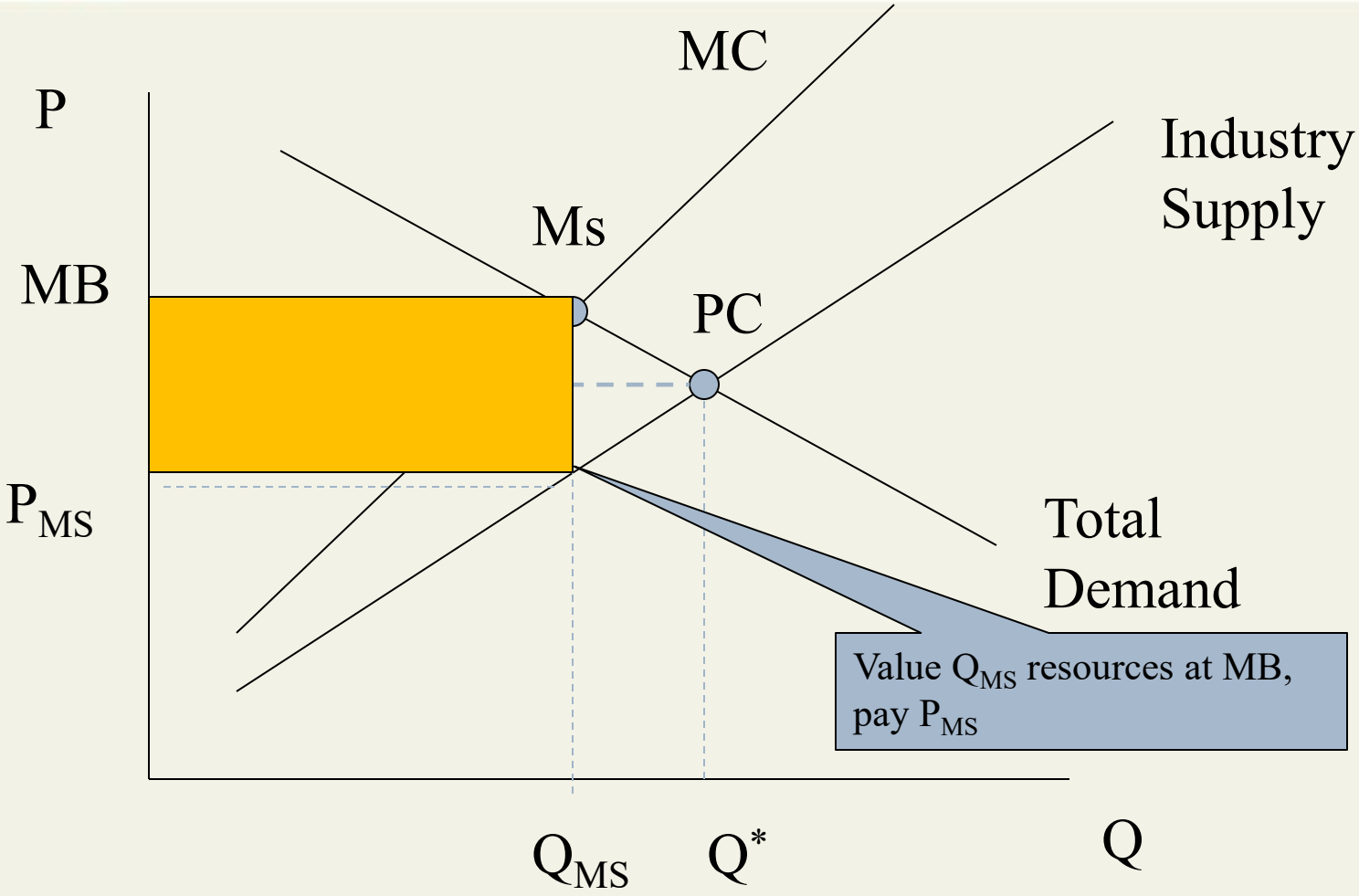
Monopsony Buy less, Get lower price



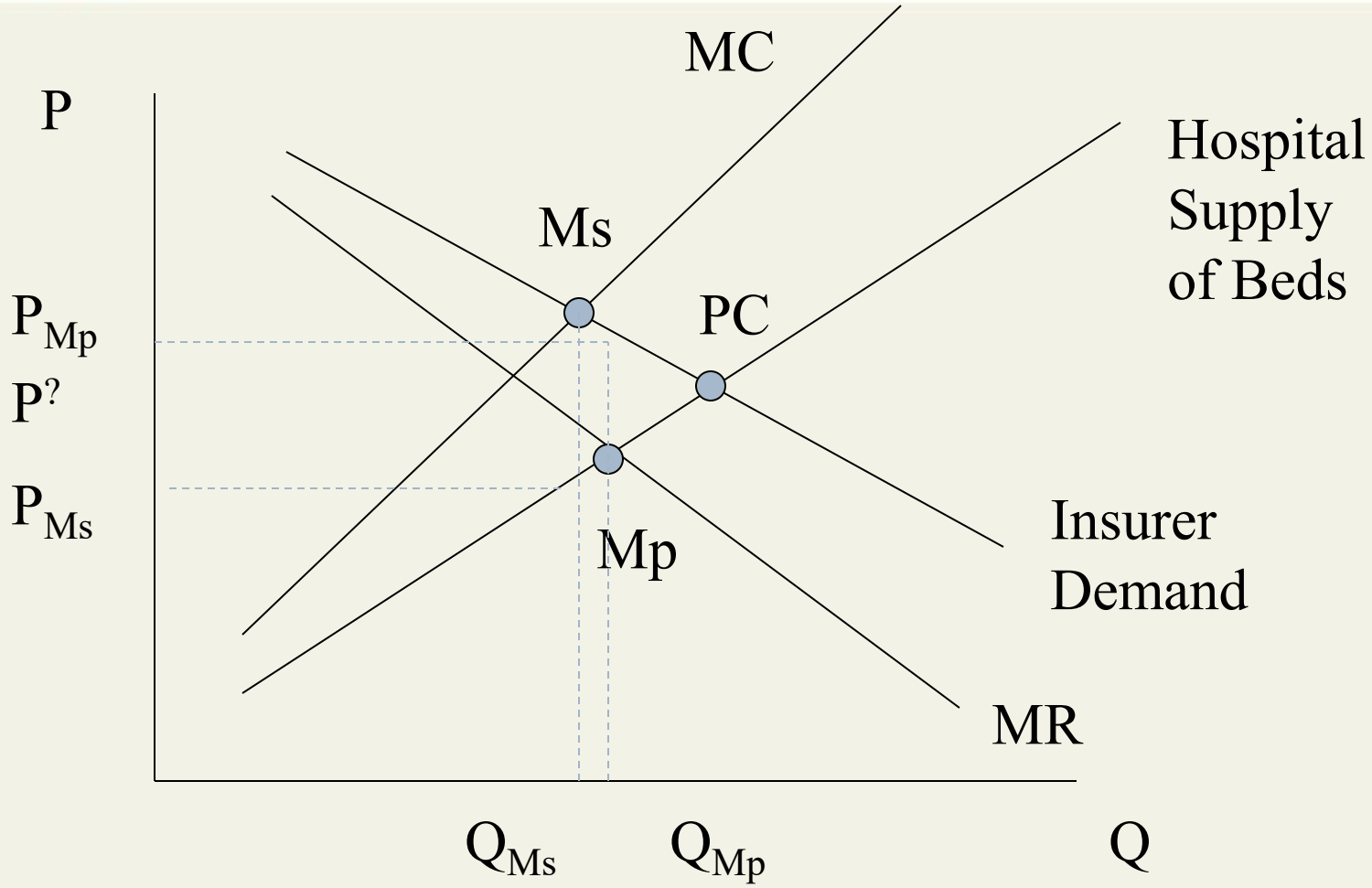
Monopsony Buy less, Get lower price



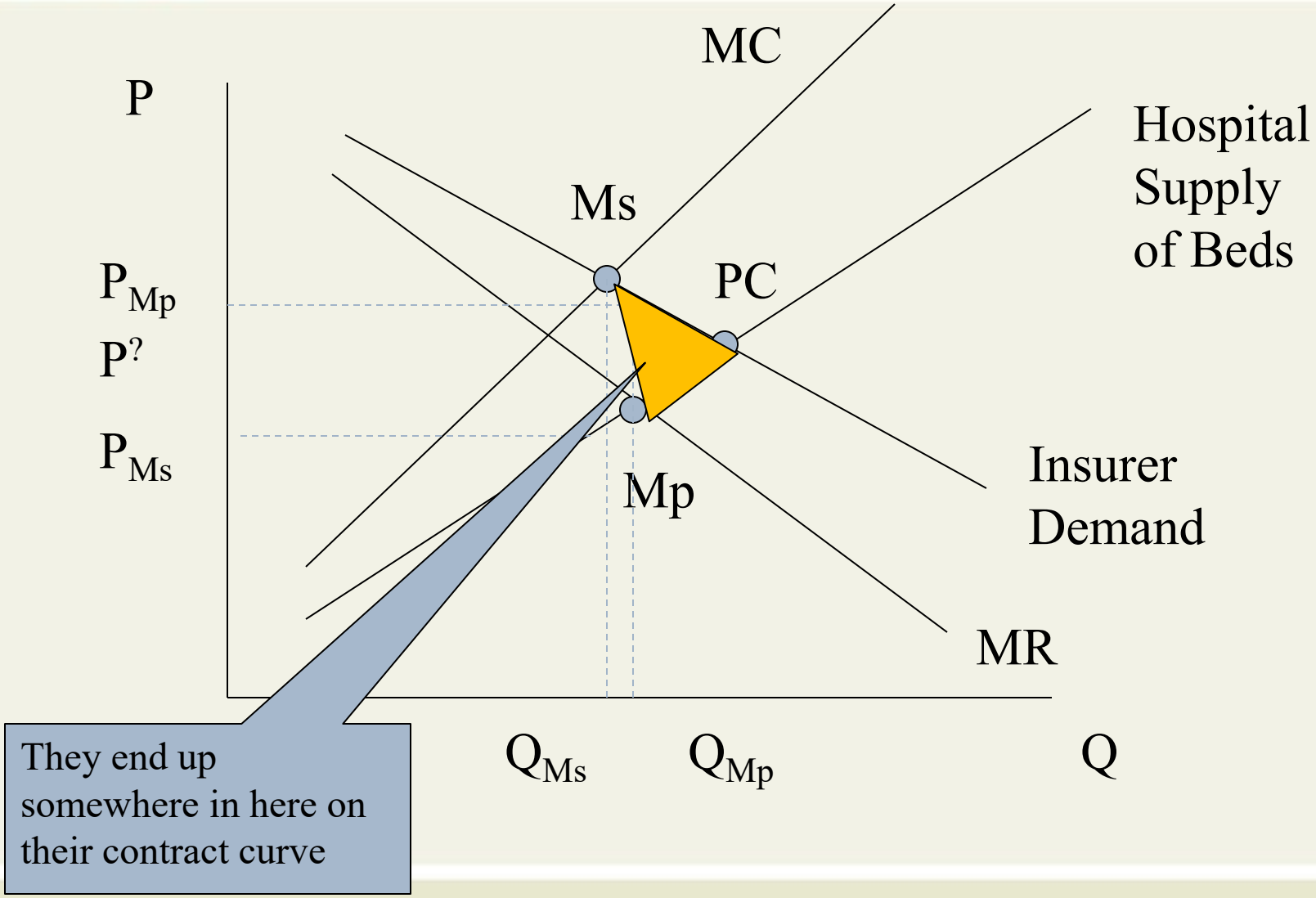
Windfall savings



Monopoly Hospital and Monopsony Insurer



Monopoly Hospital and Monopsony Insurer



When monopolist meets monopsonist

- Economic theory does not have a clear prediction
  - They end up on contract curve in Edgeworth Box
  - Bluster and bravado matter a lot
- Clear predictions
  - Society Loses
    - Quantity not likely to be at market optimum, and society loses units whose MC<MB
    - Price between the two firms is somewhere between P_{Mp} and P_{Ms}
    - Windfall at stake
  - Attacking concentration on one end of the bargain would not be fair, and could kill hospitals or impair quality

Part 4 Theories about hospitals

Why so many non-profit hospitals?

- Reputations come in to play
  - Easier for an organization to look trustworthy if it claims non-profit status
  - Consumers still don't know what non-profits maximize
    - At least it's not profit

What is Hospital's Objective?

- What do non-profit hospitals maximize?
  - Non-profit hospitals maximize quality and quantity subject to a no-loss condition

Non Profit's Objective

- Max f(Volume, Quality)
- Non-profits mission statements say max "good deeds"
- What good deeds could be:
  - Volume "Have more patients than other hospitals"
    - Charity care increases volume
  - Quality "Have best outcomes in region"
    - Labor slack could increase quality

Why will hospital restrain costs?

- Doctor directs the inputs for the hospitalized patient
- Administrator supplies the inputs to maximize U(Volume, Quality)
- Theory predicts hospitals will not spontaneously move to reduce costs

- External cost controls needed if that is a policy objective

Summary

- Hospital:Insurer=Monopolist:Monopsonist
  - What this means for policy
- Hospitals as non profits maximize a mystery utility function, we think it depends on volume and quality
- Cost controls and higher bargaining power by payers have led to much lower hospital cost growth
- When hospitals compete, they used to just compete on quality when insurers are concentrated they compete on costs

Appendix: Cost Control in Hospitals

- DRGs =Diagnosis Related Groups
  - Capitated system started by Medicare and now industry standard for private insurers too
  - Every diagnosis has a standardized payment
  - Example
    - DRG-089 “Simple pneumonia” Weight=1.07
    - DRG-416 “Septicemia” Weight= 1.30
    - Each hospital given a base rate per admission, say $5000
    - Will collect $5350 per pneumonia, $6500 per septicemia
    - Bargaining occurs over DRG fee schedule
- Utilization review
  - Staff hired by hospital to review every admission to make sure the DRG is coded correctly and to plan speedy discharge