Factors of Health Service Production: Hospitals

EE 474 Health Economics

Semester 1/2012

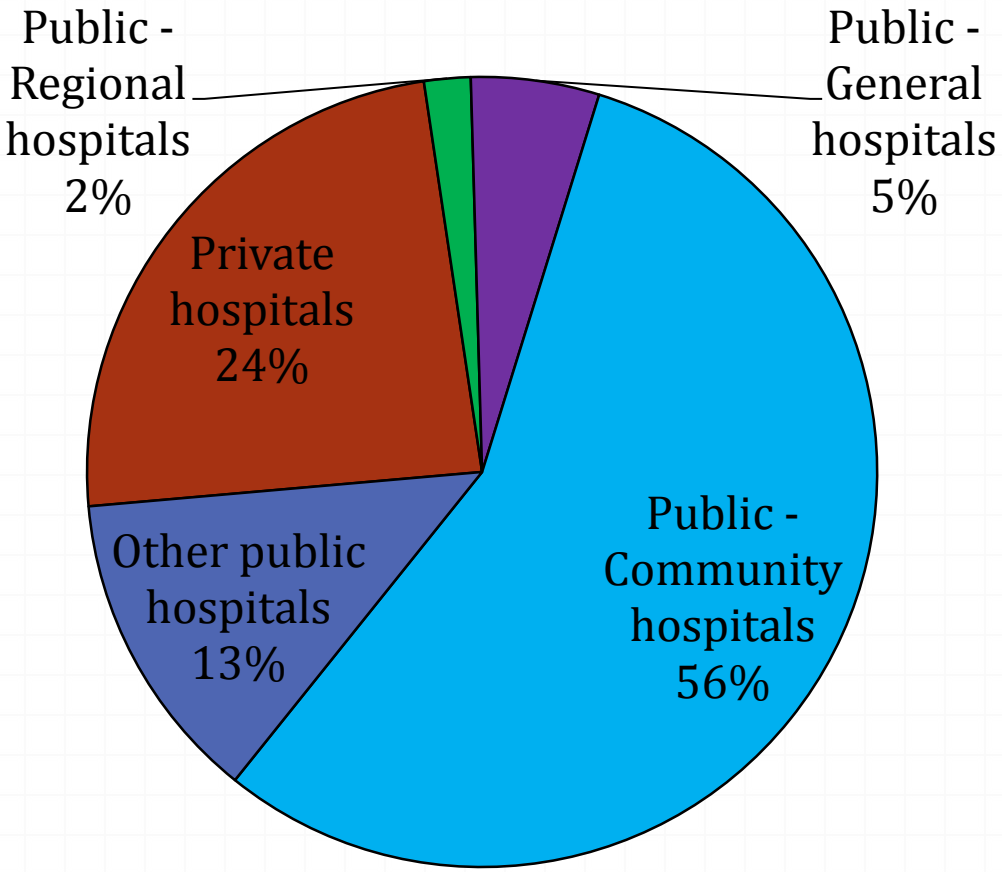
Roadmap After Midterm

- Factors of Health Service Production:
  - Hospital Behavior
  - Physician's Practice
  - Labor Market
  - Pharmaceutical Industry
- Efficiency and Equity in Health Care Market
- Market Failure and Government Intervention
- Evaluation of Health Care Projects
- Health Care Systems
- Health Care Reform
- Other Topics (if time available)

Topics for Today

- Some Statistics about Hospitals in Thailand
- Models of Non-Profit Hospital Behavior
  - The Quality-Quantity Nonprofit Theory
  - The Profit-Deviating Nonprofit Hospital
  - The Hospital as a Physicians' Cooperative
- Alternative: The Hospital as Two Firms

Hospitals in Thailand (2010)



Source: Bureau of Policy and Strategy, Ministry of Public Health

Hospitals as Non-Profits?

- The majority of hospitals in Thailand are public hospitals.
  - Largely subsidized by the government
  - Often receive a large amount of "donations"
  - Are they non-profits?
- Examples of hospitals operated by non-profit organizations in Thailand:
  - King Chulalongkorn Memorial Hospital (Thai Red Cross)
  - Hua Chiew Hospital (Poh Teck Tung Foundation)

What Exactly is a Nonprofit Firm?

- Criteria for a nonprofit firm is the nondistribution constraint.
  - No one has a legal claim on the nonprofit's residual (i.e. revenues – costs)
- Other distinctions between for profits and nonprofits:
  - Nonprofits are exempt from corporate income taxes and often from property and sales taxes.
  - Donations to nonprofits receive favorable tax treatment.

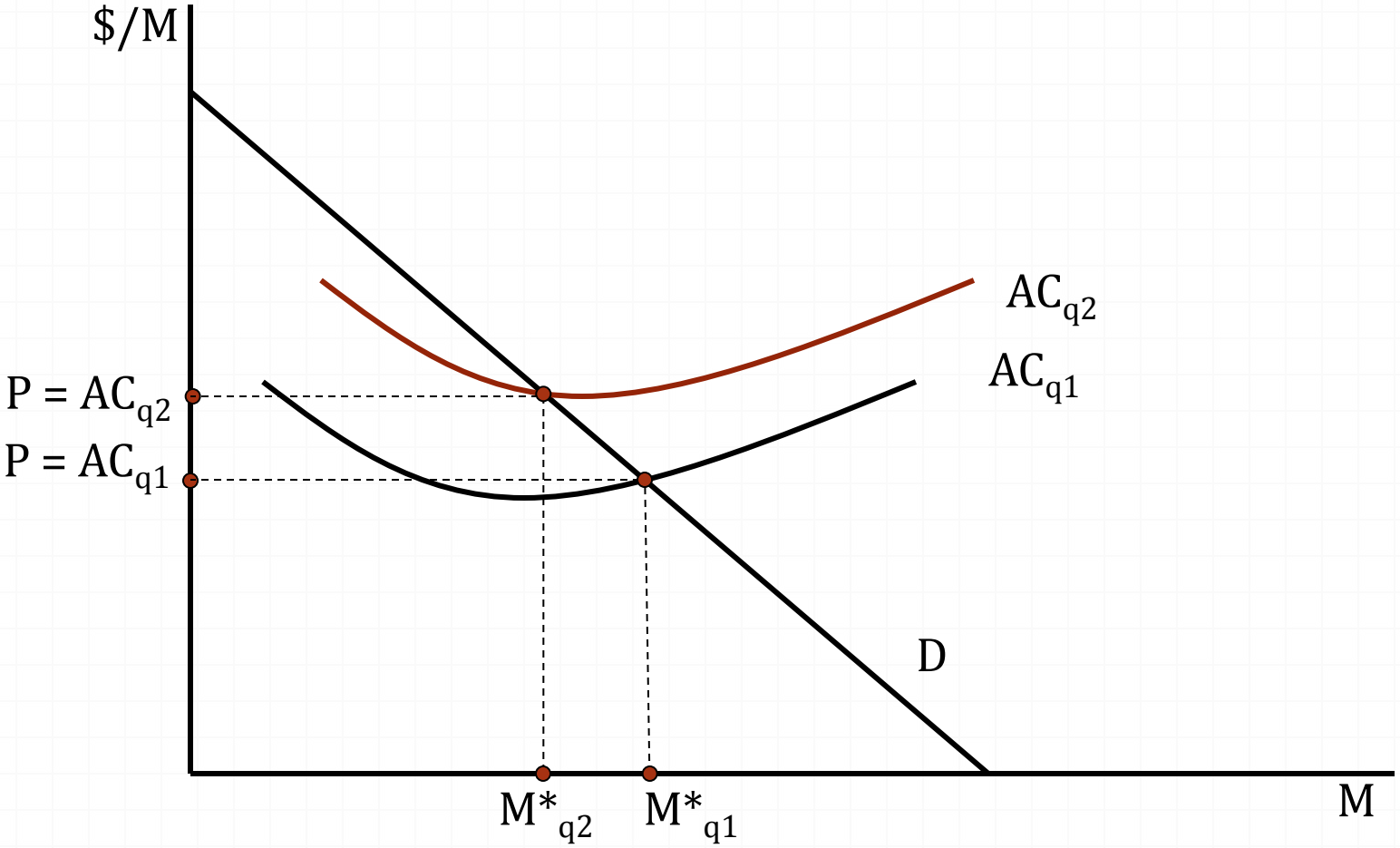
Why are Nonprofits Prevalent in Health Care?

- Weisbrod (1975):
  - Nonprofits arise to provide for unmet demands for public goods, most notably in cases where there are significant external benefits to the provision of a good.
- Hansmann (1980):
  - Nonprofit firms play a role in cases of contract failure (cases where it is difficult to observe the good's provision or quality).
  - For-profit firms tend to have a conflict of interest, and so nonprofit ownership is perceived as a signal of higher quality.

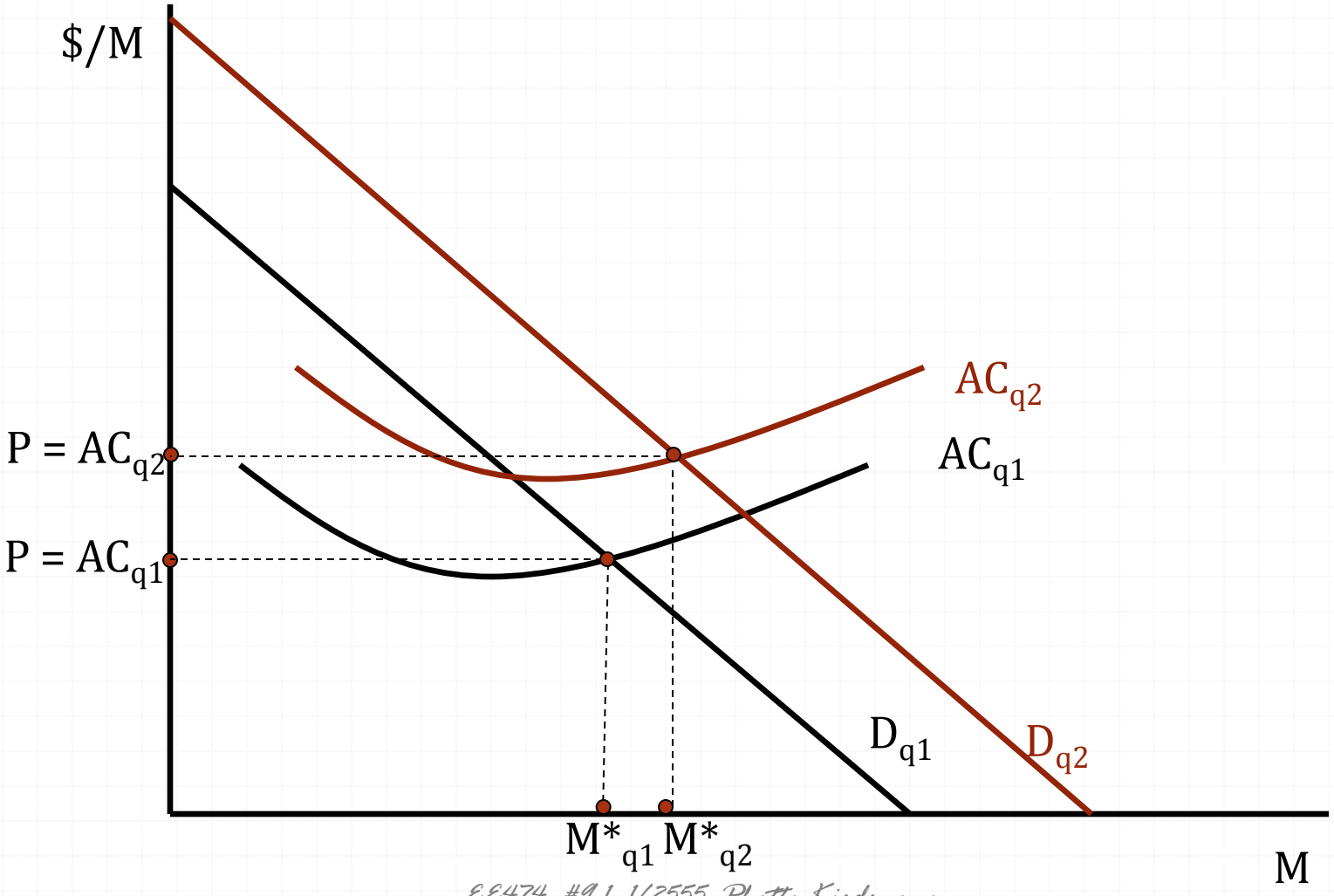
The Quality-Quantity Nonprofit Theory

- Economists start the analysis with the objective of the hospital decision makers.
- Newhouse (1970) proposed a utility maximizing model that approximate the altruistic firm.
  - The hospital decision makers have altruistically internalized the community benefit in providing quantity of care.
  - An increase in quality might increase demand.
- The hospital administrator chooses the combination of quality and quantity that maximizes his or her utility.

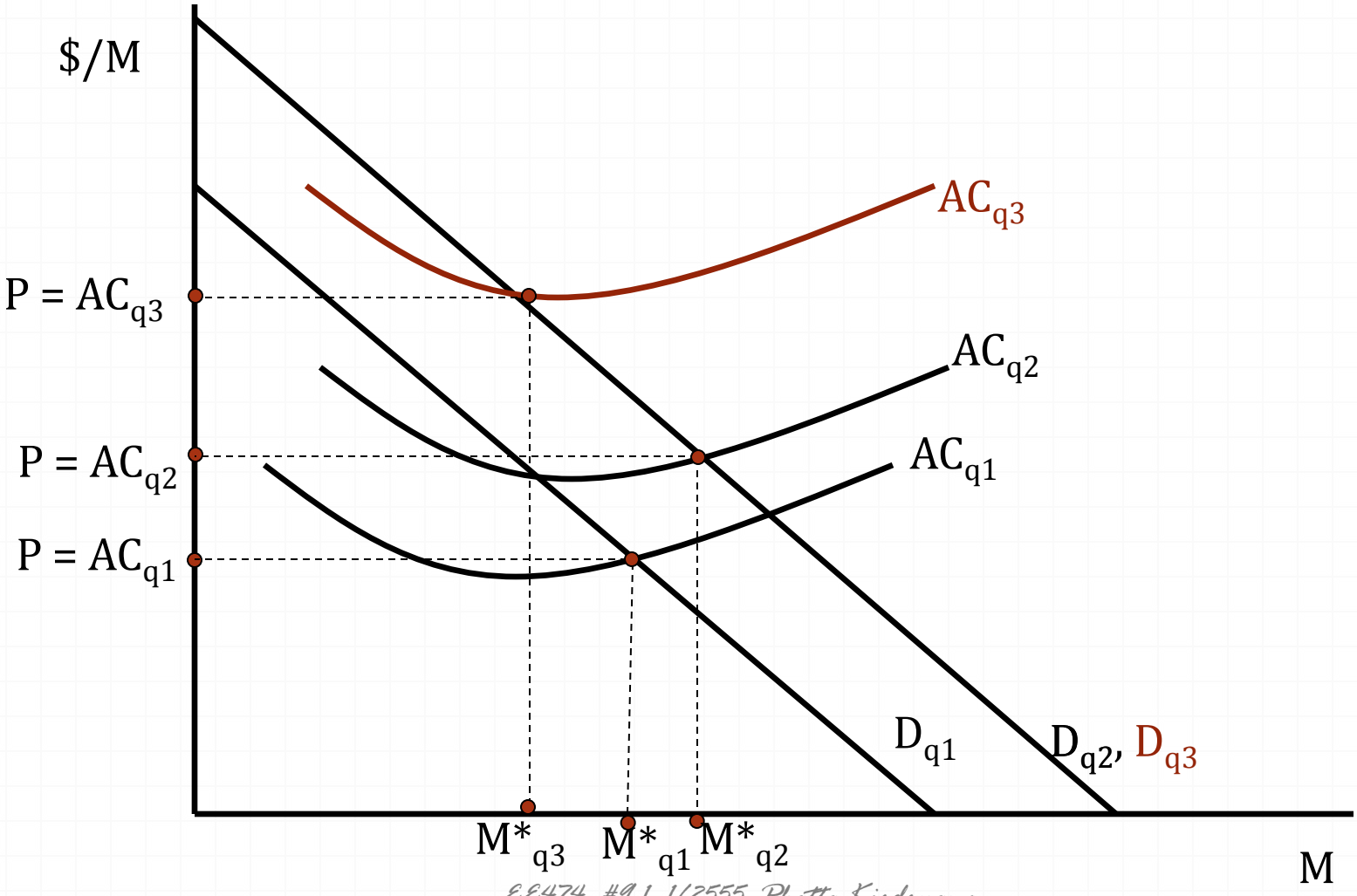
Hospital that Increases Quality



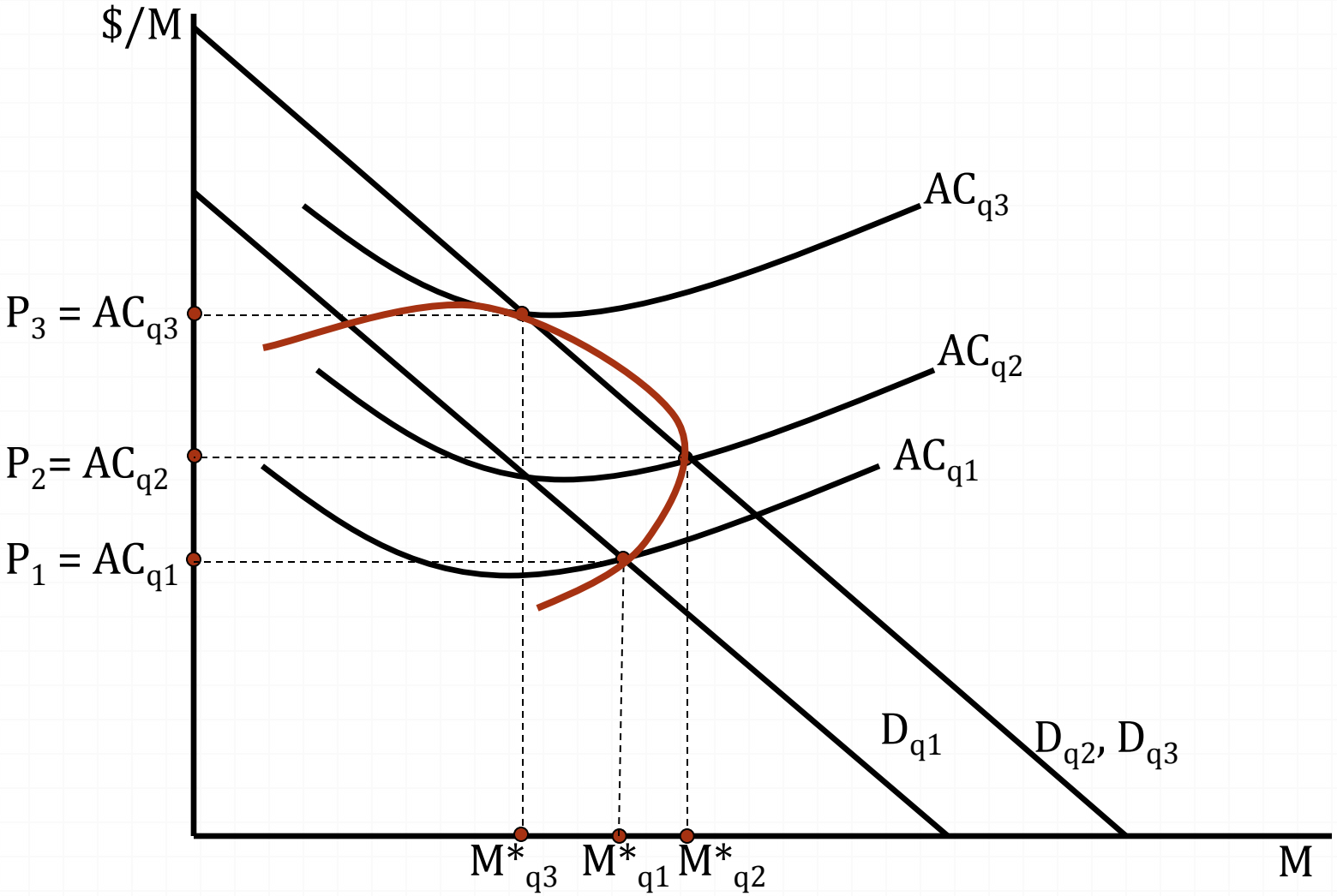
Hospital that Increases Quality, and Increases Quantity as a Result



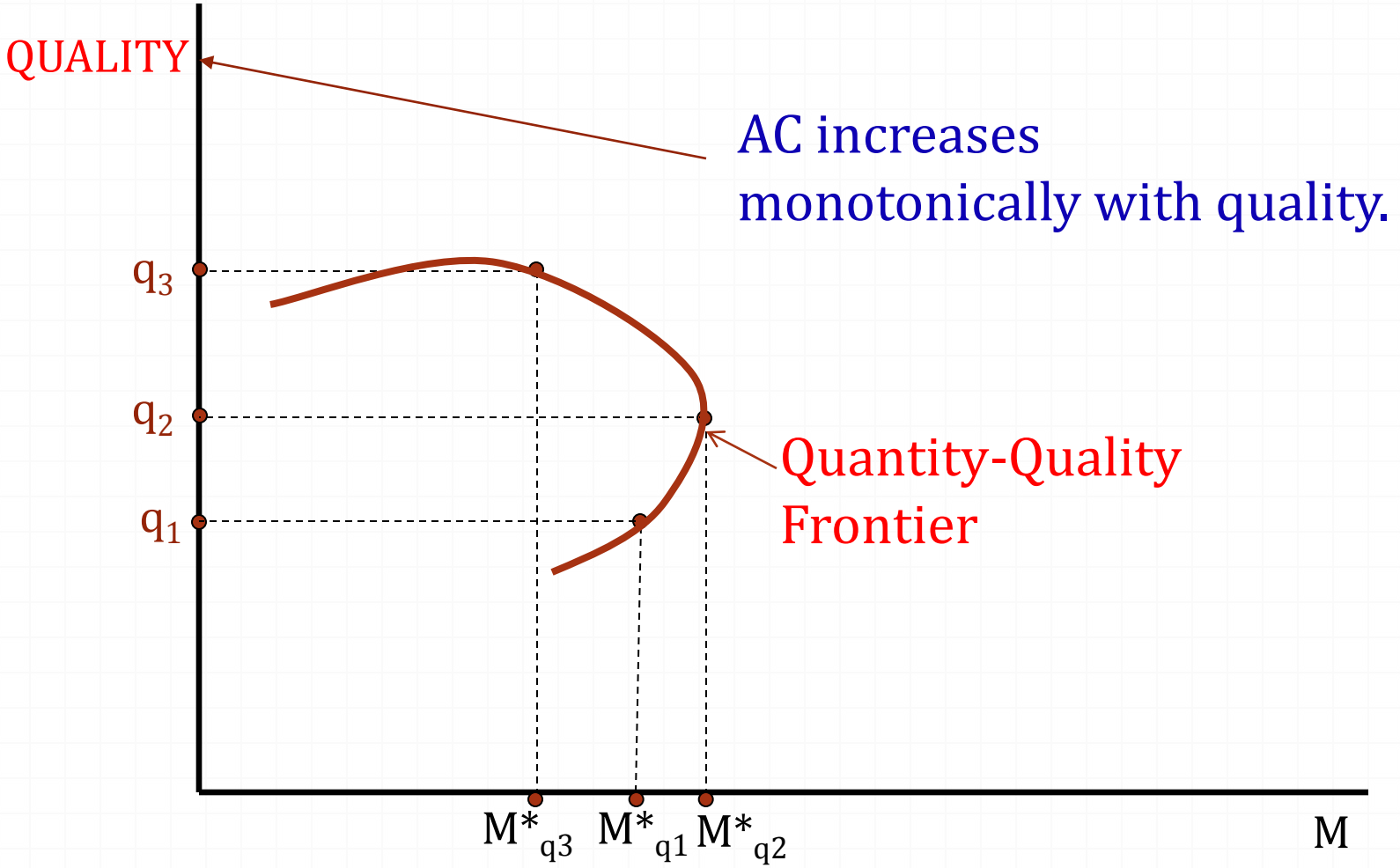
Eventually Quality Increases *Do Not* Produce Increases in Demand



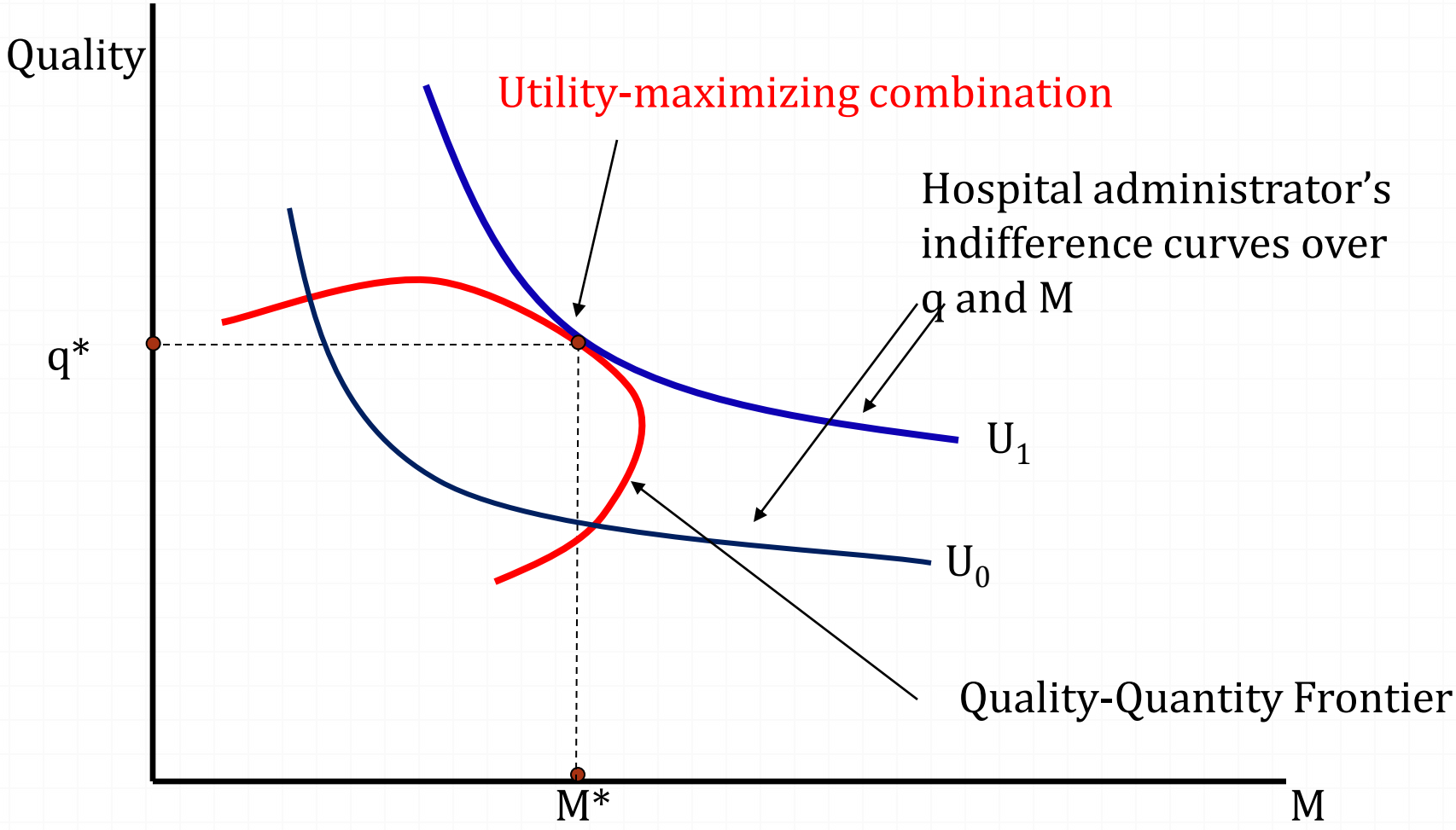
Hospital Administrator's Options



Hospital Administrator's Options in Terms of Quality and Quantity



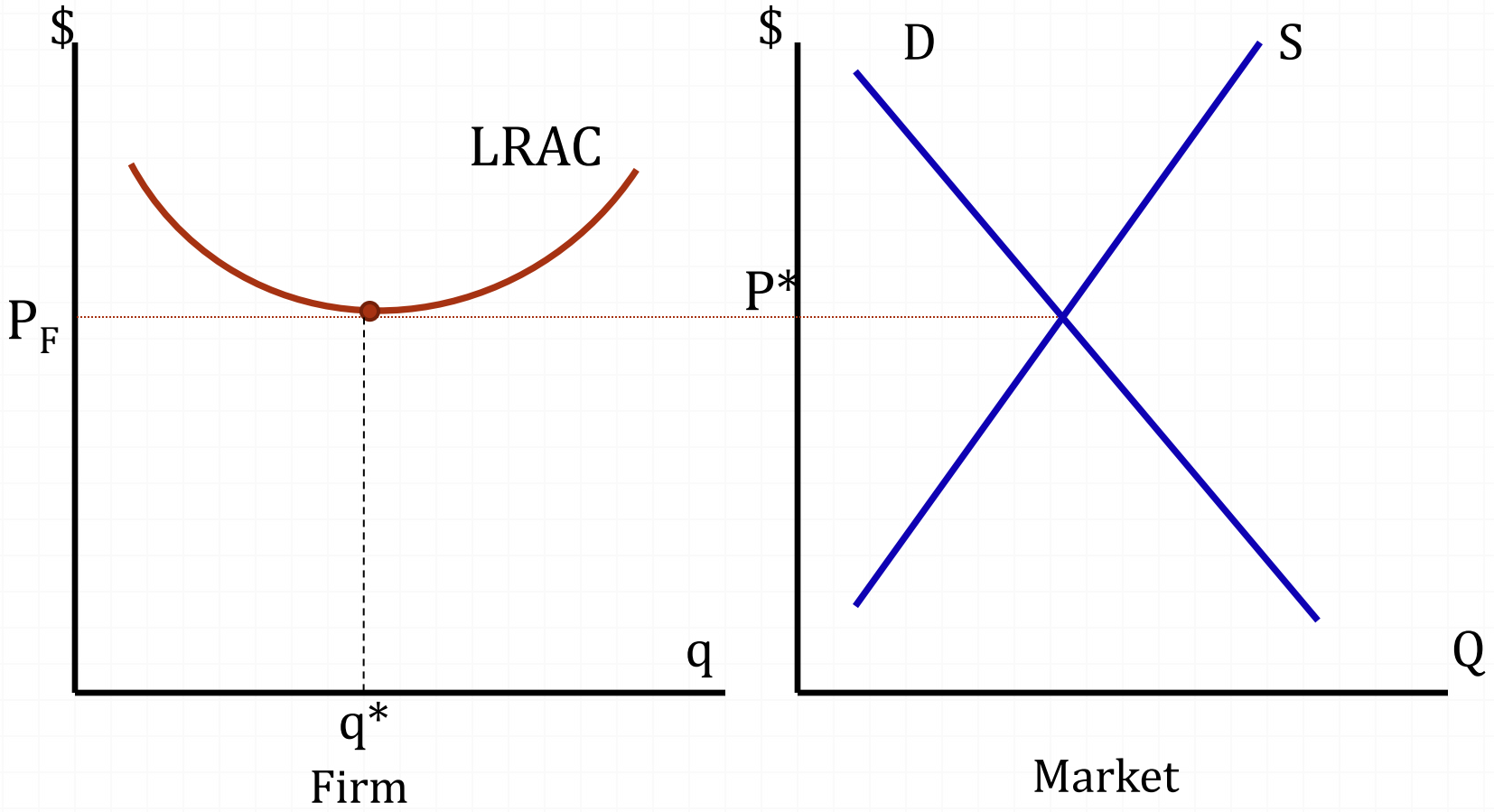
Hospital Administrator Chooses (q*,M*) to Maximize Utility



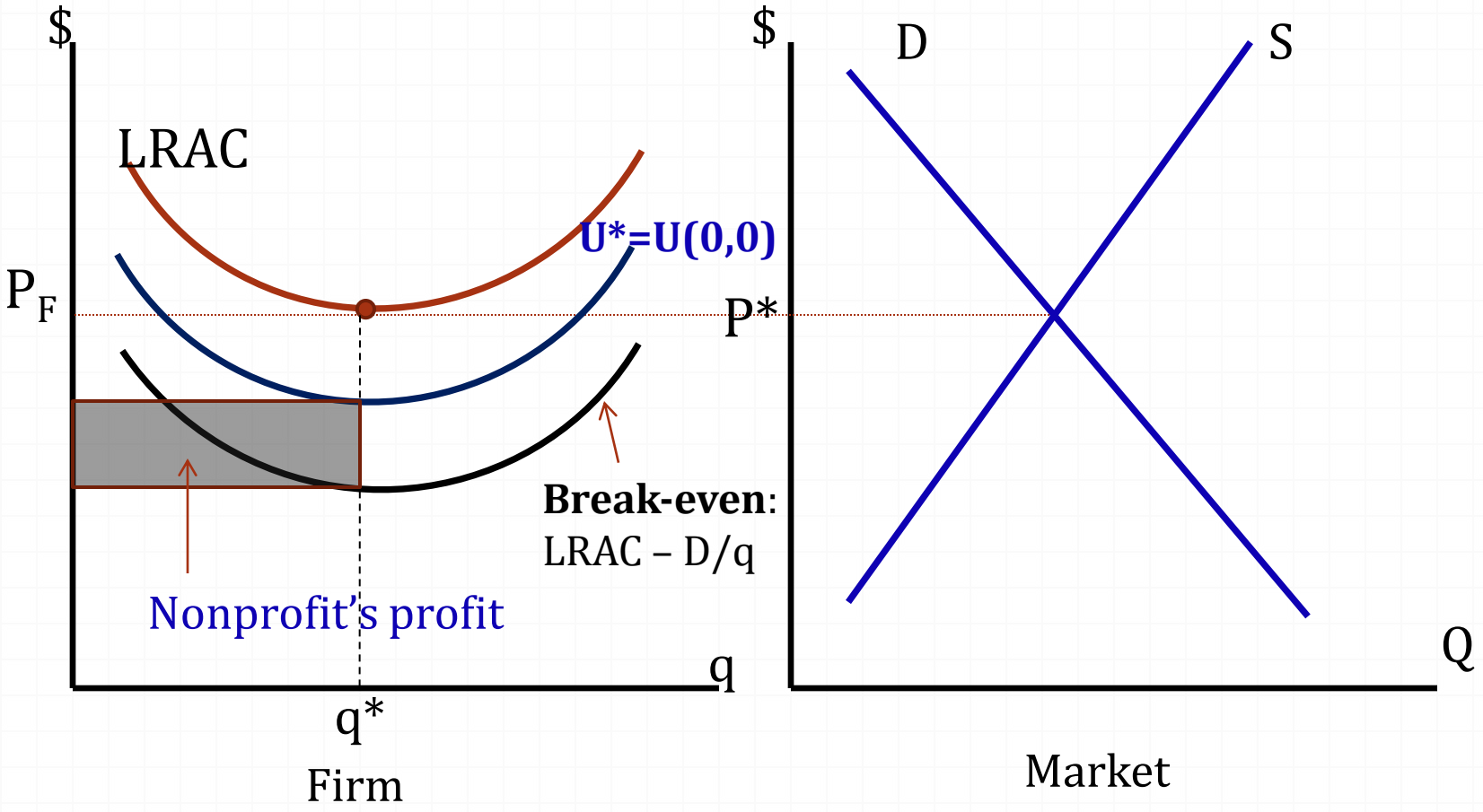
The Profit-Deviating Nonprofit Hospital

- Lakdawalla and Philipson (2006) view the nonprofit as a mix of altruism and profit motives:
  - Altruistic firms can be analyzed as if they were *pure profit-maximizers with a cost advantage*.
  - For-profit firms are the "marginal ones" responding to changes in regulatory and market conditions.
- Hospital's objective: Max U = U(q, ¶)
  - Nonprofit's profit: $¶^N = ¶_S + D$
  - For-profit's profit: $¶^F$
- Reservation utility (minimum required utility): U*=U(0,0).
- Operating constraints:
  - For-profit: $¶^F > 0$
  - Profit-deviating nonprofit: $¶^N = ¶_S + D > 0$

"Traditional" Market Model:
Entry Condition



Profit Deviating Model



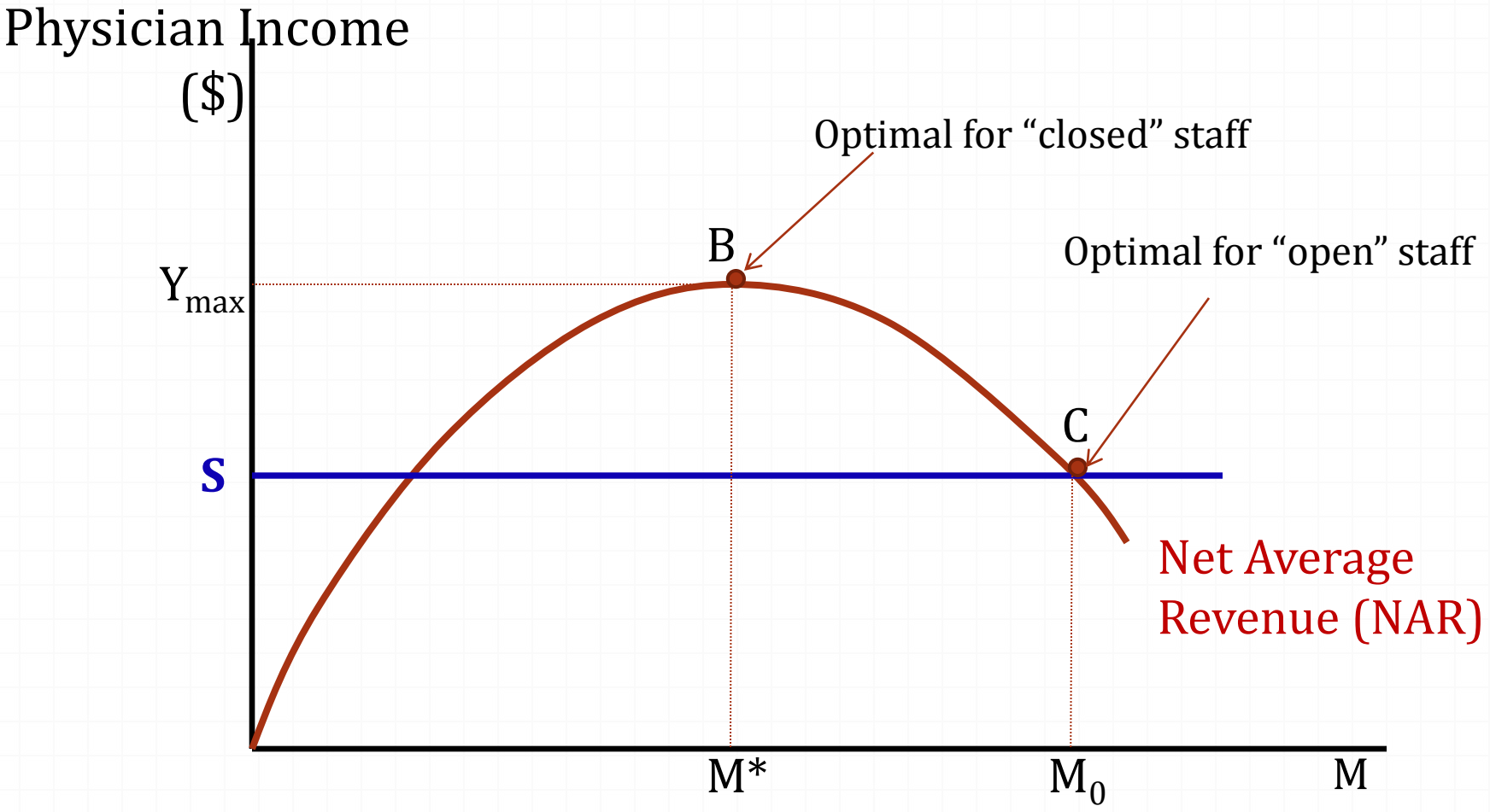
The Hospital as a Physicians' Cooperative

- Mark Pauly and Michael Redisch (1973) describe the nonprofit hospital as a "physicians' cooperative".
  - The hospital is controlled by a physician staff who operate the hospital so as to maximize their net incomes.
- Hospital objective: Max (NR/M)

  where NR = Net revenue = total revue – all factor payments

  M = Number of physicians
- Two types of staff:
  - "Close" staff hospitals: Physicians can limit the size of the staff.
  - "Open" staff hospitals: Physicians are free to enter.

Optimal Staff Size in Physician Cooperative Model



Comparing the Quantity-Quality and the Physicians' Cooperative Theories

- Hospital and physician' revenues:

$$R = R(K,L,M_0)$$

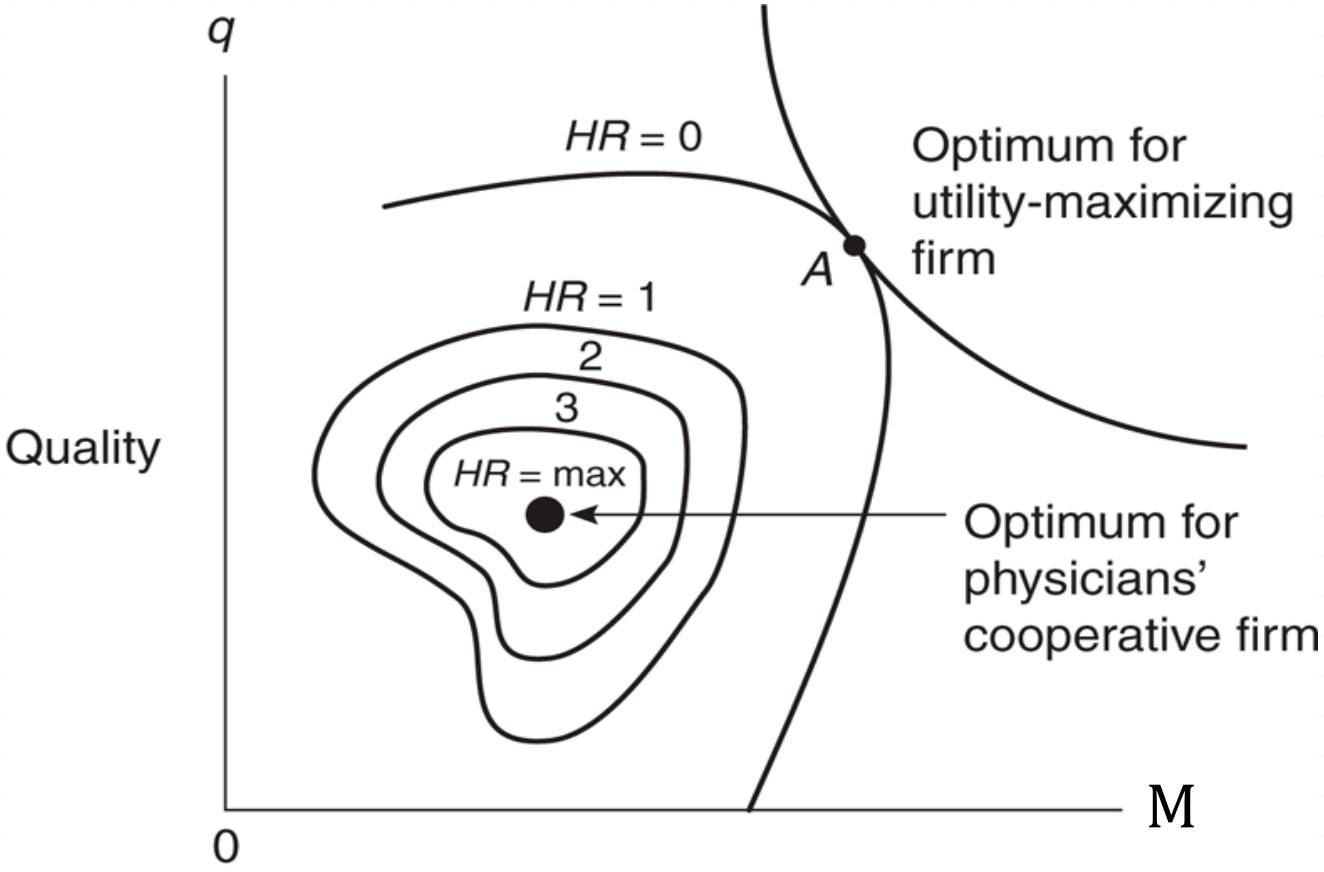
- Hospital residual revenue:

$$HR = R(K,L,M_0) - wL - rK - sM_0 + D_0 + G_0$$

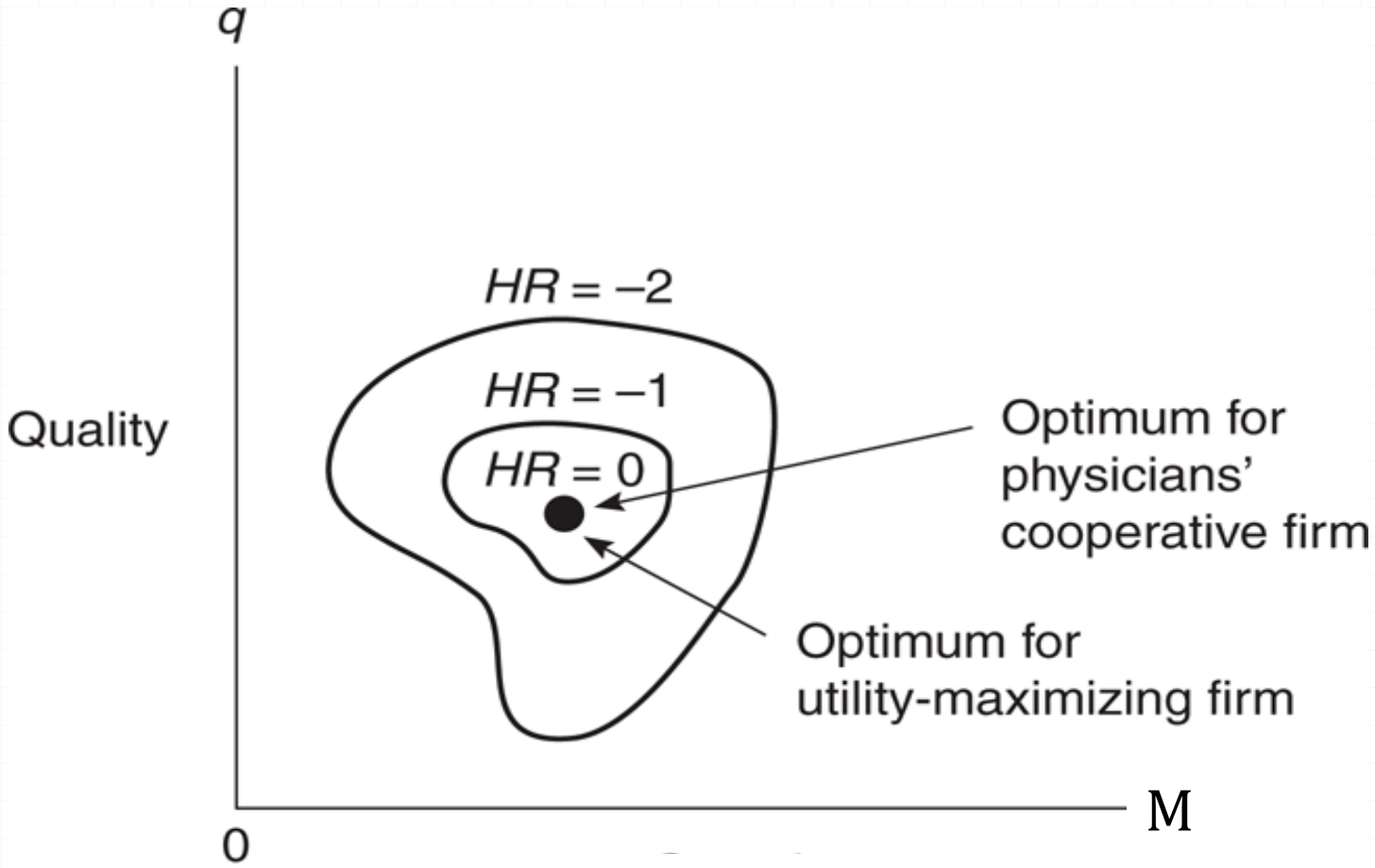
where D_0 = donation, G_0 = government subsidies, and physician supply price = s.

- Pauly-Redisch model ➔ Max HR
- Newhouse's model ➔ Max U(q, M) s.t. HR = 0.

The Quantity–Quality vs. The Physicians' Cooperative Theories



Effects of Increased Competition



The Hospitals as Two Firms

- Harris (1977) describes the hospital as having two separate firms interacting in a complex way (or a noncooperative oligopoly game).
  - The trustee-administrator group: supplier of inputs
  - The physician staff: "demanders"
- The hospital solves the rationing problem with a variety of nonprice-related decision rules.
- Implications:
  - Hospital's preference for new technology will be driven by the physician demanders' preferences.
  - Regulations aimed at trustee-admin group may have little effect.
  - Propose reorganization of the hospital along product lines.

Summary of Hospital Behavior Model

- *Newhouse*: The hospital administrator chooses the best combination of quantity and quality of care. (Utility maximization model)
- *Lakdawalla-Phillipson*: Nonprofit preferences include altruism and profit maximization.
- *Pauly-Redisch*: Optimal physician staff size maximizes the pecuniary gain to physicians. (Profit maximizing model)
- *Harris*: Hospitals as two separate firms representing opposing interests.

Question: Which model do you think apply to hospitals in Thailand?