Economics of Strategy

Besanko, Dranove, Shanley and Schaefer, 3rd Edition

Chapter 2

Horizontal Boundaries of the Firm

Slides by

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Horizontal Boundaries

- Horizontal boundaries: How big a market does a firm serve?
- In some industries a few large firms dominate the market (Commercial aircraft manufacture)
- In others, smaller firms are the norm (Apparel design, Universities)

Horizontal Boundaries

- There are several industries where large firms and small firms co-exist (Software, Beer, Banks, Insurance companies)
- What determines the horizontal boundaries of firms?
- How should a firm optimally choose its horizontal boundaries?

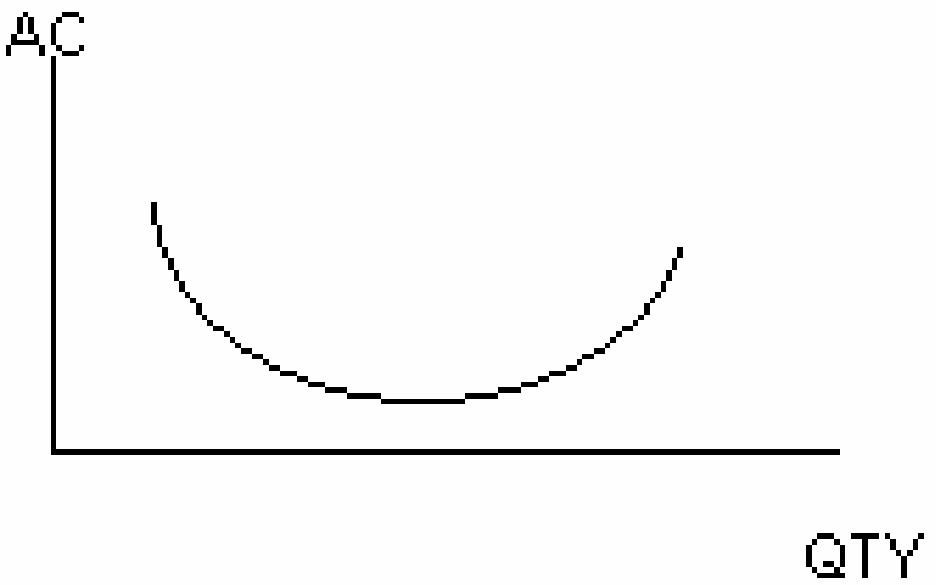
Determinants of Horizontal Boundaries

- Economies of scale
  - Declining average cost with volume
- Economies of scope
  - Cost savings when different goods/services are produced “under one roof”
- Learning curve
  - Cost advantage from accumulated expertise and knowledge

Economies of Scale

- When the marginal cost is less than average cost, there are economies of scale
- Example: Computer software. The marginal cost of reproducing a CD is negligible compared with the huge fixed cost associated with software development

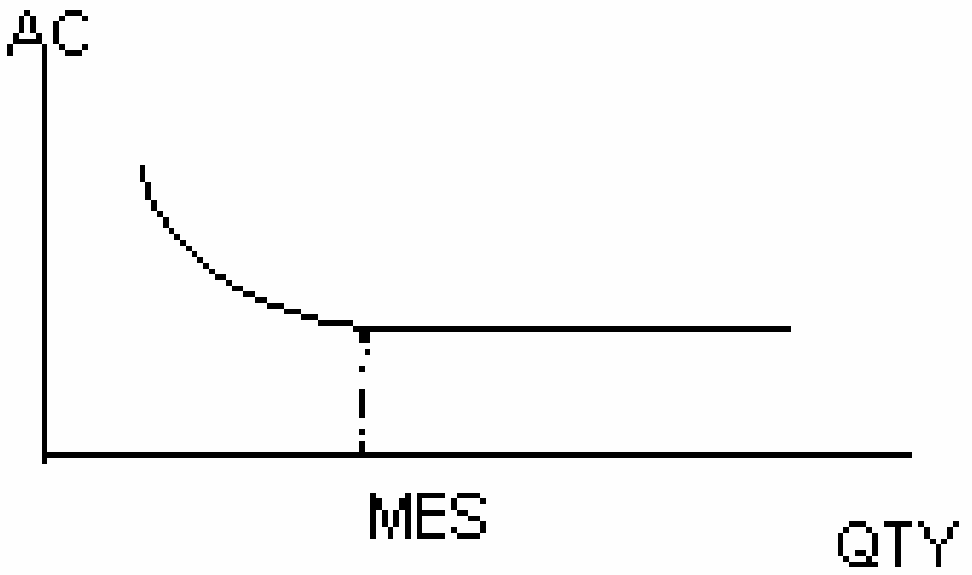
U-shaped cost curve



U-Shaped Cost Curve

- Average cost declines as fixed costs are spread over larger volumes
- Average cost eventually start increasing as capacity constraints kick in
- U-shape implies cost disadvantage for very small and very large firms
- Unique optimum size for a firm

L-shaped Cost Curve



L-shaped Cost Curve

- In reality, cost curves are closer to L-shaped curves that to U-shaped curves
- A minimum efficient size (MES) beyond which average costs are identical across firms

Economies of Scope

- Firm 1 produces two products: A and B
- Firm 2 produces A only
- If the cost of producing A is smaller for Firm 1 than Firm 2, there are economies of scope

Economies of Scope

- $TC(Q_A, Q_B) < TC(Q_A, 0) + TC(0, Q_B)$
- $TC(Q_A, Q_B) – TC(0,Q_B) < TC(Q_A, 0) – TC(0, 0)$
- Production of B reduces the incremental cost of producing A

Economies of Scope

- Common expressions that describe strategies that exploit the economies of scope
  - “Leveraging core competences”
  - “Competing on capabilities”
  - “Mobilizing invisible assets”
  - Diversification into related products

Economies of Scope

- The terms “Economies of Scale” and “Economies of Scope” are sometimes used interchangeably
- Managers may cite economies of scale and scope (even when they do not exist) to justify investment in growth

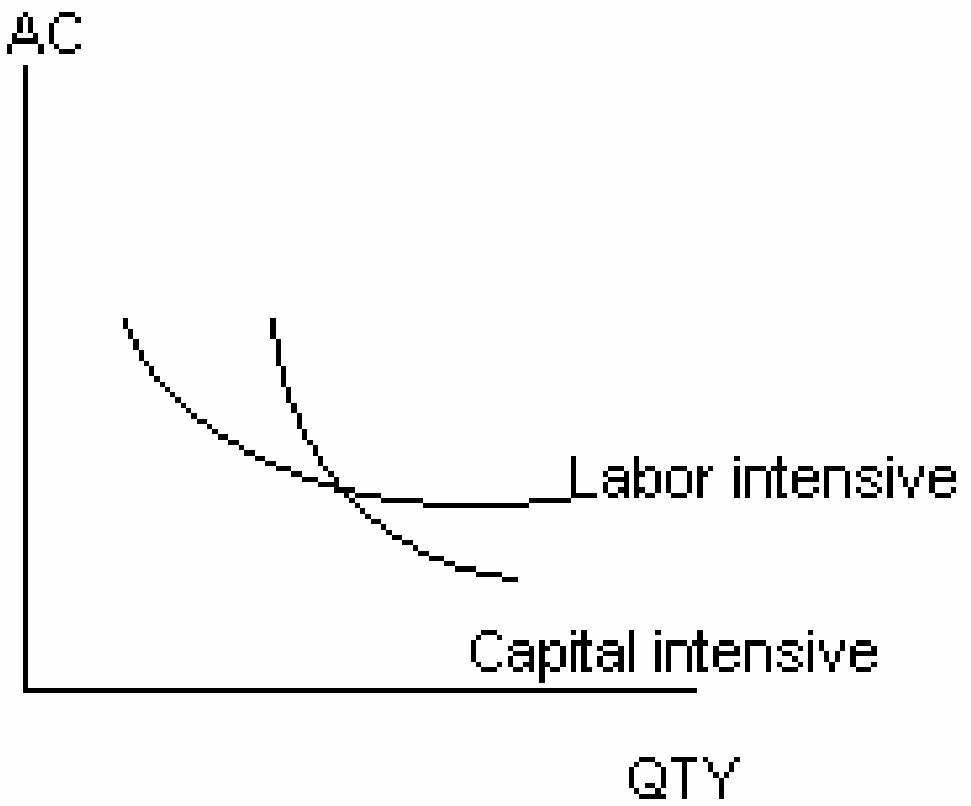
Some Sources of Economies of Scale/Scope

- Production related
  - Fixed costs
  - Inventories
  - Cube-Square rule
- Other
  - Purchasing
  - Advertising
  - R & D

Fixed Costs

- Certain inputs in the production process may not fall below a minimum
- Increasing the volume of production yields economies of scale in the short run
- In the long run, economies of scale are obtained through choice of technology

Tradeoffs Among Technologies



Tradeoffs Among Technologies

- If output needs to be increased beyond a point, capital intensive technology needs to be substituted for labor intensive technology
- The “lower envelope” of the two cost curves is the long run average cost curve

Long Run and Short Run

- Cost reduction through better capacity utilization
  - (short run economies of scale)
- Cost reduction by switching to high fixed cost technology
  - (long run economies of scale)

Economies of Scale and Specialization

- “The division of labor is limited to the extent of the market”
- As markets increase in size, economies of scale enables specialization

Economies of Scale and Boundaries

- Larger markets lead to specialized firms
- As markets get even larger, the specialized activity may become “in house” due to economies of scale

Inventories

- Firms carry inventory to avoid stock outs
- In addition to lost sales, stock outs can adversely affect customer loyalty
- Bigger firms can afford to keep smaller inventories (relative to sales volume) compared with smaller firms

Inventories

- Two firms may not experience stock outs at the same time
- Merging the two firms will reduce the probability of stock out, given the level of inventory
- The combined firm can maintain a lower level of inventory and have the same probability of stock out as before

Aircraft, Rolling Stock as Inventories

- The inventory model applies to aircraft, rolling stock and road vehicles
- A larger bus company can keep a smaller number of “spare buses” (relative to size of operations) and still provide reliable service, whereas smaller companies need (proportionately) larger number of spares

Cube-Square Rule

- Double the diameter of a hollow sphere and the volume will increase eightfold, whereas the surface area will increase only fourfold
- The cost of the sphere is likely to increase by less than eight times
- If the hollow sphere is part of production equipment in a chemical plant, cost savings follow from increased size

Cube-Square Rule

- Examples of Scale Economies due to the Cube-Square Rule
  - Oil pipelines
  - Warehousing
  - Brewing tanks

Economies of Scale in Purchasing

- Large buyers can get volume discounts
  - Reduced transaction costs
  - More aggressive bargaining by large buyers
  - Assured flow of business for the supplier

Economies of Scale in Purchasing

- Example: Group insurance is typically cheaper than individual insurance.
- Big buyers like CalPers (California Public Employee Retirement Systems) drive hard bargains with the insurers

Rationale for Volume Discounts

- Cost of service (per unit) is lower for large buyers
- Large buyers may be more price sensitive
- Large buyers can disrupt operations of the seller by refusing to buy

Economies of Scale in Purchasing

- Alternatives to bigness
  - Small firms can join purchasing alliances
  - Price sensitive firms may get better bargains even when they are small

Economies of Scale and Scope in Advertising

- Cost per customer = (Cost per potential customer) x (Proportion of potential customers who become actual customers)
- Large firm have lower cost of reaching a potential customer (First Term)
- Large firm also have a better reach (Second Term)

Economies of Scale in Advertising

- Large national firms may experience lower cost per potential customer when compared with small regional firms
- Cost of production of the advertisement and the cost of negotiations with the media can be spread over different markets

Economies of Scale in Advertising

- Large firms may have better reach than small firms
  - Example: ubiquity of STARBUCKS
- Large firms convert a larger proportion of potential customers into actual customers

Umbrella Branding and Economies of Scope

- Well known brands like SONY and KRAFT cover different products
- There are economies of scope in developing and maintaining these brands
- New products are easier to introduce when there is an established brand with the desired image. (SONY introduces digital cameras)

Umbrella Branding - Limitations

- Umbrella branding may not always help
  - Example: In the U.S. Lexus is a separate brand from Toyota
- Conflicting brand images may cause diseconomies of scope

Economies of Scale in R & D

- Minimum feasible size for R & D projects and R & D departments
- Economies of scope in R & D; ideas from one project can help another project
- Under what conditions can firms pool their resources for a joint R & D effort?

Innovation and Size

- Are big firms better at innovating compared to small firms?
- Size reduces the average cost of innovations
- Smallness may be more suitable for motivated researchers

Other Sources of Economies of Scale

- Access to a distribution network
- Established governmental relations

Strategic Fit

- Strategic fit is complementarity that yields economies of scope
- Strategic fit renders piece-meal copying of corporate strategy by rivals unproductive
- Strategic fit is essential for long term competitive advantage

Diseconomies of Scale

- Beyond a certain size, bigger may not always be better
- The sources of such diseconomies are
  - Increasing labor costs
  - Bureaucracy effects
  - Scarcity of specialized resources
  - “Conflicting out”

Firm Size and Labor Cost

- Data indicate that workers in large firms get paid more than workers in small firms
- Possible reasons
  - Unionization is more likely in large firms
  - Work may be more enjoyable in small firms
  - Large firms may have to attract workers from far away places

Firm Size and Labor Cost

- Large firms experience lower worker turnover compared to small firms
- Savings in recruitment and training costs due to lower turnover may partially offset the higher labor cost

Bureaucracy Effects and Firm Size

- When a firm gets large
  - it is difficult to monitor and communicate with workers
  - it is difficult to evaluate and reward individual performance
  - detailed work rules may stifle the creativity of the workers

Specialized Resources

- As the firm expands, certain resources may be limited in availability
- Example: As a restaurant expands, the chef may find himself/herself spread too thin
- Other limited resources may be
  - desirable locations
  - specialized workers
  - talented managers

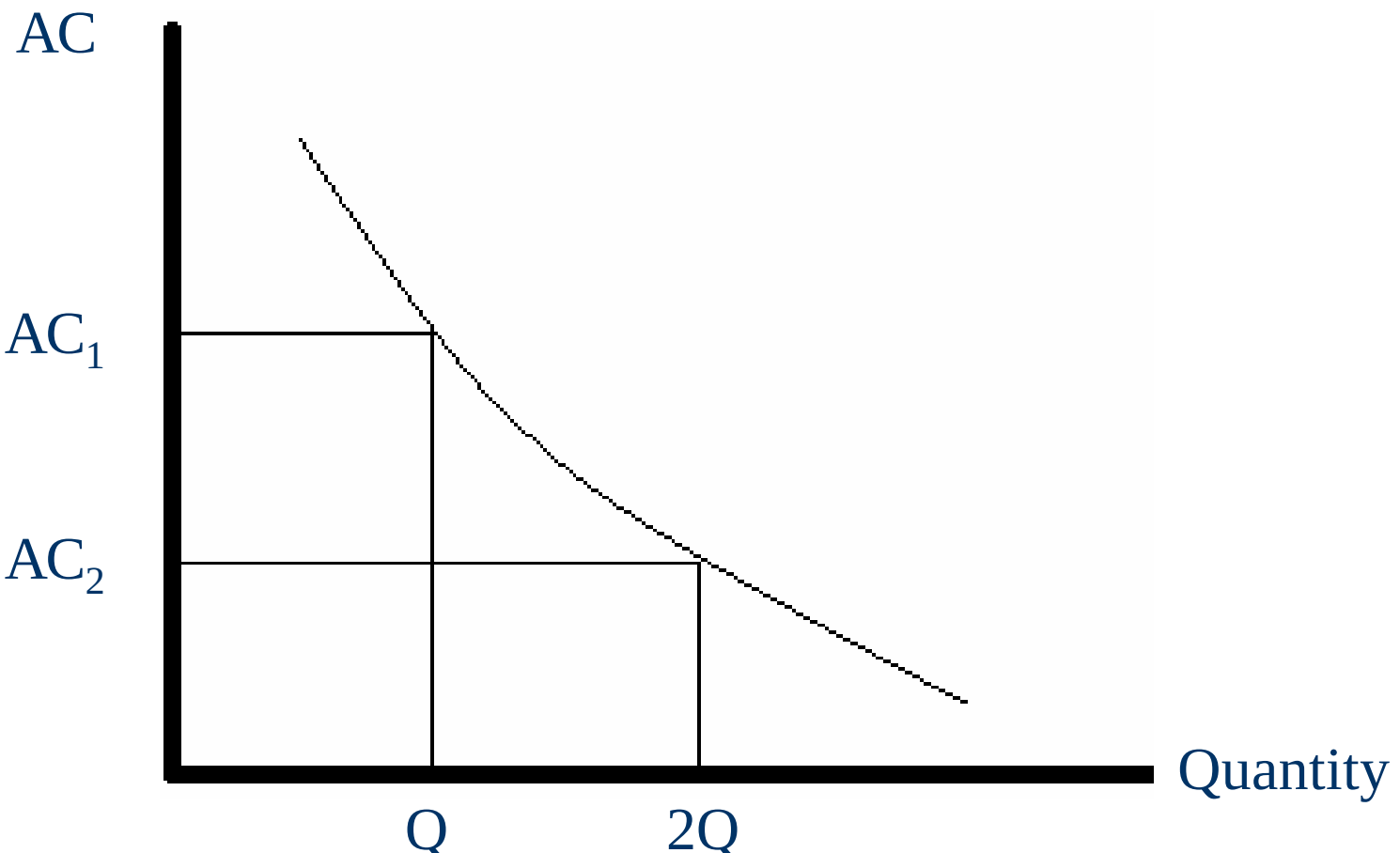
“Conflicting Out”

- Professional services firms may find it difficult to sign up a client if a competitor is already a client of the firm
- When sensitive information has to be shared, such conflicts may impose a limit to the growth of the firm

The Learning Curve

- Learning economies are distinct from economies of scale
- Learning economies depend on cumulative output rather than the rate of output
- Learning leads to lower costs, higher quality and more effective pricing and marketing

The Learning Curve



Slope of the Learning Curve

- Slope of the learning curve is the relative size of the average cost when cumulative output doubles
- A slope of 0.9 indicates that the average cost will decline by 10% when the cumulative output doubles
- Learning flattens out over time and the slope eventually becomes 1.0

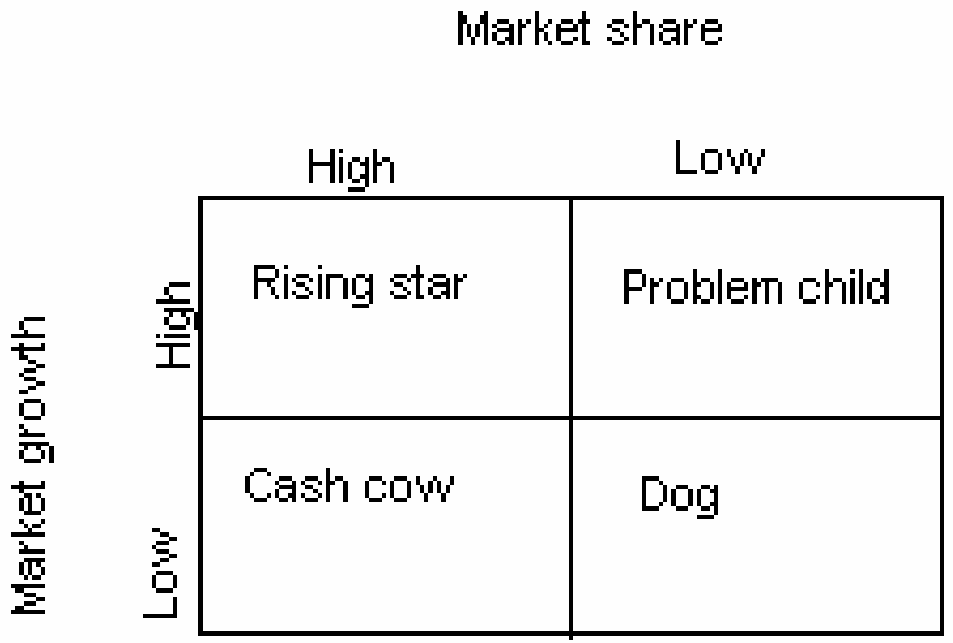
Learning Curve Strategy

- Expand output rapidly to benefit from the learning curve and achieve a cost advantage
- May lead to losses in the short term but ensure long term profitability

BCG's Growth/Share Paradigm

- Product life cycle model combined with an internal capital market, with the firm serving as a banker
- Use the cash generated by "cash cows" to exploit the learning economies of "rising stars" and "problem children"

BCG's Growth/Share Matrix



Individual Learning and Organizational Learning

- Learning resides with individuals
- Organizational learning includes expertise that individuals have and they complement each other
- Worker mobility can lead to loss of expertise in the organization
- On the other hand, reducing job turnover may stifle creativity

Learning Curve and Scale Economies

- Learning reduces unit cost through experience
- Capital intensive technologies can offer scale economies even if there is no learning
- Complex labor intensive processes may offer learning economies without scale economies