EE481: Industrial Economics

Vertical Integration and Vertical Restraints (Chapter 12)

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Semester 2/2015

Definitions

- Please read Chapter 12 of "Modern Industrial Organization" by Carlton and Perloff.
- Vertical Integration - Firms at different levels of the supply chain merge.

Definitions

- Vertical restraints - A firm restricts behaviors of other firms that are at a different level of supply chain.

Gains from vertical integration

Reduce cost and reduce market externalities

1. Lower transaction costs
   - example - UHT milk and the milk cartons are usually produced by the same company (milk processor).
2. Assure supply
3. Correct market failure (externalities)
   - McDonald's own their restaurants to ensure quality -> positive externalities.
4. Avoid government rules
   - Price controls, taxes (transfer pricing), etc.
5. Gain market power
6. Eliminate market power

Gains from vertical integration

7. To increase monopoly profit - ....

- "Double Marginalization"or "Double Monopoly Markup" problem happens when firms at different levels of the supply chain uses their market power to increase price (and limit quantity). If this happens at many levels of production, the final price will be very high, the final quantity will be very low.

- Moreover, firms in the supply chain will also earn less profit than when there is no double marginalization.

Double Marginalization (Monopoly -> Monopoly)

- (most extreme case), suppose both upstream and downstream suppliers are monopolies.
  - We will face the "Double Marginalization" or "Double Monopoly Markup" problem.
- Both firms could earn a higher profit if they vertically integrate

Example:

Double Marginalization (Monopoly -> Monopoly)

Graph : When drawing vertical integration graph, we work "backward" from downstream firms to upstream firms.

1. Find the selling (supply) quantity chosen by downstream firm(s).
2. Supply quantity chosen by downstream firm(s) will determine how many units of raw material they need to order from upstream firm(s).
3. Upstream firm(s)' demand curve corresponds to downstream firm(s)' supply quantity.

Double Marginalization (Monopoly -> Monopoly)

Step 1: Find the selling quantity by a monopoly downstream firm

Double Marginalization (Monopoly -> Monopoly)

Step 2: Supply quantity chosen by downstream firm(s) will determine how many units of raw material they need to order from upstream firm(s).
Step 3: Upstream firm(s)' demand curve corresponds to downstream firm(s)' supply quantity.

Double Marginalization (Monopoly -> Monopoly)

Now, determine the price of eggs the consumers have to pay.

VI (Monopoly -> Monopoly)

- If the P.S. monopoly merge with the egg farm monopoly, they can increase the joint profit.

Double Marginalization (Monopoly -> Competitive)

Suppose now, the upstream producer is a **monopoly**, downstream producers are **competitive**. Suppose also that:

1. Firms are facing constant returns to scale (double input = double output)
2. Firms have constant marginal cost
3. There are costs associated with vertical integration. So, firms do not vertically integrate unless they benefit from it.

Question: When would it be beneficial for firms to vertically integrate?

Double Marginalization (Monopoly -> Competitive)

Step 1: Find the selling quantity by a monopoly downstream firm

Double Marginalization (Monopoly -> Competitive)

Step 2 and 3:

VI (Monopoly -> Competitive with fixed-proportions)

To produce downsteam products, downstream firms **need a fixed proportion** of factor inputs.

- In this case, the monopoly upstream firm would charge the monopoly price.
- It has no incentive to vertically integrate with a competitive downstream firm.
  - Demand from downstream firms would be the efficient market demand because competitive downstream firms cannot restrict quantity.
  - Would get the same profit as under the vertically integrated case anyway

VI (Monopoly -> Competitive with variable-proportions)

To produce downsteam products,....

- In this case, if the upstream monopoly sets price too high, downstream firms can use other substituable inputs.
- The monopoly upstream firm has an incentive to vertically integrate with a competitive downstream firm.
  - This allow the upstream monopoly to force the downstream firm to use more of its product.

VI (Monopoly -> Competitive with variable-proportions)

Graph:

Reasons why firms impose vertical restrictions

- Avoid double marginalization
- Reduce the free-rider (among distributors) problem
- Reduce the free-ride (among manufacturers) problem
- Reduce the coordinational failure (among distributors) problem

Reduce the free-rider (among distributors) problem

Distributors of products from the same manufacturer may free-ride each other on the advertising and service efforts. This may lead each distributor to under-invest on advertising and services.

- Ex: automobile dealers with showrooms, electronic stores, food franchise etc.
- Manufacturer can prevent this problem through
  - granting exclusive territory
  - limit the number of distributors
  - imposing resale price maintenance (RPM)
  - taking over advertising
  - direct monitoring

Reduce the free-rider (among manufacturers) problem

If more than one manufacturers use the same distributor(s), then the manufacturers may have an incentive to under-invest on advertising and services.

- Ex: automobile dealers with showrooms, electronic stores, etc. that sell products of more than 1 manufacturers.
- Advertising by one manufacturer increases customer flow to the distributor
  - > other manufacturers benefit from this.
- Service training by one manufacturer increases sales
  - > but if the same skills can be applied to another product(s), other manufacturer(s) benefit from this.
- Exclusive dealing can be used to solve this problem.

Reduce the free-rider (among manufacturers) problem

- An example of exclusive dealing to solve the free-rider problem:

Reduce coordination failure problem

Coordination among distributors may be good for the industry, but sometime fails.

- The manufacturer may want their products to be available in all locations.
  - When product is widely available, it could become more popular and overall sale would increase.
- Each distributor only wants to operate in highly profitable locations.
- The manufacturer can help those located in low profitability locations
  - Allow free refund of unsold products
  - Subsidize some costs
  - etc.

The effects of vertical restraints

Definitely benefits the firms that use it, but may or may not benefit the consumers.

- If it increases total welfare - desirable
  - lower price, more output
  - make entries easier (through the increased distributors' sales efforts)
- If it lowers total welfare - undesirable
  - raise rival's costs and prevent entry
  - facilitate cartelization

Franchising

- One of the methods to reduce double marginalization and increase the number of unit sold.
- **Also helps solve the principal-agent problem.**
- The franchisor charges 1) lumpsum franchise fee 2) variable fee
  - lumpsum franchise fee = allows the manufacturer to extract available surplus
  - variable fee = x% of total revenue

Franchising

Examples: Franchise in Thailand (2015)

Franchisor	No.of Outlets	Franchise Fee	Royalty + Marketing Fee
7-Eleven	$>$ 8,000	1,500,000	n/a
Hokkaido Milk	$>$ 45	450,000	8% of revenue
Kumon	450	150,000	40-55% of revenue

Source: Thai Franchise Center (http://www.thaifranchisecenter.com)

Reference and Further Reading


Carlton, D.W. and J.M., Perloff.
Modern Industrial Organization. 4th Edition.
Pearson Addison Wesley Press, 2005.