

Lecture XII: Williamson – Chapter 4

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Readings for next time

Monopoly and Vertical Integration

Technological Determinism

Heuristic Model

Asset Specificity Distinctions

Readings for next time

- ▶ Williamson, O.E. 1985. *The Economic Institutions of Capitalism*, Free Press – Chapters 6 and 7.

Monopoly and Vertical Integration

- ▶ As we covered in Lecture 10, the concept of nonstandard transfers – vertical integration – was largely relegated to field of monopolies in the past.
 - ▶ "Leverage theory and entry barrier arguments were especially prominent. Vertical integration was believed to permit monopoly power in one area to be magnified through acquisition of another (leverage theory hypothesis) or impair the condition of entry (the entry barrier hypothesis)."
 - ▶ So the concept was that I could elevate my monopoly status by controlling an important input – Alcoa could elevate its monopoly status by controlling the source of Bauxite.

- ▶ It is necessary to provide a brief introduction to application of Department of Justice Guidelines on monopolies.
 - ▶ We have all been exposed from our introductory courses in economics the consequences of pure monopolies – monopolist increase the price they receive by reducing the quantity offered to the market. This creates a monopoly rent.
 - ▶ Economically monopolies represent inefficient resource allocations – with exceptions for the case of natural monopolies.
 - ▶ The practical question facing the regulator, however, is determining whether a monopoly actually exists. One classical measure is the Herfindahl index (a measure of concentration)

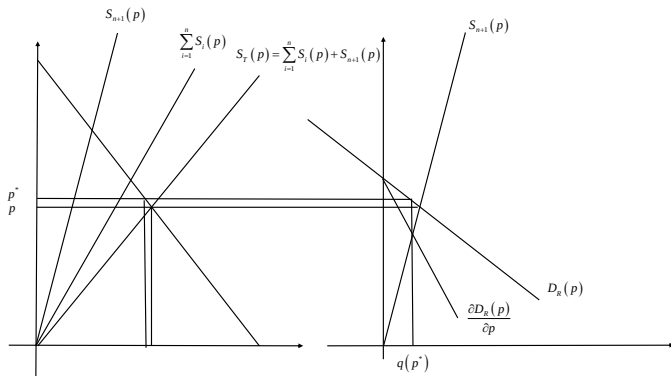
$$H_k = \sum_{i=1}^k s_i^2 \quad (1)$$

where k are the largest firms in an industry and s_i is their market share.

- This index has been somewhat replaced by the computation of a firm's ability to significantly affect the market price. To describe this, we start by defining the residual demand facing a particular firm

$$D_R(p) = D_M(p) - \sum_{i=1}^n S_i(p) \quad (2)$$

Residual Demand and Market Power



- ▶ Following the results in Figure 7, the question is whether the firm has the capability after a merger to increase the price by greater than say 10 percent.

- ▶ The significant concept was that the Department of Justice's 1968 Vertical Merger Guidelines set limits for the percent of the market controlled by vertically integrating firms. The acquired firm could control no more than 10 percent and the acquired firm could control no more than 6 percent.
- ▶ These guidelines failed to recognize non-monoplistic reasons for vertical integration – the importance of transactions costs.
- ▶ "Whatever is decided in economies defense respects, the fact is that the 1982/1984 Vertical Merger Guidelines reflect a genuine sensitivity to transaction costs features – and are much more permissive than their predecessors as a consequence."

Technological Determinism

- ▶ Apart from the merger/monopolistic literature developed above, the historical concept of integration was based on the idea that the technology made it inherently less costly to produce two products together.

- For example, consider a quadratic cost function from production economics

$$\begin{aligned}
 c(w, y) = & \alpha_0 + \begin{bmatrix} \alpha_1 \\ \alpha_2 \\ \alpha_3 \end{bmatrix}' \begin{bmatrix} w_1 \\ w_2 \\ w_3 \end{bmatrix} + \frac{1}{2} \begin{bmatrix} w_1 \\ w_2 \\ w_3 \end{bmatrix}' \begin{bmatrix} A_{11} & A_{12} & A_{13} \\ A_{12} & A_{22} & A_{23} \\ A_{12} & A_{23} & A_{33} \end{bmatrix} \begin{bmatrix} w_1 \\ w_2 \\ w_3 \end{bmatrix} + \\
 & \begin{bmatrix} \beta_1 \\ \beta_2 \end{bmatrix}' \begin{bmatrix} y_1 \\ y_2 \end{bmatrix} + \frac{1}{2} \begin{bmatrix} y_1 \\ y_2 \end{bmatrix}' \begin{bmatrix} B_{11} & B_{12} \\ B_{12} & B_{22} \end{bmatrix} \begin{bmatrix} y_1 \\ y_2 \end{bmatrix} + \\
 & \begin{bmatrix} w_1 \\ w_2 \\ w_3 \end{bmatrix}' \begin{bmatrix} \Gamma_{11} & \Gamma_{12} & \Gamma_{13} \\ \Gamma_{21} & \Gamma_{22} & \Gamma_{23} \end{bmatrix} \begin{bmatrix} y_1 \\ y_2 \end{bmatrix}.
 \end{aligned}
 \tag{3}$$

- ▶ The conjecture of technological determinism suggested that

$$\frac{\partial^2 c(w, y)}{\partial y_1 \partial y_2} = B_{12} < 0 \quad (4)$$

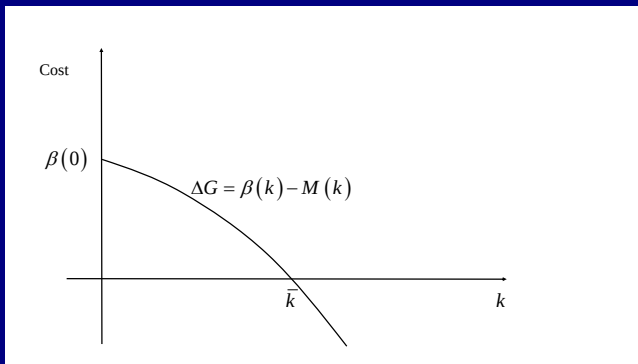
or that both outputs could be produced together more cheaply than apart.

A Heuristic Model

- ▶ As a starting point, Williamson presents a simple Heuristic model of transaction costs and diseconomies of scope.
- ▶ Taking transaction costs first.
 - ▶ Williamson formulates two costs of governance $\beta(k)$ and $M(k)$ where $\beta(k)$ is the cost of transaction through internal governance and $M(k)$ is the cost of transaction through the market. k is the degree of asset specificity.
 - ▶ The argument is that if there is little asset specificity, the cost of internal governance is high while if the cost of market governance is low (approximately zero) – $\beta(0) > M(0)$.
 - ▶ As asset specificity increases, the cost internal governance increases less rapidly than the cost of market governance – $M' > \beta'$.
 - ▶ The gain from internal governance can then be written as $\Delta G = \beta(k) - M(k)$.

Comparative Governance Cost

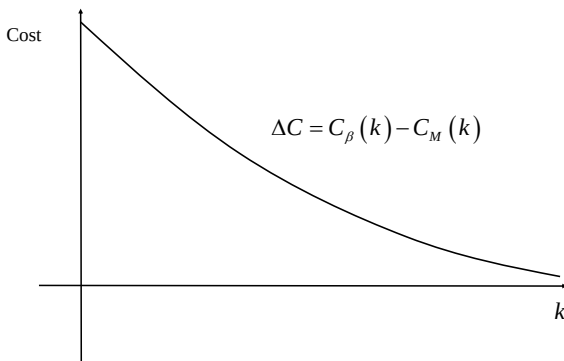
- ▶ As long $k > \bar{k}$ the firm chooses to organize using internal governance.



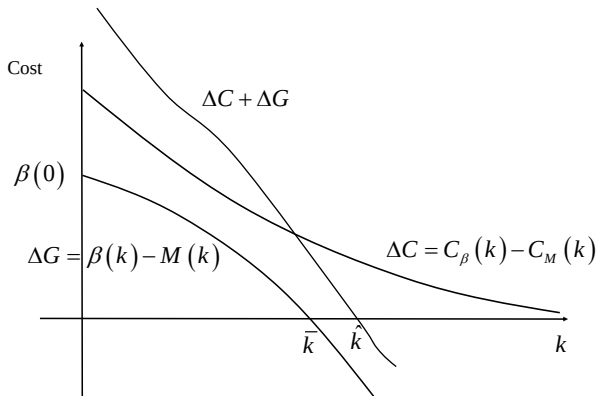
Production Costs

- ▶ In our discussion of the cost function, we analyzed whether it is cheaper to produce two goods at once. Here, we need to twist the logic and look at the cost of producing the input given asset specificity.
- ▶ We assume that if assets are not very specific that there are economies of scale from letting someone else produce the input – if we brought the transaction inside the firm there would be managerial rent seeking.
- ▶ As depicted in Figure 16 the cost of bringing this transaction into the firm never truly goes away, but becomes asymptotically small.

Changes in Production Costs



Comparative Production and Governance Costs



1. Market procurement has advantages in both scale economy and governance respects where the optimal asset specificity is slight ($k^* \ll \hat{k}$).
2. Internal organization enjoys the advantage where optimal asset specificity is substantial ($k^* \gg \hat{k}$).
3. Only small cost differences appear for intermediate degrees of optimal asset specificity
4. More generally, it is noteworthy that, inasmuch as the firm is everywhere at a disadvantage to the market in production cost respects ($\Delta C > 0$ everywhere), the firm will never integrate for production cost reasons alone.

5. Larger firms will be more integrated into components than will smaller, *ceteris paribus*.
6. The M-form (multidivision firms) will be more integrated than is U-form (unitary form) counterpart.

Asset Specificity Distinctions

- A. *Site specificity* – Unified ownership is the preponderant response to an asset specificity condition that arises when successive stages are located in close proximity to one another.
- B. *Physical asset specificity* – If assets are mobile and the specificity is attributable to physical features, market procurement may still be feasible by concentrating the ownership of specific assets (e.g. specialized dies) on the buyer and putting the business up for bid.
- C. *Human asset specificity* – Any condition that gives rise to substantial human asset specificity – be it learning-by-doing or chronic problems of moving human assets in team configurations – favors employment relation over autonomous contracting.

- D. *Dedicated Assets* – Investment in dedicated assets involve expanding existing plant on behalf of a particular by buyer. Common ownership in these circumstances is rarely contemplated.