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INTERNALIZATION vs. COOPERATION OF MNC's BUSINESS

KIYOSHI KOJIMA

Abstract

Either internalization (INT) or externalization (EXT) of MNC's business is in fact one side or the other of the *same* shield and the degree of either is determined by the same underlying factors surrounding the MNC's decision-making on advancing into a particular foreign market. The firm chooses an optimal scale of production (and sales) most appropriate for a given size of demand (or market) either internally within a firm or externally through cooperative arrangements—and also, very often, to adopt an optimal combination of the two modes (INT plus EXT *simultaneously*) as an integral whole of its international operations. Business cooperation is synonymous with EXT through joint ventures, licensing, OEM, and other contractual arrangements, which, by complementing INT, increases efficiency and scope of activity among the MNCs. And EXT can be best enhanced by the principle of agreed specialization, a form of cooperation that can promote intra-industry trade, direct investment, and collaborative business arrangements.

I. *Introduction*

In the 1980s the theory of internalization of MNC's (multinational corporation's) business was intensively developed and became one of the well-accepted core theories of MNC. In this approach, the saving of transaction costs through hierarchy was emphasized by a group of economists such as Williamson (1975), Buckley and Casson (1981), Rugman (1980, 1981, and 1985), Buckley (1987), Hennart (1986), Dunning (1988), and Kojima (1989). At the same time, however, the importance of cooperation between firms through a variety of externalized forms of operation (such as joint ventures, industrial collaboration agreements, licensing, franchising, subcontracting, OEM (original equipment manufacturing), management contracts, and other non-equity arrangements) was increasingly stressed by Buckley and Casson (1987), Buckley (1990), Kojima and Ozawa (1984), Levitt (1983), Oman (1984), Harrigan (1986), Porter (1986), and Lorange (1988), and Takeda (1990). The latter focus on externalization reflects the fact that MNCs themselves have began to engage in a growing number and range of cooperative arrangements.

In this paper, open-market transactions with outside firms via business cooperation (coordination, collaboration, alliance, etc.) are identified as "externalization (EXT)." Since there is a limit to "internalization (INT)," especially in the internal economies of scale (scope or network) which the MNC can exploit in expanding its overseas operations, the

MNC needs to resort to EXT for capitalizing on external economies if it is to further globalize its network of business operations. Indeed, oftentimes the MNC may find it necessary—and profitable—to contract INT while expanding EXT at the same time; in so doing, it can optimize both internal and external economies.

The motives for INT and EXT have a common basis. These opposite ways of implementing transactions are indeed the two sides of the same shield, since they both are intended to minimize transaction costs and gain from technical economies of scales. This theme is discussed in the following section (Section II). The question as to what determines the extent to which either INT or EXT is pursued is explored in terms of four criteria in Section III. It is shown that one basic proposition dominates; to design an optimal scale of production (or sales) either through INT or EXT *or* by combining both INT and EXT—all in relation to a given demand (or a given size of market). The application of this proposition is illustrated in terms of a firm's choice over internal integration, plant specialization, direct foreign investment, and other forms of operation.

This paper further argues that an agreed specialization in the production (and sales) of two goods subject to increasing returns to scale is the most promising mode of exploiting economies of scale, a mode which brings about social benefits (or an increase in consumers' surplus) to both parties. To realize such a gain, MNCs should discard monopoly pricing behavior and agree to entrust the production of their own sales to their appropriate partners, whenever warranted. International business operations thus take the form of a joint venture, an OEM arrangement, and other contractual forms under the principle of agreed specialization. This analysis is presented in Section IV.

II. *Motivations for Internalization versus Externalization*

Let us dichotomize the business activities of MNC into INT and EXT in the following three broad areas:

(a) *sourcing* (or logistics) of intermediate inputs which include not only raw materials and direct labor in production but also tangible assets (plants, offices, machines and equipments, etc.) as well as intangibale assets (information, technology, trade mark, brand name, staffs, efficacy of hierarchy, etc.).

(b) *production* of final output (commodities and/or services) of the firm.

(c) *sales* (marketing) and *financing*.

INT means to internalize all the activities as much as possible within the firm and to attain maximum efficiency through central decision-making and control. It results in a hierarchical organization, a wholly owned branch system, and the use of internally administered (transfer) pricing.

On the other hand, the firm may find it profitable to carry out its activities through various kinds of external markets (that is, EXT), such as joint ventures and contractual arrangements (with or without equity participation) in R&D, long-term purchases, licensing, OEM, *keiretsu* (intra-group) transactions, and open spot market deals. Of course, in many cases—especially in the case of joint ventures, it may not be easy to demarcate the internal from the external market in a clear-cut fashion in terms of ownership and control. The two markets need be differentiated with respect to their functions; the internal market

uses transfer prices whereas the external market arm's-length prices.

It should be noted that EXT results in a wide range of operational forms, hence necessarily qualitative differences among them. For exmaple, there is obviously a significant difference between a joint venture and a spot market transaction. But such difference is neglected here. Yet the choice of a particular externalized form may be treated in the same way as is the choice of an appropriate degree of relative dependence upon internal and external markets.

In the prevailing literature on these two markets, John H. Dunning (1981) summarizes his OLI (ownership/location/internalization) paradigm of international production with the primary focus on INT, as shown in Table 1. In contrast, Kathryn Rudie Harrigan (1986) enumerates the motivations for joint ventures, the most typical form of EXT, as reproduced in Table 2.

Comparing the two tables, one can quickly recognize that so many factors are common as the motivations for both INT and EXT; for instance, (i) access to and use of assets, both tangible and intangible, and raw matetials and other inputs, and (ii) diversification of products, production locations, sales markets, various kinds of risk, etc. Therefore, what we really have to exmaine are not those common motivations but the determinants of what extent to which INT and EXT are employed respectively. Furthermore, typical of what I call a "business approach," both Dunning and Harrigan merely mention too many motivations or variables in such a laundry-list fashion that they fail to find the basic common determinants of a choice between INT and EXT—as well as the key determinants of an appropriate combination of both.

III. *Determinants of INT or EXT*

The gains from INT are explained by Buckley-Casson (1981) model, but they are exactly analyzed by Kojima's (1989) model of sunk cost with minimum optimal scale (MOS), as partially reproduced below:

Let us suppose the following cost function:

$$(1) \qquad \mathrm{TC}=c(x)=\begin{cases} a+bx & \text{if } x\leqq x^* \ (a,b,x^*=\text{constant}) \\ (a/x^*+b)x & \text{if } x>x^* \end{cases}$$

$$(2) \qquad \mathrm{AC}=c(x)/x=\begin{cases} a/x+b & \text{if } x\leqq x^* \\ a/x^*+b & \text{if } x>x^* \end{cases}$$

where x^* is a minimum optimal scale (MOS) of output (or operations in general) under a given mode of production. Up to x^*, technical economies of scale are effective and fixed cost per unit of output, a/x, decreases continuously. Beyond x^*, economies of scale exhaust and unit fixed cost, a/x^*, becomes constant.

Now, let us compare two modes of production, $i=\alpha,\beta$. Then, minimum AC (which equals marginal cost) are as follows:

$$(3) \qquad b_\alpha^*=a_\alpha/x_\alpha^*+b_\alpha$$

$$(4) \qquad b_\beta^*=a_\beta/x_\beta^*+b_\beta \quad \text{(All variables are constants.)}$$

Minimum AC depends upon (1) variable cost, b_i, which is independently determined by

TABLE 1. THE ECLECTIC THEORY OF INTERNATIONAL PRODUCTION[a] (Dunning)

(1) *Ownership-Specific Advantages* (of enterprises of one nationality, or affiliates of same, over those of another).
  (a) Which need not arise due to multinationality.
    Those due mainly to size and established position, product or process diversification, ability to take advantage of division of labour and specialisation; monopoly power, better resource capacity and usage.
    Proprietary technology, trade marks (protected by patent, etc., legislation).
    Production management, organisational, marketing systems; R&D capacity; 'bank' of human capital and experience.
    Exclusive or favoured access to inputs, e.g. labour, natural resources, finance, information.
    Ability to obtain inputs on favoured terms (due e.g. to size or monopsonistic influence).
    Exclusive or favoured access to product markets.
    Government protection (e.g. control on market entry).
  (b) Which those branch plants of established enterprises may enjoy over *de novo* firms.
    Access to capacity (administrative, managerial, R&D, marketing, etc.) of parent company at favoured prices.
    Economies of joint supply (not only in production, but in purchasing, marketing, finance, etc., arrangements).
  (c) Which specifically arise because of multinationality.
    Multinationality enhances above advantages by offering wider opportunities.
    More favoured access to and/or better knowledge about information, inputs, markets.
    Ability to take advantage of international differences in factor endowments, markets. Ability to diversify risks, e.g. in different currency areas, and to exploit differences in capitalisation ratios.

(2) *Internalisation Incentive Advantages* (i.e. to protect against or exploit market failure).
  Reduction of costs (e.g. search, negotiation, monitoring) associated with market transactions.
  To avoid costs of enforcing property rights.
  Buyer uncertainty (about nature and value of inputs, e.g. technology, being sold).
  Where market does not permit price discrimination.
  Need of seller to protect quality of products.
  To capture economies of externalities and interdependent activities (see 1(b) above).
  To compensate for absence of futures markets.
  To avoid or exploit government intervention (e.g. quotas, tariffs, price controls, tax differences, etc.).
  To control supplies and conditions of sale of inputs (including technology).
  To control market outlets (including those which might be used by competitors).
  To be able to engage in practices, e.g. cross-subsidisation, predatory pricing, etc., as a competitive (or anti-competitive) strategy.

(3) *Location-Specific Advantages*
  Spatial distribution of inputs and markets.
  Input prices, quality and productivity, e.g. labour, energy, materials, components, semi-finished goods.
  Transport and communications costs.
  Government intervention.
  Control on imports (including tariff barriers), tax rates, incentives, climate for investment, political stability etc.
  Infrastructure [commercial, legal, transportation].
  Psychic distance (language, cultural, business, customs etc. differences).
  Economies of R&D production and marketing (e.g. extent to which scale economies make for centralisation of production).

[a]These advantages are not independent of each other. For example, those listed in (2) may be partially dependent on how MNEs exploit those listed in (1).

Source: John H. Dunning, *International Production and the Multinational Enterprise*, George Allen & Unwin, London, 1981, pp. 80–81.

TABLE 2. MOTIVATIONS FOR JOINT-VENTURE FORMATION (Harrigan)

A. Internal uses
  1. Cost and risk sharing (uncertainty reduction)
  2. Obtain resources where there is no market
  3. Obtain financing to supplement firm's debt capacity
  4. Share outputs of large minimum efficient scale plants

TABLE 2 (continued)

- a. Avoid wasteful duplication of facilities
- b. Utilize by-products, processes
- c. Shared brands, distribution channels, wide product lines, and so forth

5. Intelligence: obtain window on new technologies and customers
   - a. Superior information exchange
   - b. Technological personnel interactions
6. Innovative managerial practices
   - a. Superior management systems
   - b. Improved communications among SBUs
7. Retain entrepreneurial employees

B. Competitive uses (strengthen current stratetic positions)

1. Influence industry structure's evolution
   - a. Pioneer development of new industries
   - b. Reduce competitive volatility
   - c. Rationalize mature industries
2. Preempt competitors ("first-mover" advantages)
   - a. Gain rapid access to better customers
   - b. Capacity expansion or vertical integration
   - c. Acquisition of advantageous terms, resources
   - d. Coalition with best partners
3. Defensive response to blurring industry boundaries and globalization
   - a. Ease political tensions (overcome trade barriers)
   - b. Gain access to global networks
4. Creation of more effective competitors
   - a. Hybrids possessing owners' strengths
   - b. Fewer, more efficient firms
   - c. Buffer dissimilar partners

C. Strategic uses (augment strategic position)

1. Creation and exploitation of synergies
2. Technology (or other skills) transfer
3. Diversification
   - a. Toehold entry into new markets, products, or skills
   - b. Rationalization (or divestiture) of investment
   - c. Leverage-related owners' skills for new uses

Source: Kathryn Rudie Harrigan, *Managing for Joint Venture Success*, D.C. Heath & Co., Lexington, 1986, p. 16.

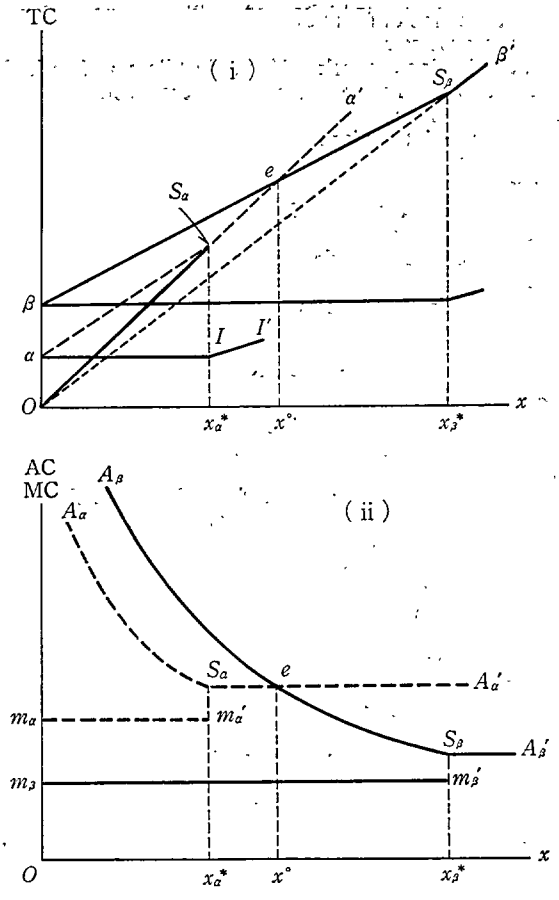
economic conditions, and (2) minimum unit fixed cost, a_i/x_i^*, or the realized degree of economies of scale which is determined by technical efficiency of the firm's assets, tangible as well as intangible, and the size of MOS.

Let us explain mode α in Figure 1. $O\alpha$ is the fixed set-up cost, a, and the slope of line αS_α is the unit variable cost, b_α. At MOS, x_α^*, the line αS_α kinks to line $S_\alpha\alpha'$ which is an extension of OS_α, the slope of which is the minimum AC, $b_\alpha^*=a_\alpha/x_\alpha^*+b_\alpha$. The minimum unit fixed cost, a_α/x_α^*, is shown by the slope of line OII' and adding this to the slope of line αS_α results in the slope of line $S_\alpha\alpha'$. The TC curve is thus drawn as $O\alpha S_\alpha\alpha'$.

In panel (ii) of Figure 1, as shown by curve $A_\alpha S_\alpha$, AC decreases up to the MOS output, x_α^*. It then becomes constant, as line $S_\alpha A_\alpha'$ shows. Direct unit variable cost, b_α, is the height of line $m_\alpha m_\alpha'$. To this, minimum unit fixed cost, a_α/x_α^*, which is shown by the length of $S_\alpha m_\alpha'$, is added at the MOS point, making minimum AC to be the height of $S_\alpha A_\alpha'$.

Complication comes from the fact that there are two kinds of fixed set-up costs, that is, $a=\bar{a}+\bar{\bar{a}}$. While $\bar{a}=p_1\bar{A}$ is a nonrecoverable set-up cost, which is a once-and-for-all cost incurred as soon as the mode is adopted (for example, the set-up cost of tangible assets $\bar{A}$), $\bar{\bar{a}}=p_2\bar{\bar{A}}$ is a recurrent cost (that is, independent of the rate of output) which results from

FIGURE 1.



indivisibilities of factor inputs hired in connection with the firm's operation (for example, the salary of managers and other overhead personnels, $\bar{A}$). Although both tangible assets $\bar{A}$, and managerial staff, $\bar{A}$, create economies of scale up to the MOS output level, $\bar{a}$ is sunk, while $\bar{a}$ is not and instead is recurrently needed.

Now, we can postulate a new criterion for a superior mode of production:

The Kojima criterion: The lower the minimum average cost and the larger the minimum optimal scale of plant are, the superior the mode of production is.

In other words, if

$$(5) \qquad a_\alpha/x_\alpha^*+b_\alpha>a_\beta/x_\beta^*+b_\beta$$

is satisfied, mode β is superior to mode α. In Figure 1 (i), this is shown by the slope of line $O\beta'$ being less steep than that of line $O\alpha'$.

In order to satisfy equation (5), there is a critical level of output:

$$(6) \qquad x^\circ=a_\beta/(b_\alpha^*-b_\beta)=a_\beta/[(a_\alpha/x_\alpha^*+b_\alpha)-b_\beta]$$

x° is the level of output produced with the same TC (and AC) by both modes α and β. This

critical output level, x°, corresponds to a switching point, e, where line βS_β crosses line O_α' from above as long as $b_\alpha^* > b_\beta$. Then, given the condition of $b_\alpha^* > b_\beta$, x_β^* (mode β's MOS) becomes larger than the critical rate of outputs, x°, hence, the greater x_β^* is relative to x_α^* (mode α's MOS), the greater the realised economies of scale are, and so the lower the minimum AC is.

It should be stressed here that what makes a mode of production superior is the extent to which technical economies of scale are realised with a larger MOS.[1] We suppose a formal, but not exactly specified, production function:

$$(7) \qquad x=f(\bar{A}, \bar{\bar{A}}, L, R)$$

where x stands for the level of production, $\bar{A}$ for the firm's assets, $\bar{\bar{A}}$ for managers and other overhead personnels, L for labor directly engaged in production, and R for raw materials and other intermediate inputs. The production function, f, results in increasing returns to scale (or economies of scale) depending upon the quality of each input, production technology, optimum combination of these inputs, and managerial efficiency.

We obtain the following cost function:

$$(8) \qquad \mathrm{TC}=(p_1\bar{A}+p_2\bar{\bar{A}})+[p_3\tilde{L}(x)+p_4\tilde{R}(x)]=a+bx$$

where $\tilde{L}$ and $\tilde{R}$ are the equilibrium values of L and R respectively.

Business approach's economists focus on how internalization through multinational operations can make each price lower than that available through market transactions. Such a cost-accounting approach, however, may bring about an artificial, and somewhat anti-social gain.

Now, the production function or the obtainable economies of scale is one of the most important determinants of the degree of INT or EXT but this should be compared to the level of demand for the firm's product, the other determinant. Let us look at Fig. 2 which is the same as Fig. 1 but the followings are added: WW' shows international price (or prices if two goods are treated); D_1D_1' and D_2D_2' are domestic (or internal) demand curves; and by adding foreign (or external) demand, meaning exports, to the latter, a total demand curve may be drawn through point 5.

Static criterion

Suppose two goods, α and β, in a country (economy) which are produced with different production modes and different demand conditions, as shown in Fig. 2. The domestic demand for α-goods is satisfied at point *1* with price P_α which is higher than international price W. The α-industry is comparatively disadvantaged and it is better for the country to import an Ox_2-volume of α-goods at W-price. The import means EXT of procurement, utilizing external economies of scale—that is, foreign country provides a larger volume of α-goods at lower price than domestic production can do.

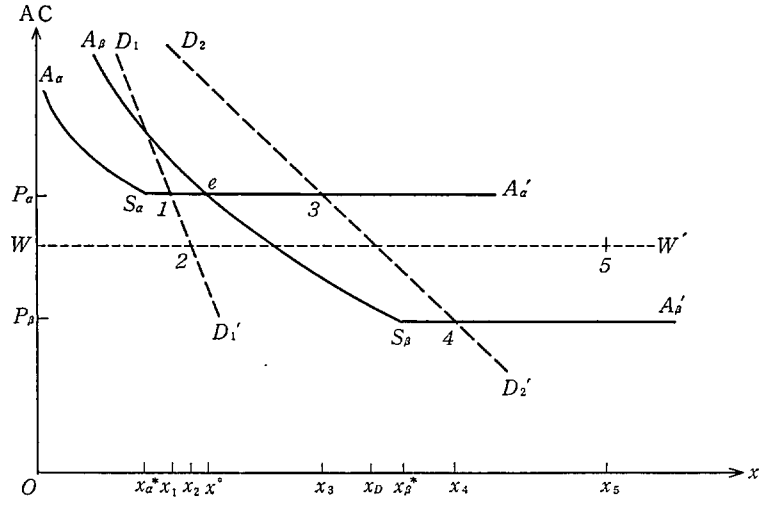
The domestic demand for β-goods is met at point *4* with price P_β which is lower than international price W. The β-industry has comparative advantage and is able to export,

[1] In support of this view, I would like to quote Richard D. Robinson's (1990, p. 1) statement: "The newness in the approach discussed here lies principally in the analysis of those five steps and their overall implication.

The five steps are:

1. Identifying the separable links in the firm's value-added chain.
2. In the context of those links, determining the source of the firm's true competitive advantages, considering both economies of scale and of scope."

FIGURE 2.



say x_4x_5-volume at the international price W with some profits. And this export may pay the above imports. Thus, the production of β-goods is worth internalizing (INT) by realizing internal economies of scale.

The static criterion for production choice is that:

(i) if $x^\circ < D$, INT is preferable,

(ii) if $x^\circ > D$, EXT is preferable,

where x° is the level of output of α- and β-goods produced with the same average cost, and D is the demand for each goods at the same international price. This is the criterion to judge whether an industry is comparatively advantaged or disadvantaged for an economy but is also applicable more in general to production choice and diversification decision-making for a firm.

Dynamic criterion

Now suppose that Fig. 2 is showing a structural change due to the increased demand that shifts its function from D_1D_1' to D_2D_2' for a good (say X). As far as the demand remains unchanged at D_1D_1' curve, the α-mode of production supplies the goods at a lower price than the β-mode can do. However, when the demand increases more than switching point e, a superior mode of production, β, serves better to the increased demand at a lower price.

The dynamic (or over-time) criterion for a structural change is that:

(iii) if $x^\circ < D$, structural upgrading is preferable,

(iv) if $x^\circ > D$, structural upgrading is not rewarding,

where x° is the level of output produced with the same average cost by both modes α and β (the same as before), and D is the demans at the price equivalent to the same average cost.

The criterion (iii) is in fact an argument for (proper) infant-industry protection for a country as well as for a firm.

Here, the importance of the size of domestic (internal) demand is clearly critical, for

it determines, together with appropriate technology and economies of scale, the degree of INT and the necessity of EXT. The above four criteria can be reduced to one basic proposition.

Basic proposition

In choosing an optimum scale of production in relation to a given size of internal demand, if the internal economies of scale are larger than the external ones, INT should be undertaken; whereas if it is the reverse, EXT should be implemented.

Choice of sourcing

The four criteria discussed above can be further applied to examine some decision-making issues both at the firm and the plant levels. Let us consider, for example, a choice involving the sourcing of inputs, say, technology (or knowledge). There are basically two kinds of technology a firm requires: major and subsidiary. A major technology should be created by the firm's own large-scale R&D activity. In other words, it should be internalized (INT), as stipulated by the criterion (i). On the other hand, a large number of subsidiary technology which the firm also needs may usually be procured externally through sourcing (EXT), as demonstrated by the criterion (ii). For if they are internally created by multiple and smaller-scale R&D activities (INT), they are likely to be more expensive than when they are externally procured (EXT).

This situation is best illustrated by the choice decision that an auto assembler normally makes between internal and external sourcing of parts. Main components are usually produced internally (INT) with a superior mode of production by exploiting internal scale economies, whereas a large variety of parts and components may be procured (EXT) from external sources, that is, from its own joint ventures, from specialized parts makers with some long-term contractual relations, or from completely independent suppliers in the spot market.

Another example is a steel mill which imports iron ore and coal from its own or affiliated overseas mines. In order for this vertical integration (INT) to function smoothly, the steel mill and its own mines need to operate at the MOS and hence at the minimum average cost. Moreover, each integrated plant's capacity must produce in an exact proportionality required by input-output relations. Yet such requirements certainly pose a limitation to the extent of INT. If the mines' capacities are short, spot purchases (EXT) are unavoidable; if they are excessive, spot sales (EXT) are needed in order to keep the mines at full capacity. Indeed, this type of an optimal combination of INT and EXT is pursued by both a group of Japanese steel mills and a group of Australian mines, benefiting both sides.

Sales and financing

In sales and marketing activities, economies of scope and/or network play a more important role than economies of scale. Here, it should be noted that the former essentially require not so much INT but rather EXT. x_α^* in the figures needs to be interpreted to represent a MOS sales network which consists of only internalized shops (e.g., sales branches and sole marketing agents), while x_β^* represents a case in which the firm establishes cooperative relationships with independent outside sales facilities.

A prime example is Japan's *sogo-shosha* (general trading firms) and big city banks which set up their networks of branches throughout the world (INT). Yet they are simultaneously active in spinning additional networks of close business relations with independent clients (EXT). In fact, their internalized core networks are designed for no other purpose than

to facilitate and exploit externalized business relations.

Multiple products vs. specialization

One of the critical decision-making issues for a plant with a limited size and capacity concerns the strategic choice between producing a multiple variety of a product and specializing in a single line. In general, the former results in an inferior mode of production, while the latter in a superior one. In order for specialization to be profitable, demand must increase to a level large enough to satisfy the criteria (i) and (iii). Suppose that the plant initially specializes to produce variety β and give up producing variety α. Now, the demand for variety α also increases so as to make it profitable for the plant to adopt a superior mode of production. In this case, the firm may decide to set up a second plant to produce variety α at home or abroad (which is INT) or entrust the production of the second vatiety to another firm (which is EXT).

Home production vs. overseas production

As shown elsewhere [Kojima, (1989)], if a home firm A, say, a Japanese auto maker, whose production mode is α in Fig. 2 sets up an assembly factory abroad, B, with β-mode of production, this results in the pro-trade type of direct foreign investment (hereafter abbreviated as PROT-DFI). In this case, the firm gives up home production in favor of overseas production, and imports back some portion of locally produced output. This type of operation exhibits an offshore sourcing character.[2]

In contrast, if home production with β-mode is replaced by overseas production with α-mode, the anti-trade type of direct foreign investment (ANT-DFI) is the outcome. According to our criteria, there is no rationale for making such a direct investment abroad, since overseas production results in a higher average cost than home-production-cum-exporting. This involves the scaling-down of overseas production relative to home production, especially when direct investment in manufacturing between advanced countries is involved.[3] Yet, despite such economic irrationality, many Japanese auto makers did establish factories in the United States and Europe, and were compelled to do so for entirely different reasons such as overcoming barriers to trade, mitigating bilateral economic conflict, and monopoly-rent seeking.

In contrast, Japanese direct investment in overseas natural resources development, such as in oil, coal, iron ore, and bauxite, results in PROT-DFI; while Japan is endowed

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[2] This PROT-type DFI is INT for parent firm but EXT for the economy (country) to which the parent firm belongs if the firm imports back products from the overseas factory. In contrast, imports through OEM arrangements are EXT both for the firm and the economy.

[3] Buckley (1991b) made an important comment on Kojima (1989) as follows:

"The concept of economies of scale at plant level used by Kojima may be becoming obsolete in the presence of changing demand conditions flexible manufacturing techniques, robotization and just-in-time inventory control. Although the imperative to achieve minimum efficient scale may have shifted to component suppliers rather than assemblers." (p. 104).

"Second, it (Kojima's theory) is outdated. The emphasis on plant level economies of scale ignores flexible manufacturing techniques, computer controlled manufacturing and inventory control, all of which require a radical re-evaluation of economies of scale. Further, the impact of increasing automation and robotization or relative costs suggest that pace Kojma, fixed costs are rising and variable costs decreasing (labour costs in some cases falling asymptotically towards zero)." (p. 188).

It should be questioned whether or not the new technology Buckley mentioned makes NUMMI's scale of 0.2 million units superior to the 4 million-units output by 4 plants in Toyota city (thus, the former a PROT-type DFI). This should not be true. I think that the new technology strengthens, rather than making obsolete, the importance of our criterion of MOS, x^*, and x°.

with very limited natural resources which are extracted through small-scale plants with an inferior mode of production, the MOS of overseas production becomes larger and more efficient because of the abundant endowments of better quality resources. A similar pattern can be discerned in plantation-type agribusiness investment in rubber, fish, banana, chicken, and beef.

Japanese direct investment in developing countries for labor-intensive manufactures as well as some low-end, standardized parts and accessories of automobiles, electronics, and other high-tech goods is also PROT-DFI and highly instrumental both for Japanese offshore sourcing and for promoting industrialization in the host country. Although the scaling-down problem often accompanies direct investment, particularly capital-intensive, scale-based (large-lot) industries, it usually does not present any serious obstacle for these invesments in labor-intensive light-industry goods or low-tech intermediate manufactures; even a scaled-down plant viewed as sub-optimal from the Japanese point of view may be a superior mode of production from the host country's point of view, since low labor costs can usually more than compensate any diseconomies of scaling-down even if such diseconomies exist.[4]

While these low value-added activities are transferred to developing countries, Japan, the investor, can contract or even completely abandon the production of labor-intensive goods and imports (outsources) them from the host country; moreover, it can specialize in the production of higher value-added goods with a superior mode for both domestic and export markets.

To sum up, although only a few illustrations have been attempted above, we can clearly see that the choice between INT and EXT—and an optimum combination of INT and EXT—is determined by an appropriate mode (or scale) of production to be adopted in relation to a given market demand. INT creates an internal market alone. But it sometimes may be possible that the firm's activity can be further broadened and diversified through EXT by even reducing the degree of INT; in other instances INT and EXT may be complementary and mutually reinforcing. Each different situation is determined basically by the size of demand and scale economies, as postulated in our criteria. In short, it is misleading—and wrong—to argue that internalization alone minimizes transaction costs and therefore is gainful for the firm.

IV. *Agreed Specialization*

It is MNCs' contribution to world society when they create useful goods and services and supply them at decreasing prices. But, there are two obstacles to do so: one is MNCs' preference of monopolistic behavior, and the second is their difficulty to reach a mutual specialization agreement among themselves.

To get rid of monopoly

Let us look at panel (ii) of Fig. 3 which is the same as the β-mode of production in Fig. 2. From a domestic demand curve, dd', its marginal revenue curve, mr, is derived. Marginal cost is at the level of m and constant. Now, the firm intends to maximize profits (=

[4] In a two-good, two-country international trade, the criteria are the same as before but might be defined more exactly in terms of comparative (not absolute) economies of scale.

monopoly rents) by making marginal cost equal marginal revenue at point m_1. The firm supplies a limited volume of ox_1 to the market at price op. This brings the firm a monopoly rent equivalent to triangle dmm_1 or area ①+②+③.

In contrast, let us suppose, as the full-cost principle advocates, a normal profit margin or mark-up as large as mw is allowed in a market of free competition (not perfect-competition in terms of economic theory). Then asa'-curve is, instead of average cost curve as before, a supply curve inclusive of normal profits. When the supply is limited to the volume of ox_1, same as the monopoly case, the firm obtains merely a normal profit of area ③, which is smaller by area ①+② than the monopoly rent. Therefore, the firm prefers monopoly pricing to free competition.

Social benefit or consumer's surplus is shown by triangle dwp_2. It is important to recognize that the social benefit is maximized only if the firm (or firms) gets rid of monopoly pricing and shifts to free-competition pricing through fully realizing the existing economies of scale: because of competition, area ① disappears, and in order to realize more gains from scale economies, area ② also is thrown away. Thus, if the firm supplies to the market ox_2-volume with ow-price, the social benefit is maximized and the firm obtains a normal profit equivalent to area ③+④. This normal profit may or may not be larger than a monopoly rent (i.e., the area ①+②+③). Some public subsidy to the firm may be provided as an instrument for ridding monopoly. Such subsidy works more effectively than anti-monopoly law.

Furthermore, if the firm succeeds to export to foreign markets as large as x_2x_3-volume (i.e., the horizontal distance between total demand curve, d_1d_t, and domestic one, dd'), an additional normal profit, the area ⑤, is obtainable and free-competition becomes much more preferable to monopoly pricing.[5] In addition, exports will provide foreign country with external economies and contribute to its social benefit, as will be examined below.

Mutual specialization

Let us imagine a competition between U.S. and Japan in a high-tech good (say, I.C. —integrated circuit—). As in panel (i) of Fig. 3, although country I (U.S.) invented I.C., its firm (or firms) undertakes the production with an inferior α-mode shown by AA'-average cost curve, perhaps because of a limited demand forecast for military use. Moreover, U.S. firms prefer monopoly-pricing and their supplies are limited to OX_1-volume at OP-price.

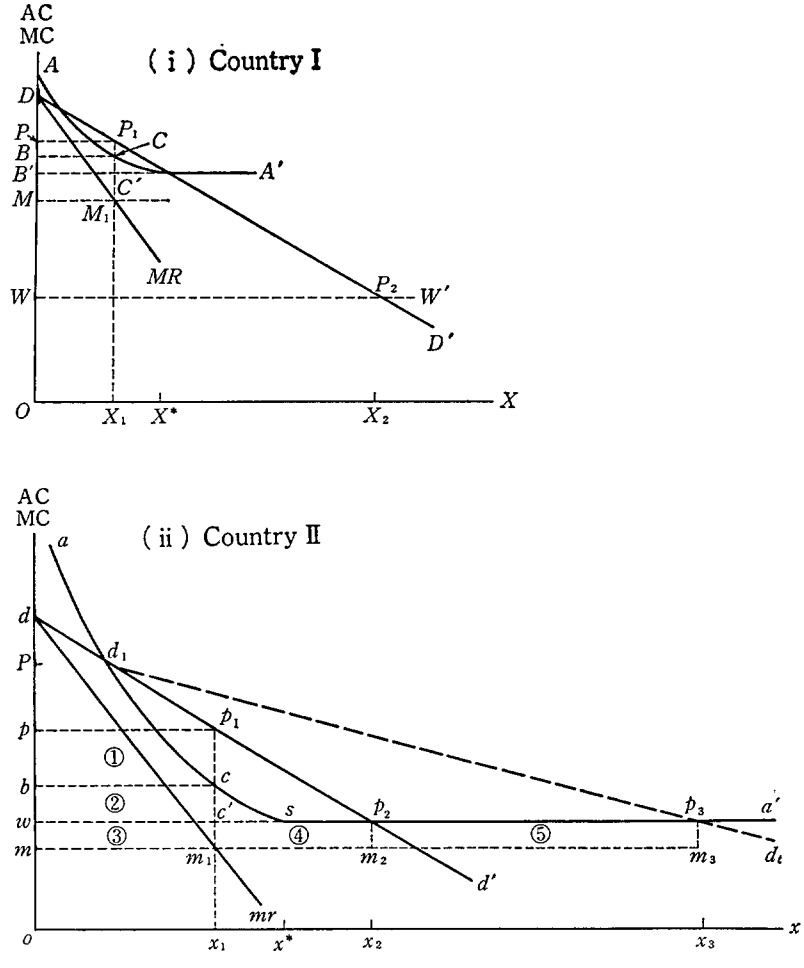
Country II (Japan) now quickly imports the know-how of I.C., improving on its quality and production method, and sets up a superior β-mode, as shown in panel (ii), for Japanese firms forecast a big market for home electronic machines. They expand under a fierce free competition their production for both domestic and export markets, which eventually leads to a Japan-US trade conflict.

It is actually better for country I (U.S.) to import I.C. from Japan OX_2-volume at OW-price by discarding its monopoly production of OX_1-volume at OP-price, for its consumer's surplus can increase from triangle DPP_1 to DWP_2.

This is an unhappy solution for U.S. firms, however, because they become losers while the Japanese firms winners. Is not there any better way in which both sides can be made

[5] Thus, INT should be sub-devided into two: one is monopolistic INT and the other INT in free (or contestable) market which is brought about when feasible MOS (or x^*) for each firm is much smaller than the entire market demand.

FIGURE 3.



happier? Yes, there is. That is an "agreed specialization" which I have been advocating since 1970 (Kojima 1970, 1987).

There are several varieties of I.C.: variety X (say, memory-type) and variety Y (say, logit-type). Suppose the above specialization is undertaken in such a way that country II (Japan) exports variety X, while country I (U.S.) imports it. At the same time, concerning variety Y, a similar specialization is undertaken so that, in a reverse direction, country I exports while country II imports, provided that the total demand of the two countries for the Y-variety is large enough to make the superior β-mode production profitable and that such a mutual specialization agreement, even it is tacit, is approved. The agreement means that one country opens up its market for one variety of product by ridding its domestic production and entrusting its supply on the partner's specialized production with greater efficiency (i.e., external economies); the other country does the same for other variety of

product. If this mutual specialization is implemented, both sides can obtain (or consume) an increased amount of two varieties at lower prices. This is the primary benefit of a mutual specialization. Whether or not bilateral exports are balanced is, however, not certain; it all depends upon the demand of importing country for each variety respectively. This should be a secondary concern, although this often makes an international agreement difficult to achieve.

In fact, agreed specialization is a very normal affair within the firm. Specialization within the plant or within the department is a *de facto* agreed specialization which is planned by the headquarters and agreed upon by each sector. As already explained above, plant specialization is accomplished in accordance with our dynamic criteria.

It is said that the US-Canada Automobile Pact of 1965 has been successful. The reason is, I submit, that agreed specialization by our definition can be easily promoted within the same company which has plants both in the U.S. and Canada. This means that the agreed specialization is undertaken as a means of rational internalization (INT). Why not, then a similar agreed specialization between one firm and an independent firm? There is no reason for not. Externalized (EXT) agreed specialization increases the size of total demand for specialized production, shifting to superior modes of production and providing external economies through trade. So, I would like strongly advocate for many countries to promote agreed specialization in similar manufactured goods which are produced under increasing returns to scale. Agreed specialization is feasible in intra-industry trade between differentiated products and parts.

Agreed specialization through OEM

Imports under agreed specialization has a character of offshore-sourcing DFI. It is, therefore, facilitated if DFI is undertaken mutually in a PROT-direction instead of the ANT-direction as seen in the case of some Japanese investments in the U.S. However, it is not always necessary to form a wholly-owned DFI. Joint ventures, small capital participation, or even an OEM (original equipment manufacturing) is adequate. An OEM arrangement, for example, means that country I's firm (say, A) entrusts country II's firm (say, B) the production of variety X and uses offshore procurement. And if the firm B reciprocates the offshore procurement of variety Y, then an agreed specialization is realized. This is what I recommend and Bhagwati did.[6] It should be remembered that the direction of OEM is pro-trade and diametrically opposite to that of the ordinary DFI of the anti-trade type. As I argued elsewhere (Kojima 1989), a problem was created because while U.S. firms procured through OEM arrangements a fairly large amount of parts and final products from Japan, the Japanese side reciprocated a little. Since a large Japanese purchase was promised on the occasion of President Bush's visit to Tokyo in January 1992 this problem may be alleviated in the future.

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[6] Bhagwati (1972, p. 457) observes:
"Thus, the MNC in U.S. (say, GM) that finds it difficult to compete in the small-car field with the MNC in Japan (say Toyota) that finds it difficult to compete with the MNC in U.S. in the large-car field, would each decide that the best strategy if you cannot compete with comfort is to follow that policy: 'if you cannot beat them, buy them.' Thus GM would want to buy equity in Toyota for the small-car production and Toyota in GM for the large-car production; and GM in the U.S. would go off spending resources in producing and improving its own small cars while Toyota in Japan would similarly hold back on its own large-car efforts. One thus gets mutually interpenetrating MNCs within industries, with accompanying division of labour and a novel form of 'cartelization' which goes by sub-products."

Instead of a simple OEM agreement, some small participation of equity capital or joint ventures may be more effective to enforce agreed specialization (or mutual offshore sourcing), since both parties can mutually exchange technology and improve on the quality of a product and satisfy the consumers' tastes of each side in a more efficient manner.

V. *Conclusion*

The best policy for the MNC is that as far as its major line of business is concerned, it should organize a hierarchy by exploiting a technically optimal scale of operation (that is, INT), whenever some INT-specific advantages can be obtained; for example, the sourcing of main inputs should be secured through INT. On the other hand, subsidiary businesses such as minor sourcing and the lines of business in which the firm cannot develop competitive advantages need to be carried out through cooperative arrangements with outside firms (that is, EXT). It should be kept in mind that the key determinants of INT and EXT are the relative strengths of internal vs. external economies of scale, both of which depend functionally on the technical production functions involved.

In the literature on internalization, the minimization of transaction costs associated with externalized exchanges (market activities) alone is both excessively and too narrowly focused and stressed. MNCs and their operations are not the mere creations of internalization. They are increasingly taking up a variety of externalized auxiliary business activities and optimally combining them with their internalized core activities as an integral set of corporate operations. It is about time for us researchers to look at INT and EXT not as substitutes but as complements for MNCs' ever-expanding global businesses.

SURUGADAI UNIVERSITY AND HITOTSUBASHI UNIVERSITY

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