

Chapter 22. Multinational and Direct Foreign Investment

Direct investment refers to firms or individuals owning controlling interests in foreign firms.

Multinational Corporations

1. Review of empirical evidence
2. Dunning's OLI, joint inputs, firm versus plant-level scale economies
3. A model with endogenous multinationals
4. Pattern of trade in goods and services
5. Motives for internalization
6. A model of internalization

Firm and Industry Characteristics

- (1) Multinationals are associated with high ratios of R&D relative to sales.
- (2) Multinationals employ large numbers of scientific, technical, and other "white collar" workers as a percentages of their work forces.
- (3) Multinationals tend to have a high value of "intangible assets"; roughly, market value minus the value of tangible assets such as plant and equipment.
- (4) Multinationals are associated with new and/or technically complex products.
- (5) Evidence suggests that multinationality is negatively associated with plant-level scale economies.
- (6) Multinationals are associated with product-differentiation variables, such as advertising to sales ratios.
- (7) A minimum or "threshold" level of firm size seems to be important for a firm to be a multinational, but above that level firm size is of minimal importance.
- (8) Multinationals tend to be older, more established firms.

Country Characteristics

- (1) The high-income developed countries are not only the major source of direct investment, they are also the major recipients. Most direct investment seems to be horizontal.
- (2) There has been a major boom of direct investment into the developing countries in the 1990s, but most of it has gone to the more advanced LCDs and to China. Little goes to the least developed countries.
- (3) Direct investment stocks have grown significantly faster than trade flows over the last two decades, even though trade barriers have fallen dramatically.
- (4) High volumes of direct investment are associated with similarities among countries in terms of relative factor endowments and per capita incomes, not differences.
- (5) A high volume of outward direct investment is positively related to a country's endowment of skilled labor and insignificantly or negatively related to its physical capital endowment.
- (6) There is little evidence that direct investment is primarily motivated by tariff avoidance or measurable transport costs,
- (7) There is mixed evidence that tax avoidance and/or risk diversification are important motives for direct investment. Some evidence does suggest that political risk discourages inward investment.

- (8) Infrastructure, skill levels, and a minimum threshold level of per capita income seem to be very important determinants of direct investment.
- (9) There is evidence that agglomeration effects are important in direct investment. But it is admittedly difficult to distinguish agglomeration effects from firms being drawn to the same (unobserved) site-specific resources.

Table 1.1

| | Annual growth rate (%), all countries | | |
|--|---------------------------------------|-----------|-----------|
| | 1986-1990 | 1991-1995 | 1996-1999 |
| FDI inflows | 24.7 | 20.0 | 31.9 |
| FDI stocks | 18.2 | 9.4 | 16.2 |
| Sales of foreign affiliates | 15.8 | 10.4 | 11.5 |
| Gross product of foreign affiliates | 16.4 | 7.1 | 15.3 |
| Royalties and fees receipts | 22.0 | 14.2 | 3.9 |
| GDP at factor cost | 11.7 | 6.3 | 0.6 |
| Gross fixed capital formation | 13.5 | 5.9 | -1.4 |
| Exports of goods and non-factor services | 15.0 | 9.5 | 1.5 |

Table 1.2

FDI inflows and outflow, share in total

| Year | Developed | | Developing | | in | CEE out |
|-----------|-----------|-----|------------|-----|----|------------|
| | in | out | in | out | | |
| 1983-1987 | 76 | 95 | 24 | 5 | 0 | 0 |
| 1988-1992 | 78 | 93 | 21 | 7 | 1 | 0 |
| 1993 | 62 | 85 | 35 | 15 | 3 | 0 |
| 1994 | 59 | 83 | 39 | 17 | 3 | 0 |
| 1995 | 65 | 85 | 32 | 15 | 4 | 0 |
| 1996 | 58 | 85 | 38 | 15 | 3 | 0 |
| 1997 | 58 | 86 | 38 | 14 | 4 | 1 |
| 1998 | 71 | 95 | 26 | 5 | 3 | 0 |
| 1999 | 74 | 91 | 24 | 8 | 1 | 0 |

Source: UNCTAD World Investment Report, 2000 and earlier years

Share of inward FDI to/from developing countries going to:

| | China | Least developed (48 countries) | LDC share of world GDP | Hong Kong |
|---------|---------------|-----------------------------------|---------------------------|----------------|
| | <u>inward</u> | <u>inward</u> | | <u>outward</u> |
| 1984-89 | 10 | 2 | 4 | 24 |
| 1990-92 | 15 | 2 | 5 | 28 |
| 1993 | 38 | 2 | 4 | 54 |
| 1994 | 39 | 1 | 4 | 56 |
| 1995 | 38 | 1 | 4 | 51 |

UNCTAD world investment report, 1996. Zhang and Markusen, 1996.

Correlation between Foreign Ownership Shares and Characteristics of Industries (Andrew Dick, JIE 1993) (1982 and 1987 data)

| <u>Variable</u> | <u>Pearson Correlation Coefficient</u> |
|--|--|
| Net Income divided by Assets (proxy for intangible assets) | 0.357 |
| Advertising Intensity | 0.283 |
| % of Total Employees in R&D | 0.228 |
| Median Plant Shipments/ Industry Average Shipments (economies of scale?) | 0.610 |
| Capital to Value Added Ratio | 0.175 |
| Patent Effectiveness | |
| process R&D | 0.814 |
| product R&D | 0.574 |
| Research Lead Time | |
| process R&D | 0.785 |
| product R&D | 0.615 |

Point of Departure for Theory: Firms incur significant costs of doing business abroad relative to domestic firms in those countries. Therefore, for a firm to become a multinational, it must have offsetting advantages.

Dunning (OLI): There are three necessary conditions for firms to be willing to undertake investments abroad

Ownership Advantage: the firm must have a product or a production process such that the firm enjoys some market power advantage in foreign markets.

Location Advantage: the firm must have a reason to want to locate production abroad rather than concentrate it in the home country, especially if there are scale economies at the plant level.

Internalization Advantage: the firm must have a reason to want to exploit its ownership advantage internally, rather than license or sell its product/process to a foreign firm.

Ownership Advantages, Firm-Specific Assets, and Knowledge Capital

Multinationality related to R&D, marketing, scientific and technical workers, product newness and complexity, product differentiation.

MNEs intensive in knowledge capital, knowledge-based assets

- (4) services of knowledge capital easily transported to distant plants
- (5) joint input or "public goods" nature of knowledge capital.

Physical capital intensity by itself should not give rise to multinationality.

What is being traded? Multinationals are exports of the services of knowledge-based assets: managerial and engineering services, financial services, reputations and trademarks.

Location advantages.

Horizontal multinationals producing the same goods and services in each location: Large markets and high trade costs.

Vertical multinationals geographically fragmenting the production process by stages: factor-price differences across countries are linked to the factor intensities of different stages, low trade costs.

Internalization advantages.

The same joint-input, public-goods property of knowledge that makes it easily transferred to foreign locations makes it easily dissipated. Firms transfer knowledge internally in order to maintain the value of assets and prevent dissipation.

Elements of a simple model of “horizontal” or ‘multi-plant’ multinationals.

Firm's technology.

F - firm-specific fixed costs

G - plant-specific fixed costs

c - constant marginal cost per unit

t - shipping or tariff or other cost unit

Multi-plant economies of scale.

F is a joint-input across plants.

Fixed costs of a two-plant firm is less than the fixed costs of a one-plant national firm.

$$(F + 2G) < (F + G) + (F + G) = 2F + 2G.$$

But, this does not immediately imply that all firms will be multinationals. That will depend on the size of G, the fixed costs of a second plant, versus t, the unit trade cost.

“Vertical” multinationals are firms that geographically fragment production by stages, such as R&D and components in one country and final assembly in another country.

A vertical dimension is added to the model outlined above by allowing F, G, and c to have different factor intensities; e.g., skilled-labor intensity is higher for F than for G which is in turn higher than for c.

Multi-plant (horizontal) multinationals have an advantage over single-plant national firms when:

(1) The overall market is large.

Becoming a multinational is a high fixed-cost option, while exporting is a high variable cost option.

(2) The markets are of similar size.

If one market is very small, a firm will not want to locate costly capacity there, it will serve the small country from a plant in the large country.

(3) Labor costs are similar.

If factor prices are very different in the two countries, the multinational may want to locate all activities (if they have similar factor intensities) in the favored country.

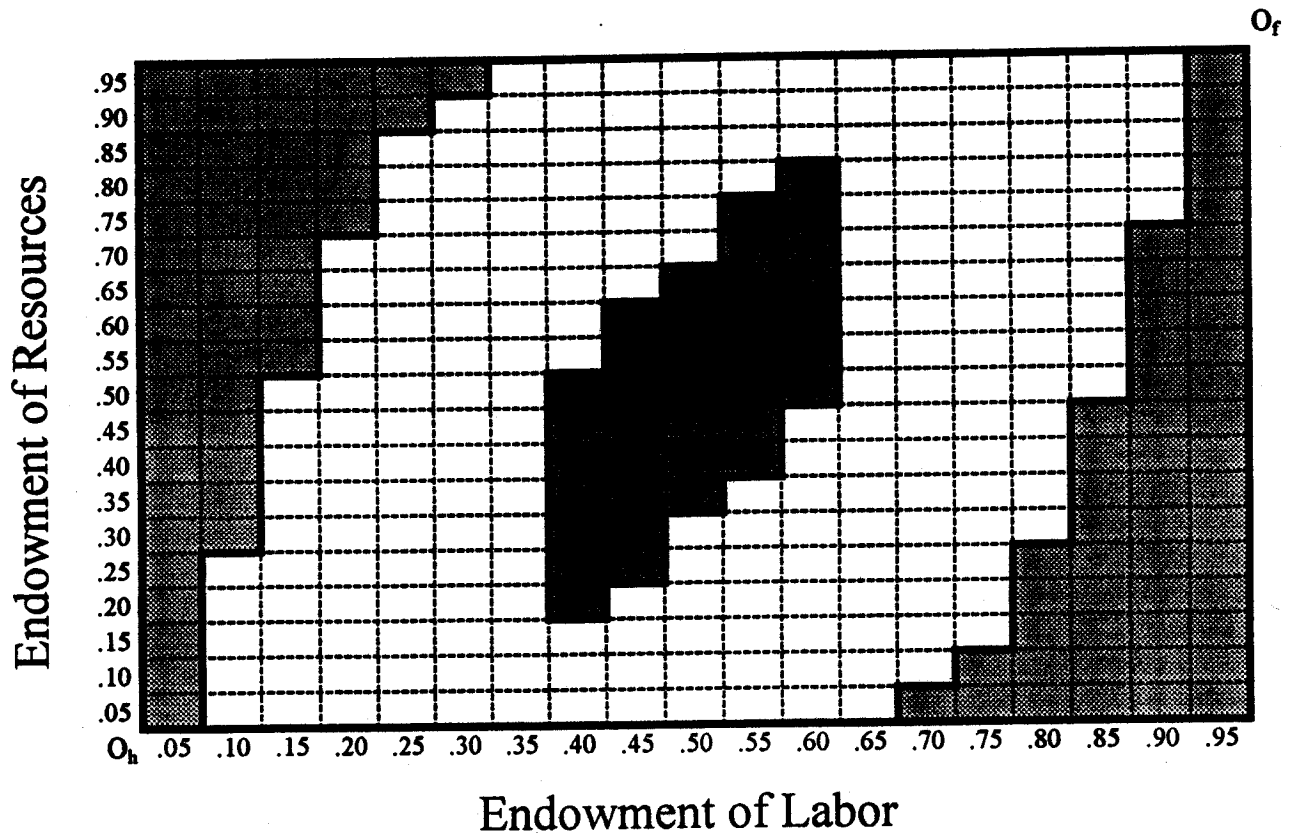
(4) Firm-level scale economies are large relative to plant-level scale economies. (The added fixed costs of becoming a multinational firm are low.)

Obvious

(5) Transport costs are high.

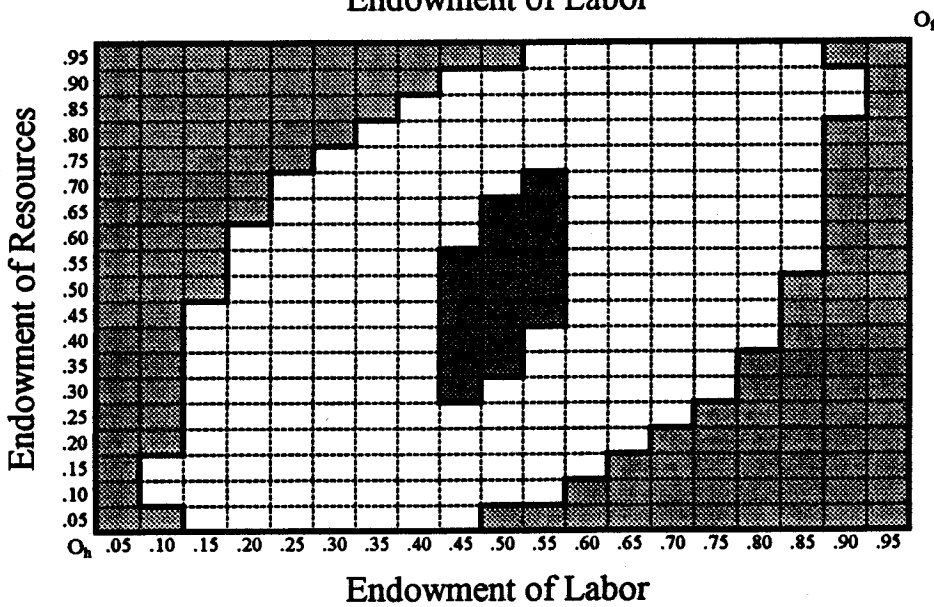
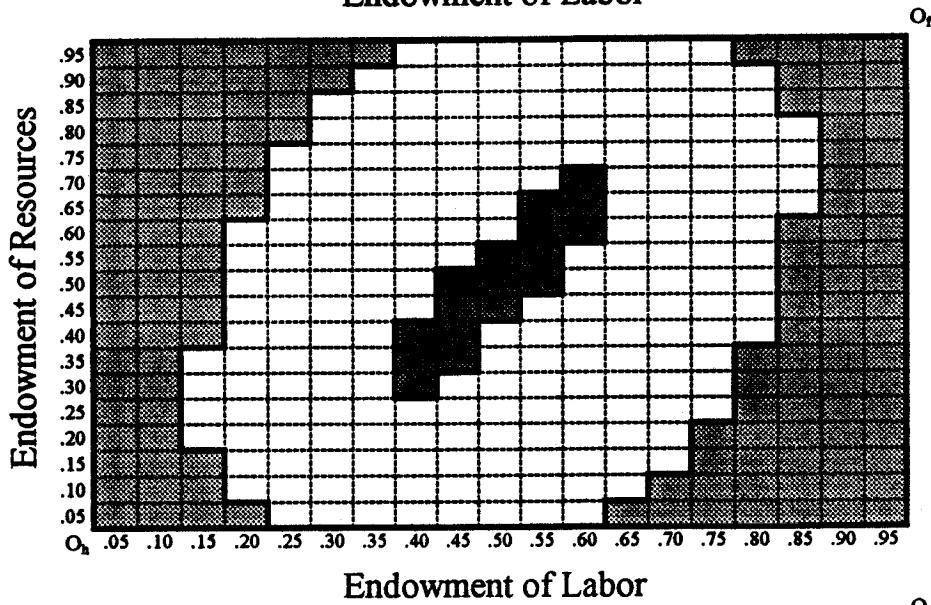
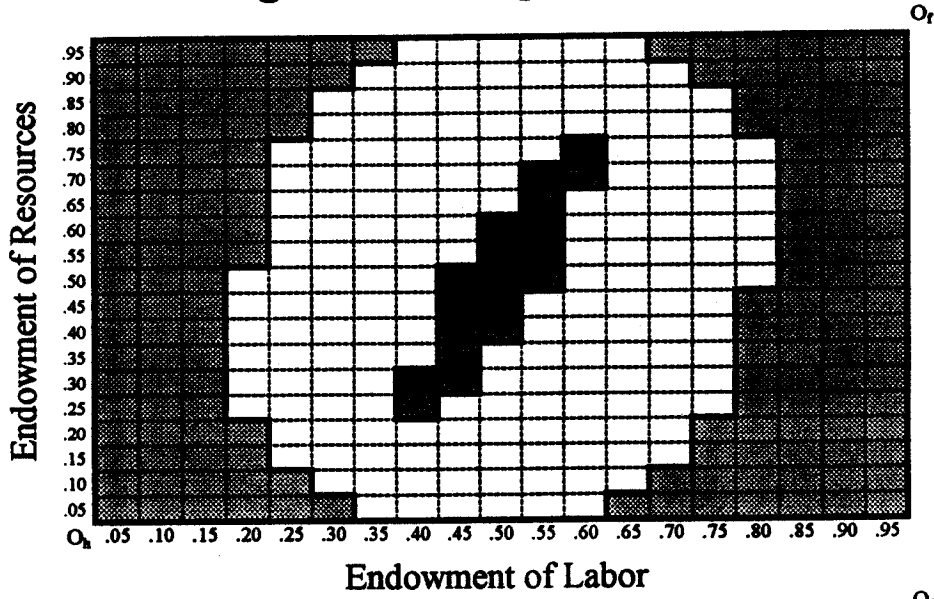
With plant-level scale economies, a firm would concentrate all activities in one country if trade costs were zero.

Figure 1: Equilibrium Regimes, $t = .15$



- Multinational firms only
- Mixed regimes of national and multinational firms
- National firms only

Figure 2: Comparative Statics



Multinational firms only
 Mixed regimes of national and multinational firms
 National firms only

Vertical multinationals tend to arise when factor prices across countries are very different as are the factor intensities of different stages of production.

R&D and component production is often done in skilled-labor-abundant countries, and final assembly in unskilled-labor-abundant countries.

Internalization

General Idea: some of the same properties of knowledge capital that create ownership advantages create internalization advantages. These arise from the jointness property of knowledge along with moral hazard, asymmetric information, and the infeasibility of complete and/or enforceable contracts.

Consider a firm choosing between opening a subsidiary in a foreign country (a costly option) and simply selling or licensing its technology to a foreign firm.

Some internalization models involving the stylized facts on knowledge capital, product newness and complexity.

(1) A firm is reluctant to reveal its product or process to a licensee, who may reject the proposal, but now has the knowledge. But the potential licensee is not going to sign an agreement without knowing what it is buying.

(2) The licensee knows that the firm may not have an incentive to truthfully reveal the product's quality.

(3) The newness of the product may create an informational asymmetry in the opposite direction: the potential licensee may have a much better idea of how the product will sell in its local market, while the MNE does not. The licensee extracts rent to reveal the information.

(4) Bi-lateral uncertainty over start-up problems, worker productivity and learning rates.

(5) Knowledge is easily learned by new employees. The licensee may be able to defect, starting a new firm in competition with the MNE.

(6) Product quality is an intangible asset. A licensee may have an incentive to reduce quality, capturing a short-run gain at the expense of losing the contract.

(7) Difficulties in choosing between costly monitoring and suffering the costs of moral hazard when employing licensees.

(8) Differences in objectives and goals between the firm and the licensee.

Summary Points

- (1) Horizontal multinationals seem to arise due to the joint-input property of knowledge capital, which creates firm-level scale economies and an incentive to geographically expand production abroad.
- (2) The theory that I have outlined is helpful for understanding why so much multinational activity is concentrated among the high income developed countries.
- (3) The theory also suggests that “vertical” multinationals arise when the factor intensities of different stages of production are very different, and factor prices are very different across countries.
- (4) Vertical multinationals are much less important quantitatively. Many vertical relationships are “arm’s-length”, and not internalized within a single firm. For example, Nike does not own the factories where its shoes are made, it sells designs to independent subcontractors.