Multinational Firms and Foreign Direct Investment

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33501 International Commercial Policy
Introduction

In the previous lecture we took a first look at firms in international trade.

We argued that firms are heterogeneous and that their heterogeneity matters for the pattern of trade and the gains from trade. However, we implicitly confined attention to domestic firms only.

In the real world, many firms that matter most in international trade are, of course, multinational firms. In this lecture, we take a closer look at such firms and their foreign direct investment (FDI).
Overview of the lecture

Define what we mean by multinational firms and FDI and consider some facts and examples.

Develop some theories of multinational firms and FDI: horizontal FDI, vertical FDI, internalization.

Consider some effects of multinational firms and FDI: effects on workers in developed countries, effects on workers in developing countries, spillover effects.
What is a multinational firm?

Harvard professor Richard Caves defines a multinational firm as “an enterprise that controls and manages production establishments (plants) located in at least two countries. It is simply one subspecies of a multiplant firm.”

Notice that this definition has two key parts. First, plants in at least two countries must be involved in the production process (location part). Second, these plants must be controlled and managed by the same firm (internalization part).
What is a multinational firm? (cont.)

In U.S. statistics, a U.S. plant is considered to be controlled by a foreign firm, if 10 percent or more of the stock of the U.S. firm owning this U.S. plant is held by a foreign firm.

Notice that this definition makes it possible for a U.S. firm to be a U.S. multinational and an affiliate of a foreign multinational at the same time. While such cases exist - e.g. the U.S. chemical company DuPont simultaneously controlled and was controlled by the Canadian chemical company Seagram from 1981 until 1995 - they are the exception.
Basic facts about multinational firms

The value added of all multinational firms accounts for around 25 percent of world GDP. The value added of foreign affiliates of multinational firms alone accounts for around 10 percent of world GDP.

Around one-third of world trade is intra-firm trade. Around another one-third involves multinational firms in one of the two sides of the exchange.

The 700 largest multinational firms account for around 50 percent of world R&D spending.
What is FDI?

Recall that a firm must acquire a controlling stake in a foreign firm in order to become multinational.

It can do so either by newly creating a foreign firm (“international greenfield investment”) or by acquiring an existing foreign firm (“international M&A”).

Either method involves an international capital flow referred to as FDI.
What is FDI? (cont.)

The two most common forms of FDI are horizontal FDI and vertical FDI.

Horizontal FDI occurs if a firm invests in the same industry abroad in which it operates domestically – e.g. Toyota builds an auto manufacturing plant in the U.S..

Vertical FDI occurs if a firm invests in a supplier industry abroad – e.g. Intel builds a chip assembly plant in Malaysia.
Some facts about FDI

Figure 1.2. FDI inflows, global and by group of economies, 1995–2011
(Billions of dollars)

Source: UNCTAD, based on annex table I.1 and the FDI/TNC database (www.unctad.org/fdistatistics).

Some facts about FDI (cont.)

**Figure I.4. FDI outflow shares by major economic groups, 2000–2011**

(Per cent)

Source: UNCTAD, based on annex table I.1 and the FDI/TNC database (www.unctad.org/fdistatistics).

Some facts about FDI (cont.)

Figure 1.5. Value of cross-border M&As and greenfield FDI projects worldwide, 2007–2011


Note: Data for value of greenfield FDI projects refer to estimated amounts of capital investment. Values of all cross-border M&As and greenfield investments are not necessarily translated into the value of FDI.
Global fragmentation without FDI

Of course, firms do not necessarily have to become multinational firms/engage in FDI to become part of a globally fragmented production process:

<table>
<thead>
<tr>
<th>Fragmentation Type</th>
<th>Same Firm</th>
<th>Different Firm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Horizontal</td>
<td>Horizontal FDI</td>
<td>International franchising?</td>
</tr>
<tr>
<td>Vertical</td>
<td>Vertical FDI, international outsourcing</td>
<td>Offshoring</td>
</tr>
</tbody>
</table>

(multinational) (not multinational)
Examples

These distinctions are best illustrated with some concrete examples. We will look at Toyota, Intel, Nike, and McDonald’s.

Do these firms primarily undertake horizontal FDI, vertical FDI, offshoring, or international franchising? And what are their motivations for doing so?

Of course, firms rarely engage only in horizontal FDI, vertical FDI, offshoring, or international franchising so that such classifications are always imperfect.
Example #1: Toyota

Toyota is the world’s leading auto maker. It is headquartered in Japan and its brands include Toyota, Lexus, Scion, etc.

In 2009, Toyota employed 320,800 people and its sales were ¥20.529 trillion.

Toyota has factories all over the world and sells cars in more than 140 countries.
Example #1: Toyota (cont.)

Toyota is mainly engaged in horizontal FDI. Its production system relies on fully-owned assembly plants, which obtain components and parts largely from external suppliers.

Why does Toyota horizontally fragment its production process? Why does Toyota control and manage its foreign production facilities?
Example #2: Intel

Intel is the world’s leading semiconductor company. It is headquartered in the U.S. and its products include microprocessors, motherboard chipsets, network cards, etc.

In 2009, Intel employed 79,800 people and its sales were $35.1 billion.

Besides the U.S., Intel has factories in Barbados, China, Costa Rica, Ireland, Israel, Malaysia, the Philippines, and soon also in Vietnam.
Example #2: Intel (cont.)

Intel is mainly engaged in vertical FDI. While the skilled-labor-intensive part of the production process (e.g. wafer production) is located in developed countries, the unskilled-labor intensive part (e.g. assembly and testing) is located in developing countries. All production facilities are fully owned by Intel.

Why does Intel vertically fragment its production process? Why does Intel control and manage its foreign production facilities?
Example #3: Nike

Nike is the world’s leading supplier of athletic shoes and apparel and a major manufacturer of sports equipment. It is headquartered in the U.S. and its brands include Nike, Umbro, Converse, etc.

In 2009, Nike employed 34,300 people and its sales were $18.36 billion.

Nike has contracted with more than 700 factories around the world and has offices in 45 countries outside the U.S.
Example #3: Nike (cont.)

Nike is mainly engaged in offshoring. None of Nike’s athletic shoes are produced in the U.S., and none are produced in a Nike-owned production facility. Nike subcontracts all of its footwear production to independently owned and operated foreign companies.

Why does Nike vertically fragment its production process? Why does Nike not control and manage its foreign production facilities?
Example #4: McDonald’s

McDonald’s is the world’s leading foodservice retailer. It is headquartered in the U.S. and its brands include McDonald’s, Pret A Manger, etc.

In 2009, McDonald’s employed 400,000 people and its sales were $22.34 billion (McDonald’s corporation only).

There are more than 31,000 McDonald’s restaurants located in 118 countries.
Example #4: McDonald’s (cont.)

McDonald’s is mainly engaged in international franchising. More than 75 percent of McDonald’s restaurants worldwide are neither owned nor operated by the McDonald’s corporation.

Why does McDonald’s horizontally fragment its production process? Why does McDonald’s not control and manage many of its foreign production facilities?
Towards a theory of multinational firms

To better understand the location and internalization decisions of firms, some simple theory is useful.

We will first consider theories of horizontal and vertical FDI. These theories emphasize a firm’s location decision and simply assume that production always occurs within the boundaries of the firm so that they are really theories of horizontal and vertical fragmentation.

We will then turn to a theory of internalization.
A theory of horizontal FDI

Consider the situation of a firm that is deciding how to best service a foreign market.

One option is to produce the good domestically and export it to the foreign country.

Another option is to engage in horizontal FDI and produce the good directly in the foreign country.
A theory of horizontal FDI (cont.)

Exporting has the advantage that the firm can exploit plant-level economies of scale in its domestic plant.

Horizontal FDI has the advantage that the firm can save trade costs such as transport costs or tariffs.
A theory of horizontal FDI (cont.)

According to this theory, exporting should become more important relative to horizontal FDI, the larger are plant-level economies of scale. Also, exporting should become less important relative to horizontal FDI, the larger are trade costs.

This is know as the “proximity-concentration hypothesis”. Lael Brainard (1997), now Under Secretary of the Treasury for International Affairs, found strong evidence in support of this hypothesis.
A theory of vertical FDI

Consider now the situation of a firm that is deciding how to produce a final good at minimum average costs.

For that purpose, it is useful to consider more explicitly the activities involved in the production of a final good. The whole set of activities involved in the production of a final good is sometimes called the value chain.
A theory of vertical FDI (cont.)

(a) Activities Ranked by Order in Production

Start
R&D

Component production
Assembly
Marketing and sales

Finish

(b) Activities Ranked by Skilled/Unskilled Labor

Unskilled
Assembly

Component production
Marketing and sales
R&D

Skilled

Done in Foreign

Done at Home
A theory of vertical FDI (cont.)

One option is to perform all activities domestically. Another option is to engage in vertical FDI and perform some of the activities abroad.

Now domestic production has the advantage that the firm does not have to incur trade costs.

Vertical FDI has the advantage that it allows the firm to exploit cross-country differences in factor prices.
A theory of vertical FDI (cont.)

In particular, the firm can do so by performing skilled-labor-intensive activities in skilled-labor-abundant countries, and unskilled-labor-intensive activities in unskilled-labor-abundant countries.

Notice that foregone economies of scale are likely to be a less important disadvantage in the case of vertical FDI than they were in the case of horizontal FDI. This is because vertical FDI involves outsourcing of activities, which are different from the ones performed domestically.
A theory of internalization

Recall that these theories of horizontal and vertical FDI are really theories of the horizontal and vertical fragmentation of production since they simply assume that production always occurs within the boundaries of the firm.

If we consider international franchising versus exporting or offshoring versus domestic production the fundamental trade-offs are the same.

What then determines which activities are performed within the boundaries of a firm?
A theory of internalization (cont.)

This is actually an old question in economics, which is not specific to multinational firms. It is surprisingly hard to answer. The basic puzzle was stated by British economist Ronald Coase in a classic article from 1937:

Economists usually argue that the price mechanism leads to a superior allocation of resources than central planning. Within firms, however, the price mechanism is superseded by central planning. Why do firms then exist?
A theory of internalization (cont.)

Coase argues that “the main reason why it is profitable to establish a firm would seem that there is a cost of using the market mechanism”. Such costs are often referred to as transaction costs.

One important transaction cost mentioned by Coase is the cost of specifying all possible contingencies in a long-term contract. In practice, this cost is likely to be high if the transaction involves large transfers of knowledge or technology.
A theory of internalization (cont.)

Another important transaction cost later suggested by UC Berkeley professor Oliver Williamson is the underinvestment brought about by relationship specificity.

This cost is high if the degree of relationship specificity of the required investment is high. This is because high relationship specificity implies a high risk of hold up.
A theory of internalization (cont.)

In either case, integration should be more prevalent in capital intensive industries. Evidence available on vertical FDI versus offshoring suggests that this is indeed the case:

![Figure I](image)

**Figure I**
Share of Intrafirm U. S. Imports and Relative Factor Intensities

Effects of outsourcing and offshoring

So far, we have considered the determinants of multinational production.

While this is important, much of the public discussion is centered around the effects of multinational production.

This is particularly true for the case of outsourcing and offshoring.
Effects of outsourcing and offshoring (cont.)

Outsourcing and offshoring are often claimed to have disastrous effects on workers both in the source country as well as in the host country.

One frequent claim is that they hurt workers in the U.S. whose jobs are moved overseas. Another frequent claim is that they involve the exploitation of workers in developing countries.

We now consider these claims in turn.
The effect on U.S. workers

Recall that trade has no effect on overall employment. The same is, of course, true for outsourcing and offshoring.

Outsourcing and offshoring can, however, increase U.S. wage inequality in a way consistent with the evidence. This observation has led to a partial rehabilitation of the “trade hypothesis” discussed earlier in this course.
The effect on U.S. workers (cont.)

Recall that the U.S. skill premium has increased dramatically since the 1960s.

Recall also that final goods trade as emphasized by the Heckscher-Ohlin model is unlikely to be the leading cause of this since (i) relative goods prices have moved in the wrong direction in the U.S., (ii) factor intensities have moved in the wrong direction in the U.S., and (iii) the skill premium has also increased in many developing countries.
The effect on U.S. workers (cont.)

While most economists continue to believe that skill-biased technological change is the leading cause of this rise in the U.S. skill premium, recent research suggests that outsourcing and offshoring may have also played a role (remember also Krugman’s Nobel Prize lecture).

To see how, consider a U.S. company in our simple theory of vertical FDI. If trade costs fall, vertical FDI becomes more attractive and the company shifts a larger range of unskilled-labor intensive activities to unskilled-labor abundant countries.
The effect on U.S. workers (cont.)

Effect of falling trade costs on the range of outsourced activities.
The effect on U.S. workers (cont.)

This then increases the relative demand for skilled labor in the U.S. and abroad, thereby pushing up the skill premium in the U.S. and abroad.

To see this, notice that the outsourced activities are at the lower end of the skill-intensity spectrum for the U.S. but at the upper end of the skill-intensity spectrum for the unskilled-labor abundant countries.
The effect on U.S. workers (cont.)

Hence, this outsourcing hypothesis is immediately consistent with fact (iii) mentioned above. But it is also consistent – or at least not inconsistent – with the other two facts:

(i) since the outsourcing hypothesis emphasizes within industry effects, it is not inconsistent with a fall in the prices of skilled-labor intensive goods relative to the prices of unskilled-labor intensive goods across U.S. industries.
(ii) since outsourcing increases the relative demand for skilled labor within industries, it is consistent with skill-upgrading in all industries (just like skill-biased technological change).

In a series of articles, UC Davis and UC San Diego professors Robert Feenstra and Gordon Hanson have tested the effect of outsourcing on the U.S. skill-premium and found it to be statistically and economically significant.
The effect on U.S. workers (cont.)

However, outsourcing can also have other effects on U.S. workers as highlighted in the following Onion News Network video:

http://www.theonion.com/content/video/more_american_workers_outsourcing
The effect on workers in developing countries

As Tufts University and University of Michigan professors Drusilla Brown, Alan Deardorff, and Robert Stern (2003) write:

“The popular press is rife with anecdotes about foreign workers who labor for multinational firms for low wages and for excruciating hours under horrific conditions in low-income countries to produce goods for Western consumers.”
The effect on workers in developing countries (cont.)

“This negative impression […] is reinforced by calculations that labor costs are typically a tiny fraction of the retail selling price of the goods being produced.”

And wages and working conditions are indeed appalling by U.S. standards for many workers who are employed by multinational firms in developing countries.
The effect on workers in developing countries (cont.)

University of Minnesota professor Paul Glewwe (2000), for example, reports that average hourly wages in foreign-owned businesses in Vietnam were merely $.42 in 1998.

However, this does not necessarily imply that workers in developing countries would be better off without outsourcing or offshoring. The key question is whether wages in developing countries would be higher in the absence of multinational firms.
The effect on workers in developing countries (cont.)

This is unlikely to be the case. As Brown et al. (2003) point out, “there is pervasive evidence that workers employed in multinational firms and subcontracting in developing countries are being paid wages that are on average higher than compared to alternative employment domestically”.

This is also what Glewwe (2000) reports for Vietnam. Let us take a closer look at his results.
The effect on workers in developing countries (cont.)

Table 1. Consumption expenditures, calories, and poverty in Vietnam

<table>
<thead>
<tr>
<th></th>
<th>1993</th>
<th>1998</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per-capita consumption expenditures per year (dollar equivalent)</td>
<td>125</td>
<td>205</td>
</tr>
<tr>
<td>Calories per day</td>
<td>2,058</td>
<td>2,087</td>
</tr>
<tr>
<td>Poverty rate (percent)</td>
<td>58.2</td>
<td>37.4</td>
</tr>
</tbody>
</table>
The effect on workers in developing countries (cont.)

Table 2. Distribution of employed people by occupational category in Vietnam in 1998

<table>
<thead>
<tr>
<th></th>
<th>Percent of all responses</th>
<th>Wage (US dollar equivalent)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers (self-employed)</td>
<td>58.7</td>
<td>-</td>
</tr>
<tr>
<td>Self-employed non-agricultural work</td>
<td>20.4</td>
<td>-</td>
</tr>
<tr>
<td>Wage or salary workers—</td>
<td>20.9</td>
<td>0.23</td>
</tr>
<tr>
<td>--- who are employed by</td>
<td></td>
<td></td>
</tr>
<tr>
<td>government</td>
<td>4.2</td>
<td>0.24</td>
</tr>
<tr>
<td>state enterprise</td>
<td>3.4</td>
<td>0.27</td>
</tr>
<tr>
<td>small household enterprise</td>
<td>6.0</td>
<td>0.21</td>
</tr>
<tr>
<td>FOB</td>
<td>0.4</td>
<td>0.42</td>
</tr>
<tr>
<td>joint venture</td>
<td>1.1</td>
<td>0.26?</td>
</tr>
<tr>
<td>other</td>
<td>3.6</td>
<td>0.19</td>
</tr>
</tbody>
</table>
The effect on workers in developing countries (cont.)

Table 3. Industry sector of workers employed by joint ventures and FOBs in Vietnam in 1998

<table>
<thead>
<tr>
<th>Industry sector</th>
<th>Percent of all workers</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Joint ventures</td>
</tr>
<tr>
<td>Construction</td>
<td>20.4</td>
</tr>
<tr>
<td>Agriculture</td>
<td>7.0</td>
</tr>
<tr>
<td>Textiles</td>
<td>9.9</td>
</tr>
<tr>
<td>Leather products</td>
<td>12.8</td>
</tr>
<tr>
<td>Electronic products</td>
<td>2.9</td>
</tr>
<tr>
<td>Other production</td>
<td>22.1</td>
</tr>
<tr>
<td>Commerce</td>
<td>15.7</td>
</tr>
</tbody>
</table>
The effect on workers in developing countries (cont.)

Figure 1. Percentage of male and female workers in joint ventures and FOBs in Vietnam in 1998
The effect on workers in developing countries (cont.)

Figure 2. Age distribution of workers in foreign firms: Vietnam, 1998
The effect on workers in developing countries (cont.)

<table>
<thead>
<tr>
<th>Per-capita expenditures per year (dollar equivalents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>General population</td>
</tr>
<tr>
<td>People working in FOBs</td>
</tr>
<tr>
<td>People working in joint ventures</td>
</tr>
<tr>
<td>Workers in textile FOBs</td>
</tr>
<tr>
<td>Workers in leather-goods FOBs</td>
</tr>
</tbody>
</table>

Table 4. Relative status of workers: Vietnam, 1998
The effect on workers in developing countries (cont.)

Table 5. Poverty status: Vietnam, 1998

<table>
<thead>
<tr>
<th>Incidence of poverty (percent)</th>
<th>Very poor</th>
<th>Poor</th>
</tr>
</thead>
<tbody>
<tr>
<td>General population</td>
<td>15.0</td>
<td>37.4</td>
</tr>
<tr>
<td>People working for joint ventures or FOBs</td>
<td>6.1</td>
<td>18.3</td>
</tr>
<tr>
<td>People working for joint ventures</td>
<td>8.0</td>
<td>21.4</td>
</tr>
<tr>
<td>People working for FOBs</td>
<td>0.0</td>
<td>8.4</td>
</tr>
<tr>
<td>People working for textile FOBs</td>
<td>0.0</td>
<td>17.3</td>
</tr>
<tr>
<td>People working for leather-goods FOBs</td>
<td>0.0</td>
<td>8.6</td>
</tr>
</tbody>
</table>
The effect on workers in developing countries (cont.)

Table 6. Change in economic status for workers: Vietnam, 1998

<table>
<thead>
<tr>
<th></th>
<th>Mean per-capita expenditures (dollar equivalents per year)</th>
<th>Inflation adjusted-change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entire population</td>
<td>125 (1993) 205 (1998)</td>
<td>+41.1</td>
</tr>
<tr>
<td>Joint ventures and FOBs</td>
<td>143 (1993) 261 (1998)</td>
<td>+57.5</td>
</tr>
</tbody>
</table>
The effect on workers in developing countries (cont.)

One problem with Glewwe’s (2000) results is that workers hired by multinational firms tend to be more skilled than workers hired by domestic firms.

This is likely to explain parts of his results in table 2. It is important since the wage of an average Vietnamese worker is not the correct counterfactual wage of a worker employed by a multinational firm in this case (i.e. the wage that these workers would receive if they did not work for a multinational firm).
The effect on workers in developing countries (cont.)

Several studies have attempted to correct for these selection effects using more sophisticated econometric methods.

While such selection effects indeed explain some of the multinational wage premium, they do not appear to explain all of it.
“The lofty moral tone of the opponents of globalization is possible only because they have chosen not to think their position through. While fat-cat capitalists might benefit from globalization, the biggest beneficiaries are, yes, Third World workers. After all, global poverty is not something recently invented for the benefit of multinational corporations.”

“Workers in those shirt and sneaker factories are, inevitably, paid very little and expected to endure terrible working conditions. I say “inevitably” because their employers are not in business for their (or their workers’ health): they pay as little as possible, and that minimum is determined by the other opportunities available to workers.”

“And yet, wherever those new export industries have grown, there has been a measurable improvement in the lives of ordinary people. Partly, this is because a growing industry must offer a somewhat higher wage than workers could get elsewhere in order to get them to move. More importantly, however, the growth of manufacturing […] has a ripple effect throughout the economy.”
Discussion: Krugman’s “In praise of cheap labor” (cont.)

“These improvements have not taken place because well-meaning people in the West have done anything to help – foreign aid, never large, has lately shrunk to virtually nothing. Nor is it the result of the benign policies of national governments, which are as callous and corrupt as ever. It is the indirect and unintended consequence of the actions of soulless multinationals and rapacious local entrepreneurs, whose only concern is to take advantage of the profit opportunities offered by cheap labor. It is not an edifying spectacle; but no matter how base the motives of those involved, the result has been to move hundreds of millions of people from abject poverty to something still awful but nonetheless significantly better.”

“Why, then, the outrage of my correspondents? Why does the image of an Indonesian sewing sneakers for 60 cents an hour evoke so much more feeling than the image of another Indonesian earning an equivalent of 30 cents an hour trying to feed his family on a tiny plot of land […]? The main answer, I think, is a sort of fastidiousness. Unlike the starving subsistence farmer, the women and children in the sneaker factories are working at slave wages for our benefit – and this makes us feel unclean.”
Discussion: Krugman’s “In praise of cheap labor” (cont.)

“As long as you have no realistic alternative to industrialization based on low wages, to oppose it means that you are willing to deny desperately poor people the best chance they have of progress for the sake of what amounts to an aesthetic standard […]. In short, my correspondents are not entitled to their self-righteousness. They have not thought the matter through. And when the hopes of hundreds of millions are at stake, thinking things through is not just good intellectual practice. It is a moral duty.”

What do you think? Should multinational firms then be praised for paying workers 60 cents an hour?
Spillover effects

Recall that a country’s living standard is mainly determined by labor productivity. We now take a brief look at how FDI might affect labor productivity in the host country.

IMF and UC Berkeley economists Brian Aitken and Ann Harrison (1999) describe how FDI can affect labor productivity.
Spillover effects (cont.)

To give a positive example, FDI can increase labor productivity by facilitating the diffusion of technology from multinational to domestic firms.

In particular, multinationals tend to use state-of-the-art technology in their affiliates. This makes it easier for domestic firms to learn about these technologies. Particular learning channels include imitation and labor turnover.
Spillover effects (cont.)

To give a negative example, FDI can decrease labor productivity by stealing business from domestic firms thereby forcing them to move up their average cost curves.

Somewhat surprisingly, Aitken and Harrison (1999) find evidence of negative spillovers of inward FDI on a sample of Venezuelan manufacturing plants in the period between 1976 and 1989. Later studies, however, have also provided evidence of positive spillovers in different samples so that the evidence on spillover effects is inconclusive.