# The Nottingham Lectures in International Economics

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## Lecture 3: Offshoring of Business Services: Lessons from the Modern Theory of the Multinational Enterprise

Background paper:

Markusen, James R. “Trade in Business Services in General Equilibrium”, NBER working paper 12816, CEPR paper 6080.

# Increased trade in business services: implications for small, high-skilled economies

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What is this all about?

Concern among high-income countries about the loss of medium-to-high skilled, white-collar jobs to offshoring.

Perception that small countries are more vulnerable?

Services in question: intermediate business services

- Call centers
- Business process outsourcing
- Software services

Preliminary questions:

(1) For what services is offshoring feasible?
Not always a simple issue of skill requirements

Routine tasks
Codifiable tasks
Tasks not needing face-to-face contact.
Role of location-specific complementarities

(2) Among the feasible set, what services would firms chose to offshore?

The Hecksher-Ohlin approach: source services from countries where the factors they use intensively are cheap (= abundance?).

Services for which that the optimal scale of production is much greater than the needs of an individual purchasing firm.

Characteristics to capture in a formal modeling approach.

(1) Expansion of trade at the extensive margin: new things traded

(2) Vertical fragmentation of production: services as intermediates

(3) Location-specific and other complementarities

(4) Offshoring of skilled services to skilled-labor-scarce countries

(5) Reversal in the direction of trade. Exports to high-income-country

(6) Owners of knowledge-based assets, may offshore skilled-labor intensive activities: need at least three factors.

(7) Barriers often fixed costs of establishing foreign commercial presence. *Treating barriers as ad valorem trade costs is not appropriate.*

Suggested approach: Changes permit vertical fragmentation / trade in previously-non-traded services, expanding trade at the extensive margin

(1) Two factors of production: skilled (H) and unskilled (L) labor

(2) Two final goods, three production activities

AG - unskilled-labor intensive agriculture (no offense to farmers)

MAN - skilled-labor intensive manufacturing, can fragment into

VA value added by skilled and unskilled labor

SER services

(3) SER - can fragment into

HQ headquarters, may serve several offices

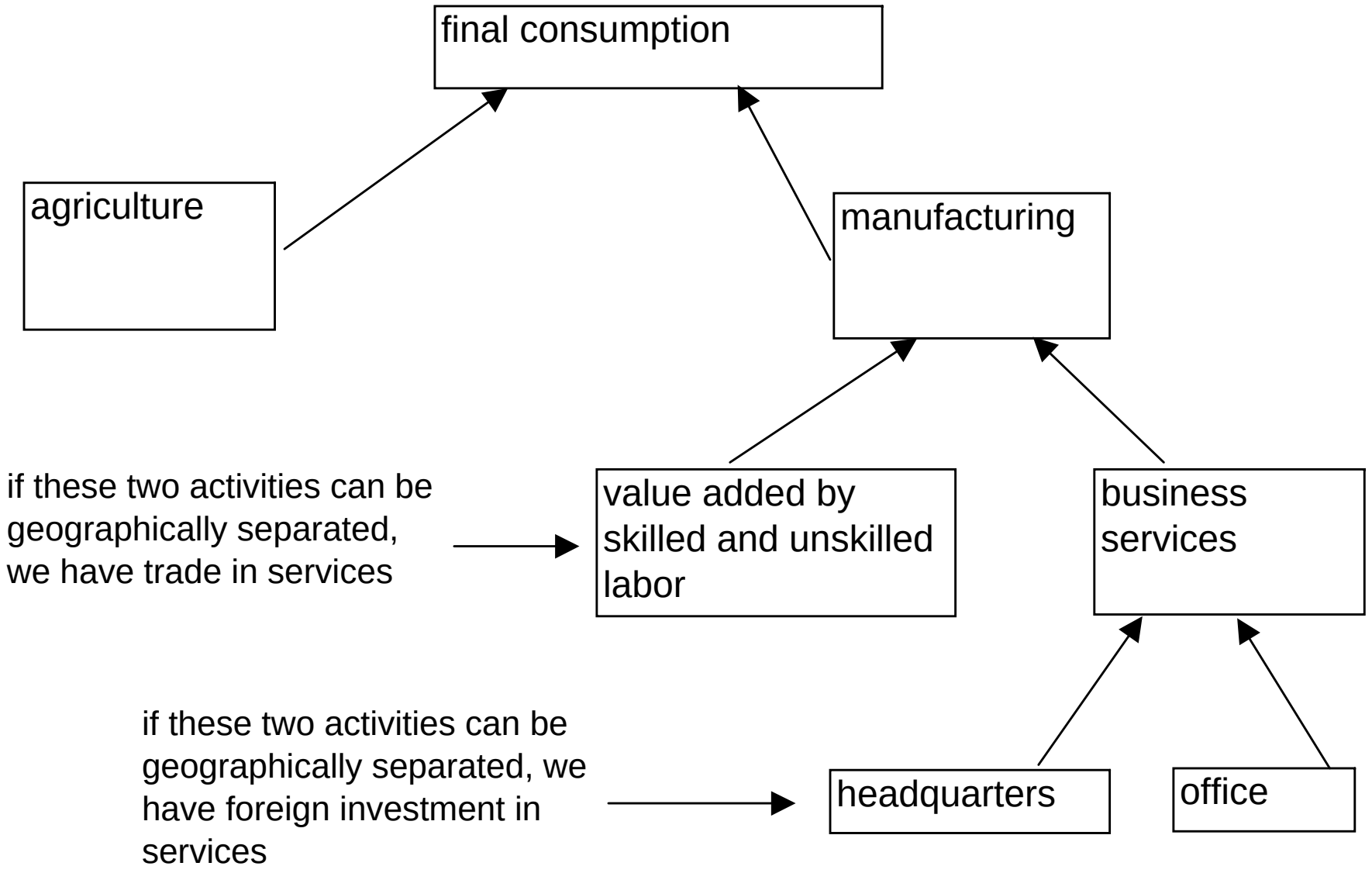
OF office, produces the deliverable for the client

(4) Two competitive, constant returns economies

North - high-skilled abundant

South - low-skilled abundant

Figure 1: Structure of production



(5) There are three generic "types" of services firms, each of which may be located in either country, hence there are six firm types in total

N - national firms, provide services to domestic X producers, may (not) "export" to other country

M - multinational firms, have physical production (C) presence in both countries: "horizontal" multinational

V - vertical firm, with headquarters D in one country, production C location in the other, may (not) export back to home

(6) - Services are differentiated or "specialized", each produced with increasing returns to scale.

More services = increases productivity for X producers.

(7) - “Trade costs” for M and V firms supplying services abroad.

(8) - Firm-level scale economies arising from jointness of knowledge-based assets.

Factor intensities of activities: from most to least skill intensive

(2) Fixed costs of service firm headquarters

(1) Value added in X production

X production (value added and services)

(1) Overall S firm (headquarters and production)

(2) S production

World factor endowment ratio

Y production

We are interested in three equilibria, referred to as “regimes”:

NN - No trade, no foreign investment (i.e., no M or V firms) allowed or feasible

TN - Trade in services (exports by N firms) allowed, no investment allowed or feasible

Fragmentation of X and S, but S geographically integrated
Permits “Mode 1" trade in services

NI - Investment in services allowed, trade in services infeasible

Fragmentation of S, but not S from X. “Mode 3" feasible

TI - Trade and investment in services both allowed

Fragmentation of headquarters and service “production”
Permits “Mode 3" and “Mode 1" trade in services

Figure 2: Types of trade in services for a North service firm

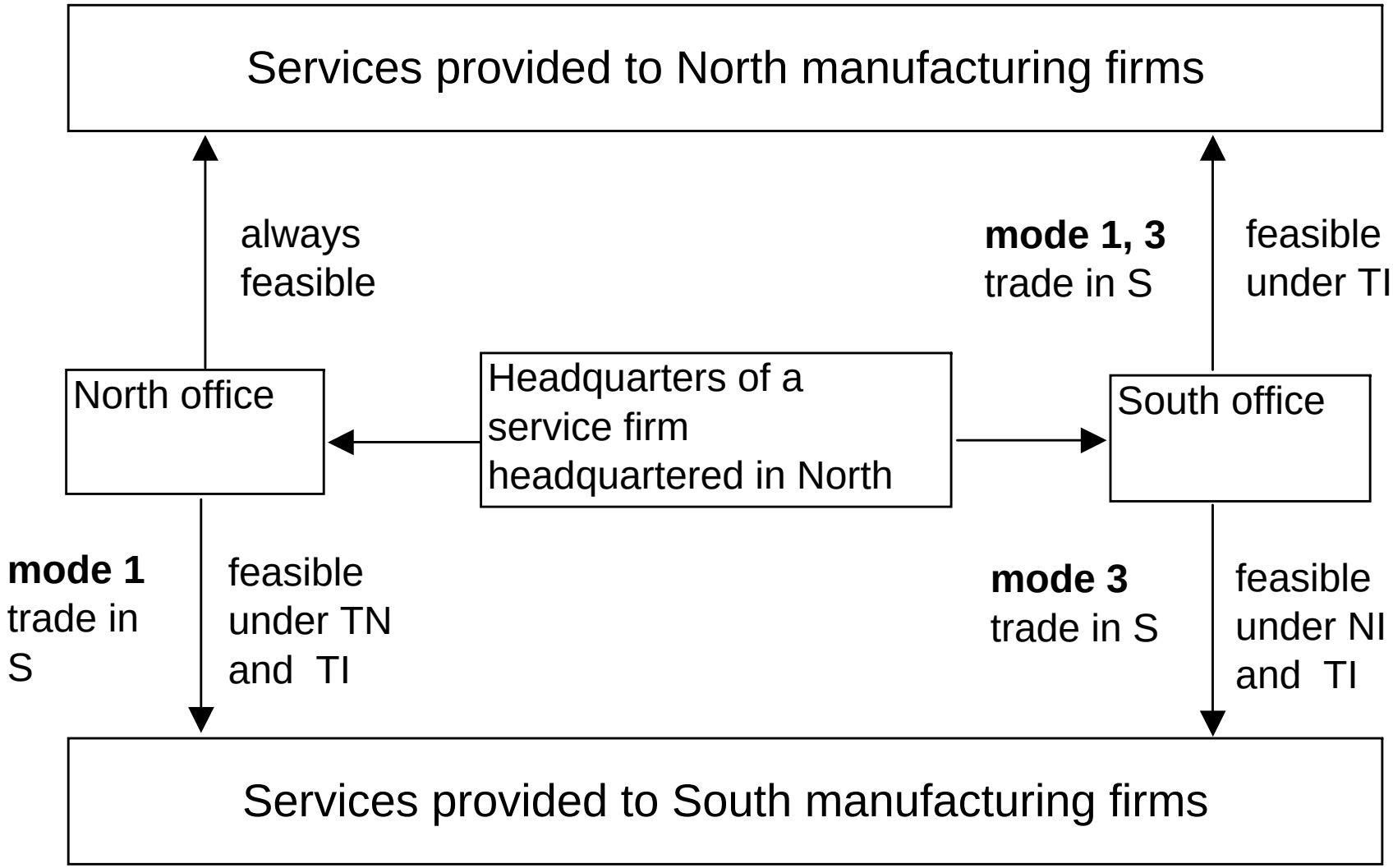


Table 1: Country i small and skilled-labor abundant, simulation results under different service trade/investment restrictions (two-factor model)

| HS's H/L ratio = 2.78<br>HS's income share = 0.16 | NN | TN | | NI | | TI | |
|---|---|---|---|---|---|---|---|
| | level | level | % change | level | % change | level | % change |
| National firms HS | 0.81 | | | | | | |
| Horizontal firms HS | | | | 1.53 | | | |
| Vertical firms HS | | | | | | 1.94 | |
| X production in HS | 0.63 | 1.17 | **+84** | 0.65 | **+3** | 0.90 | **+42** |
| Final service production in HS | 0.63 | | **-100** | 0.59 | **-7** | | **-100** |
| Exports of X by SH | 0.32 | 0.81 | | 0.31 | | 0.55 | |
| Exports of S from HS by HS firms | | | | | | | |
| Exports of S from HS by LS firms | | | | | | | |
| Imports of S from LS by LS firms | | 1.05 | | | | | |
| Imports of S from LS by HS firms | | | | | | 0.79 | |
| Skilled wage in HS | 1.00 | 1.32 | **+32** | 1.21 | **+21** | 1.54 | **+54** |
| Unskilled wage in HS | 1.00 | 0.93 | **-7** | 0.94 | **-6** | 0.73 | **-17** |
| Welfare in HS | 1.00 | 1.11 | **+11** | 1.06 | **+6** | 1.10 | **+10** |

Extension: three-factor model

Entrepreneurs/managers (E) who generate the headquarters services

Routine skilled workers (H) who are used in final S production and X production

Country HS has higher ratio of (H + E) / L
Country HS has higher ratio of E/H

In the NN equilibrium, country HS's routine skilled workers H have a higher wage than skilled workers in country LS

Allowing trade / investment in services makes the E workers the big gainers in country HS. For many parameterizations, the routine H workers lose.

Table 2: Country i small and skilled-labor abundant, simulation results under different service trade/investment restrictions (three-factor model)

| HS's H/L ratio = 2.78<br>HS's income share = 0.16 | NN | TN | | NI | | TI | |
|---|---|---|---|---|---|---|---|
| | level | level | % change | level | % change | level | % change |
| National firms HS | 1.15 | 1.18 | | | | | |
| Horizontal firms HS | | | | 1.31 | | | |
| Vertical firms HS | | | | | | 1.02 | |
| X production in HS | 0.66 | 0.59 | **-10** | 0.68 | **+4** | 0.83 | **+27** |
| Final service production in HS | 0.61 | 0.75 | **+23** | 0.62 | **+2** | 0.35 | **-43** |
| Exports of X by SH | 0.33 | 0.23 | | 0.33 | | 0.45 | |
| Exports of S from HS by HS firms | | 0.53 | | | | | |
| Exports of S from HS by LS firms | | | | | | 0.11 | |
| Imports of S from LS by LS firms | | 0.31 | | | | | |
| Imports of S from LS by HS firms | | | | | | 0.51 | |
| Skilled wage in HS | 1.00 | 0.98 | **-2** | 1.04 | **+4** | 1.12 | **+12** |
| Entre / management wage in HS | 1.00 | 1.44 | **+44** | 2.20 | **+120** | 3.47 | **+247** |
| Unskilled wage in HS | 1.00 | 1.11 | **+11** | 0.95 | **-5** | 0.93 | **-7** |
| Welfare in HS | 1.00 | 1.07 | **+5** | 1.03 | **+3** | 1.11 | **+11** |

Summary and conclusion:

From our portfolio of models: many important features of offshoring of white-collar services can be modeled from a recipe that mixes and matches elements from the existing inventory of models.

Elements include:

vertical fragmentation of production

expansion of trade at the extensive margin

fragments differ in factor intensities, countries differ in endowments

services are differentiated and produced with (firm level) increasing returns to scale.

access to a broader range of services is productive.

Small, high-skilled economy can benefit from liberalization or increased feasibility of trading and offshoring services

(1) offshoring downstream part that is costly to produce at home: increases competitiveness of home S and X firms

(2) access to foreign services increases competitiveness of home X producers

(3) access to foreign markets for domestic S firms makes them more competitive, spreads fixed costs over a larger output