

Multinationals and the Globalization of Production

Horizontal FDI: III

Penn State // Fall 2017

Administrative things

- ▶ Sign in to Arkaive.com (course code: 84ST)
 - ▶ If not working, sign in up front

Roadmap

- ▶ Past: OLI framework
 - ▶ Identify MNE advantage
 - ▶ High-level analysis MNE facts
- ▶ Present: Towards a model of horizontal FDI
 - ▶ Introduce a model of competition
 - ▶ The closed economy
 - ▶ Open economy with exporters and MNEs
 - ▶ Formalize the proximity-concentration tradeoff

Exporters

- ▶ Pay export fixed costs f^e and trade cost τ
- ▶ How much extra profit does the firm earn from exporting?

$$p_e = \frac{w_1}{\varphi} \frac{\epsilon_2}{\epsilon_2 - 1} (1 + \tau)$$

$$\Delta\pi_1^e(\varphi) = \frac{1}{\epsilon_2} \left(\frac{\epsilon_2}{\epsilon_2 - 1} \frac{w_1}{\varphi} (1 + \tau) \right)^{1 - \epsilon_2} E_2 - w_1 f^e$$

Multinational firms

- ▶ Pay production fixed cost f^p abroad; avoid τ and f^e
- ▶ How much profit does the firm earn from affiliate sales?

$$p_m = \frac{w_2}{\varphi} \frac{\epsilon_2}{\epsilon_2 - 1}$$

$$\Delta\pi_1^m(\varphi) = \frac{1}{\epsilon_2} \left(\frac{\epsilon_2}{\epsilon_2 - 1} \frac{w_2}{\varphi} \right)^{1-\epsilon_2} E_2 - w_2 f^p$$

When does a firm choose FDI over exporting?

- ▶ A country-1 firm serves country 2 by FDI when

$$\Delta\pi_1^m(\varphi) > \Delta\pi_1^e(\varphi)$$

$$\Delta\pi_1^m(\varphi) - \Delta\pi_1^e(\varphi) > 0$$

- ▶ Substitute definitions...

$$\frac{1}{\epsilon_2} \left(\frac{\epsilon_2}{\epsilon_2 - 1} \frac{w_2}{\varphi} \right)^{1-\epsilon_2} E_2 - w_2 f^p > \frac{1}{\epsilon_2} \left(\frac{\epsilon_2}{\epsilon_2 - 1} \frac{w_1}{\varphi} (1 + \tau) \right)^{1-\epsilon_2} E_2 - w_1 f^e$$

A second look at proximity and concentration

- ▶ Last class:
 - ▶ Effect of τ , E_2 , and f^p on a particular firm's (φ) decision
 - ▶ We were holding φ fixed

- ▶ Today:
 - ▶ How do τ , E_2 , and f^p affect the types of firms in the market?
 - ▶ Compare $\Delta\pi_1^m(\varphi) - \Delta\pi_1^e(\varphi)$ for different φ

- ▶ These are related concepts

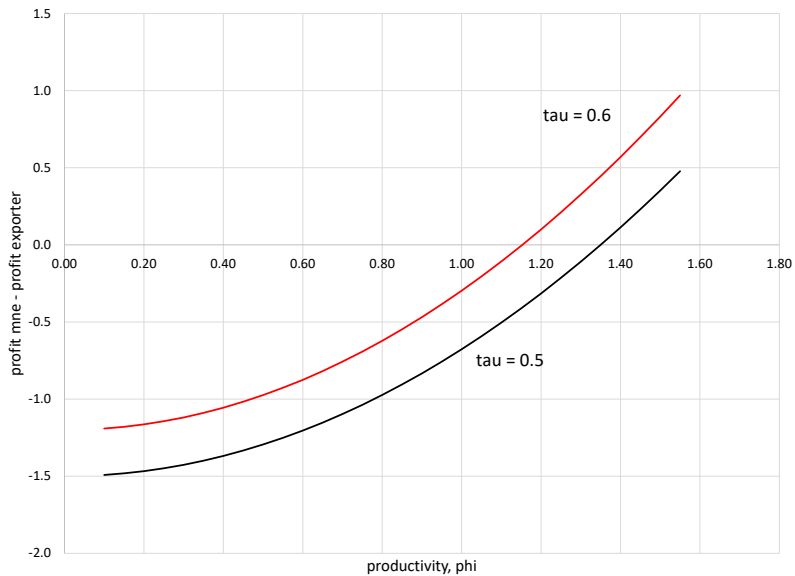
A second look at proximity and concentration

- ▶ As τ , E_2 , and f^p change, so does the “cutoff firm” type
- ▶ The cutoff firm type is the $\underline{\varphi}_m$ such that

$$\Delta\pi_1^m(\underline{\varphi}_m) - \Delta\pi_1^e(\underline{\varphi}_m) = 0$$

- ▶ This firm type earns the same profit from exporting as from multinational production

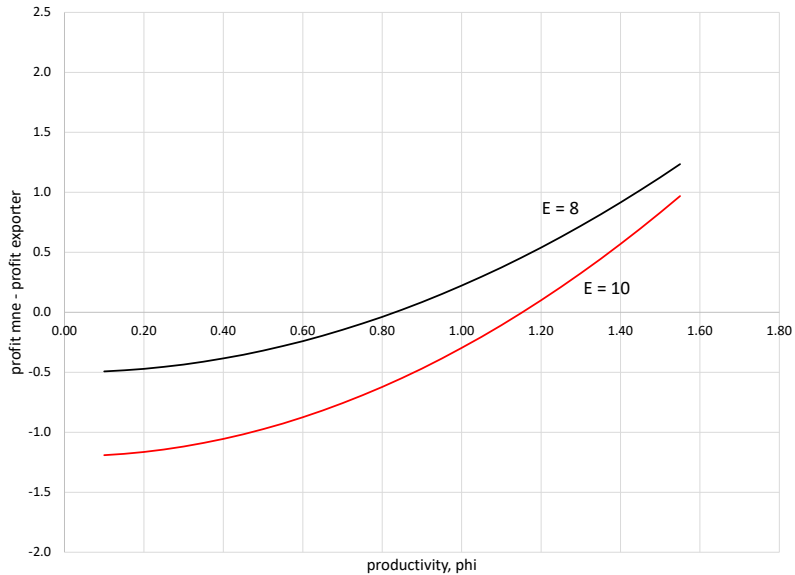
Decrease variable export costs



Variable export costs

- ▶ How does φ_m change as τ decreases?

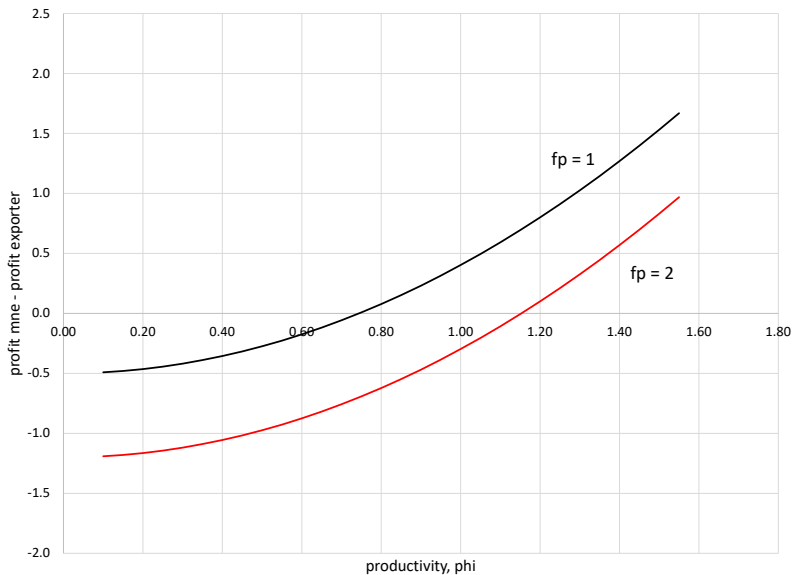
Decrease market size



Market size

- ▶ How does φ_m change as E_2 decreases?

Decrease fixed production cost



Fixed production cost

- ▶ How does φ_m change as f^p decreases?

Finding the cutoff multinational

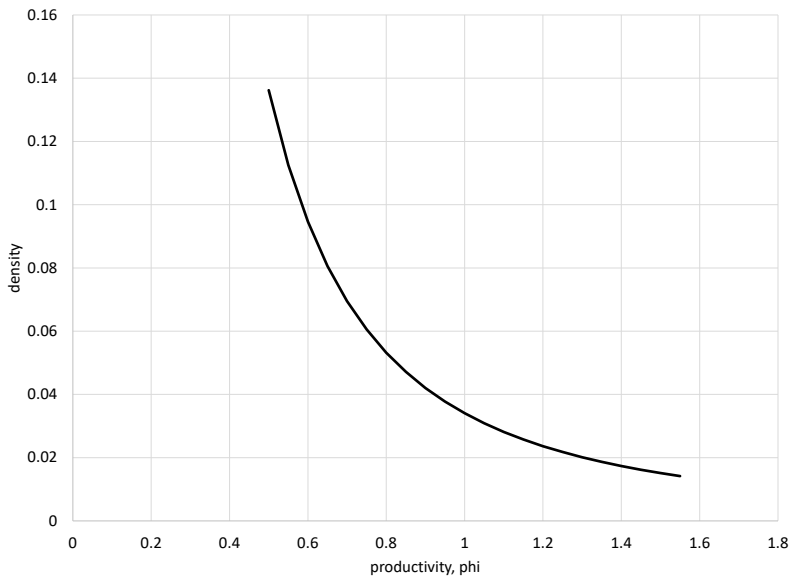
- Solve for $\underline{\varphi}_m$

$$\Delta\pi_1^m(\underline{\varphi}_m) - \Delta\pi_1^e(\underline{\varphi}_m) = 0$$

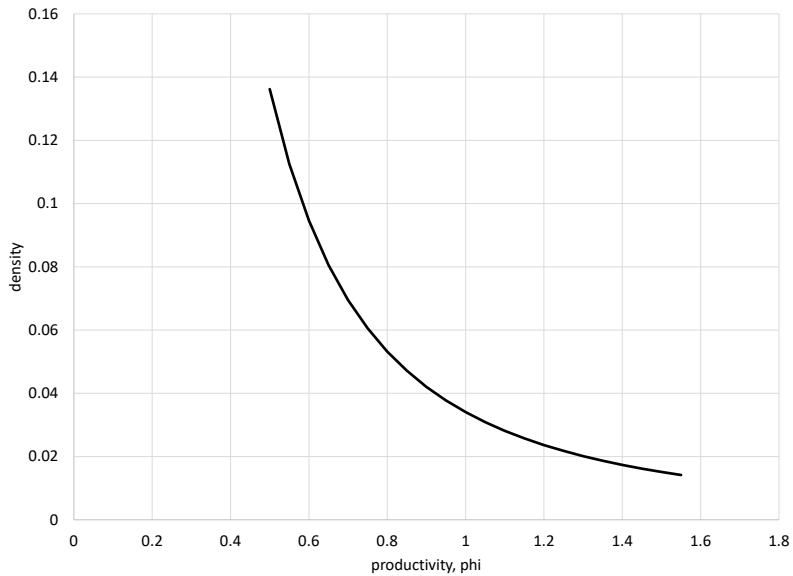
$$\frac{1}{\epsilon_2} \left(\frac{\epsilon_2}{\epsilon_2 - 1} \frac{w_2}{\underline{\varphi}_m} \right)^{1-\epsilon_2} E_2 - w_2 f^p - \frac{1}{\epsilon_2} \left(\frac{\epsilon_2}{\epsilon_2 - 1} \frac{w_1}{\underline{\varphi}_m} (1 + \tau) \right)^{1-\epsilon_2} E_2 + w_1 f^e = 0$$

-let's save this for problem set #2

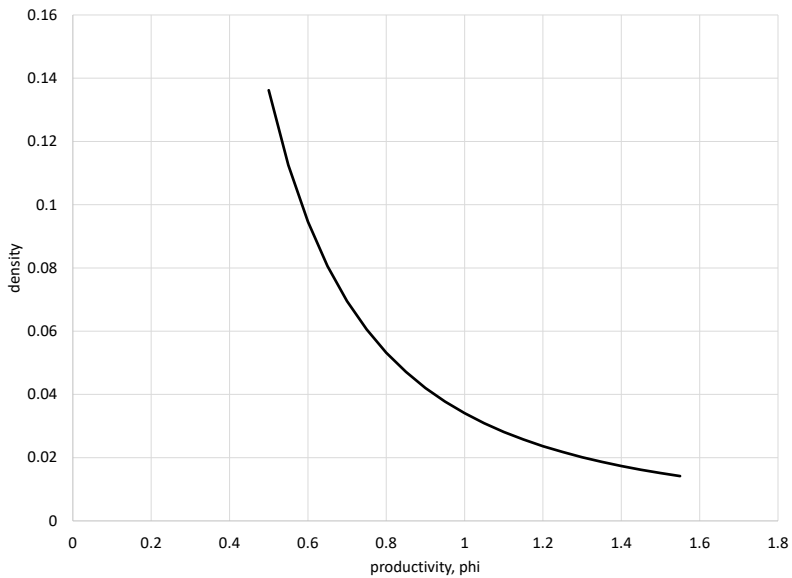
Decrease variable export costs



Decrease market size



Decrease production fixed cost



The proximity-concentration tradeoff

Let's summarize all this!

The proximity-concentration tradeoff II

- ▶ We should observe more firms serving a foreign market as multinationals, rather than as exporters when
 1. the foreign market is larger (larger E_2)
 2. variable export costs are larger (larger τ)
 3. production fixed costs are smaller (smaller $w_2 f^p$)

- ▶ Compare this to our previous proximity-concentration tradeoff

The proximity-concentration tradeoff I

- ▶ From last week...
- ▶ For a given φ , a firm is more likely to use a foreign affiliate to serve the foreign market, rather than exporting, when
 1. the foreign market is larger (larger E_2)
 2. variable export costs are larger (larger τ)
 3. production fixed costs are smaller (smaller $w_2 f^p$)

Comparing the two

- ▶ PCT I tells us what firm types are likely to be MNEs compared to exporters
 - ▶ This helps us understand facts about multinational firms relative to non-multinational firms

Fact #4: How do MNEs compare to domestic firms?

Both the parents and the affiliates of multinational firms tend to be larger, more productive, more R&D intensive and more export oriented than non-multinational firms.

Comparing the two

- ▶ PCT I tells us what firm types are likely to be MNEs compared to exporters
 - ▶ This helps us understand facts about multinational firms relative to non-multinational firms

- ▶ PCT II tells us how important MNEs are in serving different kinds of countries
 - ▶ This helps us understand facts about where MNEs operate

Fact #1: Where do MNEs operate?

Multinational activity is primarily concentrated in developed countries where it is mostly two-way. Developing countries are more likely to be the destination of multinational activity than the source.

Fact #3: How far do MNEs go?

The production of the foreign affiliates of multinationals falls off in distance, but at a slower rate than aggregate exports.