

Firms in International Trade: Global Sourcing, Research Investments and Foreign Direct Investment

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One of the most influential books in the last decade is entitled “The World Is Flat”. Thomas L. Friedman chose this title to vividly illustrate a deeply economic phenomenon that characterizes our daily lives and shapes firms’ business strategies today: *globalization*. The underlying question, what actually drives international trade, has been fundamental in economic analysis for a long time. Modern trade models put *the firm* in the center of the analysis since the data shows that firms’ decisions are heterogeneous along various dimensions such as size, productivity, wages paid to workers, organization of production and the participation in international trade. The first model that was capable of explaining those stylized facts about *firm heterogeneity* was the seminal contribution by Melitz (2003). Melitz shows that only the most productive firms export while the low productive firms become domestic exporters. Although the Melitz model has dramatically deepened our understanding of international trade, it lacks one crucial element that is also prevalent in the data: the *organizational choice of production*. Antràs and Helpman (2004) provide a seminal model which predicts that sufficiently high productive firms always prefer foreign over domestic sourcing and vertical foreign direct investment is most likely in sectors with high headquarter intensities.

This PhD thesis explores productivity depended optimal global sourcing strategies of multinationals, firms’ market entry and public strategic research investments.

Kapitel
3

Firmen erschließen Märkte entweder durch Exporte oder horizontale ausländische Direktinvestitionen.

Kapitel
4



Kapitel
1

Firmen importieren Zwischenprodukte von eigenständigen Zulieferern oder nutzen vertikale ausländische Direktinvestitionen.

Kapitel
2

1.) A Critical Reconsideration of Sector Definitions

I provide a note on the sector definitions proposed in Antràs and Helpman (2004). I start with a critical reconsideration of the definitions and argue that they are problematic due to three reasons. First, the definitions may lead to counterintuitive sector classifications. Second, they do not classify each sector in principle and third, they rest on parameters that cannot be empirically observed. As an alternative I propose a purely exogenous parameter based approach of sector definitions. My approach overcomes the problems of counterintuitive or missing sectors and supports the empirical evidence.

Schwarz, C. (2011), *Economics Bulletin*, 31(1), 708-713.

2.) Global Sourcing of Complex Production Processes

In the second paper I provide a *global sourcing* model in the spirit of Antràs and Helpman (2004). The novelty of the model is that firms decide not only on the organization (whether the supplier is integrated or outsourced) and the location (production in the home country or abroad) but also endogenously choose the number of inputs („complexity“) used in the production process. The model predicts that even within a single firm hybrid sourcing modes is possible, i.e., some inputs are outsourced while others are kept within the boundaries of the firm. I find that more productive firms increase complexity. For a given productivity, complexity is highest in component-intensive sectors like the automotive industry. With respect to the location, I find that opening up for trade boosts complexity and inputs are more likely to be outsourced.

Schwarz, C. and J. Südekum (2010), *IZA Working Paper 5305*, Bonn.

3.) Globalization and Strategic Research Investments

This paper is motivated by the growing importance of public research and development (R&D) spending in modern economies. To study the governmental incentives of strategically investing into a country’s technological potential, I develop a general equilibrium model of international trade with heterogeneous firms, where countries can invest into basic research. The government’s strategic motive arises if countries open up for trade. Investments into basic research lead to the following negative cross-country externality: If one country invests more than the other, exporting becomes easier for firms from the leading country, as the export market is now easier to capture. Firms from the laggard country face tougher competition and exporting becomes more difficult. From the normative perspective there exist supranational gains from coordinated research investments. Bohnstedt, A., Schwarz, C. and J. Südekum (2012), *Research Policy* 41(1), S. 13-23

4.) Trade, Wages, FDI and Productivity

The focus of the fourth paper is horizontal foreign direct investment (FDI). I develop a general equilibrium model of international trade with heterogeneous firms and horizontal greenfield FDI. I discuss two policy scenarios to examine a country’s incentive to attract FDI. In the strategic FDI policy scenario, a country chooses the welfare maximizing degree of FDI-liberalization, while taking the FDI policy in the other country as given. In the cooperative scenario both countries jointly choose the total welfare maximizing degree of FDI-liberalization. If only one single country attracts FDI, this leads to a higher mass of consumed varieties and a lower price index. Welfare in the attracting country increases while it decreases in the other country. This cross-country comparison illustrates that in the Nash-equilibrium countries compete for FDI. Hence, are welfare gains from supranational coordination of FDI-liberalization policies.

Giesen, K. and C. Schwarz, (2011), *Ruhr Econ Papers*, 251, RWI Essen

Additional References:

Antràs, P. and E. Helpman (2004), *Global Sourcing*, *Journal of Political Economy* 112(3), 552-580.

Melitz, M. (2003), *The Impact of Trade on Intra-Industry Reallocations and Aggregate Industry Productivity*, *Econometrica* 71, 1695-1725.

