Available online at www.sciencedirect.com
ScienceDirect
International Journal of Industrial Organization
26 (2008) 1274–1289
International Journal of Industrial Organization
www.elsevier.com/locate/ijio

Organization of multinational activities and ownership structure ☆

Christian Mugele, Monika Schnitzer *

Department of Economics, University of Munich, Akademiestr. 1/III, 80799 Munich, Germany

Received 22 August 2006; received in revised form 4 July 2007; accepted 21 December 2007
Available online 25 January 2008

Abstract

We develop a model of a multinational firm serving a foreign market that needs to decide about the location of production and the optimal ownership structure. We study how the location decision and the ownership choice interact, how these decisions are affected by (cultural) distance and how they depend on industry characteristics. Our analysis shows that (i) distance leads to less integration in low tech, but tends to lead to more integration in high tech industries, (ii) distance may have a non-monotonous effect on the likelihood of horizontal investments as opposed to exports, and (iii) marketing intensive industries are relatively more likely to produce close to their customers.

JEL classification: F23; L24; L22; L23; D23

Keywords: Multinational firms; Joint ventures; Distance; Technology spillovers; Ownership structure

1. Introduction

Multinational enterprises (MNE) play an increasingly important role in the world economy (UNCTAD, 2005).[1] The majority of their activities seem to be driven by market-seeking considerations (Markusen, 2002). But why is it important for a multinational to produce close to its customers? And when is it to the advantage of a multinational to employ the help of local firms?

In this paper, we investigate the decisions an investor has to take when serving a foreign market: where to locate production, at home or abroad, and whether to enter a joint venture instead of choosing a wholly owned subsidiary. We are in particular interested in answering the following three questions: How do the two decisions, on the location of production and on the ownership choice, interact? How are the two decisions affected by distance? And how do they depend on industry characteristics?

From the empirical literature a number of stylized facts emerge that are set out in more detail in Section 2. For instance, it has long been established by empirical gravity equations that the volume of exports decreases in distance. This would be in line with Brainard's (1997) argument that exports are replaced by foreign direct

☆ Financial support through SFB-TR 15 is gratefully acknowledged. We would like to thank the editor, Bruno Jullien, and two anonymous referees for helpful comments and suggestions. We also thank the Deutsche Bundesbank for access to its firm-level database "International Capital Links" (Midi).

* Corresponding author. Tel.: +49 89 2180 2217.
E-mail addresses: mugele@lmu.de (C. Mugele), schnitzer@lrz.uni-muenchen.de (M. Schnitzer).

[1] The number of MNE affiliates rose from 170,000 in 1990 to 690,000 in 2004 along with sales, value added, assets and employment.

0167-7187/$ - see front matter © 2008 Elsevier B.V. All rights reserved.
doi:10.1016/j.ijindorg.2007.12.009

investments as transportation costs increase. Interestingly though, one finds that the volume of foreign direct investments decreases in distance as well. Furthermore, there is some evidence that the ratio of direct investments over exports decreases as (cultural) distance increases. But how much distance affects the volume of FDI differs very much across industries. So far, this relationship has not been examined in a systematic way.

Another observation is that distance seems to decrease the likelihood of wholly owned foreign subsidiaries. But again, the propensity of engaging in a joint venture differs very much across industries, it is much less found in R&D intensive industries, but evidence is mixed for other industry criteria like capital intensity.

In this paper, we develop a stylized model that provides an explanation how these empirical observations might fit together. Our framework allows us to generate a number of additional predictions that are not systematically explored in the empirical literature yet. In particular, we investigate how the ownership decision and the decision about the location of production interact and how they are affected by industry characteristics.

For this purpose we consider a partial equilibrium model with a multinational investor who wants to serve a foreign market. The multinational firm generates revenues by combining three activities. Output is produced with production and R&D activities; this output is marketed with the help of marketing activities. Industries are characterized by the relative importance of each activity for revenue generating. Depending on the importance of R&D we characterize industries as more or less technology intensive, depending on the relevance of the marketing activity industries are called more or less marketing intensive.

The investor has to decide about the location of production and the optimal ownership structure. Both choices are affected by the relative production costs abroad, the cost of control when engaging in foreign activities and the contracting possibilities with a local partner. In our model, the variable distance captures the idea of increasing costs of control. These costs arise because investors have difficulties in understanding the foreign environment including culture, business customs and administration. Think of it as tacit knowledge that cannot be acquired on the market. The larger this lack of tacit knowledge the more costly it is to provide the necessary marketing activities or to carry out production abroad.

The investing firm can get access to this tacit knowledge by entering a local joint venture. In doing so, agency costs arise which are related to contracting difficulties. Thus, inefficiencies may arise when two partners need to contribute to generating revenues, rather then just one dictating the choices to be taken. Further agency costs may arise from difficulties in preventing technology spillovers to an outside party.

Our modeling abstracts from a number of issues typically dealt with in general equilibrium models, such as market structure or endogenous input prices. The advantage of our partial equilibrium approach is that it allows us to focus on incentive considerations that drive the decision where to produce and whether or not to enter a joint venture, in a framework familiar from the industrial organization literature. Furthermore, our specification of industries according to their marketing and technology intensity, though perhaps unconventional, enables us to generate predictions that are straightforward to confront with the empirical evidence. Thus, we provide a framework that is consistent with and gives a rationale for the findings described above.

Our analysis shows that industry characteristics affect both decisions, the optimal ownership choice and the location of production. We find that, in high tech industries, the likelihood of foreign production decreases as distance increases. Furthermore, joint ventures are relatively less likely to be chosen in high tech industries as compared to low tech industries. Both these findings are in line with the empirical observations described above. We also find that joint ventures are particularly less likely as distance gets large.

In low tech industries, in contrast, the likelihood of joint ventures increases in distance. Furthermore, the relationship of production choice and distance is non-monotonic. The likelihood of foreign production is highest for small distances and large distances; it is lowest for intermediate distances. The U-shape relationship is due to the interaction of the location and the ownership choice, i.e. large distance foreign production occurs in form of a joint venture whereas low distance foreign production is wholly owned. These varying findings for low and high technology industries pick up some of the evidence that observed relationships differ across industries.

Finally, we find that marketing intensive industries are relatively more likely to engage in foreign production, irrespective of production cost differences. Thus, our model provides a rationale for the frequently made assertion that companies want to produce close to their customers.

Our paper is related to three strands of literature. The first strand focuses on the question of how firms serve foreign markets. Possible choices are exports or foreign direct investments. The trade-off is between variable