Is Location Choice Optimal?

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1 Introduction

This paper analyzes welfare properties when firms locate in either of two symmetric countries. In particular, we focus on the *strategic interaction between the location choices of firms*. Our model can be applicable to the analysis of foreign direct investment (FDI). FDI Literature (*e.g.*, Horstmann and Markusen, JIE, 1992; De Santis and Stähler, JIE, 2004; Stähler, IJIO, 2006) has not been focused on such strategic aspects of location choice. In reality, however, we observe some examples where the strategic interaction between firm location works.

The purpose of this paper is to provide clear answers to the following questions:
(i) How do firms determine location in two symmetric countries?
(ii) Is this location choice *optimal* for each country?[1]
(iii) Is this location choice *optimal* for the overall economy?

2 Basic Setup

We consider three countries; one source country and two host countries. These host countries are identical. Each host country has a product market which is totally separated from the others. In the source country, symmetric firms consider locating in either of the host countries. The total number of firms is given exogenously.

We consider a simple two-stage game. In the first stage, firms in the source country simultaneously determine which market to enter. In the second stage, Cournot competition occurs in each host country market.

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[1]In this paper, we use the term *optimal* in the sense of *maximizing welfare*.

3 Main results

First, we find the equilibrium location of this model. The equilibrium location is determined as a Nash equilibrium with respect to firm location in the first stage. We show that the equilibrium location is that a half of total number of firms locate in each country.

Next, we investigate the properties of the source and host countries' welfare, and world welfare. We obtain the following results:
(1) The equilibrium location may or may not be optimal for the source country depending on the number of firms and the curvature of inverse demand.
(2) The equilibrium location is not optimal for each host country, while it is optimal for the overall host country.
(3) The equilibrium location is optimal in terms of world welfare.
Based on these results, we find that policies for firm location are reasonable at least for the corresponding country, whereas they always lower overall welfare by distorting the behavior of firms. This result suggests that although the WTO currently has no agreements with respect to firm location or FDI, the prohibition of policies for firm location could be effective.

4 Extension: International joint ventures

Finally, we apply our framework for an analysis of international joint ventures (IJV). Based on our original results, we consider welfare properties in a model where IJVs are set up in the host countries under foreign ownership regulation.

Even in this case, the original results hold if markets exist in the host countries. If markets exist in two other countries, *i.e.*, *transit trade* occurs, however, the equilibrium location is not optimal for each host country. The original results still hold for the source country and the overall economy.

5 Concluding Remarks

In this paper, we have focused on welfare effects with two symmetric host countries. But if host countries have differences in market sizes, we will obtain different equilibrium locations, which may lead to different welfare effects. Introducing heterogeneity in firms also brings different results. These points have been left for future research.