

PROPOSITIONS ON THE GAMES FIRMS PLAY WHEN DEMAND IS UNCERTAIN: PURE STRATEGIES

Agim Kukeli, College of Business, Lamar University, Beaumont Texas, U.S.A.

[dx.doi.org/10.18374/JIFE-22-4.2](https://doi.org/10.18374/JIFE-22-4.2)

ABSTRACT:

The purpose of this paper is to investigate the weight of uncertainty on a firm's decision to enter a foreign/domestic market. A game is designed between two symmetrical firms entering a market (Cournot quantity game). In addition, we explore the time of entry with one firm becoming a Stackelberg leader, and the other firm a follower. We find that multiple equilibria exist, and the firm's decision does not necessarily depend on demand uncertainty. Rather it depends upon cost differentials, and behavior is exogenous. This implies that firms deciding to enter a market after the Covid 19 pandemic will be the ones who have come up with innovative ways to cut operating costs and firms that by nature do not face significantly fixed (and sunk) costs. The paper provides a contribution to the existing literature regarding a firm's behavior to enter a foreign market. In this way, a fundamental contribution has been done to explaining foreign direct investment.

Keywords: Cournot game, Stackelberg game, Foreign Direct Investment, Uncertain Demand, Real Option.

1. INTRODUCTION

A perennial question in the foreign direct investment (FDI hereafter) literature is why a firm chooses to enter a market or country at a particular time. This question is of paramount importance, especially after the COVID-19 pandemic and supply chain issues (Ryan and Haltiwanger, 2022; Sharma, et al, 2020). Both these recent events have added a new dimension to firms' strategic decision-making under the conditions of uncertainty. Although many explanations have been offered, this study will offer a novel one, in which the explanation of the timing of entry is rendered equivalent to the optimal exercise of a strategic "real" option held by each of a set of potential competitors in the target market. Doing so allows a fundamental contribution to the FDI literature to be made, in which the timing of entry is related to an "exogenous" variable the degree of uncertainty surrounding the profitability of the entry decision by potential competitors.

More specifically, each firm faces uncertain demand for its good in the target market (we first assume homogeneous products; this can subsequently be relaxed), and each firm has two decision periods (distinguished by the realization of the demand uncertainty between periods one and two).

In period one, a firm can enter the target market for some sunk cost G but will know only the common-knowledge distribution of demand, not the actual value of the demand curve it faces, or the period one action of its competitors. The firm's fixed cost of entering a new market which cannot be recovered has the firm decided at another period to leave that market is the sunk cost (Dixit, 1988).

Firms can consider entering this market at period one (leading to Cournot type of game) and face the demand uncertainty. Moreover, there is a possibility of firms producing domestically or abroad in period one as well as in period two. For whatever reason, we may think that one firm is considering the possibility of entering the market at time one (and facing the uncertain demand) and another firm (or firms) moves into this common market in period two when demand uncertainty is resolved.

If a specific firm enters the market, it will choose an irreversible capacity/production level that will make it the (expected) Stackelberg leader in the period two sales game. If the firm postpones its entry decision