



Investments in response to trade policy: The case of Japanese firms during voluntary export restraints[☆]



Hyo-Youn Chu*

College of International Studies, Kyunghee University, 1732 Dukyoung Street, Giheung-gu, Yongin-si 446-701, Republic of Korea

ARTICLE INFO

Article history:

Received 12 September 2013
Received in revised form 14 April 2014
Accepted 10 July 2014
Available online 17 July 2014

Keywords:

Voluntary export restraints (VERs)
Quality-upgrade
Foreign direct investment (FDI)
Japanese automobiles
Dynamic models of a single agent decision

ABSTRACT

This paper develops a dynamic structural model of a single decision in order to analyze the effect of voluntary export restraints (VERs) on quality-upgrade and foreign direct investment (FDI) behavior. I estimate the model parameters using a variant of the two-step estimator developed by [Bajari et al. \(2007\)](#). Using panel data of Japanese firms in the U.S. automobile industry, both activities are found to have significant sunk cost, which introduces intertemporal interactions in decisions, and I also find that the entry costs for FDI are larger than fixed adjustment costs for quality-upgrade. I simulate counterfactuals based on the estimation of the structural model. In the absence of the VERs, both quality-upgrade and the probability of undertaking FDI decrease. The second simulation examines the substitution effect between the two investment activities. The proposal to restrict FDI policy causes a dramatic increase in the level of quality-upgrade. Similarly, the proposal to restrict quality-upgrade policy results in an increase in the probability of FDI.

© 2014 Elsevier B.V. All rights reserved.

1. Introduction

Restrictions on exports to a particular country often have the unintended consequence of affecting the investment choices of foreign firms that sell to that country. An interesting and very well-known narrative from the past involves the responses of Japanese auto producers when the U.S. and Japan placed bilateral voluntary export restraints (VERs) on exports of automobiles from Japan to the U.S. during the 1980s. First, they were likely to upgrade their product quality levels by adopting new technologies and shifting to higher quality auto exports, which gave them higher profit margins. Second, they tended to establish manufacturing plants in the U.S. via foreign direct investment (FDI) because Japanese automobile products made in the U.S. were excluded from export restraints. In so doing, they were able to raise profits despite the trade restrictions by increasing product prices as a result of quality-upgrade and/or by selling more cars made in the U.S. as a result of the capacity expansion. When Japanese firms decide to invest in quality-upgrade and/or to participate in FDI, they may incur significant sunk costs, which ultimately introduce inter-temporal linkages in the decisions. This implies that the firms have to consider how their current investment decisions would affect future investment plans as well as future market profits before these decisions are made. This paper represents the first attempt to investigate investment decisions for quality-upgrade and FDI in the context of a certain trade restriction by linking a dynamic analysis to real market data.

Despite the coexistence of quality-upgrade and FDI activities, together with their inter-temporal interactions, the previous literature that has examined the investment behavior of Japanese firms has largely focused on each channel in isolation. The approach that has been taken to date of examining these factors in themselves rather than in their interaction has prompted the following research questions for this study. First, how do Japanese firms make quality-upgrade and FDI decisions, as possible investment strategies to overcome the trade restriction? Understanding the investment behavior of firms is crucial in exploring the profound implications for trade restrictions on product quality and FDI entry of Japanese firms into the U.S. Second, what would have happened if the trade restrictions (VERs) had never

[☆] This paper is taken from a chapter of my dissertation. I am deeply indebted to my advisor Marc Rysman for his continued guidance and support. I wish to thank Simon Gilchrist, Stefania Garetto and Keith Hylton for their comments and suggestions. I have also benefited from conversations with John Rust, Kerem Cosar, Jonathan Eaton, Ali Hortacsu and Francesco Decarolis. I thank the participants of Boston University's Empirical Micro Lunch Workshop and International Industrial Organization Conference. The comments of the editor and two anonymous referees substantially improved the paper. All errors are my own.

* Tel.: +82 31 201 3882.

E-mail addresses: hychu7@khu.ac.kr, hychu7@gmail.com

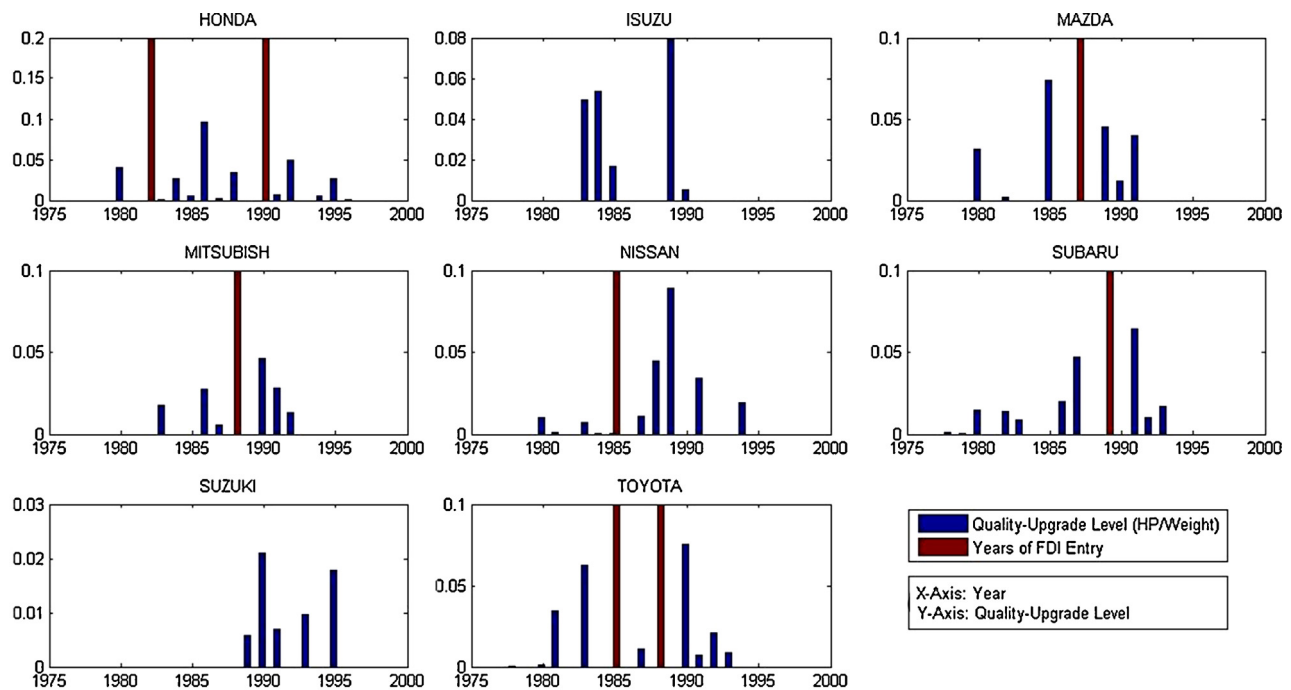


Fig. 1. Quality and capacity investment per year.

been in place? Although trade restriction is the major factor driving investment decisions, other state characteristics may be important as well to encourage Japanese firms' investment actions. For instance, most of the trade literature on exports and FDI explain that the firms that have a large enough scale (large market share because they are highly productive) find it optimal to perform FDI rather than export if a foreign production plant allows to save on the transportation cost of exports. This is known as the proximity-concentration trade-off. Thus, I am interested in how much both quality-upgrade and the probability of FDI will decrease in the market if the VERs are not allowed to operate and also if the VERs, combined with some state characteristics, are not allowed to operate, to capture the proximity-concentration trade-off effect. Third, what happens if one of the investment policies (quality-upgrade or capacity expansion via FDI) is restricted? If two investment decisions can be substituted for one another, restricting one of the investment activities will increase the other investment strategy. Or if the two investment decisions exhibit some complementarity, this mechanism will have a negative impact on the other investment strategy. Alternatively, it could be that quality-upgrade and FDI are not affected by each other.

The first step in answering the above questions is to structurally model investment decisions regarding quality-upgrade and capacity expansion via FDI. These investment decisions, however, involve a complicated optimal decision-making process because product quality and U.S. production are not exogenously given. To address this complexity, I develop a dynamic model of a single agent investment decision of quality-upgrade and FDI entry. The model contains four key features. First, it endogenizes firms' quality-upgrade and capacity expansion (FDI) decisions. Both quality levels and U.S. production are not exogenously given; rather they are optimally chosen based on firms' quality-upgrade and firm's FDI entry, respectively. Second, the model employs both continuous and discrete choices of investment. That is, firms are able to choose quality-upgrade as a continuous choice and FDI entry as a discrete choice in each period. Third, it allows for different cost structures between quality-upgrade and FDI decisions. Specifically, I allow the fixed quality adjustment cost depending on firms' quality-upgrade level and the FDI entry cost depending on FDI entry choice. Finally, the model identifies various state characteristics that may encourage Japanese firms to invest in either quality-upgrade or capacity expansion via FDI because the trade restriction alone does not account for subsequent investment activities, since the nature of those activities vary, given firm heterogeneity. As the U.S. dollar depreciation against the Japanese yen in 1985 and 1986 could have catalyzed FDI decisions of Japanese producers given relatively cheaper costs, I consider the Japan/U.S. foreign exchange rates as one of the state characteristics. There was no specific enforcement mechanism for the VER limits, which implies that Japanese firms did not necessarily have to conform to the VERs.¹ However, an ex-post penalty would have been imposed if exports had failed to meet the required limits, although this penalty was not explicitly announced. Accordingly, I use the difference between exports and the limits for each Japanese firm to capture the possibility of a penalty imposition. A firm's higher relative quality level compared to the quality level of other Japanese firms might encourage the firm to invest in building production plants but discourage the firm from upgrading product quality because it knows that its products are already good enough to be marketable in terms of quality. Last, I account for past investment experiences (past quality-upgrade and past FDI) as state characteristics because the probability of upgrading quality is relatively low in a year following FDI and, similarly, the probability of participating FDI is relatively low in a similar length of time following quality-upgrade experience as shown in Fig. 1. Thus, I use these lagged investment variables to examine whether or not the two investment decisions have inter-temporal substitution effects.

I assume that markets are segmented. To maximize the present discounted value of their expected stream of payoff-profits, firms can decide on their investment choices based on their current state characteristics. To estimate the model, my approach builds on a line of research, initiated by Hotz and Miller (1993) and Hotz et al. (1994), on the study of a single agent dynamic optimization problem using a

¹ See Berry et al. (1999).

Download English Version:

<https://daneshyari.com/en/article/5086113>

Download Persian Version:

<https://daneshyari.com/article/5086113>

[Daneshyari.com](https://daneshyari.com)