Exports, FDI, and Productivity: 
Evidence from Japanese Manufacturing Firms

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This paper employs nonparametric tests and Japanese firm level data to examine the hypothesis put forward by Helpman, Melitz and Yeaple (2003) and Head and Ries (2003) that firms engaging in international market are more productive than other firms. We find that the productivity distribution of foreign firms operating in Japan dominates that of Japanese multinationals, which dominates that of exporters, which in turn dominates that of non-exporters, thus confirming the theoretical predictions.

Key Words: Export, FDI, TFP, Nonparametric Kolmogorov-Smirnov test

JEL Classification: F14, F23, D21

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I. Introduction

What determines whether firms choose to serve overseas markets through exports or foreign direct investment (FDI)? This is a question that has received considerable research attention in recent years, and a frequently cited model in this context is the one developed by Helpman, Melitz and Yeaple (2003) (referred to as HMY hereafter). Concentrating on the choice between exports and horizontal FDI, i.e., investment in a foreign production facility to serve customers in the foreign market, a basic idea underlying the model is that FDI involves higher sunk costs but lower per-unit costs than exporting. Introducing heterogeneous firms into the model, the authors suggest that only relatively productive firms will serve foreign markets, and among these, only the most productive will do so through FDI.

Similarly, Head and Ries (2003) (referred to as HR hereafter) developed and tested a theoretical model which predicts that firms choosing FDI are more productive than firms choosing exporting. Based on data on 1,070 large Japanese firms, their empirical results suggest that firms using both FDI and exports to serve foreign markets are more productive than firms that only export. Furthermore, they predict that more productive firms invest primarily in high income countries corresponding to the toughness of competition in a market.

The purpose of this paper is to empirically test the hypothesis put forward by HMY and the prediction of HR model. The contribution of this paper investigates the productivity level ordering among firms that fall into four categories-domestic non-exporters, exporters, Japanese multinational firms and foreign firms participating Japanese market, which has not been considered in previous work.1)

The approach we employ is to conduct nonparametric two-sided and one-sided Kolmogorov-Smirnov tests. The first to apply this method to examine the link between exports and productivity were Delgado, Farinas

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1) Girma, Kneller and Pisu (2003), Girma, Görg and Strobl (2004) and Arnold and Hussinger (2006) present evidence that is consistent with prediction by the HMY model for UK, Ireland and German respectively.