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# FDI in post-production services and product market competition

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ABSTRACT

Post-production services, such as sales, distribution, and maintenance, comprise a crucial element of business activity. We explore an international duopoly model in which a foreign firm has the option of outsourcing post-production services to its domestic rival or providing those services by establishing its own facilities through FDI. We demonstrate that trade liberalization in goods may hurt domestic consumers and lower world welfare, and that the negative welfare impacts are turned into positive ones if service FDI is also liberalized. This finding yields important policy implications, given the reality that the progress of liberalization in service sectors is still limited.



## 1. Introduction

Business activity does not end with the production of the final product. After production, a variety of business activities such as marketing, sales and distribution, and the provision of maintenance and repair services should be effectively carried out to maximize the value of products that have been produced. This is a widely held view in the strategic management literature. Porter (1985), for example, pointed out that firms' primary activities can be divided into inbound logistics, operations, outbound logistics, marketing and sales, and service. In Porter's classification, *outbound logistics* means activities associated with collecting, storing, and physically distributing the product to buyers, *marketing and sales* means activities associated with providing a means by which buyers can purchase the product and inducing them to do so, and *service* means activities associated with providing service to enhance or maintain the value of the product.

In the present paper, *outbound logistics*, *marketing and sales*, and *service* are together referred to as “post-production services.” A crucial strategic decision that every producer of final products needs to make is whether to perform post-production services by itself or outsource (some of) them to other firms. Since proximity to customers is a crucial element for post-production services, this decision is particularly important in the context of international trade. Foreign producers often outsource post-production services to their domestic rivals. For example, automobiles manufactured by foreign automakers are often sold and distributed by their local rivals.[1] Alternatively, foreign producers can establish local affiliates in the domestic market and perform post-production services by themselves (foreign direct investment (FDI) in post-production services).[2]

The objective of this paper is to analyze the provision of post-production services in the context of international trade and to explore its welfare consequences and policy implications. To this end, we explore an international duopoly model in which two firms, one domestic and the other foreign, produce differentiated products in their own countries and compete in the domestic market. Post-production services must be performed before a product is consumed.[3] The foreign firm has the option of outsourcing post-production services to its domestic rival by paying royalties or providing those services by itself in the domestic market. In the latter

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[1] In the Japanese market, examples include Volkswagen–Toyota, Ford–Mazda, Volvo–Subaru, and Peugeot–Suzuki, among others. The following examples are also found in Japan. (i) Several pharmaceutical products produced by Bayer, a German firm, are sold and distributed by its Japanese rivals, Meiji Seika and Kyorin Pharmaceutical. (ii) A Japanese liquor company, Suntory, sells wines, beers, whiskies, brandies, liqueurs, and mineral waters made by foreign companies. (iii) Evian, a mineral water made by French company Danone, is distributed in Japan by a Japanese beverage company, Calpis. Also, according to Ohmae (1989), in the US pharmaceutical industry, Marion Laboratories distributes Tanabe's Herbesser and Chugai's Ulcerlmin; Merck distributes Yamanouchi's Gaster; and Eli Lilly distributes Fujisawa's Cefamezin.

[2] For example, in the late 1980s a number of foreign auto-makers such as BMW, Chrysler, and Mercedes-Benz established their own distribution networks in Japan.

[3] We focus on a class of post-production services that are indispensable for consumption of goods but do not affect demand of goods. See Section 2 for details.

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case, however, the foreign firm must establish its own service facilities in the domestic market by incurring a fixed cost for FDI.[4]

In our analysis, we take the following aspects of reality into account. Multilateral negotiations under GATT/WTO have greatly facilitated the liberalization of the trade in goods, and many countries have committed to maintain low levels of tariff rates. However, with respect to the trade in services, although the General Agreements on Trade in Services (GATS) came into effect in 1995 as a result of the GATT Uruguay Round negotiations and has been contributing toward expanding trade in services, the progress is still limited. For instance, Roy et al. (2007) reported that only 52 WTO members had made commitments to liberalizing distribution services under GATS. The limited progress means that foreign firms may still have to incur substantial extra costs for service FDI because of regulatory impediments.[5] Melitz (2003), for example, pointed out that an exporting firm must set up new distribution channels in the foreign country and conform to all the shipping rules specified by the foreign customs agency, and that, although some of these costs cannot be avoided, others are often manipulated by governments.[6,7] When restrictions on service FDI are high, foreign firms may have to rely on service outsourcing to perform post-production services in domestic markets. In fact, according to OECD (2001), the number of the non-equity form of new cross-border alliances in business services increased from 25 in 1989 to 1097 in 2000.

In our framework, the liberalization of the trade in services reduces the fixed cost of service FDI, and the liberalization of the trade in goods reduces the tariff. The connection between production and post-production services, uniquely captured by our model, yields novel welfare consequences and policy implications as outlined below. Suppose that both the tariff rate and the fixed cost for service FDI are initially high. We demonstrate a possibility that, contrary to the conventional result, a tariff reduction hurts consumers and reduces world welfare. As in the standard analyses, the direct effect of a tariff reduction is beneficial for consumers and the foreign firm, but is harmful for the domestic firm. In our framework, however, the domestic firm can mitigate the negative effect of a tariff reduction by raising the price it charges the foreign firm for post-production services, and the higher service price works in the direction of raising goods prices. We show that, from the welfare standpoint, the latter effect can overshadow the former effect so that the tariff reduction actually hurts consumers and reduces world welfare in equilibrium.

Importantly, if the fixed cost for service FDI is also reduced, the domestic firm has less room to increase the service price in response to the tariff reduction, and a sufficient reduction of the fixed cost for service FDI converts the negative welfare effect of tariff reduction into a positive effect. In other words, the liberalization of service FDI can convert a welfare-reducing trade liberalization into a welfare-enhancing trade liberalization. Interestingly, the liberalization of service FDI improves welfare even when it does not induce the foreign firm to actually undertake service FDI. We believe that these are important policy implications, given that post-production services consist of an important subclass of services,[8] and that foreign firms' difficulties in undertaking post-production services in the domestic market have been recently considered to be a serious non-tariff barrier.[9]

We should mention that we construct a highly stylized model to make our point in a transparent way. Our model, however, can be extended in a number of ways. For example, non-producers of the good (or, independent service organizations (ISOs)) sometimes perform post-production services for goods producers. Our model can incorporate ISOs by assuming that the foreign firm can outsource services to the domestic firm or one of the ISOs. Also, we can incorporate more than one domestic firm. We discuss the robustness of our findings under a number of alternative setups in Subsection 4.2.

Cross-border transactions of services and FDI in services have been previously studied in the trade literature.[10] Recently, several papers have considered market access and distribution, an important example of post-production services, in the context of international trade. Richardson (2004) has shown in a spatial-economy model that the domestic government has an incentive to open the access to retail distribution to foreign manufacturers when tariffs can be used, but it may limit the access when trade policy is not available. Francois and Wooton (2007) assume that sales of imported goods require the domestic distribution services that are supplied under imperfect competition. They have shown that trade volumes and the level of optimal tariff are positively related to the degree of competitiveness in the service sector. In these previous models, production and distribution of goods are assumed to be conducted in different industries. Qiu (in press) has developed a model to study firms' incentives to form cross-border strategic alliances and their choice of entry modes in foreign markets. In his two-country, multi-firm model, each firm's cost of distributing its products in the foreign country is assumed to become lower when the firm forms a strategic alliance with a firm in the foreign country. It should be noted that Qiu uses the term distribution costs to represent all costs incurred after production, which are costs for post-production services in our terminology.

Our paper is related to the previous studies mentioned above in the sense that we also investigate post-production services in the context of international trade. There are, however, some fundamental differences. In our model, the foreign firm determines whether it performs post-production services by itself or outsources them to its domestic rival. This decision is made under the strategic interactions between the foreign firm and the domestic firm, and their strategic interactions in the product market and the provision of post-production services are linked in our model. This linkage, which is uniquely explored in our analysis, in turn yields novel welfare and policy implications for the liberalization of both the trade in goods and service FDI. To our knowledge, our analysis is the first attempt to examine the linkage between FDI in post-production services and product market competition.

Also, our analysis is distinctively different from the incomplete contracting approach that has been recently applied to the analyses of vertical structures in the context of international trade; see Antràs (2003, 2005); Antràs and Helpman (2004); Grossman and Helpman (2004); and Feenstra and Hanson (2005).[11] Their analyses address the choice between vertical integration and the purchase of a specialized input through contractual outsourcing, where relationship-specific investments governed by incomplete contracts play a central role. In contrast, as mentioned above, we focus on the connection between

[4] It should be emphasized that our approach is fundamentally different from the incomplete contracting approach which has been recently applied to the analysis of vertical structures in the context of international trade. For details, see the second last paragraph of this section.

[5] In his recent study on restrictiveness of FDI, Golub (2003) adopted "obligatory screening and approval procedures" and "restrictions on foreign ownership" as two main restrictions, and found that FDI restrictions on business and distribution services are higher than those on manufacturing.

[6] Melitz's argument is based on a number of interviews with managers in Colombian firms making export decisions conducted by Roberts and Tybout (1997).

[7] In the late 80s, Toysrus' retail establishment was delayed in Japan because of the Large-scale Retail Store Law. The United States considered that its application was arbitrary and regarded the law as a typical impediment against service FDI.

[8] Browning and Singelmann (1975), for example, classified services into distribution services, producer services, social services, and personal services, recognizing distribution services (transport, storage, retail, and wholesale trade) as an important subclass of services.

[9] For example, in the U.S.–Japan Auto Negotiation in 1995, the U.S. government required the Japanese government to promote the dealership of imported cars by the domestic car producers. Foreign firms' profitability will surely increase if the price they have to pay to outsource post-production services in the local market is reduced. Our analysis, however, indicates that the liberalization of service FDI is equally or even more important not only for increasing foreign firms' profitability but also for benefiting domestic consumers and increasing world welfare.

[10] See, for example, Djajić and Kierzkowski (1989), Markusen (1989), Francois (1990), Konan and Maskus (2006), and Wong et al. (2006) for cross-border transactions of services, and Raff and von der Ruhr (2001) and Markusen et al. (2005) for FDI in services.

[11] See also Spencer (2005) and Helpman (2006) for a recent survey of the literature.