Preferential Trade Agreement in Services and Its impact on Welfare

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Abstract

This paper examines welfare effects of preferential access to a service sector by a preferential trade agreement (PTA) in services. The analysis is conducted with a model wherein the domestic service market is assumed to be imperfectly competitive. This paper also investigates the incentive for the service providers from the partner country of the PTA to compete with or collude with the domestic monopolist. The results indicate that the pro-competitive effects of the PTA cause the total profits of the partner country based firms to increase and makes the domestic consumer better off. In addition, even in situations where collusion with the domestic monopolist is permitted, the partner country's service provider usually opts for competition with the domestic monopolist if there exist few restrictions for the supply of service in the domestic market.

JEL classification: F12; F13; F15
Keywords: Preferential Trading Arrangement; Trade in Services; Imperfect Competition

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1. Introduction

Multilateral trade negotiations originally focused on trade in goods and did not cover trade in services. This situation has changed since the Uruguay Round and the appearance of the World Trade Organization (WTO). Trade in services became the main topic of the multilateral trade negotiation under the General Agreement on Trade in Services (GATS). However, it is slow and difficult to promote service trade liberalization in multilateral negotiation such as GATS. This is because merely abolishing cross-border barriers such as tariffs and quotas is not sufficient to enable service trade liberalization.

The competitiveness of firms in the service sectors is usually in large part influenced by the complex regulations in the domestic market of each country. Therefore, the liberalization of service trade would not become meaningful unless various domestic regulations in each country were eliminated or adjusted. Unfortunately, service sectors in general have more regulations than manufacturing sectors. Therefore, if the elimination of various domestic regulations in each country requires decision by consensus of all members of the WTO, the service trade liberalization will not proceed quickly or smoothly.

Thus, many countries so far have been attempting to find individual partner countries and establish preferential trade agreements (PTAs) in services with them. In fact, many recent PTAs have services industries included as a matter of course. These PTAs promote the liberalization of trade in services alongside the liberalization of the trade in goods but only between individual partner countries, and not between groups of nations. In this case, as only the partner country's service providers can access the domestic market under preferential conditions, the question we need to address is,

which of the two countries gains and which loses.

There is extensive literature on the welfare effects of PTAs on trade in goods. However, the analysis of PTAs in services is still being developed. Even literature that examines trade in services from a theoretical standpoint is still a relatively limited.[1] To give one example, Baier and Bergstrand (2001) examined the effects of a free trade agreement (FTA) in services. The research assumed that services have higher or more prohibitive transport costs than goods, and obtained similar results to the case study of an FTA in goods. Generally, it seems to be natural to get similar results particularly for cross-border service trade. There are, however, some important differences between trade in goods and services. As noted by the classic work on the services industry, Hill (1977), a critical distinction between goods and services is that service transaction requires proximity between provider and consumer. The importance of proximity for service transactions means that trade in services cannot be conducted by cross-border trade alone but requires the establishment of local affiliates (i.e. direct investment).[2]

This paper will develop a model that can be applied for the analysis of both cross-border barriers and barriers to local establishment. Consequently, trade liberalization in services requires the elimination of both cross–border and domestic restrictions, which limit market access in service sectors. This paper does not provide a comprehensive analysis of PTAs in services, but focuses on the welfare effects of preferential elimination of restrictions against access to the domestic service sectors by a PTA in services under an imperfectly competitive market setting.

The remainder of the paper is organized as follows. In Section 2, we develop a model of trade in services under conditions of imperfect competition. In Section 3, we examine the welfare effects of a PTA in services with two steps of liberalization: elimination of restrictions and promotion of competition. Section 4 examines the conditions under which the partner country's firms will bring competition to the services sector to challenge the local monopolist. Finally, the results are summarized in Section 6.

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[1] See Markusen (1989), Francois (1990), Hoekman (1994), and Francois and Wooton (2001).

[2] Sampson and Snape (1985) discuss the analytical implications of proximity in service sectors.

2. The model

To explore effects of a PTA in services, this section gives a model of a particular service sector that is imperfectly competitive. In addition to the domestic indigenous firms, there are foreign firms who provide services in the home country. There are, however, barriers protecting the domestic firms from competition with foreign firms. Within this framework, we examine the implications of a PTA which eliminates these barriers and promotes the partner country's firms access to domestic consumers.

In this model, there is the home country (1), a partner country (2), and a non-partner country (3). There are n_i identical firms in country i ($i \in \{1,2,3\}$) and they provide a particular service in the home country's market. The inverse demand for the service in the home country is

$$p = x - y\sum_{i=1}^{3} n_i q_i \,, \tag{1}$$

where p is the market price of the service and q_i is the quantity supplied to the market by a country i based firm.

Indigenous firms in the home country face a constant marginal cost *c*, while the foreign firm that is based in country i additionally has to pay t_i to provide the service to consumers in the home country.[3] This cost may reflect not just cross-border tariffs, but all costs stemming from the restrictions to foreign service providers in the home market. Consequently, marginal costs of each firm are

$$MC_i = c + t_i \,. \tag{2}$$

This model imposes the Cournot assumption that firms set quantity strategically with no subsequent reaction by competing firms. Using symmetry, it is assumed that each firm chooses the same level of output as other firms originating from the same country. The service provider's perceived marginal revenue is

$$MR_i = x - y\left[(n_i + 1)q_i + \sum_{k \neq i} n_k q_k \right]. \tag{3}$$

[3] The service providers may also sell services in a third market. However, we are assuming market segmentation here.

Equating marginal revenue (3) to marginal cost (2) for each firm yields the reaction function

$$q_i\left(q_{j\neq i}\right)=\frac{x-\left(c+t_i\right)-y\sum_{k\neq i}n_k q_k}{\left(n_i+1\right)y}. \qquad (4)$$

The service provider's reaction curve can be interacted with each other country's reaction functions to establish the point of market equilibrium. The equilibrium output levels are

$$q_i^*=\frac{x-\left(c+t_i\right)+\sum_{k\neq i}n_k\left(t_k-t_i\right)}{y\left(1+\sum_{j=1}^{3}n_j\right)}. \qquad (5)$$

3. Effects of a Preferential Trade Agreement in Services

We now consider the implications for consumer welfare and the profitability of each country's firms when the competitive structure of the service industry is changed as a result of a PTA between the home country (country 1) and the partner country (country 2). This change can arise both through giving the firms which are based in the partner country better market access to the home market and through forcing the home market for the services to be more competitive.

3.1. Eliminating restrictions for market access

Access to the home market of the services for the partner country based firms is improved by reducing t_2, all the restrictions the partner country based firms faces in service supply to the home country's (country 1) market. If $t_2=0$ the partner country based firms would be accorded treatment equivalent to firms which have the right of establishment in country 1's market without any restrictions. Consequently they would be able to compete on an equal footing with the firms indigenous to country 1.

We can establish the price of the service in a situation where the indigenous

firms of country 1 behave non-cooperatively by substituting the equilibrium outputs, Equation (5), into the inverse demand function, Equation (1), yielding

$$p^* = \frac{x + \sum_{j=1}^{3} n_j \left(c + t_j\right)}{1 + \sum_{h=1}^{3} n_h} \tag{6}$$

Thus, equilibrium profits are calculated by substituting Equation (2), (5), and (6)

$$\pi_i^* = \frac{\left[x - \left(c + t_i\right) + \sum_{k \neq i} n_k \left(t_k - t_i\right)\right]^2}{\left(1 + \sum_{j=1}^{3} n_j\right)^2 y}. \tag{7}$$

The comparative static analysis illustrates the effects of reducing the service trade barrier, t_2, on price p^*, and profits of each country's firm, π_i^*:

$$\frac{\partial p^*}{\partial t_2} = \frac{n_2}{1 + \sum_{h=1}^{3} n_h} > 0, \tag{8}$$

$$\frac{\partial \pi_1^*}{\partial t_2} = 2n_2 \frac{\left[x - \left(c + t_1\right) + \sum_{k \neq i} n_k \left(t_k - t_1\right)\right]}{\left(1 + \sum_{j=1}^{3} n_j\right)^2 y} > 0, \tag{9}$$

$$\frac{\partial \pi_2^*}{\partial t_2} = -2\left(1 + n_1 + n_3\right) \frac{\left[x - \left(c + t_2\right) + \sum_{k \neq i} n_k \left(t_k - t_2\right)\right]}{\left(1 + \sum_{j=1}^{3} n_j\right)^2 y} < 0, \tag{10}$$

$$\frac{\partial \pi_3^*}{\partial t_2} = 2n_2 \frac{\left[x - \left(c + t_3\right) + \sum_{k \neq i} n_k \left(t_k - t_3\right)\right]}{\left(1 + \sum_{j=1}^{3} n_j\right)^2 y} > 0. \tag{11}$$

According to the above equations (8)-(11), the market price falls as the barriers come down since all service providers face progressively increasing competition from the partner country based firms, resulting in more competitive prices. The lower the barrier to the partner country based firms caused by a PTA formation, the larger their

market share and their profits, while the home indigenous firms and the non-partner country (country 3) based firms suffer a drop in profitability. When all the restrictions against country 2's firms operating in country 1's market are eliminated, the indigenous and partner country based firms compete under equal conditions and receive the same level of profits as each others.

3.2. Increasing establishment of service providers and promoting competition

We turn next to effects of increasing establishment of the partner country based service providers. Within the comparative static analysis of this paper, we illustrate the effects of increasing the number of the partner country based firms, n_2 on the market price, p^*, and profits of each country's firm, π_i^*.

$$\frac{\partial p^*}{\partial n_2} = -\frac{x - c + n_3 t_3}{\left(1 + \sum_{h=1}^{3} n_h\right)^2} < 0, \tag{12}$$

$$\frac{\partial \pi_1^*}{\partial n_2} = -\frac{\left[x - c + n_3 t_3\right]^2}{\left(1 + \sum_{j=1}^{3} n_j\right)^3 y} < 0, \tag{13}$$

$$\frac{\partial \pi_2^*}{\partial n_2} = -2\frac{\left[x - \left(c + t_2\right) + \sum_{k \neq 2} n_k \left(t_k - t_2\right)\right]^2}{\left(1 + \sum_{j=1}^{3} n_j\right)^3 y} < 0, \tag{14}$$

$$\frac{\partial \pi_3^*}{\partial n_2} = -\left\{\frac{2t_3\left[x - \left(c + t_3\right) - t_3\left(n_1 + n_2\right)\right]}{\left(1 + \sum_{j=1}^{3} n_j\right)^2 y} + \frac{\left[x - \left(c + t_3\right) - t_3\left(n_1 + n_2\right)\right]^2}{\left(1 + \sum_{j=1}^{3} n_j\right)^3 y}\right\} < 0. \tag{15}$$

According to these results, Equations (12)-(15), all firms suffer reduced profits. This is because the number of competitors increase and each firm loses some of its share in the home market. However, since the market becomes more competitive, the market price of the services fall and consumers' welfare increases.

Neither the profits of each firm or the total combined profits of all the firms that are indigenous to the home country or are based in the non-partner country of the PTA increase since the number of firms does not increase in this experiment. In a situation where the number of partner country based firms increases $\Pi_2^* = n_2\pi_2^*$, what happens to the total profits of those firms?

$$\frac{\partial \Pi_2^*}{\partial n_2} = \frac{\left[x - c + n_3 t_3\right]^2}{\left(1 + \sum_{j=1}^{3} n_j\right)^3 y}\left(1 + n_1 + n_3\right) > 0 \qquad (16)$$

According to Equation (16), larger numbers of the partner country based firms will lead to an increase in the consumers' welfare in the home country and higher total profits of the partner country based firms, despite lower profits of each individual firm in the market.

4. **Conditions for Avoidance of Collusion with an Indigenous Monopolist**

Many of the service sectors, such as banking, insurance, and telecommunications, have been regulated more heavily than the manufacturing sector. These regulations have helped not only to repress competition directly, but also tend to help the domestic monopolist or cartel to survive. In a situation where the domestic firms have already made a cartel or the market has been monopolized, it is usually difficult for other domestic firms to enter the market. Foreign service providers, however, might be able to enter the monopolized market, and bring pressure to increase competition. Domestic restrictions often block foreign companies from entering the domestic market.

In order to increase competition and eradicate monopolistic conditions in the domestic market, it is necessary to abolish prohibitive restrictions and increase the number of providers entering from foreign countries. In this section, the effects of a PTA in services and a dissolution of the domestic monopolist are discussed. So far, it has been assumed that each firm behaves independently and engages in pure Cournot competition with each other in the domestic services market. This section, however,

assumes that the service providers of the partner country of the PTA have a right to choose whether to compete with or to collude with the domestic monopolist (i.e. to make a cartel with an indigenous firm).

The inverse demand function of the services in the home country is

$$p = x - y\left[(1+m_2)q_1 + (n_2 - m_2)q_2 + n_3 q_3\right], \tag{17}$$

where m_2 is the number of the country 2 based firms that collude with the indigenous monopolist in the home market of the service. The assumption of the marginal costs in each country's firms does not change from the one we set in the section 2. Since the foreign service providers compete with each other in the home market, the marginal revenue of each firm of country 2 and 3 are the same as the in previous sections:

$$MR_2 = x - y\left[(n_2 - m_2 + 1)q_2 + n_3 q_3 + (1+m_2)q_1\right], \tag{18}$$

$$MR_3 = x - y\left[(n_3 + 1)q_3 + (n_2 - m_2)q_2 + (1+m_2)q_1\right]. \tag{19}$$

The conspirators from country 2, however, collaborate with the indigenous monopolist and adjust their service output by the same anticipated amount. Therefore, the perceived marginal revenue of the indigenous monopolist and country 2's conspirators is

$$MR_1 = x - y\left[2(1+m_2)q_1 + (n_2 - m_2)q_i + n_3 q_3\right]. \tag{20}$$

Then, the firms' equilibrium levels of output are established by the interaction of the corresponding reaction functions:

$$q_1^* = \frac{x - c + (n_2 - m_2)t_2 + n_3 t_3}{y(2 + n_2 - m_2 + n_3)(1+m_2)}, \tag{21}$$

$$q_2^* = \frac{x - c - 2t_2 + n_3(t_3 - t_2)}{y(2 + n_2 - m_2 + n_3)}, \tag{22}$$

$$q_3^* = \frac{x - c - 2t_3 + (n_2 - m_2)(t_2 - t_3)}{y(2 + n_2 - m_2 + n_3)}. \tag{23}$$

Compared to Equation (5), the equilibrium quantity of output when there is no monopoly power or collusion, each firm supplies the same level of output as before the forming of a PTA between country 1 and country 2 and the giving to the partner country's firms permission to collude with the domestic monopolist.

We can establish the equilibrium price of the service and profit levels when the home firm is a monopolist with the following equations:

$$p^* = \frac{x + c + (n_2 - m_2)(c + t_2) + n_3(c + t_3)}{2 + n_2 - m_2 + n_3} \tag{24}$$

$$\pi_1^* = \frac{[x - c + (n_2 - m_2)t_2 + n_3 t_3]^2}{y(1 + m_2)(2 + n_2 - m_2 + n_3)^2}, \tag{25}$$

$$\pi_2^* = \frac{[x - c - 2t_2 + n_3(t_3 - t_2)]^2}{y(2 + n_2 - m_2 + n_3)^2}, \tag{26}$$

$$\pi_3^* = \frac{[x - c - 2t_3 + (n_2 - m_2)(t_2 - t_3)]^2}{y(2 + n_2 - m_2 + n_3)^2}. \tag{27}$$

Similarly, compared to Equation (6) and (7), the equilibrium price of the service and profits of each firm without a monopolist, those with a monopolist are exactly the same unless $m_2 > 0$.

Then, what happens when country 1 and country 2 form a PTA in services and officially permit the partner country's firms to collaborate with the home monopolist? If some of the partner country's firms decide to collude with the monopolist (i.e. to join the home firm's cartel), this would mean an increase in m_2. Its effect on the service price is

$$\frac{\partial p^*}{\partial m_2} = \frac{x - c - 2t_2 + n_3(t_3 - t_2)}{[2 + n_2 - m_2 + n_3]^2} > 0. \tag{28}$$

As Equation (28) shows, the more the partner country based firm colludes with the home monopolist, the higher the service price becomes. This is because collusion between the home monopolist and the partner country based providers represses the degree of competition in the home service market.

The effects of increasing numbers of participants in the cartel on the home indigenous firm cannot be concluded from the comparative static analysis used in this model. However, it may be possible that the cartelized partner country's firms capture a part of the monopolist's income from the home indigenous firm. If this is so, the more the partner country based firm colludes with the home monopolist, the lower profits of the indigenous service provider become. On the other hand, the effects on the profits of the foreign service providers that do not join in the collusion is

$$\frac{\partial \pi_2^*}{\partial m_2} = 2\frac{[x - c - 2t_2 + n_3(t_3 - t_2)]^2}{y(2 + n_2 - m_2 + n_3)^3} > 0, \tag{29}$$

$$\frac{\partial \pi_3^*}{\partial m_2} = \frac{2\left[x - c - 2t_2 + n_3(t_3 - t_2)\right]\left[x - c - 2t_3 + (n_2 - m_2)(t_2 - t_3)\right]}{y(2 + n_2 - m_2 + n_3)^3} > 0. \qquad (30)$$

This result means increasing the number of conspiring firms raises the profits of foreign independent firms regardless of whether they are based in the partner country or not. This is because they can benefit from the effects of the decreased level of competition brought about by the collusion.

To sum up, collusion of the partner country based firms with a domestic monopolist causes a reduction in the level of service to the home consumers and, probably, a decrease in the profits of the home monopolist[4]. Therefore, the home country needs to be careful that the partner country's firms do not collude with the monopolist after forming a PTA and permitting free activity to the partner country's firms in the home market. A partner country's firm selects to collude with the home monopolist when the profit under collusion is larger than under competition with each other. Therefore, if the home market of the service has an environment in which a partner country's firm is able to compete on an even footing with the home country's firms, and thus generate sufficient profits through competition, collusion will not happen.

One of the ways to make the partner country's firm compete with the home monopolist is to relax the restrictions on providing the service in the home market. Figure 1 illustrates a simulation of the effects on the profits of the partner country's firm of a relaxation of restrictions in conditions of collusion and non-collusion.[5] Figure 1 demonstrates that the more restrictions are eased (i.e. the value of t_2 decreases), the less the profits of a firm which colludes with the home monopolist, and the greater the profits of one which competes. In this simulation, when the value of t_2 is less than t^*, a partner country based firm would select to compete rather than collude with a home monopolist to obtain higher profits.

Next, by using a simulation, we investigate the effects on the profits of each firm and on consumer's welfare of a PTA and the relaxing of regulations for the partner country based firms. Figure 2 illustrates the level of profits of a partner country based

[4] In a situation where effects of economy of scale are unusually strong or that the foreign management resources improves productivity, however, the results may differ.

[5] This simulation sets $n_2 = n_3 = 5$, $m_2 = 1$, and $t_3 = 2$.

firm in a case where $t_2 = 0$ and $t_1 = 1$ as the functions of the number of colluded firms. First, we will see that the number of the conspiring firms becomes 1 in the case $t_2 = 1$. This is because the profit level of a conspiring firm would be higher than that of an independent firm under those conditions. However, there are no benefits in conspiring with a home monopolist when $t_2 = 0$. These are the results already demonstrated in Figure 1.

Additionally, the simulation in Figure 2 demonstrates the effects on profits of the home monopolist. The profit of the home monopolist is exactly the same level as that of the conspiring partner country's firm. Therefore, according to Figure 2, since the home monopolist could obtain higher profits when the restrictions are completely abolished, the home monopolist would compete with all the foreign based firms and obtain higher profits than in the case of $t_2 = 1$ where it colludes with a partner country based firm. In other words, competition, instead of collusion, makes the home indigenous firm better off. In addition, promoting competition reduces the price level of the service, and increases the benefits to domestic consumers. The only loser by the PTA eliminating restrictions for the partner is the non-partner country's firms again. This is because the stiffer competition causes the non-partner country's firm to be worse off.

5. Conclusion

Nearly every major PTA now has a services dimension. However, services have more complex modes of trade in comparison with goods: not only cross-border international trade but also trade through local establishments. For this reason, in contrast to trade in goods, negotiations for trade in services take place in not only cross-border transaction but also investment aspects. The approach in this paper is to use a model of an oligopoly situation to investigate the welfare effects of a PTA in services on domestic, partner and non-partner country's firms and on domestic consumers. The conclusion is that each potential benefit from the PTA in services depends critically on the change in the degree of competition in the domestic service

market.

The first analytical results in Section 3, given an Cournot competitive service industry, are that the preferential market access for the partner country's firms (eliminating restrictions and treating them as domestic firms) results in the partner country's service providers having a bigger market share and profits; indigenous and non-partner country's service providers becoming less profitable, and the home-market price drops.

Moreover, considering the effects of an increase in the number of the partner country's service providers in the domestic market after forming the PTA, the market of the service becomes more competitive and it reduces profits of each firm and the domestic price of the service. However, It can actually boost the market share and profits of the partner country's firms in total.

The last findings from the analysis of this paper are related to the incentive for bringing partner country's firms into a domestic monopolist. When the domestic restrictions on the partner country's firms entering the market are high enough, the firms are likely to collude with those of the domestic monopolist. This represses the degree of competitiveness in the home market, and increases the domestic price of the service and reduces the welfare of the domestic consumers. To prevent collusion between indigenous and partner country's firms and improve the welfare of the domestic consumers, the domestic policy makers must sufficiently reduce the service trade-related barriers and promote competition between companies in the industry. In conditions of low trade barriers, it is more beneficial for the partner country's firms to compete with the domestic monopolistic firm than to collude with it. Additionally, in our simulation promoting competition makes higher benefits not only to the domestic consumers but also to the domestic indigenous firm.

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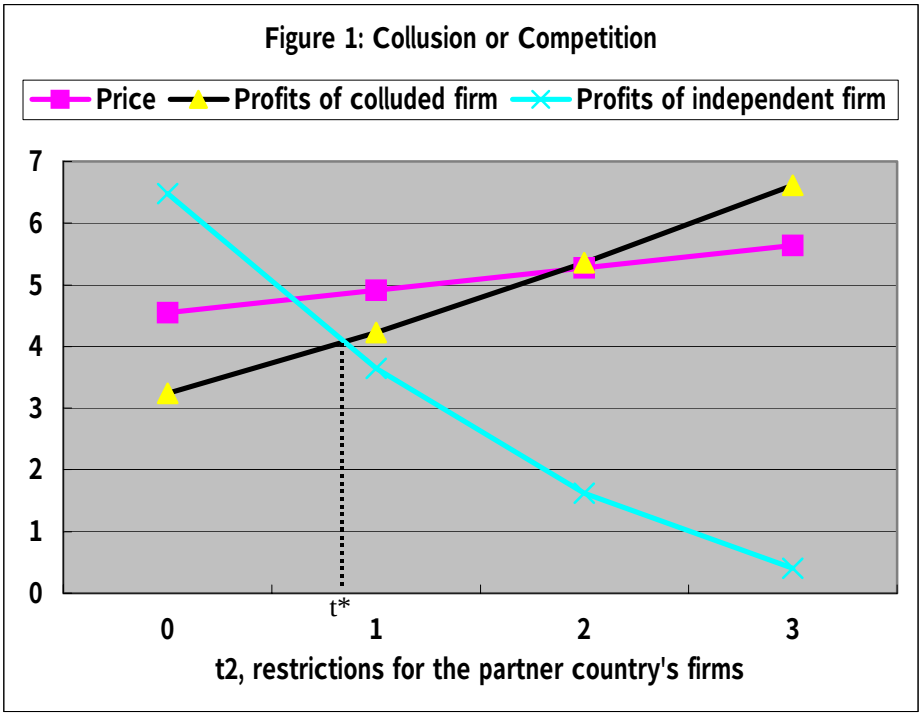
Figure 1: Collusion or Competition



Fiure 2: Comparison of Price and Profits