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MARKET STRUCTURE, TRADE LIBERALIZATION, AND THE GATS

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ABSTRACT

Market Structure, Trade Liberalization, and the GATS*

In this Paper we examine the interaction between the different modes of market access commitments in services (cross-border and establishment) market structure and regulation. In this context we focus on the impact of improved domestic market access for a foreign service provider on a domestic service market. We work with a model where the domestic industry is assumed to be imperfectly competitive and, as a result of domestic regulation, is able to act as a cartel. We also examine the incentives for the domestic firms to accommodate the entry of the foreign firm by inviting it to join the cartel.

JEL Classification: F12, F13, F23
Keywords: imperfect competition, market access, services trade, trade liberalization

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NON-TECHNICAL SUMMARY

Since its inception, the multilateral trading system has been focused on trade in goods. Hence, from 1947 through to the Tokyo Round, services were not covered in successive rounds of trade negotiations. The Uruguay Round and the subsequent launch of the WTO changed this. They brought an incorporation of services into the multilateral trading system under the General Agreement on Trade in Services (GATS). However, the actual degree of liberalization has been relatively limited, with many of the GATS schedules involving simple stand-still commitments (or less). It is generally recognized that there still remains significant scope for liberalization in the service sector.

This Paper is concerned with the analytical implications of service sector liberalization, and in particular the role of market structure. We focus here explicitly on cross-border trade in services, and the interaction of international trade with market structure and public regulation.

Of course, in many ways the insights from the theoretical literature on international trade apply equally to goods and services. This is particularly true for cross-border trade. There are, however, some important differences. One is the role of proximity which has important analytical implications. The significance of proximity for service transactions means that 'trade' in the case of services often requires a mix of cross-border transactions and local establishment (i.e. foreign direct investment). The importance of trade through affiliates established in the importing country is illustrated for the case of the United States. The United States is the leading service exporter, with $240 billion in direct exports in 1997. Their level of service sales through affiliates (i.e. establishment trade) was comparable, amounting to $258 billion in the same year.

The empirical and operational importance of establishment leads to a second important difference between goods and services. This is an institutional difference. While the GATT emphasizes barriers at the border (e.g. tariffs, quotas, etc.), the GATS has a different focus. From the outset it has emphasized both cross-border barriers and barriers to local establishment. Consequently, the GATS blurs trade and investment restrictions, and covers both trade and investment rules, to the extent that they limit market access in service sectors.

Given the structure of the GATS, negotiations involve parallel commitments on cross-border trade and local establishment by foreign service providers. We argue in this Paper that these two modes (a simplification of the four modes actually listed in the GATS) can carry different implications for national welfare, market structure, profits, and related metrics tied to trade liberalization. In particular, given imperfect competition in services (often in conjunction with domestic regulation), the realization of gains from trade

liberalization is tied closely to issues of market regulation and market structure. This, in turn, means that assessment of services commitments should take into account market structure and regulatory issues that affect the degree of competition.

Our results point to important linkages between the degree of competition, the mode and degree of market access, and the pro-competitive effects of liberalization. When we introduce establishment in conjunction with low cross-border barriers, we find that the foreign service provider takes on the domestic cartel. This is clearly a pro-competitive result. At higher levels of cross-border trade barriers establishment may instead lead to an equilibrium where the foreign sector is simply co-opted into the domestic cartel. This has well known negative consequences related to profit shifting. The impact of establishment on the degree of competition, and on potential gains or losses from liberalization, hinges on the underlying degree of competition (a regulatory issue), but also on barriers to cross-border trade.

Market Structure, Trade Liberalization, and the GATS

J.F. Francois and I. Wooton

Abstract: In this paper we examine the interaction between the different modes of market access commitments in services (cross-border and establishment) market structure, and regulation. In this context, we focus on the impact of improved domestic market access for a foreign service provider on a domestic service market. We work with a model where the domestic industry is assumed to be imperfectly competitive and, as a result of domestic regulation, is able to act as a cartel. We also examine the incentives for the domestic firms to accommodate the entry of the foreign firm by inviting it to join the cartel.

JEL Codes: F12, F13, F23

Key Words: services trade, trade liberalization, market access, imperfect competition

1 OVERVIEW

From its inception, the multilateral trading system has been focused on trade in goods. Hence, from 1947 through the Tokyo Round, services were not covered in successive rounds of trade negotiations. The Uruguay Round, and the subsequent launch of the WTO, changed this. They brought an incorporation of services into the multilateral trading system under the General Agreement on Trade in Services (GATS). However, the actual degree of liberalization has been relatively limited, with many of the GATS schedules involving simple stand-still commitments (or less). It is generally recognized that there still remains significant scope for liberalization in the service sectors.

This paper is concerned with the analytical implications of service-sector liberalization, and in particular the role of market structure. The trade theory literature has traditionally focused on trade in goods, with the literature on international trade in services being a relatively limited and recent addition. [See, for example, Francois (1990a), Hoekman (1994), Markusen (1988, 1989), Sampson and Snape (1985), Stern and Hoekman, (1988), Francois and Schuknecht (1999).] In addition, while there is a sizable empirical literature on

service sector policy and deregulation, this is largely focused on domestic deregulation.[1] In contrast, we focus here explicitly on cross-border trade in services, and the interaction of international trade with market structure and public regulation.[2]

Of course, in many ways the insights from the theoretical literature on international trade apply equally to goods and services. This is particularly true for cross-border trade. There are, however, some important differences. One is the role of proximity (see Francois, 1990b; Sampson and Snape, 1985), which has important analytical implications. The significance of proximity for service transactions means that "trade" in the case of services often requires a mix of cross-border transactions and local establishment (i.e., FDI). The importance of trade through affiliates is illustrated, for the case of the United States, in Table 1. The United States is the leading service exporter, with $245.7 billion in 1998. The level of U.S. service sales through affiliates (establishment trade) is comparable. Establishment sales amounted to $258 billion in 1997, which compares to $240 billion in direct exports.

The empirical and operational importance of establishment leads to a second important difference between goods and services. This is an institutional difference. While the GATT emphasizes barriers at the border (tariffs, quotas, etc.), the GATS has a different focus. From the outset, it has emphasized both cross-border barriers and barriers to local establishment. Consequently, the GATS blurs trade and investment restrictions, and covers both trade and investment rules to the extent that they limit market access in service sectors.

Given the structure of the GATS, negotiations involve parallel commitments on cross-border trade and local establishment by foreign service providers. We argue in this paper that these two modes (a simplification of the four modes actually listed in the GATS) can carry

[1] A thorough overview is provided by WTO (1998).

[2] An exception is Cho (1988), who discusses Korean-U.S. negotiations on insurance and the implications of the Korean insurance cartel for the gains from trade in insurance services.

different implications for national welfare, market structure, profits, and related metrics tied to trade liberalization. In particular, given imperfect competition in services (often in conjunction with domestic regulation), realization of gains from trade liberalization is tied closely to issues of market regulation and market structure.[3] This, in turn, means that assessment of services commitments should take into account market structure and regulatory issues that affect the degree of competition.

The remainder of the paper is organized as follows. In Section 2 we provide some background and motivation. In Section 3 we develop a stylized model of trade in services, involving alternatively establishment or cross-border trade. In Section 4 we then examine liberalization of trade and establishment restrictions. Finally, our results are summarized in Section 5.

2 BACKGROUND

As noted by Hill (1977), a critical distinction between goods and services is that services are consumed as they are produced. As a result of the flow nature of the transaction, service transactions involve an interaction between user and provider. Using this characteristic, Sampson and Snape (1985) differentiate between services that require physical proximity, and those that do not. Thus a distinction is made between *cross-border* and *local* supply of services. The GATS also recognizes this distinction, in that it covers service trade that requires no direct proximity (the cross-border mode) and trade that involves proximity (the remaining three modes: movement of providers, movement of consumers, and foreign establishment).

[3] Competition in service sectors can also have important implications for trade in goods. For example, cartels in the international transportation sector can pose a significant barrier to trade in goods (Francois and Wooton, 1999). In addition, the presence of transport costs typically means prices are not fully transmitted across markets (i.e., markets are segmented). This has important implications for trade and competition linkages.

While GATS commitments relate to these four modes, there are also overlapping commitments in other areas under the WTO umbrella. For example, the code on government procurement provides scope for government commitments on market access to domestic service markets, to the extent that they supply the procurement market. In addition, the rules on trade-related investment measures (TRIMs), to the extent that they touch on service operations, also provide scope for overlapping commitments.

Critically, while competition policy is not formally a part of the WTO structure, competition also has an important role to play in market access. WTO members have recognized that competition policy can be relevant to the extent that it impinges on commitments made within the WTO. Hence, the recent U.S.-Japan dispute over photographic film hinged on the degree of competition in the distribution sector, while threatened U.S. action in the 1990s on Japanese auto imports also emphasized competition in the domestic distribution and sales network. Though these touch indirectly on market access in services, there are also more direct links between competition and market access in services.

Traditionally, many of the service sectors, such as banking, telecommunications, air transport, and insurance, have been heavily regulated. This regulation has sometimes, as in the case of PTTs, been undertaken in conjunction with state-sanctioned monopoly or outright state ownership. More recently, there has been a move toward deregulation and divestment of state ownership. While the most visible example may be telecommunications, similar moves are occurring in the banking and other sectors. For this reason, GATS-related negotiations on services have taken and will take place in the context of domestic regulatory changes, and in a climate of imperfect competition.

3 THE MODEL

To explore some of these issues, we start with a simple model of a domestic service sector that is imperfectly competitive. In addition to the domestic oligopoly there is a foreign cross-border firm, but there are barriers protecting the domestic firms from the foreign competition. Within this framework, we examine the implications of lowering these barriers and giving the foreign firm open access to consumers through granting the firm the right of establishment in the domestic country.

3.1 Basic Structure

Formally, consider the market for a homogeneous service S in the home (h) country. This service is provided by n identical domestic firms within a regulated industry, as well as by a single foreign (f) firm based overseas and facing barriers to serving the domestic consumers. The inverse demand for the service relates the market price to the total quantity supplied to the market (the sum of the outputs of the home firms and the foreign firm):

$$p = x - y\left(nq_h + q_f\right) \tag{1}$$

The revenues of the two types of firm are derived directly from the demand curve (1).

$$R_i = \left[x - y\left(nq_h + q_f\right)\right]q_i, \quad \text{for } i = h, f \tag{2}$$

Home firms face a constant marginal cost c, while the foreign firm additionally has to pay t to provide the service to home consumers. This cost may reflect cross-border taxes, but is better viewed as a result of regulatory and other barriers to foreign operations in the home market. The foreign firm may, of course, also sell services in a third market. We are effectively assuming market segmentation here which, combined with the constant-marginal-

cost assumption, lets us proceed with the model developed in this section. Consequently, total costs and marginal costs of the two types of firms are, respectively,

$$\begin{aligned} C_h &= cq_h & MC_h &= c \\ C_f &= (c+t)q_f & MC_f &= c+t \end{aligned} \tag{3}$$

The marginal revenue of the foreign firm is determined by the partial differentiation of (2), imposing the Cournot assumption that firms set quantity strategically, while assuming no subsequent reaction by competing forms (that is, $\partial q_h / \partial q_f = 0$). The firm's perceived marginal revenue is:

$$MR_f = x - y(nq_h + 2q_f) \tag{4}$$

Equating marginal revenue to marginal cost for the foreign firm yields the reaction function:

$$q_f(q_h) = \frac{x-(c+t)-ynq_h}{2y} \tag{5}$$

The marginal revenues of the home firms will depend on the assumed structure of the home market. Home firms are assumed to be regulated and the nature of this regulation is crucial to the firms' behavior. To bound the range of effects, we adopt two polar assumptions about regulation. The first is that the regulator ensures that the home firms behave independently, engaging in pure Cournot competition with both their domestic and foreign rivals. The other extreme is to assume that the domestic regulator promotes collusion on the part of home firms, such that they act as a cartel. In either situation, the foreign firm is at first

assumed to be a Cournot competitor.[4] We shall consider, below, the implications of the foreign firm being welcomed as a new member in the cartel.

Consider firstly the perceived marginal revenue for a representative, non-cooperative home firm (labeled *hn*), whose Cournot assumption is that its domestic and foreign rivals will not change their outputs in response to its output change ($\partial q_{hk} / \partial q_{hj} = \partial q_f / \partial q_{hj} = 0, \quad \text{for } k \neq j$):

$$MR_{hn} = x - y\left[(n+1)\, q_h + q_f\right] \tag{6}$$

where, using symmetry, it is assumed that all home firms choose the same level of output. The corresponding reaction function for a non-cooperative individual home firm is:

$$q_{hn}\left(q_f\right) = \frac{x - c - yq_f}{(n+1)\, y} \tag{7}$$

This can be contrasted with the behavior of the representative firm (labeled *hc*) that is part of a regulated cartel. This firm acts in collaboration with the other home firms, each adjusting output by the same anticipated amount. Consequently the perceived marginal revenue of a representative cooperative home firm is:

$$MR_{hc} = x - \left(2nq_h + q_f\right) \tag{8}$$

The corresponding reaction function is:

$$q_{hc}\left(q_f\right) = \frac{x - c - yq_f}{2ny} \tag{9}$$

[4] We assume Cournot competition rather than Bertrand, as the latter would result in the competition between the foreign and home firms driving the price to the competitive level.

3.2 Output Equilibria

The foreign firm's reaction function (5) can be interacted with each of the home country's two possible reaction functions, (7) and (9), to solve for the market equilibrium in the non-cooperative and cartel cases, respectively. When the home firms compete with both domestic and foreign firms, the equilibrium output levels are:

$$q_{hn}^* = \frac{x - c + t}{(n+2)y}$$
$$q_{fn}^* = \frac{x - c - (n+1)t}{(n+2)y} \tag{10}$$

In the case of cartel behavior on the part of the home firms, the firms' equilibrium levels of output are:

$$q_{hc}^* = \frac{x - c + t}{3ny}$$
$$q_{fc}^* = \frac{x - c - 2t}{3y} \tag{11}$$

The reaction functions and the corresponding production equilibria are illustrated in Figure 1. As should be expected, home firms supply more when they act non-cooperatively. The foreign firm is able to free ride on the restrictive behavior of the cartel, selling a greater equilibrium quantity than when the home firms behave non-cooperatively.

4 INDUSTRY STRUCTURE AND MARKET ACCESS

We now consider the implications for consumer welfare and the profitability of firms when the competitive structure of the service industry is changed as a result of commitments to liberalize market-access conditions. This change can arise either through giving the foreign firm better market access or through forcing home firms to act more competitively.

4.1 Improving Cross-border Access

Market access for the foreign firm is improved by reducing t, the impediment the firm faces in servicing the home market from abroad. The foreign firm would be accorded national treatment if $t = 0$, equivalent to the firm having the right of establishment in the home market and consequently being able to compete on an equal footing with the domestic firms. We shall, later, discuss the potential implications for the foreign firm being admitted to the domestic cartel.

We can solve for the price of the service when the domestic firms in the home country behave non-cooperatively by substituting the equilibrium outputs (10) into the inverse demand function (1), yielding:

$$p_n^* = \frac{x-(n+1)c+t}{n+2} \tag{12}$$

Profits of a firm are the difference between its revenues (2) and its costs (3):

$$p_i = R_i - C_i, \quad \text{for } i = h, f \tag{13}$$

Thus, equilibrium profits are calculated by substituting (10) into (13):

$$\begin{aligned} p_{hn}^* &= \frac{(x-c+t)^2}{(n+2)^2 y} \\ p_{fn}^* &= \frac{\left[x-c-(n+1)t\right]^2}{(n+2)^2 y} \end{aligned} \tag{14}$$

Figure 2a illustrates the effects of reducing the trade barrier t on price p_n^*, profits of the foreign firm p_{fn}^*, and profits of the home industry P_{hn}^* (n times the profits of an individual firm p_{hn}^*, where $n = 2$ in these simulations). The higher the barrier to the foreign firm, the smaller its market share and its profits, while the domestic firms enjoy a higher level

of profitability. The market price rises with the barrier as home firms face progressively less competition from abroad resulting in a less competitive price. When the trade barrier is eliminated, all firms compete on an equal basis and receive the same level of profits (so that the profits of the home industry are *n* times those of the foreign firm).

Similar calculations can be made for the equilibrium price and profit levels when the regulated home firms behave as a cartel, by substituting the equilibrium output levels (11) into (1) for the price:

$$p_c^* = \frac{x + 2c + t}{3} \tag{15}$$

and into (13) for firms' profit levels:

$$\begin{aligned} p_{hc}^* &= \frac{(x - c + t)^2}{9ny} \\ p_{fc}^* &= \frac{(x - c - 2t)^2}{9y} \end{aligned} \tag{16}$$

Figure 2b shows the impact of trade-barrier reduction on the price p_c^*, foreign firm's profits p_{fc}^*, and the profits of the cartelized home industry $P_{hc}^* = np_{hc}^*$ (where *n* is once again assumed to be equal to 2). In large respect, the lines are the same as those for the non-cooperative home industry, illustrated in Figure 2a. The principal difference is that, when all barriers are eliminated (giving the foreign firm equal access to the market) the foreign *firm* and the home *industry* have equal market shares. This is because the domestic firms behave as if they were a single firm.

4.2 Domestic Competition Policy

We turn next to competition policy. Within our analytical framework, a natural instrument for simulating the effects of domestic regulation is n, the number of home firms. Calculating

the equilibria for the cases of a domestic cartel and of a competitive single home firm (that is n = 1), yields the same outcome. Consequently, we can determine the impact of forcing a cartelized home industry to behave more competitively by calculating the non-cooperative equilibrium outcome for increasing values of n, between 1 and the actual number of firms in the industry.[5]

We illustrate the results of this exercise in Figure 3. In the figure, the equilibrium price p_n^* and the profits of the foreign firm p_{fn}^* and the home industry P_{hn}^* are shown as a function of *n*, the number of firms in the home industry. The foreign firm faces a barrier to trade and hence will always have a lower level of profitability than its home counterpart in the domestic market. However, it will have higher profits, the fewer home firms with which nm it has to compete. Profits of the home industry are not monotonic in the number of home firms. Two home firms grab a larger share of the market than does a cartel so that, even though the overall market is more competitive, the home industry in total is better off with the increased competition. Larger numbers of non-cooperative home firms will, however, drive down overall profits in the market and lower the total profits of the home firms, despite their increased share of sales.

4.3 The Camel's Nose Under the Tent (Admitting the Foreigner into the Cartel)

Given that the foreign firm has been given the right of establishment, is it in the interests of any party to have it join the domestic firms in the cartel? This is a solution that has been followed in practice, with examples including the Korean and Swiss insurance industries' responses to pressure from the U.S. [See, for example, Cho (1988) on Korea.] Within our framework, whether or not the foreign firm would agree to such an arrangement proves to hinge on the size of trading costs. We consider the earnings of firms at various trade costs,

[5] This technique was used by the authors in Francois and Wooton (1999) in their discussion of shipping conferences and maritime trade. Also see Francois and Horn (1998).

both when the foreign firm is in competition with the cartel (subscripted, as before, by *c*) and when it has been admitted as a full participant in the restrictive agreement (subscripted by *a*). The results are illustrated in Figure 4, where the number of home firms is again set at 2.

It is clear that in the case illustrated when the trade costs ($t > t_2$) are high the cartel wants to keep the foreign firm out, while the foreign firm would like to have the right of establishment, even as part of the cartel. At middle trade costs ($t_1 < t < t_2$), the home cartel is feeling heightened pressure on its profits from the increasingly competitive foreign firm. The cartel would therefore like to admit the foreign firm to the cartel, an option that the foreign firm also prefers. At low trade costs ($t < t_1$) the foreign firm would rather compete with the home cartel than be a part of it. The consumer *always* appears to lose from the formation of the cartel, even if it avoids trade costs in the process of admitting the foreign firm.

The interest of a domestic industry, in terms of favoring or opposing a foreign right of establishment, will depend on the conditions for cross-border access. The industry's position can be reversed as cross-border restrictions are negotiated down. This is because, given the erosion of its market power through increasing trade, the domestic industry may find it advantageous to co-opt the foreign sector by inviting it into the cartel and sharing rents. Once cross-border barriers are sufficiently low, however, the foreign view of establishment is that it would prefer to play against, rather than with, the cartel. The effect of establishment on competition therefore depends on cross-border access. With high trading costs, establishment may reduce welfare through profit shifting.

5 SUMMARY

The GATS places emphasis on two broad modes of trade: cross-border (i.e., international) trade, and trade through local establishments. Cross-border trade includes movement of service providers, movement of consumers, and cross-border sales. Hence, in contrast to

trade in goods, GATS-based negotiations take place on the dual margins of trade and investment concessions. Our approach in this paper has been to work with a formal model of oligopoly to examine the effects of market-access concessions on domestic and foreign firms and on domestic consumers. We have argued that the relative benefits of cross-border and establishment-related market-access concessions hinge critically on underlying issues of regulation and market structure. In particular, the interests of the domestic and foreign industry will depend, in part, on the impact that trade has made on the market power of domestic firms.

We summarize our analytical results in three groupings: rather obvious, somewhat less obvious, and even less obvious. The last set of results constitutes the substantive contribution of the paper. On the rather obvious front, given an imperfectly competitive industry (whether Cournot competition or perfect collusion), less market access (i.e., greater restrictions) results in the foreign service provider having a smaller market share and profits; domestic service providers becoming increasingly profitable, and a higher home-market price.

Our less obvious results, arise from our consideration of the effects of less competition within a regulatory environment that tolerates collusion among a small number of domestic firms. We showed that the foreign firm will have higher profits the less competitive the domestic industry, profits of the home industry are not monotonic in the number of home firms, and initial moves away from monopoly can actually boost the market share and profits of the entire domestic industry.

Even less obvious (and the main lesson to carry away from our analysis) is the incentive for bringing a foreign firm into a domestic cartel. This involves establishment, and yields the following three results. When the trade costs are high, a domestic cartel wants to keep the foreign firm out (i.e., it opposes establishment), while the foreign firm would like to

have the right of establishment, even as part of the cartel. At more moderate trade costs, both the home and foreign firms favor bringing the foreign firm into the domestic cartel. At low trade costs, the foreign firm would rather compete with the home cartel than be a part of it.

Collectively, this last set of results points to linkages between the degree of competition, the mode and degree of market access, and the pro-competitive effects of liberalization. When we introduce establishment in conjunction with low cross-border barriers, we find that the foreign service provider takes on the domestic cartel. This is clearly a pro-competitive result. At higher levels of cross-border trade barriers, establishment may instead lead to an equilibrium where the foreign sector is simply co-opted into the domestic cartel. This has well known negative consequences related to profit shifting. The impact of establishment on the degree of competition, and on potential gains or losses from liberalization, hinges on the underlying degree of competition (a regulatory issue), but also on barriers to cross-border trade.

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Figure 1.
Equilibrium Output Levels

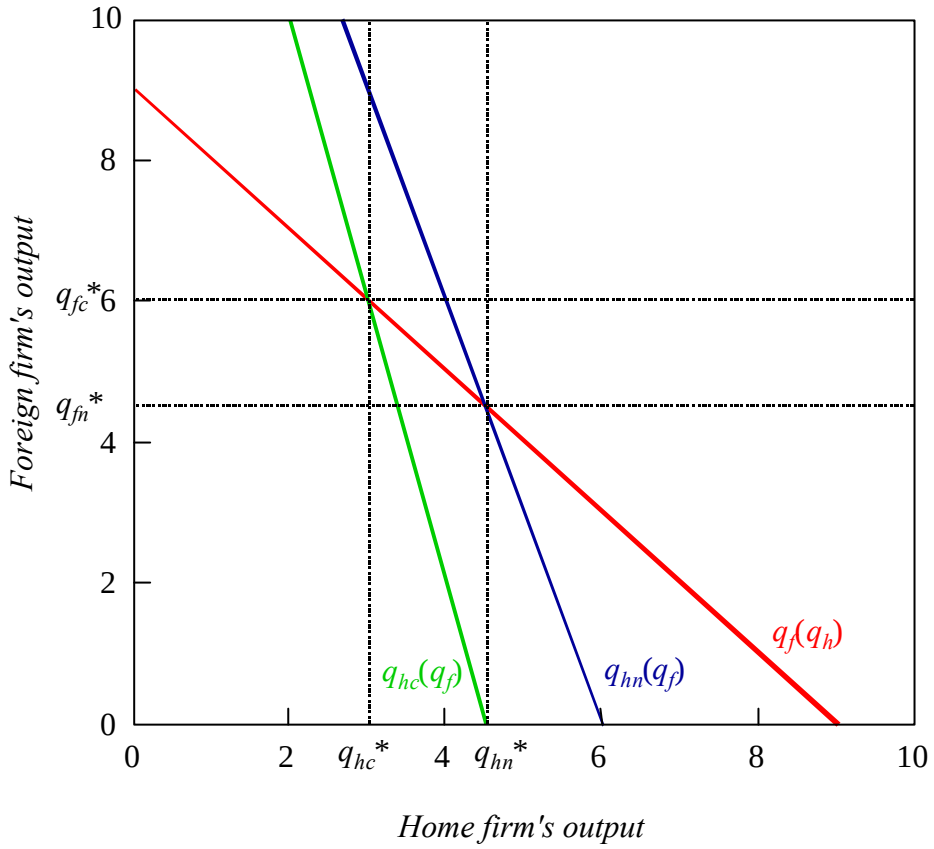

Figure 2a.
Improving Cross-border Access (non-cooperative home firms)

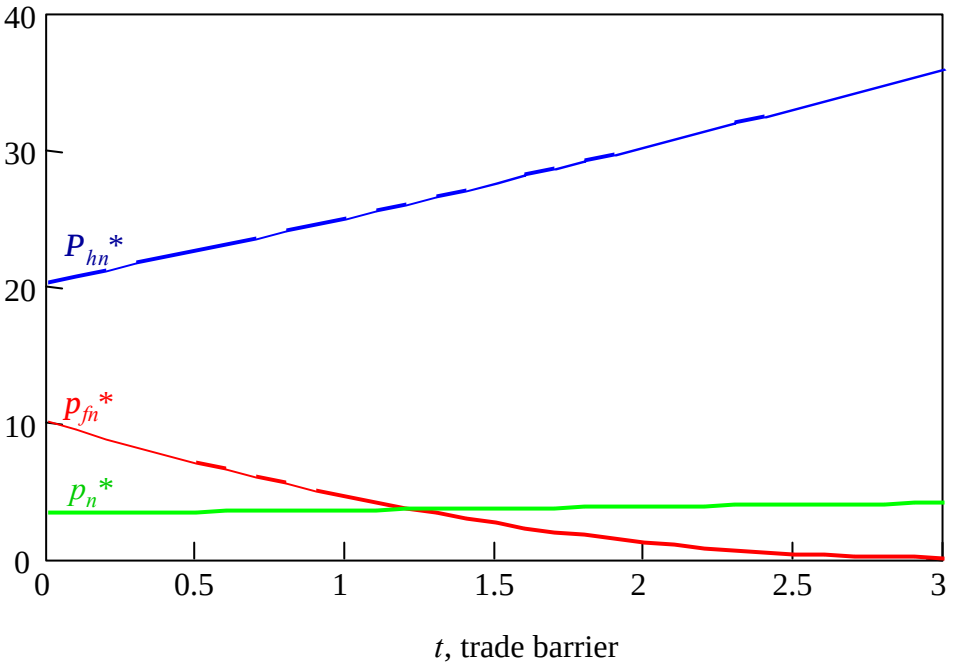

Figure 2b.
Improving Cross-border Access (home cartel)

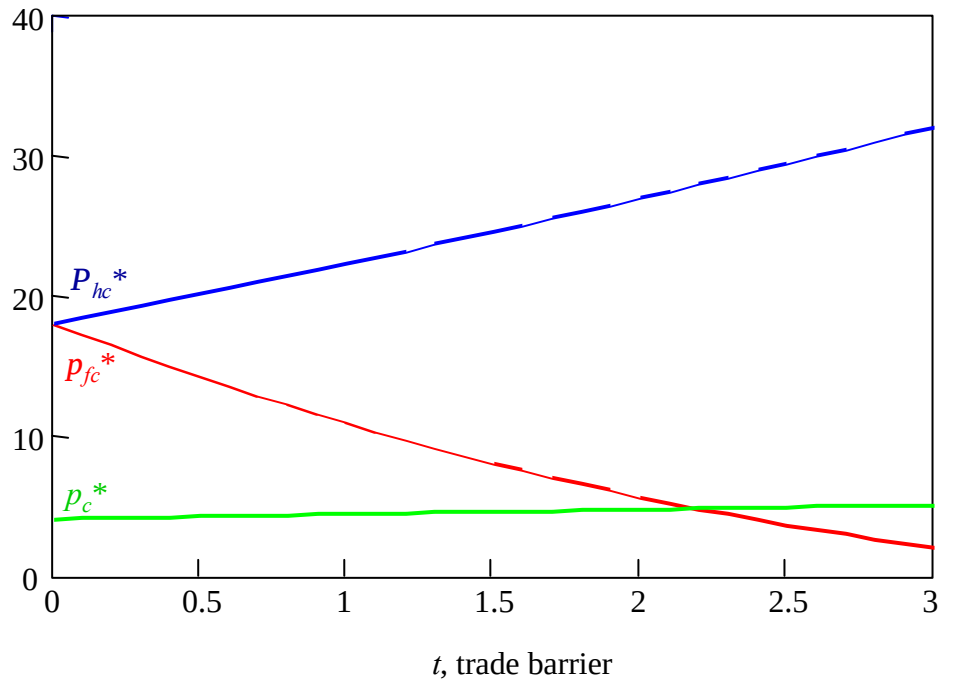

Figure 3.
Encouraging Domestic Competition

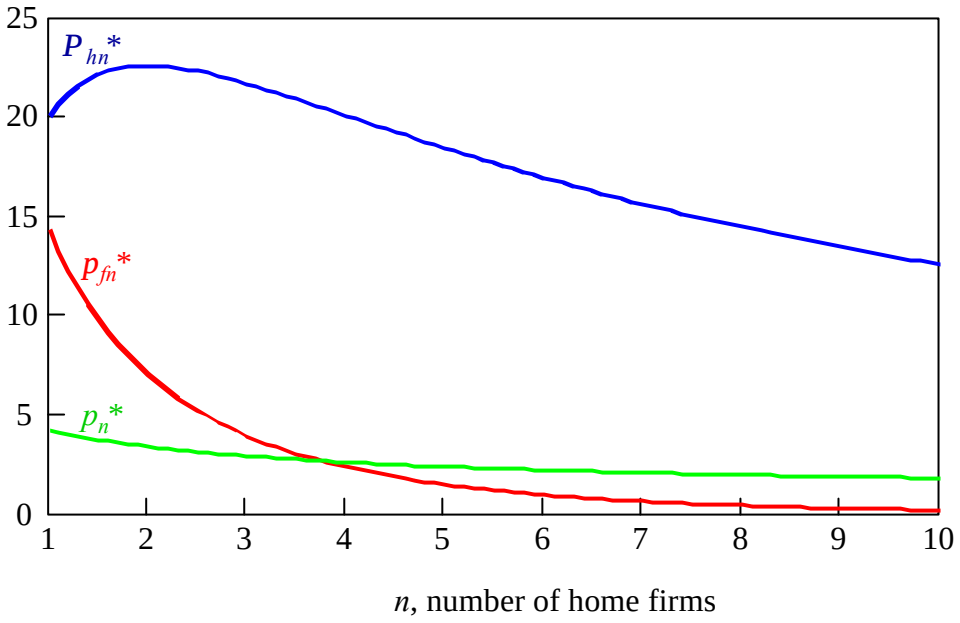

Figure 4.
Choice of Regime

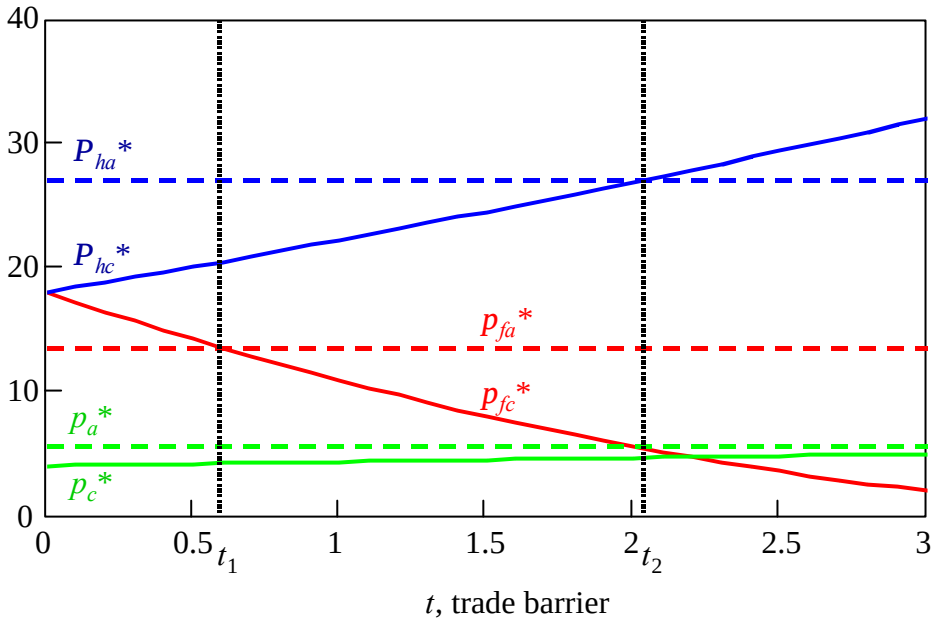

Table 1.
United States Cross-Border and Affiliate Trade in Services

Year	U.S. cross-border exports	U.S. cross-border imports	U.S. foreign sales through affiliates	Foreign sales in U.S. through affiliates
	billions of dollars			
1987	86.0	73.9	72.3	62.6
1988	100.1	81.0	83.8	73.2
1989	117.1	85.3	99.2	94.2
1990	136.2	98.2	121.3	109.2
1991	151.2	99.9	131.6	119.5
1992	162.3	100.4	140.6	128.0
1993	170.6	107.9	142.6	134.7
1994	186.0	119.1	159.1	145.4
1995	202.2	128.2	190.1	149.7
1996	221.1	137.1	223.2	168.4
1997	240.4	152.4	258.3	205.0
1998	245.7	165.3		

Source: Bureau of Economic Analysis, 1999.