

Comments are welcomed and should be addressed to: Series on Trade in Services,
3771 Haro Road, Victoria, British Columbia, V8P 5C3.

Working Papers on Trade in Services are circulated to elicit constructive
discussion. Copies are available upon request at \$5.00 each and can be ordered
from:

The Institute for Research on Public Policy
P.O. Box 3670
Halifax South, Nova Scotia
B3J 3K6
(902) 424-3801

DEPARTMENT OF REGIONAL
INDUSTRIAL EXPANSION
LIBRARY

SEP 15 1988

BIBLIOTHEQUE
MINISTERE DE L'EXPANSION
INDUSTRIELLE REGIONALE

APPRAISING THE OPTIONS
FOR INTERNATIONAL
TRADE IN SERVICES

by

Ronald W. Jones *
and
Frances Ruane **

March, 1988

This paper is one of a series of discussion papers on trade in services. Research in this series is supported by a grant from the Department of Regional Industrial Expansion (DRIE), Government of Canada. Views expressed in the paper are those of the author alone, and are not necessarily those of the Institute for Research on Public Policy or DRIE. The authors are very grateful to Peter Neary for useful discussions on this topic and to John Chant, Steve Easton, Herbert Grubel, Henryk Kierzkowski, James Melvin, Richard Neu and Richard Snape for helpful comments on an earlier draft.

* Department of Economics, University of Rochester, Rochester, New York

** Department of Economics, Trinity College, Dublin and Queen's University, Kingston

1950
1951
1952

1953

1954
1955
1956

1. INTRODUCTION

The past decade has seen a growing interest among economists in services generally and in international trade in services in particular. There are several reasons for this phenomenon. The first reason is the growing importance of services in most economies, as measured by their share in the value of national output. In countries experiencing structural unemployment the empirical significance of services, however measured, is reinforced by the importance of actual and potential employment in services. The second reason is the range of new possibilities for the development of services generated by technological changes in the service sector, the scale of which changes may amount to a services revolution on a par with the industrial revolution in the nineteenth century. Thirdly, and perhaps of more immediate significance to international trade in services, are the various proposals, strongly supported by the United States, to include services in forthcoming GATT negotiations.

Traditionally service activities have not been traded internationally because such trade was technically impossible and/or prohibited by domestic regulation.¹ Consequently the markets for service products have been essentially non-traded, with price and output being determined by domestic supply and demand. Recently a literature has been evolving which models international trade in the service sector. Using a variety of different models, most papers have interpreted trade in services as trade in service factors; these factors combine with local factors to produce a non-tradeable

¹ An obvious exception must be made for transportation services.

service product.² This interpretation follows in the tradition of Hill (1977), who characterizes services as involving the simultaneous location of consumption and production, thereby ruling out the idea of a tradeable service product. However, some papers dealing with the conceptual issues involved in defining services, subsequent to the publication of Hill's influential paper, have noted the restrictiveness of Hill's definition. More recently, Melvin (1987a) notes that Hill's definition simply relates to contact services,³ and that there exist a range of services which do permit a separation of the location of production and consumption in space as well as time, so that service trade may take place either at the factor or the product level.⁴ Examples of such service products include certain management consulting and accounting services, engineering services, legal services, data processing and telecommunications services, and financial and insurance services.

The present paper deals with services such as these, where more than one option exists for international trade: (i) there can either be trade in the service factor, where it combines with local factors to produce a non-traded service product, or (ii) there can be trade in the service product itself,

² See, for example, Djajic and Kierzkowski (1986), Burgess (1987), and Melvin (1987b). An exception is Deardorff (1985) who looks separately at services as final products as well as factor inputs.

³ This restrictiveness is also noted in Hindley and Smith (1984), Bhagwati (1985), Sampson and Snape (1985), Sapir (1985), and King (1987).

⁴ The distinction between the possibilities for service trade taking place at the factor or product level is discussed in Ruane (1986).

involving no further production in the foreign country.⁵ Which option is more appropriate for a country to adopt if it wishes to expose its service sector to world markets? Should a government which is contemplating opening up such services to trade facilitate trade in factors, by giving foreign companies a right to establish and seeking reciprocal agreements for its own companies, or should it facilitate trade in service products, thereby negotiating a right to do business for companies? As pointed out by Aronson and Cowley (1984) this issue could be extremely important in any GATT negotiations on service trade, particularly as GATT by tradition has been concerned with product trade rather than factor trade.⁶

International banking provides an example of a service in which these options exist. Here the "banking factor" is a composite factor of managerial and other skills and the "banking product" is the service of loan-matching, financial contacts, etc., which a bank can provide for its corporate and personal customers. Until very recently in most countries both technological constraints and domestic regulations have restricted international trade in retail banking services. With technological advances, it is now possible to process a variety of banking services at a distance from the customer, so that any constraint on trade in such banking products depends for the most

⁵ This coincides with the notion of non-factor services in Grubel (1987), although our terminology is rather different.

⁶ Clearly for Hill's contact services, it is not meaningful to discuss trade in services at the output level.

part on domestic regulation.⁷ In the case of the banking factor, trade depends entirely on the banks' being granted the right to establish, i.e., set up branches or subsidiaries in foreign markets.⁸ To date, most foreign banks operate under very strict guidelines, being allowed to compete with local banks only in a limited range of services and often at a disadvantage.⁹ [As Caves (1982) has pointed out, much of the growth in banking services internationally occurred as services to direct foreign investment companies, and in many cases permission to establish was primarily granted with a view to those banks serving the foreign investment companies.]

In the context of our remarks on banking, the issue raised by this paper can be illustrated by the following example. Consider a country which has a high price of banking service products and a high rate of return to banking factors and which is contemplating opening its banking sector to international trade either at the product or factor level. Should that country allow foreign banks to establish, operating under the same conditions as domestic banks in the same range of service activities, or should it allow them the right to do business, with domestic residents and companies permitted to purchase their banking services from abroad more cheaply? In the first instance, the volume of production of domestic banking services would

⁷ The degree of domestic regulation tends to be more severe in the case of smaller countries. Thus while a U.S. customer may be able to purchase certain retail banking services directly over the phone from a bank in Montreal, an Irish customer would be prohibited from so doing.

⁸ See Neu (1986) for a discussion of trade in international banking services.

⁹ See Neu (1986) for several examples of these constraints.

increase, as local factors combine with the international service factors to produce more non-traded service products, whereas in the latter case the volume of production would decline as domestic residents would purchase cheaper service products from abroad. Similar issues arise with insurance and stockbroking, where there is a high level of domestic regulation, and also, in a different institutional framework, with data processing and telecommunications services.

In this paper we develop a very simple model which allows us to focus clearly on the particular issue of the choice of level at which to facilitate service trade. We examine the differences between sectoral adjustments which occur under the different trade options. In Section 2 of the paper we set out our stripped-down model, and in Section 3 examine the alternative outcomes of trade at the different levels when relative endowments in the home country are "balanced", i.e., of similar orders of magnitude to those in the rest of the world. In Section 4 we look at sectoral adjustments under trade at different levels when relative endowments in the home country are "extreme" compared with those in the rest of the world, and in Section 5 we compare the outcomes of trade at each level separately with trade at both levels, which we refer to as "completely free trade". Finally, in Section 6 we discuss the implications of the different trade options for income distribution, while in Section 7 we present some concluding remarks.

2. THE MODEL

In order to focus on the options for trade in services from an initial state in which service products and factors are completely sheltered from the world market, we choose a uniform background for all other productive

activities. We assume all production, including services, is of the type described by the specific-factors framework. That is, each activity makes use of a factor used only in that process, as well as another input (labor) available to all sectors. Whereas labour is trapped by national borders, every specific factor in non-service activities is internationally mobile. As well, there is competition and free trade in all non-service products. Thus the degree of openness is larger than typically assumed. We ignore issues of price determination by considering the economy to be a price-taker in both international product and factor markets. However, we allow technology available in this country to differ from that found elsewhere for any productive activity. As we develop below, inter-country differences in technological knowledge and in relative factor endowments both bear upon the choice of trade in services at the factor or at the product level.

With such a predominant role for trade the country's trade pattern in this simple model is Ricardian in the sense that it will typically produce only one non-service product, which we call M , the manufacturing product. This is the product which yields the highest available return to labor when subtraction from total revenue is made for rentals to specific factors (with such rentals being determined on world markets). Thus at this stage of the argument the country is (i) receiving income from earnings of specific factors sent abroad (because their related activities are not undertaken at home given the competitive pressures of trade), (ii) either importing or exporting the specific factor used in manufacturing, (iii) producing and exporting the manufactured product in exchange for a variety of consumer goods not produced locally and (iv) producing a service product strictly for

the local market. Overall payments are balanced, including incomes paid to foreign factors or received by domestic factors employed abroad. The specific factor used in the service sector (the service factor) and the output of activity in the service sector (the service product) have their return and price determined by local demand and supply conditions.

Although labor is not internationally mobile, the home wage rate is completely determined by the degree of openness in world markets for non-service specific factors and products. This wage rate will differ from those found in the rest of the world since home technology is presumed to be different from that found elsewhere. Competitive conditions dictate that the wage rate, w , is shown by

$$(1) \quad w = \frac{p_M^* - a_{KM} r_M^*}{a_{LM}}$$

where p_M^* and r_M^* are the world product price and return to the specific factor in the manufacturing sector (the non-service sector in which the home country has the greatest comparative advantage), and a_{LM} and a_{KM} are labor and capital input-output coefficients in that sector.¹⁰ With the wage rate thus determined, the competitive profit equation of change in the service sector becomes (2):

$$(2) \quad \theta_{KS} \hat{r}_S = \hat{p}_S,$$

where a circumflex over a variable refers to a relative change (\hat{x} is dx/x),

¹⁰ The wage rate, shown by (1), is such that $w \geq \frac{p_j^* - a_{Kj} r_j^*}{a_{Lj}}$ for all other potential traded activities.

θ_{KS} is the specific factor's distributive share in the service sector, r_S indicates the local return to the service factor, and p_S is the domestic price of the service product. Any increase in the price of the service product must be matched by a greater than proportionate increase in the return to the service factor.

The relationship between home return to the service factor, r_S , and home product price, p_S , which is described by equation 2, is illustrated by the locus in the left-hand panel of Figure 1. Since technology and the skills of factors are assumed to differ at home and abroad, the world values for the service specific-factor return and product price need not lie on this locus. Let \underline{C}^* denote the given world values, r_S^* and p_S^* . We have arbitrarily located this point northeast of the locus in Figure 1, revealing the home country to possess a technological comparative advantage in the service activity relative to manufacturing. That is, if the home country were to pay the service factor the world rate of return, its cost of producing the service product would lie below the world price whereas, in the M-sector, cost would equal world price.¹¹ As long as the service product and/or the service factor are not traded, such a technological comparison does not preclude the home M-sector from competing effectively on world markets although, as we relate in section 5, with "completely free trade" all factors would desert manufacturing at home.

An alternative view of the presumed technological comparative advantage in services is provided by asking how the home and world returns to the

¹¹ This is the meaning attributed to comparative advantage comparisons in a world of capital mobility in a Heckscher-Ohlin model. See Jones and Ruffin (1975).

service factor would compare if the service product were freely traded at the world price p_S^* . In such a case the home country's superiority in the service sector would be reflected in the higher return (distance EC^*) earned by the service factor at home.

The left-hand panel in Figure 1 reveals the presumed technological comparative advantage of the service sector in the home country. Does this imply that once trade is allowed in the service sector that the home country will either export the service product or attract the service factor from abroad? Not necessarily. The pattern of trade depends not only upon comparisons of technology, but also on relative factor endowments, since they serve to determine the location of the pre-trade home values for r_S and p_S along the curve in the left-hand panel of Figure 1. Put differently, home factor endowments influence the position of the demand and supply curves for the service product shown in the right-hand panel of Figure 1.

The position of the supply curve depends on local technology and the endowment of the specific service factor.¹² The demand curve reflects not only local taste patterns but also the endowments of all national factors, whether employed at home or abroad, since these determine national income. The demand and supply curves intersect at C' , and this determines the initial location at C on the $r_S - p_S$ locus in the left-hand panel. As drawn in

¹² Given the wage rate (determined by the world market for the manufactured good), the position of the supply curve depends on the endowment of the service factor but not on the endowment of labor. The reason: At a given value for p_S an increase in home labor endowment would attract sufficient K_M to keep the wage rate from changing. In this event output of the manufacturing sector would rise, but output of the service product would remain unchanged. However, if the economy had a larger labor force, the demand curve and thus the domestic price of non-traded services would be affected.

Figure 1, the home country's supplies of the service factor are considered roughly in "balance" relative to the rest of the world in the sense that its presumed technological comparative advantage in the service activity is reflected both in an initial relatively low cost of the service product ($p_S(C) < p_S^*$) and in a relatively high return to the service factor ($r_S(C) > r_S^*$). In Section 4, we consider alternative endowment positions reflecting strong "imbalance" and the implications of such extreme endowments for eventual trade in the service product or the service factor.

3. ALTERNATIVE TRADE OUTLETS FOR SERVICES

The endowment of the service factor implicit in the supply curve shown in Figure 1 suggests that the home country could gain by exposing either its service factor or service product to the world market. Initial equilibrium is at \underline{C} and \underline{C}' in the two panels of Figure 1. Suppose, first, that the country considers the option of trade in the service product. At \underline{C} or \underline{C}' the home price of the service product is lower than that found abroad. Home producers would be attracted by the relatively high price p_S^* abroad and output would expand along the given $x_S(K_S^C)$ supply curve.¹³ At world price p_S^* , output would have expanded to point \underline{E}' . The home country would gain from such trade. These gains (ΔW) are captured by the integral over all increments in output from \underline{C}' to \underline{E}' of the gap between foreign price, p_S^* (given at \underline{C}) and ever-rising home costs, $p_S(x_S)$, along the supply curve,

¹³ In what follows we simplify by ignoring shifts in the demand curve which are induced by the real income gains that result from opening services to trade. The size of the modification required because of this income effect is smaller the lower the value of the marginal propensity to consume services.

times the increase in exports (X_S). Let \bar{X}_S represent the level of exports at p_S^* . Then

$$(3) \quad \Delta W = \int_0^{\bar{X}_S} [p_S^* - p_S(x_S)] dx_S.$$

From the initial non-traded equilibrium at \underline{C}' the alternative option for the home country involves allowing foreign service factors entry into the home market with the service product remaining non-traded.¹⁴ The inflow of the foreign specific factor, K_S^* , to be combined with home labor at the wage rate determined by trading activity in manufactures, shifts the supply curve in Figure 1 rightwards until local price $p_S(B)$ is attained. At this lower price the local return to the service factor is equated to world r_S^* . During this process, each increment in foreign service inflow, dK_S^* , raises welfare by an amount proportional to the gap between $r_S(p_S)$ and given r_S^* . Formally, the total gain accruing to the home country from opening trade in the service factor is

$$(4) \quad \Delta W = \int_0^{\bar{K}_S^*} [r_S(p_S(K_S^*)) - r_S^*] dK_S^*,$$

where \bar{K}_S^* denotes total specific factor inflow when local r_S has been driven down to the world level.

If initial point \underline{C} is balanced between points \underline{E} and \underline{B} in the left-hand panel of Figure 1, it is not clear which option, trade in the service product or trade in the service factor, is preferable. If, by contrast, point \underline{C} lay close to point \underline{B} (i.e., the home country originally possessed somewhat more

¹⁴ We are assuming that the foreign service factor earns only r_S^* . The difference between r_S^* and r_S accrues to the home country.

of the service factor in its endowment bundle), little would be gained by allowing inflows of the service factor. Of the two alternative options, gains from trade would accrue primarily to opening up trade in the service product.¹⁵

Each of the two routes whereby the service sector is put in contact with the world market results in gains, and each results in an expansion of service output at home. With trade at the product level, such expansion results in a rise in local price; producers move up along the supply curve and consumers are forced to cut back on the quantity of services demanded. By contrast, if foreign service factors are allowed entry (via providing the right of establishment), the resulting expansion in service activity reaches out only to home consumers and entails a reduction in home price (as the sector moves down along the demand curve). Trade in the service factor has brought the local return to the service factor down to the world level, but increased the discrepancy between home and foreign prices of the service product. Trade in the service product would, by itself, equalize final domestic with world price, but would increase the premium which the service factor earns at home. After discussing the case in which endowments of the service factor are more extreme, we examine the consequences for such a country of allowing free trade both in the service factor and the service product.

¹⁵ If, instead, the initial point C lay closer to point E, little would be gained by allowing trade in the service product, and larger gains from trade would accrue from an inflow of the foreign service factor.

4. EXTREME ENDOWMENTS AND MIXED SIGNALS

Although the home country is presumed to possess a technological comparative advantage in producing the service product, the relative price of the service product and the return to the service factor are each affected as well by the amount of the service factor available locally before trade. Figure 2 illustrates a case in which the autarky service values at \underline{C} reflect a strikingly low relative price for the service product, with a consequent pre-trade return to the service factor at a lower level than world r_S^* . This comparison reveals that the home country has an abundance of the service factor relative to its supply of labor and other specific factors; such an extreme composition of endowments serves to position the supply curve for the service product outwards relative to the position to the demand curve.

It is once again possible to argue that opening up trade either at the product level or at the factor level will yield gains to the economy. However, in this case the two options point in opposite directions in terms of the fate of the local service sector. Note that autarky point \underline{C} in the left-hand panel is closer to point \underline{B} , (indicating the local (r_S, p_S) combination that would emerge if the service factor is freely traded, so that $r_S = r_S^*$), than it is to \underline{E} (at which point the product trades at p_S^*). Allowing trade in the service factor leads to an outflow which serves to shift the supply curve in the second panel leftwards. Price and output in the non-traded service sector move up the demand curve from \underline{C}' to \underline{B}' . Thus opening up the market in the service factor has caused output in the service sector to fall. Nonetheless such a decline in output raises local real incomes since each unit of the service factor which exits earns more abroad (r_S^*) than is foregone at home (r_S).

The welfare gains from such trade in the service factor can unambiguously be compared with the gains which would accrue if, instead, the market in the service product had been opened up to world competition. To facilitate the comparison, suppose the world (r_S^*, p_S^*) combination were at \underline{B} instead of \underline{C}^* in the left-hand panel of Figure 2. This would reflect a situation in which the home country shared the same technology as the rest of the world but had a relative abundance of the service factor in its endowment bundle. Then the previously calculated gains resulting from service factors flowing out to earn r_S^* abroad, which involve output moving along the demand curve from \underline{C}' to \underline{B}' , are equivalent to the gains which would accrue if the product trade option resulting in exports is chosen instead of the option leading to a factor outflow. With the product trade option, output increases from \underline{C}' to \underline{B}'' along the supply curve. Note that it is possible to go from \underline{B}' to \underline{B}'' or vice versa by a movement of the service factor (and appropriate correction to exports) without any alteration in welfare. However, we have assumed that the home country possesses a technological comparative advantage in producing the service product relative to manufacturing, so that the actual foreign price of the service product is shown by \underline{C}^* instead of \underline{B} . This implies that the export-of-goods route from \underline{C}' to \underline{B}'' is preferred. The reason: each export unit earns the additional increment of $(p_S^* - p_S(B))$. Furthermore, the trade in product option yields extra gains in expanding production (and exports) from \underline{B}'' to \underline{E}' along the supply curve.

From initial point \underline{C} the comparison of local prices (r_S, p_S) with those in world markets (r_S^*, p_S^*) results in mixed signals. The super-abundance of the service factor in the endowment bundle would prompt its exodus if trade in this factor were to be opened up, and this would cut back the size of the

service sector from \underline{C}' to \underline{B}' . By contrast, should the option of trade in the service product be chosen, the economy's technological comparative advantage in producing the service product would be combined with its super-abundance of the service factor, resulting in a substantial expansion in the service sector until costs are driven up to world levels at \underline{E}' .

It is instructive to look briefly at an alternative extreme composition of the home endowment bundle. If the home country had been endowed with sufficiently small amounts of the service factor, the supply curve would have intersected the demand curve at a point such as \underline{E}' , yielding a high autarky service price compared with p_S^* . That is, the endowment difference would outweigh the home technological comparative advantage displayed in panel 1 of Figure 2 by the relative positions of \underline{C}' and the r_S - p_S locus. The welfare comparisons in this case, in which the service factor is found in quite limited supplies, can quickly be sketched. From initial point \underline{E}' , free trade in the service product would involve its importation (of amount GE'') at world p_S^* . The gain that such trade in the service product yields would exactly match that of allowing the foreign service factor to come into the country if it had to be paid $r_S(E)$, that is, if the foreign technology were the same as that at home. However, with our assumption of foreign technological disadvantage in services, the service factor can be obtained at the lower value, $r_S^*(C')$. Therefore, service factor inflows up to \underline{E}'' are preferable to service product trade. And, to repeat the kind of argument used previously, there are further gains to be had by continuing service factor inflows until the supply curve intersects the demand curve at \underline{B}' .

The conclusions that emerge from both cases in which factor endowment differences outweigh differences in technologies at home and abroad are

two-fold: (i) Trade at the factor level moves output of the local service sector in a direction opposite to that taken when trade at the product level is opened up instead, and (ii) Of the two alternative trading options, the one corresponding to expansion of the service sector yields greater gains, given our initial assumption that the country has a technological comparative advantage in producing services. Furthermore, this route involves "overshooting" of the position which would be established if trade in the other option were followed -- reflective of the wider gap between the autarky and world prices of the service product, when the country has a super-abundance of the service factor in its endowment bundle, or in the autarky and world prices of the service factor, when the service factor is extremely scarce locally.

5. COMPLETELY FREE TRADE

These comparisons of partial moves in exposing a country's service sector to free trade can usefully be contrasted with the equilibrium which would emerge if the small open economy allowed "completely free trade" in all products and factors, including those in both the service and the manufacturing sectors. Such a degree of openness does not tolerate simultaneous production in more than one sector, and the concept of technological comparative advantage comes into its own in determining which sector survives.

Once trade in all specific factors is opened up, and all products are traded internationally, endowment comparisons no longer influence trading patterns. If the home country has a comparative technological superiority in producing the service product, free trade at both levels will bring about

complete specialization at home in the service sector. Completely free trade shifts the curves in Figures 1 and 2 since the service sector at home can afford to pay a higher wage rate than does the manufacturing sector, if it can sell at p_s^* and pay only r_s^* for the service factor. As a consequence, the specific factor in manufacturing seeks employment abroad, and once the manufacturing sector collapses, the rise in the local wage rate shifts the $r_s - p_s$ locus in panel 1 of both figures upwards until it passes through point C^* . If, instead, the home country's technological comparative advantage resides in the manufacturing sector - implying that point C^* lies southwest of the home country's $r_s - p_s$ locus in Figures 1 and 2 - completely free trade causes the local service sector to be wiped out. The country's specific factor associated with services would find employment abroad, and the home country's wage rate remains unaltered.

6. INTERNAL INCOME DISTRIBUTION

Thus far we have concentrated on the effect each option for exposing the service sector to world markets has on real national income. Although gains can be obtained for the country as a whole from either option (or from completely free trade), some income groups may resist one or more alternatives. To help investigate this issue more precisely we utilize Figure 3, which resembles the left-hand panel of Figures 1 and 2 but exhibits three possible $r_s - p_s$ loci:

- (i) Curve I illustrates the neutral case in which home and foreign countries possess identical technical knowledge in services and manufacturing. (We still assume that the home country is at a technological disadvantage in all other sectors relative to

manufacturing). The $r_s - p_s$ curve passes through fixed point \underline{C}^* , which shows the rate of return to the specific sector used in services (r_s^*) and the price of the service product (p_s^*), both of which are assumed given on world markets. Point \underline{C}^* remains fixed for all three scenarios.

- (ii) Curve II passes southwest of \underline{C}^* , and illustrates the case in which the home country possesses a technological comparative advantage in services compared to manufacturing. This is the case which we have examined with the aid of Figures 1 and 2.
- (iii) Curve III provides the contrasting situation in which the home country has a technological comparative disadvantage in producing the service product.

The meaning of technological comparative advantage or disadvantage is revealed by a comparison of the relative cost of producing the service product in each case with given world p_s^* if the home country had to pay r_s^* for the specific factor employed in the service sector:

$$p_s^{II}(r_s^*) < p_s^* < p_s^{III}(r_s^*)$$

We take the case (i) in which technology is comparable at home and abroad as a benchmark for comparison. Autarky home price of the service product and return to the specific factor used in services need not match up with prices and returns found abroad (shown by \underline{C}^* in Figure 3). Since in autarky local taste patterns influence the price of the service product, the home point along curve I need not be \underline{C}^* even if endowments are similar in composition to those in the rest of the world. Ignoring taste differences, however, we can identify points along curve I southeast of \underline{C}^* as home autarky

equilibria if home endowments of the specific factor used in the service sector are ample compared with its endowment of labor and all other specific factors. If so, both autarky price of the service product (p_s) and return to the service factor (r_s) lie below the value of their foreign counterparts. Allowing trade either in the service product or in the service factor yields gains - of exactly the same amount since in either case the home country ends up at \underline{C}^* . Furthermore, no additional gains accrue to allowing completely free trade in both factor and product. As for the consequences for internal income distribution of opening the service sector to world markets, the only gainer would be the specific factor used locally in services; its return would rise to r_s^* , which represents a relatively larger gain than the rise in the service product price to p_s^* . By contrast, labor and all other specific factors lose; their nominal returns are already determined on world markets and are unaffected by opening up the service sector to trade, while the rise in the price of the service product erodes the purchasing power of any nominal return. These consequences for real wages and real returns to other factors are completely reversed if, in case (i), the home country has a relative scarcity in its endowment of the specific factor used in services. From an autarky point northwest of \underline{C}^* , the move to trade in services lowers r_s/p_s , while raising the real return to labor and all other factors since the price of the service product falls.

Some of these results are mirrored in cases (ii) and (iii) if endowment differences are more pronounced than are technological differences. By this is meant autarky equilibria in which, as in case (i), a relative abundance in the endowment of the specific factor employed in services ensures a cheap autarky p_s and return r_s (compared with world \underline{C}^*), or a relative scarcity of

the service specific factor is matched by higher autarky values for both p_s and r_s . (For case (ii) these kinds of autarky equilibria were discussed in Section 4). Alternatively phrased, technological disparities between the home country and the world market open up a spread between world price of the service product, p_s^* , and the cost of producing the service product at home if producers were faced with the world rate of return to the specific factor used in services. The cases in which endowment differences are more pronounced (or "extreme" in the language of Section 4) are those in which autarky p_s lies outside the range $[p_s^{II}(r_s^*), p_s^*]$ in case (ii) or $[p_s^*, p_s^{III}(r_s^*)]$ in case (iii). If so, real wages and the real return to all specific factors are harmed by either trading option if the service-specific factor is abundant (i.e., autarky lies southeast of \underline{B} in case (ii) or \underline{H} in case (iii)), while just the opposite holds if the service-specific-factor is especially scarce (i.e., points northwest of \underline{C}^*). In the former case either trading option raises the price of the service product, thus harming all real returns except that to the service factor. In the latter case the price of the service product falls, benefitting all income recipients whose nominal returns are fixed by world market forces.

A general theme, which holds regardless of the ranking of comparative advantage in these cases in which factor endowment differences outweigh technological differences, is that the relatively abundant factor gains as the national income rises, regardless of the trading option chosen, and gains more if the option selected raises national income by more. For example, labor (together as a group with all specific factors other than those used in services) can be deemed abundant at home if autarky is at points on the $r_s - p_s$ loci II or III, northwest of \underline{C}^* . Along curve II, the home country gains

more by opening up trade in the service factor (to B) than to trade in the service product (to E); in matching fashion the rise in real wages from a point on locus II northwest of C^{*} to B exceeds that from the same point to E. If the home country's technological comparative advantage lies in manufacturing instead, the real wage gain (and the gain in national income) from a point on curve III northwest of C^{*} to H exceeds that from the same point to A, even though it is now trade in the service product that is deemed superior to mobility of the service specific factor. In the latter event the price of the service product locally (at A) would still exceed world levels (at C^{*}). The benchmark case (i) has proved useful in revealing that the choice of trading option becomes an interesting issue only if technologies differ at home and abroad. In the benchmark case either option leads to the same effect on overall income as well as on its distribution among factor claimants.

Autarky positions not exhibiting strong endowment differences - those lying in stretch EB in case (ii) or AH in case (iii) - do not lead to labor's uniform endorsement of both trading options, on the one hand, or rejection of both options, on the other. From initial point F, labor benefits by opening up trade in the service factor (to B), since this lowers its cost of living, but would oppose free trade in just the service product (to move to E). A similar ambiguity, with the ranking of trade options reversed, characterizes labor's attitude if autarky is at point G with the home country possessing the comparative advantage in the manufacturing sector. Although the direction of redistribution of income is affected by the trading option selected, the national income once again is raised in either case, regardless of the ranking in comparative advantage.

Opening up the services sector to some degree of trade has, we have argued, a beneficial effect on the national income but always entails losses for some group. There is an instance, however, where all groups gain. Suppose the home country's comparative advantage does not lie in services (case iii) and that international mobility of the service factor has been allowed while retaining a local market in the service product - leading to \underline{A} as the opening position. A move to completely free trade (to \underline{C}^*) would in this case be of benefit to all productive factors. The home service sector would be wiped out, but no nominal returns to factors would be disturbed, so that the drop in the price of the service product benefits all participants in real terms. It is perhaps ironic that this case - calling for world competition that destroys the local service sector - could be supported by all residents.¹⁶

7. CONCLUSIONS

This paper has focussed on one particular issue in service trade, namely, the effects on economic welfare and income distribution of following two alternative options for trade: trade at the product level or trade at the factor level. Our first result is that, in the context of our simple competitive model, opening up trade in either the service factor or the service product will improve economic welfare, unambiguously. This result is

¹⁶ The specific factor used in the local service sector earns world r_S^* at \underline{A} . The further move to completely free trade implies that this factor seeks comparable employment abroad, and gains via the lower price on consumption of the service product.

independent of the country's relative factor endowments and whether or not it has a technological comparative advantage or disadvantage in services.

Our second result points out that the extent of the welfare gain will depend on which trading option is selected, if technologies differ at home and abroad. More specifically, trade at the level in which the market prices are characterized by the wider spread in autarky will generally yield the larger welfare gains. However, to achieve this larger welfare gain more structural adjustment is required. Furthermore, following one of the trade options may widen the divergence between home and foreign prices in the market which remains local.

Our third result relates to the process of gradually opening up the service sector to trade, i.e., first to allowing trade at one level, then subsequently at both levels, ("completely free" trade). Consider the paths of adjustment to the completely free trade equilibrium, which involves complete specialization in production and, compared with autarky, the largest welfare gain to the economy. If trade opens up in the market in which home and world autarkic prices are more different, the output adjustment which occurs will be reinforced by the output adjustment following the opening up of trade at the second level, i.e., the output adjustment is monotonic over the two stages. By contrast, price adjustments are not monotonic, as the larger initial adjustment causes prices in the non-traded market to diverge from world prices. Thus, if starting at a point northwest of \underline{E} on the $r_s - p_s$ locus II in Figure 3, factor trade opens up initially, the economy would move down the $r_s - p_s$ locus, with output increasing as the service factor flows into the economy to equate domestic r_s with r_s^* at \underline{B} . Opening up trade in the service product would lead the economy to \underline{C} , involving a further

increase in service output as the economy specializes in production of the service product. By contrast, over the initial adjustment period the price of the service product falls, but then subsequently rises over the final adjustment period, with a consequent impact on the real returns to the various factors in the economy. Symmetrically, price adjustments are monotonic and quantity adjustments are non-monotonic when trade opens up initially in the market in which autarkic prices are more similar.¹⁷

Our final result is that while following either option for opening up trade results in welfare gains, the rewards are not distributed equally across factors. Except in the case where there is complete specialization in production of services, the factor rewards of labour and all other specific factors are fixed in nominal terms, and hence the real rewards are inversely related to p_s . Since, by the magnification effect, r_s and p_s are each positively related to the ratio r_s / p_s , any adjustment which benefits the service factor in real terms lowers the real returns to the other factors and vice versa. Furthermore, the larger is the welfare gain, the greater is the real loss to the losing factor. Thus, starting from a point south-east of B on the $r_s - p_s$ locus II, opening up trade in the service product (moving to E), which involves a larger gain for the economy than moving to B, results in lower real incomes for labor and the specific factors other than the service factor. With completely free trade and thus complete specialization in services, labor's nominal return rises, making labor relatively better off than all the other non-service specific factors as well as the service factor.

¹⁷ In addition, note that in this case the trade pattern is reversed when trade opens up at the second level.

Before considering the implications of our results for policy, it is important to note that these results are derived in the context of a very special model, one that is deliberately stripped down and simplified to focus on this issue of the different options for service trade. In particular, the assumption that our economy is small and open and operating in a perfectly competitive trading environment in product and factor markets guarantees that either trade option must result in welfare gains and that "completely free" trade is superior to trade at just one level, since smallness rules out the possibility of terms of trade effects. Furthermore, our results could not be expected to hold necessarily if there were taxes or distortions in the economy, since changes in the volume of trade in such distorted markets would then have direct welfare consequences.

Two general implications for policy can be drawn from our analysis. For a government considering opening up trade at one level, simple comparisons of domestic and world prices for the service good and factor in autarky may not be sufficient to indicate which policy option should be taken. To interpret the significance of this autarky price comparison, it is necessary to establish whether or not the country has a technological comparative advantage or disadvantage in services. Without information on the location of the $r_s - p_s$ locus relative to world \underline{C} in Figure 3, it may be impossible to determine whether the initial price configuration is due to endowment or technological differences. Thus, if endowment differences are extreme, in the sense that we discussed in Section 4, they may outweigh technological differences, so that a high initial price configuration is consistent with technological comparative advantage or disadvantage. That is, points northwest of \underline{C} in Figure 3 could lie above \underline{A} on III, consistent with

technological comparative disadvantage or above \bar{E} on II, consistent with technological comparative advantage.¹⁸ This is, in fact, the policy problem embedded in our banking example described at the outset of this paper; in autarky the home country had a higher price of both the banking service product and the banking service factor.

The second implication arises from the fact that there are significantly different gains and losses to factors when trade opens up at either level. These income distribution effects are largest when the option involving maximum welfare gains is chosen. Thus, depending on its distribution objectives, governments may face an equity and efficiency trade-off in its choice of trade option. A related policy implication is that, if the country eventually aspires to trade at both levels, income distribution effects perhaps should be allowed to influence the choice of initial option for trade. In the extreme endowments case, the option involving greatest welfare gains involves overshooting of the factor rewards of either the service factor or of labor and the non-service factors, compared with the final completely free-trade equilibrium. The higher initial welfare gains from pursuing this option must be viewed in the context of any adjustment costs associated with this disruption. A strategy of opening up the market in which domestic autarkic prices are closest to world prices initially, although involving a smaller initial welfare gain and the wrong output response, might, depending on income distribution effects and adjustment costs, be a preferable initial option.

¹⁸ Clearly if endowments are similar at home and in the rest of the world, the product and factor price combinations will indicate to the policy maker whether or not the country has a comparative advantage.

REFERENCES

- Aronson, David A. and Peter F. Cowley (1984) Trade in Services: A Case for Open Markets, American Institute for Public Policy Research, Washington, D.C.
- Bhagwati, Jagdish N. (1985) "Trade in Services and Developing Countries", Xth Annual Geneva Lecture delivered at the London School of Economics, November 28.
- Burgess, David F. (1987) "Trade in Services and the Direct Foreign Investment Process: Some Implications from the Specific Factors Model", Institute for Research in Public Policy Working paper.
- Caves, Richard E. (1982) Multinational Enterprises and Economics Analysis, Cambridge University Press, Cambridge.
- Deardorff, Alan (1985) "Comparative Advantage and International Trade and Investment in Services", in Robert M. Stern (ed.), Trade and Investment in Services: Canada/U.S. Perspectives (Toronto: Ontario Economic Council), pp. 39-71.
- Djajic, Slobodan and Henryk Kierzkowski (1986) "Goods, Services and Trade", Graduate Institute of International Studies, Geneva, mimeo.
- Grubel, Herbert G. (1987) "All Traded Services are Embodied in Materials or People", The World Economy, 10, pp. 319-330.
- Hill, T.P. (1977) "On Goods and Services" The Review of Income and Wealth, 23, pp. 315-338.
- Hindley, Brian and Alastair Smith (1984) "Comparative Advantage and Trade in Services", The World Economy, 7, pp. 369-389.
- Jones, Ronald W. and Roy Ruffin, "Trade Patterns with Capital Mobility", Parkin and Nobay (eds.), Current Economic Problems (Cambridge, 1975).
- King, Stephen P. (1987) "'On Goods and Services' Revisited", Monash University, mimeo.
- Melvin, James R. (1987a), "Services: Dimensionality and Intermediation in Economic Analysis", Institute for Research in Public Policy Discussion Paper, January.
- Melvin, James R. (1987b) "Trade in Services: A Heckscher-Ohlin Approach", Institute for Research in Public Policy Discussion Paper.
- Neu, C. Richard (1986) "International Trade in Banking Services", forthcoming in Robert E. Baldwin, Carl Hamilton and André Sapir (eds.) Europe-United States Trade Relations, University of Chicago Press and National Bureau for Economic Research, 1988.

Ruane, F.P. (1986) "Comment" on "International Trade in Banking Services" by C.R. Neu and "Trade in Services and International Telecommunications" by A. Sapir; forthcoming in Robert E. Baldwin, Carl Hamilton and André Sapir (eds.) Europe-United States Trade Relations, University of Chicago Press and National Bureau for Economic Research, 1988.

Sampson, Gary P. and Richard H. Snape (1985) "Identifying the Issues in Trade in Services", The World Economy, 8, pp. 171-181.

Sapir, André (1985) "North-South Issues on Trade in Services", The World Economy, 8, pp. 27-42.

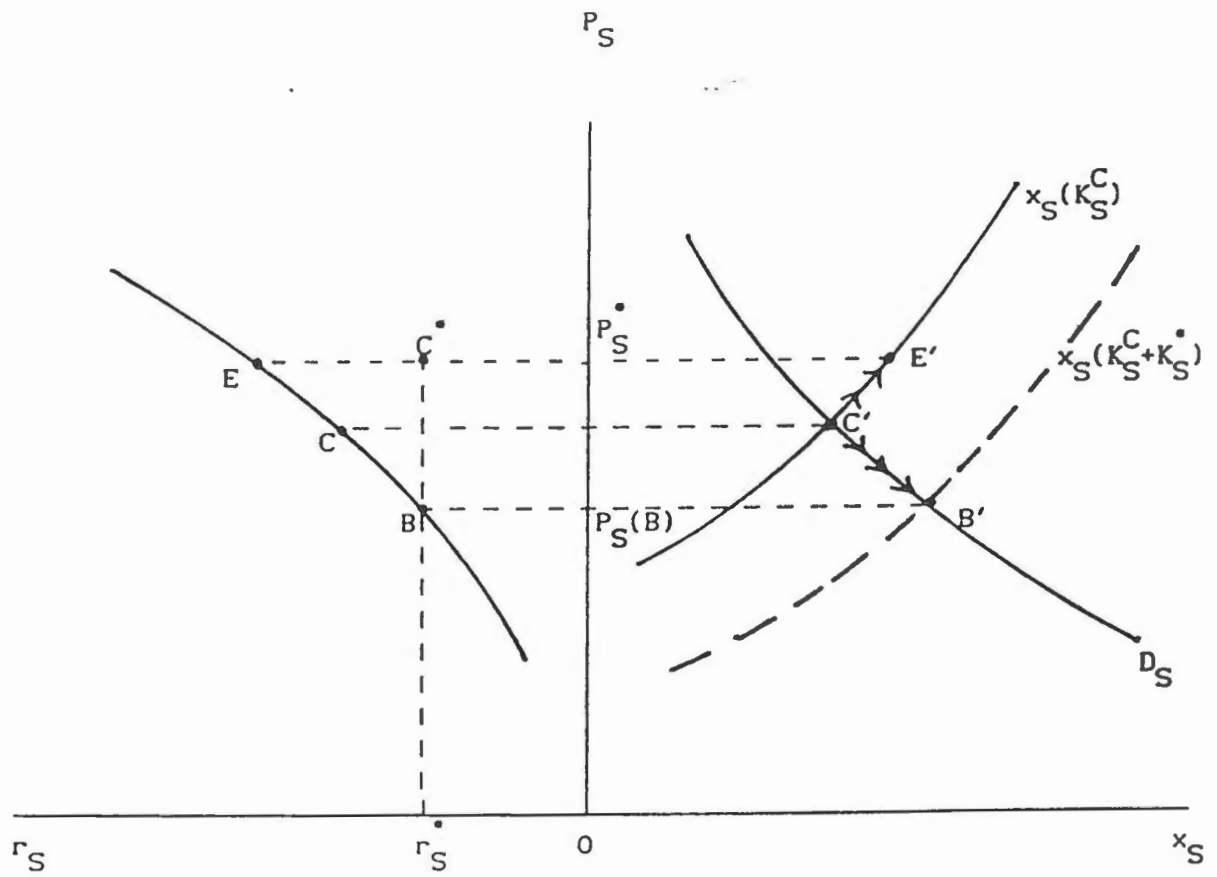


Figure 1

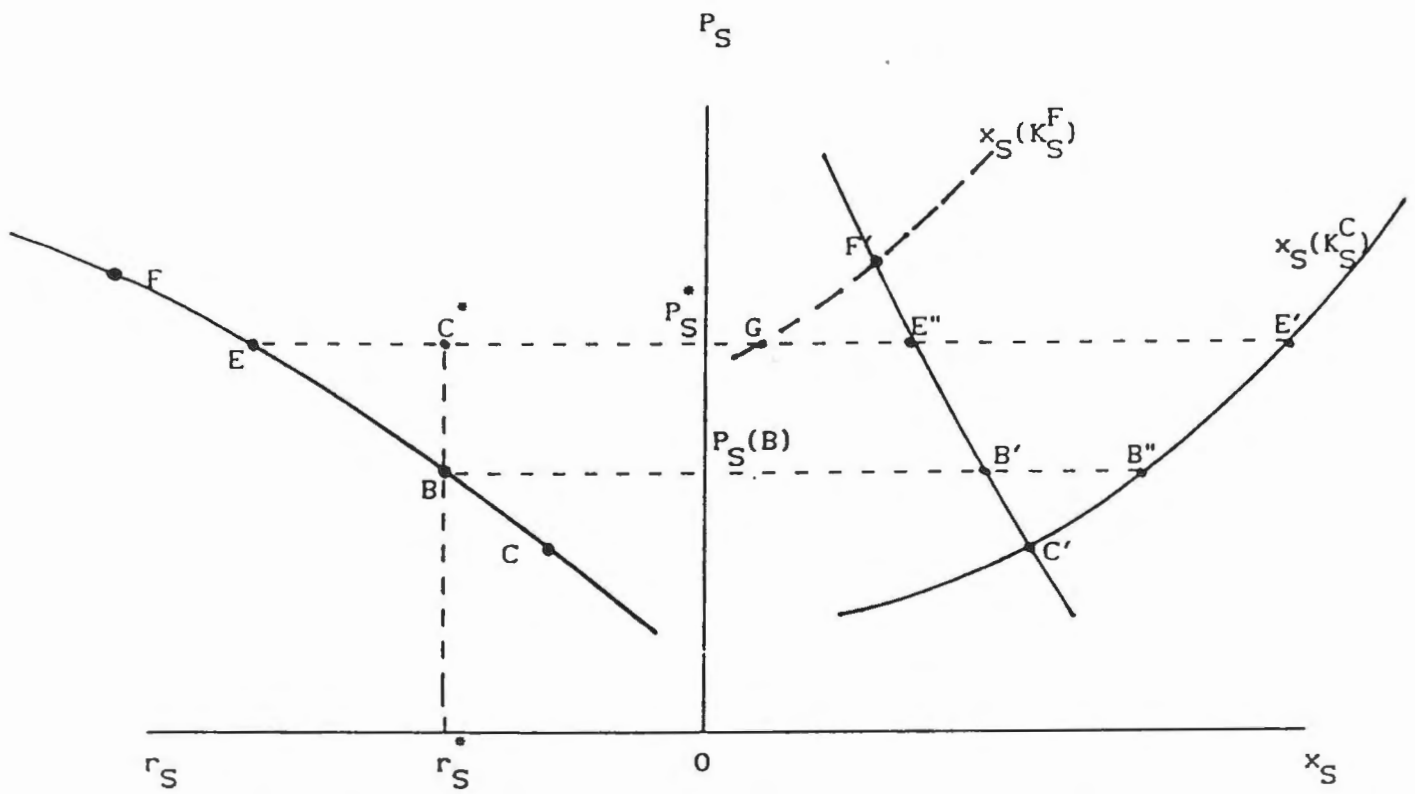


Figure 2

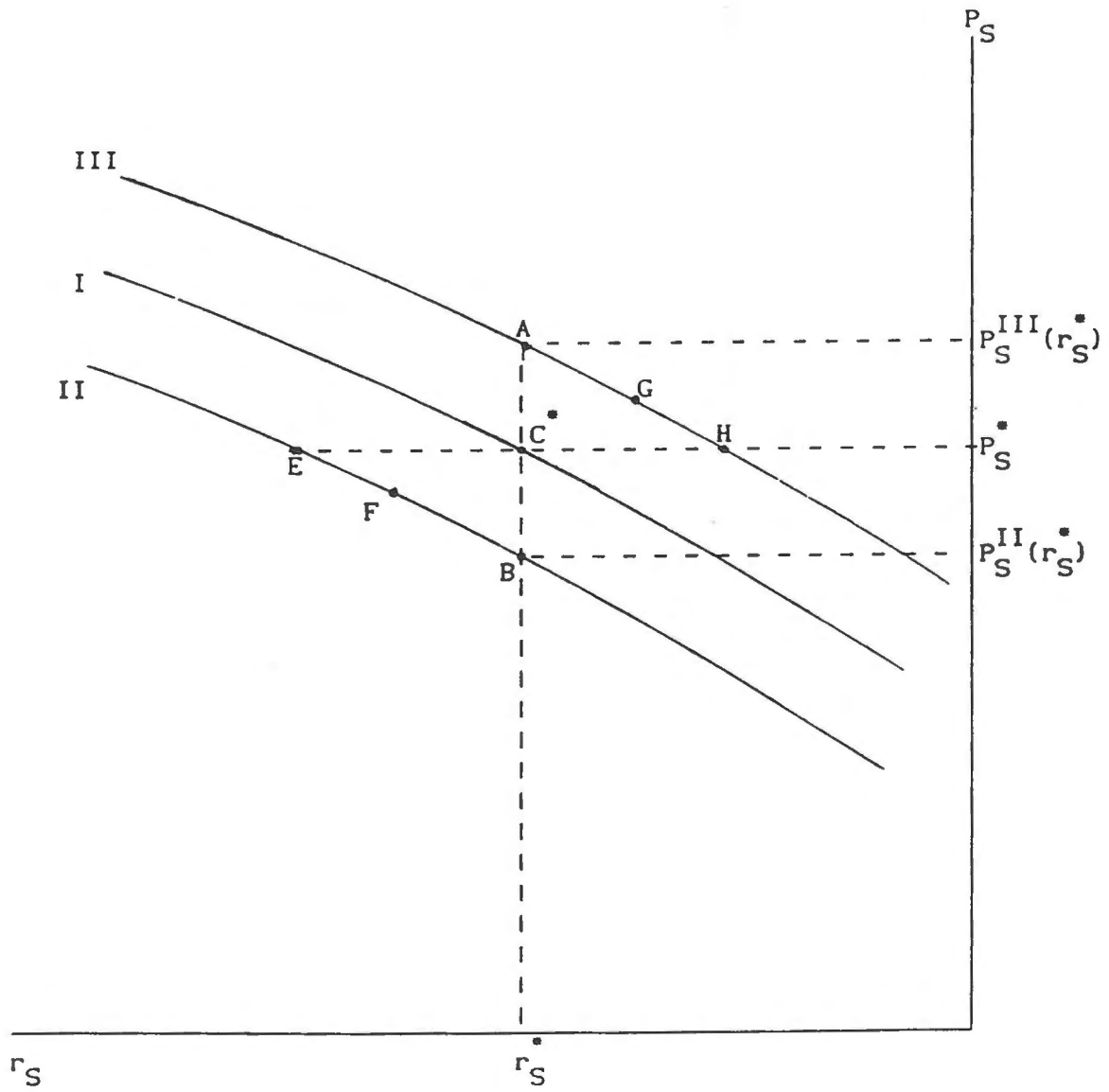


Figure 3

