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Resale of International Service: How Big and Impact?

by Henry Ergas

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Resale of international service: how big an impact?*

by Henry Ergas

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* The views expressed in this paper are those of the author and do not necessarily represent those of the OECD.

The persistence of high charges for international calls has led to increased interest in policy options which might increase competition in international telephony and thereby bring call prices down. Allowing firms which lease capacity to resell some or all of that capacity to final customers is one such option.

At present, most countries - including those which have otherwise liberalised entry into international service provision - effectively prohibit resale:

- the countries where services are operated as a monopoly on the grounds that resale would undermine the exclusive privileges of the monopolist;

- and those which allow competition on the grounds that resale would be open to abuse by foreign monopolists, who could set up as resellers - either in their own market or at the liberalised foreign end - and use their market power in the home country to distort competitive outcomes (for example, by shifting their outgoing traffic from the switched network onto leases, thereby reducing their liability for settlement payments to the foreign carrier - a practice known as "accounting rate by-pass").

However, this situation is changing, largely as a result of three factors:

(i) A growing number of countries have liberalised or are in the process of liberalising the provision of international services, with the list now including the US, Japan, the U.K., Australia, New Zealand and Sweden. There seem to be few obvious reasons for prohibiting the resale of capacity between these countries, so that at least a partial, route-specific, appears to be called for.

(ii) The view has been expressed that allowing resale not only on these routes but also between the countries with liberal regimes and others would place pressure on carriers to reduce their charges and to bring down accounting rates, yielding social benefits in excess of any social costs which might be associated with the transfer of revenues between service providers in the liberal

countries and their monopoly counterparts[1].

(iii) The EC Commission has considered allowing resale of capacity between EC countries as a means of reducing charges for intra-EC calls.

Given these pressures, this note examines some of the simple economics of international resale. My primary concern is with inter-continental traffic; but the approach would not differ greatly in analysing flows within a region. I will seek to highlight some of the factors which affect the economic viability of resale operations, and then assess their likely impact on the major inter-continental streams.

(i) Simple resale

It is useful to begin by considering what is commonly referred to as "simple resale": that is, a situation in which a service provider (as against a facilities-based carrier) has leased capacity between two countries and uses that capacity to offer switched service in one or both directions between those countries.

Reseller costs

To offer this service, say from the service provider's home country to the terminating end, the service provider must: collect traffic at the home end and transport it to its international gateway; carry out the call switching and management associated with setting up, supervising and closing down the call; transport the call to the foreign end; secure distribution of the call at the foreign end to the called party; undertake billing and other aspects of sales and marketing. Each of these components has an associated cost, which in some cases depends on the charges set by carriers (notably call collection at the home end, transport between the ends, and foreign delivery or termination), in others on the costs of equipment (notably for multiplexing and compression,

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1. See, for a particularly strong statement of this view, **Telecommunications Resa in Australia**, Document submitted by the Australian Delegation to the tenth session of the OECD Working Party on Telecommunications and Information Services Policies, Paris 30 November 1992.

switching, call management and billing), and in yet others on the service provider's strategic choices (notably marketing and general over-head).

It is relatively easy to estimate the broad outlines of these cost components:

- It is reasonable to assume that - at current world prices - the switching, DCME and billing system capacity required to handle some 200 000 minutes/erlang/year on 16 circuits (derived by a compression factor of four on a 512k link) would cost around $1 million, translating into an annual cost (assuming a fifteen per cent real rate of return) of around $375 000. This implies a capital cost per minute of just under $0.12 at each end.

- Operating costs per minute are unlikely to be below $0.20 - $0.25 per call, taking account of limited economies of scale in billing and administration, and higher invoicing and receivables costs associated with the more price-sensitive parts of the market.

- Total direct costs would therefore be of around $0.50 per minute **before** charges for leased transport and for domestic and foreign end reticulation.

Now, effective leased charges for inter-continental streams are unlikely to fall below $36 000 a year (amortising installation over 5 years) per derived voice circuit, giving a transport cost per call minute of around $0.18. If domestic reticulation were charged at both ends at the lowest US WATS rates, this would mean a total transport charge of just under $0.50. Even on this unrealistic assumption about termination fees, the total reseller cost per call minute would therefore be of around $1; assuming - as seems more likely - a foreign end reticulation charge in the order of the average OECD area charge for the longest distance domestic call minute (some $0.40), the total reseller cost per call minute would be just under $1.20.

There is clearly some scale sensitivity in these results. By and large, it is reasonable to assume a cost elasticity for direct costs and inter-continental transport of 0.85, so that a shift to 2Mbit capacity utilisation would reduce average cost by around 8 per cent. The reseller might also be able to cut costs

by only collecting traffic at locations near its gate-ways or from customers with direct (i.e. leased) connections to those gate-ways. This would allow it to escape domestic reticulation costs, but at the expense of economies of scale.

Carrier costs

Overall, therefore, the reseller is unlikely to have costs below $1.00 per call minute. These costs can then be compared to the costs and charges of the incumbent carriers.

The direct costs (excluding settlements) to a large, efficiently-managed, incumbent carrier of switched inter-continental traffic can be estimated as $0.20 cents per outgoing call minute. Assuming efficient location of gate-ways, and high capacity utilisation on domestic trunks, domestic reticulation charges should not exceed $0.08 per call minute, giving a total cost before settlements of $0.28. With an average settlement of $0.80, this gives an outgoing call minute cost of just over $1.00. However, from this average outgoing settlement must be subtracted the settlement payments received on incoming calls (which outgoing calls can be regarded as "buying"). These payments can be assumed to reduce the effective settlement rate on each outgoing minute to no more than $0.50 (and probably closer to $0.45), bringing the carrier's per minute cost down to less than $0.80.

Resale impact

On this analysis, reseller costs are significantly higher than carrier costs **even taking settlements into account**. This implies that there is a welfare loss from resale, except to the extent to which it forces carriers to reduce their charges. How likely is it that this will happen?

If we concentrate on the countries where the provision of international services is liberalised - which after all are the only ones likely to allow resale - the answer must be "only to a very limited extent".

Take first the effect of resale - which we will assume originates in one of these countries - on charges between countries with a liberal regime. The fact

of the matter is that average collection rates between these countries are already at levels similar to reseller costs, and are likely below these to the largest customers (which obtain volume discounts of some 10 or more percent off the standard rate). Thus, the call charge from the U.S. to the U.K. is currently around $1.20 a minute before taking account of optional calling plans; that from Australia to the U.S. (also before taking account of optional calling plans) around $1.30. It is difficult to see resellers having much impact on these charges.

The impacts might be greater on streams where the foreign end has a monopoly regime. Outgoing charges from the liberal countries to these countries are typically significantly higher than on streams between liberal countries; allowing resale could therefore be thought to have some price-reducing effect. Whether this happens, however, will depend on the level of reseller costs.

In effect, leased rates are typically 30 percent or more higher on these streams than on the liberalised streams; and the reseller could expect to face high foreign reticulation charges. There is, in particular, no reason to think that the reticulation charges at the foreign end would be set **lower** than current settlement rates (assuming that the foreign monopolists do not believe that current liberal-end prices are above the level consistent with joint profit maximisation). Assuming, for example, a current average per minute charge from the U.S. to these countries of $1.80, resale might lower the charge to closer to $1.50 - not an insignificant reduction, but one which (given that the resellers have much higher costs) would lead to negligible gains in domestic welfare.

In short, simple resale will have only a very modest effect on prices and welfare - far smaller than the effect of full, facilities-based competition. Indeed, on some of the thickest streams, resellers might not even be viable at current charges, and hence would not add significantly to the competitive disciplines bearing on the carriers.

What factors might alter this assessment? Four are worth examining.

A first on the cost side is the extent to which a reseller could reduce costs by using International Toll Free (ITF) service rather than operating its own

facilities. As matters now stand this seems extremely unlikely. In effect, current ITF rates from liberal countries are around or just below off-peak collection charges. Even assuming minimum overheads and in-country reticulation, an ITF reseller would require charges some 5 to 10 per cent above the peak time rate.

Second, resellers' costs might be affected by access to return traffic. Thus, were resellers to secure return traffic - say, in proportion to the traffic they originate - the settlement payments associated with that traffic would alter the effective cost to them of terminating traffic overseas. But this effect needs to be seen in its impact in both directions: were the foreign carriers to provide return traffic to the resellers, they (the foreign carriers) would presumably want to be no worse off than in the **status quo ante.** This implies that the resellers would have to pay the foreign carriers a per minute settlement no lower than the current settlement rate; so that (depending on the reseller reticulation charge and on the balance of traffic in the two directions) a resellers' costs might actually rise.

Third, reseller revenues might rise if the reseller offered a re-filing service: that is, took traffic from its country of origin to a final destination **via** a transit country. The extent of the opportunities for re-filing depends on the degree to which bilateral charges (say, from the U.S. to Australia) exceed the sum of charges on the triangular path (from the U.S. to Australia via New Zealand) plus transit charges. These disparities do occur when the originating point is the current monopoly countries, but are insignificant as between the group of liberal countries. Resale arbitrage, to the extent to which it occurred, could therefore mainly affect charge distortions in the monopoly countries, in particular forcing some reduction in their charges on relatively thin, very long distance streams (for example, Europe to South America). Whether it does occur will depend both on regulation in the monopoly country, and on the extent to which these arbitrage opportunities, when aggregated up, exceed the minimum market scale required for entry to be viable.

Finally, the economic impacts of resale would be modified were the foreign-end monopolist to engage in one-way accounting rate by-pass.

Consider a monopoly carrier in country A sending traffic to country B. The A carrier could deliver its outbound traffic to a B country reseller (which it might own) in exchange for a lower effective charge (for terminating traffic in B) than that built into the current accounting rate. This is equivalent to increasing the termination charge for traffic from B to A (since the B country's carriers pay as much as before for each minute they originate, but receive less for the total number of A minutes they terminate); on most realistic assumptions, this will lead to a welfare loss, since the monopolist is unlikely to cut prices in the A market (its price levels in that market not usually being constrained by the settlement charge), while prices in the B market will rise (or profits will fall, but with a re-distribution mainly to foreigners). It is difficult to believe that this could be viewed as a desirable outcome of policy.

(ii) Carrier resale

In short, simple resale is unlikely to add much to effective competition in the liberal markets. If allowed, it could serve to reduce price distortions built into the stream-by-stream pricing of the monopoly markets; the net effect of this is likely to be greatest on fairly thin streams (since this is where the price distortions seem to be most acute).

Greater effects may arise from carrier resale: that is, from situations where a carrier in one country uses capacity to which it has access to sell switched services into a country other than its country of origin.

Perhaps the most important form of carrier resale is the resale of "Country Direct" service. This is a service in which a carrier from country A acquires what is in effect a toll-free line in country B for the purpose of connecting customers in B to an operator assisted service in A. Customer billing is done by the A carrier; and the call is treated for settlement purposes as an outgoing A call, so that the A carrier pays the B carrier the settlement rate per minute of traffic. However, the call is usually excluded from the return traffic formulas, so that the A carrier may also lose a fraction of the in-payments from B.

Originally intended to facilitate reverse charge and bill-to-third-number

calls, Country Direct service is only provided by carriers, and on terms which are generally only available to carriers. Resale of Country Direct service occurs when the A carrier actively promotes the use of this connection by customers who would under other circumstances have used the B carrier to (i) place calls to country A; and (ii) using A as a transit point, place calls to other destinations. Three factors make this economically viable, especially between the liberal countries (which would here be the A country) and monopoly regimes (the B country).

First, as Table 1 - drawn from a recent report by the FCC[2] - illustrates, charges from B to A (and other destinations) now greatly exceed those from A to B (and other destinations), even when the A charges are for operator assisted service. Given this charge disparity, customers have a strong incentive to be billed at the A rates, even if this involves some inconvenience in terms of longer call set-up time.

Second, thanks to the reductions achieved in accounting rates, settlement rates are still well below A country call charges, especially for operator assisted service. The sum of the direct cost of handling a Country Direct call plus the settlement charge and the loss in return traffic is consequently below the collection rate on virtually all calls. The A carrier therefore has a strong incentive to secure this traffic, especially if the overall traffic it recieves from B is low relative to the traffic it sends to B (so that the proportional loss in in-payment occurs over a smaller base).

Third, the costs of engaging in carrier resale and refiling are coming down as a result of technical change. In particular:

- service digitalisation and extensive use of common-channel and DTMF signalling makes it possible to automate the provision of Country Direct service - including functions such as account verification, call re-direction and billed number screening - and to undertake complex transit routings with no discernible service degradation;

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2. See "Calling Prices for International Message Telephone Service Between the United States and Other Countries" A Report of the Common Carrier Bureau to the Federal Communications Commission, Washington D.C., October 1992.

- while at the same time, the rise of global credit card systems provides a basis for low-cost charging, reducing the loss on receivables to normal commercial limits.

The main economic effect of Country Direct resale is to drive B country charges towards the A country operator assisted rate on direct links, and towards the sum of the A country OAS charge and the A country switched charge on indirect links (i.e. the charge on links from B to C via A would be pushed towards the sum of the OAS charge A->B and the switched rate from A->C). Given that the average difference between these charges (that is, between OAS rates in liberal countries and switched rates in monopoly countries) is around 50 per cent, and that full automation will allow OAS rates in the liberal countries to fall further, the impact on price differentials could be large. In practice, however, B country carriers are not likely to fully adjust their charges to take account of Country Direct resale, given that - at least initially - this is not likely to affect a large segment of the market. As a result, the A carriers should be able to secure, at least temporarily, sizeable rents from arbitrage.

There will also be effects on international settlements. Country Direct resale, though unambiguously welfare enhancing, raises outpayments from A to B countries - highlighting once again that a reduction in total outpayments is not a sensible goal of policy. At the same time, the B carriers might react by either seeking an increase in the settlement rate or obstructing even further its reduction. There is consequently no reason to believe that Country Direct resale will lead to lower settlement rates, at least in the short to medium term.

(iii) Summary and conclusions

This note examines the impact of resale of international capacity on call charges and settlements. The following main points are made:

(a) International simple resale from liberal countries to liberal countries is likely to have little impact on outgoing charges. This is because reseller costs are high relative to carrier charges and to outgoing rates from these

countries.

(b) Outgoing resale from liberal countries could have a greater effect on prices to monopoly countries. However, the extent of this effect is constrained by the much higher lease and termination charges these latter countries impose.

(c) International resale from the liberal countries could be used by carriers in the monopoly countries to reduce their exposure to out-payments. Such conduct, generally referred to as "accounting rate by-pass", is equivalent to an increase in the accounting rate and would almost unambiguously reduce welfare.

(d) Carriers are able to secure Country Direct service through corespondent relations at charges which are low relative to current collection rates, both in the liberal countries and in the monopoly countries. The resale of Country Direct service could have a significant effect on charges in the monopoly countries, forcing them closer to charges for Operator Assisted Service in the liberal countries. However, in the short run, this process would [i] increase outpayments from liberal to monopoly countries and [ii] encourage monopoly carriers to seek increases in accounting rates or at least slow their decline.