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An Economic Analysis of the Implications of A Trading System for International Telecommunications Services Based on Trade of Termination Services

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A Report Prepared for the Department of Communication and the Arts, Australia and the Department of Foreign Affairs and Trade, Australia

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* ABOUT THE AUTHOR

- * Professor Henry Ergas has a wealth of knowledge and expertise in the telecommunications field. He has worked on telecommunications policy and economic issues for the OECD, the Centre for European Policy Studies in Brussels, and the World Bank amongst others. From 1978 to 1992 he served in a range of positions at the OECD, including as Head of the Secretary-General's Task Force on Structural Adjustment and as Counsellor for Structural Policy. His academic qualifications include a B.A. (Economics) from Sussex University, England and a Master in Economic Studies from the University of Queensland, Australia.

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AN ECONOMIC ANALYSIS OF THE IMPLICATIONS OF A TRADING SYSTEM FOR INTERNATIONAL TELECOMMUNICATIONS SERVICES BASED ON TRADE OF TERMINATION SERVICES

This paper reviews the possible impacts of a system of one-way termination charges as a replacement for the current settlement arrangements based on bilateral Accounting Rates¹. The paper begins by considering the efficiency of the current arrangements, the broad architecture of which has been established within the context of the ITU, and then considers the effects of a move to a system based on non-discriminatory termination charges. It then examines some of the transitional issues which might arise were a reform of the current arrangements attempted.

While the primary aim of the paper is to provide an economic assessment of the options for reforming the current settlement arrangements, it is worth noting at the outset the severe limitations imposed by the inavailability of data. Excepting in the United States, where Accounting Rates are published by the FCC, data on settlement arrangements are invariably treated as confidential. So as to model costs and prices, this paper has drawn on a unique data set made available by Telstra, Australia's leading telecommunications service provider. It has not been possible to access similar data for other countries. As a result, the simulations reported in this paper refer to Australia, though some of the possible implications for other countries are reviewed in the paper's concluding section.

I The current arrangements

I.1 Despite substantial reductions in recent years, prices for international telecommunications remain high compared to the attributable costs of service. Table 1 sets out the average per-minute charge in Australian dollars for traffic to Australia from the 50 major source countries for Australian in-bound traffic. These prices are marked "FCR's", which stands for "foreign collection rates" (the "collection rate" being the term ordinarily used in international telecommunications to refer to the price charged to consumers). Countries are ranked in quintiles by per capita GDP: that is, the first quintile covers the 10 richest countries, the second quintile the next ten richest, and so on. It should be noted that the fifth (poorest) quintile is somewhat unrepresentative of countries with low per-capita incomes, since it includes no countries in Africa and only a few in Asia.

As can be seen from this Table, per minute prices are lowest in the richest quintile, where the average per-minute charge is A\$2.49. Given that per-minute costs are unlikely to exceed A\$0.50, including both the directly attributable costs of the international network and a charge of some A\$0.10 for carriage within each domestic network, margins are evidently very high. Charges for calls from Australia to the rest of the world tend to be distinctly lower than those in the other direction, but still remain well above costs.

I.2 Price-cost gaps of this magnitude are likely to substantially depress demand. Australian data suggests that the price elasticity of demand for IDD (International Direct Dial) service is significantly greater than 1, even with outgoing prices at the current, relatively low, Australian levels. At the levels of consumer prices typically observed overseas, long-run elasticities are likely to be close to or even above 2. As a result, price-cost margins of 4 or greater, as can be observed from Table 1, imply demand levels which are almost certainly less than half those which would prevail were prices aligned with costs.

¹ In this paper, the term Accounting Rate is used to refer to the bilaterally agreed charge according to which a carrier in one country recompenses a carrier in another country for terminating its traffic. The Settlement Rate, usually equal to one-half of the Accounting Rate, is the actual amount paid.

While capacity does fall short of demand in some countries, so that high prices there serve to ration demand, elasticities of this magnitude imply that welfare would be significantly improved by easing the capacity constraints (through investment in telecommunications) and a move to more reasonable price levels. In most countries, on the other hand, there is ample capacity in place, and the high prices cause social waste, all the more so as technical change makes capacity ever cheaper and more abundant.

I.3 *High charges for international telecommunications service are perpetuated by high Accounting Rates* -- that is, the charges which carriers impose on each other for handling traffic from overseas. Table 2 sets out the relevant data for traffic to and from Australia in 1994/95. Countries are again grouped into quintiles, but this time by the volume of their two-way traffic with Australia -- so that the first quintile covers the twenty percent of countries with the highest volume of traffic, the second quintile the next twenty percent, and so on. The data covers the 250 countries to which international service is provided.

Two sets of data are presented.

The first column presents the *level of Accounting Rates*, expressed relative to the average *Accounting Rate* across all destinations.

The second column sets out a measure of the *margin* between the Settlement Rate on a stream (the one-half of the *Accounting Rate* which is payable on each imbalance minute) and the cost² of handling traffic on that stream³.

As can be seen from the Table, Rates are above costs in all traffic quintiles:

- The average mark-up of the Settlement Rate over stream-specific costs is 400 per cent.
- Moreover, Rates tend to rise as one moves from thicker to thinner streams, with the extent of the rise far exceeding the increase in stream-specific costs. As a result, the average mark-up rises, being close to 5 on the thinnest streams.

With Rates at such high levels, any carrier substantially reducing its collection charges on a unilateral basis would face greatly increased out-payments or reduced in-payments⁴. Although an increase in out-payments is not necessarily undesirable (for reasons elaborated on further below) the steep *marginal*

² Costs are measured on the basis of the cost of providing a minute of traffic from Australia to the notional half-way point between Australia and the country in question; these costs cover the costs of carrying the call within the Australian network and the attributable costs of the international network to the half-way point.

³ While it is assumed for the present purpose that the Australian costs can be taken as reasonably representative of costs overseas, it is clear from the data that even substantially higher cost levels than those used here would not significantly alter the conclusions which can be drawn from this data.

⁴ This is because within the current settlement arrangements, the carrier would have to pay these Rates on each additional out-bound minute which its price-cutting stimulated. Given a unilateral price cut, return traffic would only rise slightly, so that out-bound minutes would rise relative to in-bound minutes. This rise would be reflected in an increase in out-payments relative to in-payments.