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MEASURING IMPEDIMENTS TO TRADE IN SERVICES

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and

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ABSTRACT

Transparency of the impacts of policy affecting services trade and investment is critical for successful reform. Barriers to international business in services are not transparent, given the nature of the transactions involved. We show in this paper how available information can be combined into robust assessments of policy which prove to be powerful explanators of market outcomes.

Key words: ASEAN contagion, cooperation, currency crisis, East Asia, EMEAP, monetary funds

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Measuring Impediments to Trade in Services

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1. Introduction

Transparency of policy affecting services trade and investment is critical for successful reform. More information, in terms of the detail of policy and the analysis of its effects, helps mobilise the key countervailing interests against the protectionist forces in domestic economies, facilitates the construction of coalitions for reform by political leaderships, and adds to policy maker confidence as strategies are designed and implemented. Yet there is little of this type of work available for the services sector. The research challenge, reviewed in this paper, is the characterisation, assessment and then measurement of the economic impact of policy affecting services trade.

The barriers impeding trade in services are opaque, given the nature of the transactions involved. There is however some information available, often in qualitative form that can be collated from a diverse range of sources. We show in this paper how this sort of information can be combined into robust assessments of policy which prove to be powerful explanators of market outcomes. This in turn opens up new opportunities to use these sorts of measures in the design of reform programs and in the international negotiations associated with their implementation.

The next section reviews the nature of trade in services and the impediments involved. The following section spells out the case for greater transparency. We then outline a method for achieving that transparency and illustrate its application in a variety of sectors. We also discuss related modelling issues and conclude with implications for the negotiating process. We argue that as a consequence of the availability of the methodologies we describe, the scope of the General Agreement on Trade in Services (GATS) need no longer be regarded as such an important impediment to its implementation.

¹ The authors would like to thank Philippa Dee and Greg McGuire for their comments on this paper and the Australian Research Council for its support. An earlier version of this paper was presented at the 'Services 2000: New Directions in Services Trade Liberalization' conference, University Club in Washington, D.C., 1-2 June 1999. Address for correspondence is Dr Tony Warren, Asia Pacific School of Economics and Management, Australian National University, Canberra, 0200, Australia (email: Tony.Warren@anu.edu.au).

2. What are barriers to trade in services?

2.1 *Services transactions*

In this paper we define a service to be *an economic activity that adds value either directly to another economic unit or to a good belonging to another economic unit.*² Consequently, services have as a defining feature the requirement for direct interaction between producers and consumers (or at least a consumer's assets) before the service can be rendered.³

The need for producers and consumers to interact for a service to be rendered influences how international transactions in services are conducted. If a service producer in one economy has the desired service rendering capabilities, then a consumer, resident in another country, must somehow interact with the producer to acquire those services. The General Agreement on Trade in Services (GATS), substantially following Bhagwati and Sampson and Snape,⁴ developed a four-part typology of how such capabilities can be accessed internationally:

- through cross-border communications in which neither the producer nor the consumer moves physically, interacting instead through a postal or a telecommunications network;
- through the movement of a consumer to a supplier's country of residence;
- through the movement of a commercial organisation to the consumer's country of residence; or
- through the movement of an individual service supplier to the consumer's country of residence.

Consequently, the concept of international services transactions encompasses foreign direct investment and the movement of labour, as well as traditional cross-border transactions. In this paper, any policy that impedes service producers and consumers interacting through any of these channels (or modes of supply) is considered an impediment to international service transactions.

² This definition is derived from the classic definition of services first proposed by T.P. Hill, 1977, 'On Goods and Services', *Review of Income and Wealth*, 24(4), pp. 315-38, at p.317.

³ S. Hirsch, 1989, 'Services and Service Intensity in International Trade', *Weltwirtschaftliches Archiv*, 125, pp.45-60.

⁴ See Article I, GATS; J. Bhagwati, 1984, 'Splintering and Disembodiment of Services and Developing Countries', *The World Economy* 7(2), pp. 133-44, and G. Sampson and R. Snape, 1985, 'Identifying Issues in Trade in Services', *The World Economy*, 8(2), pp.171-182.

2.2 Categories of impediments

It is common practice to categorise impediments to trade in services into market access restrictions and derogations from national treatment.⁵ Part III of the GATS explicitly introduces the concepts of market access and national treatment into the international services trade architecture. Surprisingly, the GATS does not specifically define market access. Article XVI (1) simply obliges members to grant market access to scheduled industry sub-sectors, while Article XVI (2):(a)-(f) contains a list of measures considered to be limitations on market access. Article XVII (1) defines national treatment as treatment no less favourable than that accorded to like domestic services and service providers subject to the limitations and conditions set out in the country's schedule of commitments.

The implication of Part III is that market access and national treatment are broader in scope than are the corresponding market access and national treatment provisions in the GATT.⁶ To begin with, the GATS provision on national treatment does not draw a distinction between frontier and internal constraints but embraces all policies that might discriminate between domestic and foreign suppliers. In contrast national treatment in the GATT extends to matters of internal taxation and regulation only. In effect, the GATS article on national treatment encompasses both national treatment and market access as normally defined.

More importantly, the GATS article on market access extends beyond traditional concerns of access for foreign service suppliers to encompass all policies which restrict access to a market. This is a major extension of multilateral trade disciplines into the realm of domestic policy, in particular competition policy. As Snape suggests, the "GATT is almost entirely concerned with relations between 'us' and 'them'; these provisions of [the] GATS are not concerned with 'us' and 'them' but [with] 'some of us' on the one hand and 'the rest of us and them' on the other."⁷

The lack of clarity within the GATS as to what is meant by these important concepts has meant that the process of categorising specific policies into limitations on market access or breaches of national treatment has proven to be particularly difficult. Following the insights of Snape, we propose to operationalise the distinction between

⁵ For an early example of this kind of distinction in services see United Nations Conference on Trade and Development (UNCTAD) and the World Bank, 1994, *Liberalizing International Transactions in Services: A Handbook* New York, United Nations, chapters 4-7.

⁶ See, B. Hoekman, 1995, 'Tentative First Steps: An Assessment of the Uruguay Round Agreement on Services', The World Bank Policy Research Working Paper No. 1455, May, Washington DC; and R. Snape, 1998, 'Reaching Effective Agreements Covering Services', in A. Krueger (ed) *The WTO as an International Organization*, University of Chicago Press, Chicago and London.

⁷ R. Snape, 1998, 'Reaching Effective Agreements Covering Services', in A. Krueger (ed) *The WTO as an International Organization*, University of Chicago Press, Chicago and London.

market access and national treatment by focusing on the concept of discrimination. Consequently:

- market access means non-discrimination between incumbents in a particular market and possible entrants (be they domestic or foreign). Hence, a legislated monopoly is considered a market access limitation; and
- national treatment, means non-discrimination between domestic and foreign service suppliers. Therefore, a policy limiting foreign investment is considered a breach of national treatment.⁸

3. Why measure barriers to trade in services?

Due to the nature of service trade, impediments to such trade tend to come in the form of non-tariff barriers (NTBs), reflecting the difficulties inherent in imposing tariffs directly upon either the service consumer or the service supplier as they interact across borders. NTBs are notoriously difficult to identify and measure. There have been very few systematic attempts to collect information on barriers to entry beyond the periodic trade reviews conducted by national trade negotiators.⁹ No equivalent of the UNCTAD database on NTBs yet exists for the services sector.¹⁰ As a consequence there have traditionally been very few studies that identify the barriers that do exist and assess the impact of these barriers on economic outcomes. This is a matter of concern on several different levels.

At a policy development level, the lack of information on the extent and impact of impediments to trade in services undermines the liberalisation process. Evidence is available to suggest that services industries remain protected for many of the standard political economy reasons — protection is primarily afforded to uncompetitive service

⁸ The problem with this approach is how to capture non-discriminatory policies that have the effect of protecting local service suppliers. A hypothetical example would be a policy that stipulated a particular (domestic) university as the sole provider of a professional qualification required for professional practice. While such a qualification may be attainable by service providers from all countries (and hence is non-discriminatory) it gives a significant advantage to local service suppliers. This is not an insubstantial problem, but it is an issue we believe is best dealt with under provisions such as Article VI on domestic regulation, rather than diminishing the value of Articles XVI and XVII which are better focused on issues of discrimination. In our view, progress in the 2000 negotiations is most likely to occur if the issues of discrimination and issues of appropriate standards are kept separate.

⁹ The problem with these reports or so-called 'black books' is that they are seldom comprehensive, simply reflecting the interests of exporters, and are usually based upon uncollaborated assertions from interested parties. Among the more widely distributed examples of these reports are those produced by the Office of the US Trade Representative (USTR, various years, 'National Trade Estimate Report on Foreign Trade Barriers', U.S. Government Printing Office) and the European Union (EC, 1995, *1995 Report on US Barriers to Trade and Investment*. Brussels: European Commission).

¹⁰ Although, UNCTAD is currently developing its MAST database.

industries with significant political muscle.¹¹ For those involved in multilateral and regional negotiations this evidence tends to confirm what many already suspect. Negotiations on services encounter the same barriers to progress that are so familiar in negotiations on merchandise and agriculture. Powerful domestic interests limit the extent to which commitments to liberalisation will be made. If anything, the barriers to progress in services are even greater because of the relatively widespread involvement of the public sector in service provision and the private sector in service regulation.

Overcoming the forces of protection is never a trivial task and there is no simple solution.¹² However, it is generally considered useful in the domestic political process to make the costs of protection as transparent as possible. Not only does this help build coalitions of interest for liberalisation, it allows policy-makers to have greater confidence in the implications of any decisions they may make.¹³ The lack of information on impediments to trade and investment in services and the consequent impact on the economy of these impediments reduces the set of tools that policy reformers have when pushing for liberalisation.

At a negotiating level, there is evidence that the desire for reciprocity has played a major part in determining the pattern of specific commitments made under the auspices of the GATS, as it has in other areas of the multilateral trade negotiations.¹⁴ It is generally accepted that in such a negotiating framework, multi-product negotiations (whereby concessions in one industry are traded for concessions in another) lead to more liberal outcomes by extending the set of industries over which concessions can be traded.¹⁵ As Nau has argued:

¹¹ See T. Warren, 1996, *The Political Economy of Services Trade and Investment Policy: Australia, Japan and the United States*, Doctoral Dissertation, Research School of Pacific and Asian Studies, Australian National University; T. Warren, 1997, 'The Political Economy of Reform of Japanese Service Industries' *Pacific Economic Papers*, No. 270; and T. Warren, 1998, 'The Political Economy of Telecommunications Trade and Investment Policy' in S. Macdonald and G. Madden (eds) *Telecommunications and Socio-Economic Development* Oxford: Elsevier.

¹² See the various contributions on this point in J. Williamson (ed.), 1994, *The Political Economy of Policy Reform*, Institute for International Economics, Washington DC.

¹³ On the usefulness of such information in reform, see I. M. Destler, 1995, *American Trade Politics* [3rd Edition], Institute for International Economics, Washington DC, pp. 304-305; R. Garnaut, 1994, 'Australia' in J. Williamson (ed), *The Political Economy of Policy Reform*, Institute for International Economics, Washington DC, pp. 51-72; W. M. Corden, 1994, 'Comment' in J. Williamson (ed), *The Political Economy of Policy Reform*, Institute for International Economics, Washington DC, pp. 111-113.

¹⁴ B. Hoekman, 1995, 'Tentative First Steps: An Assessment of the Uruguay Round Agreement on Services', The World Bank Policy Research Working Paper No. 1455, May, Washington DC; and T. Warren, 1996, *The Political Economy of Services Trade and Investment Policy: Australia, Japan and the United States*, Doctoral Dissertation, Research School of Pacific and Asian Studies, Australian National University.

¹⁵ One of the major problems with the various post-round negotiations in services was that the sector-specific nature of the discussions limited the scope for successful bargaining.

The across-the-board approach has clearly enjoyed the most success. It establishes politically salient overall goals early in negotiation while permitting great flexibility in subsequent negotiations to deal with individual products, sectors, barriers, or framework and institutional issues. By contrast, the product and sector approaches are, taken alone, unlikely to generate enough political interest and momentum to move negotiations forward at an early stage.¹⁶

When dealing with NTBs, multi-product negotiations become technically much more difficult, as issues with the comparability of concessions arise.¹⁷ During the Uruguay Round, the problem of NTBs affecting agriculture was confronted directly with the development of the Aggregate Measure of Support (AMS) and attempts (subsequently watered down) to have this measure encompass all NTBs (and tariffs) affecting agriculture.¹⁸ Service negotiators had no equivalent to the AMS, or even usable industry-level measures of impediments. During the Uruguay Round this may not have been too significant a problem, as negotiations seem to have focused on developing the necessary architecture and the specific commitments made by members appear overwhelmingly to have been examples of binding the status quo. However, as the new round of services negotiations approaches, lack of information on service impediments will undermine the potential for negotiated liberalisation.

4. How to measure barriers to trade in services?

The remainder of this paper will detail a method designed to help provide more information about services sectors impediments. This method has been developed as part of an Australian Research Council funded research project that commenced in 1997. It involves a three-step process:

- first, available qualitative evidence that compares the way nation's discriminate against potential entrants in various service industries is collected. This evidence is then transformed into a frequency-type index, with every attempt made to weight discriminatory policies by their economic significance;
- second, the impact of the policies as measured by the frequency indices is assessed against cross-national differences in domestic prices or domestic quantities, with the effect of other factors explaining cross-national differences explicitly taken into account; and

¹⁶ H. Nau, 1987, 'Bargaining in the Uruguay Round', in J. Finger and A. Olechowski (eds) *The Uruguay Round: A Handbook on Multilateral Trade Negotiations*, The World Bank, Washington DC, pp. 75-80, at p. 76.

¹⁷ A. Olechowski, 1987, 'Nontariff Barriers to Trade' in J. Finger and A. Olechowski (eds) *The Uruguay Round: A Handbook on Multilateral Trade Negotiations*, The World Bank, Washington DC, pp. 121-126, at p. 126; and B. Hoekman and M. Kostecki, 1995, *The Political Economy of the World Trading System: From GATT to the WTO*, Oxford University Press, Oxford, p. 68.

¹⁸ J. Croome, 1995, *Reshaping the World Trading System: A History of the Uruguay Round*, World Trade Organization, Geneva, at p. 113-114.

- third, the measured impact of the frequency indices (the coefficient) on prices or quantities is incorporated into a general equilibrium model to assess the economy wide impacts of the policies at issue. Where possible, partial equilibrium modelling is also undertaken, to allow for the ‘black box’ of liberalisation to be more clearly understood.

Each of these steps is detailed below, with examples of some of the preliminary results provided where appropriate. A full set of results from steps one and two will be published in November, with the modelling results due for publication early next year.¹⁹

5. Step 1: Frequency indices

As noted above, frequency-type measures of NTBs affecting services were not produced for many years due to the lack of suitable data on impediments. This lack of data was partially overcome thanks to the requirement of the GATS that countries agreeing to be bound by the multilateral trade disciplines would list in their individual GATS schedules those sectors in which they were prepared to make commitments, and any specific barriers they wish to retain.

Quantification of the GATS schedules commenced with the pioneering work of Hoekman who developed a three-category weighting method.²⁰ He examined all GATS schedules and for quantification purposes allocated a number to each possible schedule entry (i.e. each possible market access or national treatment commitment in each mode in each industry sub-sector). Specifically:

- where a member has agreed to be bound without any caveats, a weight of 1 is allocated. A weight of 1 is also allocated in circumstances where a member declares that a particular mode of supply is “unbound due to lack of technical feasibility”, if other modes of supply are unrestricted. A common example of this situation is the cross-border supply of construction and related engineering services;
- where a member has agreed to be bound but specific restrictions remain, a 0.5 weight is allocated. If a mode of supply is bound but specific reference is made to the horizontal commitments, a 0.5 is also allocated. This is commonly the case for commitments on the movement of natural persons, where immigration constraints continue to apply; and
- where a member has explicitly exempted that particular entry from the operation of the GATS by recording an entry of ‘Unbound’ or by simply failing to make any commitments at all, a weight of 0 is allocated.

¹⁹ See C. Findlay and T. Warren (forthcoming) *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney.

[ref + web site references where applicable]

²⁰ B. Hoekman, 1995, ‘Tentative First Steps: An Assessment of the Uruguay Round Agreement on Services’, The World Bank Policy Research Working Paper No. 1455, May, Washington DC.

Hoekman used these measures as a mechanism for quantifying the extent of commitments (the greater the number, the more commitments made). Other researchers have inverted the analysis and examine the number of commitments that have not been made (the greater the number the more illiberal the economy at issue). This paper will adopt the latter approach (and report results accordingly) as the focus is on impediments to trade in services, rather than the extent of GATS coverage.

There are many limitations with this methodology, most of which are detailed by Hoekman and in the other studies such as that by the Pacific Economic Cooperation Council, which have adopted this approach.²¹ To begin with, the Hoekman methodology does not distinguish between barriers in terms of their impact on the economy, with minor impediments receiving the same weighting as an almost complete refusal of access.

Another major problem with the Hoekman indices is the coverage of the GATS schedules that in many cases do not give an accurate picture of the actual barriers that are in place. This is particularly the case for developing economies, many of which were unable to provide the detail required to meet the complexities of the scheduling process. There is also some evidence to suggest that nations with liberal policies left some services unbound so as to maintain a retaliatory capability in future market access negotiations. Therefore some industries that are recorded in the Hoekman indices as impeded may be open, at least to suppliers from some economies.²²

Various studies, many produced as part of the Australian services project, have attempted to develop, at a sectoral and modal level, a more complex weighting system than that used by Hoekman, seeking to quantify differences in the effect of different partial commitments. More extensive databases have also been drawn upon to overcome some of the informational limitations with the GATS schedules. In what follows, brief summaries of these studies are provided.

5.1 Cross-sectoral indices

At a cross-sectoral level, the most comprehensive attempt at a reformulated frequency measure is provided by Hardin and Holmes, who sought to incorporate the relative economic impact of different policies into frequency data on the types of barriers affecting investment.²³ Five types of barriers to foreign investment are identified. Weights are then developed within each of these categories on the basis of the perceived economic impact of each policy category. For example they give a much greater weight to a policy that completely excludes foreign equity than to a policy that allows more than 50% but less than 100% foreign equity. Policies that limit

²¹ PECC, 1995, *Survey of Impediments to Trade and Investment in the APEC Region*, Singapore: APEC Secretariat, chapter 5.

²² However, it should be noted that a threat of future retaliation could itself be considered an impediment and, as such, the data may not be too misleading.

²³ A. Hardin and L. Holmes, 1997, *Services Trade and Direct Foreign Investment*, Staff Research Paper, Industry Commission, Canberra.

investment in existing firms, but allow greenfields investment are given a lower weight than those policies that limit all investment.

Table 1: FDI Restrictiveness Indices for Selected APEC Economies and Selected Sectors

	Business	Communi- cations	Distribution	Education	Financial	Transport
Australia	18%	44%	18%	18%	45%	20%
Canada	23%	51%	20%	20%	38%	24%
China	36%	82%	28%	53%	45%	46%
Hong Kong	2%	35%	5%	0%	23%	9%
Indonesia	56%	64%	53%	53%	55%	53%
Japan	6%	35%	5%	20%	36%	11%
Korea	57%	69%	63%	55%	88%	57%
Malaysia	32%	42%	8%	8%	61%	12%
Mexico	29%	74%	33%	45%	55%	28%
New Zealand	9%	43%	8%	8%	20%	13%
PNG	30%	48%	30%	30%	30%	30%
Philippines	48%	76%	48%	48%	95%	98%
Singapore	26%	52%	25%	25%	38%	25%
Thailand	78%	84%	78%	78%	88%	78%
US	1%	35%	0%	0%	20%	3%

Note: The higher the score, the greater the degree to which an industry is restricted. The maximum score is 100%

Source: A. Hardin and L. Holmes, 1997, *Services Trade and Direct Foreign Investment*, Staff Research Paper, Industry Commission, Canberra, Appendix A.2

Moving beyond the GATS schedules, Hardin and Holmes included in their analysis the information contained in the Individual Action Plans (IAPs) produced by members of the Asia Pacific Economic Cooperation process (APEC). These documents have the advantage of being closer to a negative rather than a positive list of barriers to services trade, although they are still far from an exhaustive description of impediments. Applying their methodology to fifteen APEC economies, Hardin and Holmes found that communications and financial services tended to be subject to the most stringent FDI controls (see Table 1). Scores were particularly high for the communications sector because many economies imposed ownership limits on telecommunications and broadcasting and completely closed postal services to foreign entry. The least restricted sectors were found to include business and distribution services.

5.2 *Financial services*

Several frequency indices of impediments to trade and investment in financial services have been produced, reflecting the preminent position of this industry in the world economy. Mattoo, for example, has examined the market access commitments on financial services made by developing and transition economies as part of the post-

round Agreement on Financial Services concluded in December 1997.²⁴ In his analysis Mattoo attempts to unpack the partial commitments whereby countries accept the GATS disciplines but list policies that will continue to limit market access. In particular, he distinguishes between limits on the number of suppliers allowed in a market and limits on foreign equity in existing suppliers. He concludes that there has been less emphasis on the introduction of competition through allowing new entry than on allowing foreign equity participation and protecting the position of incumbents.

Table 2: GDP Weighted Regional Restrictiveness Averages in Direct Insurance and Banking

	<i>Direct Insurance</i>		<i>Banking</i>	
	<i>Life Insurance</i>	<i>Non-life Insurance</i>	<i>Acceptance of Deposits</i>	<i>Lending</i>
Africa	44%	48%	32%	43%
Asia	59%	58%	72%	67%
Eastern Europe	47%	49%	40%	39%
Latin America	78%	74%	62%	66%

Notes: Figures are calculated as 1-GDP weighted average of the value of the most restrictive measure applied by a country to each mode in the sector. The higher the score, the greater the degree to which an industry is restricted. The maximum score is 100%.

Source: A Mattoo, 1998, 'Financial Services and the WTO: Liberalization in the Developing and Transition Economies', Paper Presented at the Measuring Impediments to Trade in Services Workshop, Productivity Commission, Canberra, 30 April–1 May, Annex 1.

Table 2 provides the GDP weighted regional averages from the Mattoo analysis, in a format that reflects the restrictiveness of each region. Regions with higher scores have made fewer commitments. In particular, of the regions examined, Latin America appears to be the most restricted in direct insurance and Asia the most restricted in terms of banking services.

The limitations of using information derived from international agreements such as the GATS and the APEC Individual Action Plans are graphically demonstrated in the work of McGuire.²⁵ McGuire undertook a detailed analysis of the Australian financial services policy regime (both state and federal) in an effort to get a clearer picture of the barriers affecting financial services trade. He includes, where applicable, prudential regulations within the definition of market access and national treatment restrictions. A host of barriers are uncovered including government monopolies over the provision of certain types of financial services, prudential regulation, restrictions on direct foreign investment in banking and insurance, discriminatory government

²⁴ A Mattoo, 1998, 'Financial Services and the WTO: Liberalization in the Developing and Transition Economies', Paper Presented at the Measuring Impediments to Trade in Services Workshop, Productivity Commission, Canberra, 30 April–1 May. Note that Mattoo focuses only on direct insurance, both life and non-life and the acceptance of deposits and lending services. He also excludes the presence of natural persons from his analysis.

²⁵ G. McGuire, 1998, *Australia's Restrictions on Trade in Financial Services*, Staff Research Paper, Productivity Commission, Canberra.

licensing requirements and government guarantees to selected financial service providers. In total some 165 impediments are identified compared with 38 financial service impediments listed in Australia's GATS schedule.

Table 3: Restrictiveness Indices to Trade in Financial Services for Selected Economies

	<i>Banking</i>	<i>Securities</i>	<i>Insurance</i>
Hong Kong	0.25	0.60	1.00
Australia	0.80	1.00	1.50
Indonesia	1.80	2.00	2.40
Korea	3.30	2.90	2.40
Malaysia	2.60	2.50	2.90
Philippines	1.65	2.60	2.20
Singapore	2.50	2.30	.90
Thailand	2.15	3.00	2.20
India	2.75	2.90	4.00
<i>Average</i>	<i>1.98</i>	<i>2.20</i>	<i>2.17</i>

Note: The higher the score, the more closed is the financial services market. Scores range from 1-5.

Source: G. McGuire, 1998, *Australia's Restrictions on Trade in Financial Services*, Staff Research Paper, Productivity Commission, Canberra, constructed from Table 4.2.

McGuire then applies the weighting methodology developed by Claessens and Glaessner in their study of GATS impediments to financial services to his list of impediments for Australia.²⁶ Even using more detailed Australian data, McGuire finds that the Australian financial services market is relatively open compared with the eight Asian economies analysed by Claessens and Glaessner (see Table 3). McGuire's results parallel the findings of Mattoo, in that banking services are more open than insurance services. The securities industry appears to be the most impeded of the three financial service industries. However, it is difficult to place too much weight on the scores for the Asian economies as they are primarily based upon the GATS schedules and as such may understate the extent of the impediments in place. It would be informative for the detailed data collection exercise of McGuire to be undertaken in other jurisdictions.

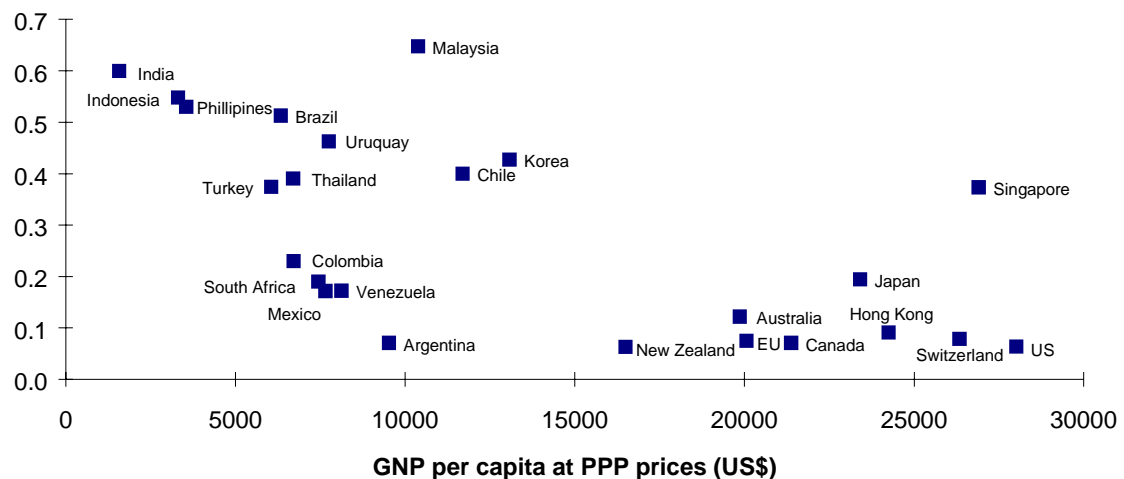
Building upon this earlier research, McGuire and Schuele constructed a set of indices of impediments to trade in banking services from a variety of sources, including the WTO trade policy reviews, APEC IAPs, the International Monetary Fund, the office of the US Trade Representative and various commercial organisations.²⁷ McGuire and Schuele differentiated between impediments on commercial presence and impediments on operations (raising funds etc) and they differentiated between

²⁶ See, S. Claessens and T. Glaessner, 1998, *Internationalization of Financial Services in East Asia*, World Bank Washington, DC.

²⁷ G. McGuire and M. Schuele, 1999, 'Restrictiveness of International Trade in Banking Services' in C. Findlay and T. Warren (eds), *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney (forthcoming, November).

impediments affecting foreign banks and impediments that affect all banks. Each of the inputs into the indices were weighted to reflect the degree to which they are perceived to restrict access to the market. Figure 1 plots the index measuring impediments to foreign banks (the greater the score the more restricted the market) against national income. The negative relationship between GNP per capita and financial market restrictions is immediately apparent.

Figure 1 Foreign Restrictiveness Index in Banking and GNP per capita at PPP prices (1996)



Note: The higher the score, the greater the level of impediment. Purchasing power parity (PPP) prices based on World Bank surveys undertaken since 1993. GNP per capita at PPP prices are used. GNP per capita using official exchange rates tends to undervalue low and middle income economies with relatively low prices.

Source: G. McGuire and M. Schuele, 1999, 'Restrictiveness of International Trade in Banking Services' in C. Findlay and T. Warren (eds), *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney (forthcoming, November).

5.3 Professional services

Beyond financial services, the potential future scope for frequency weighting systems is most clearly demonstrated by an OECD pilot study on assessing barriers to trade in professional services.²⁸ The OECD approach involves a series of steps within a flowchart format, whereby a number of questions are asked and scores allotted depending upon the answers. The intuition behind the approach is to mimic the set of questions a service provider would ask when seeking to a foreign market. For example:

- Can I physically access the market? (Market access)
- If I can access the market, am I then allowed to practice and to what extent? (Rights of Practice)
- Can I provide services as an independent firm? (Rights of Establishment)

²⁸ OECD, 1997, 'Assessing Barriers to Trade in Services: A Pilot Study on Accountancy Services', TD/TC/WP(97)26, Working Party of the Trade Committee, Paris.

- If I am required to practice in partnership with a local entity, what limitations does this place on me?

Scores are attributed to each answer and a detailed weighting system is proposed. Accountancy services in four countries (Australia, Britain, France and the United States) were examined. The United Kingdom was found to be the most liberal of the four countries, the United States the country with the highest barriers.

5.4 Telecommunications

The telecommunications component of many country's GATS schedule, like that of financial services, has changed dramatically since the end of the Uruguay Round, with the conclusion in February 1997 of the Agreement on Basic Telecommunications. Marko has updated the Hoekman-type frequency indices on telecommunications so as to reflect the impact of the 1997 agreement for the 69 member nations.²⁹ She finds that 58% of the basic telecommunications services market for all of these countries is now covered by either partial or full GATS commitments.

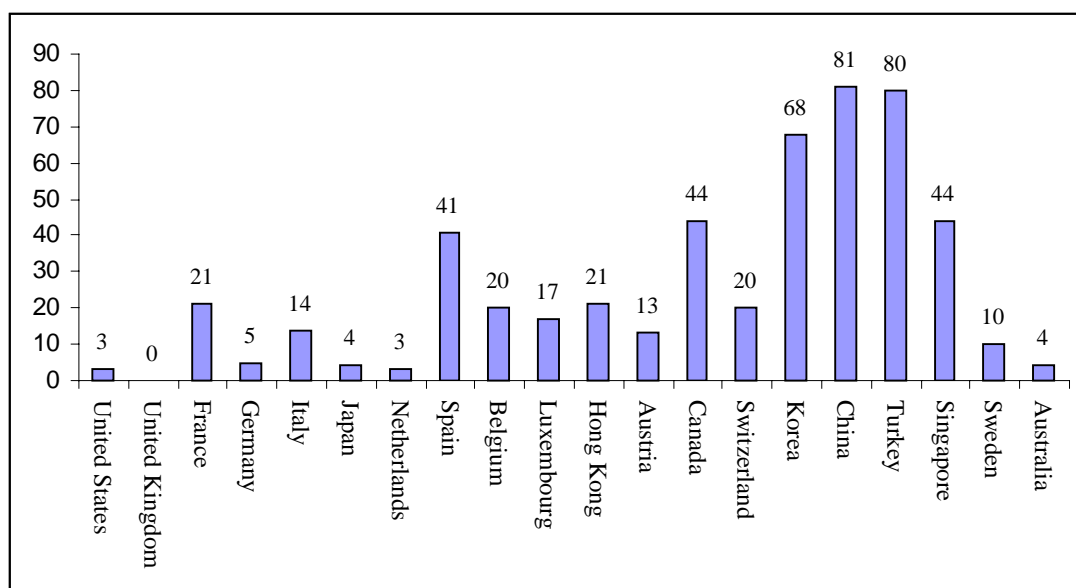
Moving beyond the GATS schedules, Warren has used a 1997 survey by the International Telecommunications Union (ITU) to construct a set of policy indices for 136 countries.³⁰ These data have the distinct advantage of being drawn from a survey of actual policies, rather than inferring these policies from commitments made in trade negotiations. Five separate indices have been constructed, corresponding with the more important distinctions drawn in the GATS context, namely the differences between market access and national treatment and between trade and investment. Data availability means that a distinction is made between access to mobile and fixed telecommunications markets only in relation to the market access restrictions on foreign investment.

In the construction of these indices, Warren sought to incorporate economic as well as legal inputs by including a count of the number of firms actually competing in a market, as well as the formal policies. Figure 3 provides the unweighted average score across the five indices for the top twenty service trading nations. A high degree of variation is apparent, reflecting the continuing resistance among many countries to the liberalisation of their telecommunications markets.

²⁹ M Marko, 1998, 'An Evaluation of the Basic Telecommunications Services Agreement', CIES Policy Discussion Paper 98/09, Centre for International Economic Studies, University of Adelaide.

³⁰ T. Warren, 1999, 'The Application of the Frequency Approach to Trade in Telecommunications Services', in C. Findlay and T. Warren (eds), *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney (forthcoming-November).

Figure 2: Restrictiveness Indices to Trade in Telecommunications Services for Top 20 Service Trading Nations, 1997



Note: The higher the score, the greater the degree to which an industry is restricted. The maximum score is 100%.

Source: T. Warren, (forthcoming), 'The Application of the Frequency Approach to Trade in Telecommunications Services', in C. Findlay and T. Warren (eds), *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney.

5.5 Transport

In the transport sector, McGuire, Schuele and Smith have developed a technique for assessing impediments to trade in maritime services.³¹ The data on policy came from a variety of sources including a questionnaire developed by the WTO's Negotiating Group on Maritime Services, GATS schedules, WTO Trade Policy Reviews, office of the US Trade Representative information, OECD material and APEC IAPs. They developed separate indices to quantify restrictions on foreign maritime service suppliers and all maritime service suppliers.³² The gap between the scores for these two types of entrants indicates the extent to which there is discrimination against foreign suppliers. The research group reports results for 35 economies in the Asia Pacific, America and Europe. They find a large range in the degree of restrictiveness³³

³¹ G. McGuire, M. Schuele, and T. Smith, 1999, 'Restrictiveness of International Trade in Maritime Services', in C. Findlay and T. Warren (eds), *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney (forthcoming, November).

³² Restrictions are grouped into two broad categories of those on commercial presence and 'other'. The former includes rules on forms of presence, investment in onshore service suppliers and permanent movement of people. The latter includes cabotage, port services, the UN Liner Code, treatment of conferences and temporary movement of people.

³³ Brazil, Chile, India, Indonesia, Korea, Malaysia, the Philippines, Thailand and the US are among the most restricted markets.

and they find that in their sample Chile, the Philippines, Thailand, Turkey and the US treat foreign-service suppliers significantly less favourably than domestic firms.

A similar technique is currently being used to develop indices of restrictiveness in air transport services. We discuss that case in more detail below in our review of the application of modelling methods.

6. Step 2: Partial impact measures

Having identified and systematised the various cross-national differences in policy, it is possible in some industries to estimate the impact of these differences on core economic outcomes such as prices and consumption. This is necessary if more of the benefits from measurement detailed in section 3 are to be achieved.

The available research on the measurement of NTBs affecting goods trade provides a useful starting point on how to proceed in this regard. In their extensive review of the literature, Deardorff and Stern identify two broad methods of quantifying the economic impact of NTBs:

- *price-impact measures* that examine the impact of NTBs on domestic prices by comparing them with world prices; and
- *quantity-impact measures* that compare an estimate of trade volumes in the absence of NTBs with actual trade volumes.³⁴

These types of price and quantity-impact measures have been considered impossible to replicate in relation to service industries on grounds of data availability. A world price for many service industries is indeterminate. Similarly, lack of systematic bilateral services trade data and the highly aggregated nature of the current account data limit the potential for traditional quantity-impact models.³⁵

As a consequence of these data concerns, it is necessary to identify alternative benchmarks against which to compare actual prices and quantities. Here the market power analysis associated with competition or anti-trust regulation is instructive. The aim of such analysis is to compare actual market outcomes with those that would be expected to prevail if the market were competitive.³⁶

³⁴ A. Deardorff and R. Stern, 1985, *Methods of Measurement of Non-Tariff Barriers*, UNCTAD, Geneva.

³⁵ See B. Ascher and O. Whichard, 1991, 'Developing a Data System for International Sales of Services: Progress, Problems and Prospects' in P. Hooper and J. Richardson (eds) *International Economic Transactions: Issues in Measurement and Empirical Research* The University of Chicago Press, London.

³⁶ P. Areeda, H. Hovenkamp and J. Solow, 1995, *Antitrust Law: An Analysis of Antitrust Principles and their Application*, Little, Brown and Company, Boston.

6.1 Price-impact measures

Work being undertaken as a part of the Australian services research project is seeking to develop price impacts for the banking, telecommunications and transport industries.³⁷ The theory underlying the approach is that if the market had no impediments to entry then it would be competitive and prices would be expected to approach a firm's long run marginal cost — defined as the cost of keeping a particular facility alive and well in the long run.³⁸ If there are impediments, however, there will be a wedge between price and marginal cost. Not only the margin over costs but also costs themselves might be affected. Costs might be higher because low cost suppliers are excluded from the market or because protected firms are not operating at their lowest possible cost levels. For all these reasons - the margin effect, the cost difference effect and the cost reduction effect - prices observed in the presence of impediments may exceed those in their absence.

As a first step in estimating the impact on prices of impediments to trade in services, Kalirajan *et al* examined the price-cost margins (or the 'net interest margins') of 694 national and state commercial banks in 27 economies.³⁹ Using a two-stage econometric technique they were able to isolate the specific impact the trade restrictiveness indices developed by McGuire and Schuele had on this margin while correcting for the factors that influence the size of the buffer that banks need to manage their cash flow. Table 4 provides preliminary estimates of the percentage price effect non-prudential impediments to foreign banks have on the margins for all banks in each of the economies, ranked from the largest effect to smallest. The estimated impacts for Indonesia, Malaysia and the Philippines are the highest of the 27 economies, with the net interest margins at least 45 per cent higher than they would be in the absence of restrictions on trade in banking services. For the more developed countries, the restrictions result in smaller margin increases reflecting their greater liberality.

Table 4 The effect on net interest margins for selected economies

<i>Economy</i>	<i>Effect of Impediments to Foreign Banks on NIMs (%)</i>
Malaysia	60.61
Indonesia	49.32

³⁷ See also, M. Bosworth, C. Findlay, R. Trewin and T. Warren, 1997, 'Measuring Trade Impediments to Services within APEC', *The Economic Implications of Liberalizing APEC Tariff and Nontariff Barriers to Trade*, United States International Trade Commission, Publication 3101, Washington DC.

³⁸ The excess of price over marginal cost as a proportion of price is known as the Lerner Index. See A. Lerner, 1934, 'The Concept of Monopoly and the Measurement of Monopoly Power', *1 Review of Economic Studies* 157.

³⁹ K. Kalirajan, G. McGuire, D. Nguyen-Hong, and M. Schuele, 1999, 'The Price Impact of Restrictions on Banking Services', in C. Findlay and T. Warren (eds.), *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney (forthcoming, November).

Philippines	47.36
South Korea	36.72
Chile	34.00
Thailand	33.06
Singapore	31.45
Colombia	18.35
Japan	15.26
Australia	9.30
Hong Kong	6.91
Switzerland	5.95
Argentina	5.34
Canada	5.34
European Union	5.32
USA	4.75

Note: The European Union excludes Finland, Ireland and Luxembourg.

Source: K. Kalirajan, G. McGuire, D. Nguyen-Hong, and M. Schuele, 1999, 'The Price Impact of Restrictions on Banking Services', in C. Findlay and T. Warren (eds), *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney (forthcoming, November).

In maritime services work is also in progress to assess the impact of policy variables on prices. This work is using an estimate of shipping expenses (derived from comparisons of values at the point of export and the values at the point of import) in bilateral trades in each direction as a proxy for price variables. Statistical methods are being used to test for the significance of the policy measures for variations in prices, after allowing for the impact of other variables which will affect those charges, including the distance between them, the scale of the trade, indicators of the composition of the bilateral trade, the extent of imbalances in the trade flows, and the degree to which the routes are isolated from substitutes. The data set includes 506 observations. The method used requires the separate inclusion of policy in both partner economies. The results will help answer the question of whether a high degree of restrictiveness is necessary in both economies in order to drive up shipping charges or whether a high degree in one partner alone is sufficient.

One limitation with the analysis of margins of prices over costs, with the aim of drawing implications for prices, is the propensity of protected firms to extract monopoly rents in the form of inflated costs rather than excess margins. In some industries the international data is available to deflate costs by producing a world's best practice (technically and allocatively efficient) cost function, using frontier estimation techniques. We discuss below examples of this work in markets for air transport and for telecommunications. With these frontier cost functions it is possible to estimate the costs that the world's most efficient firm would incur if allowed into a country (facing that country's factor costs and market characteristics). A comparison of this adjusted cost measure with actual prices has the potential to give a more precise measure of the rents being created by impediments to trade and investment in services.

6.2 *Quantity-impact measures*

An alternative approach to focusing on prices is to examine output, since price and output are simultaneously determined in a market. In particular, demand for various services is likely to be greater, the more competitive is its supply. This is because the lower relative prices and higher service quality arising from competition will increase demand, while rivalry in investment will push out supply.

Recently, several studies have sought to examine the impact of barriers to entry focusing upon the quantity of mobile telecommunications services consumed within an economy — rather than the quantity traded — and comparing this with international benchmarks.⁴⁰ The aim is to quantify the comparative impact upon telecommunications consumption of limits on competition controlling for other explanatory variables. Restrictions on competition are modelled directly by a count of the number of mobile operators in each country at each period.⁴¹

Warren has developed these earlier studies by extending the analysis from mobile telephony to include the fixed network services, measured in terms of the number of mainlines per hundred persons.⁴² Furthermore, he has expanded the policy variable beyond a simple count of the number of operators (fixed and mobile) to include the ITU-derived indices of telecommunications policies discussed above.

Two sets of simulations were run. The first sought to examine the impact of restrictive policies on the number of main telecommunications lines per hundred persons in a country, controlling for other key variables explaining cross-national differences — GDP per capita, housing density, quality and unmet demand. The second set of simulations undertook the same type of analysis except focused on the number of mobile/cellular handsets per hundred persons. Across the 130+ countries that were examined, policy was found to have a statistically significant impact on the extent of the network.⁴³

⁴⁰ See E. Ralph and J. Ludwig, 1997, 'Competition and Telephone Penetration: An International Statistical Comparison', Presentation to the TPRC, Alexandria VA, 27–29 September; and H. Ergas, E. Ralph and J. Small, 1998, 'Declaration of GSM Roaming: An Economic Analysis', Mimeo.

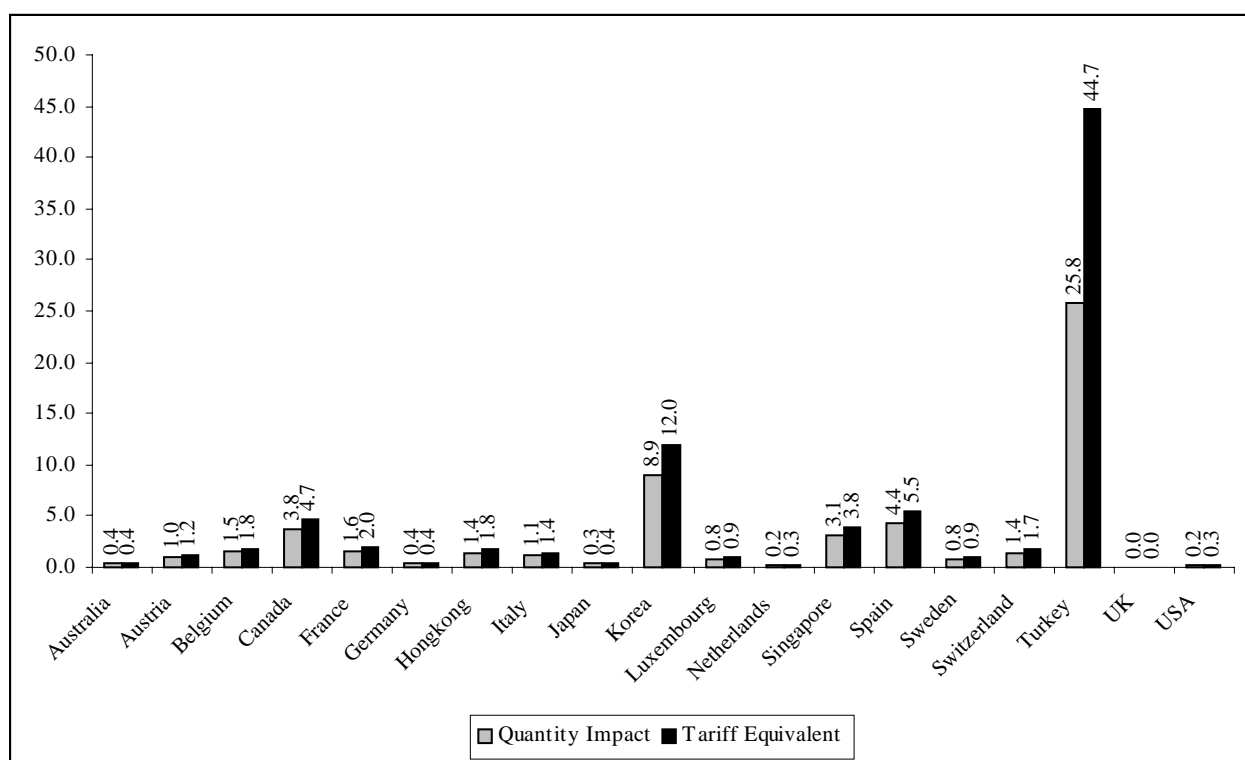
⁴¹ It is worth noting that Ralph and Ludwig found that the presence of three or more mobile operators substantially increased market penetration in the 150 countries they examined. Movement from one to two operators had minimal impact. Ergas, Ralph and Small found that mobile penetration in Australia is high by international standards (about twice the expected level), even when all other variables that affect penetration, including the number of suppliers, are taken into account. Interestingly, Australia has only been above the predicted level of penetration since it liberalised in the early 1990s. From 1987 to 1991 it was consistently below the forecast level.

⁴² T. Warren, 1999, 'Quantity Impacts of Trade and Investment Restrictions in Telecommunications in Christopher Findlay and Tony Warren (eds) (forthcoming- November 1999), *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney.

⁴³ See, T. Warren, 1999, 'Quantity Impacts of Trade and Investment Restrictions in Telecommunications in Christopher Findlay and Tony Warren (eds) (forthcoming- November

As a consequence of these insights, it is possible to simulate the impact on network penetration of full liberalisation. If these predicted increases are calculated as a percentage of actual network penetration, then in combination with an estimate of the elasticity of demand, we could derive a rough tariff equivalent. Figure 3 details the percentage increase in mainlines per one hundred persons that the available international data would indicate likely if the top twenty service trading economies completely liberalised their telecommunications markets.⁴⁴ These percentage changes in quantities can be converted into tariff equivalents using estimates of elasticities of demand. For example, with an elasticity value of -1.2, the tariff equivalents also detailed in percentage price reductions that could be expected from reform of current levels of impediments are equal to the estimated increase in quantities in percentage terms.⁴⁵ For some countries, the numbers are quite small, reflecting their highly liberal policy environment. For other countries, significant increase in the actual number of mainlines would reasonably be expected if liberalisation were to occur.

Figure 3: Predicted Quantity-Impact and Tariff Equivalents of Restrictions on Entry into the Market for the Supply of Telecommunications Fixed Networks, 1997



1999), *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney.

⁴⁴ China is excluded from the graph for reasons of scale, but the calculated quantity impact is 70.9%, which is consistent with the rates recorded by most developing economies.

⁴⁵ The elasticity figure of -1.2 is the lower bound of various estimates on the price elasticity of international calls, see T. Warren, A. Hardin and M. Bosworth, 1997, 'International Telecommunications Reform in Australia', Staff Information Paper, Industry Commission, Canberra, p. 25. This figure is considered inappropriate for developing economies, where the price elasticity of demand is significantly lower.

Notes: The quantity impact is defined as the predicted quantity with free trade less the predicted quantity with current policies as a proportion of the latter.
The tariff equivalent is defined as the predicted price with current policies less the predicted price with free trade as a proportion of the latter.

Source: T. Warren, 1999, 'The Application of the Frequency Approach to Trade in Telecommunications Services', in C. Findlay and T. Warren (eds), *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney (forthcoming-November).

7. Step 3: Modelling

There are three main limitations with the price and quantity-impact estimates listed above. First, the nature of the predicted reductions in price or increases in quantity remains a black box. Does liberalisation affect economic outcomes through competition effects (reduced market power), cost reduction effects (increased efficiency) or cost differential effects (reduced input prices)? The second limitation with the price and quantity-impact estimates is that they fail to give a picture of the welfare implications from reform, including impacts on consumer and producer welfare. Third, even these techniques obviously fail to capture important intersectoral effects. What impact does liberalisation of a particular service industry have on the economy as a whole? To overcome these limitations it is necessary to undertake further economic modelling.

7.1 Partial equilibrium methods

Air transport markets illustrate the scope to use partial equilibrium modelling methods to unpack the effects of liberalisation. There are various options for reform of international air transport where market access is often severely curtailed by a series of bilateral agreements.⁴⁶ Possible reform strategies include:

- liberalisation which permits the entry of further domestic suppliers without changing conditions of access for foreign suppliers
- liberalisation which permits the commercial establishment by foreign carriers,
- liberalisation which permits the further entry by foreign carriers from their home base (e.g. by those currently excluded or restricted under the terms of the bilateral agreements).

As noted above liberalisation can impact on prices and/or quantities as a consequence of three different effects:⁴⁷

⁴⁶ For more details of the regulatory regime in international air transport markets, see T. Warren, V. Tamms and C. Findlay, 1999, 'Beyond the Bilateral System: Competition Policy and Trade in International Aviation Services', Paper presented at the American Economic Association Annual Meeting and meeting of the Transportation and Public Utilities Group, New York, 3 January.

⁴⁷ A. Elek, C. Findlay, P. Hooper and T. Warren, 1999, 'Open Skies or Open Clubs?: New Issues for Asia Pacific Economic Cooperation' *Journal of Air Transport Management*, June.

- competition effects, which refer to the reduction in market power that occurs because of the removal to barriers to entry and the increase in the number of suppliers. Mark-ups over costs are expected to be reduced because of this effect;
- cost reducing effects, which come from two sources in the case of air transport. First, the greater intensity of competition in the markets affected leads suppliers to operate closer to their frontier levels of costs. Second, the relaxation of constraints otherwise imposed by the bilateral system facilitates creation of networks, including new hubs. With greater freedom than previously, and therefore more choice, airlines could be expected to achieve further cost reductions. This second set of effects therefore involves airlines moving closer to the minimum attainable levels of costs, given the input prices they pay; and
- cost difference effects, which arise because of differences in input prices faced by airlines based in different locations. Airlines from different countries can deliver services to a particular market at varying costs. Some countries are likely, in other words, to have a comparative advantage in the provision of these services.

It is possible to identify these effects specifically by building on estimates of cost functions for air transport services. For example, Tamms has used data from 50 airlines from 27 countries over the period 1982-1995 to estimate a short run variable cost equation. She has also estimated a frontier function and is able to assess the extent to which an airline lies off its frontier. These results on the distance to the frontier of a particular airline and on the differences between frontiers of particular airlines can be used in partial equilibrium modelling to identify the effects of reform discussed above.⁴⁸ These models concentrate on supply and demand in air transport markets alone, but they include a series of markets over which airlines are likely to construct networks, they capture networking choices explicitly and they incorporate forms of imperfect competition which make explicit the determination of mark-ups over costs.⁴⁹

The second major limitation with price or quantity impact measures is that they are unable to quantify the impact of liberalisation on consumer and producer welfare. Airlines and consumers will be affected by reform but in different ways. The impact of reform on consumers is relatively simple to describe – they gain from all three sorts of effects described above. The impact on airlines is more complex. The competition effects reduce airline profits, but the degree of reduction is offset by cost reductions. The major airline beneficiaries from reform are likely to include those carriers with a

⁴⁸ The cost estimates referred to in this paragraph are reported in V. Tamms, 1999, 'Frontier Cost Estimates of the Impact of Restrictions on Trade in Air Transport Services', in C. Findlay and T. Warren (eds), *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney (forthcoming, November). The Productivity Commission has undertaken modelling which captures these effects for air transport. The results will become available in detail once the Australian government releases the Commission's final report on International Air Services.

⁴⁹ Trewin is also currently estimating the frontier cost function for a set of telecommunications carriers. See R. Trewin, 1999, 'Regulation and the Pricing of Telecommunications', in C. Findlay and T. Warren (eds), *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney (forthcoming, November).

comparative advantage in the provision of the service. Although, in the context of a market in which airlines provide differentiated services, even airlines that are relatively high cost suppliers may see substantial gains from the scope to redesign their networks. Partial equilibrium modelling can be used to estimate the relative size of these effects on consumers and producers and also the scale of the net benefits, that is, the difference between consumer gains and airline gains or losses

In summary, partial equilibrium modelling can be used to deal with the first two limitations of the price and quantity-impact assessments of the impact of reform, namely the unpacking of the origins of the effects identified and their impacts on consumer and producer welfare in relevant markets. But by definition, the partial equilibrium methods fail to capture the intersectoral effects.

7.2 General equilibrium issues

The third major limitation with price or quantity impact measures is that they are unable to quantify the impact of liberalisation on the wider economy. To do this requires the incorporation of these measures into general equilibrium models such as a modified GTAP model⁵⁰ capturing the structure of service industries. This will allow policy makers to quantify the costs of maintaining policies designed to exclude rival domestic and foreign firms from their service markets.

Hoekman and Primo Braga review some of the general equilibrium modelling.⁵¹ An important point they make is that since services are an input into the production of most industries, an inefficient service sector can be very costly to the economy as a whole.⁵² They note that if a country reformed its tariff structure — even reducing rates to zero — but did not include the service sector in the liberalisation process, then distortions would still remain and resource allocation would be affected. This point they note has usually been ignored in modelling work.

Modelling work has been constrained, however, by the lack of data on the impact of policies that restrict services trade and investment. Some attempts have been made to convert frequency measures into tariff equivalents and then simulate the effects of reductions in barriers. One such study by Brown *et al* found that the welfare gains from Uruguay Round cuts in industrial tariffs would have been three times higher if services barriers had also been cut by 25%.⁵³

⁵⁰ See T. Hertel. (ed.) 1997, *Global Trade Analysis: Modelling and applications*, Cambridge University Press.

⁵¹ B. Hoekman and C. Primo Braga, 'Protection and trade in services: A Survey', CEPR, Discussion Paper Series, no. 1705, September 1997.

⁵² There is also a literature on the importance of services intensity of production. Even though this ratio may be low in some developing countries, this could be because of the inefficiency of services supplied by arms-length transactions lead firms to undertake a higher provision of such services in-house. See J. Francois and K. Reinert, 'The Role of Services in the Structure of Production and Trade: Stylised Facts from a Cross-Country Analysis', *Asia-Pacific Economic Review*, 2, 35-43.

⁵³ D. Brown, A. Deardorff, A. Fox and R. Stern, 1996, 'Computational analysis of goods and

Dee, Hardin and Holmes have reviewed previous CGE modelling work in more detail and have noted some of the challenges involved in capturing in a GE framework the important features of services trade liberalisation.⁵⁴ They discuss the ways in which the various measures outlined above can be converted into tax equivalents for use in GE modelling. They also note in particular the importance of:

- distinguishing between services supplied by substitute modes, that is by local firms, by foreign owned firms operating from a local base and from foreign firms operating from home base (these are the same three modes of entry which we used as illustrations of reform in our discussion of the application of modelling methods to the air transport market);
- identifying the different impacts of impediments in terms of effects on restrictions on on-going operations and those on establishment (both of which may apply to local and foreign owned firms, and which may apply differentially to foreign owned firms depending on how they want to access the market);
- determining the distribution of any rents created between local and foreign interests; and
- capturing the possibility of perverse welfare effects from liberalisation: these could occur when a form of service is subject to a tax in the initial equilibrium and whose output falls as a result of liberalisation, e.g. the consequence of the removal of tax on close substitute forms of delivery. The existence of these perverse effects supports the case for a broad program of reform in terms of sectoral coverage as well as modes of delivery.

Dee, Hardin and Holmes also discuss how these features can be incorporated into a CGE model. Preliminary modelling results are expected early in 1999. These will, for the first time, allow for a complete assessment of the economy-wide impacts of services liberalisation and conversely, will highlight the ongoing costs to economies of maintaining protection.

8. Conclusion

This paper has demonstrated that it is possible to develop weighting schemes by which policy measures affecting international services transactions can be constructed. These weights reflect some expectation of the economic significance of the restrictions involved. Over time, as the extent of empirical work expands, the weights themselves may be determined endogenously.

services liberalisation in the Uruguay Round' in W. Martin and A. Winters (eds.), *The Uruguay Round and Developing Economies*, Cambridge University Press, Cambridge.

⁵⁴ Philippa Dee, Alexis Hardin and Leanne Holmes, 1999, "Issues in the application of CGE models to services trade liberalisation", forthcoming in C. Findlay and T. Warren (eds), *Impediments to Trade in Services: Measurement and Policy Implications*, Routledge, Sydney.

The paper has also highlighted how policy measures constructed in this way are powerful explanators of market outcomes, although at this stage the assessments based on quantity impacts tend to work better than those based on price impacts.⁵⁵ This is especially the case where data on policy from the GATS can be supplemented by data from industry sources. If market data are available then, the significance of the policy measures can be tested in terms of their impact on market outcomes. Where market data are not available, outcomes can be inferred from the policy measures, given the confidence in this methodology based on its applications in other markets.

More explicit modelling in either a partial or general equilibrium framework is always desirable, though sometimes costly. These modelling methods can be used to make explicit the mechanisms by which policy choices affect market outcomes. Information that is hidden in the single equation reduced form approaches that are generally used in price or quantity impact approaches. Modelling can also be used to derive simultaneously other impact measures, including welfare effects and redistributive effects.

The increased sophistication of the measurement techniques summarised in this paper has significant implications for the negotiating process. For the first time, measures of impediments to trade in services are becoming available which can legitimately be used as the focus for negotiations or for the documentation of commitments. This has a number of major consequences for international negotiations. It implies that:

- information will be available to help set priorities at the national level;
- commitments in global (and regional) talks can be codified more easily and therefore cross sectoral negotiations can be facilitated;
- the constraint on the lack of incremental change - an inhibitor to reform because of the apparent all-or-nothing choices faced by negotiators - will be removed, since partial reform or sequencing will be more easily documented;
- a move to a negative list approach to documenting commitments will be facilitated by the greater information disclosures these techniques engender. Negative lists in turn adduce greater pressure for liberalisation as the schedules show what remains to be done in sectoral terms, as opposed to the current approach of documenting sectors in which commitments to reform have been made;
- the difficulty of some economies being able to characterise their policy regimes and therefore participate meaningfully in the negotiations can be overcome again through the increased information disclosure that is a core result of these techniques; and
- the distinction between market access and national treatment, which is currently confused in the GATS, becomes more conceptually clear (along the lines proposed

⁵⁵

This could reflect the difficulty of obtaining representative price data for services.

above) as it is operationalised through the application of these measurement techniques.

Finally, there have been arguments that the GATS tried to do too much in terms of modes of delivery and coverage of barriers and that as a consequence it achieved too little in terms of obligations. Another view is that a bold approach to coverage was necessary since meaningful liberalisation in the service sector is not possible without treating investment and without treating all the barriers, including those now covered under the GATS definition of 'market access'. It has also been observed that including a wide scope in the services negotiations helped mobilise interests in industrialised economies in the last round of negotiations, so much so that progress in other difficult areas was facilitated. In the context of this debate, the sets of measures we have presented and reviewed here, as well as the related methodologies, create a new set of opportunities. They introduce a new technology into the negotiating process. That technology makes it easier to maintain the goal of a broad scope in the GATS without a sacrifice of obligations.

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