Implementing the e-APEC Strategy: progress and recommendations for further action

Background Paper

PART TWO

LIBERALISATION AND REGULATORY POLICY PERFORMANCE

November 2004

This document is a background reference paper for the PECC report to APEC Ministers in Santiago entitled *Implementing the e-APEC Strategy: progress and recommendations for further action*. It is included in a CD accompanying the published Overview Report.

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2.1 Liberalization policy and e-infrastructure performance

Performance in e-infrastructure improved through liberalisation and sound regulation

It is increasingly evident that performance in the e-infrastructure sector is improved by market liberalization policy and a sound regulatory environment. *APEC Economic Leader's Los Cabos Statement to Implement APEC Policies on Trade and the Digital Economy* highlights the importance of market liberalisation and pro-competitive regulatory regime as the primary enabling policy elements for both trade and Digital Economy.

In this section we report on the liberalization policy in terms of market access conditions of e-infrastructure in APEC member economies and compare their performance through the specification of a Market Access Index (MAI). The status of APEC member economies in adopting pro-competitive regulatory rules will also be addressed.

Market Access Index (MAI) is used to analyze performance in APEC economies.

The positive linkage between liberalization policy and sector performance in the e-infrastructure arena is evident. Armstrong *et al* (1995) notes that compared to a traditional monopoly structure, competition is desirable for regulated industries, such as telecommunications, as it helps to select firms with higher efficiency, provides richer market information and enhances innovation. Findlay *et al* (2002) studied 15 APEC economies and concluded that economies with less market access impediments have better performance in terms of both fixed phone line and mobile penetration rates.

OECD finds gains from market opening

OECD case studies (2000a, 2000b and 2001) on some APEC member economies also indicate that market opening in the telecommunications sector brings positive efficiency gains on productivity, innovation, consumers' welfare and long-run economic growth. Summary of those findings is provided in Table 5.

Table 5 Synopsis of OECD empirical studies of the relationship between liberalization and telecom performance in selected APEC economies

Year	Country	Studied areas	Indicators	Findings
2000	USA	Unbundling, Liberalization	Prices	Declined in long-distance service
			Quality	Improved
2000	Mexico	Liberalization of long distance and local services; regulatory reform	Prices	Long distance declined 22%
			Quality	Unclear
			Employment	Increase by 50%
			Efficiency	Increase by 46%
2001	Korea	Same as Mexico	Prices	Declined by 50%
			Quality	Improvement
			Employment	Increase by 25%
			Efficiency	Increase by 27%

Source: OECD Reviews of Regulatory Reform: Regulatory Reform in the United States (2000a); Mexico (2000b) and Korea (2001).

2.2 Market status and access conditions in the fixed-line sector

(1) Overview

Facility-based operators are considered in the fixed-line sector

There are a variety of services provided by the fixed-line networks, such as local, long distance and international telephony services, and many of them are offered on a resale basis. Yet as this report focuses on the *access* aspect of infrastructure only facility-based operators, i.e. services provided through its own network infrastructure, are discussed in this section.

Most APEC economies are pursuing liberalization for infrastructure investment and better performance

Liberalization has also been adopted by the majority of APEC member economies as the preferred policy tool to attract infrastructure investment and to achieve better performance. The main measures taken are the opening of market entry and the privatization of the state-owned incumbents. Yet it is a common practice among APEC economies to liberalize the fixed-line sector in a much-delayed sequence than mobile and Internet services. Table 6 outlines the sequence of liberalization process in selected APEC economies.

Table 6 Sequence of telecom liberalization in selected APEC economies

Country	Pre- '92	'92	'93	'94	'95	'96	'97	'98	'00	'02
Indonesia										
Privatization			PT Telkom				23%			
Fixed-line										1
Mobile					1	2				3
Malaysia										
Privatization	(25%)				Telekom Malaysia					
Fixed-line			1	4	5					
Mobile	1		3	4						
Chinese Taipei										
Privatization						ChungHwa Telecom			3%	13.5%
Fixed-line									3	
Mobile							5			
Singapore										
Privatization			11%				17%			
Fixed-line								1		
Mobile					1			2		

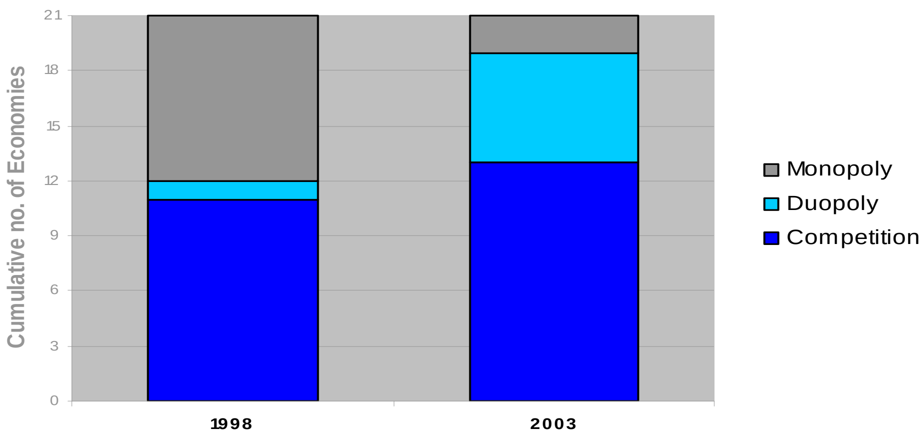
Notes: % in each cubic denotes the percentage of shares privatized; number denotes the number of new licences issued.

Source: Complied by author

Nearly all APEC economies have turned to market opening policies since 1998

With the introduction of liberalization policy since late 1980's, market structure, i.e. number of operators, has been moving from a single monopolist to competition between multiple operators in the APEC region. Considerable improvements are observed especially since the WTO-GATS agreement on basic telecom service came into effect in 1998. As shown in figure 28, in 1998 monopoly or duopoly structures still accounted for more than half of APEC fixed-line networks. This condition has improved in 2003 with a large number of economies adopting market opening policy. Competition structure is now taking the dominating role with only Brunei and PNG still retaining a monopoly structure. Many economies, such as China and Indonesia, adopted a progressive approach to liberalize the fixed-line networks by moving from monopoly to a duopoly structure.

Figure 28 Fixed-network market structure in APEC region



Source: APEC, 2004; ITU, 2004

(2) Market access conditions

- **Market entry conditions**

Market structure does not always reflect access. Market access can be tempered by other factors

In many circumstances market structure does not always reflect actual market access conditions. The number of operators is affected by many non-policy considerations, including market size, services maturity and state of competition. Thus there might be, as in the case of Singapore, a duopoly structure yet market access restrictions are completed liberalized. In contrast multiple existing players do not warrant future entry, as in the case of Chinese Taipei and Korea. In Vietnam only state-owned enterprises (SOEs) are allowed to apply for new licences.

Also different forms of market access restrictions are applied across the APEC region. Apart from the licensing regime, some economies, e.g. Thailand and Russia, adopted BOT style concession arrangements that often require new entrants to establish revenue-sharing schemes with incumbent.

As of 2003 Canada has the most liberal market access condition with no licensing requirement for new entrants. Australia, Chile, Hong Kong, New Zealand, Singapore and the US adopt full liberalization approach with no predetermined numeric restrictions. Only Brunei and PNG retained monopoly structures. Actual market entry conditions among APEC are summarized in Table 7.

Table 7 Market access conditions of fixed-line networks in APEC economies as of 2003

Economies	Market structure	No. of operators	Access conditions
Australia	C	3^	Full-liberalization; entry based on merits of application
Brunei Darussalam	M	1	Entry prohibited. Review policy 10 years after the privatization of incumbent JBT. Timetable for privatization unclear
Canada	C	3^	Full-liberalization; New entrants do not need to be licensed
Chile	C	3^	Full-liberalization; entry based on merits of application
PRC	D	2	Short-term policy: duopoly; long-term policy: unclear
Hong Kong	C	3^	Full-liberalization; entry based on merits of application
Indonesia	D	2	Short-term policy: duopoly; long-term policy: unclear
Japan	C	3^	Full-liberalization; entry based on merits of application
Korea	D	2	Short-term policy: duopoly; long-term policy: competition
Malaysia	C	3^	Market-oriented approach; entry based on necessity test and merits of application
Mexico	C	3^	Market-oriented approach; entry based on necessity test and merits of application
New Zealand	C	3^	Full-liberalization; entry based on merits of application
PNG	M	1	Entry prohibited. Future policy: unclear

Peru	C	3^	Market-oriented approach; entry based on necessity test and merits of application
Philippines	C	3^	Based on granting of legislative franchise from Congress and Certificate of Public Convenience and Necessity from regulator
Russia	D	2	Concession with incumbent. Short-term policy: duopoly; Long-term policy: unclear
Singapore	D	2	Full-liberalization; entry based on merits of application
Chinese Taipei	C	3^	Short-term policy: 5 operators; long-term policy: unclear
Thailand	D	2	Concession with incumbent. Short-term policy: duopoly; review policy after 2006 upon the passage of the new Telecom Law
United States	C	3^	Full-liberalization; entry based on merits of application
Vietnam	C	3^	Limited based on necessity test. Only public-owned enterprises allowed

Notes: C = competition; D= duopoly; M= monopoly. 3^ denotes more than 3 operators.
Source: Findlay et al, 2002; APEC, 2004; ITU, 2004

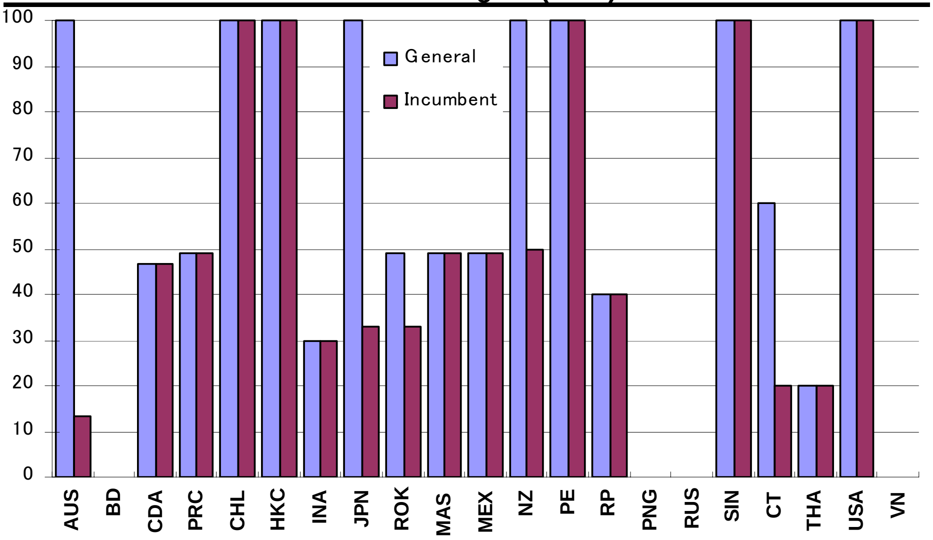
- **Restrictions on foreign investment**

Restriction on foreign investment is a major market access barrier

Due to the nature of e-infrastructure, establishing a commercial presence is the most common and feasible mode of supply. In order for foreign suppliers to set up a commercial outlet, with or without domestic partners, it can only be achieved through foreign investment. Hence restriction on foreign investment is also a major market access barrier. There are two major categories of restriction on foreign investment. The first is the limitations on the percentage of foreign ownership, and the second is legal forms requirement.

As of 2003 there are eight APEC economies that allow 100% foreign ownership for fixed-line operators, namely Australia, Chile, Hong Kong, Japan, New Zealand, Peru, Singapore and USA (Figure 29). These economies impose no restrictions on legal forms as well. Yet it has to be noted that Australia, Japan and New Zealand, together with Korea and Chinese Taipei, have at the same time retained foreign investment restrictions on incumbent operators. The Philippines offers higher ownership allowances for fellow ASEAN member economies. On the other hand Brunei, PNG, Russia and Vietnam do not allow foreign investment in the fixed-line networks at all. The common practice among most APEC economies is to limit foreign investment from gaining dominant positions in fixed-line operators, that is, below the 50% threshold. Restrictions on foreign investment among APEC are summarized in Table 8.

Figure 29 Max. foreign investment allowed for Fixed-networks in APEC region (2003)



Source: APEC, 2004; ITU, 2004

Table 8 Restrictions on fixed-line network foreign investment in APEC economies (2003)

Economies	Direct Investment ceiling (%)	Legal form required
Australia	100 except: ▪ 13.4 of Telstra's shares. ▪ Majority Australian ownership of Vodafone	None
Brunei Darussalam	Not allowed	Not allowed
Canada	Facilities-based telecom service suppliers : 46.7	None
Chile	100	None
PRC	49	Joint venture only
Hong Kong	100	None
Indonesia	30 (40 for ASEAN member)	Joint venture only
Japan	None except no more than 33% is allowed for NTT	
Korea	General: 49; Incumbent (KT): 33	
Malaysia	49	Only through acquisition of shares of existing operators
Mexico	49	None
New Zealand	100 except 49.9 for Telecom NZ	None
Papua New Guinea	Not allowed	Not allowed
Peru	100	None
Philippines	40	None
Russia	Not allowed	Not allowed
Singapore	100	None
Chinese Taipei	General: 60; Incumbent (CHT): 20	None
Thailand	20	Joint venture
United States	None after passing public interest test	None
Vietnam	Not allowed	Not allowed

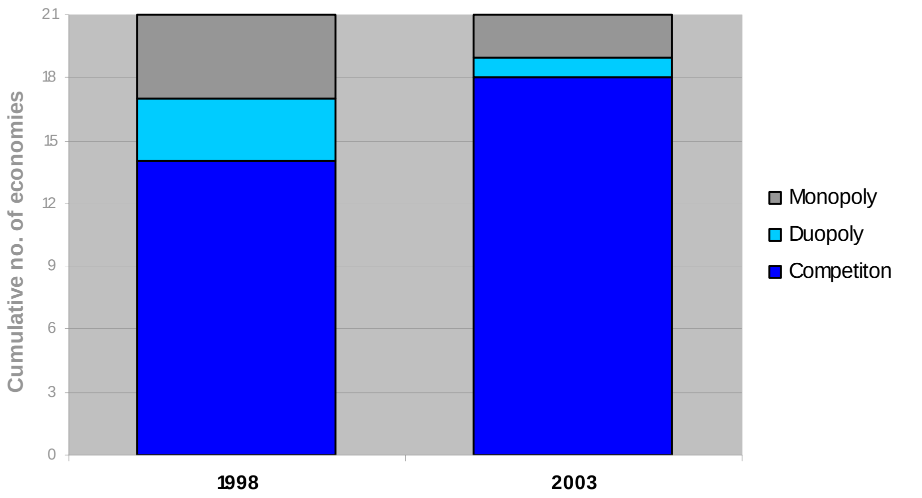
Source: Findlay et al, 2002; APEC, 2004

2.3 Market status and access conditions in the mobile sector

Access to the mobile sector greatly relaxed since 1998

Access conditions are much more relaxed for the mobile sector. As illustrated in figure 30, competition was already the common market structure in majority of APEC economies in 1998. By 2003 only Brunei and PNG retained monopoly structure while China maintained a duopoly market.

Figure 30 Mobile network market structure in APEC region



Source: APEC, 2004; ITU, 2004

(1) Market access conditions

- **Market entry**

Most APEC economies have liberalized mobile. Market oriented approaches taken.

As of 2003 the vast majority of APEC economies have liberalized their mobile sector. New licences are granted based on market-oriented approaches unless limited by the availability of spectrum. Brunei and PNG are the only two economies that restrict new entries. China currently is with a duopoly structure but additional licences are envisaged for the two fixed-line operators in the near future. Actual market entry conditions among APEC are summarized in Table 9.

WTO Reference Paper should guide assignment of radio spectrums

A major issue remaining in mobile market accessibility is the assignment of radio spectrums. In accordance with the WTO Reference Paper on Basic Telecommunications, which all APEC members except Vietnam have undertaken as their respective GATS commitments, the allocation process should be carried out in an objective, timely, transparent and non-discriminatory manner. The assessment of spectrum allocation among APEC members can be assessed when more data becomes available.

Table 9 Market access conditions of fixed-line networks in APEC economies as of 2003

Economies	Market structure	No. of operators	Access conditions
Australia	C	3^	Market-oriented approach; evaluate applications based on merits and availability of spectrum
Brunei Darussalam	M	1	Entry prohibited. Review policy 10 years after the privatization of incumbent JBT. Timetable for privatization unclear
Canada	C	3^	Market-oriented approach; evaluate applications based on merits and availability of spectrum
Chile	C	3^	
China	D	2	Short-term policy: duopoly; long-term policy: unclear
Hong Kong	C	3^	Market-oriented approach; evaluate applications based on merits and availability of spectrum
Indonesia	C	2	
Japan	C	3^	
Korea	C	3^	
Malaysia	C	3^	
Mexico	C	3^	
New Zealand	C	3^	
Papua New Guinea	M	1	Entry prohibited. Future policy: unclear
Peru	C	3^	Market-oriented approach; evaluate applications based on merits and availability of spectrum
Philippines	C	3^	
Russia	C	2	
Singapore	C	2	
Chinese Taipei	C	3^	
Thailand	C	2	Market-oriented approach; evaluate applications based on merits and availability of spectrum. Concessions with incumbent operator
United States	C	3^	Market-oriented approach; evaluate applications based on merits and availability of spectrum
VietNam	C	3^	Limited based on necessity test and availability of spectrum. Only public-owned enterprises allowed

Notes: C = competition; D= duopoly; M= monopoly. 3^ denotes more than 3 operators.

Source: Complied by author

- **Restrictions on foreign investment**

Foreign investment restrictions in mobile same as in fixed line sector.

Restrictions on foreign investment in the mobile sector are in essence governed by the same regime applied to the fixed-line sector. The exceptions are Mexico and USA but in a vis-à-vis manner--Mexico allows 100% foreign ownership for mobile operators while USA applies a 25% foreign ownership ceiling for mobile operators (PSC licensees) unless FCC approves otherwise based on case-by case evaluations.

Table 10 Restrictions on mobile network foreign ownership in Mexico and USA (2003)

Economies	Investment ceiling (%)	Legal form	Fixed-line ceiling
Mexico	100 %	None	49
United States	20% unless otherwise approved	None	100

Source: Findlay et al, 2002; APEC, 2004

2.4 Comparative assessment of market openness

(1) Methodology

Market Access Index (MAI) applied. Measures openness/ restrictions in mobile and fixed line

In this section we assess and compare the market access conditions status for fixed-line and mobile sectors across APEC member economies through the adoption of a Market Access Index (MAI). Following the work of Warren (2000), Findlay et al (2002) and Findlay and McGuire (2003), the Market Access Indicator is a frequency measurement that estimates the extent and level of openness/restrictions of an economy for both fixed-line and mobile sectors.

Enables performance to be compared. A valuable tool for policy makers for review and targeting

The main function of the Market Access Indicator is to provide comparable assessment of policy performance between individual economies. This would provide valuable information for policy makers to review policies and set targets by comparing with economies with similar situation. The Market Access Indicator also provides information on marker access conditions over time.

The Market Access Indicator classifies market access restrictions in two categories:

- Establishment (commercial presence) — the ability of service suppliers to establish a physical outlet in a territory and supply services through those outlets. Indicators under this category include: licensing of fixed-line and mobile service, and restrictions on foreign investment.

- Ongoing operations — the operations of a service supplier after it has entered the market or cross-border supplies. Indicators under this category include: leased line, resale and call back operations.

Variables selected under "Establishment" category are crucial market segments that are currently considered as the basic underlying communications infrastructures. Indicators included under the Ongoing category are important policies that facilitate competition for both service-base and facility-based new entrants.

An access restriction score is then calculated for each economy using a methodology of scores and weights. Scores are assigned for each restriction on the basis of a judgement about how stringent it is. The more stringent the restriction is, the higher the score. The restriction categories are then weighted together according to a judgement about their relative economic cost. For example, restrictions on licences are weighted more heavily than restrictions on call back operations. A summary of the components and indices under the Establishment and Ongoing categories is provided in Table 11. More details on the Market Access Indicator index are provided in the appendix.

In the following section Market Access Indicator results of 1998 and 2003 is assessed and compared. We use 1998 as the base year for comparison because it is the year when the GATS agreement on basic telecom services came into effect. Thus it allows assessment not only of the change of policy over time but also the effects of the implementation of GATS commitments among APEC economies.

Table 11 Summary of Market Access Indicator components

Establishment	Ongoing
1. Licensing of new fixed line licences 2. Licensing of new mobile operation licences 3. Foreign investment; including following sub-items: (1) General: the maximum direct foreign ownership allowed for fixed-line operation (2) Incumbents: the maximum foreign ownership allowed for incumbent operator (3) Legal forms—whether joint venture is required	1. Leased line operations 2. Voice resale operations 3. Cross-border trading—callback operations

2) caveats

The main feature of the MAI Index is that it offers a simplified and overall view of market opening performance by narrowing down a wide array of information into a few values. Given the diverse historical, legal and political characteristics of APEC economies, the inclusion and omission of variables is a delicate and balanced act between breadth and depth and involves inevitably certain degree of judgment.

In the effort to maintain a consistent application of methodology, and constrained by data compilation, the MAI index considers breadth more important than depth. For instance, the project team understands that it is the practice of some APEC economies to apply different foreign investment restrictions based on the type of services (fixed-line, mobile or service-based) offered. This practice, however, is not captured in the MAI simply because it is not adopted by a majority of APEC economies.

There are, as a consequence, three major limitations that readers need to take into account.

- First the analysis results are limited to the data that the project team has managed to compile and should therefore be interpreted in tandem with this limitation.

- Second the purpose of the index is indicative rather than conclusive. It demonstrates the general trend and the policy outcome. It has a very limited ability to reveal developments in other areas.

- Third the index is designed to undertake *comparative* assessment; as such, an individual economy's position is therefore only relative to those of its APEC counterparts.

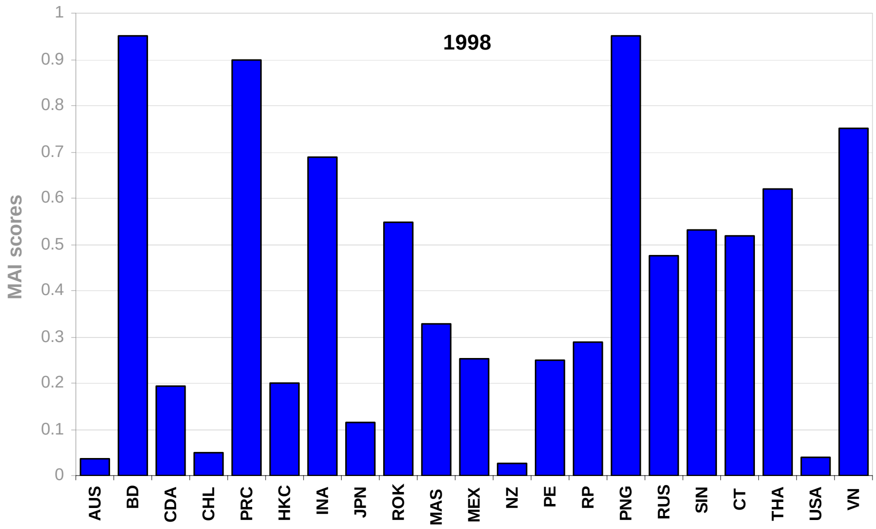
(3) Results from 1998 and 2003

- **1998 results**

Starting with 1998 data.

In 1998 varied degrees of market entry restrictions are found across the APEC region (Figure 31). Australia, Chile, New Zealand and U.S. are the most liberal markets in 1998. There is no restriction on both fixed-line and mobile licensing as well as on every indicator under the ongoing category. Restriction against foreigners is limited only in the area of equity participation in incumbent carriers. Brunei, China and PNG meanwhile are the most restrictive markets in 1998.

Figure 31 Market Access Indicator results (1998)



Note: 0= most accessible

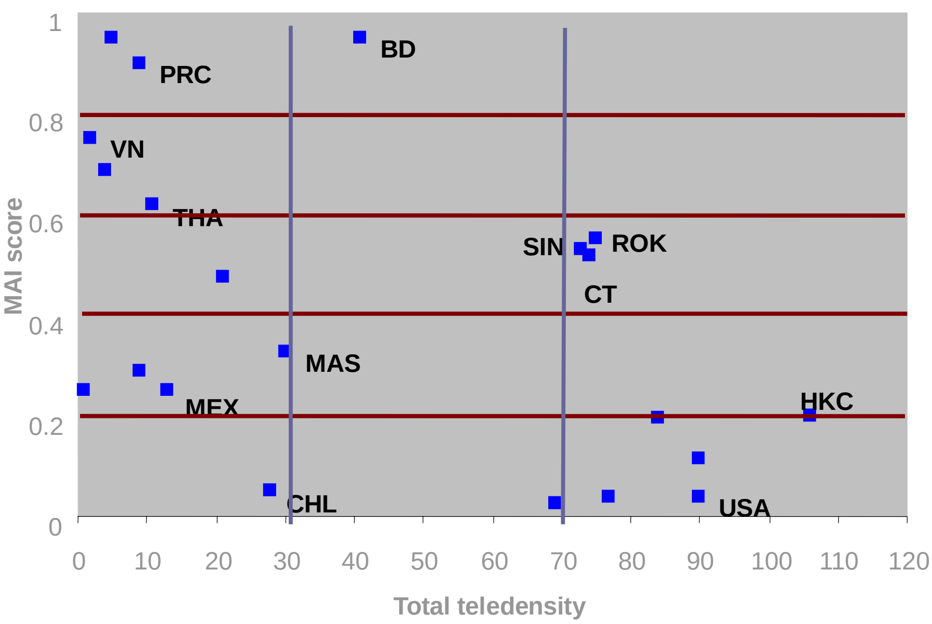
By comparing Market Access Indicator scores with APEC members' total teledensity (fixed-line + mobile) again diverse positions with respect to market access policies appeared in 1998. Economies belonging to considerably different stages of telecom development, for example Chile and USA, might have a similar level of market openness. Meanwhile high teledensity economies (>70), such as Korea (Figure 32), can have relatively restrictive markets compared with economies with lower teledensity (<30).

Chinese Taipei, Korea and Singapore formed the cluster that is characterised by substantial restrictions on licensing, foreign investment and ongoing operations. Russia also falls in this group but with better access conditions. The next group (D) consists of Indonesia, Thailand and Vietnam. Together with group E, Brunei, China and PNG, these are the most restricted regimes in the APEC region with monopoly or duopoly structures and new entry is prohibited.

In 1998 most APEC members had started liberalisation

The common features in 1998 are that most APEC members have just started the liberalisation process initiated by ceasing state monopolies and issuing of new licences. Ongoing operations are still largely prohibited and foreign participation is considerably limited by restricting the percentage of foreign ownership or by requesting a mandatory joint venture contract.

Figure 32 1998 Market Access Indicator results



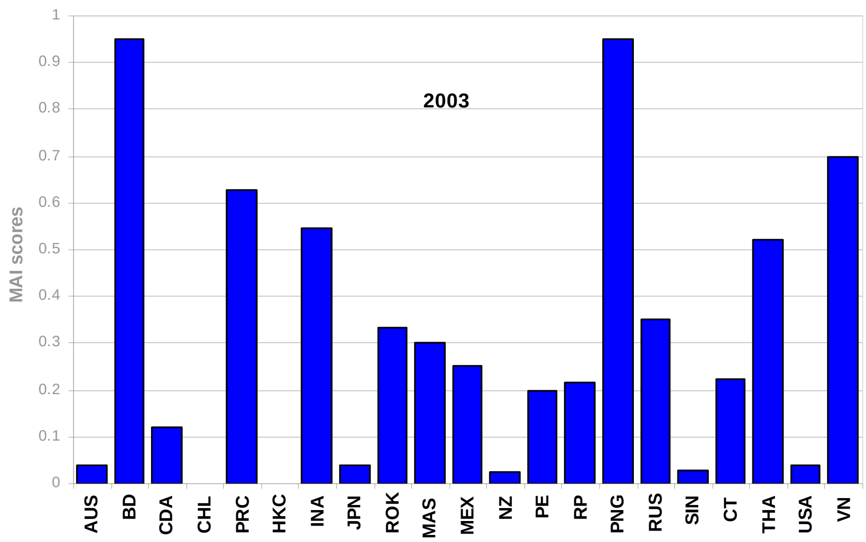
Note: MAI score 0= most accessible. Both MAI and teledensity grouping are solely for the convenience of interpretation and description.

2003 results

Major liberalization took place between 1998-2003

Extensive liberalization reforms among APEC member economies took place between 1998-2003. The most significant improvement occurred in Chile and Hong Kong. Both economies eliminated restrictions on establishment and ongoing activities: a zero index is recorded for both economies (Figure 33). Chile and Hong Kong replaced Australia, New Zealand and U.S.A as the most open markets in 2003. Similarly Singapore also fully liberalized its fixed-line and mobile sectors except retaining limitation on foreign participation in the incumbent SingTel. Market entry in Brunei and PNG is still prohibited.

Figure 33 Market Access Indicator results (2003)



Note: MAI score 0= most accessible

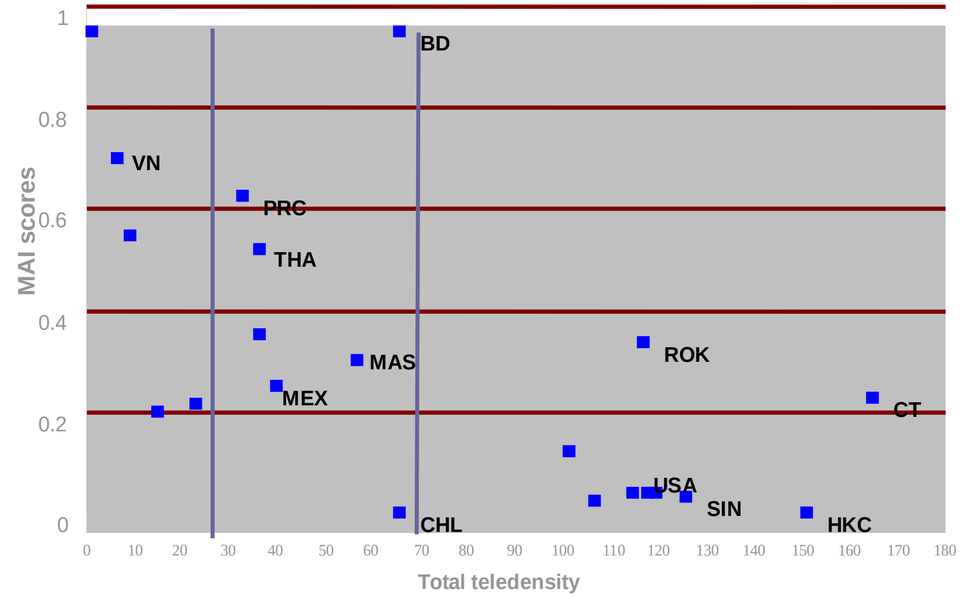
Group A the frontrunners

In 2003 most high-teledensity economies (> 70) have in principle open market access conditions. Canada and Japan have relaxed entry barriers, only restricting foreign equity participation in incumbent operators; and Canadian government is considering ceasing the limitation of foreign share participation in common carriers. The only two exceptions are Korea and Chinese Taipei, despite the fact that both have already made substantial improvement comparing with 1998.

Groups C, D and E have varying performance on moves to openness

The market access status in Indonesia and Thailand has been slightly improved in their ongoing restrictions. For the group of economies that are considered most restrictive in 1998, China has taken major steps in refining its market entry restrictions. First one additional fixed-line carrier was established in 2002 and the duopolies are allowed to compete in each other's territory. Second foreigners are allowed to enter the market through joint venture arrangements with 49% equity ceiling. Conditions in Brunei, PNG and Vietnam remain unchanged. Nevertheless it is worth noting that PNG government has announced its plan to partial privatise the state-owned carrier to foreign operators.

Figure 34 Market Access Indicator results (2003)



Note: MAI score 0= most accessible. Both MAI and teledensity grouping are solely for the convenience of interpretation and description.

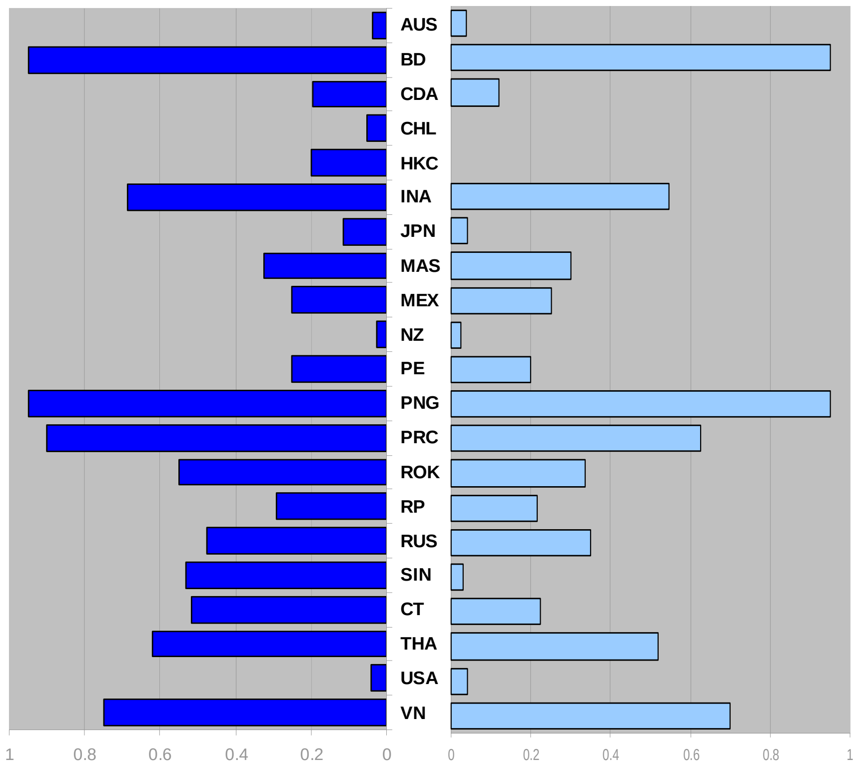
(4) Comparing improvements

Hong Kong and Singapore undertook biggest changes

In general most APEC economies have all refined their market access conditions between 1998 and 2003 to a different extent. Hong Kong and Singapore have achieved the most remarkable improvements in market access conditions during 1998 and 2003; both economies removed all access restrictions by 2003. China, Chinese Taipei and Korea also have significantly improved their policies on market access and foreign investment. Australia, New Zealand and USA kept their already liberal conditions while market restrictions in Brunei, PNG and Vietnam are equally stringent.

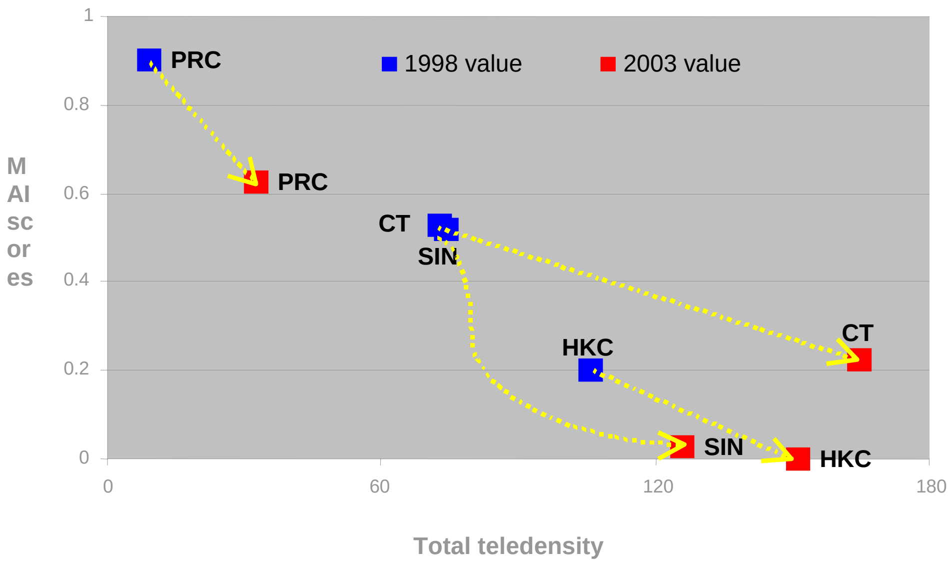
The results also indicate an explicit correlation between market access conditions and market performance. Economies that adopt a more liberal approach in market access also tend to have substantial improvement in total teledensity at the same time (Figure 36). Although it is true that market performance is affected by a matrix of factors but it is evident that market opening is the most prominent one.

Figure 35 Changes in market access (1998-2003)



Note: A score of zero indicates most accessible

Figure 36 level of improvement in selected APEC economies.



2.5 Regulatory performance

(1) Creating a pro-competion regulatory environment in the APEC region

To liberalisation policy regulation is a double-edged sword[1].Often regulation is still required to preserve the outcome of liberalisation in e-infraetructure sector. First due to both historical and technical reasons, regulation is needed to prevent incumbent operator from misusing its market dominance. Second regulation is needed to ensure that public interests objectives (e.g. sector development, any-to-any conectivity, service quality, pricing and Universal Service) are accomplished. On the opposite regulation, without proper design, can also be the major source of restrictions to liberalisation and competition.

From a multilateral perpective, the major challenge of designing and implementing a pro-competitive regulatory framework is that it must allow individual economy to pursue its own regulatory objectives without compensating its objective to promote a pro-competitive regulatory environment. That is, the framework must be flexible enough to allow national considerations. At the same time, it must not be too abstract such that it fails to provide meaningful guidelines for pro-competitive regulatory approaches.

Based on this understanding 18 APEC economies reached a consensus in the *APEC Leader's Los Cabos Statement to Implement APEC Policies on Trade and the Digital Economy* to adopt the regulatory principles inscribed in the WTO Reference Paper as the underlying guideline for implementing a pro-competitive regulatory regime in the APEC region. In general regulatory principles spelled out by WTO can be categorised into the following items:

- Non-discrimination: to ensure that domestic regulation does not discriminate between foreign services or service suppliers of different nationalities (most-favoured nation treatment) and between foreign and national services and service suppliers (national treatment).
- Good governance: to ensure that domestic regulation is administered in a transparent and fair manner for all parties involved. This concerns the notification and publication of regulatory rules and procedures, as well as the independence of regulator.

[1] As market access and treatment of foreign operators are discussed in the forgoing section, regulations in this section refer to regulatory measures other than market entry and foreign investment restrictions.

- Competitive safeguards : to ensure that regulations contain basic provisions or measures that will prevent major players from abusing their market dominance in anti-competitive activitives.
- The establishment of interconnection regime: to ensure that interconnection especially with major players and access to bottleneck facilities is providesd in a fair and transparent fashion.

(2) APEC members' performance

APEC Telecommunication and Information Working Group (APECTEL, 2003) conducted an extensive survey regarding member economies' progress in adopting and implementing WTO Reference Paper in the light of Leader's Statement. The result of the survey shows that majority of member economies have, albeit in different forms, adopted and implemented regulatory principles contained in the WTO Reference Paper. The survey also provides valuable basic information regarding how individual economy's regulatory regime adapts to accommodate pro-competitive rules. Table below summarises the result of the APECTEL survey[2].

[2] Due to technical difficulty in generalisation all regulatory elements table below only provides the results in competitive safeguard, interconnection, public availability of licensing criteria, independent regulator and allocation and use of scarce resources. Universal service performance is not included.

Table 12 APEC economies progress in adopting and implementing WTO Reference Paper

Regulatory elements	Performance
1. Competitive safeguards 1.1 Preventing major suppler from engaging in anti-competitive cross-subsidisation; 1.2 Preventing major suppler from using information obtained from competitors with anti-competitive results; 1.3 preventing major suppler from not making available to other services suppliers on a timely basis technical information about essential facilities and commercially relevant information which are necessary for them to provide services.	▪ Implemented: 13 economies ▪ Not yet implemented: 1 economy ▪ Information not provided: 7 economies
2. Interconnection 2.1 Interconnection with a major supplier is under non-discriminatory terms, conditions (including technical standards and specifications) and rates and of a quality no less favourable than that provided for its own like services or for like services of non-affiliated service suppliers or for its subsidiaries or other affiliates; 2.2 Interconnection with a major supplier is provided a timely fashion, on terms, conditions (including technical standards and specifications) and cost-oriented rates that are transparent, reasonable, having regard to economic feasibility, and sufficiently unbundled so that the supplier need not pay for network components or facilities that it does not require for the service to be provided; and 2.3 Interconnection with a major supplier is provided upon request, at points in addition to the network termination points offered to the majority of users, subject to charges that reflect the cost of construction of necessary additional facilities. 2.4 The procedures applicable for interconnection to a major supplier are made publicly available. 2.5 It is ensured that a major supplier will make publicly available either its interconnection agreements or a reference interconnection offer. 2.6 Dispute settlement: A service supplier requesting interconnection with a major supplier will have recourse, either: (a) at any time or (b) after a reasonable period of time which has been made publicly known; to an independent domestic body, which may be a regulatory body as referred to in paragraph 5 below, to resolve disputes regarding appropriate terms, conditions and rates for interconnection within a reasonable period of time, to the extent that these have not been established previously.	▪ Implemented: 14 economies ▪ Not yet implemented: 0 economy ▪ Information not provided: 7 economies
3. Public availability of licensing criteria Where a licence is required, the following will be made publicly available: 3.1 All the licensing criteria and the period of time normally required to reach a decision concerning an application for a licence and 3.2 The terms and conditions of individual licences. The reasons for the denial of a licence will be made known to the applicant upon request.	▪ Implemented: 14 economies ▪ Not yet implemented: 0 economy ▪ Information not provided: 7 economies
4. Independent regulators 4.1 The regulatory body is separate from, and not accountable to, any supplier of basic telecommunications services. 4.2 The decisions of and the procedures used by regulators shall be impartial with respect to all market participants.	▪ Implemented: 13 economies ▪ Not yet implemented: 1 economy ▪ Information not provided: 7 economies
5. Allocation and use of scarce resources 5.1 The procedures for the allocation and use of frequencies are carried out in an objective, timely, transparent and non-discriminatory manner. 5.2 The procedures for the allocation and use of numbers are carried out in an objective, timely, transparent and non-discriminatory manner. 5.3 The procedures for the allocation and use of right of ways are carried out in an objective, timely, transparent and non-discriminatory manner. 5.4 The current state of allocated frequency bands is made publicly available.	▪ Implemented: 14 economies ▪ Not yet implemented: 0 economy ▪ Information not provided: 7 economies

Source: APECTEL, 2003

(3) Future focus

The forgoing survey represents the latest effort in APEC to stock take member economies' progress in creating an enabling regulatory environment that supports both liberalisation and public interest objectives. Its extensive coverage provides a concrete building bloke for future works.

The survey, however, also demonstrates the difficulty in measuring cross-country regulatory performance. The devil is in the detail. By comparing the explanatory notes provided by member economies it reveals a broad range of diversified measures have been adopted by member economies in achieving some crucial components, e.g. "transparency" and "impartiality", of a pro-competitive regime. The U.S.-Mexico dispute case in the WTO also shows that even the definition and application of the WTO regulatory principles needed to be clarified and consolidated through actual practice.

Regulatory benchmarking process at APEC level should have a much wider application than the WTO Reference Paper itself. What benchmarking offers is a set of comparable indicators that allow economies to share experiences, to identify best practices, and most important of all, to review the progress made especially among peer groups. In sum, regulatory benchmarking is an experience-sharing and capacity-building process.

As such, the major challenge and future focus is perhaps on how to develop a subtle set of regulatory indicators at the implementation level. The most prominent issue here is the selection of indicators that act as proxies to reflect the status of achievement and indicate future directions. Often it is not a lack of measures to indicate progress towards stated objective that is problematic, rather that there exists too many indicators which prevent effective measurements of progress without well-planned selection process. This is especially true given the complexity and dynamic advancement of the electronic communication sector.

Appendix 1: Market Access Indicator components

Category weight	Score	Categories
		Restrictions on establishment
0.20		**Licensing of new Fixed Network operation licences** [c]
	1.00	Issues no new licences
	0.75	Issues 1 new licences
	0.50	Issues up to 3 new licences
	0.25	Issues more than 3 new licences
	0.00	No limitation on the no. of new licences
0.20		**Licensing of new Mobile Network operation licences** [d]
	1.00	Issues no new licences
	0.75	Issues 1 new licences
	0.50	Issues up to 3 new licences
	0.25	Issues more than 3 new licences
	0.00	No limitation on the no. of new licences except for technical reasons
0.20		**Direct Investments**
0.15		General
		The score is inversely proportional to the maximum direct equity participation permitted in an existing domestic telecom operator. Issues no new licences. For example equity participation to a maximum of 75% would be given a score of 0.25.
0.05		Incumbents
		The score is inversely proportional to the maximum direct equity participation permitted in a specific domestic telecom operator.
0.10		**Joint venture arrangements**
	1.00	Issues no new licences and no entry is allowed through a joint venture with a domestic operator
	0.50	Entry allowed only through a joint venture with a domestic operator
	0.00	No requirement for entry through a joint venture with a domestic operator
		Restrictions on ongoing operations
0.05		**Leased line operations**
	1.00	Leased lines—PSTN connection is not permitted
	0.00	Leased lines—PSTN connection is permitted
0.075		**Voice resale operations**
	1.00	Voice resale is not permitted
	0.50	International voice resale is permitted
	0.00	International and long distance voice resales are permitted
0.075		**Cross-border trading—callback operations**
	1.00	Call back is not permitted
	0.00	Call back is permitted

Appendix 2: Market Access Indicator scores

1998

		AUS	BD	CDA	CHL	PRC	HKC	INA	JPN	ROK
Restrictions on establishment	Weight									
Licensing of new Fixed	0.2	0	1	0	0.25	1	0.25	1	0	0.75
Licensing of new Mobile	0.2	0	1	0	0	0.75	0	0.5	0	0.25
Direct Investments										
General	0.15	0	1	0.53	0	1	0	0.65	0	0.77
Incumbents	0.05	0.75	0	0.8	0	0	0	0	0.8	0.667
Joint venture arrangements	0.2	0	1	0	0	1	0	0.4475	0	0
Total Establishment		0.0375	0.75	0.1195	0.05	0.7	0.05	0.487	0.04	0.34885
Restrictions on ongoing operations										
Leased line operations	0.05	0	1	0	0	1	0	1	0	1
Voice resale operations	0.075	0	1	1	0	1	1	1	0	1
Callback operations	0.075	0	1	0	0	1	1	1	1	1
Total Ongoing		0	0.2	0.075	0	0.2	0.15	0.2	0.075	0.2
Total		0.0375	0.95	0.1945	0.05	0.9	0.2	0.687	0.115	0.54885

		MAS	MEX	NZ	PE	PNG	RP	RUS	SIN	THA	CT	USA	VN
Restrictions on establishment	Weight	0.25	0.5	0	0.25	1	0.25	0.25	1	0.5	1	0	0.5
Licensing of new Fixed	0.2	0	0	0	0	1	0	0.25	0.75	0.5	0.25	0	0.5
Licensing of new Mobile	0.2												
Direct Investments		0.51	0.51	0	0	1	0.6	0.5	0	0.8	0.51	0	1
General	0.15	0	0	0.501	0	0	0	0	0.6	0	0.8	0.8	0
Incumbents	0.05	0	0	0	0	1	0	0.5	0	0.5	0	0	1
Joint venture arrangements	0.2	0.1265	0.1765	0.02505	0.05	0.75	0.14	0.275	0.38	0.42	0.3665	0.04	0.55
Total Establishment													
Restrictions on ongoing operations													
Leased line operations	0.05	1	0	0	1	1	0	1	0	1	0	0	1
Voice resale operations	0.075	1	0	0	1	1	1	1	1	1	1	0	1
Callback operations	0.075	1	1	0	1	1	1	1	1	1	1	0	1
Total Ongoing		0.2	0.075	0	0.2	0.2	0.15	0.2	0.15	0.2	0.15	0	0.2
Total		0.3265	0.2515	0.02505	0.25	0.95	0.29	0.475	0.53	0.62	0.5165	0.04	0.75

2003

		AUS	BD	CDA	CHL	PRC	HKC	INA	JPN	ROK
Restrictions on establishment	Weight									
Licensing of new Fixed	0.2	0	1	0	0	0.75	0	0.75	0	0.75
Licensing of new Mobile	0.2	0	1	0	0	0.75	0	0.25	0	0
Direct Investments										
General	0.15	0	1	0.53	0	0.51	0	0.65	0	0.51
Incumbents	0.05	0.75	0	0.8	0	0	0	0	0.8	0.667
Joint venture arrangements	0.2	0	1	0	0	0.5	0	0.5	0	0
Total Establishment		0.0375	0.75	0.1195	0	0.4765	0	0.3975	0.04	0.25985
Restrictions on ongoing operations										
Leased line operations	0.05	0	1	0	0	0	0	0	0	0
Voice resale operations	0.075	0	1	0	0	1	0	1	0	0
Callback operations	0.075	0	1	0	0	1	0	1	0	1
Total Ongoing		0	0.2	0	0	0.15	0	0.15	0	0.075
Total		0.0375	0.95	0.1195	0	0.6265	0	0.5475	0.04	0.33485

		MAS	MEX	NZ	PE	PNG	RP	RUS	SIN	THA	CT	USA	VN
Restrictions on establishment	Weight	0.25	0.5	0	0.25	1	0.25	0.25	0	0.5	0.25	0	0.5
Licensing of new Fixed	0.2	0	0	0	0	1	0	0.25	0	0.25	0	0	0.5
Licensing of new Mobile	0.2												
Direct Investments		0.51	0.51	0	0	1	0.6	0.5	0	0.8	0.4	0	1
General	0.15	0	0	0.501	0	0	0	0	0.6	0	0.8	0.8	0
Incumbents	0.05	0.5	0	0	0	1	0	0.5	0	0.5	0	0	1
Joint venture arrangements	0.2	0.2265	0.1765	0.02505	0.05	0.75	0.14	0.275	0.03	0.37	0.15	0.04	0.55
Total Establishment													
Restrictions on ongoing operations													
Leased line operations	0.05	0	0	0	0	1	0	0	0	0	0	0	0
Voice resale operations	0.075	0	0	0	1	1	0	0	0	1	0	0	1
Callback operations	0.075	1	1	0	1	1	1	1	0	1	1	0	1
Total Ongoing		0.075	0.075	0	0.15	0.2	0.075	0.075	0	0.15	0.075	0	0.15
Total		0.3015	0.2515	0.02505	0.2	0.95	0.215	0.35	0.03	0.52	0.225	0.04	0.7