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LIBERALISING AIR PASSENGER SERVICES IN APEC

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ABSTRACT

This working paper aims at assessing the prospects for a more liberal air passenger transport regime in the Asia Pacific region under the auspices of APEC. The decades-old bilateral air services regime has been under pressure to reform for several years; yet notwithstanding the critical role that international air transport plays in the ongoing integration of Asia Pacific economies, the airline industry remains one of the region's most heavily regulated. A detailed analysis of bilateral air service agreements (ASAs) concluded by APEC economies reveals that, although some progress has been made, key restrictions on market access and on ownership links remain largely in place. Some more headway is being achieved in plurilateral ASAs, which have been proliferating in the APEC region. Estimates from the gravity equation employing the Air Liberalisation Index (ALI) developed by the WTO Secretariat find a positive and statistically significant relationship between relaxing bilateral air services restrictions and air passenger traffic. The estimates imply that if APEC economies eased air transport restrictions to double the ALI scores with their aviation partners, both within and outside the APEC region, traffic would increase by at least 5-7%.

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I. Introduction

Air transport services have experienced dynamic growth in the Asia Pacific region during the past decade or so and are vital to international trade in the region. Air transport is traded not only in its own right but it is a key intermediate service for other kinds of trade. International air transport is considered a prerequisite for the development of tourism, accounting in developing countries for nearly 80% of international tourist arrivals (UNESCAP, 2005). Tourism and its potential growth are recognised of increasing importance in promoting economic growth and social development in the region. Similarly, a number of developing countries in the Asia Pacific region have become exporters of time sensitive products, such as textiles and clothing and electronic items and high tech instruments. Air freight often represents the only way to access distant markets in a timely fashion.

Trade in air transport has been heavily restricted by governments around the world since the Chicago Conference of 1944. Market access is largely determined by a complex system of some 3500 bilateral air service agreements (ASAs) which typically determine the traffic rights of airlines operating on bilateral routes, as well as the airlines allowed to operate such routes, the tariffs, and the number and frequency of flights. The elaborate structure of restrictions in bilateral ASAs effectively imposes a set of country-specific quotas in each market, where markets are defined in terms of routes between two countries involved in a bilateral negotiation. The system originated from an attempt to avoid a non-cooperative environment whereby countries could try to extract rents from their ability to control entry into their market. Governments thus agreed not to exploit their market power through the exchange of access rights. Fearing the potential domination by US carriers it was decided to exchange such rights on a bilateral basis (Findlay, 2003).

The decades-old bilateral system has been under pressure for change from several sources for the last decade or so. For starters, it is administratively expensive, with frequent renegotiation of agreements placing a burden on governments and airlines. Furthermore, interest in reform is growing among airlines, since the system imposes constraints on their operations and ability to reduce costs, and may be one of the factors explaining the limited profits registered by the industry. Under the current system, airlines have to construct their networks through a myriad of bilateral agreements and some pairs of cities, although potentially served in an efficient network, may not be serviced in light of market access restrictions in these agreements (Findlay and Round, 2006). The tourism sector, which stands to gain from improvements in air transport efficiency and lower fares, and in general increasing consumer influence represents an additional important factor. In the Asia Pacific region, in particular, rising middle class population and a more aware

consumer environment means that governments in the region have to pay more attention to their interests when formulating aviation policy decisions (Zainal-Abidin et *al*., 2005).

As a result, over the years the regulatory framework of air transport at both the domestic and international levels has become increasingly more liberal. Reforms have involved privatisation of national flag carriers and deregulation of the industry allowing for the entry of new carriers, including more recently low-cost carriers (LCCs), and opening domestic routes to competition. Liberalisation of international air transport has taken place through more open bilateral agreements. The emergence of "open skies" agreements in the second half of the 1990s has relaxed restrictions, typically allowing airlines to fly on all routes between two countries without controls on capacity or fares, and grant enhanced market access.[1] Another development has been the establishment of plurilateral ASAs, including as part of broader regional initiatives (e.g. the European Union's common aviation area). The reform process in the Asia Pacific has been fostered in particular under the auspices of APEC, which developed a framework of eight options for more competitive air services in the region, ranging from relaxing air carrier ownership and control rules, to progressive market access liberalisation.

Liberalisation of the air transport industry has so far been undertaken largely outside the scope of the multilateral trading system. Air traffic rights are expressly excluded from the GATS, essentially because the bilateral air transport services regime is fundamentally inconsistent with the core principles of multilateralism. The exclusion, though, must be reviewed at least every five years with a view to consider further application of the Agreement to the sector. WTO Members have recently begun discussions on the second review of the Air Transport Annex, based on background information prepared by the WTO Secretariat (WTO, 2006).

The restrictions imposed by the regulatory system have also prompted business-led responses, particularly through the development of global airline alliances and code-sharing agreements among carriers of different countries. These agreements provide opportunities for the partner airlines to reduce costs by integrating activities in various aspects and by linking existing networks. The partners may just reschedule their existing fleets to serve new markets, thereby avoiding investment in aircraft and hubs. On the other hand, code-sharing may adversely affect competition in a particular market, potentially resulting

[1] Open skies can broadly cover two kinds of air service agreements. The US Department of Transportation uses the term to designate agreements with no control of routes, tariffs and capacity, and allowing fifth freedom rights. Other countries such as Australia and New Zealand use the term in relation to more ambitious agreements which include principal place of business, seventh freedom and at times cabotage (see WTO, 2006).

in market allocation, capacity limitations and higher fares. Industry specialists are of the view that airline alliances will continue to grow in the years to come and will remain the principal means for expanding global air service networks (Oum *et al.,* 2001). Recently, some major hub airports have announced plans for rearranging their terminals based around which alliance each airline belongs to.

Despite the crucial role that international air transport plays in the ongoing integration of Asia Pacific economies and over a decade of reforms, the airline industry remains one of the region's most heavily regulated. This paper assesses the prospects for a more open air passenger transport regime in the Asia Pacific region under the auspices of APEC. The next section provides some background on the origins and evolution of the international bilateral regime and discusses liberalisation initiatives by Asia Pacific economies and in the WTO context. Section III reviews global and APEC regional industry trends and important developments that have affected its performance in recent years. Section IV then analyses in detail the regulatory landscape of air passenger transport in APEC economies and Section V provides estimates on the possible impact of enhanced market openness in the sector by APEC economies. The last section concludes summarising the key emerging issues and discussing policy implications.

II. Background on the evolving landscape of air transport regulation

Trade and competition in air transport have been heavily restricted by governments around the world since the aftermath of World War II. The industry was highly regulated domestically and generally had either one single "flag carrier" or only a few participants. Internationally, dating from the Chicago Conference in 1944 the international community chose a bilateral air services framework in preference to a multilateral model. Hence, air rights were to be exchanged on a strictly bilateral and reciprocal basis. As noted, this resulted to a large extent from the fact that many of the countries represented at the conference perceived that US airlines held a strong competitive advantage compared to their domestic carriers.

Even though the Chicago Conference did not succeed in establishing an open regime for the exchange of air traffic rights, it resulted in three multilateral aviation agreements. The first was the Chicago Convention which established a general set of standards and practices governing trade in air transport services. In particular, it granted countries control over the operation of foreign carriers in their airspace and authorised the restriction of cabotage (the provision of domestic point-to-point service) to national carriers. The Convention also established the International Civil Aviation Organisation (ICAO), a multilateral body allowing countries to consult on air transport issues.

The second agreement, the International Air Services Transit Agreement, provided signatory countries with the first two air traffic rights, which are defined by so-called freedoms of the air (see Box 1). These two freedoms represent the conceptual foundation upon which signatories grant foreign carriers traffic rights — the authority to operate over particular routes. The International Air Transport Agreement, also established jointly with the Chicago Convention, defined the third, fourth, and fifth freedoms of the air, referring to passenger transport between home and host country markets, and to third-party countries. This Agreement, however, was ratified by only 19 countries, 8 of which subsequently withdrew from it.

Box 1. Air freedom rights

First freedom. To overfly one country en-route to another.

Second freedom. To make a technical stop in another country.

Third freedom. To carry freight and passengers from the home country to another country.

Fourth freedom. To carry freight and passengers to the home country from another country.

Fifth freedom. To carry freight and passengers between two countries by an airline of a third country on route with origin/destination in its home country.

Sixth freedom. To carry freight and passengers between two countries by an airline of a third country on two routes connecting in its home country.

Seventh freedom. To carry freight and passengers between two countries by an airline of a third country on a route with no connection with its home country.

Eight freedom or cabotage. To carry freight and passengers within a country by an airline of another country on a route with origin / destination in its home country.

True domestic. To carry freight and passengers within a foreign country with no connection with the home country.

In the absence of a multilateral agreement for the exchange of traffic rights by all sides, the two major aviation powers at the time, the US and the UK, concluded an agreement in 1946 known as Bermuda I. This bilateral agreement, which was renegotiated by the two parties in 1976 at the request of the UK, would serve as a model for all subsequent bilateral agreements that were negotiated until the early 80s. The classical bilateral agreement of the Bermuda I type typically determines the traffic rights of airlines operating on bilateral routes, as well as the airlines allowed to operate such routes, the tariffs, and the number and frequency of flights. Two other important features of such agreements relate to designation (the right to designate one or more than one airline to exercise the agreed traffic right) and limitations on foreign ownership.

More recent negotiations of ASAs have moved towards greater liberalisation of the aviation industry. The most common mode of liberalisation has been through open skies agreements, which began with the US-Netherlands agreement of 1992. The liberalising trends exhibited in open skies agreements followed the significant domestic privatisation and deregulation of airlines in many countries, particularly the American deregulation in 1978. The liberalisation of aviation markets throughout the world has also been influenced by developments in the European Union, with the creation of the common aviation area completed in 1992, and by the evolving relationship between the US and the EU, which recently resulted in an open skies agreement between them. The US-EU Air Transport Agreement, which became effective on 30 March 2008, covers an estimated 60% of global air traffic[2] (US Mission to the EU, 2008).

Air transport liberalisation in APEC

The APEC forum is a unique organisation made up of 21 diverse economies[3]. It has at its core a set of goals that were agreed in Bogor, Indonesia, in 1994:

- The development of free and open trade and investment in the Asia Pacific region by 2010 for industrialised economies, and by 2020 for developing economies;
- Progressive reduction of barriers to trade and investment to enable the free movement of goods and services within APEC's Member economies;
- The establishment of co-operative solutions to meet the challenges of a rapidly changing regional and global economy; and
- Support for an expanding world economy and multilateral system.

Air transport liberalisation in APEC has been discussed since 1995, with the establishment of the Air Services Group (ASG) as an expert group within the Transportation Working Group (TPTWG). The TPTWG's primary goal is to facilitate transport liberalisation within the wider framework of the Bogor Goals of trade liberalisation and facilitation as well as economic and technical assistance in all modes of transportation. These objectives are reflected in the aviation context in a reform programme established by

[2] This is the first-stage of the Agreement. The parties have agreed to continue negotiations aimed at achieving further integration of their air transport markets.

[3] Australia; Brunei Darussalam; Canada; Chile; the People's Republic of China; Hong Kong, China; Indonesia; Japan; the Republic of Korea; Malaysia; Mexico; New Zealand; Papua New Guinea; Peru; the Philippines; Russia; Singapore; Chinese Taipei; Thailand; the United Sates; and Vietnam.

APEC leaders in Auckland on 13 September 1999, known as the Eight Options for More Competitive Air Services with Fair and Equitable Opportunity (hereafter the Eight Options).

The Eight Options identify the key areas that APEC Members may consider liberalising in the aviation market (see Box 2). These options have been prioritised based on their ease of implementation. The details of specific regulations will be discussed in Section IV. Here, it suffices to say that the Eight Options broadly cover the full extent of aviation operations both for airlines and more indirectly for aviation services. Option 3 on ways of doing business addresses regulation regarding activities such as ground handling arrangements, currency conversion and remittance of earnings, employment of non-national personnel, the sale and marketing of air services products and access to computer reservation systems.

Box 2. The Eight Options

Option 1: Ownership & Control (medium priority)
"that APEC economies give consideration to relaxing the ownership and control requirements when considering designation made by partners under bilateral air services arrangements on a case-by-case basis."

Option 2: Tariffs (medium priority)
"that APEC economies support the removal or progressive easing off tariff regulations through the bilateral air services arrangements where this promotes competitive pricing to the benefit of consumers."

Option 3: Doing Business (high priority)
"that APEC economies work towards removing impediments to "doing business" matters whether under bilateral agreements or in domestic laws and by-laws."

Option 4: Air Freight (medium priority)
"that APEC economies progressively remove restrictions in the operations of air freight services while ensuring that fair and equitable opportunity for the economies involved."

Option 5: Designation (high priority)
"that APEC economies include, as appropriate, multiple airline designation in their bilateral air services agreements."

Option 6: Charters (medium priority)
"that APEC economies allow and facilitate the operation of both passenger and freight ad hoc charter services which supplement or complement scheduled services, having regard to the principle of reciprocity, as appropriate."

Option 7: Cooperative Arrangements (high priority)
"that APEC economies facilitate cooperative arrangements such as code-sharing including third-country code-share and code-share over domestic sectors, joint operations and block space arrangements, where it can be shown to be of benefit to consumers and airline (s), and where there are not anti-competitive effects."

Option 8: Market Access (medium priority)
"that APEC economies and approach to progressively achieve more liberalised market access under their bilateral air services arrangements."

The Eight Options do not lock APEC economies into a particular method of achieving air transport liberalisation. Each option is to be adopted at a pace consistent with each economy's national interest and progress made unilaterally, plurilaterally or multilaterally through fora like the GATS is equally acceptable. In an effort to aid decisions on liberalisation, the ASG has compiled a manual for liberalisation through more than one hundred reports submitted by APEC Members on the benefits and challenges of implementing each option (see APEC, 2002).

The ASG has also achieved APEC-wide consensus on a method for taking stock of the progress made toward implementing each of the eight options through an annual survey of Member economies. The Group further agreed to engage a consultancy to undertake a project on the "Liberalisation of Air Services Arrangements in the APEC Region 95-05", which was released by the Centre for Asia Pacific Aviation (CAPA) in January 2007. The report provides a more complete snapshot of the state of aviation in the APEC region and on the pace of liberalisation and regulatory reform. Its findings will be reviewed in detail in Section IV.

A number of economies within APEC have agreed to open skies agreements plurilaterally or bilaterally. The Multilateral Agreement on the Liberalisation of Air Transport (MALIAT), signed in 2001 by Brunei Darussalam, Chile, New Zealand, Singapore and the US, was cited as an example of progress towards the Bogor Goals. The Agreement provides for far-reaching provisions including an open route schedule, fifth-freedom passenger services, open capacity and frequency, multiple designation of airlines and even more liberal provisions on foreign ownership. Another plurilateral agreement cited as an example of trade liberalisation is the Andean Open Skies Pact, to which Chile and Peru are parties (see Section IV).

Bilateral open skies agreements were also given as examples of more liberal trade arrangements. The most notable case relates to the Australia and New Zealand agreement signed in 1996, which effectively abolishes all air transport restrictions between the two countries. The US has entered into bilateral open skies agreements with several APEC economies, the first of which was signed with Canada in 1995. Ten additional APEC countries subsequently established open skies agreements with the US: Singapore, Chile, Peru, Chinese Taipei, New Zealand, Brunei Darussalam, Malaysia, South Korea, Indonesia and Thailand (US Department of Commerce, available at http://ostpxweb.dot.gov/aviation/). Although important restrictions like ownership and control requirements remain in place, these agreements have significantly liberalised routes among signatories.

Between other APEC economies efforts to liberalise have proceeded at a slower pace, with bilateral agreements generally remaining more restrictive. Limitations typically remain in relation to the number of origin-destination pairs, frequency, capacity, airline designation, third-country code-sharing and foreign ownership. Progress has been made in relation to market access, particularly open 3rd and 4th freedom rights between pairs of cities. Examples include the Singapore-Australia, the Malaysia-Hong Kong, China and the Thailand–Korea agreements.

Liberalising initiatives within ASEAN

Negotiations to liberalise the air transport sector are also being pursued by the Members of the Association of Southeast Asian Nations (ASEAN)[4]. In 1995, at their fifth summit in Bangkok, ASEAN leaders decided to include the development of an Open Sky Policy as an area of cooperation in the Plan of Action for Transport and Communications (1994-1996). At the same time, ASEAN Members adopted a Framework Agreement on Services (FAS) to liberalise services trade, including air transport, beyond commitments undertaken under the GATS.

During their first meeting in Bali in 1996, the ASEAN Transport Ministers (ATM) agreed to pursue cooperation on the "Development of an Open Sky Policy in ASEAN". Such objective has been reaffirmed by successive ATMs and in several policy documents, including the Hanoi Plan of Transport Action Agenda, the Successor Plan of Action in Transport 1999-2004 and the Roadmap for ASEAN Competitive Air Services Policy. Building on these initiatives, the 10th ATM adopted in 2004 an Action Plan for ASEAN Air Transport Integration and Liberalisation 2005-2015 and the Roadmap for Integration of the Air Travel Sector, which set a 2015 date to achieve an open skies regime for the region.

To reach this objective, specific targets and deadlines have been set for both cargo and passenger services. For scheduled passenger services, the process entails the progressive liberalisation of air traffic rights starting with sub-regions, to reach unlimited 3rd and 4th freedom rights between all the capital cities by 2008; and ultimately unlimited 5th freedom rights for the capital cities in the region by 2010. Notwithstanding these ambitious goals, liberalisation initiatives in ASEAN have been hindered by the diverse levels of economic development of ASEAN Members, and the fact that their airlines have different strengths and competitiveness.

[4] Brunei Darussalam, Cambodia, Indonesia, Laos, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Vietnam.

ASEAN Members have also been pursuing sub-regional agreements in an effort to achieve progress in liberalising air transport among smaller groups of like-minded economies. These are sometimes referred to as ASEAN "2+X", a formula providing for others to join in when they are ready. Examples include the Multilateral Agreement on Air Services adopted in 2003 by Cambodia, Laos, Myanmar and Vietnam (CLMV), building on a previous cooperation initiative by the four economies; and the Multilateral Agreement for the Liberalisation of Air Passenger Services (MALPAS), concluded in 2004 by Singapore, Thailand and Brunei Darussalam.

The CLMV Agreement provides for unlimited traffic rights between Members, including 5th freedom rights, more liberal provisions on tariffs, as well as no limitations on route structures, capacity and as to the number of designated airlines. MALPAS has similar provisions, though only 3rd and 4th freedom rights are accorded by Members. Both agreements also generally adopt a conservative approach on foreign ownership. Other broadly comparable agreements have been concluded by neighbouring ASEAN economies, including the Brunei, Indonesia, Malaysia and Philippines East ASEAN Growth Area (BIMP-EAGA) and the Indonesia, Malaysia and Thailand Growth Triangle (IMT-GT) (see Section IV).

Air transport services in the WTO

Despite concerted efforts and progress made in opening trade in air transport services over the last decade or so, liberalisation has largely occurred outside the WTO. The GATS purview excludes the core of commercial air transport, traffic rights and the services directly related to the exercise of these rights, largely because the bilateral regime is fundamentally inconsistent with the main principles of the Agreement. A multilateral framework for aviation applying such principles is seen as requiring major changes in the way it is currently structured.

Notably, the bilateral air service regime is inconsistent with the most-favoured-nation (MFN) principle (a prohibition to discriminate among foreign providers supplying the same service), since it entails discrimination between foreign suppliers. Market access is also restricted to both domestic and foreign carriers; national treatment (an obligation to treat domestic and foreign providers alike) is not satisfied either since foreign and domestic airlines operate under different conditions, e.g. in relation to access to the domestic market or ownership conditions.

The GATS provides limited coverage of aviation issues through the Annex on Air Transport Services. Specifically, the Agreement addresses three ancillary services with respect to air transport: (1)

aircraft repair and maintenance; (2) the selling and marketing of air transport services; and (3) computer reservation system (CRS) services. Between 25 and 40 original WTO Members, depending on the service and the modes of delivery concerned, have committed in these services, with further commitments undertaken by acceding Members to the WTO since 1995.

The exclusion must be reviewed at least every five years with a view to consider further application of the Agreement to the sector. During the first review in 2001, proposals for additions to the Annex on Air Transport Services included ground-handling services, airport management services, leasing or rentals services of aircraft without operator and services auxiliary to all modes of transport when delivered in an air transport context. However, the first review stalled and ended without conclusion in November 2003. A constraint on progress in the negotiations has been the presence of ICAO, another international organisation with jurisdiction in the field.[5]

As noted, WTO Members have recently begun discussions on the second review, based on background analysis prepared by the WTO Secretariat (WTO, 2006). At the same time, general services negotiations are on-going as part of the Doha Round and Members with a strong interest have focused on specific air transport issues in these talks. A proposal, co-sponsored by a number of developed and developing countries in 2004, called for the liberalisation of logistics services, including air freight and rental of aircraft with crew (WTO, 2004). There has also been discussion on a GATS Annex on Tourism, which proposed to treat tourism as a cluster, incorporating elements of air transport (WTO, 1999).

III. Overview of the global and APEC regional industry

Although the origins of air transport can be traced back to World War I, the era of major expansion began after the end of World War II and the sector has since consistently been a high growth industry. Hanlon (2006) indicates that over the past 60 years the rate of growth of air transport has been well above that of world GDP. Between 1960 and 2000 world passenger traffic grew at an average annual rate of 9% (12% from 1945 to 2000, starting from a low base after the second World War). Traffic growth has subsequently slowed in light of major external shocks. Recent work by the WTO (2007) shows an average growth in passenger traffic of around 5% between 2000 and 2005, with an actual drop in 2001.

[5]ICAO requested the WTO to develop a Memorandum of Understanding (MoU) to strengthen cooperation and to help define their respective roles.

Nevertheless, the literature suggests that although the airline industry has often achieved high rates of traffic growth, this has not translated into high rates of profitability. On the contrary, airline profit margins have been well below average compared with firms in other industries and in some years the industry has experienced heavy losses. This has been the case especially in recent years in part as a consequence of major external events. For instance, it has been estimated that airlines members of the International Air Transport Association (IATA), the main international body representing business interests in the sector, lost a total of USD 36 billion between 2001 and 2004 (Bisignani, 2005).

Using ICAO's data a number of studies find that the traffic picture in different regions of the world is varied (see e.g. Hanlon, 2006; and WTO, 2007). The Asia Pacific region has experienced dynamic growth and currently accounts for a quarter of world traffic, while growth has been modest in Europe, Africa and Latin America. North America, the most mature market, has witnessed low percentage growth rates, although it still represents a third of world traffic (see Table 1 below). According to IATA, Asia is predicted to grow by 222 million passengers between 2006 and 2010 and to become the largest world air transport market with a 37% share of traffic (IATA, 2007).

Table 1. Passenger traffic by region

Region	Passenger-kilometres performed					
	1985		2000		2005	
	Billions	Total (%)	Billions	Total (%)	Billions	Total (%)
Africa	36.7	2.7	66.4	2.2	84.8	2.3
Asia Pacific	222.3	16.3	735.5	24.4	967.4	26
Europe	428.2	31.3	801.4	26.6	1004.8	27
Middle East	42.7	3.1	93.8	3.1	168.8	4.5
North America	569.2	41.6	1175.7	39	1334.5	35.9
Latin America & Caribbean	68.3	5	141.8	4.7	159.1	4.3

Source: Hanlon, 2006; and WTO, 2007. Based on ICAO data.

The rapid growth of Asian Airlines, which in the past accounted for a tiny share of world traffic, has brought about considerable changes in the structure of the international industry. WTO (2005) provides a country breakdown of total and international traffic for 1993 and 2003. As shown in Table 2 below, Hong Kong, China and Singapore, although featuring a non-existent domestic market, rank very high in the world in terms of international traffic. China has experienced burgeoning growth; it is already the fifth largest passenger market and is projected to become in the next two decades the second largest aviation market in the world. Altogether, 11 APEC economies are in the top 20 list with respect to total (domestic and international) operations, with the US ranking by far first in every category.

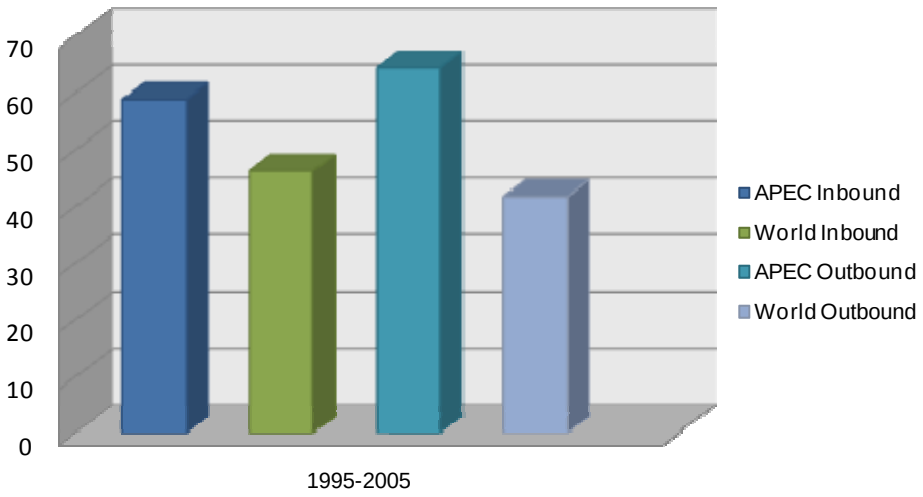
Table 2. Share of APEC countries in international air traffic

Country	Passenger/kilometres performed (millions)							
	Total operations				International operations			
	Rank	2003	1993	% Change	Rank	2003	1993	% Change
US	1	1016018	773311	31.4	1	259088	219691	17.9
Japan	4	144054	106360	35.4	6	70394	53979	30.4
China	5	124591	45000	176.9	5	74346	11171	565.5
Australia	7	86675	57343	51.2	11	49244	36015	36.7
Canada	8	74418	40426	84.1	12	42889	24936	72
Singapore	10	65387	41262	58.5	8	65387	41262	58.5
Korea	11	63099	34083	85.1	9	55550	28762	93.1
Russia	13	53894	n/a	n/a	22	20478	n/a	n/a
Hong Kong, China	15	46402	n/a	n/a	12	46402	n/a	n/a
Thailand	16	44773	22874	95.7	14	41731	20609	102.5
Malaysia	19	36824	17445	111.1	15	32309	14431	123.9
Mexico	21	29305	18216	60.9	29	13555	8016	69.1
New Zealand	25	23822	14163	68.2	24	19870	12194	62.9
Indonesia	28	17979	19846	-9.4	35	9371	12850	-27.1
Philippines	31	14183	13085	8.4	33	11753	11295	4.1
Chile	35	12186	4425	175.4	36	9139	2772	229.7
Vietnam	43	7227	n/a	n/a	44	5300	n/a	n/a
Brunei Darussalam	58	3588	1623	121.1	59	3588	1623	121.1

Source: Adapted from WTO, 2005. Based on ICAO data.

Air transport industry trends are closely related to the same broad factors that determine economic performance, including GDP, trade in goods and services and other factors. CAPA (2007) finds that the Asia Pacific region has experienced the highest GDP growth rates during the last decade or so, driven by China's robust growth. Its share of total APEC GDP grew from 4.3% in 1995 to 8.9% in 2005 making it the third largest economy in the region. Between 2000 and 2005, the US increased its share of APEC GDP by 5.5% to account for almost half of the region's total. As a whole, APEC GDP exceeded the global average with a 49.8% rise over the last ten years, an average annual increase of 4.9%. The region's robust performance in international trade has also translated into positive trends for international traffic. This includes tourism, which has significantly grown in the region over the last decade or so (see Figure 1).

Figure 1. Percentage growth of world and APEC tourism



Source: Adapted from CAPA, 2007. Based on World Tourism Organisation and Pacific Asia Travel Association (PATA) data.

The strong future growth of the aviation sector forecasted for the region, particularly in Asia Pacific, may be due several factors. For starters, the region consists of nations at varying stages of economic development. As indicated by Forsyth *et al*. (2004), per capita income in 2004 for example varied from approximately USD 410 in Vietnam, to USD 3,300 in Malaysia, USD 12,558 in Brunei Darussalam and USD 21,500 in Singapore. As airline market growth slows in economically advanced countries, demand for air transport in the currently less developed countries is expected to increase even faster translating into sustained growth of air traffic.

The potential for future growth of air transport depends not only on the rate of economic growth achieved by economies in the region, but also on their geography and population. The relatively long distances in the Asia Pacific region, its many islands and slow development in alternative transport modes such as high speed trains make air transport the more practical means of travel in the region. There are many cities located in the region which have a population of at least 500,000 inhabitants, and a significant number of them have already reached the million. Considerable air service connectivity potential remains in the region, given that only a few APEC countries have multiple hub systems. For example, Indonesia in addition to its archipelagos, has dozens of cities with more than a million people, but international connectivity remains at relatively low levels (PATA, 2007). Advances in aircraft technology, particularly the development of smaller long-range aircraft, may also help moving beyond hub-and-spoke systems which, while increasing efficiency, may neglect other important commercial and tourism centres.

Several studies find that the growth of air transport has taken place notwithstanding the intervention of major external events that have occurred during the last decade or so. These include the Asian financial crisis of 1997, the September 11 attacks in the US, the wars in Afghanistan and Iraq and SARS in 2003. These external shocks had a significant impact on world GDP, growth in air traffic and airline profitability. Furthermore, the industry is facing increasing pressure for change in light of supply-side factors, such as rising oil prices and the emergence of LCCs. Given the cost pressure and excess capacity brought about by these events, airline restructuring, rationalisation of capacity and in some cases consolidation become necessary to stabilise market conditions.

CAPA (2007) and Forsyth *et al*. (2004) discuss in detail the impact of these events and developments in the APEC region, indicating that APEC economies have been significantly hit by these crises. For example, they found that around 25% of US capacity was removed from service as traffic almost halved following the September 11 attacks. SARS caused sharp decreases in Asian and North American international traffic (41.3% and 22% respectively in 2003). On the supply side, rising oil prices and consequently jet fuel prices since 2003-2004 has put further pressure on airline profitability. Other constraints on air services growth include tightening of aviation infrastructure, with some airports in the region already operating above capacity (e.g. Bangkok and Jakarta), and shortage of skilled employees.

Another significant development over the past few years has been the emergence of LCCs in the Asia Pacific region, including in Japan, Singapore, Thailand and Malaysia. LCCs, through a new business model, have made air travel more accessible both domestically and internationally by establishing new services and serving existing routes at lower cost. Though geographical, regulatory and other conditions differ between Asia and Europe, where LCCs have been very successful, the development of LCCs in Asian air transport markets has already become an important source of pressure for adjustment among established operators. On the other hand, more liberal air service markets and advances in aircraft technology provide new opportunities for established carriers to compete at the other hand of the market, i.e. with high-premium airlines. For example, Singapore Airline has recently announced plans to introduce a business-class-only continental flight from Singapore to New York and Los Angeles (Los Angeles Times, 2008).

IV. Regulation of air transport services in APEC

Research aimed at obtaining a comprehensive and up-to-date picture of the regulatory landscape of air transport in APEC economies faces data and methodological challenges. There exist several sources of information on ASAs and a wide range of regulatory features potentially affecting trade in air transport.

ICAO provides some of the most comprehensive sets of data on the main features of bilateral agreements, including those concluded by APEC economies. Another source of information on the regulatory features of APEC ASAs, including plurilateral agreements, are the surveys of Member economies in the context of the Eight Options' implementation.

As noted, WTO Members have recently begun discussions on the second review of the Air Transport Annex, based on a 2006 *Note by the Secretariat on the Quantitative Air Services Agreements Review (QUASAR)* (WTO, 2006). The analysis identifies the main market access features of more than 2200 bilateral ASAs, drawing from information contained in the World Air Services Agreement (WASA) database published by ICAO in 2005. In the context of implementation of the Eight Options, CAPA released a report in 2007 on the *Liberalisation of Air Services in the APEC Region, 1995-2005* investigating the nature of some 310 bilateral ASAs concluded by APEC Members. The analysis is based on the most recent ASG surveys, complemented by several other sources.

Notwithstanding data and methodological shortcomings (see below), the WTO QUASAR and CAPA represent the most comprehensive and comparable sources of information on regulatory features of bilateral agreements in the APEC region. An alternative source is Forsyth *et al.* (2004), which analyse bilateral and to some extent plurilateral ASAs in the ASEAN context, drawing form a series of country case studies based on consultations with different stakeholders in each ASEAN Member and secondary sources. Though not as detailed and comprehensive as the other two surveys, the report contains nevertheless useful information on regulatory provisions of agreements concluded by some APEC economies. The WTO Secretariat has also subsequently extended the QUASAR analysis to plurilateral agreements, collecting their texts and coding their provisions in a comparable fashion to the WASA coding for bilateral ASAs (WTO, 2007). This information will be reviewed separately.

The advantages and shortcomings of ICAO data and of the ASG surveys have been well documented by the WTO and CAPA. Since ICAO Contracting States do not always comply with their notification obligations in full, the agreements contained in the WASA and other databases may not give a complete picture of all bilateral agreements in force. The WASA also contains a number of outdated agreements. Similarly, not all APEC Members have responded to the ASG surveys and responses received are of varying quality. There may also be some discrepancies in the information obtained by Forsyth *et al.* from consultations in different ASEAN countries. Despite these limitations, analysis based on these three sources combined can be considered to be broadly representative.

With this in mind, this section reviews the findings of the three surveys on regulatory measures in ASAs, focusing on those concluded by APEC Members and on trade in air passenger services. The selection broadly relies on that made by the WTO Secretariat in consultation with a group of aviation experts for developing the QUASAR. In particular, the review covers the following types of regulatory measures:

1. Freedoms of the air
2. Routes
3. Designation
4. Ownership and control
5. Tariffs
6. Capacity
7. Cooperative arrangements
8. Charter services

The first two items are the most straightforward indicators of openness. The focus of the review is on 3rd, 4th and 5th freedom rights since, at least in the case of passenger traffic, the other rights are largely non-existent. In classical bilateral agreements, routes are negotiated by reference to pairs of cities (city pairs). More liberal ASAs granting open or unrestricted traffic rights have brought about significant changes in terms of routes, effectively eliminating city pairs. In these agreements, any airport of the two participating countries can be an entry point for the other country's carrier.

Designation refers to the right to designate one or more than one airline to exercise the rights to operate the agreed air services. Broadly speaking, two possibilities are possible: single designation where each party may designate one airline, and multiple designation where each party has the right to designate one or more airlines. An important factor leading to the development of multiple designation has been the establishment of second and third airlines (including LCCs) in many countries which previously had only one major carrier operating at the international level.

Another pillar of the regulatory system relates to rules on ownership and in particular to restrictions on foreign participation. ASAs are similar to preferential trading agreements and require a rule to establish

which businesses are eligible for access to the terms of the agreement, i.e. a "rule of origin". These provisions can take several forms as defined by ICAO:

1. **Substantial ownership and effective control.** This clause, which is the most restrictive available, is referred to as a condition that substantial ownership and effective control be vested in the designating party or its nationals. Other conditions such as compliance with the laws and regulations of the grantor State may also be specified.

2. **Community of interest**. This clause is defined as being present whenever a party accepts a foreign designated airline to operate the agreed services under the condition that substantial ownership and effective control is vested: a) in countries that are parties to the agreement or by any one or more of the parties themselves, i.e. a joint operating organisation or a multinational carrier created by intergovernmental agreement; or b) in countries that are not necessarily party to the agreement but are within a predefined group with a "community of interest".

3. **Principal place of business**. This clause indicates a party's acceptance of a foreign airline if the carrier is incorporated in the designating party and its principal place of business or permanent residence is also in the designating party.

In June 1997, the ICAO Air Transport Regulation Panel recommended that the principal place of business criterion be adopted in place of the traditional ownership and control requirement, observing that relaxing ownership requirements would encourage more foreign capital transfer for home country airlines, thereby relieving difficulties for economies with small capital markets. These recommendations have been noted by the APEC ASG.

Air transport tariffs have been historically fixed and managed administratively in bilateral agreements for a number of reasons, including the prevention of anti-competitive behaviour of carriers and the development of domestic airlines. Broadly speaking, four basic types of tariff clauses can be distinguished:

1. **Dual approval.** This clause, the most restrictive, requires the approval of tariffs by the aviation authorities of the two countries before those tariffs can take effect.

2. **Dual disapproval**. This clause means that tariffs enter into force unless disapproved by the two aviation authorities.

3. **Country of origin.** Under this method the right of disapproval can only be exercised by one of the parties when the flights in question originate in its territory.

4. **No approval or free prices.** This clause stipulates that tariffs shall not be subject to the approval of any party.

Requirements to file tariffs with the aviation authorities of the parties in advance of their effective date represent an additional component of tariff regulation in ASAs. A minimal or no tariff filing policy regime (including electronic filing) allows carriers flexibility to respond to market changes and generally to promote competitive pricing.

The control of capacity is another main characteristic of typical bilateral agreements, playing an essential role in maintaining the profitability of routes. Three main types of capacity clauses have been identified by ICAO[6]:

1. **Predetermination.** This clause is a prior agreement on capacity reached before operations begin, which can take the form of specified shares or of a procedure for coordination, approval and filing.

2. **Bermuda I.** This clause contains principles which airlines must respect in relation to capacity, "an *ab initio* determination of capacity by each airline acting separately". The parties to the bilateral agreement or their aviation authorities intervene only *a posteriori*, through consultation procedures.

3. **Free determination**. This clause consists of agreement by both parties not to impose unilateral restrictions on the volume of traffic, the frequency or regularity of service, or on the types of aircraft which may be used by the airlines designated by the other countries.

Cooperative arrangements refer to the presence of a provision in ASAs allowing airlines to cooperate with alliances of varying scope and depth. The focus in the survey's review is on code-sharing, the selling by one airline of seats on services offered by another. As noted, this allows airlines to expand

[6] A fourth type, "Other", is a residual clause that groups together clauses which cannot be classified under any of the categories above, or combinations of these categories.

networks without incurring costs to operate additional aircraft and represents a response to restrictions on market access, notably on route access and foreign ownership and control. Code-sharing could be bilateral, where it is allowed only between the designated airlines of the two signatories or permitted also in relation to third countries.

The final item refers to clauses in the air service agreements allowing for the operation of international charter services. Permitting charter services is seen as way to complement as opposed to competing with scheduled services, particularly to foster the development of tourism destinations. Operation of these services is also encouraged on undeveloped routes such as seasonal holiday destinations which are not served by scheduled services.

WTO QUASAR

As noted, the WTO QUASAR analysis is based on the 2005 ICAO WASA database. The analysis covers only scheduled passenger services and focuses on those provisions coded by ICAO deemed by the WTO Secretariat to be of particular importance for market access. On the basis of these key provisions, the WTO Secretariat identifies seven types of "standard" agreements which could in principle replace over 1420 bilateral ASAs (see Table 3).

Table 3. WTO typology of bilateral air service agreements

Type	Freedoms	Designation	Withholding/ ownership	Tariffs	Capacity
A	3rd and 4th	Single designation	Substantive ownership and effective control	Double approval	Pre-determination
B	3rd and 4th	Multi-designation	Substantive ownership and effective control	Double approval	Pre-determination
C	3rd,4th,5th	Single designation	Substantive ownership and effective control	Double approval	Pre-determination
D	3rd,4th,5th	Single designation	Substantive ownership and effective control	Double approval	Bermuda I
E	3rd,4th,5th	Multi-designation	Substantive ownership and effective control	Double approval	Pre-determination
F	3rd,4th,5th	Multi-designation	Substantive ownership and effective control	Double approval	Bermuda I
G	3rd,4th,5th	Multi-designation	Substantive ownership and effective control *or* Community of interest *or* Principal place of business	Free pricing *or* Double disapproval	Free determination
i Incomplete ICAO coding	*If either:*		"n/a"	"n/a"	"other"
o All other combinations					

Source: WTO, 2006.

The analysis covers a total of 760 bilateral agreements concluded by APEC economies, 124 among APEC Members and 636 between Members and non-Members. Tables 4 and 5 below present respectively the breakdown of APEC-APEC and APEC-non APEC bilateral ASAs according to the seven types as classified by the WTO Secretariat. Chinese Taipei is not included in the WTO analysis and almost all agreements concluded by Hong Kong, China are classified as type *o* and thus do not allow identification of regulatory provisions. As noted, plurilateral agreements are also excluded.

The pattern of regulatory provisions is similar for APEC-APEC ASAs and APEC-non APEC agreements. It appears that, in addition to 3rd and 4th, a large number of agreements (over half) grant 5th freedom rights. However, it is not possible to infer from the data whether 5th freedom rights are open or restricted. A similar percentage of bilateral agreements among APEC Members permit multiple designation with a fewer number (over 40%) according it between APEC and non-APEC airlines. Ownership rules and tariff requirements remain very restrictive in the majority of ASAs; around 60% of the

agreements maintain the substantial ownership and control requirement and double approval of tariffs and only between 7% (APEC-non APEC ASAs) and 12% (APEC-APEC ASAs) have relaxed these restrictions.[7]

Table 4. Features of APEC-APEC bilateral agreements

Country	Type								
	A	B	C	D	E	F	G	i	o
Australia	2		5	2	2			2	3
Brunei Darussalam	1	1	2	2	1	1	3		2
Canada	1		4	1	1	1	1	1	2
Chile						1	3	1	2
China	6	3	1		1			3	1
Hong Kong, China									13
Indonesia	1		2	2	1	1	1		2
Japan		2	1	1	2	8		1	1
Korea		2	3		2	4	1		3
Malaysia	2	1	1	1	2	5	1		1
Mexico	3	1			3	2		2	1
New Zealand	1	2		1	2	2	4	1	3
Papua New Guinea	1	2		1					
Peru	1			1			1	1	
The Philippines	2		3	1	1	1		2	2
Russian Federation		2	4	2				2	1
Singapore			1	2	4	3	4		3
Thailand	2		5	1	3	1	1		1
United States						2	11	2	3
Vietnam	3				1		1		4
Total (%)	13 (10.5%)	8 (6.5%)	16 (12.9%)	9 (7.3%)	13 (10.5%)	16 (12.9%)	16 (12.9%)	9 (7.3%)	24 (19.4%)

Source: WTO, 2006.

[7] The exact number of ASAs freeing ownership rules cannot be determined since the type G agreement also includes instances of substantive ownership and effective control.

Table 5. Features of APEC-non APEC bilateral agreements

Country	Type								
	A	B	C	D	E	F	G	i	o
Australia			7	3	5	2		1	8
Brunei Darussalam	2	2	7	1	4			1	4
Canada	2	2	4	1	6	3		8	7
Chile			3	1	4	2	1	2	6
China	23	7	15		5			7	1
Hong Kong, China		1						6	30
Indonesia	1	1	4	1		5		2	1
Japan	1	3	1	3	13	10		4	
Korea	2	6	9	4	1	1		2	5
Malaysia	3	3	3	2	4	8		1	1
Mexico	5	2	7		3	1		2	
New Zealand		1		3	5	4	1		4
Papua New Guinea	1								
Peru				4		2	1	4	
The Philippines	2		12	2	6	1		2	1
Russian Federation	12	10	33	4		1		18	5
Singapore	2	1	11	11	5	11		2	8
Thailand	3		13		10	1		8	1
United States			1		3	7	47	16	6
Vietnam	2	7	1						1
Total (%)	61 (9.6%)	46 (7.2%)	131 (20.6%)	40 (6.3%)	74 (11.6%)	59 (9.3%)	50 (7.9%)	86 (13.5%)	89 (14%)

Source: WTO, 2006.

Similarly, restrictions on capacity are maintained in a large number of ASAs. Predetermination and Bermuda I requirements together are part of around 60% of the agreements, with free determination making up just over 10% in ASAs among APEC Members and less than that for APEC-non APEC ASAs. It is notable that ownership, tariffs and capacity rules have been relaxed mainly in the type G agreements. The tables show that the vast majority of these agreements have been concluded by the US with its aviation partners both within and outside the APEC region.

CAPA

As noted, the analysis undertaken by CAPA draws on the most recent surveys undertaken in the context of the ASG complemented by the 2004 ICAO's Register of Air Services Agreements. In case of discrepancies between the information contained in the ASG surveys and ICAO data, CAPA has relied on the surveys which are more recent and were provided directly by governments. Information gaps have been filled by drawing from other sources, particularly governments' websites and CAPA's own material. As acknowledged by CAPA, this may lead to differences between data, though CAPA has sought to reconcile this to the extent possible.

CAPA covers 310 bilateral agreements concluded by APEC economies and generally the components of ASAs which reflect the targets of the Eight Options. Table 6 below presents the main findings of the analysis focusing on the regulatory provisions of ASAs mentioned above. The survey includes route schedules and makes a distinction between open and restricted 5th freedom rights. It shows that only a limited number of ASAs (just over 15%) have incorporated open route schedules and that, although over half of the agreements allow for open 3rd and 4th freedom rights, the vast majority of them (over 70%) enforce restrictions on 5th freedom rights.

More progress seems to have been made with respect to designation of carriers. Over three quarters of ASAs allow for multiple designation, with less than 20% maintaining restrictions in this area. Similarly to QUASAR, ownership rules appear to remain very restrictive with about 65% of the agreements maintaining the traditional substantive ownership and control provision. The more liberal principal place of business requirement has been adopted by only about 15% of the agreements and just over 10% provide for effective regulatory control. Nonetheless, CAPA notes that several APEC economies expressed an interest in considering alternative ownership criteria in accordance with ICAO's recommendations.

In line with QUASAR, only limited progress has been made in liberalising tariff provisions, with just over 10% of agreements providing for double disapproval or no approval. By contrast, double approval of tariffs remains prevalent in most ASAs (over half). CAPA's analysis goes beyond QUASAR and covers cooperative arrangements, including third-party code-sharing and charter services. It shows that both bilateral and third party code-sharing are allowed in a large number of ASAs (over 60% and 50% respectively), while the majority of agreements continues to restrict charter services, with less than 30% of them providing for liberal provisions for charter operators.

Table 6. Analysis of APEC bilateral ASAs

Country	Type															
	Routes	Freedoms			Designation		Ownership			Tariffs			Cooperative arrangements		Charters	
	Open schedules	Open 3rd & 4th	Open 5th	Restricted 5th	Restricted	Multiple	Ownership & control	Effective regulatory control	Principal place of business	Double disapproval	Double approval	No approval	Bilateral codesharing	3rd Party codesharing	Restricted	Liberal
Australia	1 (5.3%)	3 (15.8%)	1 (5.3%)	18 (94.7%)	0	18 (94.7%)	13 (68.4%)	18 (94.7%)	4 (21.1%)	0	11 (57.9%)	3 (15.8%)	18 (94.7%)	18 (94.7%)	0	2 (10.5%)
Brunei Darussalam	3 (23.1%)	13 (100%)	9 (69.2%)	n/a	4 (30.8%)	9 (69.2%)	n/a	n/a	n/a	n/a	n/a	n/a	3 (23.1%)	0	3 (23.1%)	0
Canada	4 (23.5%)	6 (35.3%)	1 (5.9%)	12 (70.6%)	2 (11.8%)	15 (88.2%)	16 (94.1%)	0	1 (5.9%)	3 (17.6%)	1 (5.9%)	0	14 (82.4%)	12 (70.6%)	2 (11.8%)	1 (5.9%)
Chile	0	5 (83.3%)	5 (83.3%)	n/a	0	6 (100%)	n/a	n/a	n/a	2 (33.3%)	0	n/a	n/a	n/a	3 (50%)	0
China	4 (23.4%)	5 (29.4%)	0	16 (94.1%)	16 (94.1%)	1 (5.9%)	17 (100%)	0	0	1 (5.9%)	15 (88.2%)	0	16 (94.1%)	10 (58.8%)	17 (100%)	0
Hong Kong, China	n/a	15 (88.2%)	0	n/a	1 (5.9%)	11 (64.7%)	0	0	17 (100%)	0	17 (100%)	0	5 (29.4%)	1 (5.9%)	n/a	n/a
Indonesia	0	9 (90%)	8 (80%)	0	3 (30%)	7 (70%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Japan	0	0	0	18 (100%)	1 (5.6%)	17 (94.4%)	17 (94.4%)	0	1 (5.6%)	0	18 (100%)	0	16 (88.9%)	13 (72.2%)	0	18 (100%)
Korea	0	16 (94.1%)	12 (70.6%)	n/a	4 (23.5%)	11 (64.7%)	n/a	n/a	n/a	1 (5.9%)	n/a	n/a	2 (11.8%)	1 (5.9%)	3 (17.6%)	0
Malaysia	0	12 (80%	11 (73.3%)	n/a	2 (13.3%)	13 (86.7%)	n/a	n/a	n/a	1 (67%)	n/a	n/a	n/a	n/a	n/a	n/a
Mexico	0	12 (92.3%)	5 (38.5%)	n/a	4 (30.8%)	7 (53.8%)	n/a	n/a	n/a	n/a	n/a	n/a	6 (46.2%)	0	n/a	n/a
New Zealand	9 (47.4%)	9 (47.4%)	6 (31.6%)	4 (21.1%)	2 (10.5%)	17 (89.5%)	13 (68.4%)	1 (5.3%)	1 (5.3%)	2 (10.5%)	0	7 (36.8%)	16 (84.2%)	14 (73.7%)	3 (25.8%)	6 (31.6%)
Papua New Guinea	0	4 (80%)	1 (20%)	n/a	2 (40%)	2 (40%)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Peru	1 (20%)	1 (20%)	1 (20%)	0	1 (20%)	0	0	0	1 (20%)	0	0	1 (20%)	1 (20%)	0	0	1 (20%)
The Philippines	0	12 (92.3%)	8 (61.5%)	n/a	6 (46.2%)	7 (53.8%)	n/a	n/a	n/a	1 (7.7%)	n/a	n/a	n/a	n/a	1 (7.7%)	n/a
Russian Federation	0	18 (100%)	0	17 (94.4%)	0	18 (100%)	0	0	0	0	1 (5.6%)	0	10 (55.6%)	4 (22.2%)	2 (11.1%)	0
Singapore	9 (50%)	9 (50%)	4 (22.2%)	13 (72.2%)	1 (5.6%)	17 (94.4%)	12 (66.7%)	4 (22.2%)	7 (38.9%)	1 (5.6%)	11 (61.1%)	6 (33.3%)	14 (77.8%)	12 (66.7%)	4 (22.2%)	5 (27.8%)
Chinese Taipei	5 (35.7%)	3 (21.4%)	1 (7.1%)	10 (71.4%)	2 (14.3%)	12 (85.7%)	3 (21.4%)	1 (7.1%)	1 (7.1%)	2 (14.3%)	9 (64.3%)	1 (7.1%)	6 (42.9%)	5 (35.7%)	2 (14.3%)	0
Thailand	9 (47.4%)	6 (31.6%)	1 (5.3%)	18 (94.7%)	5 (26.3%)	14 (73.7%)	17 (89.5%)	0	1 (5.3%)	0	16 (84.2%)	0	16 (84.2%)	14 (73.7%)	n/a	n/a
United States	11 (57.9%)	14 (73.7%)	11 (57.9%)	8 (42.1%)	0	19 (100%)	19 (100%)	0	0	14 (73.7%)	4 (21.1%)	5 (26.3%)	9 (47.4%)	16 (84.2%)	7 (35%)	13 (65%)
Vietnam	1 (5.9%)	1 (5.9%)	0	16 (94.1%)	1 (5.9%)	14 (82.4%)	15 (88.2%)	1 (5.9%)	0	3 (17.6%)	8 (47.1%)	3 (17.6%)	14 (82.4%)	10 (58.8%)	0	16 (94.1%)
Total	57 (16.8%)	173 (53.9%)	85 (27.4%)	150 (72%)	57 (18.3%)*	235 (76.1%)	142 (65.1%)	25 (11.5%)	34 (15.6%)	31 (11.7%)	111 (52.8%)	26 (11.9%)	166 (63.5%)	130 (50%)	47 (15.1%)**	62 (28.4%)

Note: The number of economies for which information is available on particular elements varies. To compensate for this, CAPA has aggregated the number of times each element appears in the ASAs for which information is available and divided it by the number of bilateral agreements to which it applies. The result is then expressed as a percentage. * likely represents an underestimation since it was calculated from the total number of ASAs. Data on the actual number of ASAs to which this element applies are not available.

Source: CAPA, 2007.

Forsyth et al.

Forsyth *et al.* cover the aviation policy of the 10 ASEAN Member countries drawing, as noted, from individual country studies based on information from secondary sources and consultations conducted with various stakeholders, including a range of governmental agencies and the private sector. The focus here is on the policies of APEC-ASEAN Members in their bilateral agreements and, to the extent covered, the same regulatory provisions of ASAs discussed above. Plurilateral agreements are excluded as they are only partially covered in the survey.

Table 7 below suggests that the seven APEC Members reviewed have a large number of bilateral ASAs in place, although in some cases inactive, and have concluded several agreements having open skies characteristics. For example, Brunei Darussalam has bilateral open skies agreements with the US, New Zealand and Singapore, and Malaysia has concluded such agreements with the United States, Chinese Taipei, New Zealand, Austria, Luxemburg and Lebanon. Singapore has signed numerous bilateral open skies agreements while Thailand has liberal capacity arrangements in place with major bilateral partners in ASEAN.

The pattern of regulatory provisions in bilateral ASAs largely supports the findings of the other surveys. Although information on traffic rights is limited, some of the countries reviewed appear to have gone beyond 3rd and 4th freedom rights, granting in several instances limited 5th freedom rights. Multiple gateway policy in various forms is encouraged by some countries, particularly in order to foster tourism. Indonesian ASAs grant separate rights to tourism destinations like Bali and Thailand seeks to attract foreign airlines to its secondary airports, particularly Phuket. But restrictions remain in place. For instance, 95% of international traffic in the Philippines is handled by Manila's International Airport. Multiple gateway policy is not relevant for Brunei Darussalam and Singapore.

APEC-ASEAN countries have adopted permissive policies regarding designation, allowing for either double or multiple airline designation. In Brunei Darussalam, multiple designation is allowed when the other party agrees to reciprocal rights. The survey confirms that rules on ownership and control represent perhaps the most difficult area for progress. Most agreements specify the restrictive substantial ownership and control criteria and are not willing to accept the designation of an airline with less than 50% local ownership. As in CAPA, though, there is recognition in some countries of the need to move in favour of less restrictive criteria as recommended by ICAO.

Table 7. Aviation policy in APEC-ASEAN countries

Type	Country						
	Brunei Darussalam	**Indonesia**	**Malaysia**	**Philippines**	**Singapore**	**Thailand**	**Vietnam**
Agreements & freedoms	36 bilateral ASAs. Signatory to 3 bilateral open skies. Unrestricted 3rd and 4th. Limited 5th	65 bilateral ASAs (25 considered active).	82 bilateral ASAs (41 active) Open skies with 6 countries.	57 bilateral ASAs (22 active). Adpots a progressive air transport liberalisation policy based on the national interest and reciprocity	Member of many liberal or open skies bilateral agreements	94 bilateral ASAs. Liberal capacity arrangements with major ASEAN bilateral partners Malaysia and Singapore. 5th freedom to operate Singapore-Jakarta once a day	56 bilateral ASAs. Supports opening up of gateways like Da Nang and Hanoi to unlimited 3rd and 4th freedom. Limited 5th freedom granted to Singapore and Thailand and to some non-ASEAN carriers
Multiple gateways	Brunei International Airport is the sole gateway	Most ASAs grant separate traffic rights to gateways such as Denpasar (Bali). Does not provide incentives to service secondary gateways	Aircraft from nations signing open skies with Malaysia are free to operate into all of the country's six international airports	95% of international traffic is handled by Ninoy Aquino International Airport. Aims to develop Manila, Cebu, Davao, Clark, Subic and Laoag as tourism hubs. Some ASAs provide for separate traffic rights to secondary gateways	Changi Airport is the sole gateway	Thailand seeks to attract foreign carriers to its secondary gateways, especially Phuket	Gives priority to ASEAN partners in opening up gateways outside of HCM City and Hanoi
Designation	Multiple designation based on reciprocity	Most ASAs allow for multiple designation	Supports multiple designation policy	Supports multiple designation policy in international routes	Singapore is receptive to multiple designation	n/a	Vietnam has adopted a multiple designation policy
Ownership & control	Policy of substantial ownership and effective controlled	Foreign operators must form joint ventures, maximum permitted equity is 49%	Ownership rules of 51 to 49% in favour of Malaysian nationals apply	60 to 40% ownership by Filipinos and effective Filipino management and control	Most agreements specify a substantial ownership criteria, though the Government is in favour of a move to the principal place of business criteria	Thai Airways is not supportive of the principal place of business criteria and favours a limit of 49% foreign ownership	Operates a 51 to 49% ownership and control rule in favour of locals. Recognises the need for ownership rules in compliance with ICAO's recommendations

Type	Country						
	Brunei Darussalam	**Indonesia**	**Malaysia**	**Philippines**	**Singapore**	**Thailand**	**Vietnam**
Cooperative arrangements	Recent agreements allow airline cooperative arrangements, including codesharing. Has code sharing agreements with Thailand and Malaysia	Allows codesharing agreements by its carriers with foreign carriers	Allows code sharing agreements. Malaysian Airlines codeshares with Philippines Airlines. It signed a MOU with Garuda to operate 3rd country code sharing to Australia, Germany and the UK	Allows codesharing agreements. PAL code shares with Malaysian Airlines, Garuda and Vietnam Air and some non-ASEAN carriers	Allows codesharing agreements. Singapore Airlines is a member of the Star Alliance	Thai Airways is a member of the Star Alliance and has a number of codesharing arrangements	Has been amending various MOUs to include airline cooperative agreements. Some recent agreements both within ASEAN (e.g. Singapore) and outside (e.g. Australia) allow for third-party codesharing
Charters	Generally adopts a liberal policy towards charter services, particularly to meet seasonal or temporary needs that cannot be met by scheduled services	Liberalised charter rules in 1996. All gateways have been opened up for charter operators. The government has licensed 70 charter operators (35 of these are operational)	Liberal charter policy, readily approving charter applications	Generally liberal approach to charter flights, as long as they don't significantly divert traffic of scheduled services. Views charters as a way of supplementing scheduled flights, especially to provincial tourist destinations	Moderately liberal approach to air charters, though these are not used extensively at the moment. Approval process for charter operators can be lengthy	Grants unlimited access to all locations in Thailand	Allows charter operations especially to tourist destinations to supplement (and not compete with) scheduled flights

Source: Forsyth et al., 2004.

Broadly speaking, the countries reviewed have established liberal policies with respect to airline alliances. A number of ASAs allow for cooperative arrangements, including code-sharing. Recent agreements signed by Malaysia and Vietnam with both ASEAN and non-ASEAN partners permit third-party code-sharing. Thai and Singapore Airlines are part of one of the largest airline alliances — the Star Alliance. A relatively liberal stance has also been adopted with respect to charter services, in recognition of the importance of these operators for tourism. Nevertheless, in countries such as the Philippines and Vietnam restrictions remain in instances where charter operators are perceived to significantly divert traffic of scheduled services.

WTO analysis of plurilateral ASAs

Since there exists no single source of data on regulatory provisions of plurilateral ASAs, the WTO Secretariat has collected the texts of these agreements directly. In an attempt to be in line with the approach followed for bilateral agreements based on ICAO's selection, the WTO Secretariat has used a list of plurilateral ASAs recently compiled by ICAO in the context of its 2006 Global Symposium on Air Transport Liberalisation. Reliance on the texts of the agreements as opposed to the ICAO coded summaries has allowed for a more detailed assessment of the main components of ASAs. For example, it has been possible to identify cases where 5th freedom rights have been granted with and without limitations and to analyse non-scheduled (charter) services and cooperative arrangements.

Table 8 presents the findings of the WTO analysis focusing on plurilateral agreements signed by APEC economies relevant to air passenger traffic, the majority of which have been concluded by ASEAN Members. The WTO survey has been complemented in some instances by drawing when available from the texts of the agreements in an effort to cover to the extent possible the regulatory elements mentioned above. In addition, the analysis presented here includes MALPAS, though not covered in the WTO investigation, because of its importance in the APEC region. Relying on the legal texts of the agreements and focusing on broadly the same regulatory elements should ensure consistency with the WTO.

Table 8. Features of APEC plurilateral ASAs

Type	Agreement					
	MALIAT	**ANDEAN Pact**	**CLMV**	**MALPAS**	**BIMP-EAGA**	**IMT-GT**
Members	Brunei, Chile, Cook Islands, New Zealand, Samoa, Singapore, Tonga & US	Bolivia, Colombia, Ecuador & Peru	Cambodia, Laos, Myanmar & Vietnam	Brunei, Singapore & Thailand	Brunei, Indonesia, Malaysia & Philippines	Indonesia, Malaysia & Thailand
Freedoms	Open 3rd, 4th & 5th freedom rights	Open 3rd, 4th & 5th freedom rights	Open 3rd, 4th & 5th freedom rights	Open 3rd & 4th freedom rights	Open 3rd, 4th & 5th freedom rights*	Open 3rd & 4th freedom rights
Routes	Open routes	Open routes	Open routes	Open routes	n/a	n/a
Designation	Multiple designation	Multiple designation	Multiple designation	Multiple designation	Double designation	Double designation
Ownership & control	Principal place of business	Principal place of business	Substantive ownership and effective control	Substantive ownership and effective control	No specific provision	No specific provision
Tariffs	Free pricing with a minimal tariff filing regime	Country of origin	Double disapproval	n/a	No specific provision	No specific provision
Capacity	Free determination	Free determination	Free determination	No limitation on capacity and frequency	Free determination	Free determination
Cooperative arrangements	Third-party codesharing permitted	Codesharing permitted	Codesharing permitted	n/a	n/a	n/a
Charter services	Liberal	Restricted	n/a	n/a	n/a	n/a

Note: *5th freedom rights were liberalised in 2007; Malaysia provides unlimited 5th freedom rights on a case-by-case basis.

Source: WTO, 2007; and legal texts of the agreements.

The analysis shows that the plurilateral ASAs reviewed have in general adopted liberal regulatory provisions on air passenger services. MALIAT, the ANDEAN Pact, CLMV and BIMP-EAGA have gone beyond unlimited 3rd and 4th freedom rights to grant open 5th freedoms, with Malaysia providing unlimited 5th freedom rights only on a case-by-case basis to BIMP-EAGA Members. Open route schedules have been incorporated by all agreements for which information on this component is available. Rules on designation are liberal in all five agreements reviewed, though in BIMP-EAGA and IMT-GT multiple designation is limited to two airlines. All agreements have further eliminated restrictions on capacity and frequency.

Some progress in limiting government involvement in setting tariffs has been made in CLMV and in the ANDEAN Pact, which allow for dual disapproval and country of origin respectively, and especially in MALIAT where free pricing has been adopted, with only minimal tariff filing. Code-sharing has been introduced in all ASAs for which information is available, with MALIAT permitting third-party code-

sharing. The general conservative attitude towards rules on ownership and control is maintained in most of these ASAs, with the exception of MALIAT and the ANDEAN Pact which incorporate path-breaking rules providing for the more liberal principal place of business criteria.

Summary findings

The preceding analysis has sought to provide an overall picture of the regulatory landscape of APEC bilateral and plurilateral ASAs drawing from variety of sources. Notwithstanding data and methodological shortcomings, some discernible patterns emerge on the different regulatory components of the agreements reviewed:

- Open 3rd and 4th freedom rights are granted in a large number of bilateral ASAs and in plurilateral agreements. Some progress has been made in liberalising 5th freedom rights, though restrictions on these rights are imposed in most agreements.

- Open route schedules are included in only a few bilateral agreements, though there seems to be a trend towards adoption of multiple gateways policy in some countries, particularly to develop tourism destinations. Some pluritareal ASAs have liberalised provisions in this area.

- Designation is the area where it appears that most progress has been achieved. All surveys indicate that double or multiple designation has become commonplace in bilateral and plurilateral ASAs.

- Ownership and control rules represent perhaps the most difficult issue to tackle. Most bilateral and plurilateral ASAs maintain a conservative approach in this area, providing for the most restrictive substantial ownership and control requirement. Nonetheless, there seems to be recognition by some APEC Members of the importance to relax these restrictions, in line with ICAO's recommendations.

- APEC economies retain a generally restrictive stand with respect to tariff provisions. Dual approval of tariffs remains widely in place in bilateral ASAs, though some headway has been made in liberalising tariff provisions and filing requirements in plurilateral agreements.

- According to the WTO QUASAR, the only survey reviewing capacity requirements systematically, provisions in this area remain restrictive with Predetermination and Bermuda I clauses making up the majority of bilateral ASAs. By contrast, these provisions have been liberalised in all five plurilateral agreements reviewed.

- Cooperative arrangements, particularly code-sharing, are generally allowed in both bilateral and plurilateral ASAs in the region. Some agreements also provide for third-party code-sharing.

- Some progress has been made in liberalising charter provisions in ASAs in recognition of the importance of these operators to foster tourism development, though restrictions remain in place reflecting the perception that they may divert traffic of scheduled services.

V. The impact of liberalising air transport services in APEC

Literature review[8]

Despite the growing importance of the air transport sector as a facilitator of international trade, relatively little formal research has analysed the impact of international liberalisation (or lack thereof) on the industry. CAPA (2007) attempts to link liberalisation policies to measures of economic performance in the APEC context, employing a "progress coefficient"[9] to examine the extent of air transport liberalisation of individual APEC economies in relation to GDP and traffic. The study found that for about half of APEC economies, there appears to be a correlation between GDP levels and liberalisation as indicated by the progress quotient, suggesting that developed economies have achieved more headway in relaxing restrictions in the sector. While the analysis shows that there seems to be a close correlation between the size of the economy and the air service capacity provided, the link between progress in liberalising and

[8] While the focus in this study is on APEC Member countries, it should be noted that estimates of the impact of air transport liberalisation have also been undertaken in the context of other regions. See for example the Brattle Group (2002) for the impact of a transatlantic air service agreement; and ComMark Trust (2006) on relaxing air transport restrictions in the SADC. The methodologies employed in these studies are either different or do not represent in the view of the author an improvement from those used in the studies reviewed here.

[9] This was created for each Member country by calculating the percentage of ASAs specific to each economy to which several liberalisation components apply. For passenger services, these comprise open 3rd and 4th freedom access, open 5th freedom, bilateral code-sharing, multiple designation and liberal charters.

enhanced traffic appears to be weaker. As acknowledged by CAPA, though, this ranking of economies indicates in a general rather than scientific nature the alignment of economic performance measures with liberalisation.

A more sophisticated approach of direct measurement of regulatory restrictions in air transport has been used in the WTO QUASAR. The study complements the documentation on regulatory provisions contained in the WASA database by incorporating information about the degree of openness of regulations and then uses this information to construct an index of restrictiveness that can be compared across countries. The Air Liberalisation Index (ALI) has been created by selecting the provisions of ASAs deemed to be particularly important for market access, a process which the WTO Secretariat has undertaken in consultation with a group of professionals, government experts, and international civil servants and academics, all involved in the aviation industry. The WTO QUASAR then combines the information on restrictions with traffic data obtained from IATA to measure the fraction of trade covered in different agreements. Most notably in the context of APEC, the results show that the share of traffic covered by more liberal ASAs is between 45 and 70% in the Americas, while these agreements cover less than 30% of traffic in Asia and Oceania.

Another method has consisted in combining other data together with an index or proxy measures of restrictiveness in order to estimate econometrically the effects of regulations on measures of economic performance. Doove *et al.* (2001) applied this approach to estimate the impact of ASAs on airfares.[10] The study built on work by Gonenc and Nicoletti (2001) who constructed an index of restrictiveness for the industry and employed it in an econometric model to estimate the effects of restrictiveness on prices for a group of 13 OECD countries.[11] Doove *et al.* extended the OECD analysis to a larger set of 35 OECD and non-OECD countries covering 875 airline routes in the Asia Pacific, American and European regions. The results show that generally the air transport policy regimes in the APEC region remain relatively restrictive. They also indicate that for the discount segment the higher price effects range from 12 to 22% in the Asia Pacific Economies, 9 to 18% in the Americas, and generally below 10% in the European

[10] This method was also used in earlier work; see Dresner and Tretheway, 1992; and Savage *et al*., 1994.

[11] The restrictions included in the index covered designation, capacity, fares and carter services. Components were scored between zero and 1, with lower scores corresponding to more liberal regimes. The scores were then weighted to reflect the relative importance of each restriction, with each component accounting for between 22 and 27% of the score. The weights were derived using factor analysis, which enables to distinguish those restrictions that vary most independently among the data and then to apply the largest weights to them. This statistical technique represents an alternative approach to the use of judgmental weights employed by the WTO Secretariat for creating the ALI.

economies. The price impacts for business and economy airfares were considerably higher but should be interpreted with care in light of data constraints.

InterVISTAS-ga (2006) employed a gravity-type model assessing the impact on air passenger traffic of restrictive bilateral agreements on 1400 routes worldwide.[12] The study does not construct a restrictiveness index, but rather uses dummy variables for each type of restriction separately in the estimation. It covers fifth freedom rights, designation, capacity (both predetermination and Bermuda type), and pricing. All policy variables have the expected negative sign but only designation, predetermination of capacity and pricing are statistically significant and thus imply a constraint in traffic development. The magnitude of such constraints is quite small. The authors stress that the negative finding on fifth freedom rights is not remarkable. Traffic growth coupled with aircraft technology advances means that more country pairs can support non-stop turnaround services. In particular, as seen earlier, the development of long-range aircraft, smaller than those that have traditionally operated on long distance services and thus allowing nonstop flights on long and thin routes, is decreasing the need for intermediate hubs. Third and fourth freedom airlines can use their market strengths to displace fifth freedom operators.

More recently, an earlier version of this study employed the gravity model to analyse the effects of air transport liberalisation on air traffic, focusing on APEC Member economies (Geloso Grosso, 2008). The most important innovation compared to InterVISTAS-ga (2006) was the use of the ALI developed by the WTO Secretariat in the context of QUASAR. This provided better detail on the level of liberalisation, allowed for a finer gradation of liberalisation and helped avoiding potential problems of collinearity between different policy variables. Employing several specifications, including controlling for partner and reporter fixed effects separately, it found a positive and statistically significant relationship between easing air transport restrictions and passenger traffic. However, in the specification used controlling for both partner and reporter fixed effects (the Poission pseudo maximum likelihood estimator), the relationship became insignificant.

Piermartini and Rousová (2008) subsequently extended the analysis to a worldwide sample of countries.[13] The study compared the ALI to a newly constructed statistical index of liberalisation using factor analysis, following the approach pioneered by Gonenc and Nicoletti (2001). It also found a positive

[12] The report also used a series of bilateral and regional case studies to assess the impact of air traffic liberalisation, finding that reforms in the sector brought about very large benefits in terms of increased trade and economic development. However, it is not clear how other factors are controlled for.

[13] The authors have employed their own methodology and did not build on the work of Geloso Grosso.

correlation between the degree of liberalisation and traffic volumes, generally robust to different specifications. The impact of the two measures of openness is similar: an increase of the degree of liberalisation from the 25th to the 75th percentiles increases traffic by around 18%.

Methodology

This study aims at completing its earlier version by expanding the range of specifications to more fully analyse the impact of liberalisation for APEC economies. The methodology employed is the gravity model, which explains bilateral flows as a function of the market size of trading partners, the distance between them and a number of other geographical and institutional variables. The model employs country-pair traffic as the endogenous variable (see Annex II for the details on the methodology used in this study). In addition to GDP and distance, the following controls are used:

- *Common language:* a binary variable which is unity if the country pair has the same language
- *Common border:* a binary variable which is unity if the country pair shares a border
- *Historic tie:* a binary variable which is unity if the country pair has historic ties
- *Island:* a binary variable which is unity if the country is an island
- *Existing direct service:* a binary variable which is unity if the country pair has a direct service

As noted, the policy variable is the ALI, which the WTO Secretariat has constructed by selecting the provisions of bilateral ASAs deemed to be particularly important for market access and assigning a score between zero and 8 to each restriction, with a score of zero being the most restrictive and a score of 8 being the least restrictive. These scores have then been averaged in consultation with a group of experts using weights that are intended to reflect the relative importance of each restriction. The ALI is the sum of the weighted scores obtained by a given ASA. The value of the ALI ranges between zero for very restrictive agreements, and 50 for very liberal ones.[14] The scores attributed can also be altered to take into account the specific situation of a country pair, in particular by giving more weight to: 1) fifth freedom

[14] The ALI variable is converted into logarithms after adding 0.001, in order to retain observations for which the indicator equals zero.

traffic rights (e.g. for geographically remote countries such as Australia and New Zealand); 2) withholding, in particular community of interest and principal place of business; and 3) multiple designation.

The gravity equation is first estimated using conventional OLS, albeit using robust standard errors, robust to possible problems of heteroskedasticity. It is recognised that absolute distance and other trade costs are only a rough measure of the *real* costs between trading partners. As suggested by Anderson and Van Wincoop (2003), it is rather relative costs that matter for trade flows. As a robustness check, the baseline OLS estimates are compared with a range of OLS and Poission pseudo maximum likelihood (PPML) estimator specifications employing fixed effects. In Annex I, the same regressions are re-estimated using the three variants of the ALI.

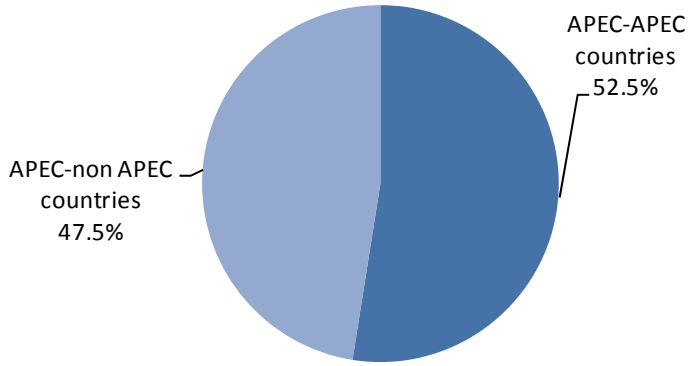
The dataset

The country-pair traffic data are from IATA and are available for 2005; they were kindly provided to the author by the WTO Secretariat. As noted, the ALI is based on the 2005 ICAO's Register of Air Service Agreements, so the regressions are based on a cross-sectional model. The reporters are 20 APEC countries (all members except Chinese Taipei as it is not an ICAO Signatory) and the partners are all countries which have concluded bilateral ASAs with the included APEC economies. Data on control for GDP are from the World Bank development indicators. Data for geographical variables are from the Centre d'Etudes Prospectives et d'Informations Internationales (CEPII). CEPII has created and made available two datasets providing data for empirical economic research including geographical elements and variables.[15] The sources include the CIA World Factbook and the website www.ethnologue.org.

Figure 2 compares the percentage of passenger traffic covered by APEC-APEC and APEC-non APEC countries, indicating that intra-APEC trade is just over half of the total traffic by APEC economies.

[15] See http://www.cepii.fr/anglaisgraph/bdd/distances.htm.

Figure 2. Percent of air passanger traffic in APEC economies, 2005



Source: IATA.

Estimation results

The results of the gravity equation estimated using conventional OLS with robust standard errors are presented in Table 9. The parameters are elasticities and thus provide an estimate of the percentage change in traffic as a result of 1% change in the variable in question. The model fits the data quite well explaining around three quarters of the variation in bilateral traffic flows. The core gravity variables are economically and statistically significant, and with the expected signs. Larger countries trade more and distance adversely affects traffic. Island countries also trade more as substitute modes of transport are less feasible, as do economies that share the same language. The other geographical variables, common border and historic ties, are statistically indistinguishable from zero. As expected, having a direct service considerably increases bilateral flows. The ALI coefficient is both statistically significant and with the expected sign. The estimate implies that if a country pair eased restrictions to double its ALI score, traffic would increase by between 6 and 7%.

Table 9. The relationship between regulation and air passenger traffic, OLS estimates (2005)

Log partner GDP	0.681***
	(0.0317)
Log reporter GDP	0.532***
	(0.0321)
Log distance	-0.892***
	(0.105)
Common language	0.423***
	(0.0487)
Historic tie	0.141
	(0.108)
Border	0.117
	(0.136)
Existing direct service	0.850***
	(0.0546)
Reporter island	0.324***
	(0.0488)
Partner island	0.318***
	(0.0611)
Log ALI	0.0665***
	(0.0250)
Observations	647
R-squared	0.766

Note: Robust standard errors reported in parenthesis. Statistical significance as follows: *** (1%), ** (5%), and * (10%).

Tables 10 and 11 below show the results with OLS and the PPML estimator, using partner and reporter country fixed effects, respectively. The number of observations does not change very much as there are very few zeros in the dataset. A result immediately apparent is that the core variables and most of the other coefficients are significantly higher in the PPML specifications. The estimated GDP elasticities are over twice as large and a similar variation can be observed for distance and existing direct service. The geographical and historical controls have all the expected signs but are generally more precisely estimated with OLS. The effect of the ALI appears also to be considerably stronger with PPML.

Table 10. The relationship between regulation and air passenger traffic, OLS and Poisson pseudo maximum likelihood - partner fixed effects (2005)

	OLS	PPML
Log reporter GDP	0.596***	1.277***
	(0.0333)	(0.0816)
Log distance	-0.861***	-1.418***
	(0.112)	(0.453)
Reporter island	0.212***	0.0880
	(0.0494)	(0.144)
Common language	0.541***	0.632***
	(0.0687)	(0.184)
Historic tie	0.257*	0.539***
	(0.133)	(0.199)
Border	0.259*	0.0896
	(0.147)	(0.601)
Existing direct service	0.764***	1.377***
	(0.0645)	(0.167)
Log ALI	0.0746***	0.113***
	(0.0235)	(0.0391)
Observations	681	688
R-squared	0.866	
Pseudo-R^2		0.911

Note: Robust standard errors reported in parenthesis. Statistical significance as follows: *** (1%), ** (5%), and * (10%).

Table 11. The relationship between regulation and air passenger traffic, OLS and Poisson pseudo maximum likelihood - reporter fixed effects (2005)

	OLS	PPML
Log partner GDP	0.695***	1.336***
	(0.0293)	(0.103)
Log distance	-1.327***	-2.488***
	(0.109)	(0.215)
Partner island	0.325***	0.443***
	(0.0516)	(0.125)
Common language	0.238***	0.590***
	(0.0493)	(0.170)
Historic tie	0.250**	0.261
	(0.107)	(0.228)
Border	-0.0845	-0.177
	(0.156)	(0.301)
Existing direct service	0.738***	1.600***
	(0.0502)	(0.110)
Log ALI	0.0520**	0.185*
	(0.0232)	(0.102)
Observations	647	651
R-squared	0.845	
Pseudo-R^2		0.860

Note: Robust standard errors reported in parenthesis. Statistical significance as follows: *** (1%), ** (5%), and * (10%).

Table 12 reports results using the Anderson and Van Wincoop (2003) equation. Here only bilateral variables are included and all country-specific factors are controlled for through importer and exporter fixed effects. Both the R-squared and Pseudo-R^2 increase considerably from their respective values in Tables 10 and 11. Once again, the estimated coefficients are much larger when the PPML estimator is used. Most notably, the ALI coefficient remains significant and correctly signed with OLS, but becomes insignificant with PPML. All results hold when the regressions are re-estimated with the three variants of the ALI (see Annex Tables 1-4).

Table 12. The relationship between regulation and air passenger traffic, OLS and Poisson pseudo maximum likelihood - reporter and partner fixed effects (2005)

	OLS	PPML
Log distance	-1.263***	-2.022***
	(0.113)	(0.152)
Common language	0.276***	0.447***
	(0.0583)	(0.157)
Historic tie	0.381***	0.519***
	(0.120)	(0.152)
Border	0.169	0.0450
	(0.149)	(0.186)
Existing direct service	0.679***	1.285***
	(0.0550)	(0.127)
Log ALI	0.0455**	0.0402
	(0.0196)	(0.0432)
Observations	750	757
R-squared	0.917	
Pseudo-R^2		0.947

Note: Robust standard errors reported in parenthesis. Statistical significance as follows: *** (1%), ** (5%), and * (10%).

VI. Conclusions

Trade in air transport services plays an increasingly important role in the on-going integration of APEC economies. This study shows that the sector has undergone solid expansion in the Asia Pacific region, notwithstanding the intervention of major external events that have occurred during the last decade or so. In light of its growing economic importance, population and geography, Asia Pacific is predicted to become the largest world air transport market in the near future. The region therefore seems well placed to take advantage of future reforms to lower trade costs within the framework of bilateral, regional and multilateral initiatives.

The empirical analysis carried out in this study provides evidence on the importance of reducing air transport services impediments to enhance international trade in the APEC region. Estimates from the gravity model find a positive and statistically significant relationship between relaxing bilateral air services restrictions and air passenger traffic. The results hold for a wide range of specifications controlling for fixed effects and for all variants of the ALI. The estimates imply that if APEC economies eased air transport restrictions to double the ALI scores with their aviation partners, both within and outside the APEC region, traffic would increase by at least 5-7%.

Efforts under the auspices of APEC and other regional fora have laid down the ground for the progressive liberalisation of air transport within the region. Some progress has already been achieved in easing restrictions by APEC economies within the bilateral framework, particularly through the emergence of open skies agreements over the last decade. Yet, more needs to be done with respect to liberal traffic rights, open routes, tariffs and capacity requirements. Furthermore, ownership and control rules represent perhaps the most difficult issue to tackle, with most ASAs maintaining a conservative approach in this area. The more headway achieved in the region's plurilateral ASAs, could provide momentum for advancing reforms more broadly.

Progress in opening trade in air transport services within APEC may also provide lessons for negotiations at the multilateral level, which have so far largely excluded air transport from the GATS purview. For starters, APEC Members differ widely with respect to size, geography and economic development. Furthermore, the analysis conducted here shows that the pattern of regulatory provisions of ASAs concluded within the APEC region is similar to those signed between APEC and non-APEC Members. And, as shown by the WTO Secretariat (see Section IV), ASAs in general are not as different as it is often pointed out.

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ANNEX I. REGRESSION RESULTS WITH VARIANTS OF THE ALI

Annex Table 1. The relationship between regulation and air passenger traffic, OLS estimates (2005)

Log partner GDP	0.681***	0.680***	0.680***
	(0.0317)	(0.0316)	(0.0316)
Log reporter GDP	0.533***	0.533***	0.533***
	(0.0321)	(0.0320)	(0.0321)
Log distance	-0.891***	-0.891***	-0.893***
	(0.105)	(0.106)	(0.105)
Common language	0.426***	0.421***	0.423***
	(0.0487)	(0.0486)	(0.0486)
Historic tie	0.141	0.143	0.140
	(0.108)	(0.109)	(0.109)
Border	0.114	0.121	0.115
	(0.137)	(0.136)	(0.136)
Exisitng direct service	0.851***	0.849***	0.850***
	(0.0545)	(0.0546)	(0.0545)
Reporter island	0.322***	0.325***	0.324***
	(0.0490)	(0.0486)	(0.0487)
Partner island	0.318***	0.319***	0.318***
	(0.0611)	(0.0611)	(0.0611)
Log ALI 5th	0.0599**		
	(0.0242)		
Log ALI own		0.0700***	
		(0.0252)	
Log ALI des			0.0679***
			(0.0246)
Observations	647	647	647
R-squared	0.766	0.767	0.767

Note: Robust standard errors reported in parenthesis. Statistical significance as follows: *** (1%), ** (5%), and * (10%). ALI 5th indicates more weight to fifth freedom; ALI own indicates more weight to withholding; and ALI des indicates more weight to multiple designation.

Annex Table 2. The relationship between regulation and air passenger traffic, OLS and Poisson pseudo maximum likelihood - partner fixed effects (2005)

	OLS			PPML		
Log reporter GDP	0.596***	0.597***	0.596***	1.278***	1.279***	1.278***
	(0.0333)	(0.0333)	(0.0333)	(0.0824)	(0.0808)	(0.0811)
Log distance	-0.859***	-0.861***	-0.861***	-1.423***	-1.416***	-1.419***
	(0.112)	(0.112)	(0.111)	(0.452)	(0.454)	(0.454)
Reporter island	0.210***	0.214***	0.213***	0.0899	0.0880	0.0874
	(0.0497)	(0.0491)	(0.0493)	(0.144)	(0.143)	(0.143)
Common language	0.543***	0.539***	0.541***	0.634***	0.630***	0.635***
	(0.0687)	(0.0687)	(0.0687)	(0.184)	(0.184)	(0.184)
Historic tie	0.256*	0.258*	0.257*	0.540***	0.538***	0.536***
	(0.133)	(0.133)	(0.133)	(0.200)	(0.199)	(0.196)
Border	0.257*	0.262*	0.256*	0.0894	0.0926	0.0846
	(0.147)	(0.147)	(0.147)	(0.598)	(0.601)	(0.601)
Existing direct service	0.765***	0.764***	0.765***	1.376***	1.377***	1.378***
	(0.0645)	(0.0645)	(0.0644)	(0.167)	(0.167)	(0.167)
Log ALI 5th	0.0684***			0.0891**		
	(0.0227)			(0.0364)		
Log ALI own		0.0781***			0.128***	
		(0.0237)			(0.0400)	
Log ALI des			0.0749***			0.125***
			(0.0233)			(0.0385)
Observations	681	681	681	688	688	688
R-squared	0.866	0.866	0.866			
Pseudo-R^2				0.910	0.911	0.911

Note: Robust standard errors reported in parenthesis. Statistical significance as follows: *** (1%), ** (5%), and * (10%). ALI 5th indicates more weight to fifth freedom; ALI own indicates more weight to withholding; and ALI des indicates more weight to multiple designation.

Annex Table 3. The relationship between regulation and air passenger traffic, OLS and Poisson pseudo maximum likelihood - reporter fixed effects (2005)

	OLS			PPML		
Log partner GDP	0.695***	0.695***	0.694***	1.341***	1.335***	1.336***
	(0.0293)	(0.0293)	(0.0292)	(0.104)	(0.103)	(0.103)
Log distance	-1.328***	-1.326***	-1.328***	-2.499***	-2.485***	-2.483***
	(0.109)	(0.109)	(0.109)	(0.217)	(0.215)	(0.212)
Partner island	0.325***	0.326***	0.325***	0.438***	0.445***	0.444***
	(0.0516)	(0.0516)	(0.0516)	(0.126)	(0.125)	(0.125)
Common language	0.239***	0.239***	0.238***	0.596***	0.589***	0.588***
	(0.0493)	(0.0493)	(0.0493)	(0.171)	(0.170)	(0.170)
Historic tie	0.252**	0.250**	0.250**	0.252	0.264	0.255
	(0.107)	(0.107)	(0.107)	(0.228)	(0.228)	(0.226)
Border	-0.0836	-0.0842	-0.0865	-0.184	-0.173	-0.172
	(0.157)	(0.156)	(0.156)	(0.306)	(0.300)	(0.297)
Existing direct service	0.738***	0.738***	0.738***	1.599***	1.600***	1.602***
	(0.0502)	(0.0503)	(0.0501)	(0.110)	(0.110)	(0.110)
Log ALI 5th	0.0486**			0.169*		
	(0.0220)			(0.0973)		
Log ALI own		0.0508**			0.195*	
		(0.0238)			(0.105)	
Log ALI des			0.0537**			0.189*
			(0.0229)			(0.102)
Observations	647	647	647	651	651	651
R-squared	0.845	0.845	0.845			
Pseudo-R^2				0.859	0.860	0.860

Note: Robust standard errors reported in parenthesis. Statistical significance as follows: *** (1%), ** (5%), and * (10%). ALI 5th indicates more weight to fifth freedom; ALI own indicates more weight to withholding; and ALI des indicates more weight to multiple designation.

Annex Table 4. The relationship between regulation and air passenger traffic, OLS and Poisson pseudo maximum likelihood - reporter and partner fixed effects (2005)

	OLS			PPML		
Log distance	-1.264***	-1.262***	-1.262***	-2.022***	-2.021***	-2.025***
	(0.113)	(0.113)	(0.112)	(0.152)	(0.152)	(0.152)
Common language	0.275***	0.276***	0.276***	0.445***	0.448***	0.451***
	(0.0583)	(0.0583)	(0.0583)	(0.156)	(0.157)	(0.157)
Historic tie	0.382***	0.381***	0.381***	0.518***	0.519***	0.520***
	(0.120)	(0.120)	(0.120)	(0.153)	(0.152)	(0.151)
Border	0.170	0.170	0.167	0.0453	0.0449	0.0377
	(0.150)	(0.149)	(0.149)	(0.186)	(0.186)	(0.186)
Existing direct service	0.679***	0.679***	0.680***	1.286***	1.286***	1.283***
	(0.0550)	(0.0550)	(0.0549)	(0.127)	(0.127)	(0.126)
Log ALI 5th	0.0426**			0.0367		
	(0.0187)			(0.0399)		
Log ALI own		0.0453**			0.0416	
		(0.0200)			(0.0436)	
Log ALI des			0.0455**			0.0502
			(0.0193)			(0.0423)
Observations	750	750	750	757	757	757
R-squared	0.916	0.916	0.917			
Pseudo-R^2				0.947	0.947	0.947

Note: Robust standard errors reported in parenthesis. Statistical significance as follows: *** (1%), ** (5%), and * (10%). ALI 5th indicates more weight to fifth freedom; ALI own indicates more weight to withholding; and ALI des indicates more weight to multiple designation.

ANNEX II. METHODOLOGY FOR ESTIMATING THE GRAVITY MODEL

The point of departure in the study is the traditional gravity equation estimated in its log-linear form:

$$\ln T_{ij} = \beta_0 + \beta_1 \ln \text{GDP}_i + \beta_2 \ln \text{GDP}_j + \beta_3 \ln \text{distance}_{ij} + \beta_4 \text{common language}_{ij} + \beta_5 \text{common border}_{ij} + \beta_6 \text{existing direct service}_{ij} + \beta_7 \text{island}_i + \beta_8 \text{island}_j + \beta_9 \text{historic tie}_{ij} + \beta_{10} \ln \text{ALI}_{ij} + \varepsilon_{ij}$$

i denotes reporter countries and *j* denotes partner countries; *T* represents country-pair traffic and *GDP* denotes their respective GDP. *Distance*, *common language*, *common border*, *island and historic tie* are geographical and historical variables commonly used in gravity regressions. *Existing direct service* denotes whether a country pair has a direct service and *ALI* is the Air Transport Liberalisation Index developed by the WTO Secretariat.

Silva and Tenereyro (2006) suggest estimating the gravity model in its multiplicative form and propose the Poisson pseudo maximum likelihood (PPML) estimation technique. This approach is useful as it provides an effective way to deal with zero values of the dependent variable and can generate more precise estimates in the presence of heteroskedasticity. The now standard gravity equation derived by Anderson and Van Wincoop (2003) introduces in the model "multilateral resistance terms", which take account of the fact that it is relative prices that matter for trade. In other words, it is not just prices in country *j* that determine exports from country *i* to *j,* but rather those prices compared with prices in all other countries. One possibility to take account of multilateral resistance is to augment the traditional gravity equation with exporter and importer fixed effects, which in its multiplicative form leads to:

$$T_{ij} = \alpha_i \, \alpha_j \, \text{EXP}\begin{pmatrix} \beta_0 + \beta_1 \ln \text{distance}_{ij} + \beta_2 \text{common language}_{ij} + \beta_3 \text{common border}_{ij} \\ + + \beta_4 \text{existing direct service}_{ij} + \beta_5 \text{historic tie}_{ij} + \beta_6 \ln \text{ALI}_{ij} \end{pmatrix}$$

αi and αj denote reporter and partner-country fixed effects, respectively. Country-specific variables which do not vary across partner countries have to be dropped from the estimating equation as these are accounted for in the respective fixed effects.