

Barriers to Trade in Higher Education Services: Empirical Evidence from Asia-Pacific Countries

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ABSTRACT

During the last decade, the services sector has seen modest liberalization through the removal of trade and investment barriers. Most members of WTO are committed to multilateral liberalization of services trade. However, within the services sector, the liberalization of trade in education services has seen little progress. Using a panel regression, this study finds that wealthier economies attract more students and enrolment in higher education gives a positive signal to a prospective overseas student. However, the higher cost of living acts as a negative element in the movement of students for studying abroad. Nevertheless, according to this paper, country-specific barriers do exist and they are equally important in influencing the movement of students across borders. Such barriers, however, are not necessarily quantifiable.

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1. INTRODUCTION

During the last decade, the services sector has seen modest liberalization through the removal of trade and investment barriers. Most members of WTO are committed to multilateral liberalization of services trade. They have committed themselves to the rules and principles of GATS. Article V of GATS permits the liberalization of trade in services between or among the parties to an economic integration agreement. Trade in education services,¹ which include primary, secondary, higher secondary and adult education service as well as specialized training such as for sports, are included in the new services negotiations, which resumed in January 2000 under Article XIX of GATS.² However, within the services sector, the liberalization of trade in education services has seen little progress. Education services seem to be the least committed sector in WTO. As of August 2006, 48 WTO members³ had made a commitment in the education sector. Within the education services sector, rapid changes are most spectacular in the area of higher education, which normally refers to post-secondary education at subdegree and university degree levels. As a consequence, as of August 2006 39 WTO members made a commitment to liberalize access to higher education services.

Countries around the world have witnessed spectacular growth in higher education over the past few decades. Today, about 132 million students have enrolled in higher education, compared with a mere 13 million in 1960 (UNESCO, 2005). Along with enrolment, at the same time a sharp rise in movement of international students across countries can be observed. The demand for international education is forecast to increase from 1.8 million international students in 2000 to 7.2 million international students in 2025 (Bohm and others, 2004). According to Knight (2006), a fascinating but very complex world of cross-border education is emerging and the last five years have been a hotbed of innovation and new developments in this area. The new developments in the last few years in education services, on one hand, provide enormous opportunities in services trade, and on the other hand, also generate several challenges.⁴

Given that education services are traded predominantly through student mobility across borders (consumption abroad), nonetheless, a host of problems persists particularly in developing countries and the least developed countries in opening up their education services, in raising their standards of education services, in recognizing the standards of

¹ In the recent literature (e.g., UNESCO-OECD, 2005; Knight, 2006), trade in education services is also termed as cross-border education, which refers to the movement of people, programmes, providers, knowledge, ideas, projects and services across national boundaries. The term is often used interchangeably with “transnational education”, “offshore education” and “borderless education”.

² For more information, see Services Gateway of WTO <www.wto.org/english/tratop_e/serv_e/serv_e.htm>.

³ Including the European Communities, which are counted as a separate WTO member.

⁴ For further information, see Raychaudhuri and De (2007) and Knight (2006) who describe some of these new developments in higher education.

each other (through mutual recognition agreements or MRAs), and in removing barriers to trade in education services (OECD, 2004; Knight, 2006; UNESCO-OECD, 2005).⁵ It is important to bear in mind that cross-country disparities in education services may not only reflect different policy priorities, but also a variety of economic, social and demographic factors.

Liberalization of the education services sector exerts an economy-wide influence as such services constitute strong inputs to all other economic activities, including trade. Trade in education services is directly associated with language, culture and also to some extent, ethnicity and religion. These types of asymmetries across countries pose a continuous threat to trade in education services. Some studies have identified several challenges related to the implementation of GATS commitments in the education sector, but very few have attempted to quantify barriers to trade in education services and describe the nature of these barriers. There is a dearth of analytical research on estimating barriers to trade in education services, particularly in the context of developing countries and LDCs.

The focus of our paper is the Asian and Pacific region, which currently shows limited intraregional trade in education services. OECD (2004) noted that Europe is the largest recipient of international students whereas Asia is the largest sending region. The objective of this paper is to measure barriers to trade in education services in developing Asian and Pacific countries. We deal with this objective in two ways. First, we discuss prominent examples from across developing Asian and Pacific countries on trade in education services. Second, we measure selected barriers to trade in education services through panel data modelling (PDM) analysis. In view of technological change, there is an important need to measure the market size and also the barriers to education services trade in developing and LDC members of ESCAP.

The paper is organized as follows. Section 2 draws a current profile of trade in higher education services and comments upon its future outlook. An attempt is made to identify the barriers to trade in higher education services in section 3. Conclusions are drawn in section 4.

⁵ Trade in education services includes exports and imports via all four modes of supply as outlined in GATS. For example, (a) cross-border trade (Mode 1), where the service itself crosses the border but consumer and provider do not move (e.g., an Indian University opens a virtual education institution); (b) consumption abroad (Mode 2), where the consumer travels to the country where the service is supplied (e.g., an Indian student goes to the United States to study); (c) commercial presence (Mode 3), where the service provider establishes a commercial presence abroad (e.g., an American university opens a branch in India); and (d) movement of natural persons (Mode 4), where the provider of the service moves temporarily to the territory of another country to supply a service (e.g., an American professor goes to India for a few months to give classes at an Indian university).

2. CURRENT PROFILE OF TRADE IN HIGHER EDUCATION SERVICES AND GATS

The crucial role of education in fostering a country's economic growth as well as in reducing inequality is well recognized. In the services sectoral classification of WTO, education services are categorized in five components: (a) primary education services, (b) secondary education services, (c) higher education services, (d) adult education services and (e) others. There are several ways that these education services move across borders. According to Knight (2006), franchising, twinning, double/joint degrees and various articulation models are the more popular methods of cross-border programme mobility.⁶ There are different forms of cross-border provider mobility as well.

The worldwide market for education services is growing faster today than observed during the previous decades when the market for education services was relatively closed (OECD, 2002a, 2002b; OECD-CERI, 2002a, 2002b). This growth is driven by a range of factors, including greater demand for linguistic skills and understanding of other countries as the "knowledge-based economy" expands. In general, education services are mostly traded through student mobility across borders (Mode 2, consumption abroad). Almost 2.5 million students worldwide are involved in formal education outside their own country (UNESCO, 2005). The global market for foreign students is estimated at \$30 billion, which represents roughly 3 per cent of international trade in services in countries of the Organisation for Economic Co-operation and Development (OECD, 2004). As of 2000, the United States, the United Kingdom and Australia were the top three exporters of education services in value terms, whereas the United States, Italy and Canada were the top three importers in terms of imports value of education services (table 1).

In Latin America, a number of countries have a long-established tradition of providing tuition to foreign students. Argentina is capitalizing on the fall of its currency exchange rate in the aftermath of the financial crisis to offer its high international standards of teaching at competitive price levels (UNESCO, 2005). Africa, Uganda, South Africa and Kenya are endowed with post-secondary institutions where a number of regional business and political leaders have been trained (UNESCO, 2005). In addition to traditional award-based university education services, there has been strong international growth in other forms of education and training, with information technology-related training being a particularly strong area of growth.

The movement of students for undergraduate and postgraduate education takes place between countries at all levels of development: between developed countries, from developing to developed countries and vice versa and also among developing countries.

⁶ Franchise of an education service basically means assigning the partial or full right to conduct education courses of the parent organization within or outside a country.

Table 1. Trade in education services by selected countries in 2000
(Millions of United States dollars)

<i>Country</i>	<i>Exports</i>	<i>Imports</i>	<i>Trade balance</i>
United States	10 280	2 150	8 130
United Kingdom	3 758	150	3 608
Australia	2 155	356	1 799
Italy	1 170	849	321
Canada	796	602	194
Greece	80	211	-131
Venezuela (Bolivarian Republic of)	60	113	-53
Mexico	29	53	-24
Brazil	4	78	-74

Source: OECD-Centre for Educational Research and Innovation (CERI), *Current Commitments under the GATS in Educational Services*, background document prepared for the OECD/US Forum on Trade in Educational Services, Washington, D.C., 23-24 May 2002.

According to a survey of the Asia-Pacific Economic Cooperation (APEC), the Asian region is the major source of students (46 per cent), with North America and Europe being important destinations (OECD, 2004). However, in recent years, Singapore is fast becoming a leading destination for global education. As of 2005, about 72,000 international students were studying in Singapore, compared with 50,000 in 2002. The country is planning to accommodate as many as 150,000 international students by 2015.⁷ As of March 2006, 16 foreign universities had opened branches in Singapore, among which Cornell University, Duke University, INSEAD and the University of Chicago are the most notable ones.

While most of the international trade in higher education services takes place among OECD countries, which received 85 per cent of the world's foreign students in 2004, some developing countries are establishing a strong presence in the global market. While mostly aiming at attracting students to study in their home country, some developing country institutions, for example from China, India and South Africa, are themselves looking to expand abroad.

Among developing Asian and Pacific countries, Malaysia is one of the leading exporters of education. In 2000, about 26,000 foreign students from nearly 100 countries including Africa, China, India, Indonesia and West Asia in Malaysia. In this context, Monash University (Australia) and the Massachusetts Institute of Technology (United

⁷ See the website of the Singapore Economic Development Board at <www.edb.gov.sg/edb/sg/en_uk/index.html> for further information.

States) are some of the notable foreign universities which have recently set up branches in Malaysia. In 2003, India attracted as many as 3,900 foreign students in higher education (Government of India, 2005). Similarly, Thailand, where education is considered a key service sector for export, has made great efforts in advertising its universities internationally as providing good quality programmes in many specialized fields, including engineering, agriculture, public health, humanities, the liberal arts, forestry, science, business administration and the hospitality industry.⁸ Twinning programmes exist with foreign universities from Australia, the United Kingdom and the United States, enabling students to take degrees accredited by Asian and Pacific countries in a lower-cost environment (WTO, 2001).

The demand for education services is highly income-elastic. As developing countries become richer, the number of international students from developing countries such as China and India will be growing much faster than that of developed countries. As shown in table 2, most of the international students for higher education in future will be sourced from China, India, and the Republic of Korea, which, in other words, indicates that the Asian and Pacific region will continue to be leading in demand for higher education services in the world.

Table 2. Future outlook of international higher education students: top five source countries

Country	Number of students					Growth rate (%)
	2000	2005 ^a	2010 ^b	2020 ^b	2025 ^b	
China	218 437	437 109	760 103	1 937 129	2 973 287	11.0
Republic of Korea	81 370	96 681	114 269	155 737	172 671	3.1
India	76 908	141 691	271 193	502 237	629 080	8.8
Japan	66 097	65 872	68 544	71 974	73 665	0.4
Greece	60 486	68 285	75 339	84 608	89 903	1.6

Source: A. Bohm and others, *Vision 2020: Forecasting International Student Mobility – A UK Perspective* (London, British Council, 2004).

^a Estimated.

^b Forecast.

Foreign service providers are allowed to participate in the education sector in developing countries in a similar fashion as they are in the developed countries (Mode 4). In some developing countries (for example, Singapore and Malaysia) it was found in the early stages of liberalization of the education services sector that domestic education service providers had improved their services as a result of increased competition from foreign

⁸ For data on these aspects, access the website of the Department of Export Promotion, Ministry of Commerce, Thailand <www.thaitrade.com>.

service providers and that this had led to positive implications for the overall welfare of the country, despite the fact that increased competition reduces the profits of domestic education services providers in the private sector to some extent.

Therefore, what emerges is that the Mode 2, consumption abroad (i.e., students moving abroad to study) is currently the most frequently used mode by which education services are traded, followed by Mode 4, movement of natural persons, and Mode 3, commercial presence (e.g., universities setting up branch campuses in other countries). However, new information technologies are changing the landscape of world trade in education. These new technologies make possible the delivery of content in audio and visual formats inexpensively, which has led to a surge in Mode 1, cross border education supply, in electronic format. In the United States, the electronic learning market is already worth over \$8 billion and has been growing at an average of 98 per cent over the past five years (OECD, 2004). Although most of the e-learning customers remain United States residents, the potential for world e-learning is huge given that the costs of delivering e-learning services through the Internet is about the same for a United States resident living close-by as for an Indian resident in Bangalore once the information technology infrastructure is in place. The expanded use of all kinds of interactive and distance learning, often combined with increased international supply of education and training services, offers enormous potential.

3. MEASURING BARRIERS TO TRADE IN HIGHER EDUCATION SERVICES

(a) Overview of barriers

A number of barriers are specific to trade in higher education services, and most of them can be termed as “soft” or “invisible” barriers. Table 3 highlights some barriers to trade in education services by mode. It appears that Mode 3 (commercial presence) attracts the highest number of barriers at present, compared with trade in other modes. However, given that the bulk of trade in education services takes place through Mode 2 (consumption abroad), measures restricting the mobility of students and mutual recognition of degree may warrant particular attention.

Quality assurance and recognition of qualifications are central to the growth of cross-border education. Owing to the growing mobility of students and professionals within and between countries, mutual recognition of qualifications has become very important. There are many initiatives, at the national, bilateral and regional levels, to improve quality assurance, accreditation and recognition of qualifications of cross-border provision in higher education. The memorandum of understanding (MoU) signed between China and Hong Kong, China on mutual recognition of academic degrees in higher education in 2004 is a good example of cross-border mobility of students and professionals.

The MoU, signed in 2004, has not only empowered China and Hong Kong, China to recognize each other's academic degrees but also agreed to set up a regulatory body to facilitate the cross-border movement of students.⁹ The mutual recognition becomes more problematic when the recipient country has heterogeneity in standards (e.g., India). Thus, a regulatory body has a role to play in acknowledging and recognizing an overseas degree.

At the same time, as noted in table 3, there are several other barriers, in particular barriers to trade under Mode 4. In order to minimize the barriers to trade in education services, the role of WTO is certainly important and WTO developing member countries should be more vocal in demanding the removal of these barriers. Regional and bilateral trade agreements have also been playing a facilitating role to strengthen the multilateral process in liberalization of education services trade.¹⁰

Table 3. List of barriers to trade in higher education services

<i>Mode</i>	<i>Barriers</i>	<i>Barrier types</i>
Mode 1: Cross-border supply	<ul style="list-style-type: none"> • Restrictions on import of electronically produced educational material • Restrictions on electronic transmission of course material • Non-recognition of degrees obtained through distance learning 	Invisible
Mode 2: Consumption abroad	<ul style="list-style-type: none"> • Restrictions on travel abroad based on discipline or area of study • Foreign exchange controls (limitations) • Mutual recognition of degree 	Invisible
Mode 3: Commercial presence	<ul style="list-style-type: none"> • Insistence on a local partner • Insistence that the provider be accredited in the home country • Insistence on partner/collaborator being from the formal academic stream • Insistence on equal academic participation by foreign and local partner • Disapproval of franchise operations • Restrictions on certain disciplines/areas/programmes that are deemed to be against national interests 	Invisible

⁹ For full details of the MoU, an official website may be accessed at the following URL: <[www.edb.gov.hk/FileManager/EN/Content_2522/mou\(e\).pdf](http://www.edb.gov.hk/FileManager/EN/Content_2522/mou(e).pdf)>.

¹⁰ See, for example, India-Singapore Comprehensive Economic Cooperation Agreement, or the European Union Services and Mutual Recognition Agreement.

Table 3. (continued)

<i>Mode</i>	<i>Barriers</i>	<i>Barrier types</i>
	<ul style="list-style-type: none"> • Limitations on foreign direct investment by education providers • Difficulty in approval of joint ventures 	
Mode 4: Presence of natural persons	<ul style="list-style-type: none"> • Visa and entry restrictions • Restriction on basis of quota for countries and disciplines • Nationality or residence requirements, language • Restriction on repatriation of earnings 	Invisible

Source: Taken from Jane Knight, *Higher Education Crossing Borders: A Guide to the Implications of the General Agreement on Trade in Services (GATS) for Cross-border Education*, a report prepared for the Commonwealth of Learning and UNESCO (Vancouver and Paris), 2006.

(b) GATS commitments

A number of services sectors are in the process of internationalization, including education services. However, education services are the least committed sector in GATS. The number of commitments on the different education subsectors is relatively slow. As shown in table 4, as of August 2006 there were 168 commitments in total by 48 WTO members (including the European Commission) in the education services sector in the following order: 33 commitments in primary education, 37 in secondary education, 39 in higher education and 37 in adult education. Higher education is the subsector which has attracted the highest number of commitments in education services; 39 countries have made a commitment to liberalize access to the higher education services.

Among the regional members of ESCAP, China is the only country which has extended its commitments to liberalize access in all five subsectors of education services. Except for Thailand, the other ESCAP member countries listed in table 4 have already extended their offers of commitments in higher education services in the current Doha negotiations. However, there is an overall sense of disappointment in the progress made to date in the number of countries that have tabled offers the degree of liberalization offered and the number of sectors committed. The unexpected low level of commitments is a deep concern, prompting much work to develop new and alternative means of encouraging countries to improve their offer in trade in education services.

Table 4. GATS commitments to education services by selected Asian and Pacific countries^a

<i>Country</i>	<i>Primary</i>	<i>Secondary</i>	<i>Higher</i>	<i>Adult</i>	<i>Other</i>	<i>Total</i>
Australia		✓	✓		✓	3
Cambodia			✓	✓	✓	3
China	✓	✓	✓	✓	✓	5
India			✓			1
Japan	✓	✓	✓	✓		4
Nepal			✓	✓	✓	3
New Zealand	✓	✓	✓			3
Thailand	✓	✓		✓		3
Total (48 countries) ^b	33	37	39	37	22	168

Sources: Authors' calculations based on Services Gateway, WTO <www.wto.org>, and information collected from the WTO Secretariat.

^a As of December 2006.

^b Among WTO member countries.

(c) Methodological issues in measuring barriers to services trade

Larsen, Martin and Morris (2002) in their study estimated that education services in OECD countries were worth about \$30 billion in 1999, which is 3 per cent of their total export trade in services. The study deliberates on the importance of education services and how improvement in technology (e-learning) has had a major impact on trade in education services. It further emphasizes the need for meeting quality standards by international service suppliers of education services. Therefore, trade in education services needs to be recognized and its potential should not be underestimated.

The measurement of barriers to trade in services and the gains associated with removing such barriers has been the focus of the literature for the past several decades. This is due in particular to the ongoing negotiations carried on at WTO. While the "invisible" barriers to trade in goods are gradually disappearing across countries, the role of the services trade has gained due importance in multilateral, regional and bilateral free trade agreements.

In general, barriers to trade in services are not like tariffs. They are typically regulatory barriers, rather than explicit taxes. The underlying economic rationale for these policy reforms is that the removal of barriers to trade in services is likely to result in lower prices, improved quality and higher competitiveness. As with trade in goods, restrictions on trade in services reduce welfare because they create a wedge between domestic and foreign prices, leading to a loss in consumer surplus.

However, current information on barriers to international trade in education services is very limited. While some studies have estimated the gains from liberalization of the sector, such studies are marred by the lack of availability of reliable data.

In the current context, Mode 2 is viewed as the prime mode of exports of education services followed by exports through Mode 4, which also have a significant share in total trade in education services (WTO, 2001). It should be recalled, however, that modes of supply were developed for the purpose of making commitments under GATS but they are not concepts generally used by providers of education services. Service providers do not separately identify their activities on the basis of the GATS modes of supply and many countries export services via several modes simultaneously. With the exception of some sectors where distinctions are relatively clear (e.g., health services), this paper does not attempt to attribute modes of supply to specific examples of education services exports. Rather, the paper attempts to identify the most important barriers to trade in education services in selected developing Asian and Pacific countries.

As for any other services, ensuring the quality of education services is of prime importance for a service supplier to sustain as an international service supplier. Difference in the quality of education services is a barrier to trade. A study by Dessus (2001) finds that differences in quality of educational systems are due to differences in the educational infrastructure, the initial endowment of human capital and the ability to distribute these education services. These differences in education services have different impacts on the creation of human capital. Dessus argues that keeping the expenditure at the existing level and giving priority to primary education for a larger section of the society will promote growth rather than giving secondary education to a selected few.

Kemp (2000) is perhaps the first to have attempted to estimate barriers to trade in education services in a cross-country framework. Similarly to Hoekman (1995), the GATS schedules are the data source used to identify and measure the extent of trade and investment restrictions. The study is innovative as its indices are calculated by taking the weighted average of scores associated with five identified subsectors of education in the four modes of supply and two categories of limitations (market access and national treatment). Two indices are proposed, which differ from each other in the scoring method. While according to the first scoring system, sectors unscheduled in GATS are treated as being fully restricted and given a score of 1, according to the second scoring system, sectors unscheduled in GATS are treated as being unrestricted and given a score of 0. Accordingly, results between the two indices are quite different. In the first case, education is found to be relatively protected, with most countries scoring higher than 0.5 and only one country (Lesotho) lower than 0.3. In the other case, education is found to be relatively unrestricted with only one country (Japan) receiving a score higher than 0.5 and 21 countries receiving a score below 0.3. According to both indices, no noticeable differences exist between developing and developed countries taken as distinct groups.

The difference in the results obtained by Kemp underlines the difficulty of assessing existing barriers on the basis of GATS commitments and the two sets of scores obtained should be considered as upper and lower boundaries for estimates. Markets may be open even in the absence of commitments and any commitments made may also not reflect the existing level of market openness, as unilateral liberalization measures may have been undertaken since the Uruguay round. While the evidence suggests that international trade in some education services is growing, this is not always reflected in the GATS commitments of countries. An initial scan of commitments by WTO members known to be involved in trade in post-secondary education services suggests that it is probably not accurate to assume that the absence of commitments indicates a closed market; however, the reverse assumption (that unscheduled sectors are completely open) is likely to overestimate the extent of actual market openness (OECD, 2004).

Therefore, in the past few years, several studies have been carried out in order to measure the welfare impact from liberalization of the trade in services.¹¹ Most of the studies (such as Mattoo and others, 2006) find that, regardless of the sector under analysis and the methodology used, on average developing countries are more restrictive than developed countries. Some of these studies also indicate that services liberalization is likely to imply potentially large gains for countries with high initial trade barriers. Consequently, developing countries are expected, in the long run, to gain most from services liberalization. Most of these gains arise from liberalizing one's own domestic service sector, not from seeking better market access to foreign services markets. In the short and medium term, however, gains may be negatively affected by the adjustment costs associated with removal of barriers and re-regulation. These costs are likely to be particularly burdensome for developing countries. Estimates, however, vary on the basis of the size of initial trade barriers, theoretical frameworks, modelling techniques and datasets used. For this reason, it does not seem appropriate to single out any specific value or range as representative of potential gains from trade liberalization.

Quantifying the welfare effects of liberalization in services requires two steps: the estimation of barriers and the insertion of these estimates into a general equilibrium framework. Measuring the magnitude of restrictions and barriers is thus a fundamental step towards a correct assessment of the impact of services liberalization. It is also important per se because "it crystallises the costs of protection for governments, the benefits that will accrue from their removal and is impetus for reform" (McGuire, 2002).

The literature assessing the nature and magnitude of barriers mainly follows methodologies previously developed to measure non-tariff barriers (NTBs) in

¹¹ There are several studies which have dealt with the welfare effects of services liberalization. See, for example, Findlay and Warren (2000).

manufacturing.¹² As a result, tools for measuring barriers to services trade and the impact of liberalization are still subject to some limitations and still need to be improved to address the distinctive features of services.

In addition to the larger spectrum of barriers in services than in the case of goods, it is necessary to determine whether regulations actually constitute barriers to trade, as one cannot simply equate regulations with barriers. Further, given that regulations on services are generally designed to serve a range of policy objectives, it might also be relevant to consider whether the regulation is more burdensome than necessary to achieve its policy objective and whether other, equally effective but less trade restrictive, measures might be available. These policy measures are not easy to quantify and require the development of sophisticated measurement methods.

(d) Panel data regression

In this paper, it is proposed to measure barriers to trade in education services through the application of a partial equilibrium model – a panel data analysis of a set of Asian countries for the period from 1999-2000 to 2004-2005. This may come closest to the macro dynamic study by Mattoo, Rathindran and Subramanian (2006), but is certainly different in orientation. The difference is the regression model that we have adopted here. We assume that the number of internationally mobile students from Asian countries, mainly from developing Asian and Pacific countries in j -th developed country ($IMSA_{jt}$) depends on per capita GDP in the destination countries, taken at constant United States dollar (PCY_{jt}), tertiary school enrolment ratio SCH_{jt} (in the destination countries), Internet use per 1,000 population in destination countries $INET_{jt}$, and relative cost of living $PRCOLI_{jt}$ (relative to United States GDP at current PPP prices in percentage term in the destination country). This regression will try to identify the main quantifiable supply or demand factors which influence the movement of international students. At the same time the regression will also reveal whether there are factors, mainly qualitative, which are left out but significantly influence such movements.

The panel regression undertaken in this study has one primary objective – to understand the major determinants of movement of students for education from developing

¹² NTBs are generally measures taken by both Governments and firms. These measures can affect the entry and operations not only of foreign suppliers, but also of new domestic suppliers, and consequently directly raise the price or cost of both foreign and domestic supply. Conventional NTBs to trade can be classified as market access instruments or national treatment measures and can take the form of quantitative restrictions, price-based instruments, licensing or certification requirements and discriminatory access to distribution or communication systems. Similarly, in services, trade restrictive measures either restrict market access or discriminate against foreign providers and barriers can be classified according to whether they impinge on the right of establishment (Mode 3) or the right to supply or consume services in a foreign country (Modes 1, 2, 3, 4). See, Findlay and Warren (2000), Chen and Schembri (2002) and McGuire (2002) for detailed reviews on the literature and methodologies to measure the barriers to trade in services.

to developed countries. The physical movement of students for education takes place mainly from developing to developed countries. Also, the major geographical area from where movement to developed countries originates, is developing Asia. Mode 2 of the trade in services (consumption abroad) captures this movement.

In this study, Australia, Germany, the United States, the United Kingdom, France, Japan, Italy, Ireland, Switzerland and Sweden are considered as destination countries. The originating countries are mainly developing ESCAP economies, including some of the developed or high-income developing economies such as Japan, Singapore and Hong Kong, China. The destination countries are chosen on the basis of availability of data for five years (1999 to 2003).¹³ The regression looks like as follows.

$$\text{IMSA}_{jt} = \beta_1 + \beta_2 \text{PCY}_{jt} + \beta_3 \text{SCH}_{jt} + \beta_4 \text{INET}_{jt} + \beta_5 \text{PRCOLI}_{jt} + \epsilon_{jt}$$

where j is country; t is year; IMSA_{jt} is internationally mobile students originating from Asia in country j at time t ; PCY_{jt} is per capita GDP at constant 2000 United States dollars for country j at time t ; SCH_{jt} is gross tertiary school enrolment for country j at time t ; INET_{jt} is Internet users per 1,000 people in country j at time t ; PRCOLI_{jt} is relative cost of living in country j in time t , relative to the United States at GDP per capita current purchasing power parity (PPP) prices in percentage term, and ϵ_{jt} is the white-noise error term for country j in time t . Here, $j = 1, \dots, 10$, and $t = 1, \dots, 5$. So, altogether we have 50 data points. The sources of data are World Bank World Development Indicators and UNESCO's global education statistics.

Does the above regression imply demand for or supply of international students? A panel data regression does not reflect this very well. One needs a proper simultaneous equation system to understand this. However, the above equation is a reduced form and reflects the determinants to international movements of students. We will discuss more of it when we discuss the signs of the coefficients. The above is a panel data regression involving 10 destination countries over a period of 5 years. The regression is expected to show the following possibilities:

- (a) Does a classical regression provide the best result? Use Breusch Pagan LM test;
- (b) In case the panel regression is better, test whether the fixed or random effect applies. Use Hausman test.

One may question the relevance of this regression in order to understand the barriers (and their costs) to trade in education. The regression results are the most

¹³ Since the latest data are not available for some of the variables used in the regression, the year 2003 is chosen as the terminal year in this study.

important determinants of the Mode 2 type of trade in education services. In case the classical regression applies with a good fit, the movement of students does not seem to have any additional determinants than those reflected in the regression equation. In that case, there are not many non-quantifiable barriers to trade in education services. In case the fixed effect applies, each country does have special characteristics which might facilitate or hinder movement of students from Asia to that country. On the other hand, if the random effect applies, country-specific effects do not matter. However, in this case there may be some general characteristics, not explicitly mentioned in the regression, which might facilitate or hinder the movement of students from Asia to the destination developed countries.

In our particular case, double log regression seems to be the better fit, implying non-linearity in the regression relationship. Thus, all the variables are taken in their logarithmic transformation. In addition, school enrolment and Internet use have high co-linearity. Therefore, only school enrolment is taken into account. The regression produces the following statistics:

- (a) LM test has a value of 96.29, which rejects classical regression in favour of the panel regression;
- (b) Hausman test has a value of 11.91, which favours fixed effect model (FEM) against random effect model (REM).

From the above, FEM is the right choice for the panel data regression. The following FEM is obtained, suppressing the general constant term:

$$\text{LIMSA}_{jt} = 4.156^{***} \text{LPCY}_{jt} + 1.397^{***} \text{LSCH}_{jt} - 2.412^{**} \text{LPRCOLI}_{jt}$$

where, ** and *** indicate estimated coefficients are significant at 5 and 1 per cent level, respectively. Appendix 1 provides the regression results which were obtained using the statistical package LIMDEP. The FEM values estimated for the 10 countries mentioned above are given as follows:

<i>Country (group)</i>	<i>Coefficient</i>	<i>Country (group)</i>	<i>Coefficient</i>
Australia	-25.248	Japan	-27.692
Germany	-25.645	Italy	-28.061
United States	-25.690	Ireland	-29.268
United Kingdom	-25.956	Switzerland	-29.984
France	-26.814	Sweden	-30.104

The results above show quite expected signs for the determining variables. Higher per capita income increases the demand for foreign students in destination countries to meet home-country (economy) skilled-labour requirements. It also gives a positive signal to potential internationally mobile students regarding future opportunities. Higher school enrolment again is a positive signal to the potential students that the education system is strong in the destination countries. Higher relative cost of living has a negative influence on the potential movers, as expected.

The above determinants also point out some quantitative barriers to trade in education services. For example, a higher cost of living, which includes both tradable and non-tradable prices, acts as a barrier to students aspiring to be educated in a developed country. Similarly, lower school enrolment will be a barrier to potential international student mobility. However, these are not really policy-induced barriers. They may be termed as market-determined barriers to the movement of international students.

However, the fixed-effect regression points to other determinants which are country specific and not accounted for in the regression. Interestingly, all the country-specific effects are negative and somewhat equal in magnitude – the bottom five countries – have higher absolute values, with Sweden topping the list closely followed by Ireland and Switzerland. Thus, the actual movement of students is less than what is predicted by the explicit determinants in the regression, such as per capita income, school enrolment and relative cost of living. Thus, these barriers are mostly non-quantifiable. They may be course equivalence requirements or cultural or religious or language or distance, etc. Clearly, however, they exist. Therefore, what follows is that Mode 2 trade in education services does face barriers to trade so far as Asian student mobility to developed countries are concerned. Clearly, one needs case-by-case microlevel studies to understand the extent and variability of these barriers.

4. CONCLUSION AND FUTURE RESEARCH AGENDA

Countries around the world have witnessed a spectacular growth in trade in higher education services over the past few years. The liberalization of the education services sector exerts an economy-wide influence as it constitutes strong inputs to all other economic activities, including trade. Given that the education services are traded predominantly through student mobility across borders (Mode 2, consumption abroad), nonetheless, a host of problems persist particularly in developing countries and LDCs in opening up their education services, in raising their standards of education services, in recognizing each other's standards, and in removing the barriers to trade in education services.

Apparently, developing Asian and Pacific countries have limited intraregional trade in education services. The United States and Europe together are the largest recipients

of international students, whereas Asia is the largest region of origin. Trade in education services is directly associated with different educational systems, language, culture and also to some extent ethnicity and religion. These types of asymmetries across the countries pose a continuous threat to trade in education services. In view of technological change, there is an important need to measure market size and also the barriers to education services trade in developing countries and LDC members of ESCAP.

Given the above, this paper aims to highlight barriers to trade in education services for selected Asian and Pacific countries. It highlights some explicit barriers and also provides the ways forward to eliminate such barriers. The findings of the study are quite revealing. The secondary data-based panel study clearly reveals the existence of country-specific barriers apart from market-induced barriers in developed countries. The market-induced barriers, as the results suggest, are school enrolment, level of development and relative cost of living. The results indicate that higher per capita income increases the demand for foreign students in destination countries to meet home country (economy) skilled-labour requirements. It also gives a positive signal to potential internationally mobile students regarding future opportunities. Higher school enrolment again is a positive signal to potential students that the education system is strong in the destination countries. Thus, looking at them from the other side, poor levels of development and low tertiary school enrolment signal less attractive destinations for potential internationally mobile students, hence discourage them from seeking admission to the educational institutions in those countries. The panel regression results also indicate that a higher relative cost of living has a negative influence on the potential movers as expected.

There is a strong policy relevance of this paper. For example, the higher cost of living, which includes both tradable and non-tradable prices, acts as a barrier to students aspiring to obtain an education in a developed country. Similarly, lower school enrolment will be a barrier to potential international student mobility. These barriers are not really policy induced, but can be termed as market-determined barriers to the movement of international students.

The FEM panel regression points to other determinants which are country-specific and not accounted for in the regression. Interestingly, all the country-specific effects are negative and somewhat equal in magnitude: the last five countries have higher absolute values, with Sweden topping the list, closely followed by Ireland and Switzerland. Thus, the actual movement of students is less than what was predicted by the explicit determinants in the regression, such as per capita income, school enrolment and relative cost of living. Therefore, these barriers are mostly non-quantifiable. They may be course-equivalence requirements or cultural or religious or language or distance. Clearly though, they exist. A detailed study involving one originating country (economy) and a number of destination countries would have made the barriers in Mode 2 education services more comparative in nature.

The study aims at generating trade-related policy recommendations to support the development of the region and also contributes to trade research capacity-building in Asian and Pacific countries. The findings of this study are expected to help ESCAP members to eliminate substantial restrictions to trade in education services and (to) liberalize trade in education services by expanding the depth and scope of liberalization beyond those undertaken by ESCAP members under GATS (or under regional trading agreements), with the aim of integrating trade in education services in multilateral and regional process.

Future studies may be attempted to understand the country-specific extent of trade barriers (and their costs). However, as the present study highlights, there are several areas where further work can be done, and some of them are briefly summarized as follows:

- Apart from Mode 2, future studies should deal with barriers in the other modes as well. This is especially true when foreign direct investment (in some cases even 100 per cent foreign) is allowed in the education sector by many of the Asian and Pacific countries. Therefore, specific successful case studies need to be done to analyse these cases.
- Future studies can also analyse trade barriers better if they are supported by primary surveys measuring the numbers of students and administrators in institutions where foreign students are greater in number.
- The regression analysis clearly shows the utility of a state-of-the-art panel study. At the same time, it reflects paucity of qualitative data, especially for variables, such as quality of education and infrastructure, problem of language or religion, place of origin, and distance from the places of learning. A country-by-country study to understand the barriers would perhaps be better.

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Appendix 1. Panel regression (fixed effect) results

Least squares with group dummy variables

Ordinary least squares regression Weighting variable = none

Dependent variable = LIMSA Mean = 9.860915241, Standard deviation = 1.863330852

Model size: Observations = 50, Parameters = 13, Degree of Freedom = 37

Residuals: Sum of squares = 0.5668993169, Standard deviation = 0.12378

Fit: R-squared = 0.996668, Adjusted R-squared = 0.99559

Model test: F [12, 37] = 922.23, Probability value = 0.00000

Diagnostic: Log-L = 41.0430, Restricted (b = 0) Log-L = -101.5601

LogAmemiyaPrCrt. = -3.947, Akaike Information criterion = -1.122

Estimated Autocorrelation of e(i, t) 0.016120

<i>Variable</i>	<i>Coefficient</i>	<i>Standard error</i>	<i>t-ratio</i>	<i>P[T > t]</i>	<i>Mean of X</i>
LPCY	4.155659275	1.1773062	3.530	0.0009	10.174417
LSCH	1.396903889	0.44731815	3.123	0.0031	4.0253530
LPRCOLI	-2.411646724	0.99539802	-2.423	0.0193	4.3941754

Estimated fixed effects

<i>Group</i>	<i>Coefficient</i>	<i>Standard error</i>	<i>t-ratio</i>
1	-25.69013	8.17767	-3.14150
2	-25.95603	7.97369	-3.25521
3	-25.24764	7.74908	-3.25815
4	-26.81399	7.93109	-3.38087
5	-25.64497	7.98343	-3.21227
6	-27.69246	8.49954	-3.25811
7	-28.06128	7.74522	-3.62305
8	-29.26828	7.99801	-3.65944
9	-30.10404	8.04302	-3.74288
10	-29.98445	8.38765	-3.57483

Test statistics for the classical model

<i>Model</i>	<i>Log-likelihood</i>	<i>Sum of squares</i>	<i>R-squared</i>
(1) Constant term only	-101.56014	0.1701280914D+03	0.0000000
(2) Group effects only	9.10981	0.2033490358D+01	0.9880473
(3) X - variables only	-94.00708	0.1257667589D+03	0.2607525
(4) X and group effects	41.04299	0.5668993169D+00	0.9966678

Hypothesis tests

	<i>Likelihood ratio test</i>			<i>F tests</i>			
	<i>Chi-squared</i>	<i>d.f.</i>	<i>Prob.</i>	<i>F</i>	<i>num.</i>	<i>Denom.</i>	<i>Prob. value</i>
(2) vs (1)	221.340	9	0.00000	367.392	9	40	0.00000
(3) vs (1)	15.106	3	0.00173	5.408	3	46	0.00285
(4) vs (1)	285.206	12	0.00000	922.234	12	37	0.00000
(4) vs (2)	63.866	3	0.00000	31.907	3	37	0.00000
(4) vs (3)	270.100	9	0.00000	907.940	9	37	0.00000

Random effects model: $v(i,t) = e(i,t) + u(i)$

Estimates: $\text{Var}[e] = 0.153216D-01$

$\text{Var}[u] = .412108D+01$

$\text{Corr}[v(i,t), v(i,s)] = 0.996296$

Lagrange multiplier test vs. Model (3) = 96.29

(1 df, prob. value = 0.000000)

(High values of LM favour FEM/REM over CR model.)

Fixed vs. random effects (Hausman) = 11.91

(3 df, prob. value = 0.007690)

(High (low) values of H favour FEM (REM).)

Re-estimated using GLS coefficients:

Estimates: $\text{Var}[e] = 0.200754D-01$

$\text{Var}[u] = 0.460768D+01$

Sum of squares 0.140692D+03

R-squared = 0.173021D+00