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Internationalization of Tertiary Education Services in Singapore

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Abstract

This paper traces the development of the education sector from its nascent stage of serving economic development needs to the internationalization stage of fulfilling Singapore's aspiration to be a global education hub. The state plays an important role in guiding and fostering development of the education sector in the creation and production of human capital for domestic production as well as cross-border trading to generate income and employment, and attract talent to the economy. Regional trading agreements can play a facilitating role for internationalization of higher education services, especially when commitments under the General Agreement on Trade in Services (GATS) are weak. Private education enterprises need no less regulatory measures than other economic sectors to function properly in the market economy—to add value, assure quality services, and yield benefits for education services purchasers.

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1. INTRODUCTION

The development history of Singapore's economy is not long. Before 1960, Singapore was simply a trading post in Southeast Asia for the British Colonial Administration. With the eclipse of the British Empire, and rising fervor for self-government and independence by inhabitants of the island, Singapore was granted self-government in 1959. Following a brief period of amalgamation with Malaysia in 1963, Singapore became an independent sovereign nation on 9 August 1965. Its earlier hope of economic emancipation lay in the adoption of an import substitution strategy supported by a Pan-Malayan market. When separated from Malaysia, the development strategy had to switch to export-oriented industrialization dependent on foreign investment and the world as the hinterland for market, management expertise, and technological know-how. Capitalizing on its strategic geographical location, linking major markets of the Eastern and Western hemispheres, transportation infrastructure (seaports and airports) was built and continuously upgraded to attract shipping lines and airlines, generating excellent connectivity that facilitates trade and investment. Singapore's economy has evolved from an entrepôt economy in the early 1960s to one that is powered by modern industries such as electronics, chemicals, and pharmaceuticals, and sophisticated service industries in the area of finance, business consultancies, and medical and education services. It is now a hub for many types of economic activities—financial, information technology (IT), medical, electronics, aviation, and education services. Over 4 decades, from 1970 to 2010, the gross domestic product (GDP) at constant prices increased 17 times from S$16,567 million to S$284,561 million. Its per capita GDP on a purchasing power parity (PPP) basis was $59,711 in 2011, ranked third in the International Monetary Fund (IMF) list of countries (IMF 2012).

This paper begins with an overview of the policy changes associated with the development of the education sector in Singapore. The education system is of critical importance to the development of the economy as it is the primary conduit through which the country's human resources are honed and nurtured. Education is an equalizer; attainment of qualifications provides opportunities to fulfill aspirations and achieve emancipation from poverty. This builds cohesiveness in the community, which is essential for national survival. The commoditization of education services forms the basis of an industry that can then become an engine of growth, generating income and employment for the economy. This forms the basis of discussion for the internationalization of educational services, in particular tertiary educational services in section 3. The rationale and proposition of the internationalization of the education sector, and the establishment of Singapore as a Global Schoolhouse, are considered. In section 4, the functions of the General Agreement on Trade in Services (GATS) framework in promoting liberalization trade in services, especially higher education services, is evaluated. Barriers of trade in educational services are also considered in this section. The same section considers the role of regional trading agreements in fostering trade in educational services. The final section concludes with discussion on the implications and lessons learned in the internationalization of education services in Singapore.

2. OVERVIEW OF THE DEVELOPMENT OF THE EDUCATION SECTOR

To address the problem of inadequate education facilities in the 1960s and to cater to the manpower needs of an industrializing economy, human resource development (HRD) efforts in Singapore focused on education and training. In addition to academic schools, vocational, technical, and commercial schools, and vocational institutes were created at secondary level.

The National Industrial Training Council was formed and tasked with the responsibility for providing technical education and training in 1968.

Vocational schools were phased out. All secondary school students studied a common curriculum in the first 2 years, with either a technical course or a home economic course with workshop practice once a week outside normal school time. A policy of having one-third of the students in the technical stream and the remainder in the academic stream in the upper secondary classes was phased in. Singapore Polytechnic, established in 1954, focused on craft, technician, and professional courses in accountancy, architecture, and building—leading to award of its own diplomas in 1959. In 1962, the division of the University of Malaya (founded in 1905) in Singapore became a separate entity and was re-designated the University of Singapore. This was the second university in Singapore after the establishment of Nanyang University in 1956.

By giving greater emphasis to professional and technical education at the tertiary level, in 1965 the University of Singapore agreed to award degrees to Singapore Polytechnic's professional engineering, architecture, and accountancy graduates. However, in late 1968, the government decided that the Singapore Polytechnic should concentrate on technician training. All the professional courses were then transferred to the University of Singapore. With the restructuring in 1968, the Technical Education Department of the Ministry of Education (MOE) oversaw technical education and training. The ratio of having one-third of the students in the technical stream and the remainder in the academic stream in the upper secondary classes was achieved by 1972. Student enrolment was expanded, rising from 3,198 in 1969 to 7,546 in 1979. By 1975, Singapore Polytechnic had produced 2,057 industrial technician certificates (ITC) graduates. In 1970, Ngee Ann College (which subsequently became a polytechnic) commenced with three departments—mechanical engineering, industrial electronics, and commerce. Student enrolment expanded from 754 in October 1970 to 2,103 in October 1979 (Goh and Gopinathan 2008).

In a move by the Government of Singapore to encourage a more capital- and skill-intensive mode of production and to improve the management and development of manpower, in 1979, the Council for Professional and Technical Education was formed to coordinate all government agencies involved in education and training. Chaired by the minister for trade and industry, its members included the minister for education, the chairman of the Economic Development Board, the civil service head of the MOE, and the heads of the two universities. The Council for Professional and Technical Education's overall objective was to ensure that there was an adequate supply of professional, technical and skilled labor to meet the needs of industry. It makes projections and recommends enrolment targets and the corresponding staffing and financial requirements for universities, polytechnics, and vocational and training institutes of the Vocational and Industrial Training Board and the Economic Development Board (Goh and Gopinathan 2008).

In the reform of industrial training, Singapore Technical Institute was set up in 1969 to provide 2-year full-time technician courses to bridge the gap between the trade courses offered by the vocational institutes and the 3-year technician courses offered by Singapore Polytechnic and Ngee Ann Technical College. To add flexibility and suit the urgent needs of industry, a module system of craft training replaced the 2-year full-time training for all students from 1970. Courses ranged from 6 months to 2 years, depending on the type and level of skills. Skills could be acquired in the minimum of time and progress from one stage to another was made possible.

The infrastructure in tertiary institutions for training technicians and engineers was greatly expanded to support the economic restructuring program aimed at more capital- and technology-intensive manufacturing. At the tertiary level, both Singapore Polytechnic and Ngee

Ann Technical College (renamed Ngee Ann Polytechnic in 1981) expanded their staff and physical facilities such as laboratories and workshops, and made changes to their courses. Thus, Singapore Polytechnic incorporated computer technology in its regular courses and made a computer literacy course and a program in supervisory studies compulsory for all students. In Ngee Ann Polytechnic, a Centre for Computer Studies was set up in July 1982 and diploma courses in computer studies were started. Both polytechnics opened their courses to GCE "A" level holders[1] and holders of the Vocational and Industrial Training Board certificates. As a result of these developments, student enrolment rose dramatically in both polytechnics from 11,105 in 1980 to 27,106 in 1989. The number of engineering students rose from 2,754 in 1978 to 6,519 in 1988. A third polytechnic, Temasek Polytechnic, was established in 1990 to complement existing programs and broaden the range of options offered.

Changes were made to the two universities and university enrolment, including that of engineering, was significantly expanded. In 1980, the National University of Singapore (NUS) was formed with the merger of the University of Singapore and Nanyang University. The National Technological Institute was set up in 1981 to conduct more practice-oriented engineering courses, leading to degrees awarded by the NUS. Nanyang Technological Institute first offered degree programs in civil, electrical, and mechanical engineering. Computer engineering programs were introduced in 1989 and material engineering degree programs in 1991. Nanyang Technological Institute was renamed Nanyang Technological University in 1991 to facilitate the introduction of other disciplines that were complementary to its programs in engineering, technology, and business. University enrolment rose from 9,200 in 1980 to 22,095 in 1989. The number of engineering students rose from 386 in 1978 to 2,418 in 1988.

The number of polytechnics was increased to five—Singapore Polytechnic, Ngee Ann Polytechnic, Temasek Polytechnic, Republic Polytechnic, and Nanyang Polytechnic. They are also significant providers of continuing education and post-employment professional development programs and services. Meanwhile, the two universities reviewed their development strategies in tandem with changes in the economic structure. They have initiated a number of innovative programs, including the broadening of undergraduate education, the introduction of a core curriculum, collaborations with top foreign universities, and the establishment of interdisciplinary centers. Between 1980 and 2000, the percentage of primary school children in each year who subsequently enrolled successfully at the local universities increased from 5% to 21%. The enrollment rate of the polytechnic sector was increased from 5% to 38% over the same period. The higher education sector is comprised of both universities and polytechnics; the total enrollment rate was raised from 10% in 1980 to 59% in 2000 (Goh and Tan 2008).

3. GLOBAL SCHOOLHOUSE: EDUCATION SECTOR AS AN ENGINE OF ECONOMIC GROWTH

The Asian financial crisis in 1997 and the recent knowledge revolution prompted the government to focus its resources on transforming Singapore into a knowledge-based economy. A program launched in June 1998, Manpower 21 (M21), delineated an overall plan for the long-term development of Singapore's workforce as an essential component of the nation's economic development strategy. The explicit objective was and is to "…develop a globally competitive

[1] Advanced Level General Certificate of Education or GCE "A" level is the usual pre-requisite qualification attainment for admission to universities in Singapore and other Anglo-Saxon countries.

workforce to power Singapore into a knowledge based economy." (Ministry of Manpower 1999: 3)

The plan includes a comprehensive blueprint covering worker training and upgrading to meet the demands for new skills in an environment of rapid technological change and a constantly evolving and extremely competitive global economy. M21 was complemented by the World Class Universities program of the Economic Development Board (EDB) launched in 1998. This program was designed to attract at least ten World Class Universities to Singapore within ten years via a variety of linkage mechanisms including joint ventures, twinning, and setting up of autonomous campuses. A series of higher education reforms were initiated, including integrated reviews of university governance and funding and the establishment of an International Academic Advisory Panel (Olds 2007).

The pace of reform was hastened when the Economic Review Committee (ERC), comprised of members from the private and public sectors, was formed in 2001 to evaluate and chart a new direction for the economy in the new millennium. The ERC report (Ministry of Trade and Industry 2003) delineates Singapore's aim to become a globalized, entrepreneurial, and diversified economy, with economic growth of 3%–5% per year over the medium term. The key strategies include:

- Expanding external ties—embracing globalization through the multilateral trading framework of the World Trade Organization (WTO), regional cooperation, and bilateral free trade agreements.
- Maintaining competitiveness and flexibility—keeping the burden of taxes and the Central Provident Fund on the economy as low as possible, reviewing the labor market and wage system to make them more flexible, and pricing factors of production competitively.
- Promoting entrepreneurship and domestic companies—encouraging people to be innovative and improving the ability of firms to develop new ideas and businesses, tap new export markets, and broaden the economic base.
- Growing manufacturing and services—upgrading these sectors by improving cost competitiveness, equipping the labor force with relevant skills, and developing new capabilities and industries.
- Developing human capital—investing in education, helping workers train and upgrade, and welcoming global talent to augment the indigenous talent pool.

To be a diversified economy, the government embarked on identifying new key engines of growth for the economy in the 21st century. The education services industry is one of the promising industries identified and targeted for development.

Following the Global Schoolhouse concept recommended by the Education Workgroup of the Economic Review Committee, the government made a concerted effort to develop Singapore as a global hub of educational excellence. The global education market is estimated to be worth $2.2 trillion. Singapore, with its strong academic reputation, excellent infrastructure, business hub standing, and cosmopolitan society, is well poised to tap the growing education market. The chairman of the Education Workgroup considered that "Singapore has strong publicly funded institutions and an emerging pool of private sector providers. Helping private providers to grow, facilitating partnerships between institutions and attracting new players into the market would create a 'Global Schoolhouse' that offers a comprehensive continuum of learning experiences, from culinary courses, to postgraduate design programs, to online adult education". (Ministry of Trade and Industry (2003b: 1)

This diversity of educational offerings aims to attract substantial numbers of full-fee-paying international students and corporate executives to Singapore for corporate training. Currently, over 50,000 international students are in Singapore in private and public institutions. The workgroup estimates that by 2012, an additional 100,000 international students and 100,000 executive trainees could be in Singapore. The estimate of 2.5 million international students in 2004 is projected to exceed 7 million by 2025 (ACE 2006). Asia is expected to account for 70% of global demand for international higher education by 2025.

As indicated in Table 1, the education sector contributes about 3% of Singapore's GDP and provides jobs for more than 57,000 workers. Its GDP contribution is projected to reach 5% and employment in the sector to exceed 70,000 by 2015. The education market—especially those offering vocational training in diploma, degree, and postgraduate levels; professional and executive training; and early childhood programs—is poised for expansion, given growing emphasis on continual training for existing professionals and rising worldwide attention on quality head-start programs for students[2].

Table 1: Indicators for the Education Sector in Singapore

Indicators	2004	2005	2006	2007	2008	2009
No. of establishments	3,088	3,173	3,369	3,458	3,824	3583
No. of workers	51,665	54,758	55,608	56,481	57,760	57,441
Operating receipts (S$ million)	2,251	2,473	2,824	3,298	3,732	3,983
Value added (S$ million)	3,685	3,889	5,241	6,389	7,215	7,706
GDP contribution (%)	1.9	1.9	2.3	2.4	2.7	2.9

GDP = gross domestic product.

Sources: Department of Statistics, Ministry of Trade and Industry, and SPRING, Singapore.

3.1 Public Education

The public tertiary education institutions in Singapore are the four local Autonomous Universities (the NUS, Nanyang Technological University, Singapore Management University (SMU), and the Singapore University of Technology and Design); Singapore Institute of Technology (SIT);[3] five polytechnics (Nanyang Polytechnic, Ngee Ann Polytechnic, Republic Polytechnic, Singapore Polytechnic, and Temasek Polytechnic); and the Institute of Technical Education. With much of the major physical infrastructure completed by 2000, education development expenditure in 2010 is only about 55% of that in 2000. Total student enrolment in the public tertiary education institutions grew annually by 4% since 2000 to reach 138,000 in 2010 (Table 2). From 2008 to 2010 about 21,000 students graduated from the polytechnics and 12,000 from the universities. Tertiary education in Singapore is heavily subsidized by the government. Students pay about 30% of the actual cost of education. The proportion of the labor force with tertiary educational qualification increased significantly from 26% in 2000 to 36% in 2010.

[2] This includes catch-up programs to enable students with some disadvantage (especially in language proficiency) to acquire necessary knowledge or to attain pre-requisite qualification for admission to tertiary level training at polytechnics or universities in Singapore or other countries.

[3] SIT, established in 2009, offers publicly funded degree programs to meet the upgrading needs of polytechnic graduates, in collaboration with seven reputable overseas universities, across 17 degree programs (e.g., in the United Kingdom, the University of Manchester for Nursing, and Newcastle University for Engineering, and Food and Human Nutrition). SIT will expand its course offerings.

A third university, SMU, was established in 2000. It offers a broad-based business curriculum modeled after that of the Wharton School of the University of Pennsylvania. Singapore University of Technology and Design (SUTD) is the newest addition to the university landscape, with its first intake of 400 students in 2012. SUTD aims to nurture technically grounded leaders and innovators for society and was established in collaboration with the Massachusetts Institute of Technology and Zhejiang University.[4]

The public education system has won several international accolades. Singapore emerged among the top performers in the Programme for International Student Assessment (PISA) of the Organisation for Economic Co-operation and Development (OECD) in 2009. Out of 65 countries, Singapore was ranked 2nd in mathematics, 4th in science, and 5th in reading.

3.2 Private Education

The state is the principal provider of education at primary, secondary, and tertiary levels. In the case of nonformal education, the private sector plays the complementary role of running continuing and supplementary education classes in business studies, computers, languages, fine arts, and tuition, among others.

The rapid growth of the private education sector is driven by the rising demand for lifelong learning and upgrading of knowledge and skills. Private education institutions help to develop human capital, provide opportunities for Singaporeans who wish to upgrade their skills, contribute to the growth of Singapore's talent pool, support Singapore's economy, and strengthen Singapore's position as a global education hub. They serve local needs and caters to a large and growing number of international students who wish to pursue an education in Singapore. There are over 1,200 local and foreign private education organizations in Singapore, including 30 pre-tertiary schools, enrolling more than 100,000 students (EDB 2012). Two notable private institutions provide post-secondary education in the arts: LASALLE College of the Arts and Nanyang Academy of Fine Arts (NAFA). The two schools are nonprofit arts institutions, operating autonomously with financial support from the MOE, in the form of polytechnic level funding for the respective diploma programs[5] . They also offer offshore or externally accredited degree programs that are privately funded.

Rapid growth of the private education sector in Singapore has led to uneven quality of provision across the sector. To maintain its position as one of the leading education hubs in the world, Singapore is committed to achieving the highest standards across the private education industry to build a strong Singapore Education brand name internationally. In 2009, the MOE introduced the Private Education Act to enhance regulation in the private education sector, to strengthen the registration framework and enforcement provisions. The act provided for setting up of a statutory board, the Council for Private Education (CPE), to oversee the Enhanced Registration

[4] SUTD and ZJU signed an agreement in August 2010 to collaborate in areas such as education, research, student exchanges, and joint undergraduate design competitions. SUTD hopes to offer a unique curriculum and interdisciplinary approach that includes best practices and values of the east and the west.

[5] For instance, as part of its new partnership with Goldsmiths, University of London, LASALLE College of the Arts launched 14 publicly funded undergraduate arts degree programs. The BA(Hons) programs cover a full range of contemporary arts disciplines, from fine arts, media arts, and performing arts to design and arts management. NAFA partners with the University of East London to offer BA(Hons) programs in fashion, design, and fashion marketing; with the University of Essex to offer a BA(Hons) in creative industry management; with Loughborough University to offer a BA(Hons) in fine arts and graphic communication; and with the University of Central Lancashire to offer a BA(Hons) in spatial design. NAFA has also partnered the Royal College of Music to offer a publicly subsidized degree program. When a program is declared as publicly funded, subsidies for tuition fees are provided by the Ministry of Education for eligible citizens and permanent residents enrolled in the program.

Framework (ERF) and promote best practices among private education institutions to raise standards in the private education sector over time.

Table 2: Basic Statistics on the Economy and Education Sector in Singapore

Item	2000	2005	2006	2007	2008	2009	2010	Annual Growth Rate, 2000–2010 (%)
Enrolments								
Polytechnics	56,044	63,124	66,543	70,983	74,762	78,454	80,900	3.7
Universities	37,648	45,353	48,106	50,563	52,598	55,358	57,117	4.2
Graduates								
Polytechnics	15,073	18,071	18,037	18,553	20,341	21,159	22,214	3.9
Universities (1st degree)	9,406	10,309	10,710	11,493	11,772	12,258	12,796	3.1
Advanced diploma	1,298	1,303	1,070	995	1,152	1,765	1,766	3.1
Higher degree	3,614	5,250	5,084	5,568	5,935	6,371	6,794	6.3
Government Expenditure on Education								
Recurrent expenditure (S$ million)	5,868	6,082	6,959	7,528	8,230	8,685	9,910	5.2
Expenditure as % of GDP	3.6	2.9	3.0	2.8	3.1	3.3	3.3	
% of expenditure on tertiary education	25.7	29.0	36.6	32.0	34.8	35.4	36.0	
Development expenditure on education (S$ million)	1,591	867	608	742	753	847	879	(5.9)
Expenditure per Student (S$)								
Polytechnic	9,546	10,843	11,903	12,482	13,479	12,598	14,641	4.3
University	15,384	17,793	18,472	19,011	19,664	18,868	20,584	2.9
Macroeconomics Indicators								
GDP at current market price (S$ million)	162,584	208,764	230,923	267,254	267,952	266,659	303,652	6.2
GDP at 2005 prices (S$ million)	165,245	208,764	226,933	246,846	250,516	248,587	284,561	5.4
Labor force ('000)	1,596	1,733	1,881	1,878	1,928	1,986	2,047	2.5
% of labor force with tertiary qualification	26.8	36.4	38.8	39.3	42.6	43.7	45.7	

( ) = negative, GDP = gross domestic product.

Source: Government of Singapore, Department of Statistics. Various years. *Yearbook of Statistics*. Singapore.

With effect from 21 December 2009, private education institutions that fall under the following categories are required to register with the CPE under the new Private Education Act:

- Private education institutions offering education leading to the award of a diploma or degree, or full-time postsecondary education leading to the award of a certificate
- Private education institutions offering full-time preparatory courses for entrance or placement tests for joining MOE mainstream schools or for external examinations
- Foreign system schools offering full-time primary or secondary education wholly or substantially in accordance with a foreign or international curriculum
- Privately-funded special education schools

The ERF, administered by CPE, spells out the mandatory registration requirements and legislative obligations that all private education institutions, operating in and from Singapore, must meet. The ERF aims to ensure that private education institutions in Singapore are of an acceptable standard to protect the interests of the students enrolled in their schools.

Accreditation is another means to ensure quality of education services. The MOE has introduced the EduTrust Certification Scheme, which aims to enhance the quality of private education providers in Singapore to achieve an education hub internationally renowned for its educational service qualities. EduTrust is a voluntary certification scheme that helps to distinguish higher quality players in Singapore's private education industry. Private education institutions need to be EduTrust-certified before being able to offer placement for international students who require a student's pass from the Immigration and Checkpoints Authority. Furthermore, the scheme provides for protection of the tuition fees paid by all local and international students via an escrow bank account or insurance scheme provided by appointed service providers.

To implement the task of industry development and boosting the capabilities of private education institutions, the CPE has established the Industry Development Centre. This center also engages in industry partnerships and promotes collaboration with government and private agencies to develop initiatives for enhancing the professionalism and quality of the private education sector.

3.3 Internationalization of Higher Educational Services

With the framework for the development and regulation of private education in place, Singapore is ready for internationalization of the education sector. Singapore has several competitive advantages that position it well as a global education hub. These include a strategic geographical location; a reputation for educational excellence; a vibrant business hub, which presents opportunities for institutional–industry collaboration; and a safe and cosmopolitan environment. However, constraints include regulation at various educational levels, lack of a quality assurance system for private commercial schools, high land and building costs, lack of a central agency to market Singapore's educational services overseas, and onerous student visa requirements. By overcoming these constraints, Singapore can capture a larger share of the global educational market. Growth in the education sector would come from the increases in institutional and student spending, particularly from full-fee-paying international students.

The establishment of Singapore's polytechnics and universities has been pivotal in building on the nation's engagement with international education. They have provided Singaporeans with opportunities to study abroad and are host to a sizeable population of international students. Given the nation's focus on developing the economy, the academic programs at all universities

and polytechnics are heavily biased toward technology and business. These programs are also easier to benchmark and sell to international students.

Following the Global Schoolhouse initiative, Singapore Education was launched in 2003. It is a multi-government agency initiative led by the EDB and supported by Singapore Tourism Board, SPRING Singapore, International Enterprise Singapore, and the MOE. An official website for Singapore Education was set up for potential international students to visit and source relevant information about studying in Singapore. EDB is responsible for attracting internationally renowned educational institutions to set up campuses in Singapore, Singapore Tourism Board is tasked with overseas promotion and marketing of Singapore education, and SPRING and International Enterprise Singapore are in charge of helping quality local education institutions to develop their businesses and set up overseas campuses (Mok 2008).

Since 2002, 10 foreign institutions have established branch campuses in Singapore under EDB's Global Schoolhouse initiative, to expand the offerings of high-quality academic programs. These include highly respected names such as INSEAD; Tisch School of the Arts; and the University of Nevada, Las Vegas which have set up their first overseas campuses in Singapore. Others such as Duke University's School of Medicine have collaborations with local universities offering joint academic programs. The most recently established is EDHEC Risk Institute–Asia by EDHEC Business School, France in 2010. These 10 institutions (Table 3) offer undergraduate, postgraduate, and executive education programs.[6]

Table 3: International Institutions with Asian Campus Located in Singapore

Institution	Country of Origin
INSEAD	France
University of Chicago Booth School of Business	United States
S P Jain School of Global Management	India
ESSEC Business School	France
DigiPen Institute of Technology	Canada
University of Nevada, Las Vegas	United States
New York University Tisch School of the Arts Asia	United States
German Institute of Science and Technology	Germany
Curtin University	Australia
EDHEC–Risk Institute	France

Source: Singapore Education. http://www.singaporeedu.gov.sg/

At the end of 2011, 31 universities were collaborating with local universities (the NUS, SMU, and Nanyang Technological University) to provide joint programs from bachelor degree level to PhD in areas such as business management, law, economics, liberal arts, social administration, medical science, and engineering subdisciplines (Table 4).

[6] The University of New South Wales (UNSW), Australia would have been included in the list but it closed down less than half a year after opening in 2007, citing an unsustainable financial burden and below anticipated enrolment as major reasons for closure.

Table 4: List of Universities having Joint Programs or Partnerships with Local Universities

No.	Institution	Country of Origin	Partners in Singapore
1	Cornell University	United States	NTU
2	Duke University	United States	NUS
3	Georgia Institute of Technology	United States	NUS
4	John Hopkins University	United States	NUS
5	Massachusetts Institute of Technology (MIT)	United States	NUS and NTU
6	New York University School of Law	United States	NUS
7	Stanford University	United States	NTU
8	The Wharton School of the University of Pennsylvania	United States	SMU
9	UCLA Anderson School of Management	United States	NUS
10	University of Illinois Urbana-Champaign	United States	NUS
11	Yale University	United States	NUS
12	King's College London	United Kingdom	NUS
13	Universität Basel	Switzerland	NUS
14	University of St. Gallen	Switzerland	SMU
15	Karolinska Institutet	Sweden	NUS
16	Design Technology Institute in Eindhoven	Netherland	NUS
17	WASEDA University	Japan	NTU
18	Indian Institute of Technology, Bombay	India	NUS
19	German Institute of Science and Technology	Germany	NUS
20	Ecole Supérieure d'Electricité (Supélec)	France	NUS
21	ESIEE Paris	France	NTU
22	École Polytechnique	France	NUS
23	Université Paris Sud	France	NUS
24	Université Pierre et Marie Curie	France	NUS
25	Technical University of Denmark	Denmark	NUS
26	Beijing University of Chinese Medicine	PRC	NTU
27	Peking University	PRC	NUS
28	Shanghai Jiao Tong University	PRC	NTU
29	Tsinghua University	PRC	NUS
30	Australian National University	Australia	NUS
31	University of Melbourne	Australia	NUS

PRC = People's Republic of China, NTU = Nanyang Technological University, NUS = National University of Singapore, SMU = Singapore Management University.

Source: Singapore Education. http://www.singaporeedu.gov.sg/

Cross-border degree education programs and online courses that do not have a local presence do not require approval from the government authority. However, the government issues licenses to local partner institutions to retain a relationship with foreign universities (Ziguras

2003).[7] The government has deliberately targeted high-end providers such as John Hopkins University, INSEAD, and the University of Chicago Booth School of Business to establish a local presence using incentives such as reduced land values for campus sites, monetary and in-kind support for research projects, seminars, and scholarships. Foreign universities which established a presence in Singapore before 2000, are also encouraged to upgrade and deepen involvement in Singapore. For example, Curtin University of Australia has transformed its presence since 1986 from an agreement with professional bodies to a branch campus presence in 2008. In reaction to this and in line with Singapore's tradition of allowing market forces to dictate sectors, Singaporean institutions are corporatized and operate autonomously as not-for-profit public companies predominantly owned by the government (Li 2006). From a development perspective, Singapore is adamant that the returns on tertiary education investment far outstrip returns on any other education (Ministry of Manpower 2007), embracing tertiary education as a driving force for strengthening Singapore as a knowledge and value-adding economy. Simultaneously, there is realism in maintaining a sufficiently flexible system to cater for differences in preferences and maintain education agility.

The education market for Singapore is somewhat segmented, with demand perceived to come from both consumers (international students) and transnational corporations located in Singapore and around the region. Singapore hosts some 7,000 multinational corporations and 1,000 foreign small and medium-sized enterprises. It is positioned to be home to many institutions that offer executive education and corporate training to professionals and executives from various industries. Among these institutions are internationally acclaimed universities renowned in their specialized fields of education, including INSEAD in business management, NYU Tisch Asia in the arts, and Cornell-Nanyang Institute of Hospitality Management in tourism and hospitality. These institutions provide a varied selection of executive education courses, including executive MBAs, postgraduate studies, open enrolment courses, and customized programs. A list of the institutions providing executive programs and corporate training is in Table 5.

Table 5: List of Institutions Providing Executive and Corporate Training in Singapore

Institution	Course Category
Asian Center For Professional Excellence	Business Management
Association of Aerospace Industries	Aviation
At-Sunrice GlobalChef Academy	Hospitality
Aventis School of Management	Business Management
British Council	Education, Languages, Business Management
Building and Construction (BCA) Academy	Urban Management and Civil Engineering
Centre for Liveable Cities, Singapore	Urban Management and Civil Engineering
Centre for Urban Greenery and Ecology (CUGE)	Urban Management and Civil Engineering
Civil Service College	Accounting and Finance, Urban Management and Civil Engineering, Languages, Business Management

[7] This does not constitute a trade barrier as the Private Education Act requires education service providers to be registered to ensure quality of programs offered and increase vigilance on possible financial malfeasance.

Institution	Course Category
Cornell-Nanyang Institute of Hospitality Management	Accounting and Finance, Hospitality, Business Management
DigiPen Institute of Technology	Arts and Digital Media
Digiworkz Asia-Pac Broadcast Training Centre	Arts and Digital Media
ESSEC	Business Management
Financial Training Institute (FTI), Singapore Management University	Accounting and Finance
HMI Institute of Health Sciences	Healthcare
Human Capital Leadership Institute, Singapore Management University	Business Management
IBC Asia	Accounting and Finance, Business Management
INSEAD	Accounting and Finance, Business Management
Institute of Chartered Public Accountants of Singapore (ICPAS) Accountancy Academy	Accounting and Finance, CPA training and certification
Kaplan Higher Education	Accounting and Finance, Languages, Logistics, Business Management
LASALLE College of the Arts	Languages, Arts, Digital Media, Design, Management and short courses
Lithan Hall Academy	Enterprise Resource Planning
LTA Academy Singapore	Urban Management and Civil Engineering
Management Development Institute of Singapore (MDIS)	Business and Management, Engineering, Fashion Design, Information Technology, Life Sciences, Mass Communications, Psychology, Travel, Tourism and Hospitality Management
Marketing Institute of Singapore (MIS)	Languages, Business Management
Mercer College	Business Management
Southeast Asian Ministers of Education Organization Regional English Language Centre (SEAMEO RELC)	Education, Languages
National Healthcare Group College	Healthcare
National Institute of Education (NIE)	Education
Nanyang Technological University, Centre for Continuing Education	Education, Business Management
NanyangTechnological University, Nanyang Executive Education	Accounting and Finance, Business Management
National Trade Union Congress (NTUC) Learning Hub	Service Excellence, Professional development, Industry skills
National University of Singapore (NUS) Executive Education	Logistics, Business Management

Institution	Course Category
National University of Singapore (NUS)NUS Extension	Business Management
National University of Singapore (NUS) Professional Activities Centre	Urban Management and Civil Engineering
Parkway College	Healthcare
PMC School of Logistics	Logistics
Principals Academy (PA)	Education
PSB College	Accounting and Finance, Logistics, Business Management
Raffles International Training Centre (RITC)	Hospitality
Risk Management Institute, National University of Singapore	Accounting and Finance
S P Jain School of Global Management	Accounting and Finance, Business Management
SGP International Management Academy	Healthcare, Business Management
Shatec Institutes	Hospitality
Singapore Aviation Academy	Aviation
Singapore Chinese Chamber Institute of Business	Languages, Business Management
Singapore First Aid Training Centre	Healthcare
Singapore Human Resources Institute (SHRI)	Business Management
Singapore Institute of Management (SIM)	Logistics, Business Management
Singapore Management University Executive Education	Accounting and Finance, Business Management
SingHealth Academy	Healthcare
Temasek Poly Professional Development Centre	Urban Management and Civil Engineering, Education, Hospitality, Business Management
The Chartered Institute of Logistics and Transport, Singapore (CILT)	Logistics
The Logistics Institute - Asia Pacific (TLIAP)	Logistics
The University of Chicago Booth School of Business	Accounting and Finance, Business Management
Times Educational Services (TES)	Business Management
Tourism Management Institute of Singapore (TMIS)	Hospitality
Unicon Management & Consultants	Urban Management and Civil Engineering
Wealth Management Institute	Accounting and Finance

Source: Singapore Education: http://www.singaporeedu.gov.sg/

Three features of the international student program are most striking. The first is that international students pay double the tuition fees that Singaporeans pay at the polytechnics and only about 60% more than Singaporeans at the universities. For example, at Singapore Polytechnic, a Singaporean pays S$2,299 per year while an international student pays S$4,539. The government subsidy for international students is 69% or S$10,102. At the NUS, a Singaporean pays S$6,890 per year and an international student pays S$11,030. The government subsidy for international students is 46% or S$9,554 for non-laboratory-based programs. Although tuition fees vary slightly between institutions, a calculation of the estimated number of international students in Singapore multiplied by the amount of government subsidy per student suggests that the international student program is being supported by at least S$190 million per year—not an insignificant investment.

The second striking feature of Singapore's international student program is that all students who take advantage of the government subsidy (called a tuition grant) are bonded to stay and work in Singapore for 3 years after completing their study. The third salient feature relates to the quality of the educational products paid for by the international students. The government does not govern quality assurance centrally; the individual higher education institutions manage it. Improvement of quality and academic standards is a central goal of universities to achieve a competitive edge in the global market. With rising prevalence and enrolment for tertiary education, universities have become huge, complex, and costly enterprises dealing with demands of teaching, research, and public services. Quality assurance is seen as a means to ensure that universities are well managed in response to pressure for accountability and efficiency in a country dominated by the market philosophy. Management concepts, theories, and practices in the private sector have been adopted by universities in Singapore (Lee and Gopinathan 2008). Mutual recognition of degrees and diplomas among countries in a regional trading agreement is another way to uphold the standard and quality of higher education programs.

The MOE does not provide a list of accredited overseas universities and no central authority in Singapore assesses or grants recognition for degrees obtained from overseas universities. The MOE considers that the employer should decide whether a degree-holder has the qualities desired for the job and the qualification most relevant to the employer's needs (Ministry of Education 2012). An international student has to apply for a student visa if they have been accepted by an educational institution to pursue full-time studies in Singapore. The government has reviewed the system, making it more flexible, expeditious, and transparent. One possibility is to introduce a differentiated student visa system whereby different visa categories correspond to different types of education programs (similar to the sophisticated system used by the Government of Australia). This would allow better monitoring of potential immigration offences and expedite visa processing for genuine students.

To attract foreign education institutions, the government has adopted competitive institutional land pricing for the tertiary, prep, and boarding schools segment. Some 90 hectares of land has been set aside for this purpose. An Edu-Mall concept to cluster commercial schools, corporate institutes, and related companies by industry type at a centralized location has been considered. This could enable educational enterprises in different segments to enjoy agglomeration economies.

4. THE GENERAL AGREEMENT ON TRADE IN SERVICES AND INTERNATIONAL TRADE IN HIGHER EDUCATION SERVICES

Singapore is an ardent participant in multilateral trade liberalization by virtue of its heavy dependence on trade for economic survival. Total trade is more than three times the GDP for Singapore. The WTO, an international organization with 154 members, deals with the rules of trade between nations. Its main tasks include increasing trade liberalization internationally, serving as a forum for trade negotiations, and arbitrating and facilitating settlement of trade disputes among members. At the heart of the WTO are the WTO agreements, negotiated and signed by the majority of the world's trading nations and ratified by their parliaments. The GATS is a multilateral agreement under the WTO that was negotiated in the Uruguay Round and came into effect in 1995. The aim of the GATS is to increase trade in services through progressive liberalization. In other words, its aim is the removal of barriers to trade in services (Knight 2002).

4.1 Mode of Supply and Education Services

The GATS provides a systematic framework for administering and negotiating four different modes of supply of services:

1) Cross-border supply—supply of service from the territory of one member into the territory of any other member

2) Consumption abroad—supply of service in the territory of one member to the service consumer of any other member

3) Commercial presence—supply of service by a service supplier of one member through commercial presence in the territory of any other member

4) Presence of natural persons—supply of service by a service supplier of one member through presence of natural persons of a member in the territory of any other member,

Table 6 illustrates how the different modes of supply are applied to the trade in education services.[8]

[8] The classification follows that in WTO (2002). See also Table 12 of Bashir (2007).

Table 6: Classification of Education Services under the General Agreement on Trade in Services and the Four Modes of Supply

Category of Education Service	Mode 1 Cross-Border Supply	Mode 2 Consumption Abroad	Mode 3 Commercial Presence	Mode 4 Presence of Natural Persons
1. Primary education		Children attending classes abroad (frontier towns)	Twinning arrangements	Teachers travelling to foreign country to teach
2. Secondary education		Students attending summer school and/or language courses abroad	Twinning arrangements	Teachers travelling to foreign country to teach
3. Higher education	e-education; virtual universities	Students studying in another country	Branch or satellite campus; franchising; twinning arrangements	Teachers travelling to foreign country to teach
4. Adult education	e-education; learning of languages, cooking, gardening from schools providing distance learning.	Attending classes abroad	Branch or satellite schools; franchising; twinning arrangements	Teachers travelling to foreign country to teach
5. Other education				Teachers travelling to foreign country to teach

Source: WTO (2002).

Classified according to the GATS modes of supply, Table 7 shows that Singapore's trade in services is predominantly within the first two modes (M1 and M2). Singapore's export of services is characterized by the foreign consumption of services delivered in Singapore. Services exports provided by Singapore professionals in foreign countries (M3 and M4) are relatively small, but their potential for growth is immense with the development of the knowledge-based economy. More detailed statistical information on Singapore's trade in services and stock of foreign equity investment (inward and outward) is in the Appendix.

Table 7: Classification of Mode of Supply

Mode of Supply	Type of BOP based services	2009 **Export** (S$ million)	2009 **Import** (S$ million)
M1: Cross-border supply	Transport, insurance, trade-related, royalties, social	76,203	60,992
M2: Consumption abroad	Travel, financial, business management, government	41,940	35,144
M4: Movement of natural persons	Technical and other professional services	17,815	19,281

BOP = Balance of Payment

Source: Department of Statistics, Singapore: Yearbook of Statistics.

Table 8 presents a summary of the commitments made by Singapore with respect to the 12 types of services defined by the GATS. Singapore has made commitments to most sectors defined by GATS, but not in educational services, distribution, or the environmental and health sectors.

Table 8: Singapore: Sectors Covered in the General Agreement on Trade in Services Schedule of Commitments

Sector	Commitments made in Singapore's GATS schedule
Business	x
Communication	x
Construction and engineering	x
Distribution	
Education	
Environment	
Financial	x
Health	
Tourism and travel	x
Recreation, culture and sports	x
Transport	x
Other	

GATS = General Agreement on Trade in Services.

Source: UNESCAP (2000), p. 171.

Singapore, like many other countries in the earlier stage of development, is concerned about the possible unmanageable and negative impacts of this trade on the reform and restructuring of the education system for human resource development and planning geared for industrialization and economic development. The possibility of losing sovereignty over a sector that is vital to national development is a major concern. With successful attainment of higher economic development, internationalization of the education sector is viewed as a good conduit to develop and enhance the knowledge-based economy. Among the factors propelling demand for foreign higher education services are the excess demand for domestic higher education and the need for internationally recognized qualifications in emerging regional and global markets for highly skilled labor. Thus, concerted development policies are being put in place to streamline and

upgrade the domestic tertiary education sector in tandem with efforts to increase foreign collaborations to improve the quality of domestic higher education. The key challenges are to prioritize policy objectives; to choose among different options for achieving those objectives, including the judicious use of foreign provision of higher education; and to align regulatory mechanisms accordingly (Bashir 2007).

4.2 Barrier to Trade in Higher Education Services

A number of barriers are specific to trade in higher education services, and most of them can be termed as soft or invisible barriers (Raychaudhuri and De 2007). Dee (2008) notes that the GATS framework appears relatively poorly placed to deal with barriers to the growing trade in higher education delivered via the mobility of programs, providers, or projects, rather than students. The GATS framework encourages negotiators to negotiate mode by mode, but many of the new ways of delivering higher education services involve two or more of the GATS modes at once. Table 9 highlights major barriers to trade in education services by mode and the presence of such barriers in the case of Singapore. It appears that Mode 3 (commercial presence) attracts the highest number of barriers identified, 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 degrees may warrant particular attention. Generally, Singapore has imposed very little restriction on trade in higher education services. It has obviated the need to do so because of the good reputation build up over the years with regard to its public education yielding respectable graduate outputs and research contributions. At the same time, effective regulatory measures have been put in place to monitor and develop the private education sector. When domestic institutions are equipped with comparable capabilities and marketable proposition, the concern of adverse effects brought about by internationalization of the education sector is diminished.

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.

Table 9: Barriers to Trade in Higher Education

Mode	Barrier	In Singapore
Mode 1:	Restriction on import of electronically produced educational material	None
Cross-border supply	Restriction on import of electronic transmission of course material	None
	Non-recognition of degrees obtained through distance learning	None, left to market forces
Mode 2:		
Consumption abroad	Restriction on travel abroad based on discipline or area of study	None
	Foreign exchange controls	None
	Mutual recognition of degree	FTAs
Mode 3:		
Commercial presence	Insistence on a local partner	None
	Insistence that the provider be accredited in the home country or host country	Yes, MOE
	Insistence on partner/collaborator being from the formal academic stream	None
	Insistence on equal academic participation by foreign and local partner	None
	Disapproval of franchise operations	None
	Restrictions on certain disciplines/area/programs that are deemed to be against national interests	None
	Limitations on foreign direct investment by education providers	None
	Difficulty in approval of joint ventures	None
Mode 4:	Visa and entry restrictions	Professional employment pass needed
	Restriction on basis of quota for countries and disciplines	None
	Nationality or residence requirements, language	None
	Restriction on repatriation of earnings	None

FTA = free trade agreement, MOE = Ministry of Education.

Source: Collated by Author.

In spite of the lack of official commitments to the GATS with respect to educational services, Singapore has one of the most liberalized environments for foreign participation in its education sector. Commercial presence (Mode 3) is exemplified by the presence of 10 foreign university campuses; more than 30 partnerships and collaborations between foreign and local universities offering joint programs, and a plethora of foreign institutions offering corporate training and

executive programs. The percentage of foreign lecturers and instructors at local universities is well above 50%. This can be attributed to Singapore's relatively liberal policy in attracting foreign talent into the knowledge industries.

4.3 Regional and Bilateral Trade Agreements

Singapore has a network of eight regional free trade agreements (FTAs) and 10 bilateral FTAs with 24 trading partners. Singapore's FTAs have been instrumental in helping Singapore-based businesses strengthen cross-border trade by eliminating or reducing import tariff rates, providing preferential access to services sectors, easing investment rules, improving intellectual property regulations, and opening government procurement opportunities. Singapore is one of the leaders in propagating services preferential trade agreements (PTAs)[9]. It has followed a positive list approach[10] with the People's Republic of China, European Free Trade Area (EFTA), India, Japan Jordan, and New Zealand; and a negative list approach in its PTAs with Australia, the Republic of Korea, Peru, Panama, and the United States (US). The commitments it has taken in the negative list approach PTAs tend to go further than the others, especially the PTA with the US and, to a lesser extent, that with Australia. Overall, there is much diversity in the commitments undertaken by Singapore in its PTAs.

FTAs play a significant role in liberalizing trade in services. Banking and insurance, IT services, telecommunication, aviation services, logistics, and engineering and construction consultancies often predominate the list of items for service trade liberalization in FTAs. As noted by analysts, most of the FTAs are rather passive in expanding their commitments on trade in educational services beyond what had been made under the GATS (Raychaudhuri and De 2007). The education sector is still a sensitive sector in most countries, saddled with many other domestic priorities including economic sustainability. Many countries will like to intervene directly in the education system and use it to achieve other societal goals such as culture preservation, human resource development and planning, inculcation of moral standards, and nurturing of social cohesiveness and national identity. In the development of Singapore as an education hub, FTAs play a facilitating role but are not a crucial determinant for its success. A hub is a location for congregation to benefit from agglomeration economies. Singapore's hub strategy is one that depends on its ability to offer a good spectrum of quality education products and services provided by renowned or branded institutions. It is supported by easy accessibility (geographical advantage together with efficient transport and communication infrastructure), reputation, personal safety, and good governance in finance and delivery of the quality products. In contrast, the primary aim of most FTAs is to create or enhance market access in the economies of foreign trading partners. Nonetheless, FTAs help to increase the awareness of investment opportunities and pave the way for Singaporean educational institutions and entrepreneurs to participate in joint ventures and make investment forays into the FTA partners when the time is right. FTAs are also being used as platforms to increase interaction and exchanges among education institutions in FTA members. Such activities may lead to greater confidence in formulating and implementing mutual recognition agreements (MRAs) and structuring of joint ventures and collaborative investments in the professional services and education industries.

[9] On Singapore's PTA strategy, see Thangavelu and Toh (2005), and Toh (2006).

[10] In the positive list approach, a country agrees to give preferences to the FTA trading partner only in those industries listed in the positive list. In the negative list approach, preferences are given to FTA partners in all industries except those in the negative list. A hybrid of both approaches may be found in an FTA.

The Association of Southeast Asian Nations[11] (ASEAN) FTA signed in 1993 is the oldest FTA in Singapore's FTA network. ASEAN is an important market for trade in services, as they are sizeable (40%–50%) and constitute a continuously expanding component of the GDP in ASEAN countries. Recognizing the growing importance of trade in services, the ASEAN Framework Agreement on Services was signed by the ASEAN economic ministers in 1995. The agreement's rules are consistent with the WTO–GATS mechanism. An MRA was also signed to enable the qualifications of professional service suppliers to be mutually recognized to facilitate easier flow of professional service providers in the ASEAN region. A significant initiative in increasing collaboration among tertiary education institutions in ASEAN is the establishment of the ASEAN University Network. The network, comprising 17 leading universities from 10 ASEAN member countries, aims to further and enhance awareness of ASEAN among the people of the region through the expansion of ASEAN studies as part of the Southeast Asian studies curricula. It also facilitates the introduction of ASEAN student and staff exchange programs, joint research, and information networking (Madugula 2005).

Worthy of note is Singapore's FTA with Australia in 2002. In the area of legal services, Singapore will now recognize eight Australian law schools (up from the current four)[12] and it will expand the choice of institutions for aspiring Singaporean lawyers to obtain their tuition and training. At the same time, it will make it easier for Australian law firms or schools to enter into joint law ventures and formal law alliances with Singapore law firms and schools.

An outstanding example of the use of FTAs to promulgate the interaction of higher education institutions is the India–Singapore FTA, also known as the India–Singapore Comprehensive Economic Cooperation Agreement (CECA). This has facilitated joint postgraduate programs between the world-renowned Indian Institutes of Technology (IIT) and Institute of Science (IISc) and Singapore universities. These programs focus on research and education, with clear industrial linkages to companies from both countries. Arising from this, in 2006, the NUS and IIT Bombay signed a memorandum of understanding to establish a joint graduate engineering program. S P Jain Institute of Management and Research, an Indian private university, has set up a campus in Singapore offering management courses. In addition, under CECA, it is agreed that degrees specified by the University Grants Commission of India or an Institution of National Importance of India, and by universities in Singapore, shall be recognized for the purposes of admission into the universities of both countries.

In the case of the Japan–Singapore FTA (JSEPA), there is no commitment on higher education services. However, under the section on Trade in Service in JSEPA, Japan has commitments in child day-care services and other education services, which would allow Singapore companies to venture into the Japanese market providing education services in areas like early childhood education, information technology, corporate training, and industry-related training such as packaging design centers. Similarly, under the Republic of Korea–Singapore FTA (KSFTA), Singapore companies are allowed to establish enterprises to provide language education,

[11] ASEAN is a geopolitical and economic organization of 10 countries located in Southeast Asia, which was formed on 8 August 1967. Its members are Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam.

[12] The four law schools currently recognized are Monash University, the University of Melbourne, the University of New South Wales, and the University of Sydney. The four additional law schools that will be recognized when the agreement comes into force in 2002 are the Australian National University, Flinders University, the University of Queensland, and the University of Western Australia.

certified language programs like TOEFL and TOEIC,[13] corporate training, and service quality programs.

5. CONCLUSION

The idea of transnational education and internationalization of education is one of the aims of most countries' higher education institutions because of the benefits that emanate both directly to such institutes as well as the nation or region indirectly by way of human resource development at the macro level.

Singapore is broadening and deepening its educational offerings to become a world-class education destination that is global both in institutional composition and student mix. Onshore international education in Singapore is considered a catalyst to prepare local institutions for the next wave of the nation's economic development—establishing a knowledge-based economy (Sanderson 2002). Singapore is home to many distinguished foreign tertiary institutions including INSEAD, DigiPen Institute of Technology, and the German Institute of Science and Technology (TUM Asia). An increasing diversity of schools and programs will give students a wider selection of quality education options that range from business, wealth management, and digital animation to arts and fashion, culinary arts, luxury brand management, and hospitality. Singapore's efforts to develop the Global Schoolhouse initiative have also strengthened its reputation as a talent hub in attracting and retaining people.

The integration of economic development strategy with internationalization of the education sector is useful. Tertiary education remains at the center of economic well-being. It is necessary for growth, through its direct contribution to skills and workforce quality. As education encompasses other aspects relating to social, cultural, and linguistic facets of society, pursuing internationalization based solely on economic gains and GDP enhancement can be perilous. Early commitments by countries to the GATS in their liberalization of trade in services may restrict the flexibility of economies in meeting changing needs in different stages of development. When the basic education system providing primary and secondary levels of education is in place, launching and expanding the system to include the tertiary education sector has a greater chance of success. Inviting foreign tertiary education institutions to assist in upgrading the local tertiary education environment could expedite the selection of appropriate curriculum, setting up of important institutes and faculties, and charting of research programs.

Regional trading agreements have a role in fostering internationalization of higher education services. To some extent, they encourage countries in FTAs to add to the list of commitments made in educational services under the GATS, with a smaller group of trading partners. In some cases, FTAs promulgate interaction of institutions of higher learning among member countries, leading to signing of MRAs and setting up of joint ventures in the provision of tertiary education, corporate training, and executive programs.

Nonetheless, the influx of foreign educational institutions should not be viewed too differently from profit-making transnational corporations. Their presence is not likely to be motivated based purely on philanthropic endeavors. The case of the University of New South Wales (UNSW) venture in Singapore exemplifies the cautionary approach. Despite many incentives (tax concession and land space allocation) given by the host country, UNSW did not seem to have a feasible business plan to be financially viable in the longer run. It terminated its operation barely

[13] TOEFL, an acronym for Test of English as a Foreign Language, is one of the most widely respected English language tests in the world. TOEIC, an acronym for Test of English for International Communication, is an English language test designed to measure the everyday English skills of people working in an international environment.

five months after its opening in 2007. Many staff and students who had made commitments to the new institution were left in a lurch, although alternative arrangements and compensation were being made by UNSW.

Tertiary education enables critical thinking, creativity, teamwork, and self-learning; these contribute to entrepreneurship, mobility, and the capacity to process information and new ideas. The waves of globalization affect the ways in which the sector makes these contributions. Governments and institutions must act quickly to adapt to the new wave and capture its advantages (Findlay and Tierney 2010). The first wave of the globalization of tertiary education mostly meant the movement of students across borders. The new wave of globalization includes the movement of teachers and whole institutions into overseas markets, joint degree programs offered by institutions in different economies, and distance learning programs. The issues relating to Singapore's internationalization of the tertiary education remain challenging.

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APPENDIX TABLES

Table A1: Inward and Outward Foreign Equity Investment for Singapore, as at year-end
(S$ million)

Industry	Inward			Outward		
	2000	2005	2009	2000	2005	2009
Manufacturing	66,306	96,181	107,952	24,954	46,352	84,053
Construction	1,936	960	2,472	780	881	2,628
Wholesale and retail trade	23,439	48,757	89,119	6,249	11,215	19,616
Transport and storage	6,358	16,585	34,073	4,749	9,335	9,559
Hotels and restaurants	…	2,020	3,139	1,873	2,230	2,696
Information and communication	1,481	5,005	5,192	1,767	10,365	17,034
Financial and insurance services	66,711	129,838	239,690	47,437	104,756	177,913
Real estate, rental, and leasing	6,005	6,125	14,564	7,821	8,986	20,201
Business services	5,066	10,686	30,553	1,114	4,035	7,386
Others	(32)	495	6,715	1,529	3,866	18,264
Total	**178,979**	**316,651**	**533,470**	**98,272**	**202,021**	**359,348**

( ) = negative.

Source: Government of Singapore, Ministry of Trade and Industry, Department of Statistics.

Table A2: Export and Import Trade in Services, Singapore, 2000–2009

(S$ million)

	Exports			Imports		
Industry	**2000**	**2005**	**2009**	**2000**	**2005**	**2009**
Transportation	20,221	20,221	20,221	20,221	20,221	20,221
Travel	8,865	8,865	8,865	8,865	8,865	8,865
Finance and insurance	4,090	9,666	17,016	3,688	4,723	6,801
Construction	232	901	1,346	214	339	641
Computer and information and communication	1,173	1,787	3,834	1,460	2,123	3,584
Business services	14,247	35,328	56,091	7,223	17,770	29,034
Accounting	29	280	364	34	92	244
Advertising	391	555	792	240	549	817
Architectural	45	147	275	14	25	53
Business management	4,601	7,991	14,457	2,947	5,593	10,088
Engineering and technical	768	1,395	3,536	318	925	2,546
Legal	103	311	436	67	102	387
Research and development	159	286	542	1,323	2,303	3,850
Trade-related	7,209	23,098	32,484	1,755	6,152	7,741
Other business services	941	1,266	3,205	527	2,031	3,308
Others	386	15,942	28,586	10,241	37,932	46,272
Total	**49,213**	**92,711**	**135,959**	**51,912**	**91,973**	**115,417**

Source: Government of Singapore, Ministry of Trade and Industry, Department of Statistics.