



**REPORT**

# Cross-border exchange in education in the Indo-Pacific region

Update to the 2008 report: APEC and international education

*Prepared for  
The Australian Government Department of Education  
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## *Contents*

<b>Executive summary</b>	<b>1</b>
<b>1 Introduction</b>	<b>3</b>
Background to this report	3
The key ideas	4
This report	5
<b>2 The economics of education</b>	<b>6</b>
The resources involved	6
The education task	8
Education and economic growth	11
Changing nature of educational provision	13
<b>3 Education exchange in APEC and EAS economies</b>	<b>16</b>
Types of cross-border exchange	16
Data availability	17
Recent growth in Mode 2 exchange: consumption abroad	17
The pattern of Mode 2 exchange in APEC — higher education	18
Mode 2 exchange: other sectors	23
Cross-border supply (Mode 1)	24
Commercial presence (Mode 3)	25
Evidence of exchange (ambiguous Mode)	26
Presence of natural persons (Mode 4)	26
Government involvement in cross-border exchange	27
<b>4 The benefits of cross-border exchange</b>	<b>30</b>
Cross-border exchange brings important benefits	30
Exchange benefits both sides	30
Increasing the benefits from exchange	34
<b>5 Implications for APEC cooperation</b>	<b>36</b>
Overview of policy areas and influence	36
Current levels of cooperation	37
Implications for future work	39
<b>A Background data</b>	<b>43</b>
<b>References</b>	<b>51</b>

**BOXES, CHARTS AND TABLES**

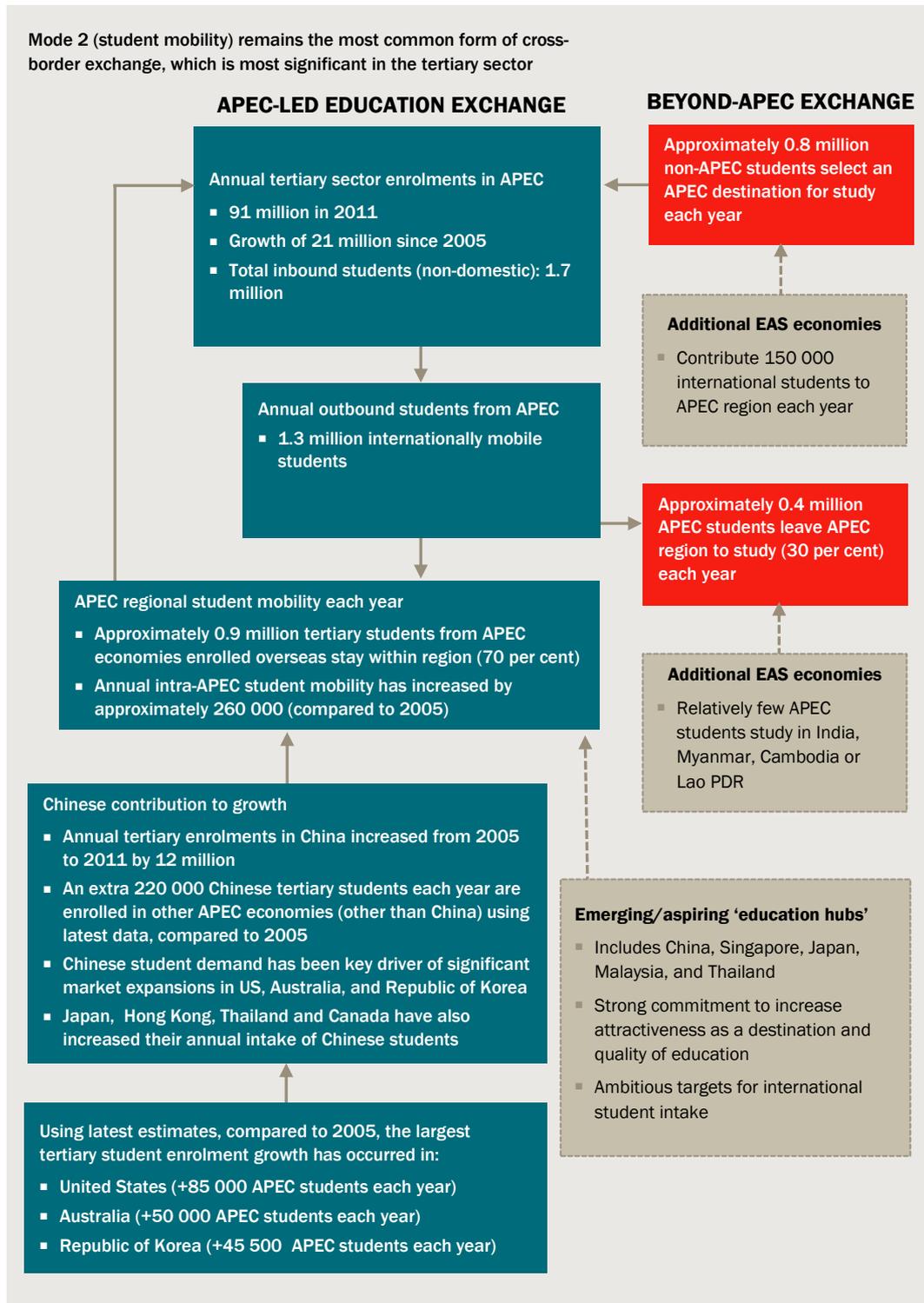
1	Summary of major education exchanges	2
1.1	The key ideas	4
2.1	Estimated share of GDP spent on education – APEC and EAS economies	7
2.2	Relationship between public expenditure per capita and income per capita	8
2.3	Enrolments per 1000 population (aged 5 to 24 years)	9
2.4	Growth in tertiary enrolments in APEC and EAS economies	10
2.5	How education contributes to growth	11
2.6	Growth and education – an example from Australian data	13
2.7	The changing skills needs of the economy	14
2.8	Internet penetration (internet users as a percentage of the population)	15
3.1	Modes of cross-border exchange	16
3.2	Ratio of internationally mobile students to domestic enrolments	18
3.3	Key flows of students between APEC and EAS economies, 2011 <sup>a</sup>	19
3.4	Change in international tertiary student enrolments, APEC-only, by source	21
3.5	Change in international tertiary student enrolments, APEC-only, by destination	22
3.6	VET commencements, Australia, from important selected economies	24
3.7	Broad categories of government involvement in cross-border exchange	28
3.8	Broad effects of government involvement in cross-border exchange	29
4.1	Benefits to both sides of the exchange	31
4.2	Effective increase in higher education resources from international education, APEC economies only	33
4.3	Factors driving demand for international education	34
5.1	Policy areas, their influence and objectives for cooperation	37
A.1	Student enrolments (teaching task) by level of education (millions) <sup>a</sup>	43
A.2	Public expenditure on education as a percentage of GDP, 2010 <sup>a</sup>	45
A.3	Private expenditure on educational institutions and administration as a percentage of GDP, 2010 <sup>a</sup>	46
A.4	Public and private expenditure on educational institutions and administration as a percentage of GDP, latest data	47
A.5	Share of private provision (Per cent of total enrolments)	47
A.6	Outbound mobile students from APEC and EAS economies	48
A.7	Flow of students for APEC and EAS economies – by destination, latest data	49
A.8	Flow of students for APEC and EAS member economies – by source, latest data	49
A.10	International enrolments (mobile tertiary students) as a share of domestic enrolments	50

## *Executive summary*

- Education is a fundamentally important economic activity. It is both large, accounting for around 6.9 per cent of GDP in APEC economies in 2011, and makes a significant contribution to ongoing productivity and economic growth.
- Cross-border exchange of education services has increased in importance over the past decade as a means to attaining the quantity, quality and diversity of education services that fit the needs of modern growing economies.
- All APEC economies are involved, to varying extents, in cross-border exchange of education. This exchange in all modes of delivery, from the movement of students between economies to the movement of providers or educators from one economy to another, has grown rapidly across APEC economies in recent years.
- The dominant mode of educational exchange is in student exchange (Mode 2), involving the physical movement of the student in order to receive education.
- Chart 1 (below) provides an overview of Mode 2 exchange among APEC and other important EAS economies, for tertiary education exchange, taking into account key trends since 2005.
- The growth in student mobility has been driven by the increase in Chinese tertiary education demand that has translated into significant increases in the number of Chinese students studying in APEC economies. China-led tertiary education demand resulted in significant increases in international student enrolments in the United States, Australia, the Republic of Korea, Canada, Hong Kong, Japan and Thailand (in that order).
- The growth in cross-border exchange has led to greater prioritisation of domestic education standards and competitiveness in many countries. This demonstrates the value of cross-border education exchange and cooperation on education in terms of raising educational standards.
- The accessibility of quality education across APEC economies remains a critical issue. This is particularly the case given that only 0.3 per cent to 12 per cent of tertiary enrolled students across APEC economies typically travel overseas to receive their education (with the exception of Brunei Darussalam where around one third of students travel overseas to receive tertiary level education).
- It is important that APEC continue to progress its agenda to promote cross-border educational exchange in a structured way, addressing five key policy areas: quality assurance, qualifications recognition, registration and accreditation, content and delivery, and data collection.

- Further cooperation would directly contribute to APEC and East Asia Summit member economies' endeavours to improve economic outcomes for all members.

## 1 Summary of major education exchanges



Data source: The CIE.

## *1 Introduction*

**In 2008, the Centre for International Economics (CIE) prepared a report on cross-border provision of education services across APEC economies. It identified the value and characteristics of cross-border exchange in education, the history of cross-border exchange within APEC and the economic benefits of the current levels of cross-border exchange, and made recommendations for a work program for APEC education cooperation.**

**Since 2008, there have been significant changes in the landscape of cross-border flows in the Asia Pacific and increases in the level of commitment of governments to educational quality and regional cross-border exchange. This report updates the 2008 report to take account of the current (and change in) depth and breadth of cross-border education exchange in the APEC region. It also, for reasons detailed below, considers four additional members of the East Asia Summit: Cambodia, India, Lao PDR and Myanmar.**

### ***Background to this report***

Cross-border exchange in education, the movement of students, institutions or education supply and resources between economies, is part of the exchange of goods and services that brings diverse economies together. The Asia Pacific Economic Cooperation (APEC) economies collaborate on a range of issues that are central to achieving economic outcomes.

At the APEC Leaders' Declaration in Bali, October 2013, leaders reaffirmed their ongoing collective commitment to strengthening and deepening regional economic integration including through the integration of regional supply chains. An important component of the plan for economic integration is the agenda for cooperation on cross-border exchange in education (under People-to-People Connectivity) in support of increasing the mobility of students, researchers and education providers.

The strong economic dimension of exchange in education services is complemented by the broader cultural and social benefits of educational exchange, which in turn provide the foundations to enhance economic outcomes for member economies.

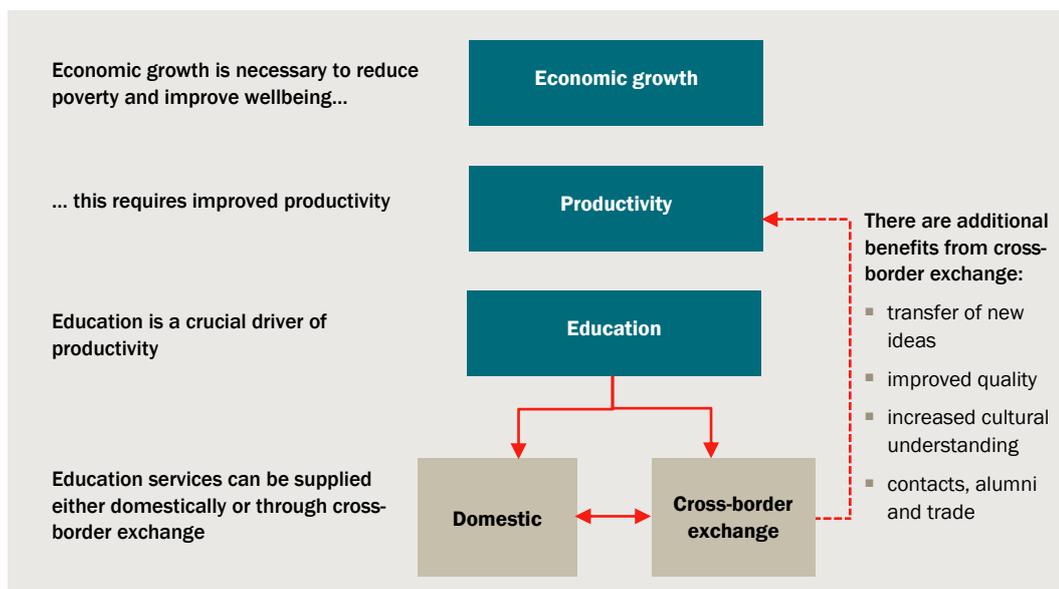
Like the exchange of other goods and services, improving the efficiency and effectiveness with which educational services are exchanged between economies is an appropriate objective for the APEC forum and one that is expected to improve economic outcomes and further regional cooperation and development.

Most APEC member economies also participate in the East Asia Summit (EAS)<sup>1</sup>, with the exception of Canada, Chile, Mexico and Peru. Economies participating in the East Asia Summit, but not APEC, include Cambodia, India, Lao PRD and Myanmar. These additional economies are through geographic proximity and economic linkages tied to APEC economies and are participating in greater economic cooperation on education as indicated through their Education Plan of Action (2011-2015). Thus, all EAS economies are included in this updated report.

## The key ideas

The key propositions that emerge from examining the recent developments in the cross-border exchange of education are summarised in chart 1.1. It is increasingly well understood that an essential element of economic growth is ongoing improvements in productivity – that is, the efficiency with which the economy’s resources are used to satisfy human needs and wants. While there are many factors that influence productivity, a major determinant is education, as it is through education that workers and managers discover how to continually improve productivity.

### 1.1 The key ideas



Data source: The CIE.

Education can be provided either domestically, or through cross-border exchange. As with any exchange, there are a number of benefits that arise from the exchange of education services. In particular, such exchange effectively lowers the cost of education to economies, increasing education reach and effectively increasing the resources that can

<sup>1</sup> The East Asian Summit is a regional leaders’ forum for strategic dialogue and cooperation on key challenges facing the East Asian region. It is made up of ten ASEAN countries (Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, the Philippines, Singapore, Thailand and Viet Nam), Australia, China, India, Japan, New Zealand, the Republic of Korea, the United States and Russian Federation.

be devoted to education. There are also important ‘spill over’ benefits from education exchange including the transfer of ideas, increased cultural understanding and the development of international contacts.

Cross-border exchange effectively increases the quantity, quality and diversity of education services available within each economy. At the same time, cross-border exchange is influenced – either encouraged or discouraged – by government policies and regulatory settings. Cooperation between governments, as well as through engagement with educational institutions, to improve the nature and impact of these settings will directly lead to improved economic outcomes for economies within the region.

### *This report*

This report updates the previous report, published in 2008, and incorporates the additional educational exchange between APEC economies and non-APEC EAS economies: Cambodia, India, Lao PDR and Myanmar. When referring to APEC plus the additional four economies, we will use the term ‘APEC-EAS’ as opposed to ‘APEC’ or ‘APEC-only’.

The report elaborates the key ideas through the following broad structure:

- chapter 2 summarises the broad economics of education, the sorts of resources that are devoted to it, the ways in which it contributes to economic growth and the challenges facing APEC and EAS economies in providing education for the future
- chapter 3 considers the recent history of cross-border exchange within the Indo-Pacific region, looking at the broad flows of students between APEC-EAS economies, as well as cross-border movement of institutions, programs and academics. This chapter also examines the influence of policy on cross-border exchange
- chapter 4 looks in more detail at the ways in which economic benefits emerge from cross-border exchange among APEC-EAS economies
- chapter 5 provides some recommendations for a work program in APEC to examine ways of improving policy.

## 2 *The economics of education*

- **Significant resources are invested in education. Total spending on education in 2011 is estimated to be at least US\$2 850 billion across APEC economies and around US\$2 920 billion across APEC-EAS economies.**
- **The education task continues to increase each year, with over 525 million people enrolled in education in 2011 in the APEC region, or over 820 million people across APEC-EAS economies.**
- **This has a large payoff as education makes a major contribution to economic growth.**
- **Education needs are continually changing, and the total resources devoted to education must increase over time.**
- **Policies that promote efficient use of education resources, including the exchange of education services, should be encouraged to meet both the large education task and economic aspirations of APEC and EAS member economies.**

### *The resources involved*

The CIE previously estimated that spending on education in the APEC region was significant, at around 6.7 per cent of Gross Domestic Product (GDP) or \$1 600 billion in 2008 terms. Over the past five years, education expenditure as a share of GDP is expected to have grown to around 6.9 per cent of GDP across the APEC region.

The CIE estimates that the expenditure on education may be equivalent to around \$2 850 billion in 2012 terms across APEC economies. The expenditure on education in the APEC-EAS region, more broadly, is expected to be around \$2 920 billion (6.8 per cent of GDP), with the additional spending predominantly undertaken in India.

As chart 2.1 illustrates, most of this spending continues to be undertaken through the public sector. Public expenditure levels in education are positively associated with income per capita. Overall, the rate of public expenditure in education is similar across high income and middle income economies. Low income economies are spending around 2 percentage points *less* of their GDP on education than higher income economies.

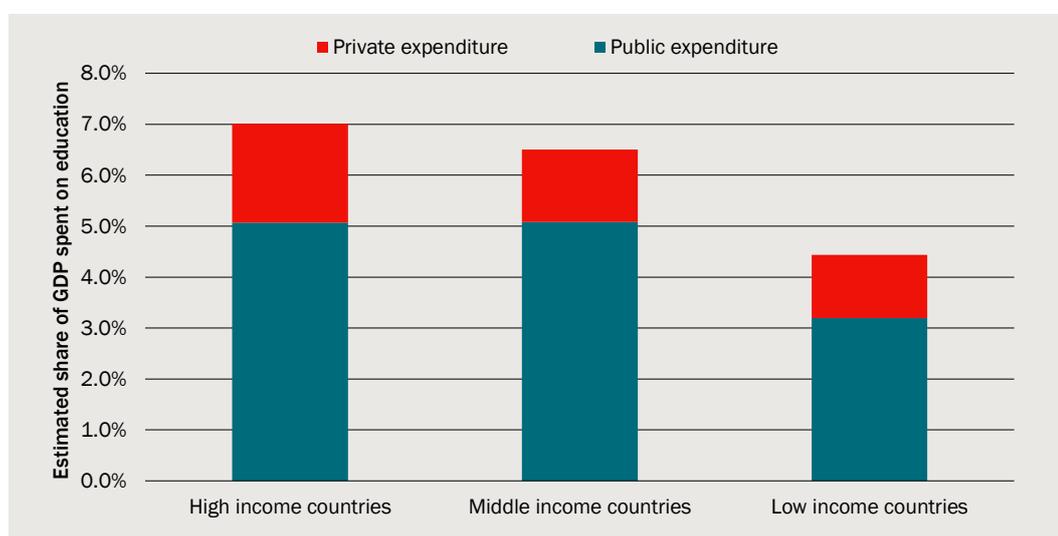
Private sector involvement appears to be proportionately larger in higher income economies at approximately 1.9 per cent of GDP, compared to 1.4 per cent of GDP in middle income economies, and approximately 1.2 per cent of GDP in low income economies. However, it should be noted that recent estimates for private sector education expenditure as a share of GDP are available only for Australia, Canada, Chile, Japan,

Mexico, New Zealand, Peru, the Republic of Korea and the United States (more advanced economies). It is possible that private sector involvement has increased in lower-middle and low income economies, as has been the case in Peru.

The APEC region is on par with the OECD average in terms of public sector investment as a share of GDP, which in 2011 averaged 5.0 per cent across OECD economies. According to the data available, it attracts around 1 percentage point more investment from the private sector than the OECD average of 0.9 per cent of GDP in 2011 (OECD, 2011).

Appendix A provides the latest available estimates of public and private expenditure levels as a share of Gross Domestic Product.

## 2.1 Estimated share of GDP spent on education – APEC and EAS economies



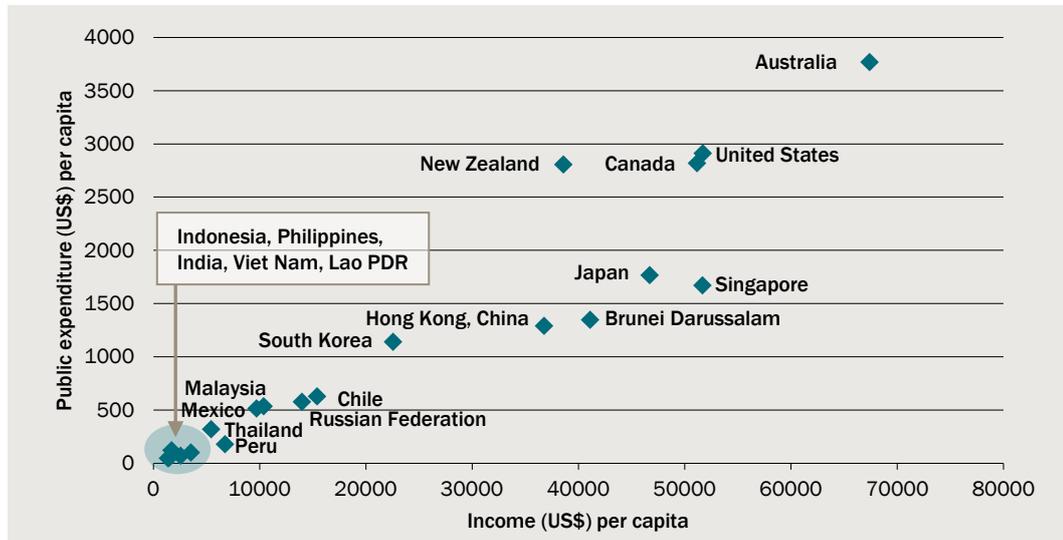
<sup>a</sup> Private expenditure data is limited to expenditure on educational institutions and administration.

Note: Data is limited for China, Chinese Taipei, Papua New Guinea and Myanmar. In addition, data is only partially available (private expenditure as a share of GDP is not available) for Brunei Darussalam, Cambodia, Hong Kong, Indonesia, Malaysia, Singapore and Viet Nam. We rely on pre-2006 data for estimates of private expenditure as a share of GDP for India, Lao PDR, Philippines and Thailand.

Data source: CIE estimates using UNESCO database.

Chart 2.2 shows the spread of APEC and EAS economies according to public expenditure per capita and income per capita. Public expenditure per capita is estimated to range from \$47 each year in Lao PDR to around \$3 800 each year in Australia in 2012 terms. The positive correlation between per capita public expenditure on education and per capita income is also exhibited for private sector expenditure on education.

## 2.2 Relationship between public expenditure per capita and income per capita



Note: Utilises latest available data of population (2012, World Bank), GDP (2012, World Bank) and share of public expenditure spent on education (UNESCO). Data is unavailable for China, Chinese Taipei, Papua New Guinea and Myanmar.

Data source: CIE estimates using World Bank population and GDP estimates and UNESCO database.

### *The education task*

The resources devoted to education funds a large number of enrolments. The latest UNESCO data (provided at appendix table A.1) suggests that the number of enrolments is in excess of 525 million across APEC economies. If considering the broader APEC-EAS economies, total enrolments are likely to exceed 820 million.

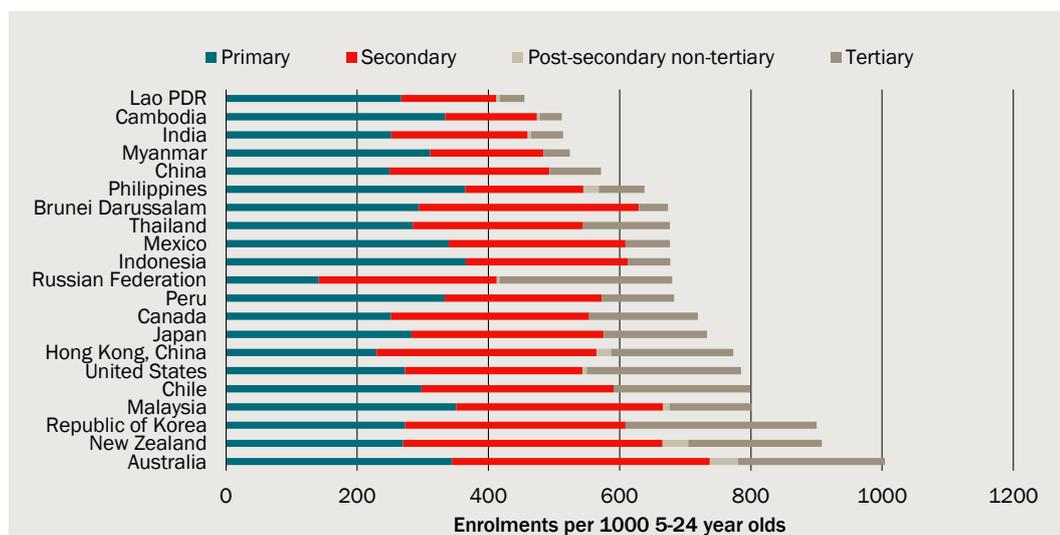
Chart 2.3 summarises enrolments per 1000 people (in the 5 to 24 age group) for each APEC-EAS economy across the four main levels of education (primary, secondary, post-secondary non-tertiary and tertiary). The share of the population aged 5 to 24 enrolled in education has expanded moderately overall since 2008.

Enrolments per 1000 persons aged 5 to 24 has expanded in Malaysia (by 25 per cent), Indonesia (by 19 per cent), Chile (by 14 per cent), Hong Kong (14 per cent) and the Republic of Korea (by 10 per cent). This has been led by growth in *tertiary sector* enrolments particularly in Hong Kong, the Republic of Korea, Malaysia and Chile, and by growth in *secondary enrolments* particularly in Indonesia and the Republic of Korea.

Enrolments per 1000 persons aged 5 to 24 appears to have contracted moderately in the Russian Federation, due to lower enrolments in secondary education which is likely the result of demographic changes.

Chart 2.3 illustrates the diversity of APEC-EAS economies, with the overall structure and level of education varying across economies. There is a broad tendency for provision to increase with income per capita, although this is by no means the only driver of educational enrolments.

### 2.3 Enrolments per 1000 population (aged 5 to 24 years)



Note: No data is available for Singapore and data is only partially available for Canada, Chinese Taipei, Papua New Guinea and Viet Nam (these are therefore excluded).

Data source: UNESCO database.

#### *Growth in tertiary education enrolment*

The largest source of growth in enrolments over the past decade has been in the tertiary sector. Table 2.4 shows the number of tertiary students enrolled in 2005 compared to present, utilising the latest available information. Table 2.4 shows that APEC-EAS tertiary enrolments have increased by at least 36 million since 2005.

UNESCO data suggests there are at least 90 million tertiary enrolments each year across APEC economies. There is close to 120 million tertiary enrolments across APEC-EAS economies due to India having over 26 million tertiary students in 2011.

In 2007, Banks, Olsen and Pearce projected growth in tertiary student enrolment of *at least 2 million* each year between 2008 and 2025.

- The growth in tertiary students since 2008 has been comparable to the annual growth rate from 2000 to 2008 of 4 million students each year.
- Together, India and the People's Republic of China (China) account for over 70 per cent of the increase in tertiary enrolments. Other substantive sources of this growth in tertiary enrolments are the United States (10 per cent) and Indonesia (5 per cent).

The growth in enrolments is projected to taper off over the years to 2025, reducing to approximately 2 million each year (Banks, Olsen and Pearce, 2007). The British Council and Oxford Economics (2012) also project slowing annual growth in global tertiary enrolments to less than 1.5 per cent to 2020, compared to the rate of growth of 5 to 6 per cent experienced in recent years. They expect this to slow the growth in globally mobile students.

Growth in tertiary enrolments to 2020 is expected to be led by China (British Council, 2012), despite a decline in the population aged 18 to 22. India's tertiary education

demand is expected to continue to grow modestly, while other emerging economies with significant projected growth include Indonesia and the Philippines (British Council, 2012). A continuation in the decline in the population aged 18 to 22 is expected for the Russian Federation and the Republic of Korea (British Council, 2012).

#### 2.4 Growth in tertiary enrolments in APEC and EAS economies

	2005	Latest	Difference
	million	million	million
India	11.78	26.65	14.87
China	20.60	32.59	11.98
United States	17.27	21.02	3.74
Indonesia	3.66	5.36	1.70
Viet Nam	1.35	2.26	0.91
Mexico	2.38	2.98	0.60
Chile	0.66	1.12	0.46
Malaysia	0.70	1.04	0.34
Russian Federation	9.00	9.33	0.33
Australia	1.02	1.32	0.30
Peru	0.91	1.21	0.30
Philippines	2.40	2.63	0.22
Cambodia	0.06	0.22	0.17
Myanmar	0.51	0.66	0.15
Republic of Korea	3.21	3.36	0.15
Hong Kong, China	0.15	0.27	0.12
Lao PDR	0.05	0.13	0.08
Thailand	2.36	2.43	0.07
Singapore	0.18	0.24	0.06
New Zealand	0.24	0.26	0.02
Brunei Darussalam	0.01	0.01	0.00
Japan	4.04	3.88	- 0.16
<b>Added tertiary education enrolments</b>			<b>36.6</b>
<b>Added tertiary education enrolments – APEC only</b>			<b>21.3</b>

Note: No data is available for tertiary enrolments in Canada, Chinese Taipei and Papua New Guinea. As no data is available for Myanmar and Singapore in 2005, we utilise data for 2007 and 2008, respectively. Data incorporates all domestic enrolments including international student enrolments in-country.

Source: UNESCO database.

#### *Private provision*

The extent of private provision at each level of education varies considerably across APEC economies. The most recent data suggests that global private higher education provision is around 30 per cent of global enrolments. East Asian and Latin American countries have shown the largest growth in private tertiary education provision with up to 80 per cent privately provided in some countries (Bjarnason et al, 2009). Indonesia,

Japan, the Philippines and the Republic of Korea have more than two thirds of tertiary education privately provided and Chile, Mexico and Peru have well over one third of their enrolments privately funded (CIE, 2008). Few developing countries have levels of private tertiary enrolments lower than 10 per cent.

Private sector provision in the United States accounts for approximately one quarter of all enrolments, and plays a more modest role in Australia and New Zealand across all tertiary enrolments. The latest available estimates for private tertiary enrolment as a share of total enrolments are provided at appendix A.5.

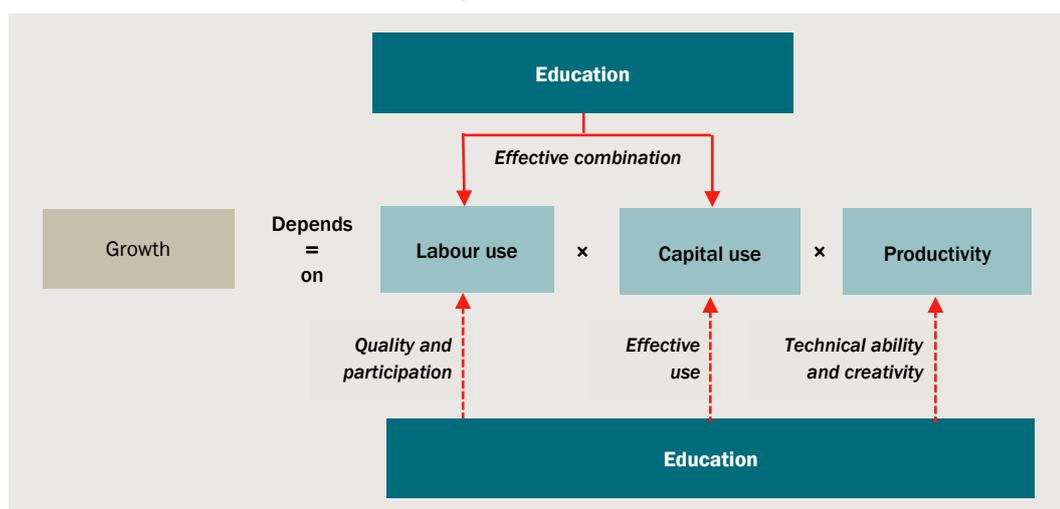
High levels of private sector education provision arise where demand is not fully met through public provision. In both cases (for both public and private institutions), government policy can create barriers or incentives to achieve its objectives in education access and quality.

### *Education and economic growth*

Education contributes significantly more to the economy than through the dollars spent. As chart 2.5 illustrates, the rate of economic growth can be thought of as being made up of labour growth, capital growth and improvements in overall productivity. Education in turn contributes to all three of these elements of growth.

First, education provides the basic means to ensure that labour and capital are appropriately combined in producing income. This is essentially a management function, and good management in turn depends on good education.

#### 2.5 How education contributes to growth



Data source: The CIE.

Second, education contributes to ongoing enhancement of the quality of the labour force, which is a key input to all sectors of the economy. Education also contributes to the capacity to use capital, comprising of money or other capital assets and resources, effectively within an economy. The appropriateness and standard of education can

contribute to the quality of the labour resource as well as the capacity to generate productivity enhancements through effective use of capital.

Focusing on not only the quantity of education, but also its quality attributes, will continue to be important for APEC-EAS economies.

Education directly contributes to the underlying skill and creativity base that is the source of increasing productivity (finding better ways of doing things). It assists in building on achievements and past knowledge and to sustain and continually increase productivity levels, which enable countries to improve population living standards.

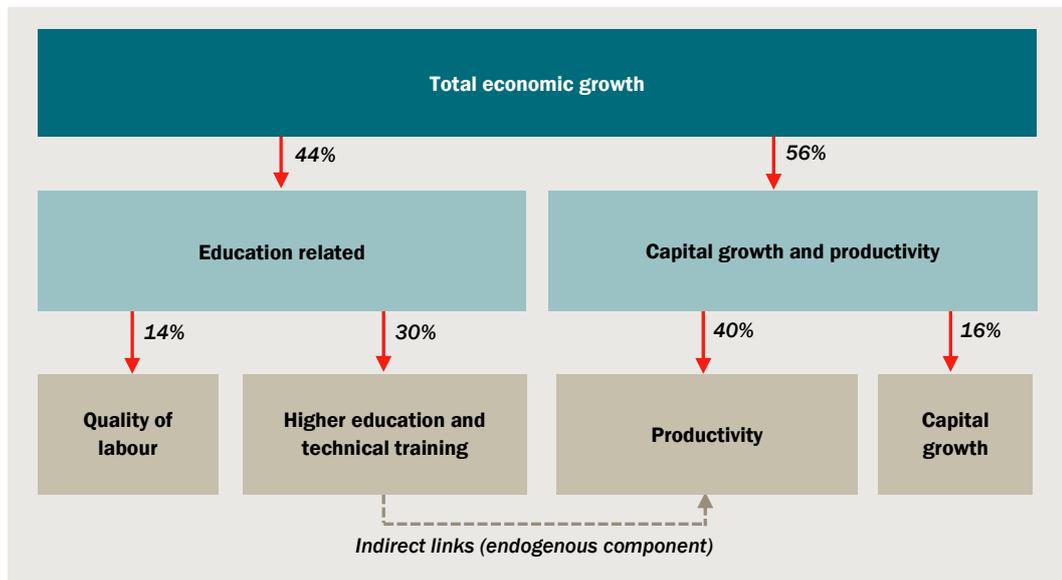
The exact amount that education contributes to economic growth will vary from economy to economy, depending on sectoral composition including the labour requirement and intensity and the capacity for industries to generate additional margins or prices through increasing labour quality. These factors determine the wage premium (or value) associated with investing in higher education.

Recent Australian research by Karmel (2014) suggests that increasing the level of education can lead to higher levels of labour force participation as well as increased hours worked overall due to the changing demographic, where those with higher education are more likely to work longer hours. Research into the impact of the quantity and quality of education among low and medium income economies suggests that the level of enrolments 'unambiguously influences economic growth', while government expenditure impacts economic growth in a more indirect (and less clear-cut) manner, most likely through the impact of spending levels on educational quality (Cooray, 2009).

Chart 2.4 presents some illustrative results that have been generated from Australian data. The results show that each unit of growth is made up of factors relating to education (around 44 per cent) and factors relating to capital and productivity (around 56 per cent):

- 14 per cent of growth is due to improvements in the quality of labour
- 30 per cent of growth is due to the provision of technical and higher education
- 40 per cent of growth is due to productivity improvements (which have indirect link to higher education and technical training)
- 16 per cent is due to capital growth.

## 2.6 Growth and education – an example from Australian data



Data source: Matsushita et al, 2006.

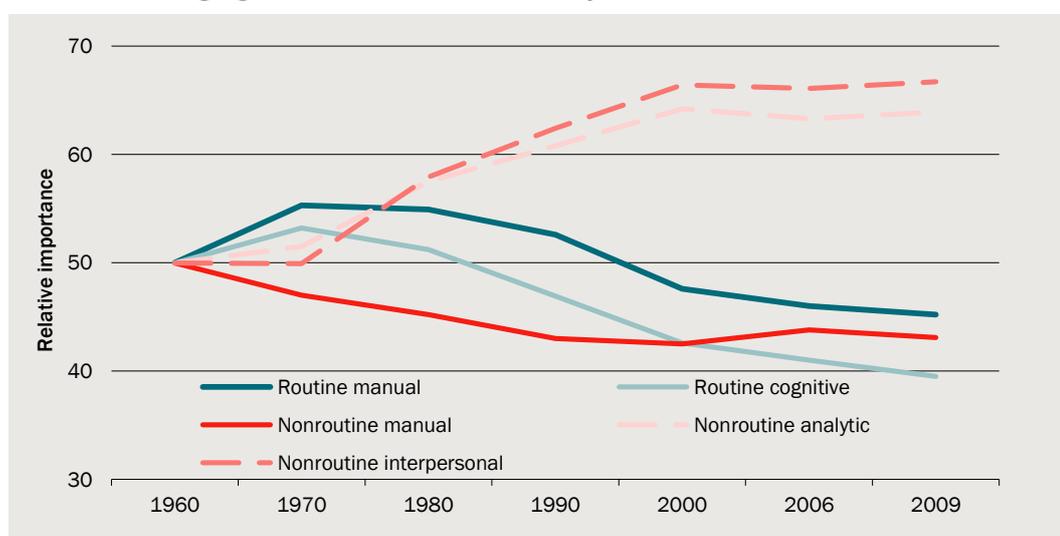
### *Changing nature of educational provision*

Expanding education services to meet demand has been an important priority over the past decade. However, services also need to be provided to meet changing skill requirements and to meet the expectations of students and employers with regard to quality parameters.

As the economy changes, so too must the orientation of learning and teaching format. Education requires continual effort and ongoing resources to ensure that it meets the needs of a growing and changing economy. This is illustrated in chart 2.7, which shows the nature of broad skills needs in the US economy over time. Non-routine interactive and analytical tasks grew in importance over the period 1960-2000, stabilising in the last decade, while the need for routine skills continues to decline.

The education needs of the tasks which have grown in demand are, clearly, different to those in decline. While this transformation has already happened for the United States, it could reasonably be expected that similar transformations occur in all APEC-EAS economies in the future. There have been significant shifts already in patterns of employment in the Asia Pacific region, as exports of manufactured goods led by China, India, Republic of Korea, Thailand and Viet Nam have continued to grow despite the increasing share of service industries (OECD, 2012b).

## 2.7 The changing skills needs of the economy



Data source: OECD, 2013.

### *Growing importance of ICT*

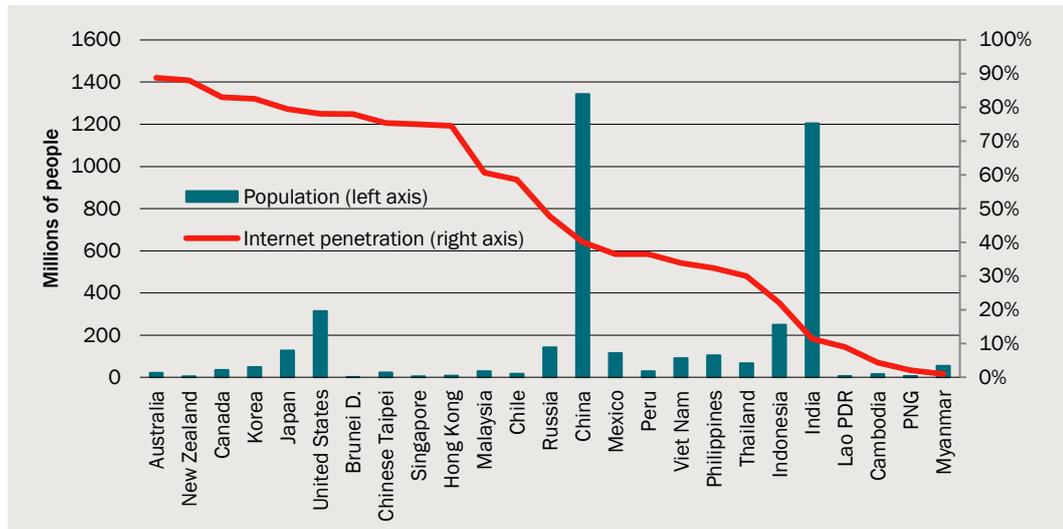
Clearly, one of the growing areas of skills demand globally is in Information, Communication and Technologies (ICT). Access to the internet has increased the connectivity of regional and international economies, and services provided through the internet continue to grow. ICT investments have been a significant source of productivity growth across many economies and failure of the labour base to have access to and competency in ICT may limit competitiveness and growth.

The internet also offers the potential to increase the accessibility of affordable, quality education. While the internet has increased the accessibility of educational resources to those with internet access, it has not yet dramatically changed the affordability (and access to) quality higher education (particularly with formal qualifications) overall.

Internet penetration, in terms of internet users as a percentage of the population, varies considerably across APEC-EAS economies. Access to the internet varies considerably within and between regions and is closely related to per capita income. Access to (use of) the internet in many populated, low income economies is still low, such as in India where only 11 per cent of its 1.2 billion people (representing 30 per cent of the population of APEC-EAS) use the internet. Another example is China where only 40 per cent of the population (of 1.3 billion people) uses the internet and only 24 per cent of households have access to the internet (OECD, 2012a).

Consequently, when incorporating the additional EAS economies, internet penetration is only 35 per cent, as opposed to 46 per cent on average across APEC-only economies.

## 2.8 Internet penetration (internet users as a percentage of the population)



Note: Statistics last updated for June 2012.

Data source: Internet World Stats: Usage and Population Statistics, 2014.

### *Key challenges*

Accessibility to quality, affordable education – either funded by governments or by private sources – remains a major challenge facing governments of APEC and EAS economies. As well as maintaining the quantity of education services, which have expanded considerably over the past five years, APEC economies will need to ensure that the quality and diversity of services meet individual and economic requirements.

One such way that the ‘gap’ in the quality and quantity of education services can be met is through cross-border exchange of education services. Continued cooperation among APEC and EAS economies may enhance the accessibility to quality education at different price points, such as through expanding the diversity of providers and increasing the standard of quality across the spectrum of educational institutions.

Cross-border exchange provides impetus for an improvement in education quality, although there is tension between the capacity of higher education systems to provide adequate quantity and appropriate quality. Singapore provides a useful example of this. The introduction of the *Private Education Act 2009* in Singapore led to a 50 per cent reduction in student enrolment in private education institutions, and a reduction of around 10 per cent in international student enrolment (Ministry of Trade and Industry Singapore, 2012). The Act established the Council for Private Education for the regulation and accreditation of private education institutions in Singapore to ensure the provision of quality education. According to the Minister for Trade and Industry in Singapore, the reforms leading to the reduction in enrolments have ‘generally benefited students as well as the education sector as it has ensured that baseline standards are achieved across the industry’ (Ministry of Trade and Industry Singapore, 2012).

### 3 *Education exchange in APEC and EAS economies*

- The available data for some of the modes of cross-border exchange indicate strong growth within the Indo-Pacific region in recent years. While data availability for modes of exchange other than the movement of students is limited, there is evidence that these modes have also grown strongly.
- Cross-border exchange is a rapidly growing area, with many new providers emerging to take advantage of opportunities. This is likely to increase as government policies of APEC and EAS member economies focus on improving educational quality and attractiveness.
- Government policies can have a major influence on cross-border exchange in terms of the price, quality and diversity of educational services available. Engagement with the university sector is an important aspect of understanding how government policies can interact with existing and emerging educational providers.

#### *Types of cross-border exchange*

Cross-border exchange between economies can take place in a range of ways. These different methods of exchange have been referred to according to different terminologies in different publications. Historically, cross-border flows were predominantly carried out for academic or cultural purposes with limited international student, program or institutional mobility. The General Agreement on Trade in Services (GATS) has since recognised ‘educational services’ and distinguished four main modes of cross-border educational exchange – as outlined in table 3.1.

#### 3.1 Modes of cross-border exchange

	Description	Other terminology
Mode 1: Cross-border supply	There is no physical movement of the provider or the student, but the education services themselves are traded. Examples include distance education or internet services.	Often simply referred to as ‘distance’ or ‘online’ education.
Mode 2: Consumption abroad	The student physically travels from one economy to another to receive education.	This is often referred to in summary as ‘international education’. UNESCO refers to ‘internationally mobile students’.
Mode 3: Commercial presence	Education services are provided by establishing a physical and legal presence in another economy. This includes establishing an offshore campus in the host economy.	This form of exchange is often referred to as ‘transnational education’. Commercial presence is often in the form of ‘branch campuses’.
Mode 4: Presence of natural persons	Educators (teachers) travel to the host economy to provide services to students who do not move from the home economy.	

### *Data availability*

The availability of information on the different modes of cross-border exchange is of varying nature. Robust, quantitative data is available on the movement of students between economies (Mode 2), whereas for the other modes data is not systematically collected on a regular basis which limits the capacity to develop a comprehensive view of current levels of exchange, let alone make comparisons over different years.

- Mode 2 exchange remains the most significant form of exchange.
- Online education (Mode 1) does not compete 'head on' with Mode 2 flows, and there is limited evidence that educational exchange through Mode 1 exchange has significantly improved access to formal educational outcomes (although this has often been cited as a potential use of the internet).
- Evidence of increased cross-border institutional, program and teacher mobility is supported through a broad desktop search to review literature and government publications. It is not captured in a systematic way to enable reliable comparisons across years.

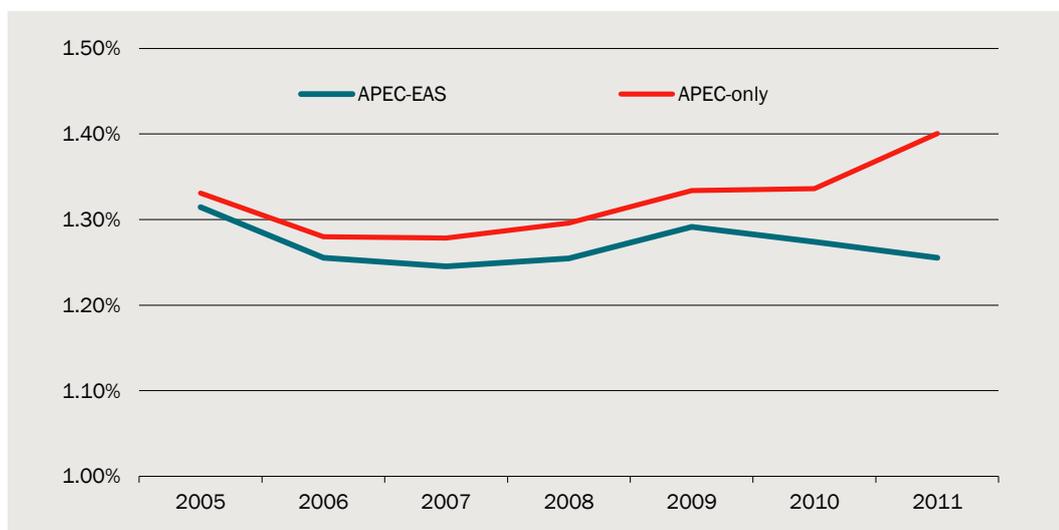
### *Recent growth in Mode 2 exchange: consumption abroad*

The international mobility of students has strongly expanded in recent years (see appendix chart A.6). The average rate of increase has been around 5 per cent each year among APEC economies. This is due to an increase in the number of tertiary enrolments rather than a considerable change in the propensity to study overseas, when considered in aggregate. Since 2005, the growth in internationally mobile students has roughly been in line with the growth in domestic tertiary enrolments (see chart 3.2).

- However, the outbound mobility ratio has increased for some important APEC economies, notably this has been the case for China and Viet Nam.
- In most cases, the outbound mobility ratio has stayed relatively constant and in some cases moderated, with India being one example of this (which explains the slight negative movement of the 'APEC-EAS' line from 2009 in chart 3.2).

In 2010 and 2011, the ratio of internationally mobile students to domestic tertiary enrolments increased across APEC-only economies, while decreasing when considered overall (incorporating EAS economies). This is due to the impact of China on APEC-only economies which is offset by the fall in the outward mobility ratio of Indian students.

### 3.2 Ratio of internationally mobile students to domestic enrolments



Note: No data was available for Chinese Taipei, Canada or Papua New Guinea with respect to total tertiary enrolments. CIE 'smoothed' data on internationally mobile students for Russian Federation, Myanmar, Philippines and Peru (relatively small volumes) to reduce the impact of zero data availability in one or more years.

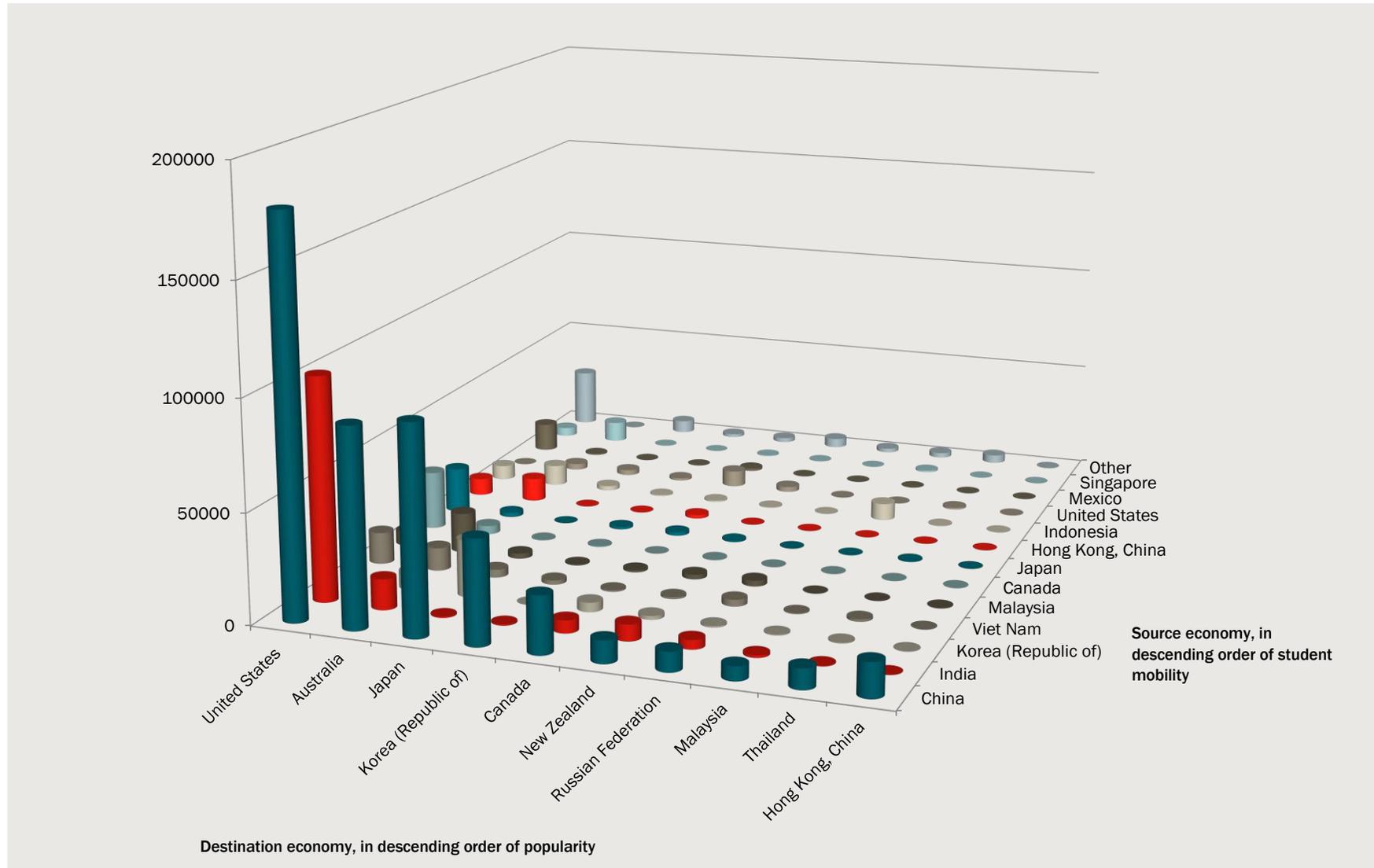
Data source: UNESCO database.

### *The pattern of Mode 2 exchange in APEC — higher education*

The flow of students from developing and transitional economies reflects the importance of trade in education services as a means of obtaining higher quality education services, without having to first develop the infrastructure domestically. The flow of students from developed economies may reflect the relative quality of education between the source and destination economies, the pursuit of subject or discipline specialisations, or the cultural and work experiences available in the destination of study.

Chart 3.3 shows predominant exchanges of students using the latest official data available from UNESCO. Appendix charts A.7 and A.8 provide the flow of students, by destination and by source, respectively, across all economies.

### 3.3 Key flows of students between APEC and EAS economies, 2011 <sup>a</sup>



<sup>a</sup> Utilises 2011 data where possible, but utilises 2010 data for Canada, Chile, Indonesia, New Zealand, 2009 data for Russian Federation and 2008 data for the Philippines.

Note: Only selected economies were presented, including the top 10 destinations and major source economies (with over 15 000 students) to enable clearer display of information. Data was not available for China, Chinese Taipei, Mexico, Papua New Guinea, Peru, and Singapore.

Data source: UNESCO database.

Chart 3.3 provides the top ten destinations, and the flow of international students to these destinations incorporating economies with major student mobility (over 15 000 students). The top ten destinations account for 98 per cent of students studying within the region. The source of these students is also reasonably concentrated, with the top 10 source economies accounting for around 90 per cent of regional student flows.

Overall, around 70 per cent of internationally mobile students originating from APEC economies stay within the APEC region. The same is true when looking at the proportion of students from the broader APEC-EAS region, which stay within this region (see appendix table A.9). All APEC economies are involved in cross-border exchange; however, the overall intensity of international education (relative to domestic provision) varies (see appendix A.10).

### *Destination popularity driven by Chinese student demand*

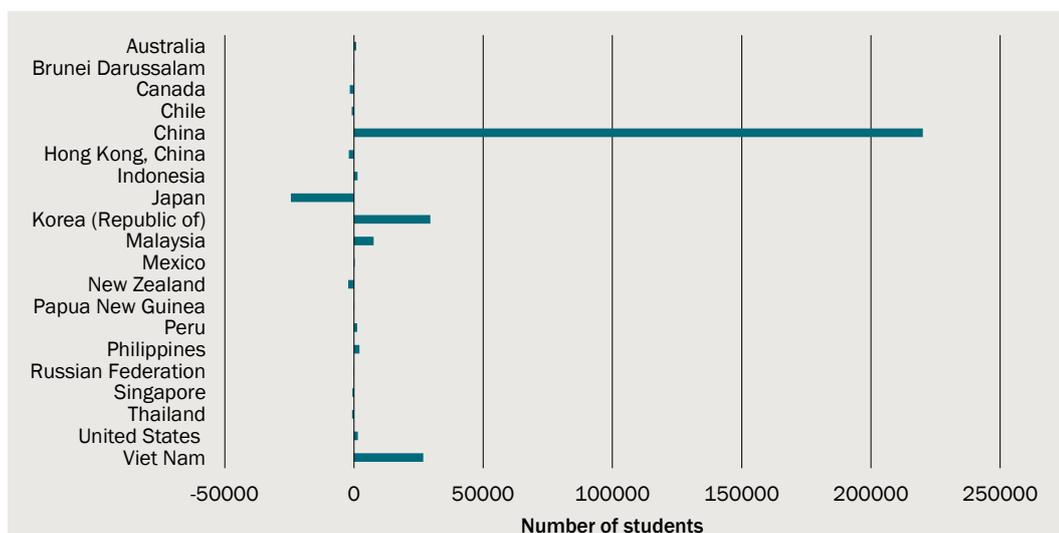
Over three quarters of APEC-EAS students go to the United States, Australia and Japan. The Republic of Korea and Canada each host around 5 per cent of international students from APEC-EAS economies.

The popularity of these destinations is due largely to Chinese students, particularly with respect to the Republic of Korea (comprising 86 per cent of students), Japan (68 per cent), Australia (50 per cent) and Canada (49 per cent). China remains the largest source of students, at almost half a million students destined for APEC and EAS economies, with three quarters of these in the United States, Japan, Australia and the Republic of Korea. Chinese students represent a large share of the APEC-EAS student intake in Hong Kong (over 95 per cent) and Thailand (55 per cent), and Chinese students comprise one third of APEC-EAS students enrolled in New Zealand and Malaysia.

Comparing the latest estimates of internationally outbound students with those documented in 2008 (based on 2005 or earlier) shows that growth in student flows within the APEC region has been relatively confined to China, the Republic of Korea and Viet Nam (see chart 3.4). The largest absolute change in destination growth for Chinese students in the past five years has been to the United States, followed by Australia (see chart 3.5).

The second largest source of students to the region is India, with over 135 000 students destined for this region. Three quarters of Indian students in APEC-EAS regions choose to study in the United States, while the vast share of the remaining one quarter study in Australia, New Zealand, Canada and the Russian Federation (in that order). That is, very few internationally mobile students from India study in Asia.

### 3.4 Change in international tertiary student enrolments, APEC-only, by source



Note: Compares estimates presented in 2008 (which represent data from 2005 or earlier) and latest estimates (2011 or before). Data is unavailable for Chinese Taipei.

Data source: UNESCO database, and CIE, 2008.

#### *Emerging destinations*

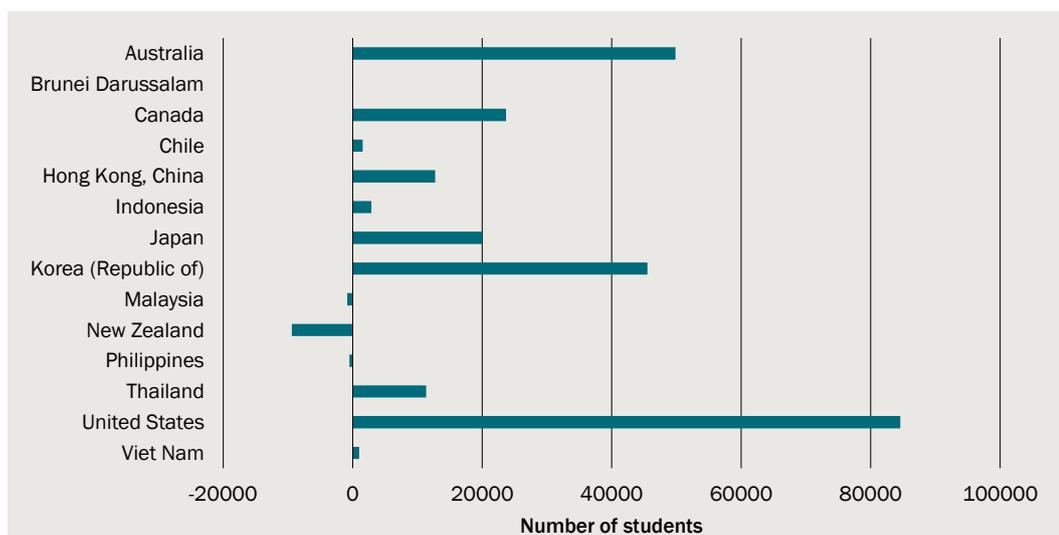
As chart 3.5 shows, there has been considerable growth in international students studying in the well-established education hubs: the United States, Australia, Japan and Canada, with the exception of New Zealand. Importantly, the Republic of Korea has emerged as an important study destination for APEC students, increasing from only 8 800 international students in 2005 to over 54 000 in 2011. Most of the growth in the popularity of these destinations has been led by Chinese students.

Chinese students have also supported growth in Hong Kong, Japan and Thailand.

Official reporting data provided to UNESCO does not capture all flows within APEC, with data on international students destined for China, Mexico, Papua New Guinea and Singapore not available. China and Singapore, in particular, have both augmented their ambitions to be destination economies for students, and have allocated resources towards the development of world-class higher education systems.

India is yet to attract significant numbers of foreign students, attracting less than 5 000 foreign students from the APEC region each year. This is expected to be due to quality and capacity issues of its higher education sector, resulting in a significant number of Indian students seeking education outside of India and mostly beyond Asia.

### 3.5 Change in international tertiary student enrolments, APEC-only, by destination



Note: Data is unavailable for China, Chinese Taipei, Mexico, Papua New Guinea, Peru, Singapore or Russia (from earlier period).  
Data source: UNESCO database, and CIE, 2008.

#### *China*

According to the Chinese Scholarship Council (China Scholarship Council, 2012), in 2011, there were over 290 000 international students in China, representing an increase of over 10 per cent from 2010. However, the CIE understands that only 40 per cent of these, or around 115 000, are enrolled in tertiary education (degree programs) with the remainder involved in short term studies focused on language.

International students in China are predominantly from Asian countries (64 per cent). The largest individual source of international students in China is from the Republic of Korea (over 20 per cent of all students), followed by the United States (8 per cent), Japan, Thailand, Viet Nam, Russian Federation, Indonesia and India (China Scholarship Council, 2012). China aims to host half a million students by 2020 with 150 000 of these students involved in higher education (ICEF Monitor, 2014).

As the importance of the Chinese economy and the quality of (at least the major) universities increases, appeal continues to grow for tertiary education in China. Several factors have contributed to the evolution of Sino-foreign joint education ventures in China, including (EAHEP, 2010):

- the central government's policies to attract high quality education resources to China, such as through extensive scholarship offerings
- the efforts by local government to promote higher education competitiveness
- the motivation of various domestic higher education institutions to improve competitiveness.

#### *Japan*

Although already established as a higher education destination, Japan has also recently developed ambitious targets for foreign student numbers. Japan is also working towards

the creation of a common credit recognition scheme for student mobility in Asia, similar to those established in Europe (such as the European Credit Transfer and Accumulation System and Erasmus) and has regional offices to promote student exchange in Malaysia, Thailand, the Republic of Korea and Indonesia (EU-Asia Higher Education Platform, 2010).

### *Malaysia*

The Malaysian government plans to become a regional hub for education by 2020 and, among other initiatives, is supporting the development of mostly privately funded education cities. Malaysia currently receives over 80 000 international students in higher education and aims to receive 200 000 international higher education students by 2020 (ICEF Monitor, 2013).

- Although local Malaysian universities continue to be ranked low in world university rankings (such as in the Times Higher Education rankings), regional education flows to Malaysia have increased, most significantly from Indonesia, China, and Singapore (in that order).
- Malaysia aims to address its low rankings and improve the public education system through its recently established national blueprint for education in 2012, in the context of rising global education standards.

### *Singapore*

Singapore hosted approximately 84 000 students in 2012 with around 68 per cent (approximately 57 000) involved in tertiary education institutions. Singapore aims to have 150 000 full-fee paying international students by 2015 (Ministry of Trade and Industry Singapore, 2012).

### *Thailand*

Regional tertiary student flows to Thailand have also increased substantively since 2005, in percentage terms, although this is from a small base. Thailand has heavily invested in their higher education system, including through providing a supportive scholarship scheme (EU-Asia Higher Education Platform, 2010).

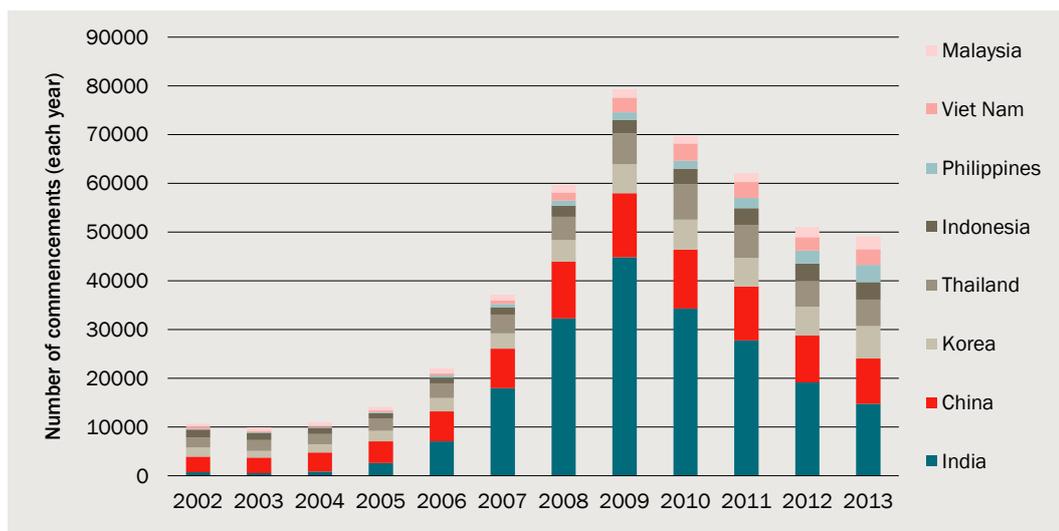
## ***Mode 2 exchange: other sectors***

While the data on student flows between economies for tertiary sector higher education is readily available, it remains less complete for other sectors. However, the strong growth in overall flows and the diversity of these flows is evident from the Australian data.

Chart 3.6 illustrates Vocational Education and Training (VET) sector commencements for students coming to Australia from selected economies. Students from these economies currently account for around 87 per cent of all student commencements from the APEC-EAS region. The chart shows that:

- VET student expansion has been significant from a range of sources, particularly from India and China – with growth from India moderating significantly since 2009
- other important sources of growth in VET-sector commencements have been Indonesia, the Republic of Korea, Thailand, Indonesia, Philippines, Viet Nam and Malaysia.

### 3.6 VET commencements, Australia, from important selected economies



Note: Selected economies comprise 87 per cent of all commencements from APEC-EAS economies.

Data source: Australian Education International, 2013.

### *Cross-border supply (Mode 1)*

There is no official data source for cross-border exchange, via online enrolments, in tertiary education. However, there have been changes in the availability of online education that have influenced the flow of online education that can be broadly (qualitatively) described. Online education can be characterised as:

- *Non-degree programs* such as massive open online courses (MOOCs) which have rapidly expanded since 2012. MOOCs do not offer degrees and therefore avoid competition between their online and on-campus courses (Norton, 2013). This form of learning provides for augmentation of learning in general or niche areas, but does not offer formal, structured or interactive learning.
- *Coursework sharing between educational institutions* such as through the Open Education Consortium (of which many APEC economies are members) established OpenCourseWare publication of high quality education materials for colleges and universities. This form of learning may provide important coursework structures to teachers to increase the quality of and consistency in learning between campuses and across regions. These types of initiatives may be particularly important to regions where educational attainment and resourcing of teachers is low.
- *Fully online degree programs* – which are available to foreign students in a limited number of predominantly-US institutions. These include the University of Phoenix

and Arizona State University (in the United States), the University of Southern Queensland (Australia) and GlobalNxtUniversity (Malaysia). These fully online courses offer a greater level of convenience to students, being targeted towards working professionals and postgraduates, and have not yet enabled access to much cheaper education. In addition, programs on offer vary in breadth, for example, GlobalNxt University provides only postgraduate study in business administration and IT management.

- *Partially online degree programs* – these are increasingly being offered to domestic and foreign students and represent a far more common format.

Many sources suggest that online courses are unlikely to reduce the demand for on-campus courses. There is limited evidence that online education has changed the nature of cross-border exchange (no large movement from Mode 2 to Mode 1). Rather, the significant transformation that may occur as a result of online learning is in relation to teaching and learning methods.

International students seek access to a range of higher education outcomes beyond their direct learning experience, including student lifestyle and culture, migration rights, quality signals to the employer, and networking opportunities. These attributes of on-campus education delivery cannot be directly substituted for with online education. For instance, international students resident in Australia are required to take at least three-quarters of their subjects on-campus to restrict the use of student visas to gain entry to the Australian labour market (Norton, 2013).

Furthermore, governments need to consider how their domestic policies impact the conduciveness to the creation of new business models and new entrants. This may involve consideration of the basis for qualifications, admissions processes and management structures, among other policy areas (Norton, 2013).

### ***Commercial presence (Mode 3)***

Data on the number of students enrolled domestically in transnational programs (under Mode 3) remains limited. There is evidence, however, of a large increase in the number of branch campuses. Becker (2010) estimates that the number of branch campuses (worldwide) has have increased significantly since 2006, potentially by around 43 per cent.

These predominately originate from institutions in the United States, followed by Australia, the United Kingdom, France and India (Becker, 2010). Although official estimates are not available, a desktop search suggests that institutional mobility via branch campuses in the Asia Pacific is led by China, which reportedly has around 15 campuses, followed by Singapore with 12 campuses, and Malaysia with nine campuses.

In recent years, the governments of Singapore and Malaysia have been inviting branch campuses as part of their plans to become ‘international higher education hubs’ such as through providing funding, support and/or infrastructure. The number of campuses in Asia, established by institutions originating from developing or newly industrialised Asian economies, is also increasing. One such example is Open University Malaysia

which offers degree programs in Indonesia and Viet Nam, and plans to open further learning centres in Singapore, China and India (OBHE, 2010).

However, the curriculum at branch campuses is typically restricted to business management and ICT which have reasonably low set up costs and significant worldwide demand (Altbach, 2010). In addition, prestige educational institutions have experienced significant financial and logistical challenges in terms of providing equivalent educational outcomes to that offered in the domestic campus, particularly in terms of attracting and retaining staff and cultivating high quality R&D outputs (Altbach, 2010).

### *Evidence of exchange (ambiguous Mode)*

Perhaps the greatest evidence of exchange, not involving simply student flows, is in the area of joint education programs, which can involve predominantly Mode 1 or 3, and Modes 2 and 4 to varying extents. According to Ziguras (2013), 'transnational programs in developing countries have a huge advantage over their local competitors due to their access to advanced online learning environments based on the home campus'. However, Ziguras (2013) suggests this inter-campus connectivity can be hampered by restrictions of a technical or political nature.

Naidoo (2009) suggests that although institutional mobility is growing, program mobility is much more established and significant. In 2006, Australia was the largest exporter of program mobility, followed by the United Kingdom, United States, New Zealand and Canada (Naidoo, 2009). Based on 2006 data, joint education programs were predominantly taking place in Singapore, Hong Kong, Malaysia, China and India. Major host countries such as Malaysia, Singapore, China and India were emerging as exporters of such joint education programs although their activity was still 'extremely limited' (Naidoo, 2009).

Unfortunately, the data published in Naidoo (2009) refers to 2006 and the CIE was unable to identify equivalent data from more recent years to determine how participation in joint education programs has changed in more recent years.

### *Presence of natural persons (Mode 4)*

There is evidence of an increase in international research collaboration although the extent of this varies significantly among APEC-EAS economies, from over 50 per cent in Chile and Hong Kong to less than 20 per cent in India and China (see, for example, Scopus research). As earlier described, there has been an increase in institutional movement and joint education programs are relatively common. However, there is limited data on the extent to which this translates into increased travel of educators between economies to provide services to students in-country.

It is likely that countries focused on increasing educational standards and attracting high quality resources and students (as government policy suggests is the case in China, Hong Kong, Singapore and Malaysia) are providing greater opportunities for teachers to travel to their country to provide educational services to students. China introduced a range of

projects to increase scientific research institution capability through expanding international cooperation and has encouraged teacher mobility such as through the 'Project for introducing eminent teachers from overseas'. According to Wanhua (2012), these plans have increased the number of foreign experts travelling to China each year.

### *Government involvement in cross-border exchange*

Government policies of various kinds can have a significant effect on the extent and nature of cross-border exchange in education services. General regulation surrounding education may also affect the different modes of cross-border exchange in different ways. Some of these government regulatory measures are put in place to achieve important public policy objectives, many of which are regulatory requirements to promote quality assurance (consumer protection). When measures are more restrictive than necessary to achieve a specific policy outcome, however, they tend to have adverse impacts such as increasing costs and creating uncertainty for providers, students and employers.

Table 3.7 summarises some broad categories of government involvement in cross-border exchange. Most governments are involved in the process of deciding who can provide education services, the sorts of content of those services and the accreditation and recognition of the finished result. Governments vary considerably, however, on the extent to which they have specific policies relating to cross-border exchange or where these policies are the indirect result of broader policy settings.

Broadly, the government regulations can affect cross-border education exchange by influencing:

- the ways in which businesses are established and operate
- the ways in which educational enterprises in particular are regulated
- the ways in which the movements of people are regulated
- indirectly, other ways that businesses or individuals engaged in education must operate.

### 3.7 Broad categories of government involvement in cross-border exchange

	General business regulations	Education regulations	Regulation of movement of persons	Other regulation
<b>Mode 1:</b> Cross-border supply	Restrictions on trade in particular printed or other materials.	Broad recognition of qualifications, particularly for employment purposes.  Admissions processes, and basis for qualifications (time basis, rather than competency basis) may restrict the development of new business models (and attractiveness to students).	n.a.	Protection of intellectual property.
<b>Mode 2:</b> Consumption abroad	In the host economy, consumer protection measures.	Recognition of qualifications (obtained abroad).  In the host economy, restrictions on fee paying students and rules regarding accreditation, registration and quality assurance of providers.	In the host economy: migration and visa requirements, including ability to work while studying.	Regulations on currency exchange.  Labour market regulations.
<b>Mode 3:</b> Commercial presence	Rules regarding the establishment and operation of foreign businesses, including foreign ownership restrictions and management.	Rules relating to accreditation, registration and quality assurance.  In the host economy, rules regarding the provision offshore of accredited courses.  Restrictions on the type of institution that is eligible for financial support.	Visa restrictions on foreign nationals that may be part of the transnational operation.	General labour market regulations relating to employment of nationals.
<b>Mode 4:</b> Presence of natural persons	n.a.	Rules relating to accreditation, registration and quality assurance for enterprises that employ foreign nationals.	Migration and visa requirements.  Taxation treaties obligations.	General labour market regulations relating to employment of nationals.

Source: The CIE.

The operation of these various regulations is likely to have a variety of effects on cross-border exchange. Table 3.8 summarises the effect of regulation on each of the modes of exchange in terms of:

- the effective price of education (that is, the overall costs of education services to the economy)
- the quality of education
- the employment of students having received an education
- the attractiveness of a particular economy to education providers
- subsequently, the overall competition and composition/diversity of higher education providers.

### 3.8 Broad effects of government involvement in cross-border exchange

	Effective price of education	Quality of education	Employment prospects	Attractiveness to providers
<b>Mode 1:</b> Cross-border supply	Restrictions on transfer of printed or other material will tend to increase price.	Poor quality assurance will reduce the quality of education.	Quality assurance and qualifications recognition for cross-border supply will affect employment prospects (and attractiveness of education).	Restrictions on transfer of printed or internet based material will reduce attractiveness to providers.
<b>Mode 2:</b> Consumption abroad	Visa restrictions or restrictions on employment while studying will effectively increase the price of education.	Poor quality assurance will reduce the quality of education.	Quality assurance, qualifications recognition and accreditation processes will have a significant influence on the employment prospects of the individual obtaining the education (and perceptions of this will influence the demand for education).	Restrictions in the host economy will affect the willingness of providers to provide international education.
<b>Mode 3:</b> Commercial presence	Costly business registration procedures and unclear registration and accreditation processes will increase the cost of education.	Unclear or poor quality assurance for foreign providers may reduce the quality of education.	Quality assurance, qualifications recognition and accreditation processes will have a significant influence on the employment prospects of the individual obtaining the education.	Unnecessarily harsh or unclear requirements for foreign providers will make the exchange of services more expensive.
<b>Mode 4:</b> Presence of natural persons	Restrictions on the movement or recognition of appropriate educators will effectively increase the price of education.	Restrictions on the movement or recognition of appropriate educators may also affect the quality of the services provided.	Quality of the educators' contribution may indirectly affect employment prospects.	Extensive restrictions on the use of foreign educators will reduce the attractiveness of this model of exchange.

Source: The CIE.

## 4 *The benefits of cross-border exchange*

- Like all forms of education, cross-border exchange in education leads to productivity and growth benefits. This occurs through expanding the quantity and quality (diversity) of education services available from domestic education alone.
- By taking advantage of knowledge developments in economies around the world, cross-border exchange provides access to greater diversity of education (and quality) than could ever be cost-effectively provided domestically.
- In addition, education exchange has prompted leaders of many economies and educational institutions to improve domestic education quality in order to increase international competitiveness.
- The effective increase in higher education resources has been largest for middle income countries, and some high income economies, based on the number of internationally mobile students as a proportion of domestic education provision.
- Low income economies have comparatively lower levels of cross-border education exchange, indicating the potential to improve the accessibility (such as affordability or other attributes) and levels of cross-border exchange in education services involving these economies.

### *Cross-border exchange brings important benefits*

The accelerated growth of cross-border education exchange illustrates that it should be considered as an integral part of education policies for all APEC and EAS economies. As well as providing a source of education services (effectively, increasing the *quantity* of education services available within a particular economy), cross-border exchange of education services also provides additional benefits that arise because of its main mode of delivery – the movement of individuals or organisations between economies. This has the effect of increasing the *diversity* of available education services, and will tend to increase the *quality* of those services over time.

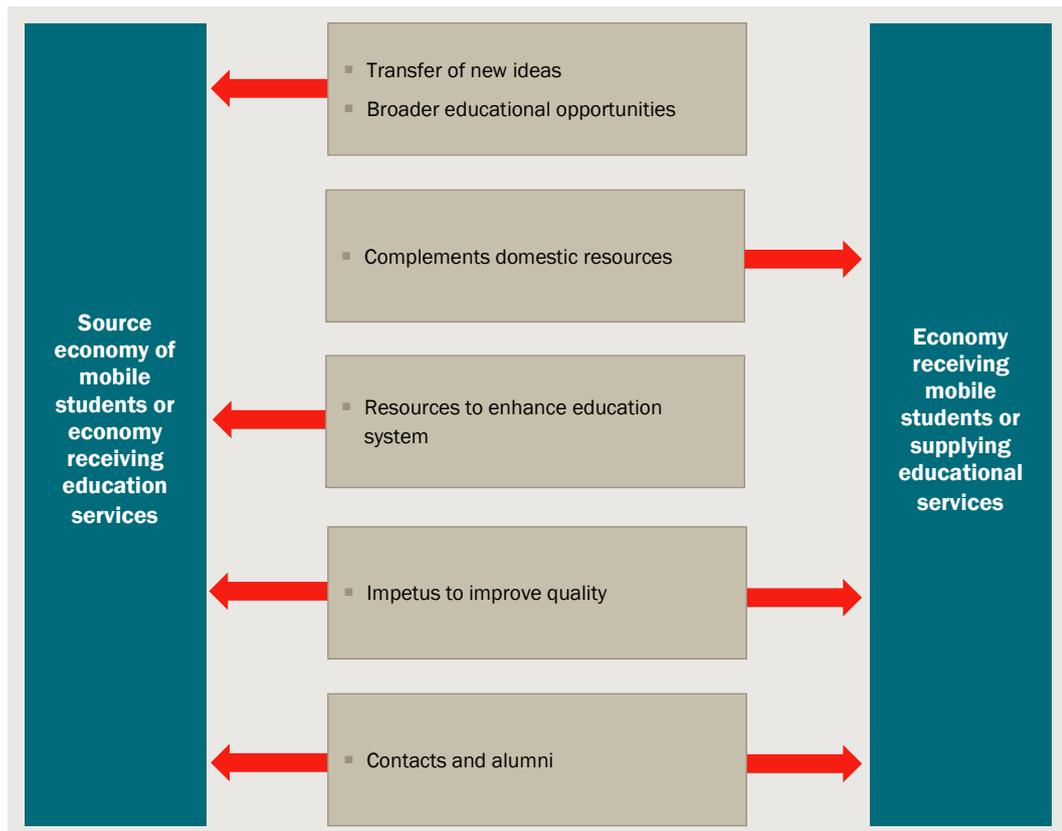
### *Exchange benefits both sides*

Chart 4.1 illustrates the ways in which education exchange brings benefits to both sides – the ‘origin’ and ‘destination’ economies. The benefits are of four main types:

- the transfer of ideas and of educational opportunities – increasing the diversity of available education opportunities

- an effective increase in resources available for education – increasing the quantity of education services (or, equivalently, reducing their price)
- the impetus that exchange provides to improve quality
- the long run benefits of contacts and cultural understanding that result from international education.

#### 4.1 Benefits to both sides of the exchange



Data source: The CIE.

#### *Ideas and opportunities – increasing diversity*

Education exchange is in effect a form of very close economic integration between economies. While there is significant exchange of ideas as a result of trade and capital flows, education provides a very direct and immediate transfer of ideas. In particular disciplinary areas, for example, education is often provided by leaders in the field. Students directly absorb the latest ideas, which they then take to their home economy to implement throughout their careers.

Related to this is the fact that specialisation in the modern fields of ideas mean that it is impossible for institutions within a single economy to be at the cutting edge of all fields of endeavour. Cross-border education exchange therefore increases the opportunity for students to be exposed to ideas that they may not otherwise be exposed to in their home economies. By taking advantage of knowledge developments in economies around the

world, cross-border exchange provides access to more diversity than could ever be cost-effectively provided domestically.

### *Enhancement of resources — increasing the quantity of education*

From the perspective of the recipient economy, cross-border exchange effectively provides additional resources to complement the domestic resources devoted to education. The international specialisation of ideas means that it is very likely that cross-border exchange will be lower cost for the student and/or domestic education systems than attempting to provide all education domestically.

As an illustration for Mode 2 exchange, chart 4.2 provides the effective increase in resources to higher education that has resulted from cross-border mobility within APEC. It provides a partial indicator of the additional supply of education resources due to cross-border education exchange. It is based on the extent of education that is supplied through the mobility of students to other APEC economies, compared to the domestic supply of education.

It shows that middle income economies have effectively increased their supply of tertiary education by 1.3 per cent as a result of cross-border higher education exchange within APEC. This is driven by China which is now a middle income economy according to the World Bank (with an additional 1.4 per cent of students educated in overseas APEC destinations). Among low income economies, the effective increase in resources is lower, at 0.7 per cent suggesting more limited access to educational exchange.

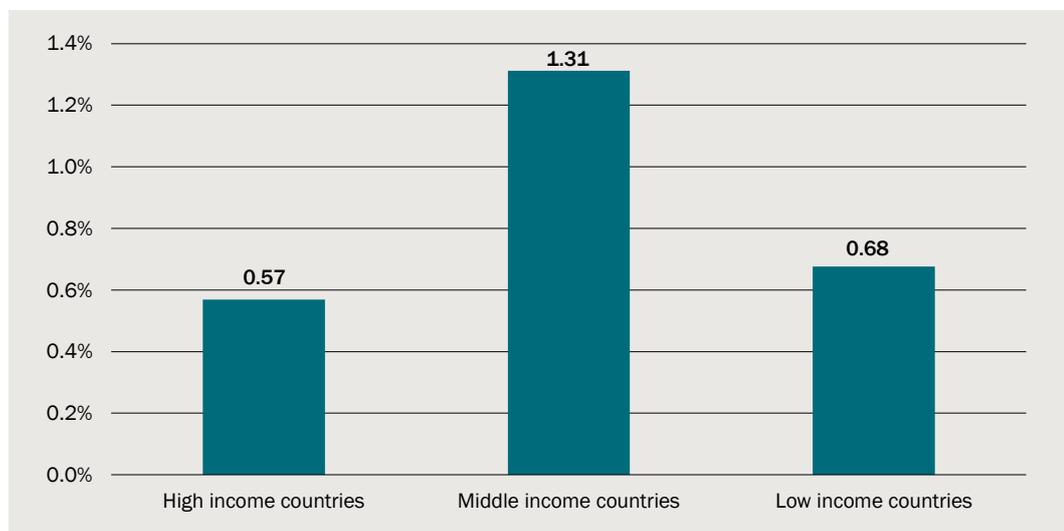
Among high income economies, the average effective increase in higher education resources from international education exchange (student mobility) in the APEC region is 0.57 per cent. However, among high income economies there is significant variation in the propensity of students to travel to other APEC economies to receive their education, and, therefore, how large the implied increase in higher education resources due to exchange. High income economies with high mobility of students to other APEC economies, as a percentage of students educated domestically, include Brunei Darussalam (14 per cent), Hong Kong (8 per cent), Singapore (6.5 per cent) and the Republic of Korea (3.4 per cent). High income economies with lower mobility of students to other APEC economies, as a percentage of students educated domestically, include the United States (0.05 per cent), Russian Federation (0.07 per cent), Chile (0.3 per cent) and Australia (0.5 per cent).

Effectively, under this measure, economies with a lower propensity for students to study in overseas APEC destinations receive a relatively smaller increase in educational resources due to education exchange. However, this is only a partial measure of the increase in resources due to cross-border education exchange with other APEC economies, as it is based only on the exchange of students (Mode 2). The measure does not incorporate other important mechanisms through which education exchange increases higher education resources in the economy receiving mobile students or supplying educational services such as the benefits from having impetus/resources to improve quality and the exchange in contacts and alumni (see chart 4.1). From the perspective of the destination economy, the revenue from fee paying international

students provides resources that can be used to enhance educational facilities and to provide ongoing improvements in education.

The remaining important EAS economies which are classified as low income economies have varied levels of exchange in education, with scope to substantively increase as students gain better access to education (such as through increasing family income or improvements in the access to affordable education). India has relatively low levels of international students travelling to the APEC region (and globally) at only 0.5 per cent (or 0.7 per cent overall).

#### 4.2 Effective increase in higher education resources from international education, APEC economies only



Data source: CIE calculations based on UNESCO statistics of Mode 2 education exchange.

#### *Impetus to improve quality*

There is a good reason to believe that the cross-border exchange in education services provides impetus to improve the quality of education over time. Over the last five years, there have been many commitments by individual APEC economies to improving the competitiveness (quality) of education, in light of increasing international standards.

Available empirical evidence suggests that the quality of education is one of the major factors driving demand for international education from a particular destination economy. Chart 4.3 provides some empirical research for South East Asia and North America of the responsiveness of demand for education to a change in three particular attributes: the quality of education, employment prospects as a result of the education and affordability (or price) of education.

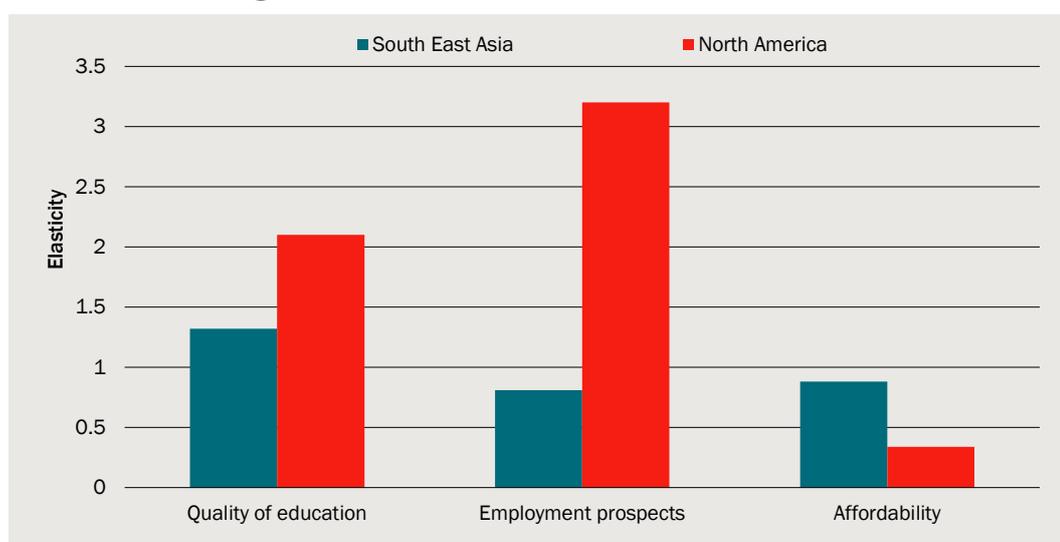
The results are clear, the quality dimensions (the quality of the course, and the quality as perceived by future employers and therefore employment prospects) are considerably more important than the affordability dimension.

This is evidenced by the continued dominance of highly reputable universities within major education markets (in particular, the United States and Australia), despite their

high cost. In a market where institutions compete for students, this will result in competition around quality, and lead to ongoing improvement in the quality of education.

The competition for high quality resources and students within Asia has resulted in greater attention on domestic education policy and investments among many Asian economies, although the impact and measurement of changes to quality may display a lag.

### 4.3 Factors driving demand for international education



Data source: CIE calculations based on Bohm et al, 2004, and IDP, 2003 (see CIE, 2008).

#### *Value of creating contacts and alumni*

While hard to quantify, international education clearly results in a range of contacts that would not otherwise have emerged if education had been solely domestic. One of the major ways that this has an influence on economic outcomes is through its indirect effect on trade and investment flows within the APEC region.

While existing trade and investment links are likely to create demand for international education, it is also the case that the range of contacts established through international education, and the benefits of a common educational background, is likely to lead to further opportunities for trade and investment.

#### *Increasing the benefits from exchange*

Cross-border exchange, through its contributions to the quality and quantity of education is clearly likely to increase economic growth in the region above what it would have been in the absence of the cross-border exchange. While there are no formal statistical estimates of this effect, a broad indication of the order of magnitude can be derived from the information in charts 2.6 and 4.2.

Cross-border exchange in Mode 2 of tertiary education in the APEC region has increased the quantity of tertiary education by around 0.9 per cent. From the data in chart 2.6, this would be expected to increase economic activity (as measured by gross domestic product) by around 0.7 per cent. Applied to APEC-wide GDP, this comes to an annual benefit of around US\$260 billion. That is, the current level of cross-border exchange in tertiary education contributes at least US\$260 billion to APEC economies. The level of cross-border exchange between APEC and EAS member economies is expected to be valued at an extra \$12 billion.

There are, therefore, considerable benefits potentially available from increasing the total amount of cross-border exchange between APEC-EAS economies.

Within the APEC forum, cooperation to establish an appropriate regulatory framework for cross-border exchange is clearly an activity with significant potential payoffs.

## 5 *Implications for APEC cooperation*

As demonstrated above, there are considerable benefits from cross-border exchange in education. While cross-border exchange has been increasing rapidly in recent years, it remains subject to a variety of government policy settings. In order to ensure that future benefits from cross-border exchange are maximised, it is important to have a common understanding of what constitutes good policy in this area and to work cooperatively to increase this understanding.

### *Overview of policy areas and influence*

In general, government policy needs to set a broad framework within which the various forces of demand for education services, and the supply of those services, can operate. In broad terms, the policy framework needs to establish:

- quality assurance, including:
  - who is allowed to provide education services – the questions of the rules governing registration, accreditation and the daily operations of providers
  - what services should be provided and in what form – the question of the rules determining the balance of content and its mode of delivery, in particular the flexibility of content and format of delivery
- how the resulting product (degree or diploma) will be judged and interpreted by students, governments and employers – including questions surrounding qualifications recognition
- how progress in educational outcomes will be measured, and how the ability to undertake effective policy analysis will be enhanced – the question of how to collect and use appropriate data on education, in particular involving cross-border exchange.

Table 5.1 summarises the broad policy areas that have a significant influence on cross-border exchange and the overall objective in each of these policy areas within APEC. Governments are likely to have a better understanding of the influence of their policies, as promoters or inhibitors of cooperation, if they engage a range of educational institutions in particular across the tertiary sector.

## 5.1 Policy areas, their influence and objectives for cooperation

Policy area	Influence	Objective for cooperation
Quality assurance	<p>Quality assurance frameworks influence both the demand for education and the outcomes of the education process.</p> <p>The policy framework may indirectly discriminate between different potential sources of supply.</p>	<p>A common understanding of the elements that make up both quality in education and effective quality assurance systems.</p> <p>A commonly understood framework for both students and employers to be able to interpret the outcomes of education.</p>
Registration and accreditation	<p>The policy framework can influence the balance of provision by domestic and international sources.</p> <p>The policy framework may indirectly discriminate between different potential sources of supply (such as new sources versus established sources).</p>	<p>Students have access to the best education providers from any APEC-EAS economy.</p> <p>Transparent and uniform rules for the registration of domestic and foreign service providers.</p> <p>Transparent rules on foreign ownership of education providers.</p>
Content and delivery	<p>The policy framework can influence both the content of the services – in terms of subject areas covered – as well as the means by which these are delivered, in particular delivery through new formats/technologies such as the internet.</p>	<p>Students have access to flexible content and delivery systems reflecting changing educational needs.</p> <p>Understanding of the impact of different policies on the mix of provision.</p>
Qualifications recognition	<p>Understanding of the nature of a particular qualification affects both the demand for education by students and the ways in which employers interpret and are able to use employees with particular qualifications.</p> <p>If not common across all sources of supply, the policy framework may indirectly discriminate between different potential sources of supply.</p>	<p>A common understanding of effective approaches to qualifications recognition.</p> <p>Working with employers and professional bodies across the region to understand the best frameworks for recognition.</p>
Data collection	<p>Appropriate data on cross-border exchange of education services and associated outcomes can have a significant influence on cross-border exchange and cooperation.</p>	<p>A common framework for enhanced data collection, particularly for modes of cross-border exchange other than consumption abroad.</p>

Source: The CIE.

### *Current levels of cooperation*

APEC economies are diverse – in terms of the structure of their education systems, their current involvement in cross-border exchange and their current patterns of regulation involving the various modes of cross-border provision.

- This means that the need for ongoing policy development will also vary by economy.
- There is considerable scope for augmenting the work program on educational cooperation between APEC and EAS economies covering the policy areas identified in table 5.1, as well as additional areas that may arise such as joint initiatives to improve teacher quality and resourcing.

The importance of APEC engagement on cross-border education has received greater attention in the past few years, particularly following the September 2012 APEC Economic Leaders' meeting in Russia. At this meeting, Leaders made a statement recognising education as the pre-eminent source of economic development in the 21st century and instructing Ministers and officials to take forward priorities on cross-border education mobility. The declaration encourages 'further development, on a voluntary basis, consistent with individual economies' circumstances, of cross-border education cooperation and facilitation of exchange in education services within APEC'.

Leaders' identified four areas for strengthened collaboration:

- enhancing the mobility of students – focusing on best practice for course accreditation and quality assurance (QA) systems, models to guide reform and implementation of good regulatory practices, and transparency of student visa requirements
- enhancing the mobility of researchers – focusing on existing academic exchanges and joint research activities between and among universities, and the mobility of the academic workforce
- enhancing the mobility of education providers – focusing on mapping existing regulations, the transparency of regulation, removal of unnecessary barriers to market access, and benchmarking best practices of QA systems
- enhancing the existing networks of bilateral agreements – focusing on flexible design and delivery of educational content such as online and data availability on educational programs.

The CIE understands that these priority areas are currently being progressed through the Human Resource Development Working Group (HRDWG).

The projects managed by the HRDWG suggest that prior to 2008 there was minimal work through this group in relation to cooperation on policy development in regards to cross-border education. Programs predominantly focused on the development of human resource capacity, particularly in terms of building staff and student capabilities in science and mathematics and digital learning capabilities, and strategic planning for English and other languages.

Between 2008 and 2012, several projects focused on cooperation on education to improve the quality of education, such as through a benchmarking exercise on qualification frameworks in the APEC region, examining best practices to promote quality in higher education, expanding resources for teachers through Open Education Courseware, and initiatives to promote better alignment between educational standards and skills requirements.

More recently, following the Leaders' declaration in 2012, and subsequent endorsement by Leaders in 2013, including the setting of a target of one million intra-APEC university level students per year by 2020, several platforms have been established to promote the development of the work program to support the Leaders' objectives. These include:

- a project to engage APEC University Associations to seek a provider perspective on potential barriers, solutions, and innovative approaches to fostering and enhancing student, researcher and provider mobility and existing networks of bilateral agreements within the APEC region

- a project to establish an APEC higher education research centre to undertake joint studies on higher education theories, systems, policies and practices
- an APEC scholarship and internship initiative to expand education and training opportunities for students and professionals, especially for women and youth from developing economies
- a project to support developing APEC economies in building capacity to both track cross-border student mobility and increase these numbers in line with APEC's 2020 goal.

East Asia Summit and ASEAN member economies are similarly focused on enhancing cross-border educational mobility. The East Asia Summit Education Plan of Action (2011-2015) focuses on improving education quality, broadening access, harmonising education, and promoting student mobility of participating countries and across regions.

### *Implications for future work*

In recent years, APEC leaders have established a range of objectives and commenced establishing projects towards their attainment. The improvement of educational outcomes will depend on how these projects and new projects continue to unfold.

The implementation of this work program should consider how policies interact to determine the quantity of education, but also their impact on quality, diversity and access (including cost). Cost remains an 'enormous barrier to access' (Altbach et al, 2009). It is clear that educational quality, in particular the access to affordable quality education among many of the APEC and EAS economies, remains a paramount concern. As stated in the latest ASEAN five year plan 'with high levels of foreign direct investment driving many economies of the region, the demand for skilled labour is high and unmet, primarily because of the poor quality and relevance of existing secondary and tertiary education in many countries'.

There is a risk that the future work plan evolves in an ad hoc way. In order to avoid this, APEC economies should systematically establish a work program with coverage of key policy areas.

### *Quality assurance and recognition of qualifications*

Quality assurance has received greater attention in recent years. However, APEC member economies need to continue to progress the development of their domestic quality assurance frameworks, including in terms of how the standards of quality in education that are promoted to international students are assured. The quality assurance framework should focus on delivering student outcomes that are aligned to students' expectations as well as market demand such that ultimately, the potential value of education and educational exchange is achieved.

APEC cooperation would be beneficial in identifying how quality is defined under respective education systems, and working towards a common framework of metrics for qualifications and their associated quality parameters. It is not necessarily the case that

quality must be comparable across institutions and economies, but that the standard of quality meets expectations of students (which ultimately needs to reflect employer expectations) at a given price point and the educational attainment can be communicated and readily compared.

There is huge scope, however, to continue to broadly increase quality levels such as through promoting resource sharing and transfer of expertise across APEC.

In order to obtain the full benefits of exchange in education, it is necessary that qualifications and their quality attributes are transparent and capable of being subjected to cross-country comparisons by students, employers and policy makers.

Thus, the APEC work program in this area should focus on:

- building on the existing knowledge of qualifications frameworks in the APEC region by identifying the principles and practices underpinning tertiary and non-tertiary qualifications systems of each country
- developing common metrics for measuring qualifications and their quality attributes that may be readily interpreted by students, policy makers, academics and industry
- continuing the work on aligning educational outcomes with skills requirements, such as through joint research activities.

### ***Registration and accreditation***

A major influence on cross-border education exchange – in particular, through Mode 3 (commercial presence) – are the various rules relating to who is able to register and be accredited for providing education services within an economy.

It is particularly important that these regulations do not discriminate between domestic and overseas sources of education. These rules should treat domestic and foreign sources of services on the same basis.

The purpose of an APEC work program in this area would be to:

- understand the ways in which current policies may discriminate between domestic and international education providers
- understand the way in which current policies on accreditation and registration may prevent new, innovative education models from evolving (such as through receiving feedback from the tertiary education sector) for consideration/review by APEC member economies
- derive a common understanding of best practice registration systems to ensure that the best education providers are available to students within each APEC economy.

### ***Forms of content and service provision***

Rapidly changing education needs in modern economies demand considerable flexibility from education systems – both in terms of the content of that education and the various technologies through which education is delivered. Modern technologies such as online provision provide the opportunity to increase the reach of education services beyond

what is feasible through traditional methods. However, as previously noted, online delivery mechanisms have not significantly altered education consumption or access, or the main axis of quality (degree) education.

Nonetheless, there is still greater potential for online provision to expand access to education. It is highly likely that for many APEC economies, forms of online provision will be supplied by foreign providers. It is important that regulations relating to education services within each APEC economy do not discriminate between different forms of provision, and allow new forms of provision (business models) to emerge.

The purpose of an APEC work program in this area would be to:

- understand the ways that current policies may discriminate between new and existing business models, and between different forms of delivery, particularly in some of the more innovative forms of education services provided through cross-border exchange
- derive a common understanding of likely future developments in delivery systems which may be challenged by the way education is currently regulated (such as the basis for qualifications and admissions and requirements on management structure) or funded
- link this analysis to the work on registration and qualifications recognition.

### ***Data collection***

There is still no comprehensive data collection on cross-border exchange of education services other than for Mode 2 (consumption abroad). Better data collection would assist in identifying how country, demographic and other factors are influencing the pattern of institutional mobility, for example. Similarly, in terms of Mode 1 exchange, no comprehensive data collections have been made available which limits the capacity of governments to understand the needs of current and potential markets for online education.

Ongoing policy development and analysis clearly requires a solid base of data, both to plan domestic policies and evaluate outcomes and to promote engagement on cross-border education. Cooperation on data collection in cross-border exchange is clearly an area with considerable scope within APEC.

The purpose of an APEC program in this area would be to:

- come to a common understanding of the data needs for policy development
- work with national statistical agencies to understand existing data collections and potential augmentations to capture a broader range of data
- propose new data collection protocols and methodologies to allow a common data collection framework within the region.

### ***In summary***

Demand, particularly from China, has led to substantive growth in cross-border education exchange among APEC economies over the past five years. However, to take full advantage of the potential of cross-border education exchange in terms of increasing

the quantity, quality and diversity of education services across the Indo-Pacific region it will be important that APEC economies continue to progress the agenda for cooperation on education. This will be most effective if undertaken through a structured work program that addresses the five complementary policy areas highlighted in this chapter, as well as through ongoing support for joint initiatives to improve education quality and resourcing across the Indo-Pacific region.

## A Background data

### A.1 Student enrolments (teaching task) by level of education (millions) <sup>a</sup>

	Primary		Secondary		Post-secondary, non-tertiary		Tertiary		Total	
	2008	Latest	2008	Latest	2008	Latest	2008	Latest	2008	Latest
Australia	1.93	2.04	2.50	2.33	0.18	0.26	1.00	1.32	5.62	5.95
Brunei Darussalam	0.05	0.04	0.04	0.05	0.00	0.00	0.00	0.01	0.09	0.10
Canada	0.24	2.17	3.00	2.61	0.30		1.19		6.88	n.a.
Chile	1.72	1.52	1.63	1.49			0.57	1.06	3.92+	4.07+
China	108.93	99.71	101.00	97.45	0.61	0.18	19.42	31.31	229.95	228.65
Hong Kong, China	0.45	0.33	0.50	0.49	0.03	0.03	0.16	0.27	1.14	1.12
Indonesia	29.15	30.66	15.99	20.78			3.44	5.36	48.58+	56.80+
Japan	7.23	7.03	7.71	7.28	0.01	0.01	4.03	3.88	18.99	18.21
Korea (Republic of)	4.13	3.14	3.69	3.87			3.22	3.36	11.04+	10.36+
Malaysia	3.16	2.92	2.58	2.63	0.17	0.08	0.63	1.04	6.55	6.67
Mexico	14.70	14.93	10.56	11.84			2.24	2.98	27.50+	29.75+
New Zealand	0.35	0.35	0.53	0.51	0.04	0.05	0.20	0.26	1.12	1.17
Papua New Guinea	0.68	0.60	0.19				0.01		0.88+	n.a.
Peru	4.08	3.67	2.69	2.64			0.83	1.21	7.60+	7.52+
Philippines	13.08	13.69	6.35	6.77	0.45	0.88	2.43	2.63	22.32	23.96
Russian Federation	5.31	5.02	12.43	9.61	0.23	0.13	8.62	9.33	26.60	24.09
Singapore	0.29	0.29	0.24	0.23		0.11	0.14	0.24	0.67+	0.87
Thailand	5.97	5.37	4.53	4.89	0.02		2.25	2.50	12.78	12.76+
United States	24.45	24.43	24.43	24.21	0.42	0.57	16.90	21.02	66.21	70.23

	Primary		Secondary		Post-secondary, non-tertiary		Tertiary		Total	
	2008	Latest	2008	Latest	2008	Latest	2008	Latest	2008	Latest
Viet Nam	7.77	7.05	9.94				0.85	2.23	18.56+	n.a.
India		137.75		113.73		3.07		26.65		281.20
Myanmar		5.13		2.85				0.66		8.64+
Lao PDR		0.90		0.49		0.02		0.13		1.53
Cambodia		2.22		0.93		0.03		0.22		3.41

<sup>a</sup> 'Latest' estimates utilise 2011 data, or if unavailable the latest year available. '2008' estimates refer to data available in 2008, rather than 2008 per se.

*Note:* For several economies (where denoted with 'n.a.'), we have refrained from providing an update of 'total' enrolments due to inadequate information to enable comparison with 2008 data. Where enrolment data for post-secondary, non-tertiary enrolments is absent (which usually comprise a small share of total enrolments) we have highlighted this in the totals column with a '+' symbol. Data is not available for Chinese Taipei.

*Source:* UNESCO database.

**A.2 Public expenditure on education as a percentage of GDP, 2010<sup>a</sup>**

	2008 report (2004 data)	Latest
Australia	4.61	5.60
Brunei Darussalam		2.0
Canada	5.23	5.50
Chile	3.66	4.20
China		n.a.
Hong Kong, China	4.59	3.50
Indonesia	0.96	3.00
Japan	3.66	3.80
Korea (Republic of)	4.63	5.00
Malaysia	6.24	5.10
Mexico	5.41	5.20
New Zealand	6.76	7.20
Peru	2.84	2.70
Philippines	2.71	2.70
Russian Federation	3.84	4.10
Singapore		3.20
Thailand	4.24	3.80
United States	5.60	5.40
Viet Nam		6.30
India		3.30
Myanmar		0.80
Lao PDR		2.80
Cambodia		2.60

<sup>a</sup> 2008 figure is utilised for Russia, 2009 figures for Philippines and Korea (Republic of), and all other figures provided for 2010.

Note: Data cited in 2008 report is 2004, except for Malaysia, Philippines and Thailand (2001), Canada and Russia (2002), Indonesia (2003). Data is not available in any year for Chinese Taipei or Papua New Guinea.

Source: UNESCO database.

### A.3 Private expenditure on educational institutions and administration as a percentage of GDP, 2010<sup>a</sup>

Income group	Country	2008 report (2004 data)	Latest
'Low income group'	Cambodia		
	India		1.15
	Indonesia	0.52	
	Lao PDR		1.16
	Myanmar		
	Papua New Guinea		
	Philippines	2.22	1.88
	Viet Nam		
'Middle income group'	China		
	Malaysia		
	Mexico	1.24	1.19
	Peru	0.93	2.01
	Thailand	1.85	1.85
'High income group'	Australia	1.61	1.72
	Brunei Darussalam		
	Canada	1.41	1.55
	Chile	3.23	2.77
	Hong Kong, China		
	Japan	1.23	1.51
	New Zealand	1.16	1.23
	Korea (Republic of)	2.85	3.20
	Russian Federation		0.68
	Singapore		
United States	2.46	2.22	

<sup>a</sup> 'Latest' data is provided which ranges between 2008 and 2012, with the exceptions of India, Lao PDR, the Philippines and Thailand which use pre-2005 estimates. For the estimates reported in 2008, data was for 2004 except for Malaysia (2001), the Philippines (2001), Canada (2002) and Indonesia (2003). Data is unavailable for Brunei Darussalam, Cambodia, China, Chinese Taipei, Hong Kong, Malaysia, Myanmar, Indonesia (latest not available), Papua New Guinea, Singapore, and Viet Nam.

Note: The low income group incorporates lower-middle income economies as well as low income economies. The middle income group refers to 'upper-middle income economies' according to World Bank definitions.

Source: UNESCO database.

#### A.4 Public and private expenditure on educational institutions and administration as a percentage of GDP, latest data

	Pre-primary		Primary		Secondary		Tertiary	
	Public	Private	Public	Private	Public	Private	Public	Private
Australia	0.1	0.1	2.0	0.2	2.0	0.5	0.8	0.9
Brunei Darussalam			0.6		1.0		0.5	1.2
Canada					1.4	0.2	1.5	1.8
Chile	0.6	0.1	1.4	0.4	1.5	0.4	0.6	
Hong Kong, China	0.1		0.6		1.2		1.0	
Indonesia			1.1		0.6		0.5	
Japan	0.1	0.1	1.3		1.4	0.2	0.5	1.0
Korea (Republic of)	0.1	0.2	1.6	0.3	1.9	0.8	0.7	1.9
Malaysia	0.1		1.7		1.9		1.5	
Mexico	0.5	0.1	1.8	0.3	1.5	0.4	1.0	0.4
New Zealand	0.5	0.1	1.9	0.1	2.9	0.5	1.0	0.5
Peru	0.4	0.1	1.0	0.3	0.9	0.6	0.5	0.9
Philippines			1.5		0.8		0.3	
Russian Federation	0.6	0.1					0.9	0.5
Singapore			0.7		1.0		1.2	
Thailand	0.7		2.0		1.9		0.8	
United States	0.4	0.1	1.8	0.1	1.9	0.2	1.0	1.8
Cambodia	0.1		1.1		0.8		0.4	
India			0.8		1.2		1.1	
Myanmar			0.4		0.2		0.2	

<sup>a</sup> Utilises latest data including 2012 data for Chile, Hong Kong, New Zealand, Peru and Singapore; 2011 data for Canada, Indonesia, Japan, Malaysia, Thailand, India, and Myanmar; 2010 data for Australia, Brunei Darussalam, Mexico, United States and Cambodia; 2009 data for the Philippines; and 2008 data for the Russian Federation.

Note: Data is unavailable for China, Chinese Taipei, Lao PDR (only total public expenditure is available), Papua New Guinea and Viet Nam.

Source: UNESCO database.

#### A.5 Share of private provision (Per cent of total enrolments)

	Primary <sup>a</sup>		Secondary <sup>a</sup>		Tertiary <sup>b</sup>
	Previous	Latest	Previous	Latest	Latest (pre-2008)
Australia	28	31	30	35	4.5
Brunei Darussalam	36	37	13	15	
Canada	6	6	6	7	
Chile		60		60	78
China		6		11	20
Chinese Taipei					72
Hong Kong, China	14	18	15	16	59
Indonesia	16	17	43	41	71
Japan	1	1	19	19	77
Korea (Republic of)	1	1	36	31	80

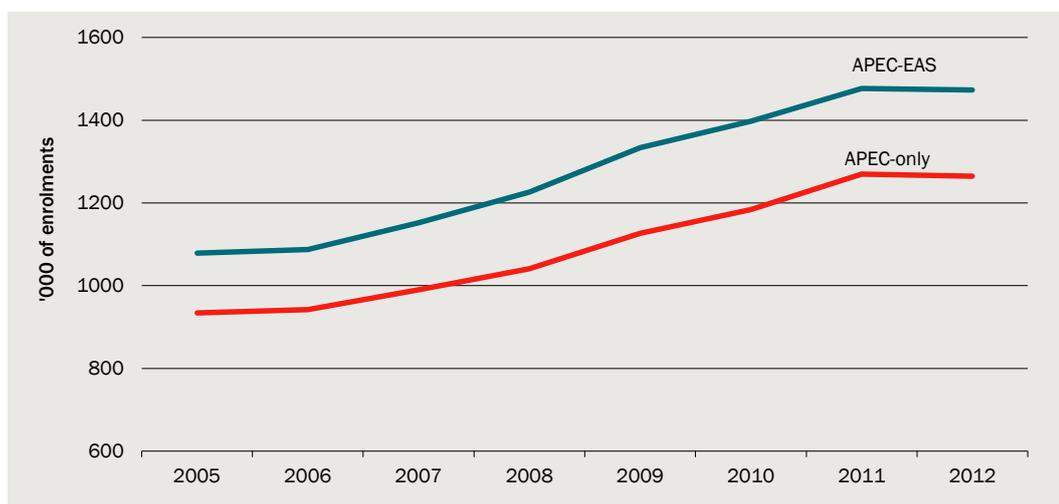
	Primary <sup>a</sup>		Secondary <sup>a</sup>		Tertiary <sup>b</sup>
	Previous	Latest	Previous	Latest	Latest (pre-2008)
Malaysia	1	2	3	5	51
Mexico	8	8	16	13	33
New Zealand	2	2	10	11	7
Papua New Guinea					
Peru	14	24	17	26	51
Philippines	7	8	20	20	65
Russian Federation		1		1	11
Singapore		8		6	
Thailand	15	18	9	16	10
United States	11	8	9	8	24
Viet Nam		1			10
Cambodia		2			58
India					31
Lao PDR		4		3	32
Myanmar					

<sup>a</sup> Utilises the latest data available, ranging from 2009 to 2012. <sup>b</sup> Tertiary sector share of private provision is no longer available through UNESCO. Therefore, data for tertiary sector private provision may not reflect recent developments. The table provides estimates contained in the previous CIE report (2008). Data from Levy (2009) is provided where data was previously unavailable for reporting in the 2008 report. Levy (2009) refers to data available in the period 2001-2007. Data previously provided in the CIE's 2008 report for Hong Kong has been updated. Data provided for Australia reflects 2012 data from Edwards and Radloff, 2013.

Note: UNESCO data is unavailable for Chinese Taipei, India, Papua New Guinea and Myanmar.

Source: UNESCO database, Edwards and Radloff, 2013, Levy, 2009, and CIE, 2008.

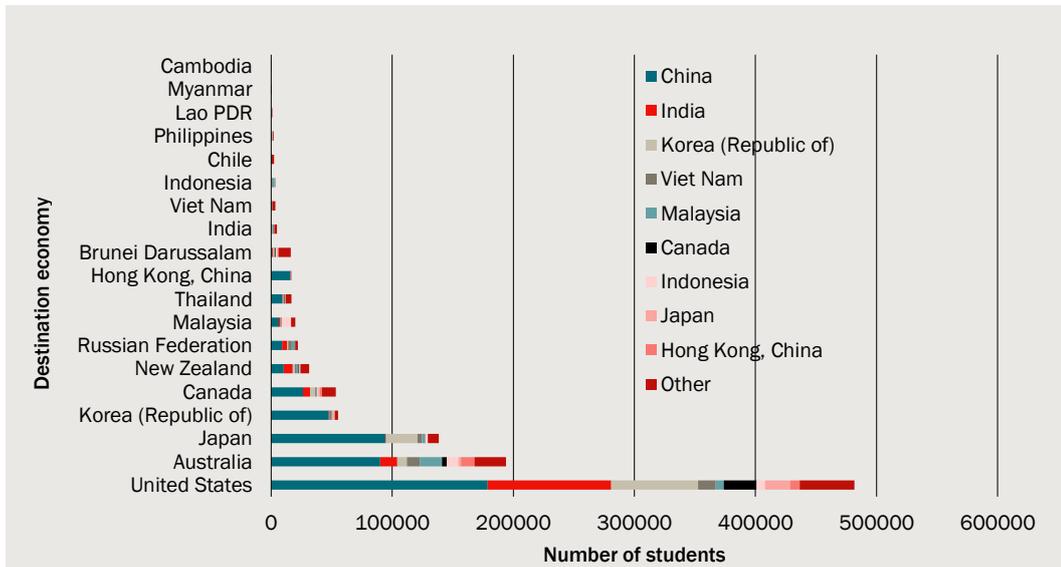
## A.6 Outbound mobile students from APEC and EAS economies



Note: Data is unavailable for Chinese Taipei.

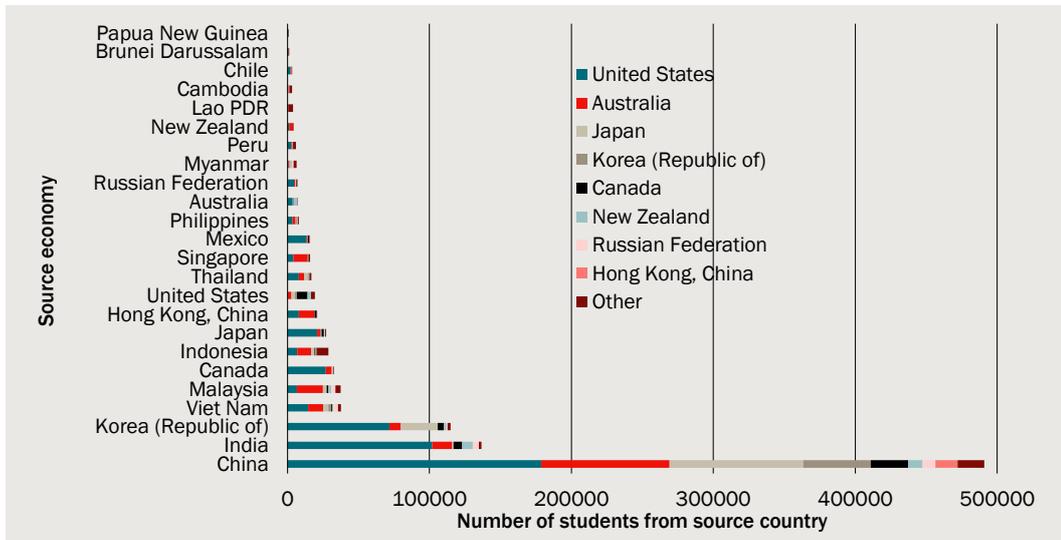
Data source: UNESCO database.

**A.7 Flow of students for APEC and EAS economies – by destination, latest data**



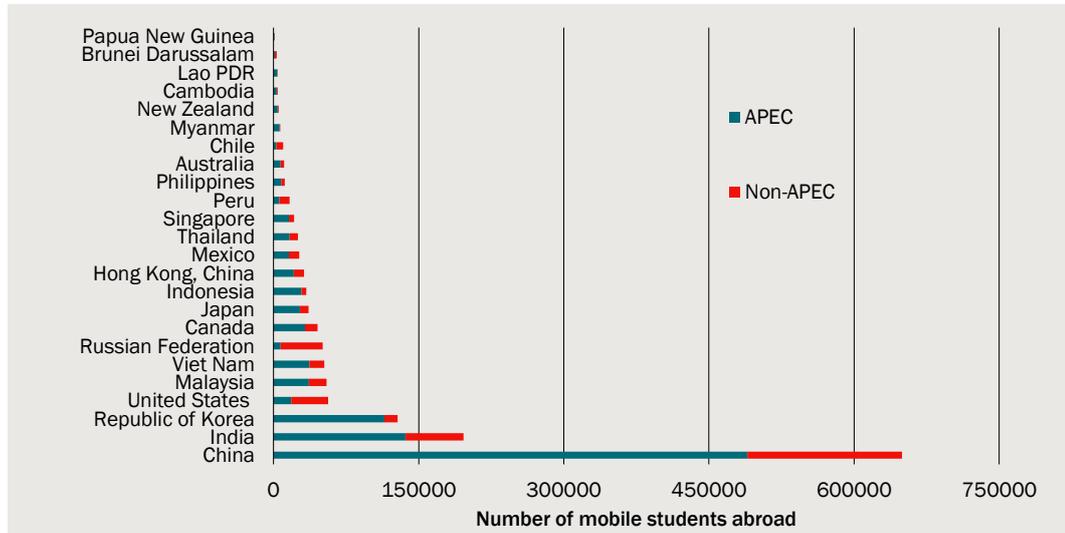
Note: Data on student inflows unavailable for destinations: China, Chinese Taipei, Mexico, Papua New Guinea, Peru and Singapore.  
Data source: UNESCO database.

**A.8 Flow of students for APEC and EAS member economies – by source, latest data**



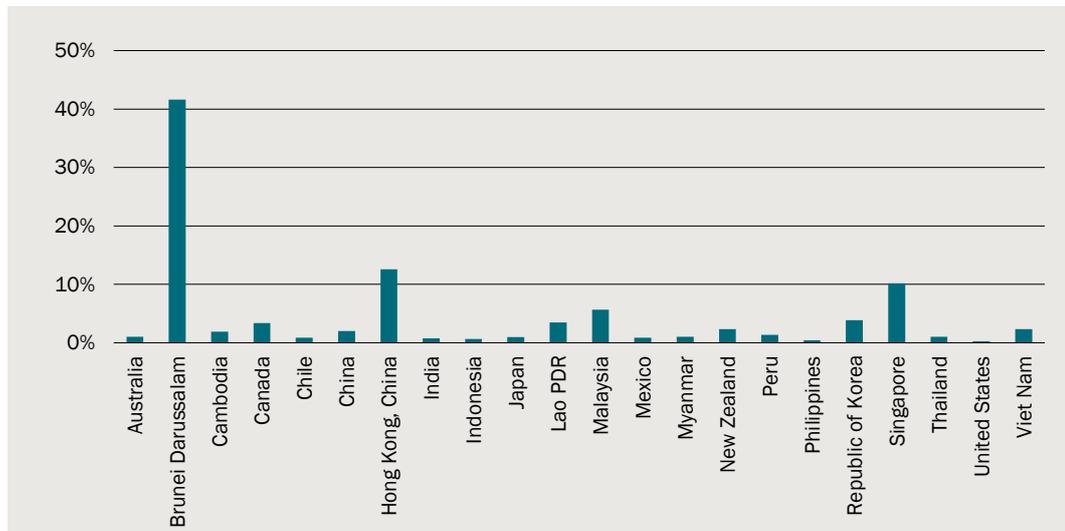
Note: Data is unavailable for Chinese Taipei.  
Data source: UNESCO database.

**A.9 Flow of students from APEC and EAS economies to APEC destinations**



Note: Utilises latest data available from UNESCO Global flow of tertiary level students. Data is unavailable for Chinese Taipei.  
 Data source: UNESCO database.

**A.10 International enrolments (mobile tertiary students) as a share of domestic enrolments**



Note: No data was available for Papua New Guinea. Includes students enrolled in all destinations: APEC and non-APEC. Data is unavailable for Chinese Taipei.  
 Data source: CIE estimates based on UNESCO database.

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