
BRITISH COUNCIL
Research
Market Intelligence Brief
Singapore
www.britishcouncil.org
June 2022

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1 Executive Summary

Singapore is a small city-state located on the southern tip of Malaysia. It has developed into a major global trade and financial hub and is one of the wealthiest countries in the world, as measured by GDP per capita. Total population stood at 5.5m in 2021, but given low birth rates and high life expectancy, significant population ageing is expected in Singapore over the next decade. At the same time, the student aged population is expected to shrink considerably.

According to the Organisation for Economic Cooperation and Development (OECD) and the Programme for International Student Assessment (PISA), Singapore has one of the world's leading education systems, owing to the high levels of government spending on education and the Ministry of Education's (MOE) successful implementation of pioneering education policies. Further, Singapore has some of the world's highest educational attainment rates with 57 per cent of its population having completed post-secondary education, compared to considerably lower rates in regional peers such as Hong Kong (31 per cent) and Malaysia (23 per cent).[1] In 2020, there was a total of 420,726 students enrolled across Singapore's primary, secondary and post-secondary education institutions combined, according to the MOE.

Despite Singapore's high educational attainment rates and outstanding performance in cross-country rankings, its education system has faced criticism in recent years due to the intense focus on academic performance through assessment and examinations. This has led to a perception that graduates may lack some of the essential soft skills relevant to the current labour market.

According to the QS Higher Education System Strength rankings, Singapore ranks 21st out of 50 countries analysed. Within the scoring framework, Singapore has the third highest score in terms of overall national system strength. However, Singapore ranks relatively low (26th) on the "Access" indicator which measures the chances of gaining a place at a world-class university for residents of the country in question. Singapore currently has six autonomous universities, two of which are ranked within the top 15 universities in the world, according to the QS World University Rankings 2021.

Despite the strength of its domestic higher education (HE) sector, a relatively large number of Singaporean students pursue HE qualifications abroad each year. According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), in 2019 there were 23,456 Singaporean outbound international mobile students, with the vast majority (82 per cent) studying in the traditional English-speaking host markets, including Australia, Canada, the UK and the US.

In the UK, data from the Higher Education Statistics Agency (HESA) shows that Singaporean enrolment in higher education programmes almost doubled between 2009/10 and 2015/16. At the peak in 2015/16, there were 6,650 Singaporean undergraduates and 1,495 postgraduates studying in the UK. Since then, the total number of outbound students to the UK has declined by 18 per cent, down to 5,345 undergraduates (down 20 per cent) and 1,350 postgraduates (down 10 per cent) in 2020/21. Much of this decline can be attributed to greater competition from other international student host markets such as Canada, Singapore's shrinking student age population and increased local university capacity. The decline in Singaporean students in the UK

[1] Educational attainment, *World Bank,* 2019 https://data.worldbank.org/indicator/SE.SEC.CUAT.PO.ZS

accelerated in 2020/21 after the onset of the Covid-19 pandemic, with undergraduate and postgraduate student numbers falling by 11 per cent and 12 per cent respectively compared to 2019/20.

While UK study visas issued to Singaporeans increased in 2021 on the previous year, they remained 11 per cent below the pre pandemic number issued in 2019, indicating that only a partial recovery had materialised for the 2021/22 academic year. More recently, UCAS applications by the January 2022 deadline increased by 7 per cent on the previous year, indicative of continued recovery in undergraduate recruitment for the 2022/23 academic year.

Over the last decade, Singapore's economic growth has been relatively moderate with an annual average GDP growth of 3.6 per cent. The economy experienced a sharp contraction in 2020 due to the Covid-19 pandemic but recovered quickly, achieving 7.9 per cent growth in 2021 as international trade resumed. Given its weak demographic outlook, the slowdown in outbound international student flows is likely to continue in the years ahead. The consequences of Singapore's ageing population are also expected to extend to the economy as the shrinking working population weighs on output potential. Nevertheless, Oxford Economics forecasts that by 2030, Singapore's GDP per capita will rise to US$105,500 (current prices), remaining many times greater than the world average of US$18,800 in 2030 and representative of Singapore's high level of economic development.

At present, Singapore is the UK's fourth largest market in terms of transnational education (TNE) provision, with over 26,000 enrolments on UK TNE programmes in the 2020/21 academic year. However, TNE enrolment in the UK has shown a sharp decrease (33 per cent) since 2018/19. This could be attributed to a variety of factors including the progressive tightening of local regulatory requirements for TNE provisions, a shrinking student age domestic population, additional pathways for academic progression from the local polytechnics to the local universities, and more recently, the effects of the pandemic including border restrictions affecting international students, and increased places being made available at the local universities for domestic students.

In March 2021, the UK and Singapore restated their commitment to a long-term partnership under the "SG-UK Partnership for the Future", including initiatives within economics and trade, climate and sustainability, technology, knowledge and education, and security and resilience. The plan specifically aims at increasing collaborations across research, innovation and the mutual exchange of students as well as improving accessibility to Technical and Vocational Education Training (TVET) programmes.

2 Introduction

This report was produced by the British Council's Insight and Engagement team, with external research support provided by Oxford Economics.[2] This report is designed to provide UK education institutions with unparalleled data, insight and analysis to support their international education strategies, recruitment activities and partnership development work. The report is also targeted at a UK and Singapore policy maker audience, by highlighting opportunities and barriers to education and research cooperation that exist between the two countries.

Using the latest data from the most reliable sources, this Market Intelligence Brief represents a window onto Singapore's education system and student population, as well as the economic and demographic factors, and policy priorities and developments that shape the country's international education outlook. The report examines various aspects related to the internationalisation of Singapore's education system – including student mobility, transnational education progammes and research collaboration – and highlights national-level education projects and partnerships between the UK and Singapore.

The information contained in this report is based primarily on desk-based research and data analysis, supplemented with insight and context provided by British Council colleagues on the ground in Singapore.

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Comments, queries and suggestions in relation to this report are welcome and may be submitted to John McNamara, Global Head of Research, Insight and Engagement, Higher Education and Science john.mcnamara@britishcouncil.org

[2] www.oxfordeconomics.com/

3 Macro Environment

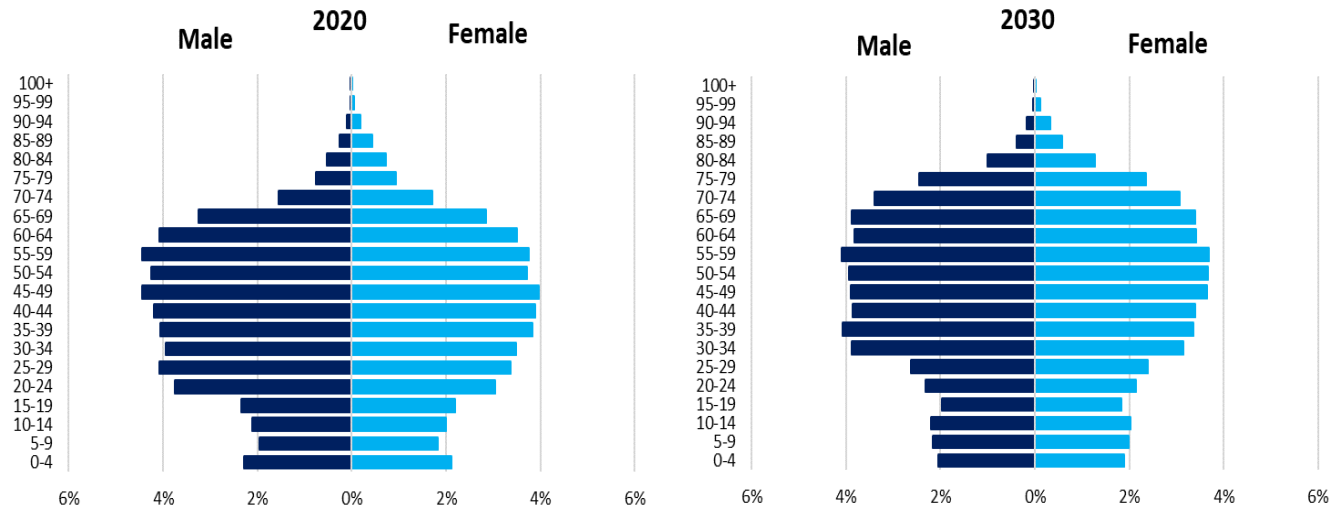
3.1 People

Singapore is a small city-state on the tip of the Malay Peninsula. In 2021 the total population stood at 5.5m, up from 4.0m in 2000. The population comprises 65 per cent Singaporean citizens, 27 per cent non-residents (including students and migrant workers) and 8 per cent permanent residents. As of June 2021, Singapore's largest ethnicity was Chinese (76 per cent of the total population), followed by Malay (15 per cent) and Indian (7 per cent).[3] Singapore is a wholly urbanised country and has one of the highest population densities in the world, at over 8,000 people per square kilometre.[4]

The United Nations (UN) Population Division projects continued moderate population growth over the next decade, with the total population expected to reach around 6m by 2030.[5] Singapore's median age in 2021 was 42 years, up by 8 years from 2000.[6] This can partly be explained by low fertility rates, alongside excellent healthcare provision and high hygiene standards, which has led to increased life expectancy. The shift in Singapore's demography towards an older population is expected to accelerate further over the next decade, with the share of over 65s as a proportion of the total population expected to rise from 13 per cent in 2020, to 22 per cent by 2030. At the other end of the age distribution, the share of under 25s is expected to decline from 24 per cent of the total population in 2020 to 21 per cent of the total population by 2030. Singapore's demographic transition will present the country with several economic challenges, such as a higher dependency ratio, lower tax revenues and reduced output potential. As these factors intensify, pressure on the ever-shrinking working population will increase.

[3] Population in Brief, *Singapore Department of Statistics,* 2021 https://www.population.gov.sg/files/media-centre/publications/Population-in-brief-2021.pdf
[4] Which countries are the most densely populated? *Our World in Data,* 2022 https://ourworldindata.org/most-densely-populated-countries
[5] World Population Prospects, *United Nations Population Division,* 2019 https://population.un.org/wpp/
[6] Population Trends, *Singapore Department of Statistics,* 2021 https://www.singstat.gov.sg/-/media/files/publications/population/population2021.pdf

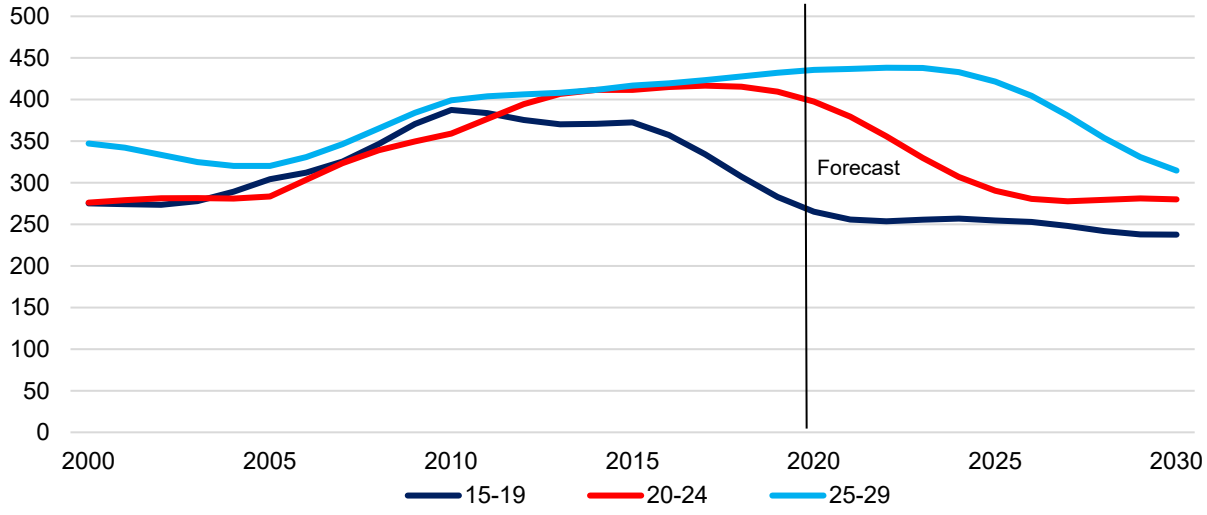
Figure 1: Singapore's population pyramid, 2020 and 2030



Source: UN Population Division

During the 2000s, the population of 15-19, 20-24 and 25-29-year-olds grew by 41 per cent, 30 per cent and 15 per cent respectively, primarily driven by high levels of immigration (664,000 net migrants from 2000-2010). However, by the 2010s net migration had slowed and birth rates continued to fall, causing population growth to slow. During this period, growth among the student population age bands was mixed. The population aged 15-19 fell by 32 per cent, whereas those aged 20-24 and 25-29 grew by 11 per cent and 9 per cent respectively. Looking ahead, UN Population Division projections show that each of the student age bands will decline in the period to 2030, by varying magnitudes. The populations aged 15-19 and 20-24 are expected to fall by 7 per cent and 26 per cent respectively over the decade. While the population aged 25-29 is expected to peak at 438,200 in 2022, before falling to 314,600 by the end of the decade (down 28 per cent).

Figure 2: Singapore's student age population (000s)



Source: UN Population Division

3.2 Economy

Following the government's economic reforms in the 1960s and the establishment of the Economic Development Board (EDB) in 1961, Singapore has positioned itself as a highly developed, open, free-market economy. Between 1961 and 1980 the economy expanded by an average of around 7 per cent per year, owing to the rapid growth in capital investment, domestic manufacturing and international trade.[7] Singapore has also benefited significantly from the rise in international trade and tourism and now has the second busiest cargo port in the world after Shanghai. During the 2000s, the emergence of the Asian Tiger economies presented Singapore's manufacturing sector with new challenges as its small workforce, limited land availability and high labour costs reduced its international competitiveness. This led Singapore to focus on utilising its high-quality human capital stock, stimulating growth in high-tech manufacturing, related R&D and services which now account for more than 70 per cent of both GDP[8] and employment.[9] Singapore's GDP per capita is amongst the highest in the world, at US$72,400 (current prices) in 2021, which is more than six times higher than the global average. In addition, Singapore ranks number one in the World Economic Forum's Global Competitiveness Index[10] and number two in the World Bank's Ease of Doing Business report, behind only New Zealand.[11] It also has the fifth most competitive financial sector in the world and is Asia's leading hub for oil trading.[12]

Singapore is an export-orientated economy with exports at around 176 per cent of GDP, making the country vulnerable to global shocks in supply and demand.[13] Its main trading partners are China, Malaysia, the United States and Indonesia, largely due their important roles in regional cargo and entrepot trade (imports from one country subsequently exported to another). Singapore's main exports are capital goods, machinery and electronics, chemicals, financial services and fuels. Given the country's limited agricultural land, it imports around 90 per cent of its food which again leaves the country vulnerable to climate change and shocks to global food production. Nevertheless, Singapore is investing heavily in agrotechnology research and development to reduce its reliance on international food producers.[14]

Owing to its skilled workforce and transparent and sound legal framework, alongside its economic and political stability, Singapore has become the fourth largest global financial hub after London, New York and Hong Kong. Its financial and business services sector makes an important contribution to the wider economy, accounting for 27 per cent and 22 per cent of total GDP and employment in 2020 respectively. However, by extension, Singapore's economic activity is particularly sensitive to financial market volatility, with the financial crises of 2001 and 2008/09 triggering economic recessions within the country. Since 2010, Singapore has experienced consistent growth in foreign direct investment (FDI), largely driven by higher foreign equity

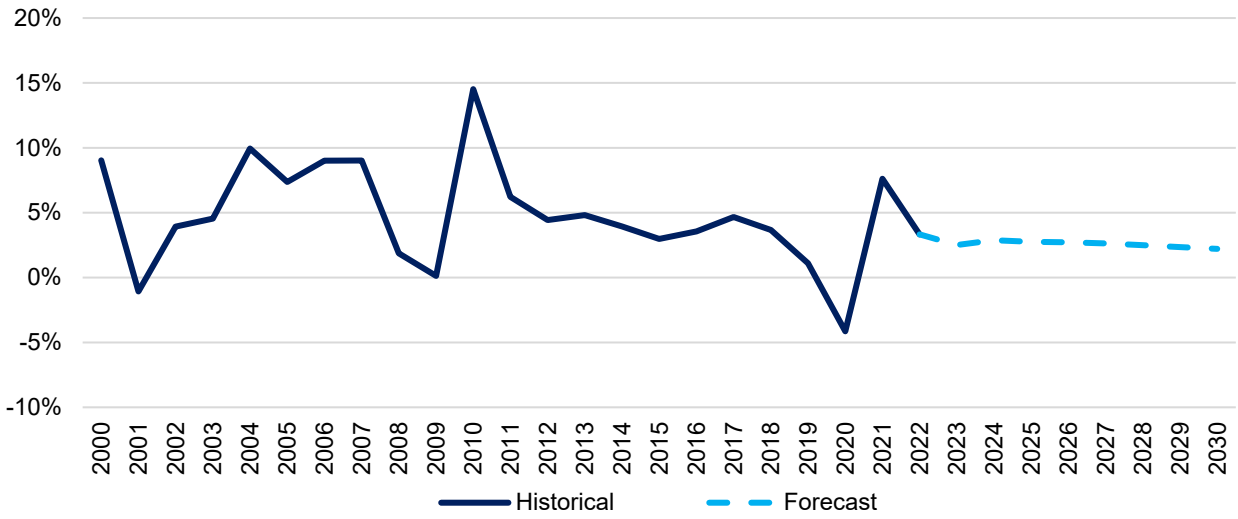
[7] World Development Indicators, *World Bank,* accessed 2022 https://datacatalog.worldbank.org/search/dataset/0037712
[8] National accounts data, *World Bank,* 2020 https://data.worldbank.org/indicator/NV.SRV.TOTL.ZS?locations=SG
[9] Labour Market Report, *Manpower Research & Statistics Department,* 2021 https://stats.mom.gov.sg/Pages/Labour-Market-Report-4Q-2021.aspx
[10] The Global Competitiveness Report, *World Economic Forum,* 2019 https://www3.weforum.org/docs/WEF_TheGlobalCompetitivenessReport2019.pdf
[11] Doing Business report, *World Bank*, 2020 https://www.worldbank.org/en/programs/business-enabling-environment/doing-business-legacy
[12] The Global Financial Centres Index, *China Development Institute,* 2020 http://en.cdi.org.cn/images/research/gfci/gfci-27-report.pdf
[13] World Integrated Trade Solution, *World Bank*, 2019 https://wits.worldbank.org/CountryProfile/en/Country/SGP/Year/2019/TradeFlow/EXPIMP/Partner/WLD/Product/All-Groups
[14] Singapore's Emerging AgriTech Ecosystem, *UNDP Global Centre for Technology, Innovation and Sustainable Development,* accessed 2022 https://sgtechcentre.undp.org/content/sgtechcentre/en/home/blogs/sg-agritech-ecosystem.html

investments and capital inflows from North and South America. In 2020, more than half of Singapore's total FDI stock was in the finance and insurance industry.[15]

In recent years, Singapore has established itself as a world-leading technological hub, topping KPMG's global technology innovation rankings (excluding Silicon Valley and San Francisco), ahead of the likes of New York City, Tel Aviv and Beijing.[16] The ranking measures factors such as attractiveness of the destination to young professionals, the stock of skilled talent and the quality of modern infrastructure. Moreover, to support growth in the technology industry, Singapore aims to raise digital literacy in the current labour force through lifelong education, which is likely to result in greater employment in sectors such as software, biotechnology and electronics in future. Growth in the biopharmaceutical industry has been substantial over the last decade, owing to Singapore's expansive manufacturing capabilities, innovation ecosystem and high-quality human capital stock. The Covid-19 pandemic also boosted output growth and employment in the sector, with the surge in global demand for vaccines causing pharmaceutical companies to accelerate production.

In 2020, Singapore's economy contracted by 4.1 per cent as the spread of Covid-19 caused significant global demand and supply-side shocks, leading to a sharp decline in private consumption, investment and international trade. To help mitigate the economic shock, the government announced a substantial fiscal package amounting to around 20 per cent of GDP. The measures included tax reductions, business grants and job-loss support. Despite the generous fiscal interventions, Singapore's annual unemployment rate still rose by 0.7 percentage points to 3 per cent in 2020.[17]

Figure 3: Singapore's real GDP growth



Source: Haver Analytics / Oxford Economics

[15] Foreign Direct Investment in Singapore by Investor Source, *Department of Statistics Singapore,* 2020 https://www.singstat.gov.sg/find-data/search-by-theme/trade-and-investment/foreign-direct-investment/visualising-data/foreign-direct-investment-in-singapore-dashboard
[16] Singapore Tops 2021 Ranking for Leading Technology Innovation Hubs: KPMG Survey, *KPMG,* 2021 https://home.kpmg/sg/en/home/media/press-releases/2021/07/singapore-tops-2021-ranking-for-leading-technology-innovation-hubs-kpmg-survey.html
[17] Labour Market Report, *Manpower Research & Statistics Department,* 2021 https://stats.mom.gov.sg/Pages/Labour-Market-Report-4Q-2021.aspx

In 2021, Singapore's economy bounced back strongly, with growth of 7.9 per cent on the back of the successful deployment of Covid-19 vaccinations, easing of border restrictions and the recovery in global demand for Singapore's exports. Growth was recorded in most sectors, with construction experiencing the strongest growth at around 20 per cent in the fourth quarter, as private and public investment rebounded.

Looking ahead, according to Oxford Economics, Singapore's GDP is expected to grow by an average of 2.8 per cent between 2022 and 2024. This relatively moderate expansion is reflective of the economic challenges faced by Singapore in the near/medium term. Singapore's reliance on international trade, slowing global growth, heightened geopolitical tensions and rising commodity prices are expected to weigh on Singapore's trade balance. This is likely to be exacerbated by the growth slowdown in China - Singapore's largest trading partner.

As the global economy moves into a higher inflationary environment, the Monetary Authority of Singapore has commenced monetary tightening in order to contain the effects of higher commodity prices, tight labour market conditions and supply chain disruptions. This comes as the government returns to fiscal prudence, announcing a series of tax rate hikes and fiscal consolidation plans. Nevertheless, despite the dampening effects of tighter monetary policy and contractionary fiscal policy, Singapore continues to attract international investment in sectors such as high-tech and services. In the long term, Singapore's ageing population, owing to low fertility rates and increased life expectancy, will continue to put downward pressure on both economic growth and labour force productivity.

While in most countries around the world, interest rates are the primary tool used in conducting monetary policy, in Singapore monetary policy is centred on the exchange rate, which is the more effective tool for maintaining price stability in its small and very open economy.[18] Hence, long run trends in the Singapore dollar are largely reflective of the central bank's monetary policy decisions to control domestic economic activity and inflation. Nevertheless, over the last ten years, Singapore's exchange has remained relatively stable against major currencies including the US dollar, euro and pound sterling. Looking ahead, Oxford Economics expects continued exchange rate stability, with a large current account surplus and ample foreign reserves providing a buffer against volatility. A moderate appreciation of the Singapore dollar is expected versus other major currencies in the period to 2030, which will provide a boost to the international purchasing power of Singaporean students abroad.

3.3 Government and education policy

In 1959 Singapore was granted independence from British rule, becoming a self-governed sovereign state. In 1963, Singapore merged with Malaysia to become a state within the federation, although separated after two years under The Republic of Singapore Act 1965, regaining its legislative and authoritative powers. Singapore is now a democratic society following the Westminster parliamentary model where the legislative agenda of Parliament is directed by the Cabinet, who have control over both the Government and the direction of legislation and

[18] Singapore's Exchange Rate-Based Monetary Policy, *Monetary Authority of Singapore,* accessed 2022 https://www.mas.gov.sg/-/media/MAS/Monetary-Policy-and-Economics/Monetary-Policy/MP-Framework/Singapores-Exchange-Ratebased-Monetary-Policy.pdf

policymaking. The President, Madam Halimah Yacob (the first ever female President) oversees the Cabinet and the Parliament, although largely acts as a ceremonial figure. Each parliamentary period lasts for a maximum of five years, after which a general election is held where the President appoints a Prime Minister to lead the government and the 93 parliamentary members.

Since its independence from British colonial rule, Singapore's government has only ever been led by the centre-right People's Action Party (PAP) which was originally formed by Lee Kuan Yew (Prime Minister from 1959 to 1990). Since 2004, his son Lee Hsien Loong has served as the PAP's leader. Much of the PAP's success can be attributed to Singapore's continual growth in standards of living, high levels of investment into infrastructure and education, forward-thinking economic policies and control over corruption. However, there are concerns that the PAP's political dominance restricts the formation of alternative policies and viewpoints.

The MOE administers public education through its 17 division and its responsibilities involve formulating and implementing education policies, developing the national curriculum and regulating government-funded educational institutions. The Higher Education Group oversees Singapore's six autonomous universities, polytechnics, the Institute of Technical Education, Institutes of Art, and private education institutions (PEIs). It is also now responsible for the management of "lifelong education" which aims to provide individuals with the opportunity to continually learn and develop news skills throughout their adult lives. Meanwhile, the Schools Division oversees the nation's primary, secondary and post-secondary institutions to ensure continued growth and development.

According to the World Bank, government expenditure on education amounted to around 2.6 per cent of Singapore's GDP in 2019 and is used to fund state education, government-assisted private education and the Edusave programme.[19] This is a relatively low share compared to regional peers such as Hong Kong (3.8 per cent) and Malaysia (4.2 per cent) and the world average (3.7 per cent).[20] However, the low share in Singapore is reflective of its extremely high GDP per capita levels and indeed Singapore's education expenditure represents a significant share of its total government spending (around 20 per cent).[21]

Key education initiatives in Singapore include:

ICT in Education[22]: Since 1997 the MOE has implemented four ICT in Education Masterplans which provide institutions with blueprints of how to integrate technological advancements into student learning journeys. The first masterplan (mp1), which established the foundation for future ICT learning, equipped teachers with a basic digital competency which could then be passed down to students through ICT classes and workshops. Six years later, the MOE announced its second blueprint (mp2), which addressed students' lack of access to ICT equipment by providing schools with new computers and network hardware, enabling them to develop a baseline understanding of digital technology. Moreover, now that schools had access to sufficient digital infrastructure, the MOE began integrating ICT classes and assessments into the national curriculum. The third Masterplan (mp3) intended to enrich students' learning environments by

[19] Edusave programme www.moe.gov.sg/financial-matters/edusave-account/overview
[20] Government expenditure on education, *World Bank*, 2019 https://data.worldbank.org/indicator/SE.XPD.TOTL.GD.ZS
[21] Education Statistics Digest, *Ministry of Education*, 2021 https://www.moe.gov.sg/about-us/publications/education-statistics-digest
[22] Educational technology journey, *Ministry of Education Singapore*, 2021 https://www.moe.gov.sg/education-in-sg/educational-technology-journey

encouraging collaborative learning spaces as well as self-directed learning. The final ICT in Education Masterplan (mp4) focused on incorporating the MOE's 21st Century Competencies into digital education. In 2019 the programme was renamed the Educational Technology (EduTech) Plan to better reflect the rapid developments in technology and the drive toward value-centric education as set out in the MOE competencies. The recent Digital Economy Agreement (DEA) between the UK and Singapore governments highlight both countries' ambitions to enhance the digital learning space to ensure that children's learning experiences can evolve with the rapid developments in the digital economy.

Global Schoolhouse initiative[23]: In 2002 the Singaporean government announced its "Global Schoolhouse" initiative which aimed to make Singapore a world education centre providing educational programs of all types and at all levels. To achieve this goal, three objectives were established: to develop partnerships with international education institutions, to continually improve the local institutions and enterprises, and to attract international students to Singapore. In order to achieve the targets, the EDB provided substantial economic incentives to encourage foreign higher education institutions (HEIs) to open in Singapore. For example, the Lee Kong Chian School of Medicine was opened in 2017 as a part of a partnership between the Nanyang Technological University (NTU) and Imperial College London with the aim of becoming a world leader in innovative medical education and research, whilst supporting domestic advancements in healthcare.[24] In 2009, the Global Schoolhouse initiative shifted focus toward building industry-relevant manpower capabilities and helping to attract, develop and retain talent for Singapore's economy. Accordingly, the emphasis of the initiative is now on quality of education and relevance to the economy, and not on student numbers or GDP share.

Campus for Research Excellence and Technological Enterprise (CREATE) [25]: Following the enactment of the "Global Schoolhouse" initiative, the National Research Foundation (NRF) launched CREATE. Through cross-institution collaborations, the programme aims to encourage students to engage in cutting edge innovations as well as to provide a central research hub for students and researchers. As a part of CREATE, the Cooling Singapore project was initiated in 2017, which aims to develop cooling strategies to tackle the rising temperatures in Singapore, predominantly caused by the urban heat island effect. In 2020, researchers announced the "digital twin" simulator which can be used to model the various sources of outdoor heat production to inform policy decisions.[26]

Framework for 21st Century Competencies (21CC) and Student Outcomes[27]: To provide students with a transparent pathway to achieving the Desired Outcomes of Education (DOE), the MOE has established a framework of competencies and core values. The framework comprises three main pillars: i) core values, ii) social and emotional competencies, and iii) civic literacy, global awareness and cross-cultural skills which underpin the objectives of the national curriculum. The successful implementation of the 21CC aims to ensure that students can become

[23] The Global Schoolhouse Initiative, accessed 2022 https://theglobalschoolhouse.org/
[24] Lee Kong Chian School of Medicine, *Nanyang Technological University*, accessed 2022 https://www.ntu.edu.sg/medicine
[25] CREATE, *National Research Foundation,* accessed 2022 https://www.create.edu.sg/#:~:text=The%20Campus%20for%20Research%20Excellence,research%20centres%20from%20top%20universities.
[26] Digital model of Singapore being built for study on tackling heat, *The Strait Times,* 2020 https://www.create.edu.sg/docs/default-source/news-report/digital-model-of-s'pore-being-built-for-study-on-tackling-heat-environment-news-top-stories---the-straits-times-20200910110350 2906.pdf
[27] 21st Century Competencies, *Ministry of Education,* 2021 https://www.moe.gov.sg/education-in-sg/21st-century-competencies

confident and self-directed learners, active contributors and concerned citizens, that are able to navigate through the increasingly globalised world.

SkillsFuture[28]: Announced in 2014, SkillsFuture is a national movement which aims to promote skills mastery and foster a nation of lifelong learners, ensuring the continuous evolution of Singaporeans' skillsets and knowledge. The movement focuses on re-engaging adults with the education system as well as increasing ICT literacy by expanding citizens access to high-quality education and training. Some notable achievements of the SkillsFuture initiative include the formation of partnerships between maritime and manufacturing industry-leading companies, the development of training opportunities in the tech-sector and the creation of new mid-career pathways in finance, accounting and data analytics.[29]

Lifelong Learning[30]: In February 2022, Minister Chan Chun Sing emphasised the importance of shifting the rhetoric away from frontloading education and towards lifelong learning, calling on students to become EELs (Eternal and Engaged Learners). In his speech, Chan Chun Sing referred to several new programmes aimed at shaping the fundamental values of the Singaporean education system. For example, the three C's: Continual Learning, Connections and Collaboration for Value Creation and Confidence Building offer students a benchmark to help them thrive and achieve their potential. This comes as the government recognises the rapid pace of technological development, rendering many skills of the workforce redundant. In response to this, the MOE seeks to shift students' learning approach towards a continuous process, helping to keep up with the skills required by the domestic and foreign labour market.

Online learning has moved to the forefront of the MOE's agenda as the government recognises the importance of evolving with technological developments. Following the pandemic, online and distance learning has been integrated into the education system at all levels. In a recent interview for Bloomberg's ASEAN Business Summit, Singapore's education minister announced plans to make online self-accessed learning a routine feature in both the primary and secondary learning environments, allowing students to learn at their own pace whilst reducing teachers' workload.[31] The education minister also emphasised the importance of technology for fostering innovation and creativity as students become more familiar with technology and its potential. To ensure the successful uptake of online learning, the government has provided Singaporean households with digital infrastructure to ensure that all students have access to online learning and the internet. At present 90 per cent of Singaporeans are able to access the internet although the government seeks to increase this to full coverage.

[28] SkillsFuture, *Government of Singapore*, accessed 2022 https://www.skillsfuture.gov.sg/
[29] SkillsFuture Singapore annual report, *SkillsFuture,* 2020/21 https://www.ssg-wsg.gov.sg/content/dam/ssg-wsg/ssgwsg/about/skillsfuture-singapore-annual-report-fy20.pdf
[30] Building Excellence in Higher Education: Singapore's Experience, *Ministry of Education,* 2022 https://www.moe.gov.sg/news/speeches/20220221-speech-by-minister-chan-chun-sing-at-the-launch-of-prof-arnoud-de-meyers-book-building-excellence-in-higher-education-singapores-experience-at-the-singapore-management-university
[31] Singapore's Chan Sees More Online School Learning in Covid Shift, *Bloomberg,* 2022 https://www.bloomberg.com/news/articles/2022-03-16/singapore-s-chan-sees-more-online-school-learning-in-covid-shift

4 Domestic Education Environment

4.1 Overview

Singapore's education system is consistently ranked as one of the highest quality in the world according to both the OECD and the PISA. Much of this success can be attributed to the MOE's agile, responsive and forward-thinking approach to education.

In 2020, there were 343 schools in Singapore with a total enrolment across primary, secondary and post-secondary education levels of 420,726 and an average class size of 32. As such, Singapore's class sizes are larger than in other developed nations such as the UK (27)[32] and the US (25).[33] In 2020/21 approximately 72 per cent of Singapore's school were government-run, 22 per cent were government-aided, with the rest funded independently. Recurrent[34] government spending on education amounted to S$12.1m (£6.8m) in 2020/21 and has grown steadily over the last two decades with spending in 2020/21 being 90 per cent higher than in 2006/07. Broken down, government spending per pupil amounts to S$11,265 (£6,330), S$14,474 (£8,133) and S$16,333 (£9,178) for primary, secondary and post-secondary students respectively.[35]

In the latest EF English Proficiency Index Report (2021), which evaluates English skills across 112 countries, Singapore was ranked first in Asia and fourth in the world after the Netherlands, Austria and Denmark.[36] One of the key driving forces behind Singapore's high ranking is that throughout its education system, English is the predominant medium of instruction, with students' mother tongue being taught as a second language.

Singapore has some of the world's highest educational attainment rates with 57 per cent of its population having completed post-secondary education, compared to considerably lower rates in regional peers such as Hong Kong (31 per cent) and Malaysia (23 per cent).[37] Singapore also has extremely high literacy rates with 98 per cent of people aged over 15 being fully literate.[38] In 2018, Singapore's mean years of schooling was 11.5, comparable to other developed countries such as Belgium (11.8) and France (11.4), according to UN Data.[39]

Despite Singapore's high educational attainment and top-ranking universities, there are intrinsic issues within the education system. At all levels of learning, the intense academic environment, as well as the broader focus on meritocracy leaves students subject to immense pressures to perform well, often leading to high levels of stress and anxiety. This is exacerbated by the MOE's ambitious benchmarks and progress trackers such as the DOE and Key Competencies. While Singaporean graduates are often criticised for their lack of soft skills such as adaptability and creativity, recent global rankings where students have performed very well in collaborative

[32] Schools, pupils and their characteristics, *Office for National Statistics,* 2020/21 https://explore-education-statistics.service.gov.uk/find-statistics/school-pupils-and-their-characteristics
[33] National Teacher and Principal Survey, *National Center for Education Statistics,* 2020 https://nces.ed.gov/surveys/ntps/
[34] Recurrent education spending includes all education payments other than for capital assets
[35] Education Statistics Digest 2021, *Ministry of Education*, 2021 https://www.moe.gov.sg/about-us/publications/education-statistics-digest
[36] EF English Proficiency Index, *English First*, 2021 https://www.ef.com/assetscdn/WIBIwq6RdJvcD9bc8RMd/cefcom-epi-site/reports/2021/ef-epi-2021-english.pdf
[37] Institute for Statistics, *UNESCO*, 2019 http://uis.unesco.org/
[38] Institute for Statistics - Singapore, *UNESCO,* 2019 http://uis.unesco.org/country/SG
[39] Human Development Indices, *United Nations Development Programme*, 2019 https://hdr.undp.org/en

problem-solving and global competency tell a different story.[40] Nevertheless, policy makers accept that there is room for improvement, and have embarked on measures to reduce the focus on assessments at various levels of the education system. Mid-year and end-of-year assessments have ceased at various primary levels, streaming of students at the secondary level based on their academic performance is being phased out; and by 2027, a common national examination is set to replace the current secondary examination system. Furthermore, acknowledging that the traditional system of front-loading education could result in graduates entering future labour markets with skills that may no longer be relevant, the government is stepping up initiatives to embed lifelong learning into the higher education system. These include work-study initiatives, micro-credentials that could add up towards academic credits, and adapting the teaching-learning ecosystem to cater to adult learners. Recognising the importance of the arts in fostering more creative thinkers, Singapore has also announced plans to open its first Arts university.

4.2 Early years, primary, secondary

The earliest form of education in Singapore is pre-school, which is available but not compulsory for children under the age of seven. These schools are operated by private companies, community groups and charities offering half or full-day care and are fee-paying, ranging from S$150 (£84) to S$2,000 (£1,123) per month. The purpose of pre-school is to assist children with their early educational development in preparation for compulsory primary education. In 2000, the Compulsory Education Act stipulated that all children between the ages of six and 15 years (excluding students with disabilities) must enrol and regularly attend primary education. Parents who fail to ensure that their children attend school regularly can be fined or imprisoned.

At the primary level, students embark on a six-year course that aims to develop their literacy, numeracy and problem-solving skills, alongside the cultivation of strong social and moral principles. Students are taught English language, mathematics, science and mother tongue with additional classes in art, music, social studies and physical education. Teaching styles and assessments are tailored to accommodate students of all abilities. In the final year of primary education (aged 10-11) students take the Primary School Leaving Examination (PSLE) which assesses their academic capabilities to determine secondary school admission and subject choice. Alternatively, individuals who are talented in sports or arts can go through the Direct School Admission exercise. High-performing students have the opportunity to enrol on the Gifted Education Programme.

After completing Primary 6, students are allocated three bands of four-year lower-secondary level courses based on their performance in the PSLE and their interests. The three streams include the Express, Normal Academic N(A) and Normal Technical N(T) courses and offer the same course of study, but Express is accelerated and N(T) is more focussed on applied training. The highest scoring students are admitted to the Express Course, which lasts for four years and leads

[40] Singapore's 15-year-olds top 'global competence' assessment: PISA study, *Channel News Asia,* 2020 https://www.channelnewsasia.com/singapore/pisa-study-singapore-students-global-competence-assessment-971441

to the Singapore-Cambridge General Certificate of Education (GCE) O-Level examinations. Students who perform well in their O-Level examinations and want to go to university then progress to either a Junior College or Centralised Institute for two or three years of study, respectively, in preparation for the GCE A-Level examinations or International Baccalaureate (IB) diploma. Students who achieve either A-Level or IB qualifications are then eligible to progress to international universities including in the UK.

The second band is the N(A) Course which lasts for four to five years and leads to GCE N(A)-Level examinations. Thereafter, students can embark on the three year Higher-Nitec programme at the Institute for Technical Education (ITE) or the two-year Polytechnic Foundation Programme or Direct-Entry-Scheme to Polytechnic Programme which enables entry to one of the Polytechnics in the future. Alternatively, high-achieving normal academic students are offered the opportunity to progress to the O-Level examination or move straight to the O-Level exam under the Through-Train programme. This then allows students to take the GCE A-Level or IB diploma examinations at one of the Junior Colleges or Centralised Institutes before progressing to university.

Students in the third band of PSLE performance progress to the four-year N(T) Course which leads to the GCE N(T)-Level exam. Students who intend on pursuing further education at one of the Polytechnics must attend the two-year ITE Nitec and Higher Nitec courses.

To provide more flexibility at the secondary level, the MOE piloted the Subject-Based Banding (SBB) system in 2018. Through SBB, students have the opportunity to take some subjects at a higher-level midway through their studies.

The benefits of the more flexible SBB system have been recognised by the MOE, prompting it to be rolled out throughout all secondary schools between 2020 and 2024. In doing so, students will be able to take subjects at all different academic levels. In addition, from 2027 onwards, students will be assessed by a common national examination receiving the Singapore-Cambridge Secondary Education Certificate which will replace the current Singapore-Cambridge GCE Normal-Technical, Normal-Academic and O-Level certificates.

4.3 Technical & vocational education and training

Singapore recognises the importance of TVET, offering students the choice of eight institutions including three colleges under the ITE and five polytechnics. According to the MOE, in 2020 there were 66,933 students enrolled at the polytechnics. Around 30 per cent of students participated in the engineering sciences course and 20 per cent in the business and administration course. Similarly, of the 27,825 students enrolled at the ITE, 30 per cent and 26 per cent of students were enrolled in engineering and business & services respectively.[41]

TVET institutions provide students with the opportunity to embark on courses which aim to develop technical skills through practice-oriented workshops and training, whilst working towards a diploma qualification. Many of the programmes are run in conjunction with industry partners where individuals can participate in work experience in order to gain real-world skills and on-the-job training. To be admitted to one of the polytechnics or ITE colleges, students must have either

[41] Education Statistics Digest, *Ministry of Education,* 2021 https://www.moe.gov.sg/about-us/publications/education-statistics-digest

O-Levels, top scoring N(A) results or ITE's Nitec and Higher Nitec qualifications. Students who want to work alongside their studies can enrol in the Work-Study Diploma courses at the ITE. This programme lasts two and a half to three years and offers students a structured on-the-job training programme whilst earning a salary. Furthermore, part-time courses are also offered for adult working professionals who want to deepen their knowledge and extend their skills whilst obtaining an Advanced Diploma or a Specialist Diploma.

As a part of Singapore's commitment to TVET, as discussed earlier the government announced the SkillsFuture initiative in 2014.[42] The programme set out four main goals which aimed to: (i) assist individuals' decision-making, (ii) provide students with an integrated high-quality education and training system to meet the needs of the labour market, (iii) encourage employers to recognise career development and skills mastery and (iv) foster a culture of continuous learning and development. As a testament to the success of SkillsFuture, in 2019, 65 per cent of students who went onto post-secondary education studied vocational education programmes. Of these students, 25 per cent were admitted to ITE and 40 per cent were enrolled at the polytechnics.[43] In 2019, 90 per cent of ITE graduates received job offers within six months of graduating. At the same time, some diplomas enabled graduates to continue to higher education.

4.4 Higher education

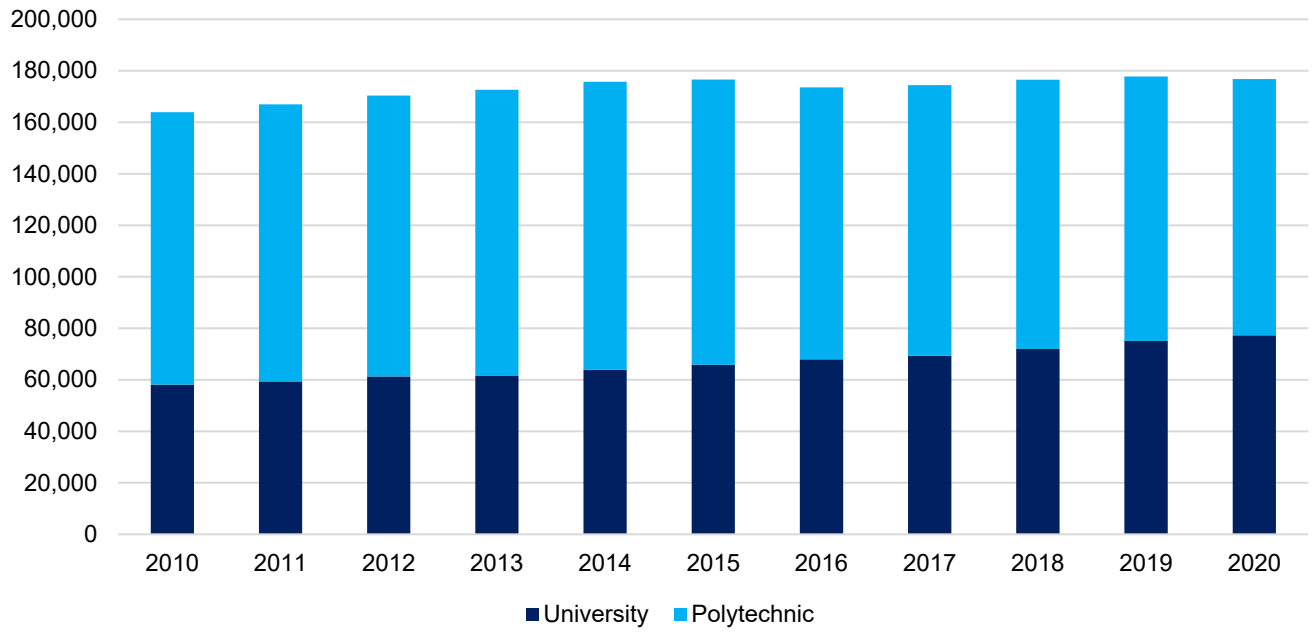
Singapore has one of the most prestigious higher education systems in Asia, comprising of six publicly funded autonomous universities. The National University of Singapore (NUS) and NTU are the top two universities in Asia, ranking 11th and 12th in the QS World University Rankings 2022.[44] Broadly, Singapore's universities can be split into two types: academic research-intensive universities such as the NUS, NTU, the Singapore Management University (SMU) and the Singapore University of Technology and Design (SUTD); and more applied-degree institutions which offer industry exposure and practical training such as the Singapore Institute of Technology (SIT) and the Singapore University of Social Sciences (SUSS). University admissions are overseen by the institution, providing them with the ability to set their own entrance examinations or qualification requisites. In order to be considered for a place at a Singaporean university, students must have either Singapore-Cambridge GCE A-Levels, a Diploma from a Polytechnic, International Baccalaureate or NUS High School Diploma, although there are exceptions for international students on different examination boards.

Despite the steady decline in the student age population since 2015, total higher education enrolment has remained relatively stable. Total university enrolment reached 77,288 in 2020 (up by 33 per cent from 2010), accounting for 44 per cent of total tertiary education enrolments.[45] Part of this upward trend can be attributed to the substitution away from polytechnic institutions, where enrolment rates declined by 6 per cent during the period from 2010 to 2020. Nevertheless, in

[42] SkillsFuture, *Ministry of Education,* accessed 2022 https://www.skillsfuture.gov.sg/
[43] Building a future economy with TVET at its heart, *World Skills UK,* 2019 https://www.worldskillsuk.org/wp-content/uploads/2020/10/rsa_wsuk_singapore-case-study-07-11-19.pdf
[44] QS World University Rankings, *QS World University Rankings,* 2022 https://www.topuniversities.com/qs-world-university-rankings
[45] Intake, Enrolment and Graduates by Institutions, *Data.gov.sg*, 2021 https://data.gov.sg/dataset/intake-enrolment-and-graduates-by-institutions?view_id=9128a6bc-94e5-4806-8772-c3a94c1d0d90&resource_id=be05b06d-1042-45de-a35b-5a5e04e7c704

2020 combined university and polytechnic enrolments increased by around 8 per cent compared to 2010, reaching 177,803 students.

Figure 4: Singapore higher education enrolments



Source: Ministry of Education

Although universities are funded by the government, tuition fees are still relatively high, especially for non-nationals and for those not receiving grants from the MOE. For example, tuition fees at the NUS can range from S$8,250 ($4,634) per annum for grant-receiving Singapore citizens studying design and engineering, to S$166,750 (£93,670) per annum for international medicine students who do not receive a grant.[46] Not only does this create a large socio-economic disparity within university courses, but it also heavily influences subject choices, which shapes the skills and knowledge entering the labour market. Notably, all Singapore citizens automatically receive the MOE Tuition Grant upon enrolment in a full-time degree or diploma course, resulting in up to 90 per cent subsidy of tuition fees.[47] Coupled with the high-quality educational provision, these subsidies have contributed to the local universities being the first choices for tertiary education for most Singaporeans.

In recognition of the expansive opportunities within the online education sector, digital courses have also been provided under the MOE SkillsFuture initiative. According to the government's MySkillsFuture platform, there are currently 25,436 online courses available to student and adult learners in Singapore, ranging from entry level training to Master's and Doctorate level courses.[48] Approximately half of these courses are run by Singapore's six universities and five polytechnics, offering both blended or online degree courses. The remainder of SkillsFuture courses are in

[46] Undergraduate Student Tuition Fees 2022/23, *National University of Singapore,* 2022 https://www.nus.edu.sg/registrar/docs/info/administrative-policies-procedures/ugtuitioncurrent.pdf
[47] MOE Tuition Grant Eligibility, *MOE,* accessed 2022 https://tgonline.moe.gov.sg/docs/A-Eligibility-AUs.pdf
[48] MySkillsFuture, *Ministry of Education*, accessed 2022 https://www.myskillsfuture.gov.sg/content/portal/en/training-exchange/course-directory.html?fq=Course_Supp_Period_To_1%3A%5B2022-03-29T00%3A00%3A00Z%20TO%20*%5D&fq=IsValid%3Atrue&q=*%3A*

partnership with some of Singapore's leading corporations which offer formal training and vocational courses to assist students with the transition into work. In line with the MOE's vision of learning as a continual process, many of these courses are aimed at adult learners to help diversify their skillsets and to ensure that they evolve in pace with the ever-changing technological landscape.

According to a study by Singapore's Ministry of Manpower (MOM), the proportion of resident trainees who attended job-related structured online learning courses had doubled to 52 per cent in 2020 compared to 2019.[49] This figure includes resident trainees aged 15 and above who attended online classroom training, private lessons, and work-learn programmes such as the SkillsFuture Earn and Learn programme. The study also found that people aged between 40 and 49 were the most likely to take up online training as opposed to face-to-face training, highlighting the willingness of adult learners to maintain relevant skills and engage with new methods of education. Of those who attended online learning, around 73 per cent said that they would like online learning to be made permanently available after the pandemic. This highlights the growing preference for a more flexible learning experience.

[49] Online Training in Singapore, *Ministry of Manpower*, 2021 https://stats.mom.gov.sg/Pages/e-learning-in-Singapore.aspx

5 International Education

5.1 Student mobility

According to UNESCO, there were 23,456 outbound internationally mobile tertiary students from Singapore in 2019, down 7.2 per cent from the peak of 25,293 in 2016[50]. Prior to this peak, outbound student volumes had been on an upward trajectory, driven by the lack of domestic capacity historically and fierce competition for the limited places at Singaporean universities, forcing many students to study abroad. According to UNESCO, in 2019 Australia, the UK, the US and Canada hosted 82 per cent of total outbound Singaporean students.

At the pre-tertiary level, outflows of students to the UK are small. This is largely because Singaporeans already have access to world-leading primary and secondary education offering internationally recognised qualifications such as the Cambridge GCE O-Levels and A-Levels.

As a member of the Commonwealth of Nations and a former British colony, educational relations between Singapore and the UK remain strong at the higher education level. Between 2009/10 and 2015/16, Singaporean enrolment in UK higher education programmes almost doubled. At the peak in 2015/16, there were 6,650 Singaporean undergraduates and 1,495 postgraduate studying in the UK. However, since then, outbound students to the UK have declined year-on-year, with 5,345 undergraduates (down 20 per cent) and 1,350 postgraduates (down 10 per cent) enrolled at UK HEIs in 2020/21. The gradual reduction in the number of Singaporean students after 2015/16 can be explained by two main factors. First, cultural shifts have led individuals to marry later or not at all, leading to lower fertility rates and consequently a declining student aged population over recent years. Second, Singaporean universities have continued to improve and move up the world rankings, while additional capacity has been added raising the annual intake and accommodating students to progress through the domestic education system. In doing so, enrolment in domestic university programmes has risen, reducing the need for students to seek international education.

The decline in Singaporean students in the UK accelerated in 2020/21 after the onset of the Covid-19 pandemic, with undergraduate and postgraduate student numbers falling by 11 per cent and 12 per cent respectively compared to 2019/20. For the most part, the decline in enrolments was due to the imposition of border restrictions to contain Covid-19 infections. In addition, many Singaporean universities increased their annual intake to accommodate those who had intended on studying internationally, lowering outbound student numbers further.

While UK study visas issued to Singaporeans increased in 2021 on the previous year, they remained 11 per cent below the pre pandemic number issued in 2019, indicating that only a partial recovery had materialised for the 2021/22 academic year. More recently, UCAS applications by the January 2022 deadline increased by 7 per cent on the previous year, indicative of continued recovery in undergraduate recruitment for the 2022/23 academic year.

[50] Global Flow of Tertiary-Level Students, *UNESCO,* 2019 http://uis.unesco.org/en/uis-student-flow

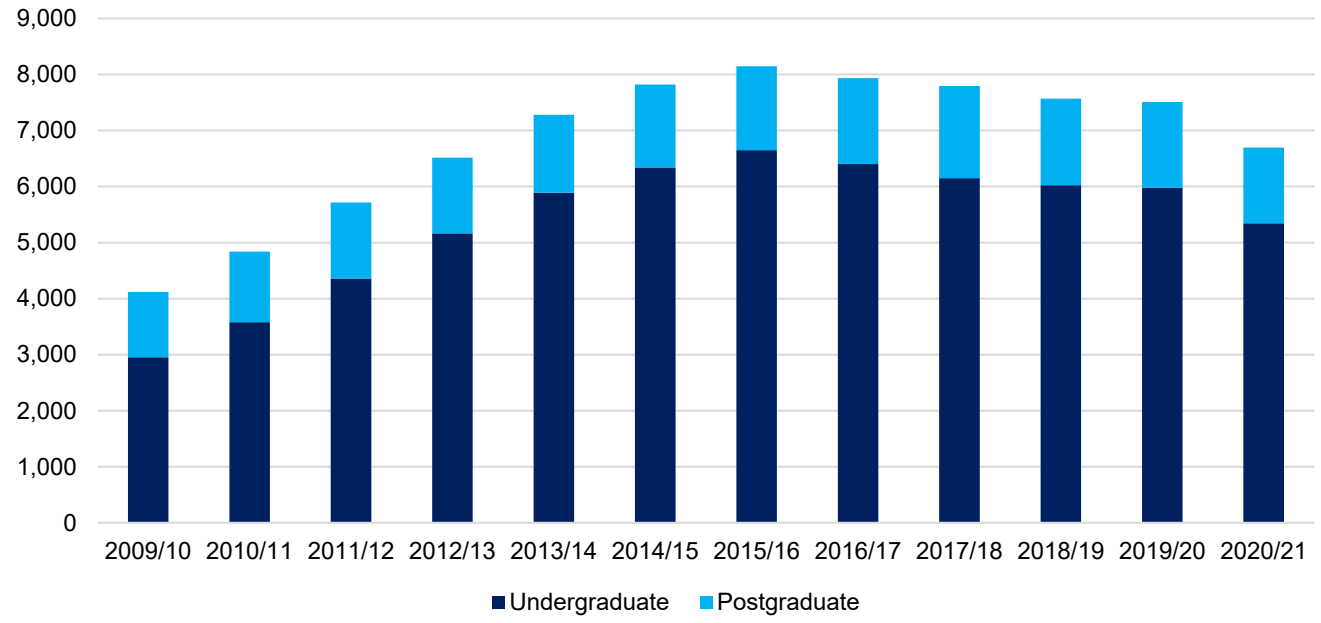
In the 2020/21 academic year, around 80 per cent of Singaporean students in the UK were studying at undergraduate level and 20 per cent at postgraduate level. These shares have remained relatively stable over the past decade.

Although the number of Singapore residents enrolled in domestic higher degree courses has been rising steadily over the decades (from 4,095 people in 1993 to 21,309 in 2019), in terms of local as well as overseas education, Singapore is largely an undergraduate market. Students tend to progress directly into employment upon completion of undergraduate study.[51]

Accordingly, the six autonomous universities conduct a Joint Graduate Employment Survey (GES) every year to collect information on the employment status of graduates around six months after the completion of their final examinations.[52] Data from the GES, particularly starting salaries, are frequently benchmarked against polytechnic diploma graduates and graduates from the PEIs.[53]

Currently, under the GREAT scholarship scheme, there are five postgraduate scholarships for Singaporean students at UK universities, worth a minimum of £10,000. Singaporean students also have access to the Royal Commonwealth Society scholarships and fellowships in innovation. At present, there are four scholarships offered by UK universities for Singaporean students, including the University of Cambridge, Kings' College London, the University of Warwick and the University of Manchester. Chevening scholarships for future leaders are also available to Singaporean students.

Figure 5: Singapore students in HE programmes in the UK

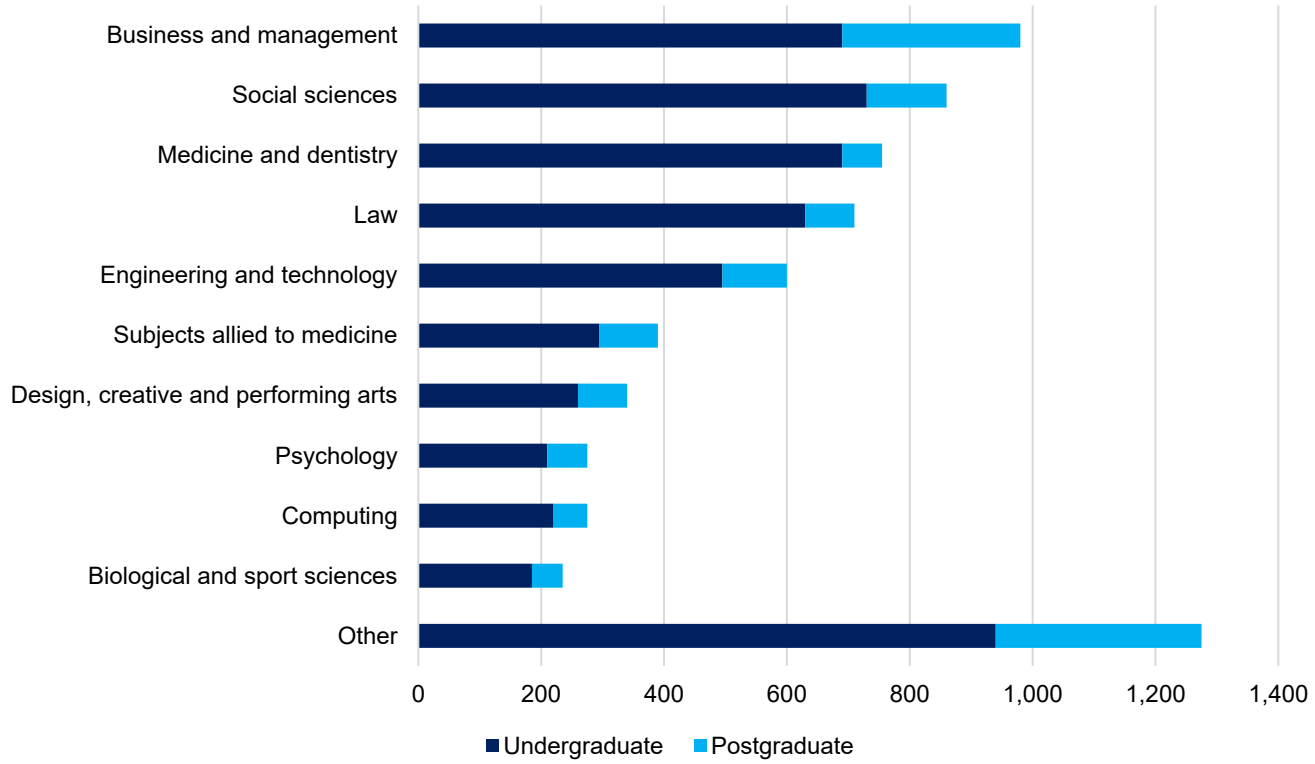


Source: HESA

[51] Thinking of pursuing a postgraduate degree to avoid a challenging job market? Think again, *Channel News Asia*, 2021 https://www.channelnewsasia.com/commentary/grad-school-masters-degree-apply-covid-recession-job-salary-career-tips-2200486
[52] Graduate Employment Survey, *Ministry of Singapore*, 2021 https://www.moe.gov.sg/-/media/files/post-secondary/ges-2021/joint-web-publication-4-aus-ges2021.ashx?la=en&hash=2CB3200A8C1B7D935D0253470072DE82DDF49B42
[53] Private Education Institution Graduate Employment Survey 2020/21, *SkillsFuture Singapore*, 2020/21 https://www.ssg.gov.sg/cpe/ges.html

In the 2020/21 undergraduate cohort from Singapore, social sciences was the most popular subject, representing 14 per cent of the overall total. The joint second most popular subjects were business and management, and medicine and dentistry (13 per cent each), followed by law (12 per cent) and engineering and technology (9 per cent). As for the 2020/21 postgraduate intake from Singapore, business and management was by far the most popular subject comprising 21 per cent of the total. The next four most popular subjects were social sciences (10 per cent), engineering and technology (8 per cent), subjects allied to medicine (7 per cent) and finally law, and design and creative performing arts, both representing 6 per cent of the total.

Figure 6: Subjects studied by Singapore HE students in the UK, 2020/21



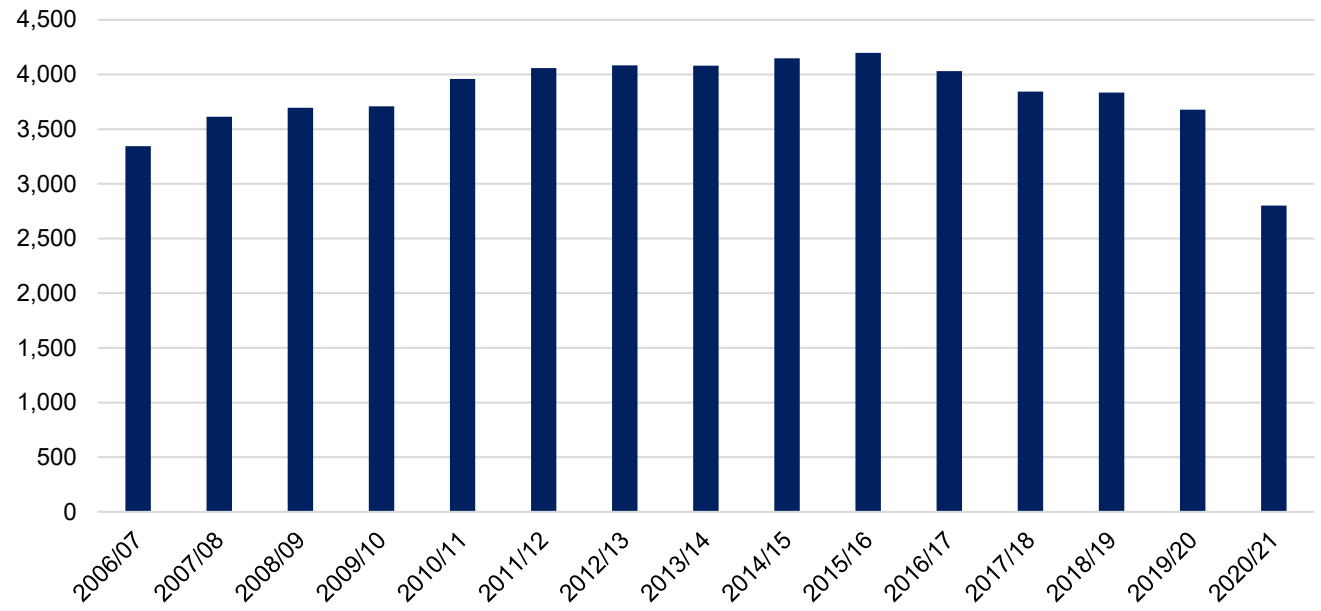
Source: HESA

Historically, a large proportion of Singaporean students have been enrolled at Russell Group institutions, with this share of total enrolments remarkably stable at around 70-75 per cent throughout the last decade, reflecting the importance that Singaporean students place on institution reputation. The Russell Group share of total enrolments has historically been slightly higher at the undergraduate level (70-80 per cent) compared to the postgraduate level (60-65 per cent).

At the institutional level, Singaporean students show a preference for London-based HEIs. For example, in the 2020/21 academic year, the most popular HEI for Singaporean undergraduate students was University College London (UCL), which hosted 470 students (9 per cent of total

undergraduate enrolments). The second most popular was Imperial College (335 students), followed by the University of London (315), the University of Cambridge (295) and the London School of Economics (295). At postgraduate level, the University of Oxford was the most popular, accounting for 10 per cent of the total postgraduate cohort (135 students), with London-based institutions also particularly popular.

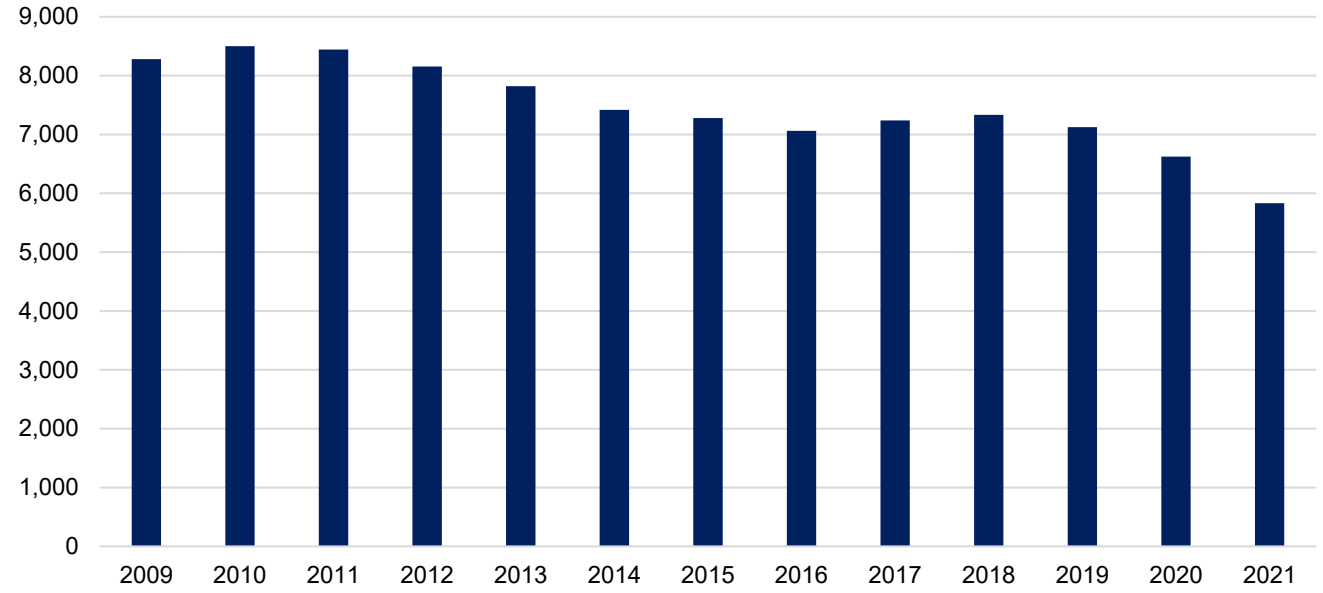
Figure 7: Singapore HE enrolments in the US



Source: IIE (OPT students excluded)

Between 2006/07 and 2015/16 consistent and steady growth in the number of Singaporean students enrolled at US universities was recorded, reaching a peak of 4,198 in 2015/16, up 24 per cent from 2006/07. However, since the peak in 2015/16, the number of enrolments has declined, falling to 2,801 in 2020/21, down 16 per cent compared to 2006/07 levels. Part of this downward trend can be attributed to the shrinking student aged population, compounded by the Trump administration's anti-immigration policies such as the introduction of HB-1 visas which placed restrictions on the ability of international students to remain or work in the US after graduation. However, the downward trend in Singaporean enrolments in the US accelerated in 2020/21, falling by 24 per cent from the previous year, as Covid-19 border restrictions prevented international travel. The contraction in Singaporean enrolments in US universities was more severe than the decline in total international student enrolments in the US, which fell by 16 per cent in 2020/21. This differential is likely to be explained by Singapore's prompt introduction of lockdown measures compared to other international student markets, compounding the already declining number of international students seen over recent years.

Figure 8: Singapore HE enrolments in Australia



Source: AusTrade

Historically, Australia has been the most popular destination for Singaporean outbound international students due to its high-quality universities, geographical proximity, attractive standard of living and post-study work and residency opportunities.[54] In 2010, the number of Singaporean students enrolled at Australian institutions reached its peak of 8,500. However, between 2010 and 2016 enrolments followed a downward trajectory, falling by 17 per cent. This downturn can partly be explained by the increase in verbal, physical and racial abuse towards immigrant students particularly from Asia, causing them to search for alternative education destinations. After 2016, Singaporean enrolment in Australia showed some signs of recovery, with year-on-year increases recorded in 2017 and 2018 due to a concerted effort from Australia to attract more international students through more accommodating post-study work policies and attractive international student scholarships for students choosing destinations out of Melbourne, Brisbane and Sydney.

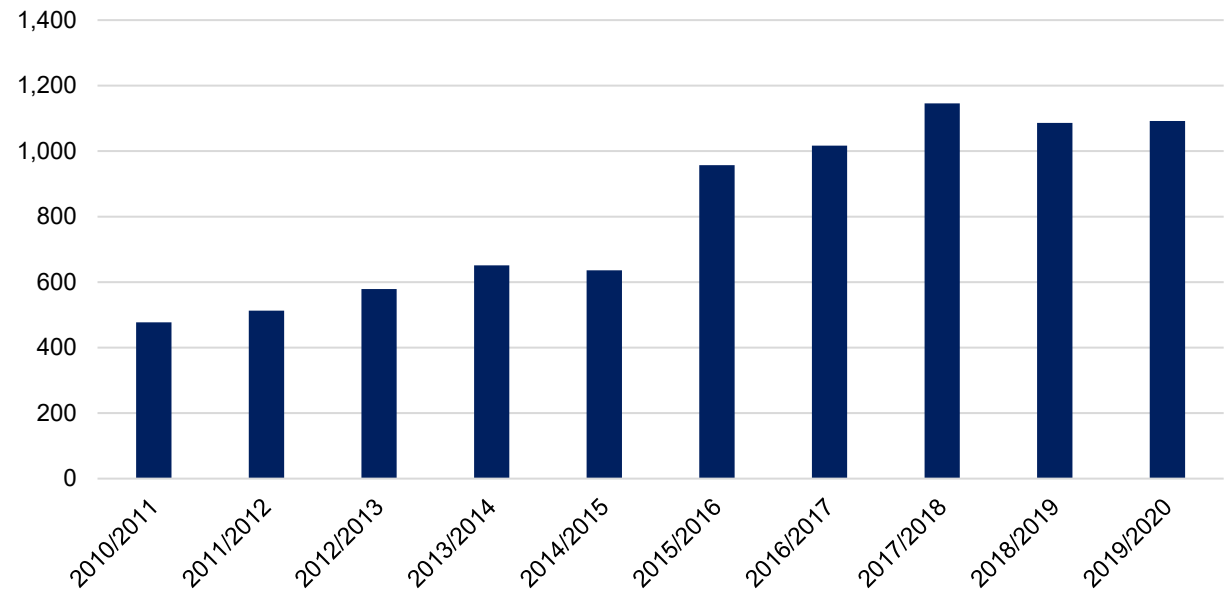
However, between 2018 and 2021, the flow of Singaporean students to Australia dropped by 20 per cent, likely due to a combination of factors including the declining student age population, increased capacity at Singaporean universities and the introduction of strict border controls deterring international students. Fear of further aggressive border and lockdown restrictions discouraged prospective students from applying to international universities, causing student visa applications to drop considerably. In addition, controversy surrounding compensation for the loss

[54] Singaporean Students' guide, *Studies in Australia,* accessed 2022 https://www.studiesinaustralia.com/studying-in-australia/your-nationality-guide/singaporean-students-guide

of university classes during the pandemic led many students to defer a year or consider alternative online lower-cost university courses.

Nonetheless, as the severity of Covid-19 variants weaken and worldwide vaccine rates rise, the outlook for international student populations in Australia is bright. To accelerate the return of students the Australian government have taken a hybrid approach to university programmes, offered visa fee rebates and revised student employment regulations.[55]

Figure 9: Singapore HE enrolments in Canada



Source: StatCan

Historically, Canada has not been a major destination market for Singaporean international students. However, over recent years, while the volume of Singaporean students enrolled in Australia, the US and the UK have been in decline, Canada has performed much better and has seen a significant increase in inflows from Singapore, albeit from a low base.

In 2010/11, Singaporean student enrolments in Canada stood at a modest 477. By 2017/18, the number of Singaporean students had more than doubled to 1,146, before falling back slightly in 2018/19 and 2019/20. However, despite the recent strong growth, the number of Singaporean students studying in Canada remains well below the levels seen in Australia, the US and the UK.

There are several factors which help explain the recent growth in the volume of Singaporean students studying in Canada. First, Canada has streamlined the application process for Singaporean citizens, allowing them to easily apply and enrol on Canadian university programmes. Second, the Canadian government offer two types of visas (SW-1 and S-1) which

[55] COVID halved international student numbers in Australia. The risk now is we lose future skilled workers and citizens, *The Conversation,* 2022 https://theconversation.com/covid-halved-international-student-numbers-in-australia-the-risk-now-is-we-lose-future-skilled-workers-and-citizens-175510

allow students to work alongside their studies, improving their exposure to the world of work and making their stay more affordable. Third, tuition fees for international students in Canada are competitive versus Australia and the US and are about comparable with the UK. Fourth, Singaporean students can be awarded the Canadian Commonwealth Scholarship which provides financial support for students undertaking Masters or Doctorate courses. Finally, Singaporean students in Canada have access to diverse and expansive working opportunities via the post-study work visa, which provides students with a pathway to permanent residency where they can earn an average salary of $37,050 per annum after graduation.[56]

Regarding the inflow of international students to Singapore, in 2019 it hosted 53,030 students at domestic universities and polytechnics. International students make up less than 10 per cent of the annual enrolment in the five polytechnics and the six Autonomous Universities. Foreign students may apply for Tuition Grants to study at these institutions, in return for a service obligation. Those who receive the Tuition Grant pay at least double the amount of fees that a Singaporean student pays.

5.2 Transnational education and distance learning

Singapore is the UK's fourth largest TNE market, with just over 26,000 students in the 2020/21 academic year, only behind China (61,495), Malaysia (48,460) and Sri Lanka (37,175). UK TNE programmes are delivered through PEIs in Singapore. Currently, there are close to 300 PEIs operating in Singapore, offering TNE qualifications in partnership with more than 100 overseas HEIs. Of these, 66 are UK HEIs.[57] Other major countries providing TNE in Singapore include Australia and the US.

Despite Singapore being a key market for UK TNE provision historically, in recent years demand has deteriorated. Since 2018/19 there has been a 33 per cent decrease in TNE enrolment, owing to the tightening of local regulatory requirements for TNE programmes, the shrinking student age domestic population, the rise in the number of students pursuing further education at local polytechnics and universities and the recent impact of Covid-19 border restrictions on domestic university places. In addition, international students enrolled at most PEIs are not permitted to engage in part-time work while on a student pass. Furthermore, upon graduation, there is no automatic provision for post-study visas - an after-effect of the abandoned Global Schoolhouse plans. These factors have further affected enrolment numbers at the PEIs. In contrast, international students studying at the local institutions are permitted to engage in part-time work and upon graduation they are also eligible to apply for long-term visit passes, which increases their chances of employment.

In order to ensure that there is consistency in the delivery of higher education in line with the Private Education Act, PEIs are regulated by the Committee for Private Education (CPE), appointed by the SkillsFuture Singapore Board. Despite PEIs having some autonomy in the provision of educational programmes, those offering UK qualifications must align with the UK Quality Assurance Agency (QAA) who maintain academic standards set out in the UK Quality

[56] Study in Canada from Singapore, *Canada+*, accessed 2022 https://www.canadamadesimple.com/study-in-canada-from-singapore/
[57] Study for a UK qualification in Singapore, *British Council*, accessed 2022 https://www.britishcouncil.sg/study-uk/qualification-singapore

Code for Higher Education,[58] as well as the CPE's stringent quality assurance framework. Through this Enhanced Registration Framework (ERF), CPE audits the PEIs for their corporate governance, quality of provisions and transparency of information.[59] PEIs seeking to recruit international students must also meet the pre-requisite of being an EduTrust-certified institution to enable them to partner with foreign universities and offer UK-awarding body degree qualifications.[60] The EduTrust scheme distinguishes PEIs that consistently maintain high standards in the overall provision of education services and make continual improvements that lead to positive student outcomes. This has now become a certification that PEIs seek to achieve and maintain, as a key differentiating factor in a crowded private education market.

As for online learning, HESA data shows that between 2007/08 and 2012/13, the number of Singaporean students enrolled in distance learning programmes at UK universities increased by 30 per cent, reaching a peak of 16,055 and representing around 32 per cent of total TNE enrolment. Since then, the number of distance learning students has declined, falling to 7,350 enrolments in 2020/21, though its proportion of total TNE students has remained steady. With Singapore's MOE continuing to encourage students to harness the benefits from online learning, the number of online learners is likely to increase. However, with the market for Massive Open Online Courses (MOOCs) expected to grow by around 35 per cent by 2028, international universities are expected to face increasing competition.[61]

The large proportion of international joint institutes is a unique factor of the Singapore higher education market. These institutions, such as Duke-NUS Medical School, NTU-Imperial College and Yale-NUS College, are set up as partnerships between two universities with a co-designed curriculum, shared governance, and a joint/dual award. There are currently ten international branch campuses in Singapore, a higher number than public national universities.

[58] Introduction to studying for a UK Qualification in East Asia, *British Council*, 2021 https://www.britishcouncil.sg/sites/default/files/uk_qualification_in_ea_2021.pdf
[59] Enhanced Registration Framework, *Training Partners Gateway,* accessed 2022 https://www.tpgateway.gov.sg/resources/information-for-private-education-institutions-(peis)/enhanced-registration-framework-(erf)
[60] EduTrust Certification Scheme*, CPE,* accessed 2022 https://www.tpgateway.gov.sg/resources/information-for-private-education-institutions-(peis)/edutrust-certification-scheme
[61] Massive Online Open Course (MOOC) Market, *Reports and Data*, 2020 https://www.reportsanddata.com/report-detail/massive-online-open-course-mooc-market

6 UK - Singapore Cooperation

In 2014, the UK and Singaporean governments set out the Innovation and Research Partnership (IRP) in recognition of the mutual gains from harnessing both countries' high-level human capital. The initiative sets out to leverage the high educational standards in both countries to further expand research, innovation and investment. Both nations have continued to work bilaterally to share technologies and collaborate to deliver solutions to global problems. As an extension to this partnership, the UK and Singapore governments devised the IRP Strategic Dialogue in Science and Innovation in 2017 which highlights the importance of research and development.[62] This collaboration has included a £6m joint programme on Marine Plastics (2020), a £2.4m joint programme on Cyber Security (2015) and a £500,000 joint Sustainable Urbanisation plan (2015).

In March 2021, Singapore and the UK restated their commitment to a long-term partnership under the "SG-UK Partnership for the Future", including initiatives within economics and trade, climate and sustainability, technology, knowledge and education, and security and resilience[63]. Despite already strong education sector relations, Singapore and the UK have reaffirmed their commitment to grow collaborations across research, innovation and the mutual exchange of students. The pledges aim to support business growth and technological advancements as well as improve the transfer of information and knowledge between the two nations.

The SG-UK Partnership for the Future sets out to advance creative sectors and increase innovative collaboration. To do this, both countries have extended their commitment to arts exchanges and international student exchanges to encourage the transmission of culture. The MOE's recent announcement of plans to set up the first University of the Arts in Singapore is reflective of the country's commitment to offering students an extensive range of educational pathways, including in the arts.

In February 2022 the UK-Singapore Digital Economy Agreement (DEA) was signed, which is set to cut red tape, strengthen digital trade relations and help businesses seize new opportunities in the aftermath of Covid-19. The DEA aims to promote both countries' international digital presence, increase the efficiency of cross-border data flows to enhance the efficiency of supply chains, strengthen the UK-Singapore financial services relationship and developed more robust cybersecurity defences. In addition, the UK and Singapore continue to collaborate and share advancements in artificial intelligence, cybersecurity and digital financial systems. This comes as both governments reiterate their bilateral cooperation in cybersecurity under the Memorandum of Understanding on Cybersecurity Cooperation.

The UK Universities in Singapore Network was set up in December 2019 as an initiative to facilitate engagement by UK universities with Singaporean organisations and to strengthen collaborations in research, innovation and education. The Network is supported by the British

[62] UK Science & Innovation Network Country Snapshot: Singapore, *UK Science & Innovation Network,* 2020 https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/923619/20200928_Singapore_Country_Snapshot.pdf

[63] Singapore-UK joint statement 2021: a partnership for the future, *Foreign, Commonwealth & Development Office UK,* 2021 https://www.gov.uk/government/publications/singapore-uk-joint-statement-2021-a-partnership-for-the-future/singapore-uk-joint-statement-2021-a-partnership-for-the-future

High Commission Singapore, Department for Business, Energy and Industrial Strategy (BEIS), British Council and Universities UK International (UUKi).

Following on from this, the UK-Singapore Universities Alliance for Entrepreneurship and Innovation (UKSAEI)[64] was launched in April 2021 – the first alliance of its kind to accelerate collaborations in entrepreneurship and innovation between the two nations. Bringing together world-leading universities from the UK and Singapore, the Alliance aims to boost efforts in accelerating ideas to market and deepen cooperation between innovation ecosystems in the UK and Singapore.

In October 2021, the UK's COP26 Universities Network and leading research centres in Singapore partnered to produce four reports which present the key opportunities and challenges related to shifting towards a lower carbon and sustainable global economy. Currently, there are 80 universities that collaborate to emphasise the importance of the UN's climate change framework as well as offer creative solutions to global warming. This series of reports included cross-nation partnerships between the University of Glasgow, Nottingham, Newcastle, Imperial College London, Nanyang Technological University and the National University of Singapore covering topics such as green finance, Covid-19 and energy consumption and the possibility of nature-based climate solutions.

[64] 16 UK and Singapore universities form an alliance to accelerate entrepreneurship and innovation collaboration, *Gov.UK,* 2021 https://www.gov.uk/government/news/16-uk-and-singapore-universities-form-an-alliance-to-accelerate-entrepreneurship-and-innovation-collaboration#:~:text=UKSAEI%20brings%20together%20world%20leading,Singapore%2C%20Singapore%20Institute%20of%20Technology%2C