

Research Brief

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Continuing education in Hong Kong

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Advances in robotics, artificial intelligence, and machine learning are ushering in a new age of automation. Computers and robots would increasingly take over routine jobs, and existing skill sets might become obsolete more quickly. Employees are expected to constantly learn new skills and adapt to new work conditions in fast-changing workplaces.

However, the continuing education participation rate in Hong Kong was relatively low in recent years, and the number of claims for reimbursements from the Continuing Education Fund ("CEF") has been on the decline since FY2006. These have aroused the concerns over insufficiency of CEF and the narrow scope of CEF's registered courses.

The lifetime maximum subsidy of CEF has been criticized for being insufficient to people aiming to obtain higher education qualifications. The subsidy ceiling has also remained unchanged since the inception of CEF in 2002. It is easy to exhaust all or a substantial portion of the CEF subsidy.

On course variety, Massive Open Online Courses ("MOOCs") are not included in CEF's registered courses, notwithstanding MOOCs' self-paced learning is particularly relevant to Hong Kong where long working hours warrant a more flexible learning environment.

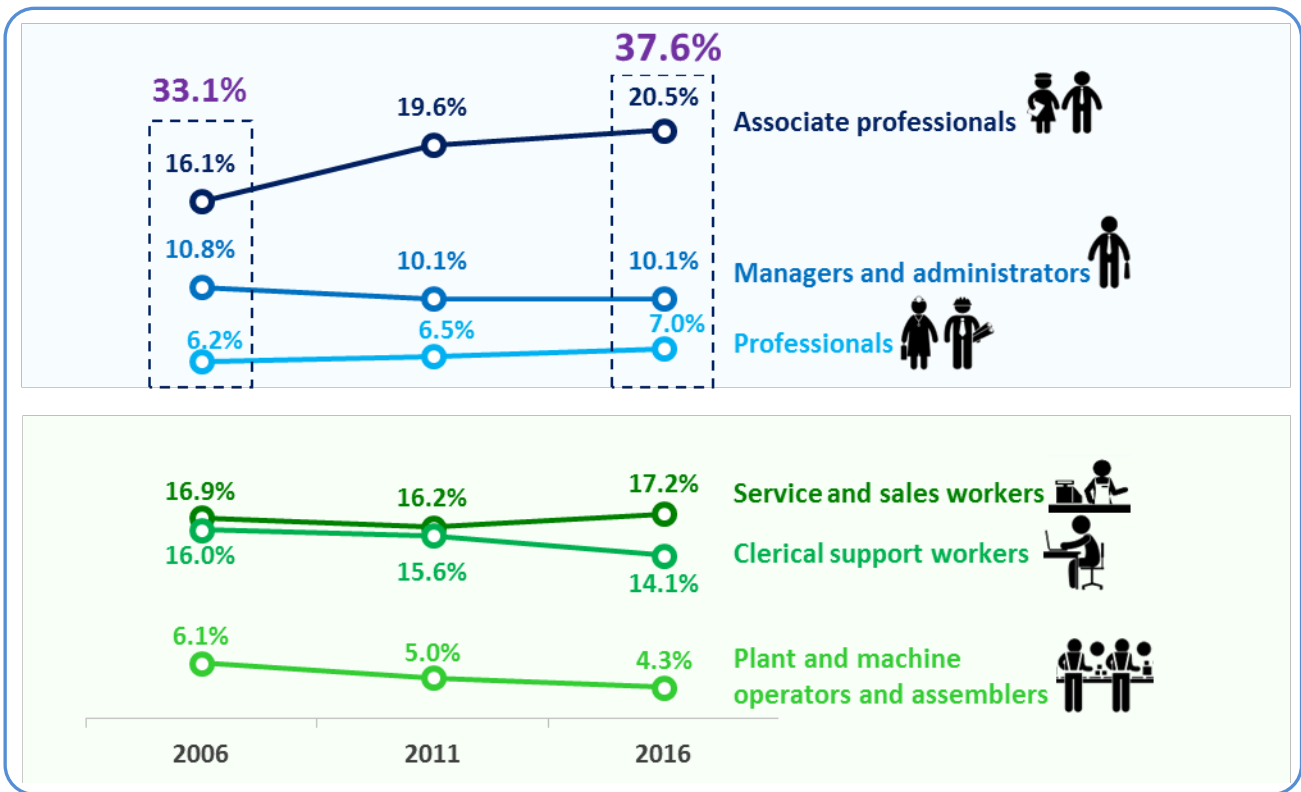
Singapore introduced SkillsFuture in 2015 to incentivize individuals and firms to invest in continuing education. Singaporeans are provided with SkillsFuture Credit to pay for approved courses (including MOOCs), and the Singapore government will provide periodic top-ups. These credits do not expire, and can be accumulated. Generous government subsidies are also provided for self-sponsoring and employer-sponsoring courses, and employers are entitled to Absentee Payroll funding as well.

The subject of CEF falls within the policy area of the Panel on Manpower.

1. Background

1.1 Hong Kong's occupational structure has undergone marked changes over the past decade or so, underpinned by the changing economic structure and technological developments. The shift in economic structure towards knowledge-based activities has resulted in an increased demand for high-skilled and better-educated workers. The total number of people engaged as managers and administrators, professionals and associate professionals accounted for an increased proportion of the total working population during 2006-2016, and the rise was the most apparent for associate professionals (**Figure 1**). The proportion of service and sales workers also increased, along with the development of Hong Kong as a highly services-oriented economy. On the other hand, automation and modern technology at the workplaces have led to a declining proportion of working population engaged as (a) clerical support workers; and (b) plant and machine operators and assemblers.

Figure 1 – Proportion of working population by selected occupations, 2006-2016



Data source: Census and Statistics Department.

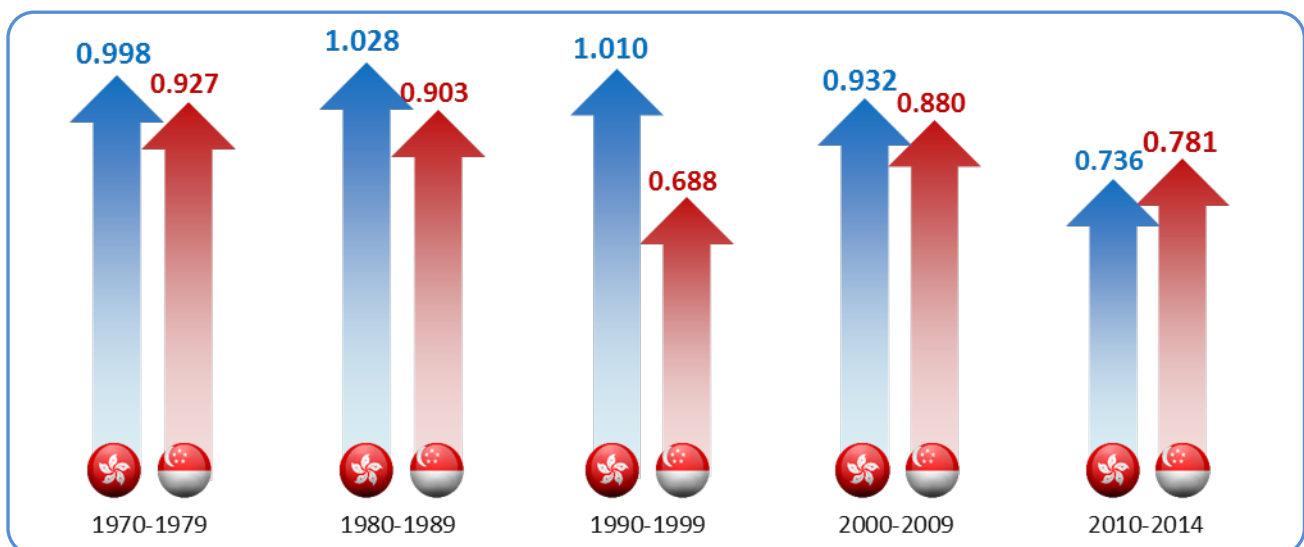
1.2 Recent developments in robotics, artificial intelligence and machine learning are ushering in a new age of automation, which might further impact on the occupational structure of Hong Kong. Nowadays robots and machines can perform not only a range of routine physical jobs better than humans, but are also increasingly capable of accomplishing work activities that include cognitive capacities. Thus a substantial part of the routine jobs could potentially be replaced by robots and machines. Routine jobs are vulnerable because they follow precise, rule-based procedures that can be easily codified in computer software and performed by machines. Examples of routine jobs include tasks done by factory workers (routine manual) and clerical workers (routine cognitive).

1.3 Jobs that are intensive in either abstract or non-routine manual tasks will be less vulnerable to automation as they are more difficult to be replaced. Occupations related to abstract tasks include management and professional occupations that require judgement, creativity and problem solving skills. Meanwhile, occupations attached to non-routine manual tasks comprise services occupations that assist or care for others, which rely heavily on adaptability, manual dexterity and personal interactions.

1.4 Against the above, it is likely that there will be less routine jobs in the future as these jobs could be automated across many occupations and industries. Technological change should also shorten the shelf-life of an employee's existing skill sets. These in turn require workers to continually enhance and develop their skills to cope with the shift in skills requirements in the new age of automation. Employees are also expected to possess more soft skills such as perseverance, sociability, flexibility, creativity and collaboration, which are important for them to continuously adapt to new situations and acquire new skills. In other words, it is no longer feasible to equip learners at school, college and university with all the skills they need to prosper throughout their lifetimes in fast-changing workplaces. The need for continuing education in both technical and soft skills has never been more important for people to stay employable and pursue career development.

1.5 Apart from changing skill requirements, the growing competitiveness of many other developed economies also adds to the need for continuing education in Hong Kong. According to a research study,¹ Hong Kong had outperformed Singapore in total factor productivity (a measure of an economy's productivity) during 1970s-1990s (**Figure 2**), and the lead was the most significant in the 1990s. The lead, however, narrowed significantly in the 2000s and Hong Kong even lagged behind Singapore in the period between 2010 and 2014. The study ascribes the change to, among other things, the slow growth in human capital endowment of the local working population aged 25-44, who are usually the most innovative segment of the entire workforce.

Figure 2 – Total factor productivity in Hong Kong and Singapore, 1970-2014



Data source: Wong (2017).

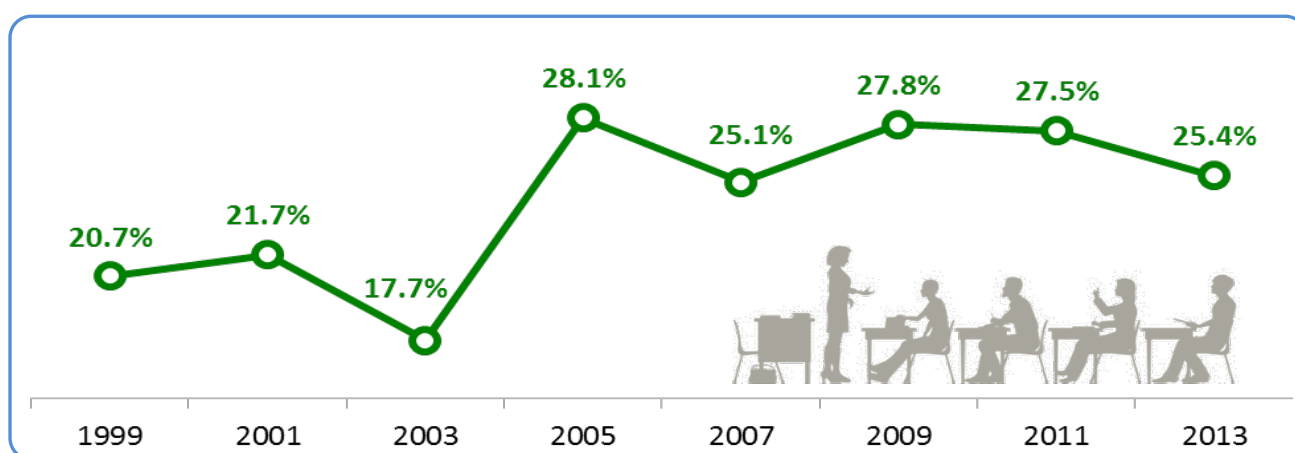
¹ See Wong (2017).

2. Continuing education in Hong Kong

2.1 Notwithstanding the increasing need for acquiring new knowledge and skills throughout one's life, the continuing education participation rate in Hong Kong was relatively low in recent years as evidenced by the surveys conducted by the School of Professional and Continuing Education of the University of Hong Kong ("HKU SPACE") and the Hong Kong Federation of Youth Groups respectively.

2.2 HKU SPACE had since 1999 conducted a territory-wide biennial survey to assess the demand for continuing education in Hong Kong. According to the surveys, the participation rate of persons aged 18-64 in continuing education increased from 20.7% in 1999 to 27.8% in 2009 (**Figure 3**). Yet, the participation rate eased thereafter to 27.5% in 2011 and visibly to 25.4% in 2013.² This represented a decrease in the number of projected lifelong learners from 1.46 million in 2011 to 1.31 million in 2013.

Figure 3 – Continuing education participation rate in Hong Kong, 1999-2013



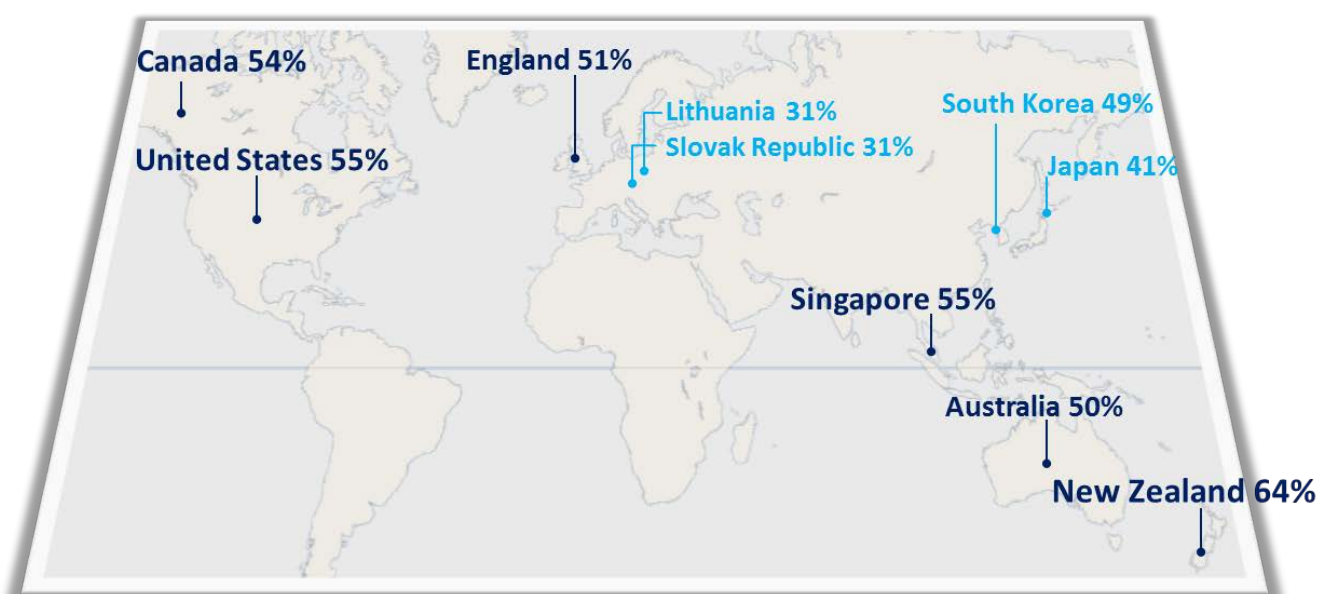
Data source: HKU SPACE.

2.3 Likewise, the Hong Kong Federation of Youth Groups recently conducted a survey in June 2016 on the pursuit of continuing education by persons aged 18-39 in Hong Kong. While most of the respondents believe the importance of continuing education for personal development, only a small proportion of them (32.3%) have taken continuing education courses over the past five years. Furthermore, 46.0% of respondents have yet to decide when to enrol themselves in continuing education courses.

² The 2013/2014 survey was the last survey conducted as HKU SPACE has decided to discontinue the survey in 2016.

2.4 Internationally, Hong Kong also compared unfavourably with many developed economies in terms of the participation rate in continuing education. According to a survey published by the Organisation for Economic Co-operation and Development ("OECD") in 2016, most of the 33 cities/countries surveyed outperformed Hong Kong, with the exception of Jakarta (10%), Turkey and Russian Federation (17%), Greece (18%) and Italy (22%). For those outperforming surveyed cities/countries, the participation rates ranged from 31% to 64% with many of them at the upper end of the range (**Figure 4**).

Figure 4 – Continuing education participation rates among persons aged 25-64 in selected cities/countries, 2015 or nearest year*



Note: (*) For comparison, the participation rate among Hong Kong people aged 18-64 was 25.4% in 2013/2014.
Data source: OECD.

2.5 In Hong Kong, the relatively low participation rate in continuing education has aroused the concerns over the limitations of the Continuing Education Fund ("CEF") in encouraging the members of the public in pursuing continuing education. The section below summarizes the operation of CEF and highlights the major areas of concerns raised in recent years. It is then followed by a discussion of the possible intervention measures that could be introduced to improve CEF, with reference to the experience of Singapore. Singapore has been identified by OECD as a successful example of incentivizing firms and individuals to invest in continuing education through its SkillsFuture movement.³

³ See Organisation for Economic Co-operation and Development (2017).

3. Continuing Education Fund

3.1 CEF was set up in June 2002 by the Government subsidizing people to pursue continuous education and training programmes. The aim is to help people pursue continuing education, thereby facilitating Hong Kong's transition to a knowledge-based economy and adaptation to an increasingly globalised economy. CEF offers each Hong Kong citizen aged between 18 and 65 a maximum subsidy of HK\$10,000 for the entire lifetime. They can apply for reimbursement of 80% of the fees of any CEF registered course, subject to the maximum subsidy of HK\$10,000 (whichever is the less), on successful completion of the course. The fees for more than one registered course may be reimbursed, subject to the maximum subsidy per applicant not being exceeded. Each applicant can only submit a maximum of four claims for reimbursement within a four-year period from the date he or she opened a CEF account.

3.2 On course variety, eligible applicants may choose from some 7 900 courses currently registered under CEF according to their interests and needs. At present, training and education courses under eight specified domains⁴ can be registered as CEF courses by application, if they have undergone a formal accreditation exercise conducted by the Hong Kong Council for Accreditation of Academic and Vocational Qualifications ("HKCAAVQ") and registered under the Qualifications Register. According to the Government,⁵ only courses from economic sectors with high growth potential and manpower requirement or skill domains where local workforce may be deficient are covered under CEF.

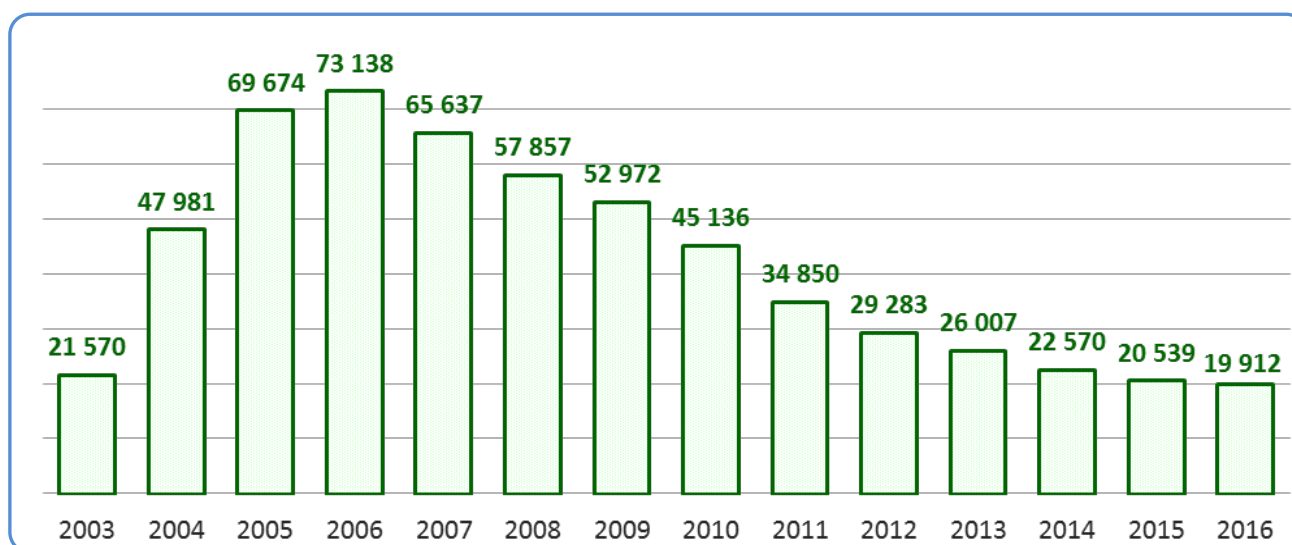
3.3 In addition to HKCAAVQ-accredited courses, courses designed in accordance with the Specification of Competency Standards ("SCS") drawn up by the respective Industry Training Advisory Committees under the Qualifications Framework of the Education Bureau and registered as SCS-based courses under the Qualifications Register may also apply for registration under CEF.

3.4 At its launch in 2002, CEF only benefited those who did not possess a university degree. Subsequently, the former Education and Manpower Bureau relaxed the eligibility criteria to include degree holders with effect from 1 September 2003. Reflecting this, the number of claims for CEF reimbursement surged from 21 570 in Fiscal Year ("FY") 2003 and reached an all-time high of 73 138 in FY2006. However, the number has been on the decline since then and fell for 10 consecutive years to 19 912 in FY2016 (**Figure 5**). The falling number of claims might reflect, among other things, insufficiency of CEF to those who are keen to pursue studies and the narrow scope of the CEF registered courses.

⁴ These eight specified domains are (a) Business Services; (b) Financial Services; (c) Logistics; (d) Tourism; (e) Creative Industries; (f) Design; (g) Languages; and (h) Interpersonal and Intrapersonal Skills for the Workplace.

⁵ See Continuing Education Fund (2004).

Figure 5 – Number of claims for CEF reimbursement, FY2003-FY2016



Data sources: Office of the Continuing Education Fund and GovHK.

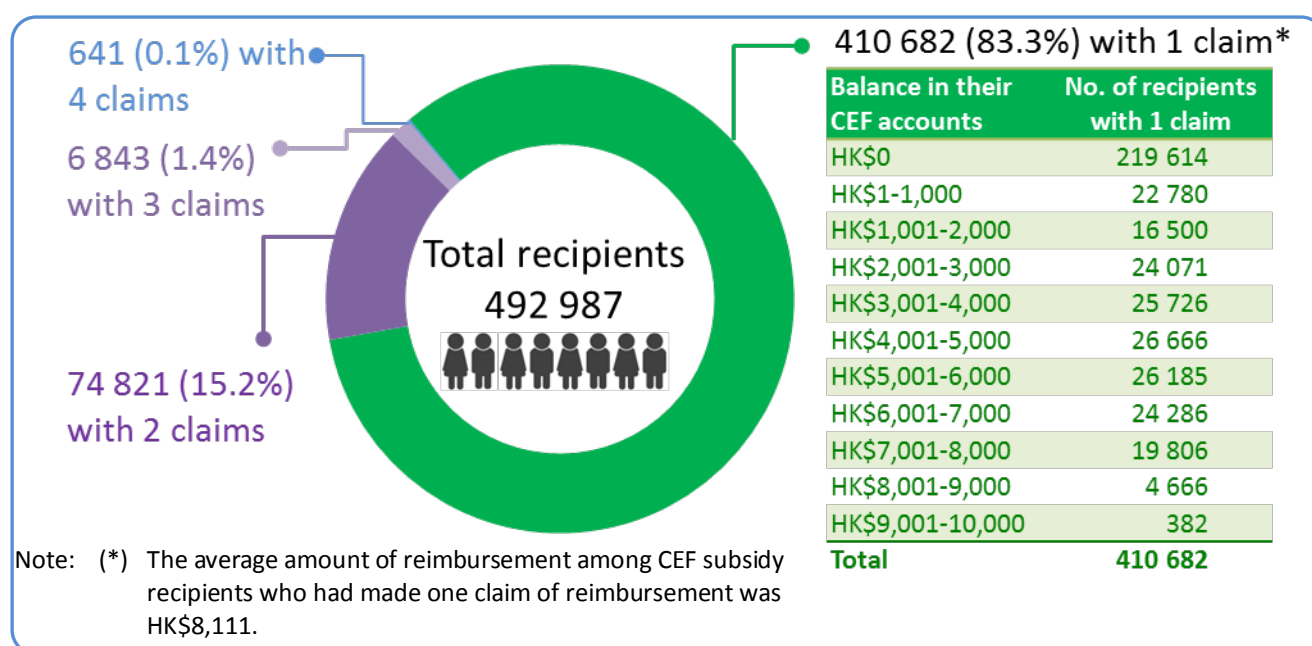
Sufficiency of Continuing Education Fund subsidies

3.5 Currently, CEF offers each applicant a lifetime maximum subsidy of HK\$10,000. Such a subsidy ceiling has been criticized for being insufficient to people pursuing continuing education, particularly those aiming to obtain higher education qualifications. For example, among the 1,935 courses currently offered under the specified domain "Financial Services", the maximum amount of the CEF subsidy received could only afford to study one to two modules of a degree course. The amount of CEF subsidy might not be sufficient to even cover some lower-cost module-based diploma courses.⁶

3.6 In addition, the amount of lifetime maximum subsidy has remained unchanged since the inception of CEF in 2002. It has not kept up with the increase in the cost of study, which rose by 19.8% during 2002-2016 as measured by the change in the index for "educational services" in the Composite Consumer Price Index. As a result, it is easy to exhaust all or a substantial portion of the CEF subsidy within the four-year validity period. As at end-April 2017, the number of CEF subsidy recipients who had only made one claim of reimbursement accounted for 83.3% or 410,682 of all recipients (**Figure 6**), and the amount of their reimbursement averaged at HK\$8,111. Among these recipients, 219,614 or 53.5% used up their CEF subsidy with zero balance in their CEF accounts.

⁶ For example, the Executive Diploma in Legal Risk for Enterprise Risk Management consists of two modules, but it costs HK\$12,950 to study.

Figure 6 – Total number of CEF subsidy recipients, 2002-2017



Data source: Office of the Continuing Education Fund.

Scope of registered courses

3.7 The Government has expanded the scope of CEF registered courses since 2002, but some have pointed out that these CEF registered courses cannot keep abreast of the latest developments in the job markets.⁷ At present, the specified domains of CEF include those industries which are considered with high growth potentials and manpower requirements. Information technology currently does not fall within the specified domains of CEF, but the sector has been identified by the Government's Report on Manpower Projection to 2022 as one of those industries with a notable growth in manpower requirements and a great potential for driving the development of the Hong Kong economy.

3.8 Most recently, the Government has proposed to expand the scope of CEF courses from the current eight specified domains and SCS-based courses to all courses registered in the Qualifications Register. With the proposed expansion, there will be no more specified course domains under CEF. Courses on a wide spectrum of aspects or skills, including information technology, can be registered as CEF courses as long as they are registered under the Qualifications Register.⁸

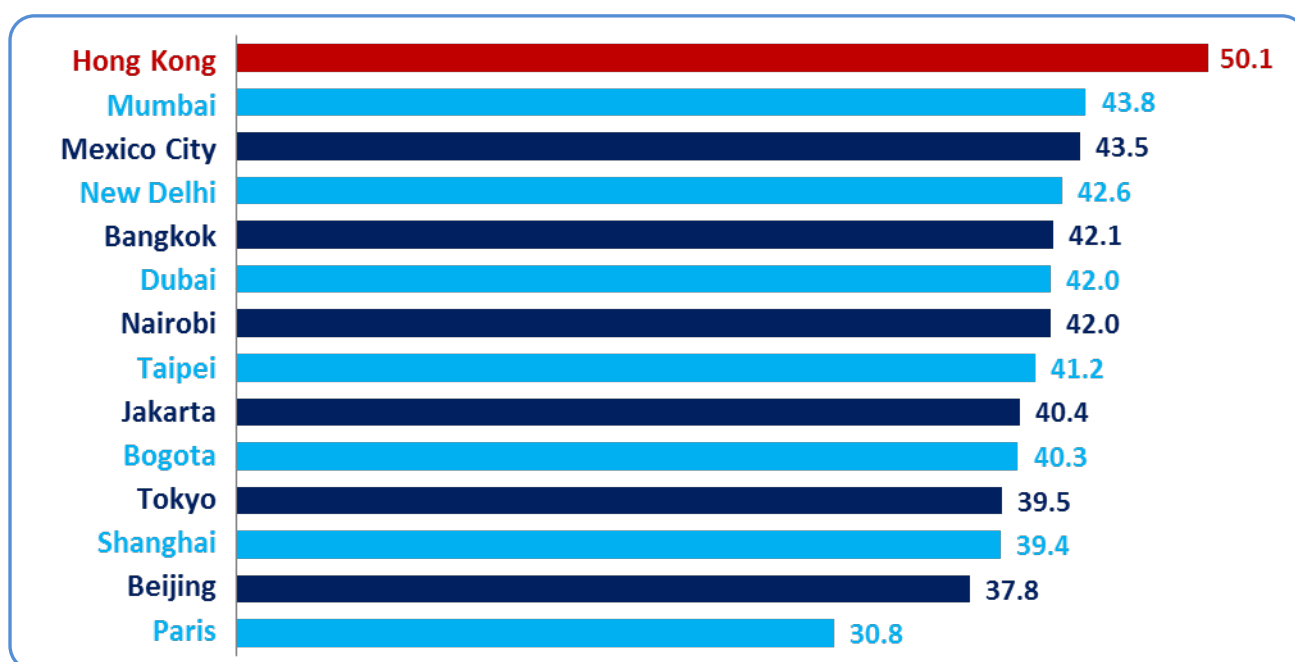
⁷ For example, see GovHK (2016a), Leung (2016) and Legislative Council Secretariat (2017).

⁸ Apart from expanding the scope of CEF's courses, the Government has proposed to lift the limits on the number of claims and the validity period. On the upper age limit for CEF applicants, the Government has proposed to raise the limit from the current 65 to 70. The proposal is to promote active ageing which is in addition to the original objective of using CEF to encourage working population to upgrade themselves. Indeed, the upper age limit was last raised from 60 to 65 in 2007, in view of the fact that a good proportion of people in the age group of 60 to 65 are still in the labour force.

3.9 Nevertheless, the above proposal has not addressed the suggestions made by some stakeholders to include Massive Open Online Courses ("MOOCs") in CEF's registered course list.⁹ MOOC is a web-based distance learning programme generally patterned on a college or university course, which makes continuing education more flexible and accessible than before. Its course materials and video lectures are put online to enable learners to access the course at their own convenience and pace. MOOCs also feature the availability of a wide range of short skills-focused modular courses, which allow the learners to stay responsive to changing skills requirement despite their tight work schedules.

3.10 MOOC's distinctive characteristics of 24-hour access to course materials and self-paced learning should be of particular relevance to Hong Kong, where long working hours warrant a more flexible learning environment for lifelong learners. Reflecting the busy work life, Hong Kong had the longest working hours in the world in 2015 according to a survey conducted in the year (**Figure 7**). As another indication, "no time for learning" has been quoted as a major barrier to further education by respondents of the surveys of HKU SPACE and the Hong Kong Federation of Youth Groups mentioned above. Time constraints are more binding for those adult learners with heavy work and family commitments. Both surveys point to the need for continuing education's providers to design and tailor-made more flexible programmes that can meet the students' individual needs, interest and abilities.

Figure 7 – Average weekly working hours in selected cities, 2015



Data source: UBS Investment Bank.

⁹ For example, see 沈帥青 (2017) and 智經研究中心 (2017).

4. SkillsFuture in Singapore

4.1 Many governments around the world have introduced programmes in their quest to produce lifelong learners who are equipped to face the challenges in today's fast-changing workplaces. A case in point is the €7 billion (HK\$65 billion) Lifelong Learning Programme implemented by the European Commission during 2007-2013 aiming to enable people, at any stage of their life, to participate in education and training across Europe. Most of the activities of Lifelong Learning Programme continue under the new Erasmus+ programme 2014-2020.

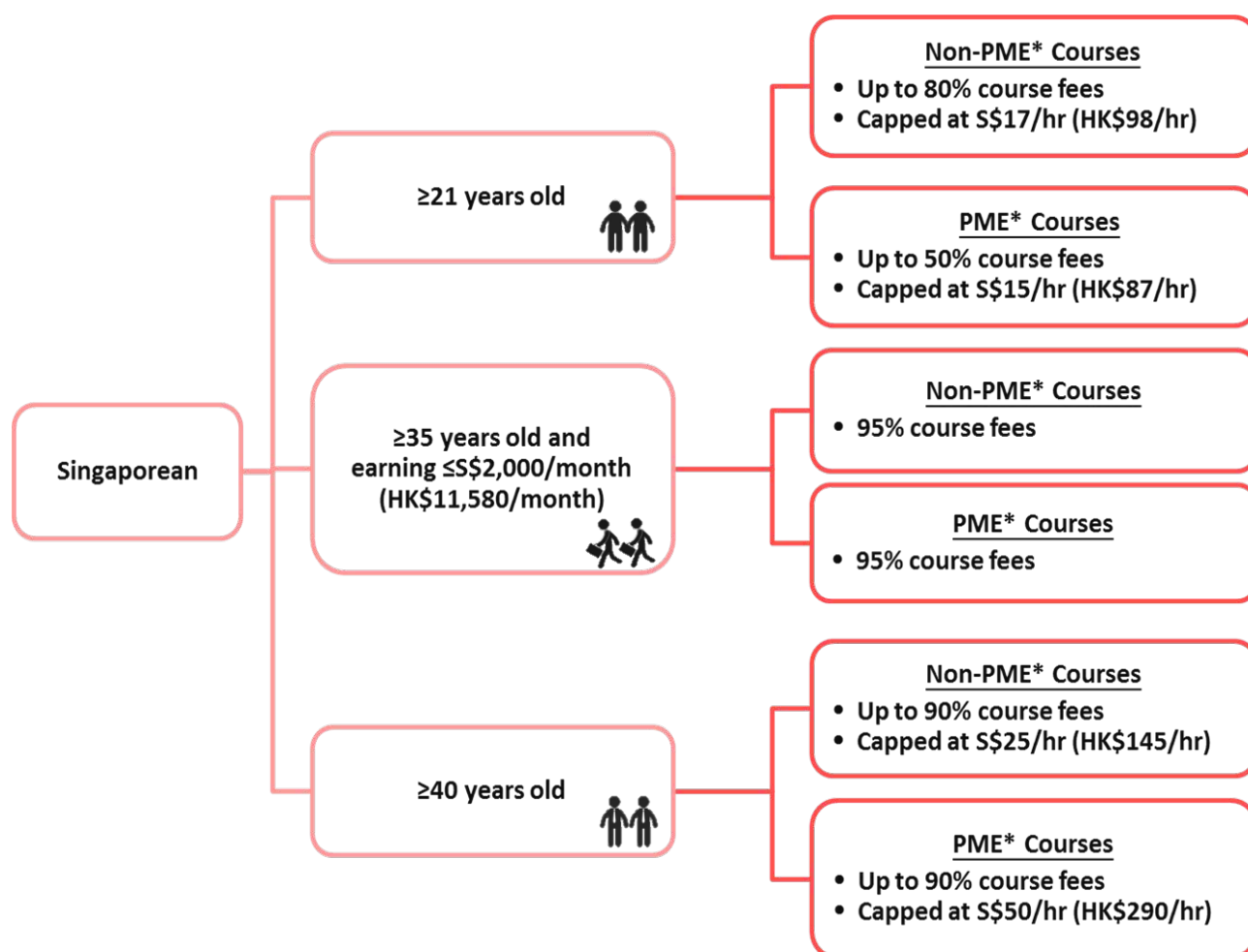
4.2 Outside the Western world, many Asian countries have also put in place various programmes to support continuing education. In Singapore, the government introduced a nationwide movement – SkillsFuture – in 2015 to promote lifelong learning through acquisition and updating of skills. It aims to provide Singaporeans with the opportunities to develop their fullest potential throughout life, regardless of their starting points and education levels. To implement the SkillsFuture movement, the government will increase its spending on continuing education and training programmes from S\$600 million (HK\$3.5 billion) per year during 2010-2015 to over S\$1 billion (HK\$5.8 billion) per year during 2015-2020.

4.3 As part of SkillsFuture, every Singaporean aged 25 and above receives an initial credit of S\$500 (HK\$2,895). The Singapore government will make further top-ups to their SkillsFuture Credit accounts at regular intervals, and the credits can be accumulated. The SkillsFuture Credit does not expire, which can be used on top of existing government subsidies to pay for a wide range of approved skills-related courses (including MOOCs)¹⁰.

4.4 The Singapore government also supports continuing education through generous subsidies it offers to approved courses. Course fee subsidies range from 50%-95% for self-sponsored individuals (**Figure 8**).

¹⁰ For example, if the course fee is S\$1,000 (HK\$5,790) and the government subsidises 90% of the course fee, the student can use his or her SkillsFuture Credit to pay for the net course fees of S\$100 (HK\$579).

Figure 8 – Course subsidy for self-sponsored individuals, 2017



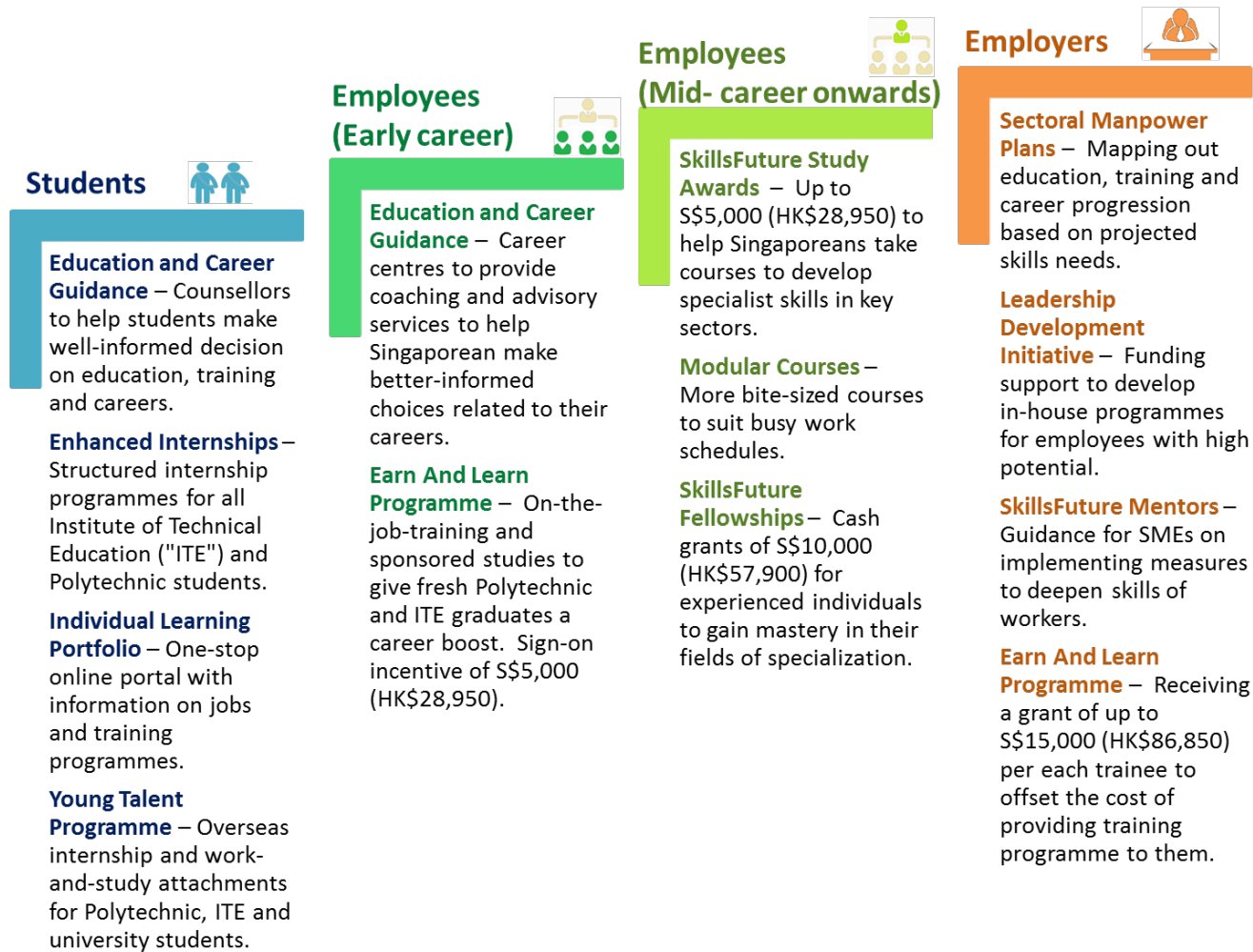
Note: (*) PME courses are courses at the professional, managerial, executive level.
Data source: SkillsFuture.

4.5 For employer-sponsored trainings, the government provides the same range of course subsidies of 50%-95% to the employers. Employers are also entitled to receive Absentee Payroll funding¹¹ at 80% of an employee's basic hourly salary, capped at S\$7.5 (HK\$43.4) per hour for small and medium enterprises ("SMEs") and S\$4.5 (HK\$26.1) per hour for non-SMEs. Companies can also apply for Absentee Payroll funding at 95% of hourly basic salary of those employees earning not more than S\$2,000 (HK\$11,580) per month and aged 35 or above under the Workfare Training Support Scheme.

4.6 Aside from SkillsFuture Credit and generous course subsidies, SkillsFuture also include a broad array of initiatives aiming at Singapore citizens who are at different stages of their education and careers (**Figure 9**).

¹¹ Absentee Payroll funding is a grant to help employers defray the manpower costs incurred when they send their employees for approved skills training courses during working hours.

Figure 9 – SkillsFuture journey



Data source: SkillsFuture.

4.7 More than 126 000 Singaporeans – about one in 20 eligible citizens – had used the SkillsFuture Credit to up-skill or reskill themselves by end-December 2016. About 35% of them had tapped on their SkillsFuture Credit more than once. The number of training courses eligible for SkillsFuture Credit increased from more than 10 000 in January 2016 to over 18 000 by end-December 2016. MOOCs formed 12% of all the SkillsFuture Credit-eligible courses, and about 6% of Singaporeans had spent all or parts of their SkillsFuture Credit on MOOCs (the majority of whom were in the 25-39 age group). The top 10 most popular MOOCs included "An Entire MBA in 1 Course", "Complete Python Bootcamp", "How I Hit #1 on Google: The Complete 2015 SEO Course" and information technology-related courses.

5. Observations

5.1 The following observations are made based on the findings above:

- (a) Hong Kong's occupational structure has undergone marked changes over the past decade or so, underpinned by the changing economic structure and technological developments. Recent developments in robotics, artificial intelligence and machine learning are ushering in a new age of automation, which might further impact on the occupational structure of Hong Kong;
- (b) it is likely that there will be less routine jobs in the future as they can be automated across many occupations and industries. Technological change should also shorten the shelf-life of an employee's existing skill sets. These in turn require workers to continually enhance and develop their technical and soft skills to cope with the shift in skills requirements in the new age of automation;
- (c) notwithstanding the increasing need for acquiring new knowledge and skills throughout one's life, the continuing education participation rate in Hong Kong was relatively low in recent years. Added to this, the number of claims for reimbursements from CEF has been on the decline since FY2006. These have aroused the concerns over insufficiency of CEF and the narrow scope of the CEF registered courses;
- (d) CEF currently offers each applicant a lifetime maximum subsidy of HK\$10,000. Such a subsidy ceiling has been criticized for being insufficient to people aiming to pursue higher education qualifications. For example, the amount of CEF subsidy could only afford to study one to two modules of a degree course in financial services. The amount of CEF subsidy might not be sufficient to even cover some lower-cost module-based diploma courses;
- (e) the amount of lifetime maximum subsidy has remained unchanged since the inception of CEF in 2002. It has not kept up with the increase in the cost of study which rose by 19.8% during 2002-2016. As a result, it is easy to exhaust all or a substantial portion of the CEF subsidy within the four-year validity period;

- (f) MOOCs are not included in CEF's registered course list. Yet, MOOC's distinctive characteristics of 24-hour access to course materials and self-paced learning should be of particular relevance to Hong Kong, where long working hours warrant a more flexible learning environment for lifelong learners;
- (g) Singapore has been identified by OECD as a successful example of incentivizing firms and individuals to invest in continuing education through its SkillsFuture movement. SkillsFuture includes a broad array of initiatives aiming at Singapore citizens who are at different stages of their education and careers;
- (h) as part of SkillsFuture, every Singapore citizen aged 25 and above receives an initial credit of S\$500 (HK\$2,895). The Singapore government will make regular top-ups to their SkillsFuture Credit account. SkillsFuture Credit does not expire and can be accumulated, which can be used to pay for a wide range of approved skills-related courses including MOOCs; and
- (i) the Singapore government also supports continuing education through generous subsidies it offers to approved courses. Course fee subsidies range from 50%-95% for self-sponsored individuals. For employer-sponsored trainings, the government provides the same range of course subsidies of 50%-95% to the employers. Employers are also entitled to receive Absentee Payroll funding ranging from 80% to 95% of an employee's basic hourly salary.

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