Asia-Pacific
Economic Cooperation

Advancing Free Trade
for Asia-Pacific **Prosperity**

APEC Economic Policy Report 2017

Asia-Pacific
Economic Cooperation

2017 APEC ECONOMIC POLICY REPORT

Structural Reform and Human Capital Development

APEC Economic Committee

November 2017

NOTE:
The terms "national", "nation" used in the text are for purposes of this report and do not imply the "political status" of any APEC member economy.

Prepared by:
*Anne O. Krueger, Emmanuel A. San Andres, and Tammy L. Hredzak**
Asia-Pacific Economic Cooperation Policy Support Unit
Asia-Pacific Economic Cooperation Secretariat
35 Heng Mui Keng Terrace
Tel: (65) 6891-9600 Fax: (65) 6891-9690
Email: psugroup@apec.org Website: www.apec.org

Printed by:
Asia-Pacific Economic Cooperation Secretariat
35 Heng Mui Keng Terrace
Singapore 119616
Tel: (65) 68919 600
Fax: (65) 68919 690
Email: info@apec.org
Website: www.apec.org

ISSN: 0218-9763
APEC#216-EC-01.2

** Senior Research Professor, Johns Hopkins University; Analyst, APEC Policy Support Unit; and Consultant.* *Excellent research assistance from Satvinderjit Kaur Singh is gratefully acknowledged.* *The views expressed in this paper are those of the authors and do not necessarily represent those of APEC Member Economies.*

Table of Contents

EXECUTIVE SUMMARY

- Globalisation and technological change have contributed to unprecedented economic growth, improvement in living standards, and poverty reduction in the past two centuries. In no other time in history have people been healthier, better informed, and more connected than in the present.

- Currently many APEC economies are wrestling with structural unemployment, which is caused by structural changes in an economy such as shifting labour demand patterns (e.g., due to affluence, capital accumulation, urbanisation, international trade or changes in technology). At the same time, economies often face a mismatch between the skills of workers looking for work and the skills required by emerging job opportunities.

- In their Individual Economy Reports, APEC economies identify skills mismatch as a key challenge in their labour markets. Young workers are not always getting the right skills to prepare them for employment in a fast-changing market, leading to high levels of youth unemployment in several economies. Meanwhile, ageing populations mean older workers need to continue working while learning new skills as there are insufficient newly trained young workers to replace them. Economies face challenges in improving skills development and providing lifelong learning opportunities to increase productivity and enhance employability. Increasing labour force participation of youth, women, minorities, and other disadvantaged groups is a continuing effort among APEC economies.

- Empirical data show some gaps in human capital development in the APEC region. About a third of APEC economies have net enrolment rates in secondary school below 60 per cent. Unemployment rates among youth aged 15-25 were greater than 10 per cent in 13 of APEC's 21 economies in 2015. Moreover, up to 30 per cent of employed workers in the region are own-account workers or unpaid family workers. Meanwhile, surveys of formal sector employers report difficulties in finding skilled workers to fill job openings, pointing to a lack of workers with adequate technical skills.

- Addressing structural unemployment and skills mismatches will depend on each economy's context and situation. Economies at different levels of income and development will need to focus on different aspects of skills training, labour market regulation, and social protection.

- Basic skills—i.e., literacy and numeracy as well as comprehension and problem-solving—are necessary for the development of a skilled workforce. Economies need to improve access to and quality of education and training, including for disadvantaged groups. However, as enrolment and completion rates for primary and secondary education approach 100 per cent, greater focus can be given to skills development and upgrading.

- Unilateral structural reforms that promote human capital development can be instrumental in overcoming these challenges. In many cases it will be optimal to reform labour market regulations and legislation to ensure greater alignment with the capabilities of employers and the needs of workers. Careful analysis and policymaking are needed to ensure that workers are compensated fairly and work in humane and safe environments while employers are not discouraged from hiring workers due to excessive costs and regulations.

- Crucial in the long run to addressing structural unemployment is the holistic development of active labour market policies (ALMPs). ALMPs are the coordination mechanism that link various aspects of skills training and development, on one hand, and job search and skills matching, on the other. The development of ALMPs would involve enhancing labour market information systems (LMIS), reforming labour market regulations, and developing skills definitions and certifications, among others. For this approach, direct engagement with the private sector—which is best informed on the skills required by the market—will be critical.

- Key to having effective ALMPs is delivering timely and accurate labour market information to the sectors that need it and having a mechanism to efficiently match workers with employers. Data on skills needed by the market can inform education and training systems on areas of skills development that need more focus. Meanwhile, employment centres can serve as a mechanism that will not only deliver social protection (e.g., unemployment benefits) but also provide information on job opportunities, incentives for job search and training, and matching with prospective employers.

- In addition to unilateral structural reforms and policy development, there are also many important avenues for regional cooperation on human capital development. Knowledge sharing and capacity building provide opportunities for economies to learn from each other and find solutions to common problems. People-to-people connectivity could be enhanced through increased efforts at labour mobility and cross-border regulatory coherence—these efforts are all the more important in light of the cross-border impacts of globalisation and digital technology. APEC economies could also consider greater cooperation on cross-border education and training exchange to enhance skills development in the region.

1. INTRODUCTION

"The natural effort of every individual to better his own condition… is so powerful a principle that it is alone, and without any assistance, not only capable of carrying on the society to wealth and prosperity, but of surmounting a hundred impertinent obstructions with which the folly of human laws too often encumbers its operations; though the effect of these obstructions is always more or less either to encroach upon its freedom, or to diminish its security."

— Adam Smith, *The Wealth Of Nations*, Book IV, Chapter V

Writing in 1776, Adam Smith in *The Wealth of Nations* discussed how regulations and trade barriers constrain the innate tendency of workers, firms, and society to better their lot and generate prosperity. Almost two and a half centuries after the publication of his book calling for competition and liberalisation, economies are still grappling with issues of competition policy, regulatory practice, fiscal policy, and others. Frictions in the mobility and allocation of resources result in economic inefficiencies and underutilisation of resources. Addressing these frictions is the aim of structural reforms and is at the heart of the work of APEC's Economic Committee (EC).

However, a broader view of structural reform implies not only the removal of regulations that may obstruct economic activity but also the implementation of policies and measures that can reduce frictions in resource allocation and utilisation and improve productivity. This is possible in the case of labour markets and human capital development where incomplete information, time constraints, and high adjustment costs may impede or prevent markets from reallocating labour inputs towards competitive industries. This year's *APEC Economic Policy Report* (AEPR) on Structural Reform and Human Capital Development aims to discuss some of the issues and policies relating to skills development and labour markets in the APEC region. It analyses how generally positive economic changes—such as the growth and development process, trade and globalisation, or technological upgrading—can contribute to structural unemployment,[1] and what can be done to mitigate the impacts of these changes. It will then discuss some policy options regarding the reallocation and mobility of displaced labour, and provide some pointers for regional cooperation and integration.

In the next section, this report describes sources of structural unemployment that form the backdrop of this AEPR such as globalisation and technological change. It will then present an analytical framework relating economic growth and human capital development, discussing the drivers of growth and human capital challenges at each stage of development. Part 2 of this report describes some of the human capital issues and challenges in the APEC region, looking into achievements and areas of improvement as gleaned from literature and data. Part 3 offers some insights into needed structural reforms and policy priorities as well as opportunities for regional cooperation and the role for APEC, EC, and the Human Resources Development Working Group (HRDWG). Part 4 concludes the report with policy recommendations.

[1] Structural unemployment is defined as unemployment caused by fundamental changes in an economy, such as shifting demand patterns (e.g., due to globalization, capital accumulation, urbanization, or affluence) or changes in technology, leading to a mismatch between the skills of workers looking for work and the skills required by job opportunities.

DYNAMIC ECONOMIES AND STRUCTURAL UNEMPLOYMENT

The process of economic growth and development brings along with it continuous changes. At the start of the Industrial Revolution, when Adam Smith was writing his treatises on economy and moral philosophy, structural transformation from agricultural economies in rural villages to manufacturing-based economies in cities was starting to lead to unprecedented social and economic adjustments. New technologies such as the steam engine led to changes in the way resources were allocated between farms and cities. Likewise, transportation improvements and the opening of the Suez Canal in 1869 improved trade connectivity, resulting in greater trade and information exchange. Inevitably, these changes also led to changes in the way labour was utilised, where it was employed, and the skills required from workers—e.g., manual skills for separating cotton fibres from seeds were replaced by mechanical skills for operating cotton gins.

This process of economic dynamism and change continues today, albeit at a faster pace. Globalisation and trade liberalisation bring specialisation, but can also contribute to short- and medium-term structural unemployment. Likewise, digital technologies and automation threaten many jobs not only in manufacturing but also in skilled services such as accounting, transcription, and other back-office functions. However, historical precedent has shown us that over the long-term openness and technological change have benefitted humankind and resulted in an improvement in prosperity and living conditions. Moreover, with structural reform and good policy practice, even short- and medium-term adjustment costs can be reduced and ameliorated.

Globalisation and structural unemployment

Globalisation has contributed to an unprecedented acceleration of global GDP growth and improvement in the living standards of billions of people. Economic integration of world economies accelerated in the late 1800s due to technological advancement, lower transportation costs, and wider access to information, continuing until now albeit with the disruptions of business cycles and wars. Between 1950 and 2015, the world's output grew at an annual average rate of 3.8 per cent, which was considerably higher than the 2 per cent growth rate achieved during from 1900–1950 and annual growth of 1.3 per cent from 1820–1900.[2]

A considerable part of this economic growth was interlinked with the growth in trade. Trade acted as a catalyst of growth and vice versa.[3] Demand for exports from other economies has increased production of goods and services within the exporting economy, thereby spurring greater domestic activity. Imports, meanwhile, encouraged increased productivity through competition and innovation and enabled the flow of technology and ideas while giving consumers and producers access to a wider variety of goods at lower prices. Moreover, foreign investments facilitated by globalisation have created more jobs in the economy and increased innovations and productivity. The increased participation in free trade by APEC economies has greatly contributed to GDP growth in the region.

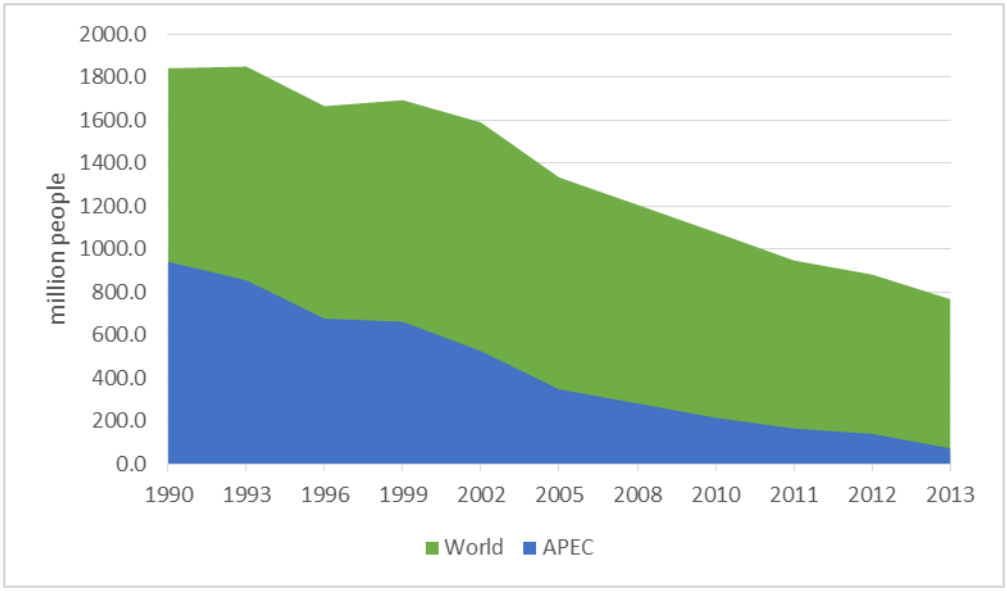
---

[2] Our World in Data, based on World Bank and the New Maddison Project Database.

[3] A number of studies find a positive relationship between trade and economic growth. See for example: Frankel, J.A. and D. Romer (1999); Wacziarg, R. and K.H. Welsh (2008); Edwards, S. (1997); Gries, T. and M. Redlin (2012).

Globalisation has also contributed to poverty reduction. According to Roser and Ortiz-Ospina, the share of the world population living in extreme poverty (under USD 1 a day) had an impressive decline from 84 per cent of the population in 1820 to 24 per cent in 1990.[4] Globalisation and trade facilitated poverty reduction through job creation, lower prices for consumers and higher wages in competitive export sectors.[5] Panagariya (2003) found that historically no economy has been able to sustain a growth of 3 per cent or more in per capita GDP terms without increasing trade with other economies. Data on extreme poverty from the World Bank's PovcalNet indicated a decrease in the share of the world population living under USD 1.90 a day from 42.0 per cent in 1990 to 12.5 per cent in 2013. Likewise, between 1990 and 2013, 867 million people within APEC were lifted out of extreme poverty conditions (Figure 1.1). Only 3.2 per cent of the APEC population lives in extreme poverty as of 2013, which is a substantial improvement since 1990, when the share of extremely poor people was 52.4 per cent of the population.

Figure 1.1. People living in extreme poverty, 1990-2013



Note: Extreme poverty is defined as living on USD 1.90 per person per day (in 2011 PPP terms). Data for APEC cover Chile; China; Indonesia; Malaysia; Mexico; Papua New Guinea; Peru; the Philippines; Russia; Thailand; and Viet Nam.

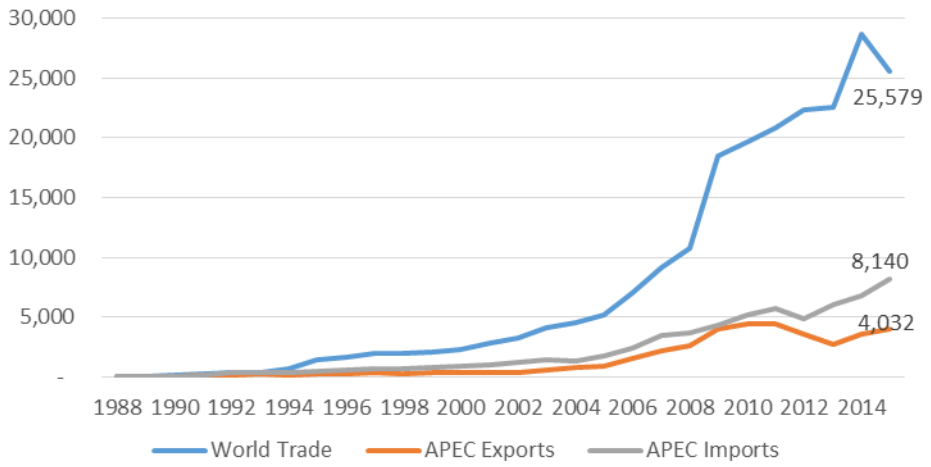
Source: World Bank Povcal Net data.

Improved health outcomes through increased access to medicines, higher vaccination rates, and improved caloric intake and nutrition provide a concrete illustration of the contributions of globalisation. In the 1990s, most favoured nation (MFN) tariffs of at least 5 per cent were applied to vaccines in at least 73 economies and tariffs of at least 10 per cent were applied in 30 economies. By 2015, the tariffs had been further reduced, with only 16 economies imposing tariffs of 5 per cent or more and only one economy imposing tariffs of above 10 per cent. As a result, global trade in vaccines rose significantly in the past couple of decades (Figure 1.2). Vaccine trade grew at a rate of approximately 24.3 per cent per year between 1988-2015, multiplying 353 times and reaching USD 25.6 billion in 2015, contributing to the control and prevention of communicable diseases.

[4] See: Roser, M. and E. Ortiz-Ospina, 'Global extreme poverty', *Our World in Data*, 27 March 2017, https://ourworldindata.org/extreme-poverty/ (accessed 5 May 2017)

[5] World Bank and WTO (2015).

Figure 1.2. Worldwide trade in vaccines for human use (USD million)



Source: World Integrated Trade Solution (WITS), UN Comtrade; APEC PSU calculations.

However, globalisation does not come without adjustment costs, particularly in the short- and medium-term. If trade is beneficial because economies can specialise in the production of goods and services in which they have a comparative advantage, then this also means that those economies will reduce (or not as rapidly increase) the production of goods and services they cannot competitively produce. The slowdown in output growth in the non-competitive sectors can result in layoffs of workers in the short- to medium-term if their skills are not matched to the needs of the competitive sector, resulting in structural unemployment. Indeed, in a meta-analysis of empirical research, Goldberg and Pavcnik (2007) find that globalisation tends to exacerbate inequality in developing economies, and they identify the lack of sectoral labour reallocation from non-competitive to competitive industries as the main channel for this finding. The IMF, in its April 2017 *World Economic Outlook* report, finds that the labour income share of GDP—an indicator of income distribution—has been on a downward trend since the 1990s particularly for low- and middle-skilled workers, a finding that they attribute to technology and globalisation.

As a result of changes in demand for labour or changes in demand for skills, workers might not be able to find new employment, or employment of equal quality.[6] Changes in demand for labour result from different levels of competitiveness between sectors, which leads to the expansion of the competitive sectors and the contraction of the uncompetitive sectors.[7] As different industries expand and participate in international trade, the demand for labour changes along with the economy's needs. A number of firms also tend to move their operations overseas or outsource the work to other economies to remain competitive. However, this can leave some domestic workers without jobs.[8]

Changing technology and disruption

Globalisation is not the only source of structural unemployment: by most estimates, changing technology and increasing productivity, rather than globalisation, are the main drivers of jobs

[6] IMF, World Bank and WTO (2017).
[7] Harrison, A., J. McLaren and M.S. McMillan (2010).
[8] Levine, L. (2010).

losses in manufacturing and agriculture.[9] The increased use of robots, digital technology, and artificial intelligence recently has led to the automation of many repetitive and routine tasks. Computers can now perform some of these tasks more efficiently and have in many cases replaced workers. A study by Frey and Osborne (2013) found a strong negative correlation between skills and an occupation's tendency to be automated.[10] This means routine jobs that require low skills have a greater chance of being computerised.

Likewise, Autor and Dorn (2013) find that while technological progress improves workers' efficiency, it also explains the decline in low-skilled non-service jobs[11] in the US in the three decades leading up to the 2000s. On the contrary, labour hours spent on low-skilled jobs that were service-oriented[12] rose by 30 per cent between 1980 and 2005 in the US. The study also finds efficiency-related savings to be associated with the complementary relationship between technology and the task of high-skilled workers.

Digital technology has different impacts across a spectrum of jobs. The most vulnerable are workers who perform rules-based and routine activities like factory assembly, simple accounting, and data collection. On the other hand, workers carrying out non-repetitive and discretionary tasks—e.g., cleaners and hair stylists as well as programmers and doctors—will not be threatened by computerisation as their tasks are too complicated to turn into an algorithm. This leads to a phenomenon known as job polarisation, where low-skilled and high-skilled jobs will not be lost due to automation while middle-skilled jobs may cease to exist. While empirical data are still scant and preliminary, there is some evidence pointing to this trend. A European jobs monitor found the largest contributor to the 2011-2013 decline in employment rates across Europe to be from lost middle-skilled jobs (Fernández-Macías & Hurley, 2014). The two ends of the skill distribution band enjoyed high employment growth over the period, resulting in a U-shaped employment pattern.

The advent of digital technology is not all gloomy. Even as computerisation takes away jobs from some, it also creates new occupations and opportunities. A Google search of "10 jobs that didn't exist 10 years ago" shows a list of positions including cloud computing specialist, data scientist, app programmer, and social media manager that have been created as a result of technological advancements. For example, there was no app developer until the introduction of the App Store and Google Play in 2008. Similarly, cloud computing specialist became a position only after Google introduced the term "cloud computing" at its 2006 conference. The World Economic Forum made a related observation in its *Future of Jobs* report in which it indicated that the most in-demand jobs in many economies today did not exist a decade ago.[13] Along these lines, it also predicted that 65 per cent of primary school children today will be doing jobs that do not exist yet.

While technology can indeed lead to the displacement of some jobs, it can also create new ones and increase productivity by complementing labour either directly or indirectly and by making

[9] See, for example, Hicks and Devaraj (2015) and WTO (2017).
[10] In their study, Frey and Osborne (2013) defined computerization as job automation through computer-controlled equipment.
[11] Examples of non-service occupations include production and craft occupations, operative and assembler occupations, mining and farm occupations, and some transportation, construction, mechanical occupations.
[12] Service occupations are jobs that involve assisting or caring for others, for example, food service workers, security guards, janitors and gardeners, cleaners, home health aides, child care workers, hairdressers and beauticians, and recreation occupations. Service occupations are distinguished from the service sector, a broad category of industries ranging from health care to communications to real estate.
[13] World Economic Forum (2016).

work less arduous. Technology can automate some aspects of jobs, allowing labour to be deployed to higher value-added tasks. Firms can engage in more profitable activities, increase their market share and hire more workers. A report by *The Economist* (2011) gives an example of positive interaction between technology and employment. One would expect that an increase in automated teller machines ATMs would lead to a decrease in demand for bank tellers. However, between 1985 and 2002, ATMs increased by 292,000 and the number of bank tellers rose by 42,000 in the US. This shows that the ATMs did not displace bank tellers but rather freed up workers to focus on increasing banks' customer base, thereby increasing demand for bank tellers to serve new customers. Additionally, the introduction of ATMs also led to the creation of new job categories—ATM manufacturing technicians and ATM maintenance workers.

The trend towards a "gig economy" and its accompanying jobs has been made possible by digital technology. For instance, apps like Uber and Grab give people an opportunity to provide transport services and earn revenue. TaskRabbit creates a market place for freelance jobs such as painter and handyman. Among other various skill-based services, Go-Jek allows people to perform courier and food delivery services. All these apps provide job opportunities to people, especially those who are unemployed or underemployed. Hall and Krueger (2015), find that 160,000 drivers were employed by Uber by the end of 2014 from almost zero in 2012. Moreover, a market study by consultancy firm Edelman Berland (2014) found that a third of the American workforce is employed in freelance jobs.

The dynamics of the labour market have changed drastically since the invention of digital technology. As skills that are learned today may become obsolete tomorrow, the future of many jobs will depend on the pace of technological development and adoption. At the same time, many established jobs like food services, healthcare, and law enforcement are adopting technology and requiring practitioners to equip themselves with higher-level computer skills to adapt to the increasing use of digital technology in their sectors.

STRUCTURAL REFORM AND HUMAN CAPITAL DEVELOPMENT: THEORY AND LINKAGES[14]

Growth is a process of increasing productivity (i.e., output per person) by (l) using existing resources increasingly efficiently; (2) accumulating additional resources per person; and (3) insuring that the additional resources are allocated so that supply and demand changes are reasonably balanced.

Resources include land, usually in fixed supply (but with the potential for improvements through investment), physical capital which is accumulated through investment, and human capital which is accumulated through education, training, and experience. It is important that as physical and human capital accumulate they be efficiently used, because that determines the corresponding increase in productivity. Likewise, measures can sometimes be adopted which increase the productivity of existing resources in addition to increasing human and physical capital.

Economic efficiency, in turn, depends on having an appropriate framework and incentive system, so that these new resources are put to best use and existing resources are reallocated as

[14] This section draws from the development theories of Lewis (1954), Rostow (1960), Ranis and Fei (1961), and Lewis (1979).

needed with growth. The framework within which resources are employed includes the institutions that govern economic activity such as law and order, laws governing business operations, labour market regulations, etc. That framework is beyond the scope of this paper except for the labour market, which affects human capital investment and development.

From low- to middle-income status

It is useful to think of the growth process as consisting of stages: in an early stage, most of the labour force is engaged in primary activities (i.e., farming and fishing, predominantly). Workers in the primary sector typically have fairly low productivity. People have little access to education or health care, and towns are relatively small with merchants and officials as the main off-farm workers. As some of the young workers with primary education take non-agricultural jobs, their productivity is well above that in agriculture, so growth occurs through rural-to-urban migration as well as through factor accumulation and learning.

In the first stage of development, with appropriate incentives and infrastructure, off-farm production of goods and services become increasingly profitable, and businesses have incentives to expand output. The ability to sell products made with unskilled labour in the international market, as well as domestically, enables more rapid growth as poor economies can absorb more workers into off-farm activities when goods can be sold abroad as well as domestically before moving up the value-added chain. To get appropriate incentives even at the early stage of development, reforms are often needed. The bottlenecks appear to vary from economy to economy, but agricultural pricing and distribution policies are often in need of reform. Pricing and availability of appropriate water, power, and transport infrastructure may also be in need of early adjustment or reforms.

Growth in productivity and per capita income takes place both because adults with primary education are more productive in farm activities (and in providing better health and nutrition for their young) and because those moving to off-farm jobs have higher productivity, often by a factor of two and possibly higher in developing economies, than those remaining on the farm.[15,16] As growth of off-farm employment continues, there comes a point where the supply of relatively unskilled labour begins to increase more slowly, peaks, and finally falls. At this point reforms are required to sustain growth, both because growth itself brings about structural change to which the economy must respond.

Once the fraction of the labour force in agriculture has dropped sufficiently, there are relatively few gains in per capita income and productivity that can be achieved from people moving from low productivity rural jobs to higher productivity urban ones. Accumulating and using resources efficiently becomes even more important for both the private and the public sectors. This has been true of those economies that have moved beyond lower middle-income status and it will be even more evident as rates of population and labour force growth drop. For those economies where the labour force stops growing and even starts contracting, it is vital that reforms enable increased productivity of new, as well as of existing, employed workers.

At this early stage with a high fraction of the population and labour force in the rural areas and the population growing rapidly, considerable growth can be achieved simply because the new

[15] With population growth, some off-farm movement usually needs to take place simply to prevent falling output per person on farms.
[16] Gollin, D., Lagakos, D. and Waugh, M.E. (2013).

cohort entering the labour force (i.e., younger workers and those in urban areas) is larger and better skilled than the older workers who are retiring. But as the share of the rural population and labour force shrinks and population growth slows, the rate of economic growth increasingly depends on capital accumulation, the increase in the quality of the new entrants and the efficiency with which they are used. Since most economies are now experiencing falling rates of population growth and in a few cases face stagnant or declining labour forces, increased quality is ever more important as a contributor to growth. It is also increasingly important that, with structural change (and the ability to replace unskilled workers with machines as wages rise), opportunities are created for workers to retrain and shift to more productive jobs.

As economies approach middle-income status, the increased potential for growth offered by an open economy assumes greater importance. In a closed economy, domestic demand for products made using unskilled labour intensively would be limited because much farming is subsistence and because a high fraction of the incomes of the poor is spent on food and shelter, leaving a very small market for other goods and services. If the economy is relatively closed (e.g., due to trade barriers), slower expansion of activities using more skills and capital per worker will be undertaken as prices of those goods are high and the expanded output of unskilled labour-intensive goods leads to drops in their relative prices, thus discouraging further expansion of these activities. If that happens, the rate at which new workers can be absorbed into the urban workforce diminishes and thus more are left behind. If too much skills upgrading is undertaken too soon, resources are allocated to new high-skill activities leaving behind too many workers in the rural sector.

Middle-income economies

In the middle-income stage of growth, per capita income growth takes place in significant part as the productivity of unskilled workers rises because the skill composition of the labour force improves, because workers acquire more experience (i.e., on-the-job training), and due to continuing capital accumulation (including improvements in infrastructure which lower the costs of doing business throughout the economy) which raises the capital-labour ratio and enables machines to replace some unskilled labour jobs. The increasing productivity of those still on the farm generally results in rising real wages for unskilled workers in off-farm employment as higher wages are needed to induce migration.

Productivity in the unskilled-labour intensive industries can be increased by the employment of more technicians and engineers for quality control; by on-the-job training for workers; by employment of trained managers to enable better inventory control and reduce wastage; and in scores of other ways. At the same time, as the supply of those with skills increases, new and more skilled-labour intensive industries can become economically feasible.

As wages rise and the supply of new entrants to the unskilled labour force diminishes, there is a shift to a higher ratio of human capital investment and efforts to improve the quality of education and training, especially at the primary level, and to expand secondary and tertiary education and training. At this stage, attention must be given to assuring a reasonable balance between the types of training and the needs of private firms. Expanding, for example, the supply of doctors with little or no increase in the supply of nurses, nurses' aides, and laboratory technicians, reduces the productivity of trained doctors as they must perform those complementary functions.

At this stage, allocation of resources and quality assurance for training programs are of critical importance. Underinvestment and inadequate capacity to train technical workers, both at the secondary and the tertiary level and in vocational as well as traditional educational facilities can slow down growth in many economies. On the other hand, overinvestment in education and training for occupations that are not needed by the labour market can result in over-education and diversion of skilled workers to lower productivity work. This can also result in highly trained but unemployed workers migrating to other economies, with a consequent loss of human capital to the source economy.

When growth is sufficiently rapid, the demand for goods produced with relatively unskilled labour-intensive techniques rises at a sufficient pace so that growth of those industries slows down but demand does not decline and workers in those industries remain employed for some time (unless productivity rises very rapidly). At a later stage, with successful development, the real wage rises enough so that industries intensive in the use of unskilled labour reduce employment and the goods are partly or entirely imported or the industries substitute capital for labour.

If an economy is to grow, structural change is necessary. As already seen, the fraction in farming and other primary occupations will decline as the number of higher productivity off-farm jobs increases. Structural change can happen for many reasons. As incomes rise, people choose to spend a higher fraction of their budgets on goods other than food, clothing and housing. As incomes rise, consumption of meat and vegetables typically increases relative to that of grains, and previously unaffordable foodstuffs enter the consumption basket. Likewise, economic growth almost always entails different rates of productivity growth in different activities. Industries with very high rates of productivity growth either expand into the export market or reduce employment as the growth rate of demand (even at lower prices) is below that of supply.

For open economies, there is another source of structural change originating from the external sector. Demand from abroad can shift for a variety of reasons: there can be a shift in tastes, a new competitor or competitors may enter the market, and technical change abroad may increase the ability of foreign firms to compete in the domestic market. However, more open economies can take advantage of global trade to smooth out macroeconomic shifts, enabling smoother adjustment. On one hand, the rate at which unskilled labour-intensive industries will have to reduce their rate of expansion as the domestic market is satisfied is reduced. And on the other hand, the international market can offset shocks in the domestic economy. Hence, it is an open question whether a particular economy will experience more abrupt or sharp shifts calling for structural change than a closed economy. While more open economies are likely more susceptible to economic shocks originating from the global economy, they also have more opportunities to adjust to both international and domestic shocks.

High-income economies

Economies that are able to make continuous structural changes and sustain economic growth can advance to the third stage: high-income economy status. By the time that stage is reached, an economy has already achieved considerable flexibility. But as growth continues and the economy becomes more complex, it becomes more important that structural reforms are designed in a way that aligns private incentives with desired policy outcomes.

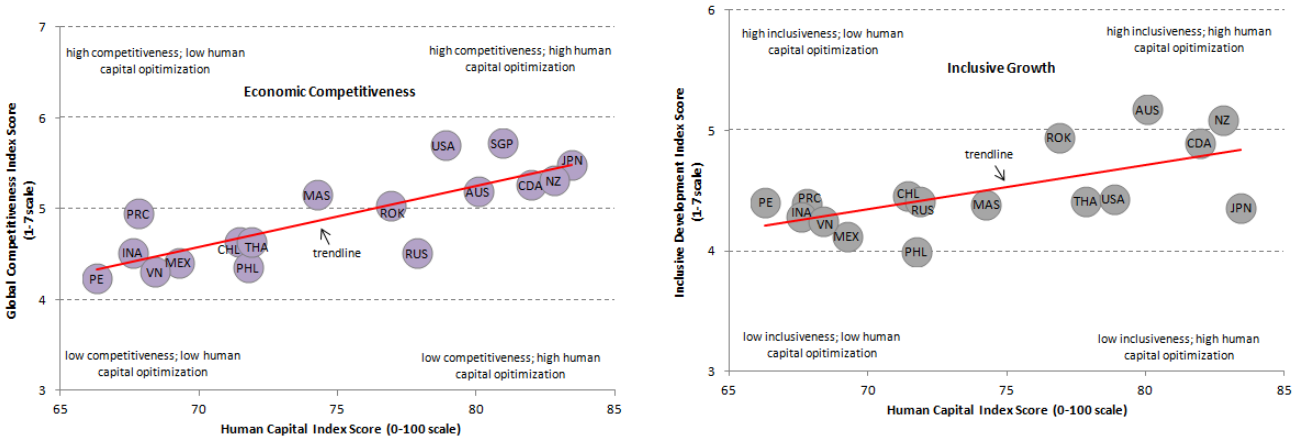
In most advanced economies, the labour force is already reasonably highly skilled, although skills tend to be more specialised. Access to basic education is practically universal, and advanced training in tertiary schooling and graduate studies is relatively accessible. There is also a relatively high capital-labour ratio, as cumulative savings and rising wages have enabled and induced substitution of human and physical capital for unskilled labour to a fair degree. In consequence, more reliance must be placed on innovation and technical change, as well as flexibility in responding to incentives, as growth proceeds.

As the supply of off-farm migrants diminishes, real wages can rise more rapidly, but the rate of change of composition of output is more rapid, and the degree to which migration can contribute to growth falls. As a result, the labour force needs to become more flexible. Moreover, required skills become more differentiated. Over time, the rate at which redundancies occur in some specialties increases. For an advanced economy, and to a lesser degree for middle-income economies, facilitating the mobility (including retraining for new skills where necessary) of workers from their former employment to new ones becomes increasingly important. Accelerating the speed with which workers can migrate and/or change skills becomes a greater source of growth; it also eases the social costs of growth and contributes to inclusion as longer spells of unemployment are avoided.

2. HUMAN CAPITAL DEVELOPMENT IN THE APEC REGION

There is a positive correlation between the human capital development and the competitiveness and inclusiveness of an economy (Figure 2.1). This indicates that skills development can contribute to ensuring long-term economic competitiveness as well as promoting inclusive growth. This section examines selected data on human capital development in the APEC region, highlights some achievements in this area and discusses some policy options and opportunities that can enable economies to increase human capital development through policies that improve productivity, participation, adaptability, and connectivity.

Figure 2.1. Human capital, competitiveness, and inclusive growth in APEC



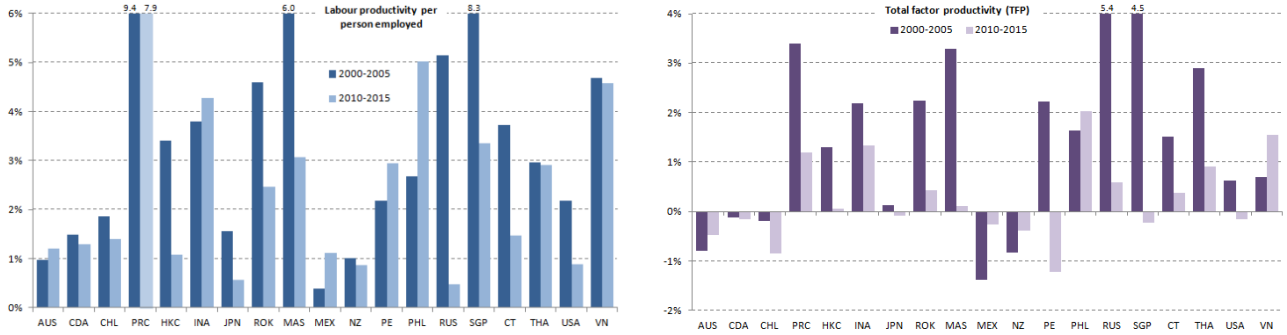
Note: Data for Brunei Darussalam; Hong Kong, China; Papua New Guinea; and Chinese Taipei is not available. Inclusive Development Index data for Singapore is not available.
Source: World Economic Forum's Human Capital Index 2016, Global Competitiveness Index 2016-2017, and Inclusive Development Index 2017.

LABOUR PRODUCTIVITY

The recent decline in productivity growth has been a concern for many policymakers around the world. Apart from a few APEC economies, there has been a decline in the growth rate of labour productivity per person employed between 2000-2005 and 2010-2015, with some economies having experienced a substantial slowdown (Figure 2.2). Furthermore, with the exception of the Philippines and Viet Nam, all APEC economies experienced a slowdown in the growth of total factor productivity (TFP)[17] between those two 5-year periods according to data from The Conference Board. The reasons for this are varied and depend on the specific economic circumstances in each APEC economy.

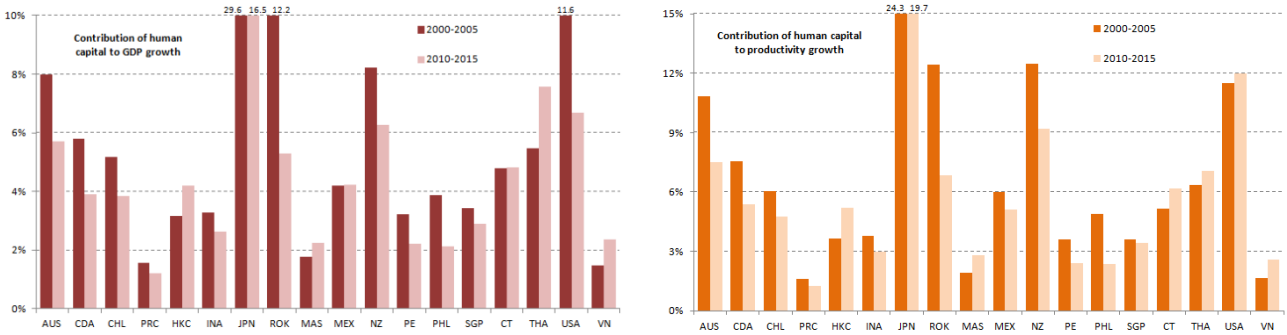
[17] Total factor productivity, or multi-factor productivity, is the growth residual after accounting for the inputs to production (capital and labour). It represents how efficiently and intensely inputs are used in the production process and, under certain assumptions, can be thought of as technological progress.

Figure 2.2. Productivity growth, 2000-2005 & 2010-2015 (per cent)



Note: Growth rates shown are compounded annual growth rates based on data in 2015 US$ (converted to 2015 price level with updated 2011 PPPs). Data for Brunei Darussalam and Papua New Guinea is not available.
Source: The Conference Board, Total Economy Database (Adjusted version), November 2016 and author calculations.

Figure 2.3. Contribution of human capital to GDP growth and productivity growth, 2000-2005 & 2010-2015 (per cent share)



Note: Percentages shown are the shares of labour quality to GDP growth and to productivity growth and are based on data in 2015 US$ (converted to 2015 price level with updated 2011 PPPs). Data for Brunei Darussalam, Papua New Guinea and Russia is not available.
Source: The Conference Board, Total Economy Database (Adjusted version), November 2016 and author calculations.

Improvements in human capital typically contribute the smallest share to GDP growth relative to other factors of production, such as labour quantity and capital assets. For most APEC members, labour quality contributed 3 to 6 per cent of GDP growth between 2000 and 2005 (Figure 2.3). However, between 2010 and 2015, the share of GDP growth that was attributed to improvements in human capital fell in most APEC economies. Only in Hong Kong, China; Malaysia; Thailand; and Viet Nam did labour quality contribute a greater share of GDP growth between the two 5-year periods. The story is similar for the contribution of human capital to productivity growth. The share of productivity growth that was attributed to labour quality fell in most APEC economies between 2000-2005 and 2010-2015. This could imply that there is ample scope for investment in human capital to improve the quality of labour throughout the APEC region. Ensuring equitable access to a quality education and promoting vocational education and other forms of technical training is a promising starting point for better growth opportunities in APEC economies.

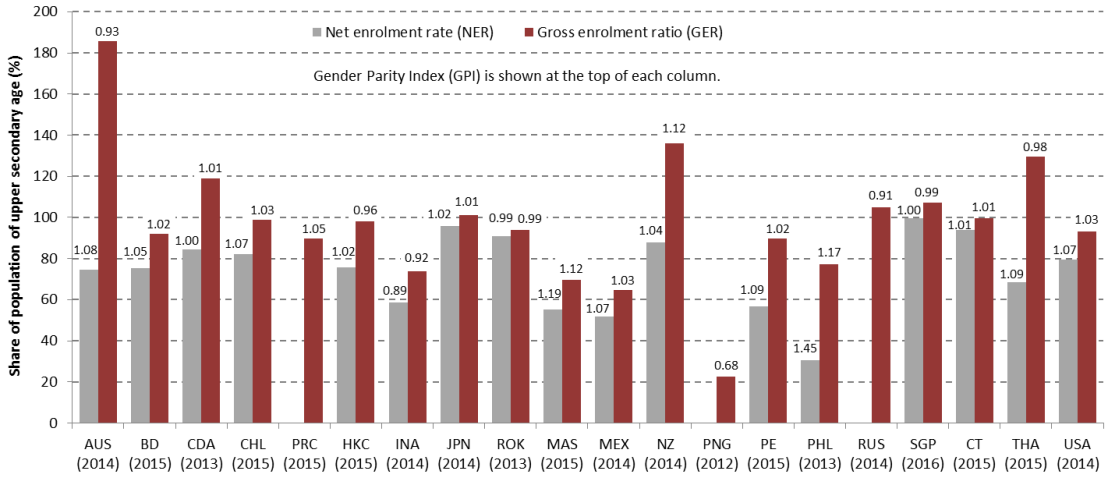
Ensuring equitable access to quality education

Ensuring access to a high-quality education will not only help economies to develop a skilled workforce, but will also allow APEC members to build more equitable and inclusive societies. For most APEC economies, access to primary and secondary schooling in APEC economies is

near-universal. Enrolment rates in upper secondary school are usually a good indicator of the ability of economies to educate young people and equip them with the basic skills needed to enter either tertiary education or the labour force.[18] The net enrolment rate (NER) refers to the number of students in the age group corresponding to upper secondary education that are actually enrolled in that level, while the gross enrolment ratio (GER) shows the degree of participation (regardless of age) in upper secondary education[19]. Both are expressed as a percentage of the official school-age population corresponding to upper secondary education.

Most APEC economies have a high level of participation in upper secondary education as indicated by their gross enrolment ratios of at least 90 per cent (Figure 2.4). Many of the factors that contribute to the under-participation in upper secondary education in some economies are linked to other economic challenges, which can make it difficult to address this issue. For instance, in developing economies a substantial percentage of children often live in remote rural areas with limited infrastructure.

Figure 2.4. Enrolment in upper secondary education, latest available year (per cent and Gender Parity Index)



Note: Data for Singapore is for lower and upper secondary education. Data for Viet Nam is not available. Data for net enrolment rate for China, Papua New Guinea and Russia is not available. GPI is the ratio of female to male enrolment.
Source: UNESCO Institute for Statistics; Singapore's online data portal; Chinese Taipei's Ministry of Education online statistics.

In several APEC economies, there are also significant differences between the net enrolment rate and the gross enrolment ratio. This difference reveals the extent of under-aged and over-aged enrolment in upper secondary education and can indicate a large amount of early or late entrants as well as repeaters. GERs above 100 per cent point to delays, repetitions in the secondary school system or retraining at a later age—an indication that the quality of education may need to be improved. The OECD found that, in general, education systems with a high incidence of grade repetition may reinforce socioeconomic inequities.[20]

[18] Upper secondary corresponds to the final stage of secondary education where there are usually an increased range of subject options taught by more specialized teachers. Students entering this level are typically around 15 years of age.
[19] The gross enrolment ratio can exceed 100 per cent due to the inclusion of under-aged and over-aged students at that level of education. In theory, a value of around 100 per cent indicates that an economy is able to provide an education to all of its school-age population.
[20] OECD (2011).

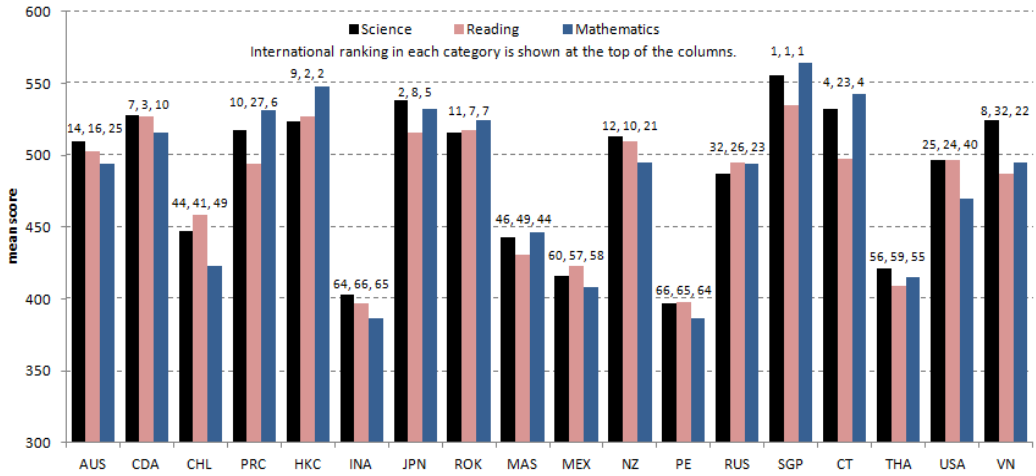
Figure 2.4 also shows the Gender Parity Index (GPI) for both the net enrolment rate and the gross enrolment ratio.[21] With the exception of a few members, the APEC region has largely eliminated gender gaps in the provision of upper secondary education. In the World Economic Forum's most recent Global Gender Gap report, five APEC economies are ranked in first place globally, having achieved gender parity in educational attainment, while a further seven economies had a gap of 1 per cent or less.[22] Note that in several economies the GPI is higher for the net enrolment rate than for the gross enrolment ratio, indicating that male students are more likely to be delayed, to repeat their secondary schooling or to return for further learning.

It is important that the education provided be of a high quality. Education quality refers to the content, pedagogy, processes, and environment of skills development; i.e., what happens in and around the classroom that contributes to a student's learning. While enrolment rates are an indicator of access, education outcomes like performance in aptitude tests are an indicator of quality. Although a minimum level of expenditure in education is essential, achieving high levels of student performance does not necessarily require higher levels of spending. Through its Programme for International Student Assessment (PISA), the OECD found that in high-income economies, once a minimum amount had been spent on education, how those resources are used is more important than how much is spent.[23] After a certain spending threshold had been reached, economies spending more on education had no discernible difference in the academic performance of their students than those economies spending less. Those with the most effective investments (i.e., those that attained the strongest performance respective of their spending) tended to spend more on teachers and prioritize teacher training over other factors such as class size.

Many APEC members exhibited a high level of academic performance on the latest iteration of PISA in 2015 (Figure 2.5).[24] Over half of the top ten economies in each category of science, reading, and mathematics were APEC members. In fact, Singapore had the highest score in all three categories out of the 72 participating economies. Viet Nam also showed a strong performance—ranking eighth overall in science—and outperformed many other economies that spend more on education.[25] The OECD Director for Education and Skills attributes Viet Nam's superior results to a focused curriculum, well-trained and accountable teachers, and committed policymakers.[26]

[21] A GPI equal to 1 indicates parity between females and males. In general, a value less than 1 indicates a disparity in favour of boys and a value greater than 1 indicates a disparity in favour of girls.
[22] World Economic Forum (2016). The report covers 144 economies. The APEC members having achieved gender parity in educational attainment are Australia; Canada; the Philippines; Singapore; and the United States. Those with a gap of 1 per cent or less include Brunei Darussalam; Chile; Japan; Mexico; New Zealand; Russia; and Thailand.
[23] OECD (2012). High-income economies are considered to be those with more than USD 20,000 in GDP per capita and spending a cumulative amount of USD 35,000 to educate a student from the ages of 6 to 15.
[24] PISA is conducted every three years to assess the skills of 15-year-old students around the world. PISA 2015 focused on science, with reading, mathematics, and collaborative problem solving as areas of assessment.
[25] The PISA 2015 sample covered only 49 per cent of the total population of 15-year-olds in Viet Nam. In PISA 2012, Viet Nam had international rankings of 8 in science, 17 in mathematics, and 19 in reading. GDP per capita in Viet Nam was USD 2,111 in 2015 (Source: World Bank, World Development Indicators).
[26] Schleicher (2015).

Figure 2.5. APEC Performance in PISA 2015 (mean score)



Note: Data for Brunei Darussalam, Papua New Guinea and the Philippines is not available. China refers to the four participating provinces of Beijing, Shanghai, Jiangsu, and Guangdong.
Source: OECD PISA 2015 online database.

High test scores are just one measure of academic performance and the quality of the education system in an economy. Different measures are required to develop and maintain a high-quality education system since educational challenges vary substantially among the APEC members. In economies where significant portions of the population lack basic skills, there may be a need to strengthen their teaching of core subjects such as literacy, numeracy, and science. On the other hand, APEC economies with high achievements in basic skills development may increase emphasis on teaching critical thinking skills and encouraging creativity. In general, well-trained and accountable teachers with the autonomy to teach relevant curricula using innovative methods that are specific to each classroom are considered to be a key component to achieving excellence in learning outcomes.

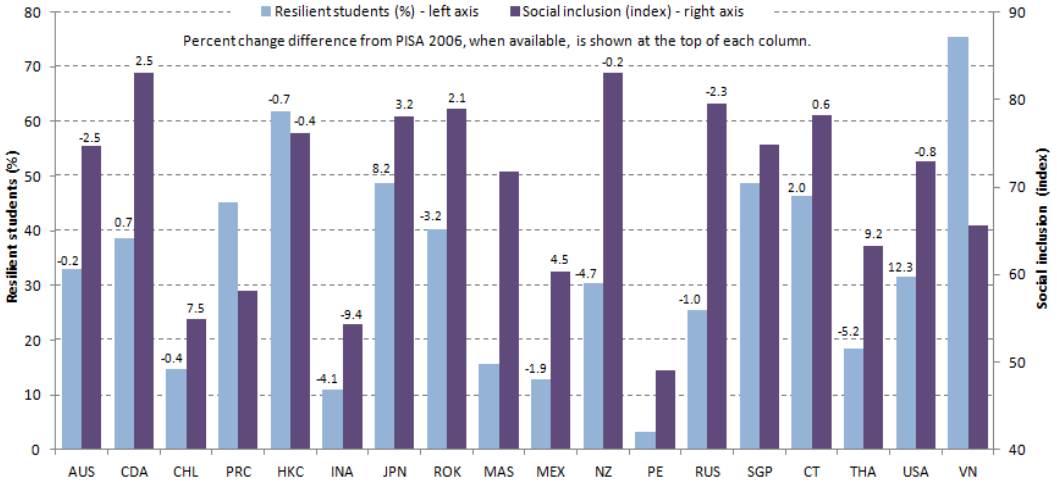
PISA 2015 also measured the impact of socioeconomic status on educational performance. Students from disadvantaged backgrounds tend to have a comparatively lower level of academic performance.[27] The OECD refers to "resilient students" as those in the bottom quarter of the PISA index of economic, social, and cultural status in the economy of assessment, that nevertheless perform in the top quarter of students from all economies, after accounting for socioeconomic status. Many APEC economies do well on this measure, with most having a higher share of resilient students than the OECD average of 29 per cent (Figure 2.6). Most notable in PISA 2015 is that 76 per cent of students in Viet Nam are considered to be resilient. The number of resilient students in the United States increased by 12 percentage points between PISA 2006 and 2015.

Students from disadvantaged socioeconomic backgrounds, especially those with poor academic performance, are most at risk of dropping out of secondary education. Evidence shows that students in lower wealth quintiles are less likely to complete upper secondary school than those in higher wealth quintiles.[28] Although data are limited for the APEC region, there is a disparity between the upper secondary completion rates of the poorest quintile and the richest

[27] OECD (2016b).
[28] Based on data from World Inequality Database on Education (WIDE), accessed 1 June 2017.

quintile in all APEC economies for which there are data, with some economies having wide income-based gaps in attainment levels.[29]

Figure 2.6. Education equity across APEC (PISA 2015)



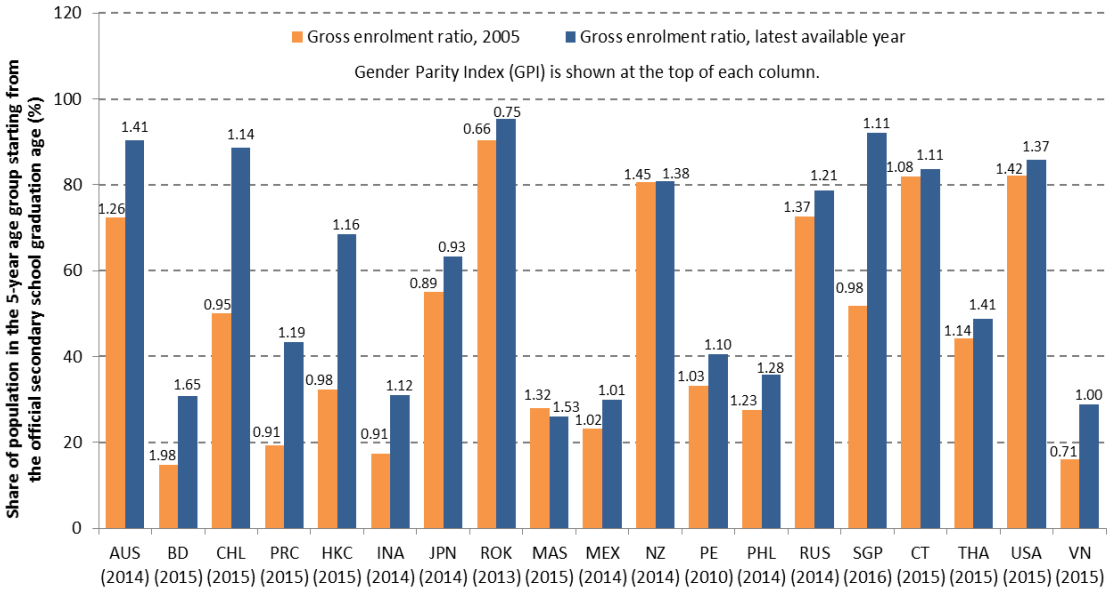
Note: Data for Brunei Darussalam, Papua New Guinea and the Philippines is not available. China refers to the four participating provinces of Beijing, Shanghai, Jiangsu, and Guangdong.
Source: OECD (2016b) online tables.

The OECD's index of social inclusion also measures the variation in socioeconomic status between schools. For example, PISA 2015 found a high level of socioeconomic diversity within schools in Canada and New Zealand: 83 per cent of the variation in the PISA index of economic, social, and cultural status was observed within schools, while the remaining 17 per cent of variation was found between schools. Conversely, 49 per cent of the socioeconomic variation in Peru was found within schools, while 51 per cent was observed between schools, indicating that, on average, there tends to be less socioeconomic diversity among students attending the same school than there is between students attending different schools. The OECD found evidence that, on average, students attending socioeconomically disadvantaged schools have lower performance outcomes than those attending more advantaged schools.

Turning to tertiary education, participation rates for youth are currently quite high in APEC economies, with many having enrolment ratios above 70 per cent (Figure 2.7).[30] Over the past decade, many APEC economies have made great strides in increasing participation in tertiary education, including Brunei Darussalam; Chile; China; Hong Kong, China; Indonesia; and Viet Nam. Many of these economies also previously had gender gaps with respect to female participation in tertiary education. In most APEC economies, there are currently more women than men attending a tertiary educational institution, with the notable exceptions of Japan and Korea. Furthermore, there are often large gender disparities in degree courses, with female students typically dominating teaching and nursing studies, while being underrepresented in engineering and technology courses.[31]

[29] APEC members with the widest disparities in upper secondary completion rates tend to also have low coverage rates of upper secondary education.
[30] Tertiary education builds on secondary education and provides specialised fields of instruction. It includes both undergraduate and postgraduate degree courses. The gross enrolment ratio in tertiary education is expressed as a per centage of the population in the 5-year age group starting from the official secondary school graduation age.
[31] For further discussion, see Vincent-Lancrin (2008).

Figure 2.7. Enrolment in tertiary education, 2005 & latest available year (per cent)

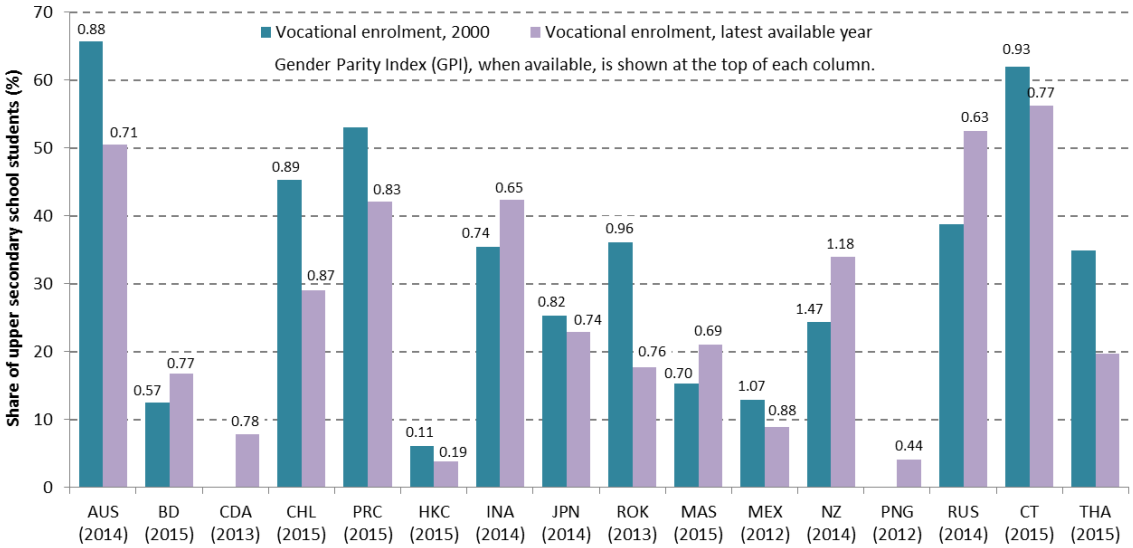


Note: Data for Canada and Papua New Guinea are not available. Gross enrolment ratio, 2005 uses data for 2006 for Indonesia. GPI is the ratio of female to male enrolment.
Source: UNESCO Institute for Statistics; Singapore's online data portal; Chinese Taipei's Ministry of Education online statistics.

Promoting technical and vocational education and training (TVET)

Technical and vocational education and training (TVET) enables students who cannot attend tertiary education to enter the labour market directly with relevant trade or occupational qualifications. There are six APEC economies where over one-third of upper secondary school students are enrolled in vocational education (Figure 2.8). The long-term trend is mixed across the APEC region, but in many economies, enrolment in vocational education has been declining over the past 15 years. In contrast, in Switzerland—which is considered to have one of the best vocational education systems—around 65 per cent of upper secondary school students have been enrolled in vocational education each year since 2000 (OECD 2017a).

Figure 2.8. Enrolment in vocational education among upper secondary students, 2000 & latest available year (per cent)



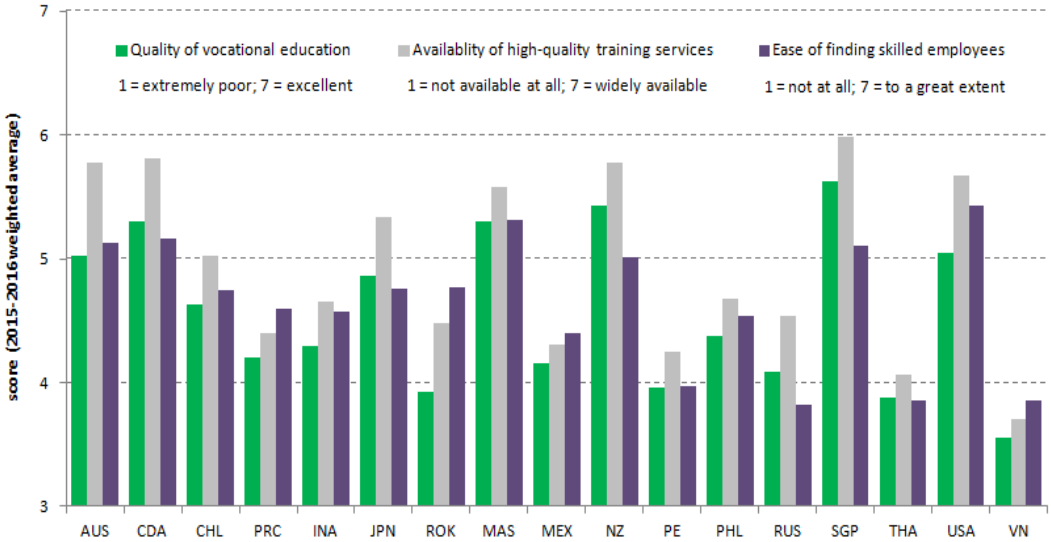
Note: Data for Peru; the Philippines; Singapore; the United States; and Viet Nam is not available. Vocational enrolment, 2000 data for Canada and Papua New Guinea is not available. Vocational enrolment, 2000 uses data for 1999 for Russia; 2001 for Hong Kong, China and Thailand; and 2002 for New Zealand. GPI is the ratio of female to male enrolment.
Source: UNESCO Institute for Statistics; Chinese Taipei's Ministry of Education online statistics; and author calculations.

With the exception of New Zealand, all APEC economies have substantially more male than female students studying in vocational education. A few members have improved upon this disparity over the past 15 years, most notably Brunei Darussalam, but for most other economies, the gender gap in vocational education has been increasing over time. The reasons for this vary, but may include the fact that courses traditionally taken by women, such as nursing, now often require a college degree in many economies—a reason sometimes also stated for the large increase in female participation in tertiary education.

According to the World Economic Forum's Executive Opinion Survey, the quality of vocational education and the availability of high-quality training services is somewhat low across the APEC region (Figure 2.9). Underinvestment in TVET can lead to a shortage of types of skilled labour—a situation currently occurring in many economies around the world. This is found to be true in an annual survey conducted by the staffing firm Manpower which found that 40 per cent of employers worldwide reported having difficulty filling vacant positions in 2016, with the most acute shortages in trades such as electricians and mechanics followed by IT staff such as developers and programmers.[32] Three APEC members were in the top five economies reporting skills shortages: Hong Kong, China (69 per cent); Japan (86 per cent); and Chinese Taipei (73 per cent). Other APEC economies above the global average included New Zealand; Peru; Singapore; and the United States.

[32] Manpower 2016/2017 Talent Shortage Survey.

Figure 2.9. Executive opinions on vocational education and training services in APEC (score)



Note: Scores are a weighted average based on the responses from the 2015 and 2016 Executive Opinion Survey conducted by the World Economic Forum. Data for Brunei Darussalam, Hong Kong, China, Papua New Guinea and Chinese Taipei is not available.
Source: World Economic Forum, The Inclusive Growth and Development Report 2017 online database.

Investment in TVET that develops skills needed by the labour market will not only allow economies to further develop a qualified and skilled workforce, it can also provide a way for APEC members to connect disadvantaged groups in their economy with productive employment opportunities and help workers prepare for new fields of employment. Those from disadvantaged socioeconomic backgrounds and other underprivileged communities can be provided support in order to develop the necessary technical skills and qualifications that businesses require. For developing APEC economies, improved access to TVET can upgrade the skills of workers, including those in the informal sector. For developed APEC economies, vocational education can be used to help retrain workers at risk of being displaced by structural changes, those wanting to upgrade their skills to get better jobs, and older workers trying to remain in or re-enter the workforce. It is important to improve the reputation of TVET—it should be viewed as a viable career path for all people regardless of their socioeconomic background. In addition, an emphasis on lifelong learning, including through on-the-job training and apprenticeships, will improve skills development in the region. Furthermore, an interdisciplinary approach to education and training will help enable students and workers to accumulate multiple forms of human capital. This will enable workers to transition from diminishing occupations to growing sectors much quicker without spending considerable periods retraining.

TVET development requires a high degree of engagement between government and industry to ensure that skills taught are relevant to the needs of employers. Dialogue and coordination between government and the private sector, such as through advisory councils, can enable training and curricula to be designed so that students can develop the necessary skills that are required by businesses, thereby helping to reduce any skills gap in the economy. The advisory councils can help identify growing skills demands, including those that will be needed in the future, so that TVET programmes may be proactively adjusted. Business input is also important to develop national standards for assessments of skills acquisition and technical competencies and for industry qualifications, and to align these national standards with international standards whenever possible.

There are various models for public-private cooperation in TVET, such as the part-time approach that was recently adopted in Korea and Thailand which combines time spent in an educational institute or training centre with time spent in the workplace.[33] In other models, the approach is less formal with varying degrees of responsibility between educators and employers in providing initial vocational training. The informal system is more common in APEC economies. Some TVET programmes are more educator-based (such as in Singapore and the United States), while others are more employer-based (such as in Chile and Japan). In some economies (such as in China and Mexico), there is a mix between the two.[34] Regardless of which system is used, an effective TVET programme needs the following features: (1) strong employer engagement with regular communication between employers and TVET providers; (2) standards for assessment that are effective and understood; and (3) a qualification system that is well-established and recognized.

The private sector can also take on a greater role in building human capital by offering training, including management training programmes, and continuing education opportunities for their employees. In fact, the aforementioned survey conducted by Manpower found that over 50 per cent of employers offered training and development to existing staff in order to fill open positions in 2016—an increase from the previous year when only 20 per cent of employers reported to having done so.

LABOUR FORCE PARTICIPATION AND INCLUSION

Enabling greater participation in the labour force is an important factor in the effective utilisation of human capital and achieving inclusive growth. APEC members can raise labour force participation in their economy by reducing gender-based barriers, addressing the challenge of youth unemployment, encouraging mature-aged workers to delay retirement, supporting people with disability and reducing barriers to entrepreneurship. Bringing workers in the informal sector and other types of vulnerable employment into the formal sector will also allow members to reduce social exclusion as well as income inequality. By increasing participation in the labour force, APEC members can unlock the latent growth potential in their economy.

Promoting female labour participation

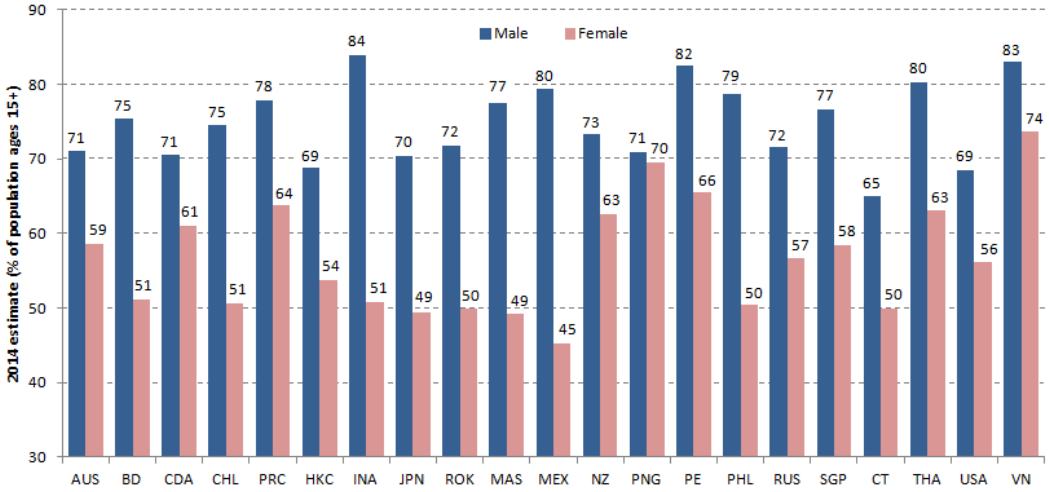
Constraints relating to maternity leave and child care, as well as the additional demands on their time, limit the ability of women to engage in full-time employment. Moreover, a gender-based disparity in childcare expectations, which is reflected institutionally through disparities in maternal and paternal leaves and benefits, puts women at a disadvantage in the labour market.

Despite often having higher levels of enrolment in tertiary education, female participation in the labour force lags behind that of males in all APEC economies (Figure 2.10). As a share of the working-age population over 15 years old, female participation is highest in Viet Nam at

[33] The dual system approach is most common in Germany, Austria, and Switzerland and relies heavily on the use of apprenticeships.
[34] For further discussion, see Australian National Centre for Vocational Education Research (2002) and Hawley (2007).

74 per cent, while Papua New Guinea has the smallest disparity between male and female rates of participation. Conversely, the gap is particularly large in several APEC economies where the female participation rate is less than 70 per cent of the rate for men. Although participation rates can fluctuate over time, Chile has made much progress in increasing female participation with the rate rising by 13 percentage points between 2004 and 2014, while the rate for males also rose by 1.5 percentage points.

Figure 2.10. Labour force participation rate, 2014
(per cent of population ages 15+)



Note: Data is ILO modelled estimates to allow for greater comparability between economies. Labour force is defined as the proportion of the population above 15 years old that are either employed or are not employed and looking for work.
Source: ILO, Key Indicators of the Labour Market (KILM) 2015 (Ninth Edition) online database.

There is a clear economic benefit to increasing female participation in the labour force. One study found that if economies were to reduce the employment disparities between men and women to that of the best performer in their region, then global GDP growth could increase by an additional 1.0 percentage point per year, adding up to USD 12 trillion to global GDP in 2025.[35] However, women typically spend a far greater amount of time per day on household and child care responsibilities than do men. A recent analysis of time use surveys revealed that, on average among the 26 OECD members, women spend more than four and a half hours per day on unpaid work such as housework and child care compared with just over two hours per day for men.[36] While gender-based household allocation of labour can have complicated socio-cultural roots, a lack of good quality and affordable child care support can be an important barrier to increasing participation of women in the workforce.

The nature of child care services and the extent of availability vary across APEC economies. For instance, in some APEC economies, informal child care arrangements—often through extended family and usually unpaid in which case care givers are not counted as employed—are more prevalent than formal child care arrangements. Formal child care facilities include nurseries, pre-schools, and before- and after-school programmes. Such facilities tend to care for several children at a time and are often required to be licensed and therefore must adhere to specific rules and regulations to ensure standards of care. However, some child care arrangements are not required to be licensed, including if the care is provided in-own-home

[35] McKinsey Global Institute (2015). Gender disparities examined include participation, hours worked, and the sector mix of employment.
[36] Based on data from OECD Gender Data Portal (Employment Indicators).

through nannies, which is relatively common in some APEC economies. Ultimately, a shortage of dependable and high-quality child care facilities and services can constrain female labour force participation.

Most APEC members either subsidise or provide some measure of public support for child care facilities, with several offering tax deductions for child care payments (Table 2.1). However, despite such financial incentives, the cost of child care can still be quite high in some APEC economies.[37]

Table 2.1. Snapshot of child care incentives across APEC

	Child care is subsidized or publicly provided	Child care payments are tax deductible
Australia	yes	no
Brunei Darussalam	no	no
Canada	yes	yes
Chile	yes	no
China	yes	no
Hong Kong, China	yes	no
Indonesia	no	no
Japan	yes	no
Korea	yes	yes
Malaysia	yes	no
Mexico	yes	yes
New Zealand	yes	yes
Papua New Guinea	no	no
Peru	yes	no
The Philippines	yes	no
Russia	yes	no
Singapore	yes	no
Chinese Taipei	yes	no
Thailand	yes	no
United States	yes	yes
Viet Nam	yes	no

Source: World Bank (2015).

A lack of maternity benefits can be another hindrance to the ability of women to enter and remain in the workforce. Table 2.2 provides a snapshot of the maternity benefit programmes that are anchored in legislation across the APEC region. With the exceptions of Papua New Guinea and the United States,[38] all APEC economies mandate some amount of paid maternity leave at the national or federal level. Many economies have mandated paternity leave, which is typically around five days and often funded by the employer. Some economies also offer parental leave schemes, which usually lengthen the amount of unpaid leave parents can take.

[37] For instance, OECD (2016c) found that a sole parent in the United States with full-time earnings at 67 per cent of the average wage and with a child in full-time care at a typical child care centre spends over 50 per cent of net income on child care costs after accounting for tax and other financial benefits. In comparison, a dual-earner household with full-time earnings at 167 per cent of the average wage spends around 25 per cent.

[38] California, New Jersey, and Rhode Island have state-level mandated paid maternity leave.

Many APEC economies with publicly provided benefits also allow for additional employer-provided benefits. Programmes in which benefits are paid by governments are often funded through employment insurance rather than through general taxation. Not all working women are covered by maternity benefit programmes if they have not yet met the eligibility requirements. Furthermore, many women that are engaged in part-time employment or employed in the informal sector are also typically outside the scope of maternity benefit schemes.

Table 2.2. Snapshot of legislated maternity benefit programmes across APEC

Economy	Length of paid leave (days)	Wages paid during leave	Provider of benefits	Length of unpaid leave (days)	Notes
Australia	126	national minimum wage	government	239	
Brunei Darussalam	91	100%	employer	14	
Canada	105	34%	government	14	there is also a parental benefit programme
Chile	126	100%	government	0	there are also paternity & parental benefit programmes
China	128	100%	employer & government	0	there is also a paternity benefit programme
Hong Kong, China	70	80%	employer	0	there is also a paternity benefit programme
Indonesia	90	100%	employer	0	there is also a paternity benefit programme
Japan	98	67%	government	0	there is also a parental benefit programme
Korea	90	100%	employer & government	0	there is also a paternity benefit programme
Malaysia	60	100%	employer	0	
Mexico	84	100%	government	0	there is also a paternity benefit programme
New Zealand	112	47%	government	0	there are also paternity & parental benefit programmes
Papua New Guinea	0	N/A	N/A	42	
Peru	90	100%	government	0	there is also a paternity benefit programme
The Philippines	60	100%	government	0	there is also a paternity benefit programme
Russia	140	100%	government	0	there is also a parental benefit programme
Singapore	105	100%	government	0	there are also paternity & parental benefit programmes
Chinese Taipei	56	100%	employer	0	there are also paternity & parental benefit programmes
Thailand	90	100%	employer & government	0	
United States	0	N/A	N/A	84	
Viet Nam	180	100%	government	0	

Note: This table refers to legislated maternity benefit programmes at the economy level. Legislated maternity benefits at the sub-economy level (e.g., states, provinces, cities, municipalities) are not included.
Source: World Bank (2015).

Women are more likely than men to be employed in part-time jobs, which typically have less job security and fewer benefits and training and promotion opportunities. Part-time employment is also usually associated with lower income—this difference in the type of employment is one of the causes leading to the income gap between men and women that is prevalent around much of the world: differences in occupation, sector, industry, as well as employment type contribute significantly to the global gender wage gap. The United Nations estimates that in most economies women earn, on average, 60 per cent to 75 per cent of the wage earned by men.[39] Although many APEC economies have made progress in reducing income disparities between men and women over the past 15 years, the gender wage gap remains high in several economies, particularly in Japan and Korea.[40]

Addressing youth unemployment

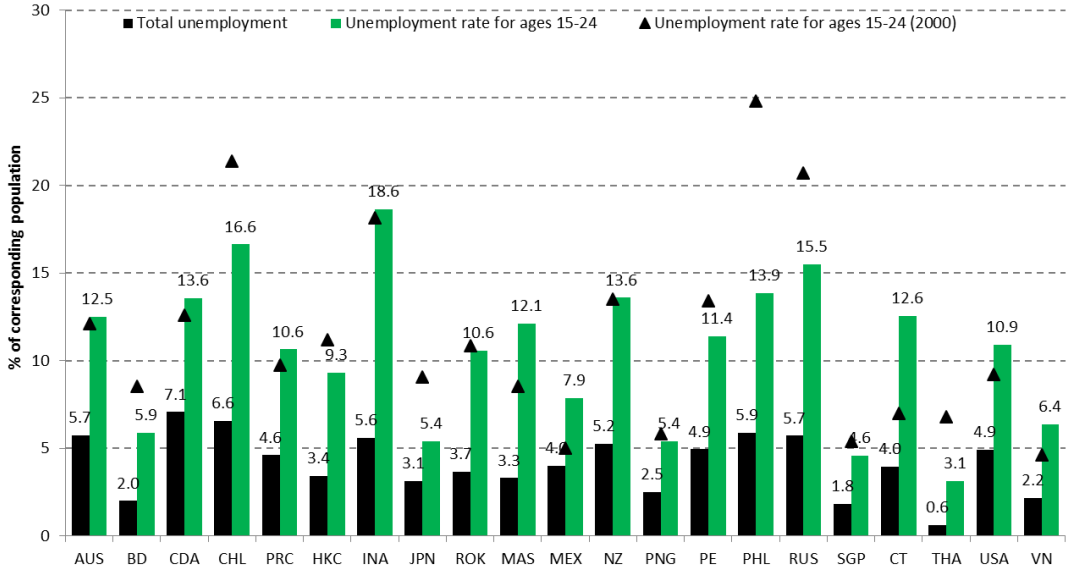
Youth unemployment is a major concern throughout the world, including for APEC economies. High rates of unemployment among young people have a negative impact on economic growth in both the short- and long-term. Limited skills formation among young people leads to the deterioration or the failure to augment their human capital and decreased productivity.

[39] UN Women, Facts and Figures: Economic Empowerment.
[40] Based on data from OECD Gender Data Portal (Employment Indicators). In 2014, the gender wage gap of full-time employees and self-employed workers (i.e., the difference between median earnings of men and women as a per centage of the male median wage) was 25.9 per cent and 36.7 per cent in Japan and Korea, respectively.

Furthermore, youth are negatively impacted by long periods of unemployment near the beginning of their careers—several studies have found this to be associated with lower lifetime earnings and more frequent periods of unemployment throughout their career.[41] These long-term consequences, referred to as "scarring effects", persist the longer the period of unemployment in early adulthood. Research has found that the wage disparities between those graduates who found employment early and those that had longer periods of unemployment were as high as 15 per cent even 20 years later.[42]

In 2016, there were an estimated 22.6 million youths aged 15-24 years old unemployed across the APEC region. In every APEC economy, the unemployment rate is higher for those aged 15-24 than the total unemployment rate (Figure 2.11). Although in most APEC economies the total unemployment rate is lower than the global average of 5.7 per cent, many members have youth unemployment rates that are far higher than the global average of 12.8 per cent. Over the past 15 years, the Philippines has made significant progress in reducing youth unemployment with the rate declining by nearly 10 per centage points since 2000 although it stills remains quite high.

Figure 2.11. Unemployment rate, 2016 (per cent)



Note: Data is ILO modelled estimates to allow for greater comparability between economies.
Source: ILO, Key Indicators of the Labour Market (KILM) online database (September 2017 Update).

Underemployment is another important issue for young people. Many recent graduates find themselves in part-time employment when they would prefer full-time work or—in the case of those that have completed tertiary education—in a role that does not require a college degree. Evidence from the United States suggests that around 45 per cent of recent university graduates—compared with about 33 per cent of all university graduates—are employed in jobs that do not require a college degree.[43] As a result, even young graduates who are in full-time

[41] See, for example, Arulampalam, et al. (2001); Gregg (2001); and Kahn (2010).
[42] Gregg and Tominey (2004). The wage disparity was reduced to around 8 per cent to 10 per cent if there had been fewer periods of unemployment throughout the individual's career. See also Bell and Blanchflower (2011a) who found significant wage effects even at age 50 from unemployment in early adulthood, with the effect stronger than that from more recent unemployment experiences.
[43] Abel et al. (2014). Data is from 2012. Although the number of recent graduates employed in jobs that do not require a college degree has historically been higher than that of all university graduates, the researchers found that there has been an upward trend since the 2001 recession.

employment may find themselves in low-skill and low-paying jobs with little opportunity for development or advancement. Compounding the problem is the fact that many of these unemployed or underemployed young people may also have substantial student loan debt. Those without university degrees or other qualifications face even more formidable challenges, further underscoring the need for greater investment in technical education and skills development.

Although there has always been a transition period between school and work, the problem of youth unemployment appears to have become more acute following the 2008 Global Financial Crisis (GFC). Research indicates that the GFC has had a disproportionately larger impact on young people, including more rapid increases in unemployment among the young relative to older workers in many economies.[44] Evidence from the United States also indicates that a greater number of young people are spending longer amounts of time unemployed.[45] Moreover, much of the research on youth unemployment indicates that the likelihood of such unemployment—as well as the magnitude of its long-term detrimental impacts—is greater for those from socioeconomically disadvantaged backgrounds.

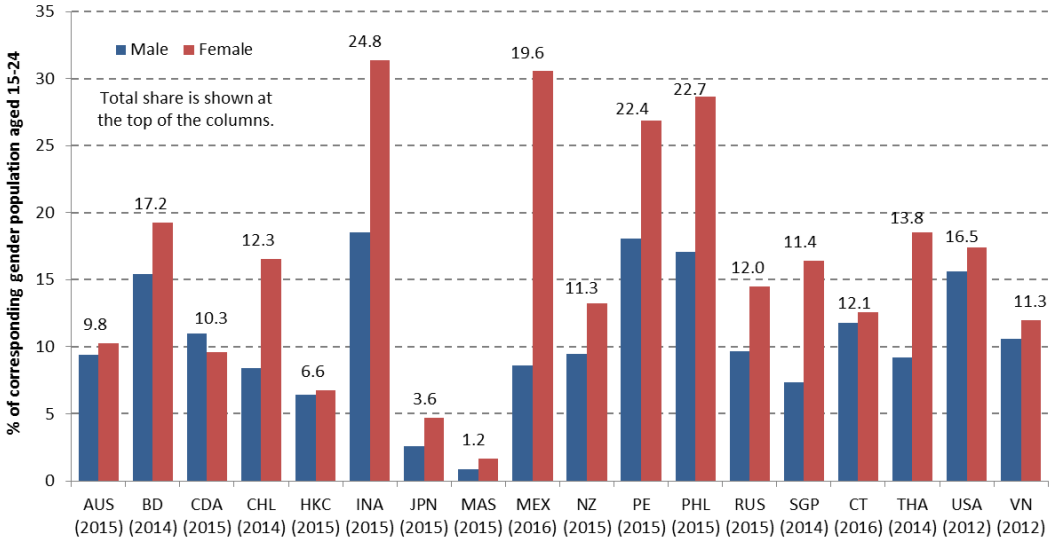
There continue to be persistently large numbers of young people, many of whom are women, who are not in education, employment, or training (NEET) in many APEC economies (Figure 2.12). Total shares of those aged between 15 and 24 that are considered to be NEET are often greater than 10 per cent across the region (for comparison, the NEET rate in OECD was 15 per cent in 2015). In some economies where the NEET rate is higher than the youth unemployment rate, it can indicate the level of discouragement among young people (i.e., those no longer even looking for formal employment).[46] Having large numbers of unemployed and unproductive young people severely limits the future growth potential of an economy. Adding to the challenge is the fact that many NEET are most likely from socioeconomically disadvantaged backgrounds. Tackling this issue will not only promote economic growth, but also prevent increasing or even reduce levels of social inequities and exclusion.

[44] Bell and Blanchflower (2011b).

[45] Jacobs and Bleiberg (2013). The researchers found that long-term unemployment rates (defined as workers looking for a job for between six months and one year) for young people in the United States peaked to historic levels during the Great Recession and remained at record high rates despite improvements in long-term unemployment for older workers.

[46] NEET rates, which include both unemployed youth as well as youth outside the labour force, are tied to youth labour force participation rates and unemployment rates. In general, a high NEET rate and a low youth unemployment rate would indicate that many young people have become too discouraged to even look for work. In their definitions of NEET, some economies also include young women who are housewives, who may not actually be looking for employment or are discouraged from doing so. This would, however, indicate the gender gap in labour participation in an economy since those economies with a high NEET rate for women would most likely also have a low rate of female labour force participation.

Figure 2.12. Youth not in education, employment, or training, latest available year (per cent of population ages 15-24)



Note: Data is actual values from labour force surveys or other household surveys and therefore may not be comparable across economies since collection methods, including operational definitions and statistical coverage, are most likely different. Data for China, Korea, and Papua New Guinea is not available.
Source: ILO, Key Indicators of the Labour Market (KILM) 2015 (Ninth Edition) online database; Chinese Taipei's Directorate-General for Budget, Accounting and Statistics.

There are several policy measures through which APEC members can address youth unemployment. These include labour market reforms and active labour market policies, which will be discussed later, as well as encouraging firms to hire and train young people. Strong employer involvement in TVET will also allow young people to develop the required technical skills, thereby improving their employability. Greater alignment between educational curricula and the skills demanded by industry is desirable for effective school-to-work transitions—whether from secondary school, TVET, or tertiary education—to help reduce long periods of unemployment and underemployment among young people. Research has shown that university degrees in certain subjects are associated with higher rates of unemployment or underemployment.[47] Therefore, it is important that better information on matching jobs and degree coursework is made available to students.

Challenges faced by elderly workers

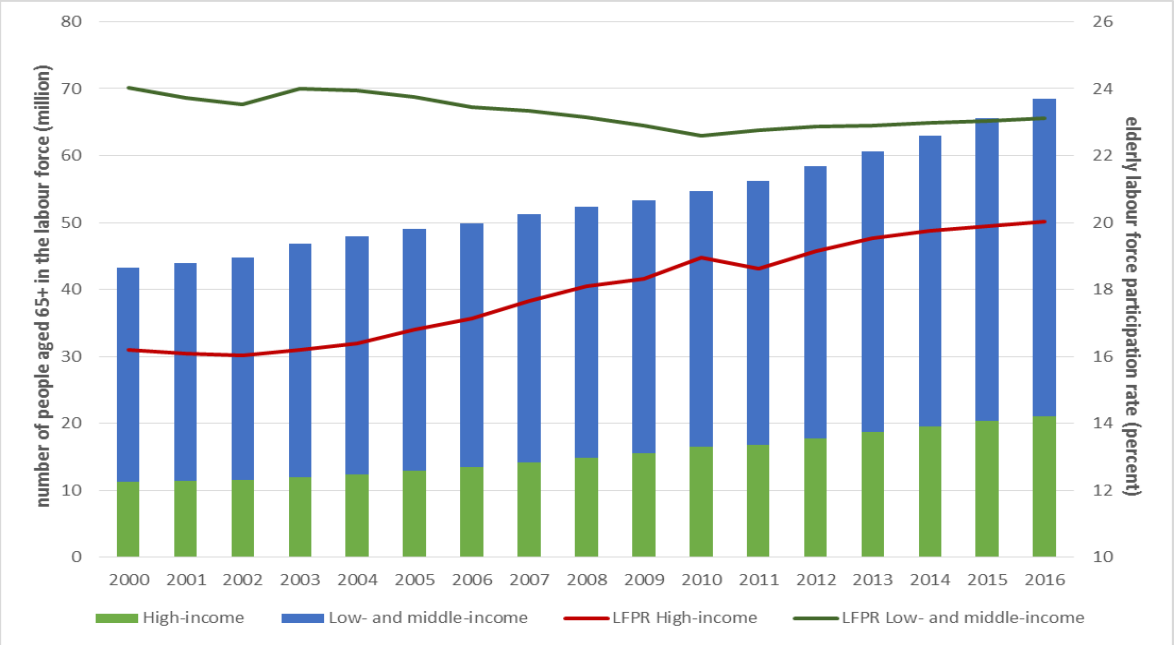
In 2016, there were 68.5 million people over the age of 65 that were in the labour force in the APEC region (i.e., either employed or not employed and looking for work); in 2000 that number was 43.2 million (Figure 2.13). Not only are there more elderly people in the region, but more of them are foregoing retirement and staying in the labour force beyond their 65th birthday. While the elderly population grew at an annual rate of 2.7 per cent between 2000 and 2016, the number of elderly in the labour force grew at 2.9 per cent.

The elderly labour force participation rate in high-income economies increased from 16.2 per cent in 2000 to 20.0 per cent in 2016. On the other hand, the elderly labour force participation rate in low- and middle-income economies decreased from 24.0 per cent in 1990 to 23.1 per

[47] Abel et al. (2014).

cent in 2013. Low- and middle-income APEC economies account for 69 per cent of the economically active elderly population in the region in 2016 (down from 74.0 per cent in 2000).

Figure 2.13. Elderly population in the labour force in APEC, 2000-2016



Note: Based on IMF classification, high-income APEC economies are Australia; Brunei Darussalam; Canada; Hong Kong, China; Japan; Korea; New Zealand; Singapore; Chinese Taipei; and the United States. Low- and middle-income economies are other APEC economies not classified as high-income.
Source: ILO Key Indicators for the Labour Market.

The increase in labour force participation among the elderly is rapid in high-income APEC economies. Between 2000 and 2016, the elderly population in high-income economies grew by 2.6 per cent per year; in comparison, the economically active elderly population grew at an annual rate of 4.0 per cent, indicating that not only are there more elderly people but more of them are entering the labour market. This reflects the challenges of demographic transition and an ageing population in high-income economies. In comparison, the elderly population in low- and middle-income economies grew by 2.7 per cent per year while the economically active elderly population grew at an annual rate of 2.5 per cent. Increasing affluence and improved pension systems may be reducing the need of elderly people in low- and middle-income economies to continue working beyond 65 years old.

Elderly workers face a set of challenges that are different from workers in other age groups. First, elderly workers may need retraining. In most cases, their most recent schooling and training was completed decades ago, which means they may face challenges adapting to technological changes or new ways of doing work. However, opportunities for reskilling and retraining may be unaffordable or pedagogically out of reach (e.g., if they are designed for younger trainees with more updated skill sets).

Second, physical and cognitive challenges of ageing mean that elderly workers are more susceptible to illnesses and injuries (Silverstein 2008). While elderly workers may have the willingness and capability to work, their physical challenges can mean the need for more flexible working arrangements and age-friendly workplace environments. For example, work areas, informational signs, and equipment that are adequate for younger workers may be inaccessible for older workers.

Third, elderly workers face a certain amount of prejudice from employers and co-workers. Attitudes of ageism among employers and younger workers can lead to discrimination and barriers to employment among elderly workers.[48] A study in New Zealand found that even older workers (i.e., above 55 years old) can harbour negative stereotypes about elderly workers (McGregor and Grey 2002).

To address these challenges, some economies encourage additional training and/or retraining, which is increasingly important as there is slower growth of the number of people of working age and in some cases, a decline in numbers. Meanwhile, some economies are incentivizing firms to hire older workers and improve their workplace conditions. Box 2.1 presents some case studies on improving employment opportunities for elderly workers in APEC, while Box 3.1 discusses policy issues relating to social protection for elderly workers.

Box. 2.1. Improving employment opportunities for elderly workers

APEC economies identify challenges related to an ageing population in their Individual Economy Reports (IERs). In this box, we examine the experiences of selected economies.

Lifelong learning in Hong Kong, China

Hong Kong, China has made provisions to encourage workers to upgrade their skills and training by establishing a Continuing Education Fund. The Fund subsidises continuing studies for those aged 15 to 64. The Fund approves individual applicants' proposed training programs. When a program is completed, the student receives reimbursement for 80 per cent of the fees paid for the training program, up to a maximum of HKD 10,000. As of May 2017, 756,000 Hong Kong, China residents had opened accounts and reimbursements for 583,000 employees had already been approved.

Hong Kong, China also established an Employee Retraining Board (ERB), which provides training and support services for about 90 training institutions. Those 15 and older who are educated to the sub-degree level are eligible to apply and can enrol full-time or part-time. Full-time courses are placement-tied. Part-time courses offer generic skills training. By May 2017, there were about 700 courses relevant to 28 industries. It was expected that there would be 130,000 places offered in 2017-18.

To help achieve their target goals for women, a Modular Certificate Accumulation Scheme was inaugurated, so that those unable to pursue courses full-time could nonetheless receive training and documentation of their qualifications. Under that program, courses can be taken part-time with flexibility in scheduling. In addition, the authorities collaborated with some private employers in a pilot program to run a "First-Hire-Then-Train" program for middle-aged women to obtain jobs in elderly homes and resort hotels. In this program, on the job training is on flexible hours.

There are also industry-specific and subject-specific training courses on a number of subjects open to youth and already-employed workers. There were to be 173,000 places in these courses in 2017-18.

[48] See, for example, the discussion in Weiner R. and S. Willborn, eds. (2011).

Employment of elderly workers in Singapore

As the rate of population and labour force growth diminishes or even becomes negative, groups with low labour force participation rates, including the elderly, become more important. In 2012, Singapore passed the Retirement and Re-employment Act (RRA), which requires employers to offer re-employment opportunities for eligible employees in the 62 to 65 age range, and the upper age was raised to 67 in July 2017. The government also began providing wage offsets in 2012 to encourage employers to hire older workers, including those not covered by RRA.

Singapore also encourages and supports employers in redesigning jobs and workplaces to be more attractive for older workers. The government, employers, and workers come together to put in place initiatives to enhance workplace practices to improve the employability and productivity of older workers.

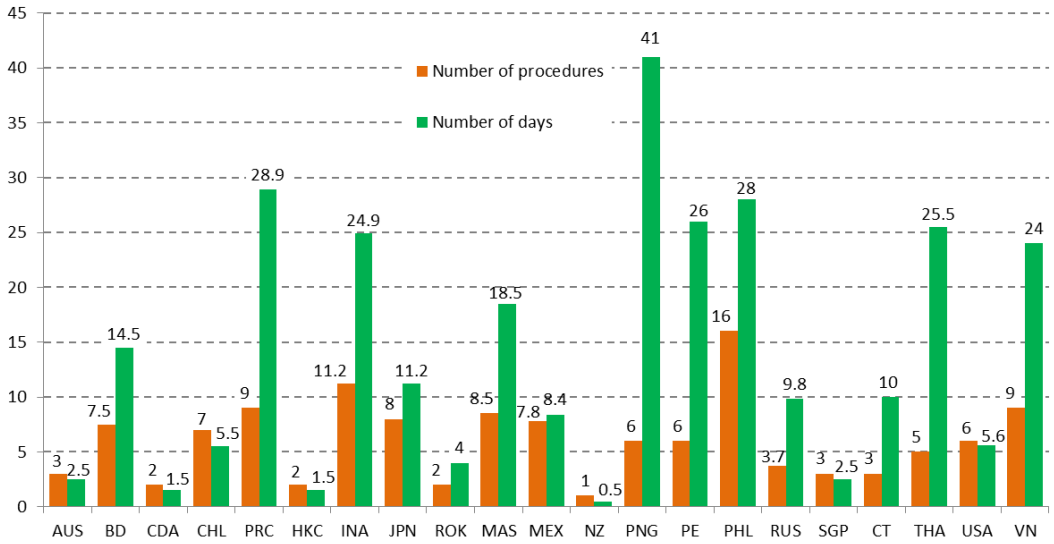
Promoting entrepreneurship and self-employment

Promoting entrepreneurship, for example through reduced bureaucracy, and better access to information and finance, is a good way for economies to increase participation in the workforce, especially since it can also have wide-ranging benefits across the economy. A comprehensive review of existing empirical studies found evidence that entrepreneurs do indeed contribute to job creation and productivity growth. They also produce high-quality innovations and have positive spillover effects on regional employment growth rates.[49] Over the past few years, there have been record numbers of new business start-ups in some APEC economies, namely Australia; Chile; Hong Kong, China; and Singapore. However, in many APEC economies, new business density either remains low or has still not recovered to its level prior to the 2008 GFC.[50] It would be beneficial for APEC members to ensure that the conditions in their economies are conducive to promoting entrepreneurship, and regulations and procedures for starting a business are not too cumbersome to discourage entrepreneurial activity.

Using the World Bank's latest *Doing Business* data, there is wide variation among APEC economies regarding the number of procedures and the number of days that it takes to start a new business (Figure 2.14). New Zealand is the best performer in the APEC region with entrepreneurs currently able to start a business with just one procedure taking half a day. Many economies have made significant improvements over the past decade, with all economies having substantially reduced the number of days it takes to start a business since 2007. Most notably, Brunei Darussalam reduced the time it takes to start a business from around four months to just two weeks over that period. However, there still appears to be quite a few obstacles that entrepreneurs must undergo before they can begin operations in many APEC economies. Those economies in which it is easier to start a business, including Australia; Canada; Hong Kong, Korea; China; New Zealand; Singapore; and the United States, tend to have much higher densities of new businesses compared to other APEC economies.

[49] van Praag and Versloot (2008).
[50] New business density is the number of new businesses registered per 1,000 working-age individuals. Based on data from the World Bank, World Development Indicators.

Figure 2.14. Starting a business in APEC, 2017



Note: Data for Brunei Darussalam and Malaysia is the average numbers between men and women.
Source: World Bank, *Doing Business* online database.

In addition to reducing procedures and costs of starting a business, APEC members could also promote business start-ups in their economy through the increased provision of entrepreneurship education and training. Such programmes can be taught, not only through formal channels such as during secondary school and tertiary education, but also through initiatives such as campaigns to encourage entrepreneurship. These programmes can also be targeted to reach specific groups, such as women, in order to develop entrepreneurial capacity among those for whom participation is low.[51]

Encouraging self-employment is another way to increase economic participation in the labour force. IT-based platforms have significantly reduced the entry and operating costs associated with some self-employment in recent years. The so-called Fourth Industrial Revolution has brought about a wide range of opportunities for people to become economically active, including through alternative formats such as the "sharing economy" (e.g., Airbnb) and the "on-demand economy" or "gig economy" (e.g., Uber, Upwork). E-commerce platforms (e.g., Alibaba) have also made it easier for entrepreneurs and other self-employed workers—even those in rural or remote areas—to sell their products online. Young people in particular are especially primed to take advantage of the opportunities offered by these technologies given that they tend to be more IT-savvy than older workers. Women may also find that self-employment through these channels allows them the flexibility to participate in the workforce while also balancing other responsibilities.

Many of these newly-created jobs lack employee benefits as well as job security. They are typically outside the scope of coverage of most social protection programmes. There may also be limited potential for skills development and other types of career advancement. Although there are considerable challenges involved in collecting official statistics that measure this

[51] Among the OECD economies, almost twice as many working men are self-employed (18 per cent) as women (10 per cent). Furthermore, self-employed men are two and a half times more likely than self-employed women to run businesses that employ others (5.4 per cent of men compared with 2.2 per cent of women). The study also found that self-employed women earned 13 to 60 per cent less than men across the OECD economies. OECD (2016d).

segment of the labour force,[52] there has been research into how workers engage in self-employment through the digital economy. A recent study found that in June 2016, just 0.5 per cent of adults in the United States earned income through online labour platforms (e.g., Uber, TaskRabbit), and 0.4 per cent earned income through online capital platforms (e.g., Airbnb, eBay).[53] The researchers also found high rates of turnover on the platforms,[54] with participation in labour platforms reducing as outside employment options improve. These findings suggest that for many people such jobs are either seen as temporary solutions until better jobs can be found, or they are secondary jobs that provide supplemental income.

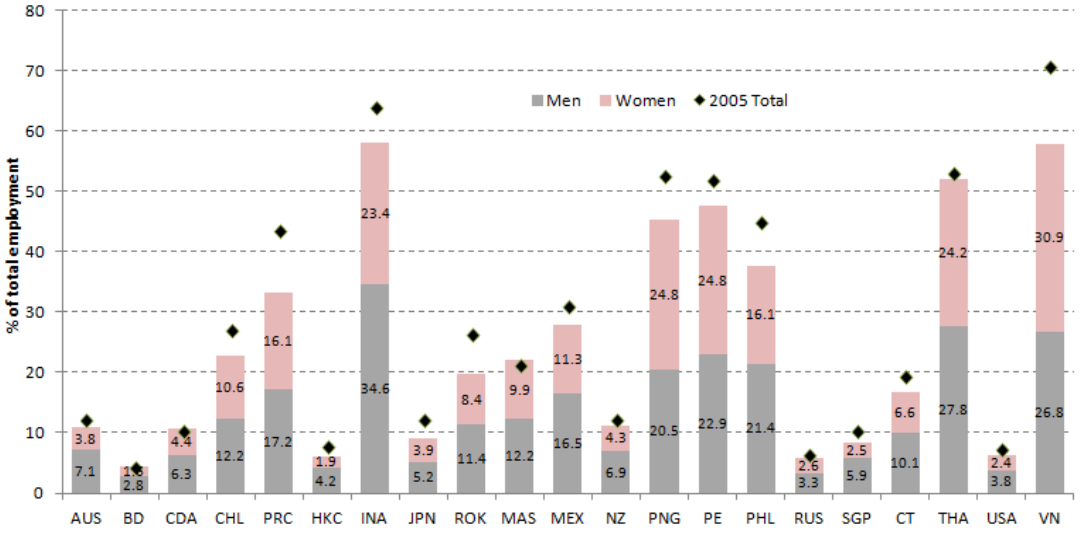
Supporting vulnerable and informal workers

The International Labour Organization (ILO) considers vulnerable employment to include those that are own-account workers and those that are contributing family workers.[55] Since data on the informal sector is extremely limited, the share of vulnerable workers is used as a proxy for the share of informal workers across the APEC region as both groups have significant overlap and are considered to have less formal work arrangements. These roles typically lack statutory protections (such as mandated minimum wage rates) and other employment benefits (such as paid sick leave). In addition, they are usually outside the scope of coverage of most social protection schemes, including employment injury benefits and unemployment benefits.

There are an estimated 453 million people—around 30 per cent of total employment—who are considered to be in vulnerable employment across the APEC region. The share of workers who are employed in vulnerable jobs varies significantly between APEC members (Figure 2.15). Women are more likely to be vulnerable workers than men: in the APEC region, 32 per cent of employed women are classified as vulnerable while this figure is 29 per cent for men. Although several members have seen reductions in the proportion of workers in vulnerable employment, the shares have remained roughly the same over the past 10 years for many economies.

[52] Donovan et al. (2016).
[53] Farrell and Greig (2016). Katz and Krueger (2016) also found that just 0.5 per cent of all workers were providing labour services through IT-enabled platforms.
[54] One in six participants each month are new and more than half drop out within one year.
[55] Own-account workers are those workers who, working on their own account or with one or more partners, hold the type of jobs defined as self-employment (i.e., remuneration is directly dependent upon the profits derived from the goods and services produced) and have not engaged on a continuous basis any employees to work for them. Contributing family workers, or unpaid family workers, are own-account workers in a market-oriented establishment operated by a related person living in the same household.

Figure 2.15. Vulnerable employment, 2005 & 2015 (per cent of total employment)



Note: Data is ILO modelled estimates to allow for greater comparability between economies.
Source: ILO, Key Indicators of the Labour Market (KILM) online database (November 2016 Update) and author calculations.

It will be a challenge for APEC economies to promote skills formation and human capital development among those engaged in vulnerable employment or in the informal sector, especially since many of them are either self-employed or working in MSMEs. Evidence from other regions reveals that most of the workers in the informal sector do not have access to any skills training other than those they have acquired on the job.[56]

It is difficult to reach workers in the informal sector due to lack of information and policy handles. They are often beyond the reach of any sort of worker protection or regulation, and often lack access to social assistance or insurance programmes. APEC economies will need to address the challenge of extending social protection and safety nets to vulnerable and informal sector workers.[57] Moreover, an important step for inclusiveness is to bring informal sector workers into the formal sector. Key to this objective is to find the optimal mix of labour legislation and policies (e.g., minimum wage, worker protection, workplace regulations) that balances worker welfare with the need to provide incentives for businesses to create jobs in the formal sector.

IMPROVING ADAPTABILITY

Structural unemployment calls for policy measures in order to help workers displaced by economic changes find new jobs as well as to ease labour reallocation from one sector to another. This section will discuss a number of options to help economies improve their adaptability and their ability to address the human capital development challenges they face. Each APEC member will need to decide the most appropriate balance in the flexibility of its labour market, weighed against other policy objectives, in order to determine which reforms would be most beneficial for its economy and how they can best be implemented.

[56] Walther (2011).
[57] Canagarajah and Sethuraman (2001), Barrientos and Barrientos (2002).

Designing effective labour market regulations

Labour market regulations cover a wide range of labour market institutions, such as unemployment insurance system and disability insurance, as well as labour legislation such as statutory minimum wage rates and employment protection legislation. Worker protection legislation comprises a wide range of rules and regulations, including those concerning statutory notice periods prior to dismissal, rules regarding collective redundancies or mass layoffs, restrictions on working hours, and the treatment of different categories of workers such as those on temporary contracts.

Minimum wage

Minimum wages are a common policy to protect workers from unduly low wages and reduce inequalities. Indeed, a report by the ILO[58] found that minimum wages could contribute to narrowing gender pay gaps, increasing productivity, and reducing inequality. In developing economies, increasing minimum wages generally contribute to poverty reduction, but the impacts are modest because some poor households also lose out from the policy (Gindling 2014).

On the other hand, rising minimum wages are also a cost for employers and can lead to a reduction in jobs and employment opportunity. Researchers have found that rising minimum wages have a negative impact on jobs creation especially for young and lower-skilled workers (Broecke, Forti and Vandeweyer 2017; Meer and West 2015) and reduced training opportunities for unskilled workers (Sugiyarto and Endriga 2008). In the United States, a study by Neumark (2015) estimated that minimum wages reduced the number of jobs by 100,000 to 200,000 relative to the period before the GFC, but also noted that this is "a small drop in aggregate employment that should be weighed against increased earnings for still-employed workers because of higher minimum wages."

The effects of setting a minimum wage too high could be detrimental to growth and inclusion: overall employment is reduced; fewer young people move to seek off-farm employment; and unemployment increases. When movement to new off-farm jobs slows, so does growth. When workers are unemployed, real GDP is reduced relative to what it could be. When skilled workers are hired in part to substitute for unskilled labour, productivity is less than it could be. When expansion (or even continuation of production levels) is slowed, the overall growth rate is reduced.

Judging the appropriate level for a minimum wage depends on circumstances in each individual economy. In an economy with many workers remaining in rural areas and a relatively homogeneous pool of unskilled labour, an increase of even a few percentage points in the minimum wage that affects the majority of workers can be detrimental. Table 2.3 shows an indicator for minimum wages for APEC economies based on World Bank data.

[58] ILO. "*Minimum Wage Policy Guide*".

Table 2.3. Minimum Wage* as a Percentage of Average Value-Added per Worker, 2016

Economy	Per cent	Economy	Per cent
Australia	30	New Zealand	39
Brunei Darussalam	0	Papua New Guinea	79
Canada	29	Peru	35
Chile	24	The Philippines	65
China	39	Russia	18
Hong Kong, China	18	Singapore	0
Indonesia	57	Chinese Taipei	25
Japan	27	Thailand	36
Korea	30	The United States	24
Malaysia	20	Viet Nam	68
Mexico	14		

Note: Minimum wage applicable for a cashier, age 19, with 1 year of work experience. This is used as a measure for minimum wage due to spatial and sectoral differences in minimum wage legislation within and across economies. Where there are significant differences in wage rates or minimum wage rates within economies, data for the following cities was used: Shanghai (China), Osaka (Japan), Monterrey (Mexico), and Los Angeles (USA).
Source: World Bank, 2017. "Doing Business 2017: Labor Market Regulation Data"

There are several indicators that can assist policymakers in setting the optimum minimum wage: rising or high unemployment and pronounced growth in the informal sector and, more likely in more advanced economies, a decline in the labour force participation rate.

The intent of minimum wage policies is always to protect workers, primarily the low-wage earners, from exploitation. However, setting the minimum wage too high could be counterproductive. It could also lead to a shift towards informal sector employment, which is largely untaxed and provides less protection for workers (if any at all) than in the formal sector. When the consequence is more urban unemployment and slowing migration to cities, the result is exclusion and slower growth.

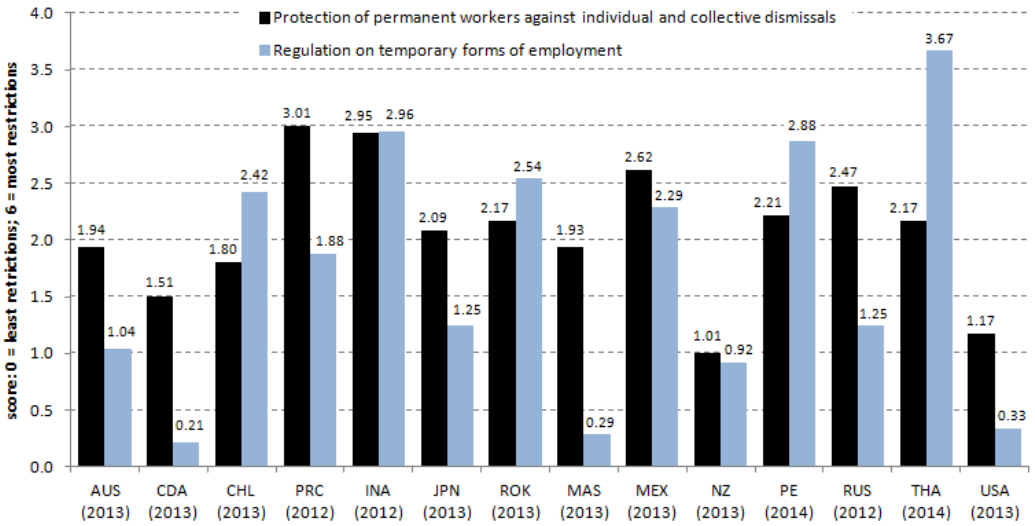
Worker protections

Labour market regulations play an important a role in protecting the rights of workers. Weak labour regulations can lead to exploitation and endanger the health and safety of workers. On the other hand, overregulation can discourage job creation, reduce cross-sectoral labour mobility, and lead to market segmentation (World Bank 2017). A key policy challenge is finding the right balance between under- and overregulation of the labour market.

Although data for all APEC members is not available, Figure 2.16 gives an indication as to some aspects of the stringency of employment protection legislation across the region. Regulations concerning employee dismissal include the length of notice period and severance pay entitlements as well as any additional notification requirements or costs to employers in the case of collective dismissals. The protection of permanent workers in the case of individual and collective dismissals is weakest in New Zealand and the United States, while it is strongest in China and Indonesia. The other indicator shown in Figure 2.16 covers policies concerning temporary employment such as whether there are any restrictions on the number of times a temporary contract can be renewed (as well as its cumulated duration) and whether temporary employees and regular employees are treated equally regarding pay and working conditions. Canada; Malaysia; and the United States have relatively low levels of regulation covering

employees on temporary contracts. Many other APEC economies have comparatively much higher levels of protection, including Chile; Indonesia; Korea; Mexico; Peru; and Thailand.

Figure 2.16. Stringency of employment protection legislation in selected APEC economies, latest available year (score)



Note: Data for Brunei Darussalam; Hong Kong, China; Papua New Guinea; the Philippines; Singapore; Chinese Taipei; and Viet Nam is not available.
Source: OECD/IAB Employment Protection Database, 2013 update.

Policies designed to protect workers can have unintended consequences. In most economies, labour regulations or laws covering conditions of employment are in effect. As already seen, even in low-income economies regulation of safety and other conditions is appropriate. Other worker protection measures regulate periods of apprenticeship, legislate the months or years of pay that must be given to a worker who is made redundant, set the maximum number of hours per day or per week that must be worked, establish criteria for overtime pay, and stipulate minimum holidays and vacation periods.

It may seem counterintuitive that prohibitions on firing (or large required severance payments) would discourage hiring, but on reflection, the reasons are apparent. Especially when probationary periods are short, employers may know that they cannot, in the specified time allowed, ascertain which workers will be able to provide the needed services in their firms. They may instead choose to subcontract certain activities (e.g. packaging, repair services, and production and assembly of components) to smaller firms either in the informal sector or exempt from the regulations governing industrial activity. In some cases, employers may choose to hire skilled workers to do unskilled work.

Even when worker protection takes the form of mandated severance payments, the conditions under which these payments must be made can make a difference. If, after only a few years of employment, workers are entitled to large compensation packages (especially since redundancies are most likely to occur when a business is already in financial difficulty), the attractiveness of hiring additional workers decreases. As can be seen in Table 2.4, APEC economies have a wide variation in regulations regarding hiring and firing of workers.

Table 2.4. Regulations Governing Hiring and Redundancy

Economy	Cost	Maximum Probation Period (months)	Compulsory Retraining for Reassignment?	Priority Rules for Re-employment
Australia	8.7	6	yes	no
Brunei Darussalam	0	n.a.	no	no
Canada	5	3	no	no
Chile	23.1	n.a.	no	no
China	23.1	6	yes	yes
Hong Kong, China	1.4	1	no	no
Indonesia	57.8	6	yes	no
Japan	0	n.a.	yes	no
Korea	23.1	3	no	yes
Malaysia	22.8	n.a.	no	no
Mexico	22	1	no	yes
New Zealand	0	3	yes	no
Papua New Guinea	11.4	3	no	no
Peru	11.4	3	no	yes
The Philippines	23.1	6	no	no
Russia	8.7	3	yes	no
Singapore	0	6	no	no
Chinese Taipei	n.a.	n.a.	yes	yes
Thailand	31.7	4	no	no
United States	0	n.a.	no	no
Viet Nam	24.6	1	yes	no

Notes: n.a. = not available. Cost is defined as weeks of salary that must be paid when workers have been laid off after meeting initial required hiring period. Where there are significant differences in wage rates or minimum wage rates within economies, data for the following cities was used: Shanghai (China), Osaka (Japan), Monterrey (Mexico), and Los Angeles (USA).
Source: World Bank 2017.

Labour market regulations also often cover stipulations as to the maximum number of hours to be worked, overtime, sick leave provisions, and annual leave, and a balance between under- and overregulation needs to be found. Sick and annual leave provisions that might not be too onerous for a large firm can impose significant costs for MSMEs. Stipulating that workers cannot be asked to work more than 8 hours in any 24-hour period can adversely affect service industries such as tourism (e.g., waiters cannot be asked to work lunch and dinner shifts one day and breakfast and lunch the next). There can also be issues about health and safety regulations. Clearly, there are safety issues that should be addressed in any enterprise, but regulations can range all the way from requiring appropriately spaced exits to specifications as to the number, quality and size of eating areas, toilet facilities, availability of health care services on premises, and much more. To take an extreme example, requiring at least one nurse on the premises could be very costly to an MSME with a dozen employees whereas the costs would be far less significant for firms with hundreds or thousands of employees. Labour regulations need to balance the protections afforded to workers with the ability of firms to take on the associated regulatory costs, and be flexible enough to consider the circumstances of smaller firms. This can be accomplished through a multi-pronged approach that involves not only legislation and regulations, but also informal, flexible policies and/or voluntary tools including awareness raising, codes of practice, and standards and guidelines, to help to reduce

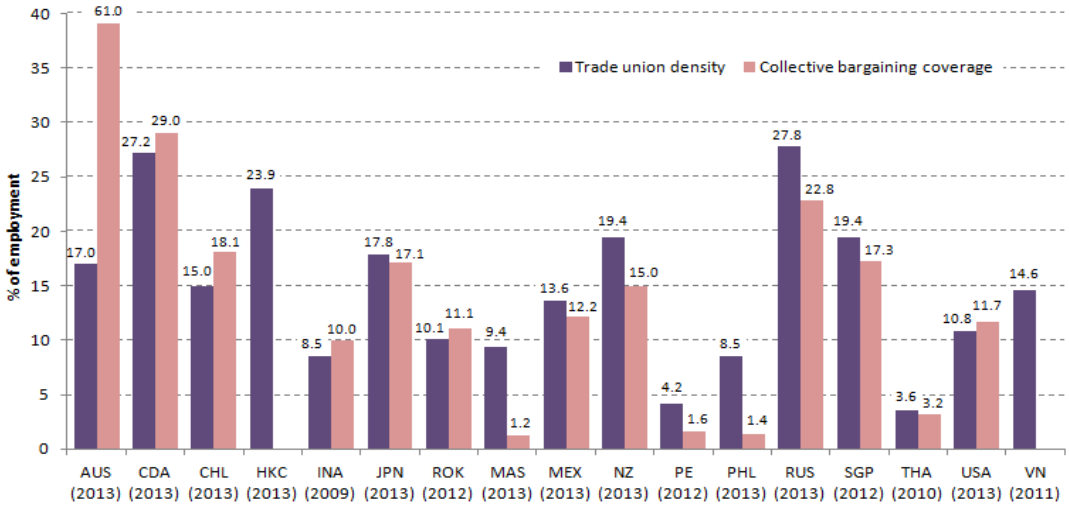
the burden of regulation on firms while continuing to improve safety and health conditions for workers.

Labour unions and collective bargaining

In almost all economies, there are laws and regulations governing labour union formation, representation, membership, and activity. These laws cover many issues: the right to organise, the determination as to what constitutes a union representing a given body of workers, the right to strike, and more. Freedom of association and the right to collective bargaining are among the ILO's four core principles concerning fundamental rights at work (Box 2.2), highlighting the importance of such rights as a central component of any strategy for broad-based and sustainable development.

Agreements reached through collective bargaining can cover many facets of the employer-employee relationship, including wage scales and employee benefits, seniority rights, access to training opportunities, and occupational health and safety standards (Box 2.3).

Figure 2.17. Labour unions and collective bargaining, latest available year (per cent of employment)



Note: Data for Brunei Darussalam, China, Papua New Guinea, and Chinese Taipei is not available. Collective bargaining coverage data for Hong Kong, China and Viet Nam is not available. Collective bargaining coverage uses data for 2007 for Thailand; 2008 for Indonesia; 2010 for Peru; 2012 for Mexico; and 2014 for the United States.
Source: ILO, ILOSTAT.

Labour unions can provide information on skills shortages and identify future skills needs from the point of view of their members.[59] Unions are often strong advocates for improving access to training opportunities, with an emphasis on continuous learning. In several APEC economies, labour unions may offer apprenticeship scholarships, training subsidies, or low interest education loans to support skills development among members and their families.[60] There is also some evidence to indicate that union membership has a positive impact on training opportunities: a study recently conducted in the United Kingdom found that union members were a third more likely to have received training in the previous three months than non-union

[59] For more discussion, see World Economic Forum (2014).
[60] For instance, apprenticeship scholarships are prominent features of labour unions in Canada and the United States, while the National Trades Union Congress (NTUC) in Singapore offers subsidies for training courses.

employees.[61] The researchers also found that organisations with a union presence, and especially those with union involvement in training decisions, had higher overall levels of training.

Box 2.2. ILO and international labour standards

International labour standards are legal instruments that set out basic principles and rights at work. These are negotiated by ILO members and constituents (i.e., employers and workers) and may either be legally binding conventions or non-legally binding recommendations. ILO conventions need to be ratified by members to come into force.

International labour standards are created to protect workers' rights, ensure decent work, and guarantee humane working conditions. Of the 189 conventions and 6 protocols currently registered with the ILO, eight are considered "fundamental," covering four core principles or rights at work: (1) freedom of association and the effective recognition of the right to collective bargaining, (2) the elimination of all forms of forced or compulsory labour, (3) the effective abolition of child labour, and (4) the elimination of discrimination in respect of employment and occupation. The eight fundamental conventions are:

1. Freedom of Association and Protection of the Right to Organise Convention, 1948 (No. 87)
2. Right to Organise and Collective Bargaining Convention, 1949 (No. 98)
3. Forced Labour Convention, 1930 (No. 29)
4. Abolition of Forced Labour Convention, 1957 (No. 105)
5. Minimum Age Convention, 1973 (No. 138)
6. Worst Forms of Child Labour Convention, 1999 (No. 182)
7. Equal Remuneration Convention, 1951 (No. 100)
8. Discrimination (Employment and Occupation) Convention, 1958 (No. 111)

Source: ILO's NORMLEX database.

Informal and vulnerable employment

Economies need to find an appropriate balance between enhancing business flexibility and protecting jobs when designing employment protection legislation. A two-tiered labour market system can arise when some employees are in highly protected jobs (e.g. those on permanent, continuous, or open-ended contracts), while others are engaged in less secure, temporary forms of employment. Workers on temporary contracts typically have fewer employment protections than those on permanent contracts. For example, they may be exempt from receiving paid sick leave and severance payments. They may also not be covered by many social benefit programmes, such as unemployment insurance and paid maternity leave. It is also unlikely that those engaged on temporary contracts receive the same amount of training as those employed on standard contracts.

The ILO reports that workers engaged in non-standard forms of employment receive less on-the-job training and that those firms with a higher share of employees engaged on such

[61] Stuart et al. (2015). The study examined the period 2001-2013.

contracts tend to underinvest in training for both temporary and permanent employees.[62] The OECD also found that those engaged in full-time temporary contracts are 20 per cent less likely to receive employer-sponsored training than those employed on standard contracts, while part-time workers are 40 per cent less likely.[63] This disparity in training opportunities leads to a skills gap between different categories of workers, which can then negatively impact career advancement, especially for those employed on non-standard contracts for longer periods. Therefore, a high share of employees on temporary contracts should be a cause for concern regarding both human capital development as well as the level of inequality in an economy.

The share of employees on temporary contracts is high in some APEC economies. For instance, temporary employees comprised 29 per cent of total employment in Chile and 22 per cent in Korea in 2015, while an estimated 64 per cent of employees in Peru were considered as temporary employees in 2012.[64] Young people, in particular, are more likely to have temporary employment contracts than older ones. For example, 46 per cent of workers aged 15-24 in Chile were employed on temporary contracts in 2016 (versus 27 per cent among 25-54 year-old workers), while the figure was 31 per cent in Canada (10 per cent among 25-54 year-olds).[65] This can be an acute problem for young people on temporary contracts who are unlikely to receive training and are often the first to be dismissed during economic downturns.

Recent trends point to an increase in temporary employment and other non-standard forms of employment, including part-time employment. The OECD estimates that even prior to the GFC, over 50 per cent of all jobs created among the OECD members between 1995 and 2007 were in non-standard employment (i.e., part-time and temporary workers and the self-employed). Furthermore, in the post-GFC period (i.e., 2007-2013), that share increased to 60 per cent.[66] In the United States, Katz and Krueger (2016) found that alternative work arrangements accounted for 94 per cent of net employment growth between 2005 and 2015, bringing the share of workers engaged in such types of employment to 16 per cent.[67] It should be noted that some temporary and part-time forms of employment are not necessarily problematic. Many workers prefer or need the flexibility that such jobs can provide, including those attending school or other types of training. Moreover, digital technology and the increasing number of online contractual work, for example through platforms such as Upwork or Uber, accounts for the rise in alternative working arrangements. However, these alternative working arrangements do not offer job security as employment is on an output or commission basis. Such employment contracts can also cover employers and workers in several jurisdictions. As such, precarity, casualization, and cross-border employment contracts will be emerging labour market and regulation issues in the digital age. Likewise, labour market policies and regulation will need to be adaptable to changing patterns of work and employment relationships.

It is important to implement structural reforms in order to address the changing trends in employment in an economy. APEC economies may find it beneficial to evaluate their current

[62] International Labour Organization (2016).
[63] OECD (2015).
[64] Based on data from ILOSTAT. Temporary employment, whereby workers are engaged only for a specific period of time, includes fixed-term, project- or task-based contracts, as well as seasonal or casual work, including day labour.
[65] Age-disaggregated data on temporary employment is from OECD.Stat.
[66] OECD (2015b).
[67] Katz and Krueger (2016). The authors define alternative work arrangements as temporary help agency workers, on-call workers, contract workers, and independent contractors or freelancers. The study also found that just 0.5 per cent of all workers were providing labour services through IT-enabled platforms.

employment protection legislation in light of changing labour market conditions. This could include updating regulations in order to enhance protections across those worker classifications for which they are often lacking, including temporary workers and independent contractors. Coverage of social benefit programmes could be extended to include those engaged in alternative work arrangements on an opt-in basis, particularly in economies where such benefits are funded through contributory schemes tied to employers. Recent proposals include the development of "portable benefits" schemes, which would allow those engaged in non-standard forms of employment to more easily transfer benefits that they have accrued with one employer to a new employer.[68] Rethinking of labour regulations becomes even more important in the digital age, when employee-employer relationships can become cross-border issues and jobs become increasingly contractual and temporary.

Box 2.3. The importance of occupational safety and health and employment injury benefits[69]

One of the ways in which economies can enhance labour productivity is to have occupational safety and health regulations to protect employees in the workplace. Many people around the world work in physically demanding and frequently dangerous jobs. Safety and health regulations enable them to perform their jobs more safely, which will also allow economies to have a more productive workforce.

An example of safety protection afforded to workers is the availability of no-fault employment injury benefits or workers compensation. All APEC economies have such programmes anchored in legislation. In most economies, the schemes are implemented through social insurance with mandatory contributions paid by the employer. However, several members—including Australia; Papua New Guinea; and Thailand—rely on employer liability, involving compulsory insurance, to pay the whole cost in the event of injury. Notably, New Zealand provides universal coverage through its accident compensation scheme, which also includes coverage for non-work-related accidents, and which is funded through a variety of levies.

Apart from New Zealand, not all workers in an economy are legally covered under mandatory social insurance or employer liability schemes, particularly those that are self-employed, although several members do allow for coverage on a voluntary basis. In 2014, economies with mandatory coverage rates above 80 per cent of the workforce included Brunei Darussalam; Hong Kong, China; Japan; Korea; and the United States. In contrast, mandatory coverage rates were below 30 per cent in China; Indonesia; Papua New Guinea; and Thailand.

Improving social protection and assistance programmes

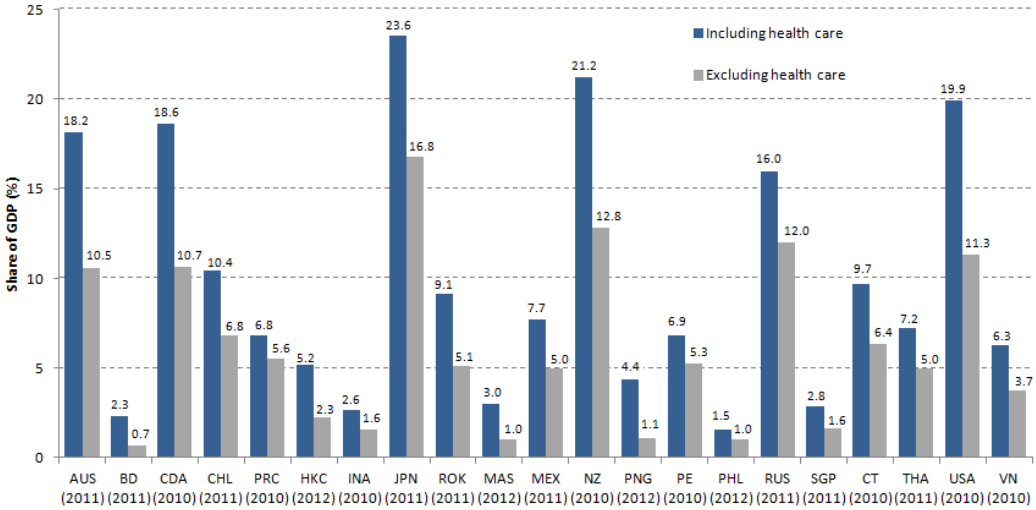
Social protection and assistance programmes[70] play a crucial role in in promoting human capital development. Such programmes help to address structural and cyclical unemployment by providing a safety net for those workers who are displaced by structural changes or

[68] For more discussion, see Rolf et al. (2016). See also Henrekson (2014) who discusses how decoupling social insurance from employers would increase labour flexibility, including the entrepreneurial potential of workers.
[69] Information on employment injury benefit schemes and rates of coverage is drawn from ILO (2014).
[70] Social protection and assistance programmes are policies and programs designed to reduce vulnerability to and mitigate the economic impact of negative events such as disasters, illnesses, or unemployment. While the set of social protection and assistance programmes is very broad, this report focuses on those that aim to address unemployment such as unemployment benefits and labour market assistance.

economic shocks. They should also incentivise workers to pursue retraining and focus on their job search. By smoothing consumption and reducing income uncertainty, social protection and assistance programmes can enable workers to invest in human capital through schooling or training. They also improve skills matching and utilisation by reducing job search opportunity costs. For example, by enabling unemployed workers to search for the right job that matches their skills rather than having to take the first available job.

The amount of public spending on social protection and assistance programmes varies substantially across the APEC region. Social benefit systems can include a wide range of policies such as child and family benefits, health care coverage, and old-age pensions. Using the most recent comparable data, Figure 2.18 shows that the developed APEC economies have higher levels of public expenditure on social protection programmes than the developing APEC economies. Japan has the highest level of spending in relation to GDP at just under 25 per cent, while the other advanced APEC economies are around 20 per cent. Most developing APEC economies have expenditure levels under 10 per cent of GDP, with several having levels under 5 per cent.

Figure 2.18. Public expenditure on social protection, latest available year (per cent of GDP)



Note: Total annual public social protection expenditure is the sum of expenditure (including administration costs) of all public social security/social protection schemes or programmes in the economy. Nine classes of benefits are considered: medical care, sickness benefit, unemployment benefit, old-age benefit, employment injury benefit, family benefit, maternity benefit, invalidity benefit and survivors' benefit, plus other income support and assistance programmes, including conditional cash transfers, available to the poor and not included under the above classes.
Source: International Labour Organization (ILO) Social Security Inquiry (SSI) (updated 10 June 2014).

Developing effective unemployment benefit programmes

Income support is important to assist workers who are faced with job loss. Unemployment benefit programmes provide a safety net to lessen the impact that sudden drops in income can have on workers and their families. There are two major types of unemployment benefit schemes:

- contributory: often referred to as unemployment or employment insurance, these schemes are typically financed through mandatory contributions shared between employers and employees (and sometimes with a government contribution); and
- non-contributory: often referred to as unemployment assistance, these schemes are normally funded through general taxation.

Unemployment benefit programmes vary widely across the APEC region, with several members having no legislation that mandates the provision of any type of unemployment benefits (Table 2.5). Among the APEC economies that do have unemployment benefit programmes, most are contributory schemes (i.e., unemployment insurance) financed through mandatory contributions. Those economies without programmes anchored in legislation may have other statutory benefits that cover income support following the termination of employment, such as legislatively mandated severance payments.[71] However, these entitlements are not as comprehensive as an unemployment benefit scheme which in some economies also legally requires companies to make a severance payment upon employment separation, such as in Hong Kong, China; Korea; Chinese Taipei; and Thailand.

Both contributory and non-contributory unemployment benefit programmes have eligibility requirements, which usually require the applicant to be unemployed through no fault of their own (e.g., if they were made redundant due to workforce reductions). However, Chile; Japan; and Thailand also allow for applicants who have wilfully left their job, although the amount and duration of benefits they can receive may be reduced. In addition, contributory benefit programmes typically require the applicant to contribute a minimum amount over a certain time period—for example the past 12 months—to be eligible to receive benefits. Consequently, some workers, particularly those on temporary or part-time contracts, may find that they do not have enough insured earnings to be eligible for benefits when they become unemployed. In addition, those who are self-employed (including independent contractors) may not be legally covered under many unemployment insurance programmes, and are therefore ineligible to receive benefits. While it is difficult to cover self-employed and temporary workers in unemployment benefit programmes, there are ways around this problem. An example is Canada's Employment Insurance programme, which allows self-employed workers to opt-in, albeit with different implementation arrangements and benefits compared to formal sector employees.

Unemployment benefit schemes have limits regarding the amount and duration of benefit payments, which are meant to cover only basic expenses while recipients are unemployed. For non-contributory schemes, recipients are usually entitled to a means-tested amount based on household income, which is subject to periodic reviews concerning job search progress. Under contributory schemes, most recipients receive a share of their previous salary, subject to a cap, with the duration often based on the amount of their previous contributions, limited to a maximum period. Some economies also use age as a determinant, such as Japan and Korea.

[71] Severance payments, including redundancy payments and retrenchment payments, are payments made by the employer to the employee following the termination of employment. They are often payable monthly or quarterly for a period of time. The amount is typically a percentage of the monthly salary multiplied by the number of years of employment with the company and is sometimes subject to a maximum.

Table 2.5. Overview of unemployment benefit programmes across APEC

Economy	Programme type	Eligibility requirements	Benefit amount	Benefit duration	Note	Severance payment
Australia	non-contributory	unemployed and aged 22 to pension age (65 or 67); means-tested on a household basis, subject to a maximum amount of income (AUD 1,036.34 every 2 weeks) and assets (AUD 250,000/AUD 450,000 for homeowners/non-homeowners)	up to AUD 535.60 every 2 weeks	as needed; recipients must provide an update on their job search every 2 weeks	based on benefits implemented through the Newstart Allowance Scheme for a single person with no children; there is also a Youth Allowance Scheme for those aged 16 to 24 years	no
Brunei Darussalam	no programme anchored in legislation					no
Canada	contributory	insured must have at least 420 to 700 hours of employment (depends on the filer's regional unemployment rate) during the 52 weeks prior to the claim start date	55% of average insurable weekly earnings, up to a maximum amount of CAD 543 per week	14 weeks up to a maximum of 45 weeks (depends on the filer's regional unemployment rate and the amount of insurable hours accumulated in the last 52 weeks)		yes
Chile	contributory	CIC: employed for 12 months (6 months for fixed-term-contracts) prior to unemployment; FCS: 12 months of contributions during the 24 months prior to unemployment	based on the average monthly salary during the 12 months prior to unemployment, CIC: 70% for the 1st month, decreasing each month to 30% for the 7th and subsequent months; FCS - indefinite contracts: 70% for the 1st month (CLP 173,477 min.; CLP 578,258 max.), decreasing each month to 30% for the 7th month (CLP 74,347 min.; CLP 247,825 max.) FCS - fixed-term contracts: 50% for the 1st month (CLP 123,912 min.; CLP 413,042 max.), decreasing each month to 30% for the 5th month (CLP 74,347 min.; CLP 247,825 max.)	CIC: 1 month following re-entering employment or until the funds in the account have been exhausted if employment is not found FCS: up to 7 months for indefinite contracts and up to 5 months for fixed-term contracts; applicants can make up to 10 claims in any five-year period	programme is comprised of a savings component, Individual Unemployment Accounts (CIC), and an insurance component, Solidarity Unemployment Fund (FCS), as a complement if the CIC funds are insufficient or have been exhausted	yes
China	contributory	insured must have at least 1 year of coverage prior to unemployment	amount is set by local governments at a level higher than the local public assistance benefit, but lower than the local minimum wage	up to 1 year with less than 5 years of coverage; up to 1.5 years with 5 or more but less than 10 years; up to 2 years with 10 or more years of coverage	programme is administered at the local government level	yes

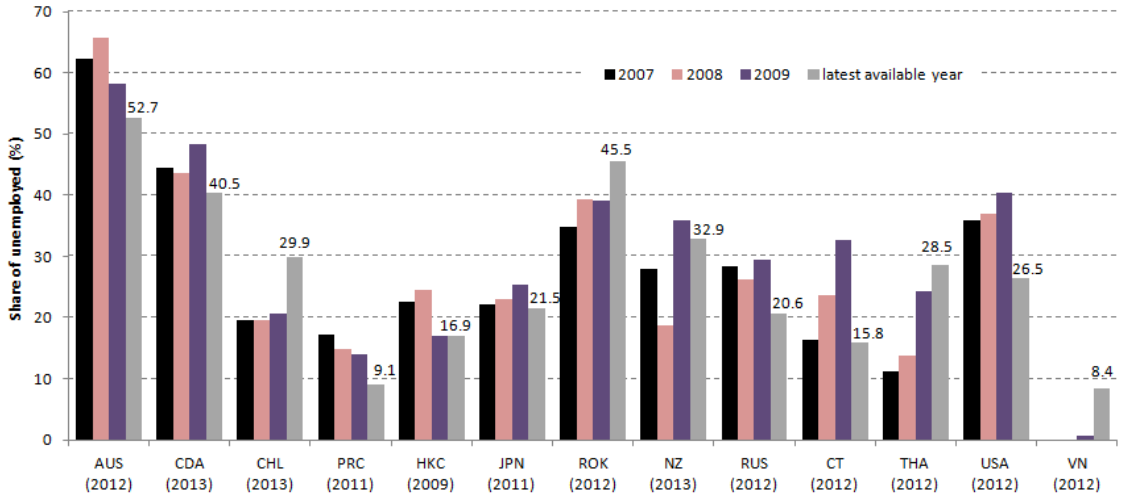
Hong Kong, China	non-contributory	means-tested on a household basis, subject to a maximum amount of income and assets	exact payment is determined on a case-by-case basis to meet basic needs	as needed, subject to periodic review	implemented through the Support for Self-reliance (SFS) Scheme, which is under the Comprehensive Social Security Assistance (CSSA) Scheme	yes
Indonesia	legislatively mandated severance payment only					yes
Japan	contributory	insured must have at least 6 months of contributions during the 12 months prior to unemployment	up to 50% to 80% of average monthly salary during the 6 months before unemployment	up to 90 to 360 days	eligibility and benefits amount and duration depend on the employee's age, how long they have been paying into the scheme, how long they were employed, and the circumstances under which they became unemployed	no
Korea	contributory	insured must have at least 180 days of contributions prior to unemployment	50% of average daily wage (calculated using the daily wage over the last 3 months of work), subject to a maximum daily wage of KRW 43,000	minimum of 90 days; up to 180 days for people under the age of 30; up to 210 days for people ages 31 to 50; up to 240 days for people over the age of 50 or who are disabled	Early Re-employment Bonus: a lump sum equal to 50% of the total unpaid benefit that would have been payable for the maximum duration of benefit	yes
Malaysia	legislatively mandated severance payment only					yes
Mexico	legislatively mandated severance payment only					yes
New Zealand	non-contributory	unemployed or not in full-time employment and aged 18 or older; means-tested on a household basis, subject to a maximum amount of income	up to NZD 212.45 (net of taxes) every week	as needed, subject to periodic work ability assessments; must re-apply after 52 weeks	based on benefits implemented through the Jobseeker Support Scheme for a single person aged 25 or older with no children	no
Papua New Guinea	no programme anchored in legislation					no
Peru	legislatively mandated severance payment only					yes
The Philippines	legislatively mandated severance payment only					yes
Russia	contributory and non-contributory	unemployed without any current income and aged 16 or older	calculated as a per centage of previous average wages and reducing at certain points through the benefit duration; RUB 850 minimum up to RUB 4,900 maximum per month	up to 12 months, then recipients must re-apply; benefits are re-assessed twice a month	programme is a mix of contributory and non-contributory schemes	yes
Singapore	no programme anchored in legislation					no

Chinese Taipei	contributory	insured must have at least 1 year of contributions prior to unemployment	60% of average monthly earnings during the 6 months before unemployment	up to 6 months; up to 3 months for a new claim within 2 years of last receiving unemployment benefits for 6 months	Early Re-employment Allowance: a lump sum equal to 50% of the total unpaid benefit that would have been payable for the maximum duration of benefit	yes
Thailand	contributory	insured must have at least 6 months of contributions during the 15 months prior to unemployment	50% of average monthly salary based on the highest 3 months earnings in the last 9 months (30% in the case of resignation), subject to a maximum monthly salary of THB 15,000	up to 180 days per year (up to 90 days per year in the case of resignation)		yes
United States	contributory	past earnings and time employed must meet certain minimum thresholds (varies by state)	up to USD 450 per week (actual amount is calculated based on past earnings)	up to 26 weeks	this is the standard scheme; schemes are implemented at the state level and can therefore vary	no
Viet Nam	contributory	insured must have at least 12 months of contributions during the 24 months prior to unemployment	60% of average monthly earnings during the 6 months before unemployment	3 months with 12 to 35 months of contributions; 6 months with 36 to 71 months of contributions; 9 months with 72 to 143 months of contributions; 12 months with at least 144 months of contributions	available to citizens with permanent contracts or employment contracts of 1 to 3 years who are employed by private and public sector organisations with 10 or more workers	yes

Note: This overview is not to be considered comprehensive. There are often detailed requirements as to who is eligible for unemployment benefits as well as exemptions and other income support programmes that may be available to the unemployed in an economy.
Source: Publicly available sources, including the ILO's Social Security Inquiry (SSI). (All information as at 22 May 2017.)

According to ILO data, in most APEC economies with unemployment benefit schemes, less than 40 per cent of those unemployed are covered by benefits, with some members having less than 20 per cent of unemployed persons receiving benefits (Figure 2.19). In recent years, most APEC economies have a lower share of the unemployed covered by benefits than they had between 2007 and 2009, around the time of the GFC. This probably reflects the expiration of temporary support programmes for the unemployed that were available following the GFC.[72]

Figure 2.19. Effective coverage of unemployment benefits, latest available year (per cent of unemployed)



Note: Effective coverage = per cent of unemployed that are covered by unemployment benefits. Brunei Darussalam; Indonesia; Malaysia; Mexico; Papua New Guinea; Peru; the Philippines; and Singapore do not have an unemployment benefit programme that is anchored in legislation. Coverage for Russia is underestimated since data on its non-contributory scheme is unavailable. Viet Nam established an unemployment insurance scheme in January 2009.
Source: International Labour Organization (ILO) Social Security Inquiry (SSI) (updated 7 June 2014).

The design of an unemployment benefit programme could ensure that vulnerable workers are not excluded from income support and assistance. For example, Canada's employment insurance programme links the duration of benefits to the recipient's regional unemployment rate, thereby targeting those workers who may be more affected by long-term structural unemployment. Notably, Chile; Korea; and Thailand have all worked to expand their unemployment benefit programmes since the GFC, while Viet Nam implemented its first scheme in 2009.

An important feature of an unemployment benefit programme is how well it incentivises unemployed workers to retrain and regain employment. Conventional wisdom has been to limit the benefit duration. Studies have shown that shorter durations of unemployment benefits do in fact result in jobseekers re-entering the workforce sooner. However, the OECD found that a targeted reduction in the duration of unemployment benefits for the long-term unemployed reduces disposable incomes for the poor and lower-middle class, while raising income for the

[72] For instance, the United States passed the temporary Emergency Unemployment Compensation (EUC) legislation in June 2008, a federally funded programme that raised the duration of benefit entitlement by up to an additional 13 weeks. Subsequent modifications and extensions of the programme raised the duration by up to an additional 53 weeks in states with high rates of unemployment. Other programmes enacted in certain states with high rates of unemployment extended these durations by up to an additional 7 to 20 weeks. The programme expired on 1 January 2014 and was not renewed.

median household, indicating a greater level of inequality as a result.[73] In addition, there is some evidence suggesting that a longer duration of unemployment benefits may allow for better matching between workers and jobs.[74]

The APEC region offers several examples of policy measures that can be used to incentivise unemployment benefit recipients in their job search efforts. For instance, Korea and Chinese Taipei offer re-employment bonuses—equivalent to 50 per cent of the total unpaid benefit—to those that regain employment before the expiration of their unemployment benefits. Chile's innovative unemployment insurance programme comprises individual unemployment insurance savings accounts complemented by a general fund that targets those most in need of income support and assistance. Under this scheme, workers who leave their employment for any reason can access their individual account. If that account is insufficient, or once the funds have been depleted, then they may have access to the general fund, subject to benefit amount and duration limits. Several studies have found that the use of individual unemployment insurance accounts improves the incentives to re-enter employment.[75]

ACTIVE LABOUR MARKET POLICIES

For reasons earlier discussed, skills and jobs become more differentiated as economies grow, and policies supporting workers likewise become more complex. In advanced economies, one policy response has been to adopt Active Labour Market Policies (ALMPs), which refer to the coordination of the various policies and measures that governments take to enhance employment prospects and productivity of workers. These measures include consultation with employers, certification provision, information on job vacancies and skill needs and shortages, TVET and education, unemployment compensation, and so on. The gathering and provision of information about the existing composition of jobs enables the understanding of future evolution of demand through timely and accurate data from labour market information systems. Coordination enables longer periods of financial support for the unemployed on needed training programs, and the ability to ensure that the unemployed are searching for jobs. An employment centre in each area enables a counsellor for each worker to assess skills, inform workers of possible job openings, advise on training programs, and even recommend financing of travel to places where jobs are more plentiful. Bringing all these activities together is challenging but appears to offer shortened periods of unemployment, longer periods of financial support (as needed without abuse of the system), and much more. Even for economies at earlier stages of development, a long term goal to promote human capital development would be to move towards a model based on ALMPs.

ALMPs work to ensure that workers spend less time unemployed so as to maintain living standards for them and their households as well as prevent any further skills deterioration that occurs during long periods of unemployment.[76] Many programmes require recipients to be actively seeking employment in order to remain eligible for income support. However, in order to achieve better long-term results with regard to job suitability, strategies to assist jobseekers

[73] Causa et al. (2015)

[74] For example, Caliendo et al. (2009) found that those who enter jobs around the time unemployment benefits are exhausted receive lower wages and are significantly more likely to subsequently leave that employment compared to those with remaining/better benefits. See also Centeno (2004) and Marimon and Zilibotti (1999).

[75] See, for example, Reyes Hartley et al. (2010) and Nagler (2013).

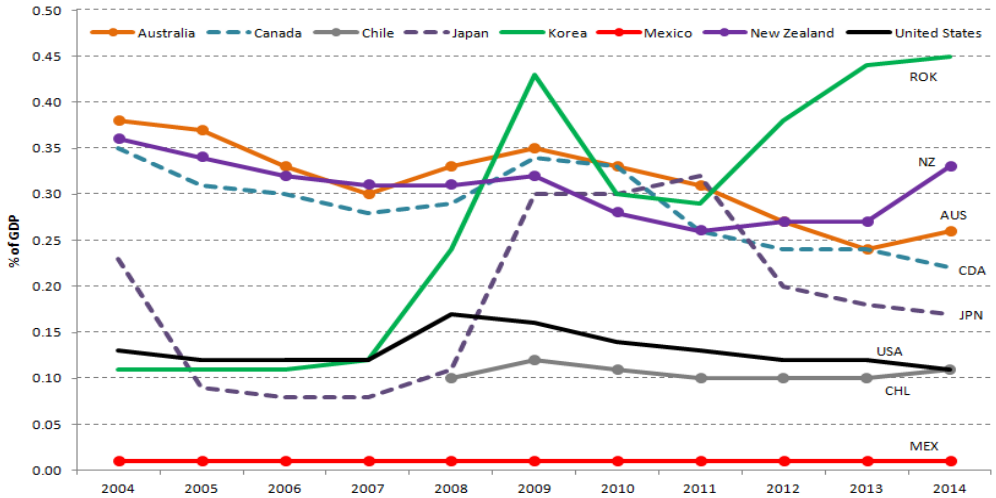
[76] Hong Kong, China and New Zealand allow for those in part-time employment, but seeking full-time employment, to receive unemployment benefits as long as their income does not exceed certain thresholds. This may help to keep recipients economically active, while also limiting their skills deterioration.

cannot focus simply on filling a vacancy. Rather, attention also needs to be given to the benefits from training and skills matching. Thus, programmes are linked to employment and training services if jobseekers need to upgrade their skills and improve their employability. Public employment services are vital resources for jobseekers, particularly those displaced workers who may be experiencing long-term unemployment and may be most in need of training. These services need to be linked with labour market information systems so they can help to better match those that are unemployed with suitable training opportunities in order to enhance their employment prospects.

A recent meta-analysis of over 200 studies found that ALMPs have a positive impact on employment two to three years after completion of the programme, with larger average gains for those that emphasized human capital accumulation (i.e., classroom or on-the-job training programmes). [77] Another recent study found that ALMPs reduce unemployment at the aggregate level, and are particularly beneficial for low-skilled workers.[78]

Public expenditure on ALMPs in APEC economies for which there are data[79] ranges from 0.01 per cent of GDP in Mexico to 0.45 per cent in Korea (Figure 2.20). Spending in all APEC economies was below the OECD average of 0.55 per cent of GDP in 2014. Although there was an increase in spending on ALMPs immediately following the 2008 GFC for most economies, the level has since fallen. In fact, most APEC members spent lower amounts as a share of GDP in 2014 than they had in 2004. In Korea, public expenditures on ALMPs have risen since 2004, and Korea's spending on ALMPs (as a share of GDP) is currently the highest in the region. Given the importance of active labour market policies to assist the unemployed in accessing training opportunities and regaining employment—thereby also helping to promote inclusion—it is one area that would be beneficial to prioritise.

Figure 2.20. Public spending on active labour market policies in selected APEC economies, 2004-2014 (per cent of GDP)



Note: Data for Chile between 2004 and 2007 is not available.
Source: OECD, Employment and Labour Market Statistics.

[77] Card et al. (2015). The study also found that there were larger positive impacts for women and for those entering from long-term unemployment.
[78] Escudero (2015).
[79] Public expenditure on active labour market policies includes spending on public employment services and administration, training, employment incentives, sheltered and supported employment and rehabilitation, direct job creation, and start-up incentives. (Passive labour market policies include out-of-work income maintenance and support and early retirement.)

A holistic approach to developing ALMPs

Governments have an important role to play in assessing the job market and likely future demands, as well as in deciding (and sometimes supporting) which facilities and types of training are best undertaken in the private sector, and which should be provided by the public sector. Projecting future demands for different types of labour is inherently difficult and requires a skilled staff. It is clearly desirable to have data on the number of new workers graduating from training institutes, and the number of those hired—in general, this data is gathered through regular labour force surveys. Similarly, regular data gathering from firms and employers is also required so that reliable estimates can be made on the demand side of the labour market. Making information on the supply and demand of skills available through labour market information systems (LMIS) can help workers to choose paths where jobs can be found. While such estimation can never be perfect, it can serve as an important input into decisions about expansion and contraction of training facilities of different types.

As previously established, youth unemployment including those not in education, employment, or training is a concern in all APEC economies. The evidence worldwide is that a prolonged period as a NEET lowers lifetime productivity compared to similar individuals who are active in employment, education, or training. Active labour market policies, provision for training programmes (including incentives to encourage individuals to undertake them) where appropriate, and ensuring that employers are not incentivised to substitute capital for unskilled labour too much or too early are all important.

Youth need to have opportunities to enhance their skills especially in the early years of their careers. ALMPs are important in this regard. The policy framework should ensure that employers have sufficient incentives to provide training opportunities for young workers. To protect those already employed, some economies have passed legislation or regulations permitting employers to hire temporary workers with fewer rights and protections than permanent workers. These temporary workers are typically younger than the older workers. They have less job security, wherein their labour contracts only last for a specified number of years. But temporary workers typically receive less training than permanent employees. Since employers do not anticipate retaining them for a sufficiently long period, they invest less in training them. This makes their search for a next job more difficult. Finding ways to provide training for young workers is important not only for their lifetime productivity, but also for their inclusion.

A second policy challenge is to provide the appropriate incentives for the provision of training programmes of various types and for students to enrol and complete the various programmes. Providing financial support for students (especially for those from disadvantaged backgrounds or remote areas) is one possible policy. Another is the provision of incentives to employers to expand opportunities and ensure that incentives are consistent with provision of quality training and subsequent hiring of those who have completed training.[80] In both cases, it is important that those enrolled in programmes have incentives to finish them and that training is of the type and quality that induces employers to hire or retain graduates.

[80] A thorough discussion of such incentives could be found at OECD (2017b).

That leads to the third policy challenge, which is the appropriate relationship between the public and the private sectors. Policies incorporating effective consultation and decision-making mechanisms between private employers and the public sector are generally more productive than those undertaken by the public sector alone in assessing and overseeing training programmes of all types. Employers can provide information as to needed skills, prospective growth, and much more. The public sector can use resources to collect and provide information about opportunities (especially in areas distant from training facilities), increase incentives for programme completion and inclusion, and oversee the quality of training programmes.

The quality and type of training is crucial. Some employers have reported that training in vocational facilities was so inadequate that few of the graduates of these facilities could be hired. Others have reported that they need to provide almost as much training as would have been required had the new recruits not had prior vocational training. Finding appropriate means to monitor quality is a key role for the public sector. A challenge is to find ways to secure and make use of reliable feedback from businesses as to: (1) the value of the training and skills they are seeing in job applicants and new hires; (2) the types of skills that are in short supply, and (3) ways in which training could be improved.

Issues arise regarding incentives both for young persons and those already in the labour force who need or want further training. Active labour market policies can support both. There are a number of policies and measures that constitute labour market policies and these are discussed next. Very often, public labour or employment centres are established to coordinate these measures and inform employers and workers on many issues of concern to them.

Labour Market Information Systems

ALMPs require good and timely labour market data in order to function effectively. As such, labour market information systems (LMIS) are integral to efficient job-skills matching. Most APEC members do not have an overall skills shortage in their economy. Some fields or localities experience a more acute skills mismatch than others. For instance, an economy may have many university graduates with communications degrees while businesses are looking to hire graduates with engineering degrees. This skills mismatch can be reduced through the development of advanced labour market information systems, thereby also improving productivity.

An LMIS needs to take a holistic approach towards skills requirements in an economy and involves coordination between education and training providers and employers and other labour market intermediaries. Using a mix of both quantitative and qualitative data, an LMIS provides public information regarding the skills requirements for various jobs. An LMIS can provide a link between employers and applicants, thereby reducing search costs as well as resulting in higher-quality job-skills matches which help to reduce job turnover rates. Another important function of an advanced LMIS is to provide employment growth projections and seek to, as far as possible, anticipate future skills demands so that educational providers and potential jobseekers can respond accordingly.[81] Australia's Labour Market Information Portal is an example of an online resource that provides easily accessible information regarding job skills requirements as well as job vacancies that is relevant for both students and jobseekers.[82]

[81] For more discussion, see OECD (2016a).
[82] Australia's Labour Market Information Portal is available at www.lmip.gov.au.

A well-functioning LMIS is a very effective tool for reducing labour market imbalances, although the design will vary according to the needs of the economy.

Complexity, certification and coordination

The need for specific types of skills increases sharply with economic development. As economies become more complex, the skill sets employers seek become more differentiated. Providing information to workers on the needed skill sets, and to employers on the skills of workers, can be a highly productive part of human capital development. Appropriate certification of skill sets bridges this information need. By offering certificates, programme providers provide attestation to the skills that graduates have developed. Sometimes, however, employers have refrained from hiring certificate holders, usually because the training did not enable the graduates to perform the tasks the employer needed. Consultation between the public and private sectors as to the specific needs governing specific skills in different industries, and agreement on the expectations that should be fulfilled by certificate holders can enable improvements in many training programmes. This holds true not only for new labour force entrants, but also for those already in the labour force who decide to accept additional skills and training (either because they hope to find a better job with additional skills or because they need additional training so as not to be rendered redundant due to growth and shifts in demand).

A means of coordinating active labour market policies has been the establishment of employment centres in regions and cities within the economy. These centres provide information on job availability, and provide job seekers with the opportunity to consult a trained employment counsellor. The counsellor may know of jobs that the worker can apply for, or may instead be able to recommend appropriate training courses (perhaps at night if the worker is employed or during the day if the worker is unemployed). The worker can be informed if there are vacancies in other regions for workers with his or her particular skill set (in some economies there are funds available to help finance the cost of a move). In some cases, the counsellor may indicate that finding new work will be difficult without additional training, and identify training opportunities and available financing. Employers may also be asked (or required) to provide information about available job openings and about prospective redundancies (including, in some economies, the names of workers who may be displaced). A central data collection agency can receive and distribute information to individual centres as well as a LMIS to aid in policymaking. It should be noted that an appropriate classification of job skills for certification and information-gathering can be an important contributor to the success of job centres. When these skills are clearly defined, counsellors in centres can provide better-targeted training recommendations, and are better placed to identify job vacancies that fit a job seeker’s skill set.

In some economies, job centres are important for workers seeking unemployment compensation until they find new work. Counsellors can certify that (if required by law) the unemployed person is undertaking appropriate training and eligible for support. In effect, counsellors are the coordinators for the various facilities that may be available, providing the needed certifications to the government and simultaneously advising the worker on opportunities and requirements. As with so many other aspects of labour market policies, unemployment compensation is a key part of the social safety net, but care must be taken that its availability does not deter workers from seeking training (if needed) and new employment as soon as possible. Combining eligibility for unemployment compensation with requirements for receiving needed training and undertaking necessary job search, especially for younger

workers, seems to balance these needs. The Danish system of Flexicurity,[83] established in the 1990s, wherein unemployment compensation is paid only when agreed-upon training programmes and/or job search is undertaken, is regarded as having been very successful.

In some economies, financial assistance is provided for workers whose job prospects in their present location appear dismal, whose needed training courses are located at a distance, or whose qualifications may fit the needs of employers in other places. Job centres can administer these resources in connection with their counselling activities in supporting workers in their job searches and employers in identifying qualified workers.

Successful active labour market policies contribute to the well-being of workers by shortening periods of unemployment and enabling retraining and relocation as necessary. In doing so, economic growth is enhanced (an unemployed worker is not contributing to the economy and tax base, and a worker with fewer skills is less productive). Job centres can also be important for inclusion, as the special needs of individuals in remote areas or in places where there have been concentrated redundancies can be addressed.

FACILITATING CONNECTIVITY

We live in a highly globalised and interconnected world—not only is this unlikely to change, but the pace of change in the global economy is likely to accelerate. This section will discuss how economies can help to promote skills formation and human capital development through greater connectivity between economies, including technical exchange and cooperation initiatives as well as through greater trade in services. This is all the more important given the impact that increased automation and other factors may have on labour markets in the future. Most of the structural reforms discussed in this report have to do with the domestic economy. However, it is likely that many economic and policy challenges facing the world today can only be solved through strong regional collaboration, given the increasing impacts of globalisation and digital technology.

Promoting connectivity between economies

Technical exchange and cooperation contributes to confronting the many challenges facing the global community, including persistent poverty and the effects of global warming. Such partnerships enable knowledge transfers and build capacity, thereby promoting economic growth and development. For example, Japan has made technical cooperation a central pillar of its overseas development agency. Through its projects, it has built technical expertise across a wide range of areas, including for the strengthening of educational institutions in Indonesia; Papua New Guinea; the Philippines; and Viet Nam.[84] The United States' Environmental Protection Agency has also partnered with its counterparts in many APEC economies, including China and Chinese Taipei, to share research and technical knowledge on environmental protection as well as to build capacity through training programmes in Indonesia

[83] See http://denmark.dk/en/society/welfare/flexicurity for more information.

[84] For more information, see the Japan International Cooperation Agency homepage at https://www.jica.go.jp/project/english/.

and Viet Nam.[85] Exchanges such as these have a direct impact on skills formation and the development of human capital throughout the region.

APEC has long been at the forefront of promoting technical exchange and cooperation with Economic and Technical Cooperation (ECOTECH) as one of its three pillars. Based on the *Framework to Guide ECOTECH Activities* endorsed in 2010, APEC has established "developing human capital through capacity building" as a medium-term, cross-cutting priority for 2015-2019.[86] Capacity building and the sharing of best practices is a staple of APEC projects. The HRDWG has been especially active in conducting capacity building projects relating to education. The HRDWG has also been working with the EC to implement the Renewed APEC Agenda on Structural Reform (RAASR). APEC could therefore reinforce its efforts to serve as a forum to facilitate and further strengthen technical exchange and cooperation, particularly through projects relating to cross-border education and skills training. Meanwhile, members could aim to remove any domestic regulatory barriers that may prevent them from participating in such technical cooperation initiatives.

Those economies facing skills shortages or acute skills mismatches may also find it beneficial to facilitate labour mobility as called for in the APEC Connectivity Blueprint and the APEC Services Competitiveness Roadmap. Governments would need to identify which industry sectors are most constrained due to a lack of domestic candidates with appropriate skills to fill roles in order to allow for more entrants from outside the domestic market. Australia and New Zealand, for example, have schemes to more easily facilitate working visas for those with in-demand skills.[87] These approaches to mitigate skills gaps through greater cross-border labour mobility require a careful analysis of the skills requirements in an economy. Thus, a regional labour market information system is an important mechanism and policy tool that can help to better understand the skills needed in an economy so as to allow for increased trade in services to fill those skill gaps.

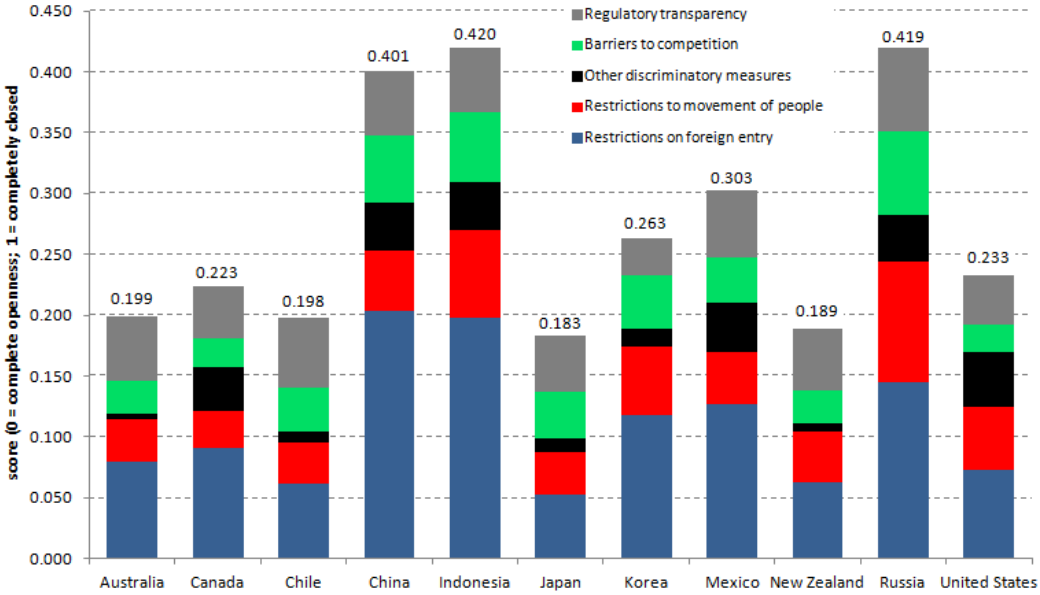
The *APEC Economic Policy Report 2016* had as its theme Structural Reform and Services. The study found that professional services tend to face the most restrictive policies across the APEC region compared with other services sectors.[88] Based on data from both the World Bank and the OECD's Services Trade Restrictiveness Indexes, restrictions on the movement of people are large and there has been limited progress in removing these barriers over the past few years. In 2014, APEC Leaders endorsed the *APEC Connectivity Blueprint for 2015-2025* and acknowledged that "much work needs to be done to ease existing barriers to interaction and mobility, and to develop joint endeavours that will support seamless flow of people". While there are obvious practical barriers to increasing the movement of people between economies, not least of which are language barriers, improving the regulatory environment so that candidates with in-demand skills can move more easily between economies could be an

[85] For more information, see the United States Environmental Protection Agency's International Cooperation homepage at www.epa.gov/international-cooperation.
[86] APEC SOM Steering Committee on Economic and Technical Cooperation (2010).
[87] Australia has the Temporary Skills Shortage (TSS) visa that is based on the Medium and Long-term Strategic Skills List (MLTSSL) (https://www.tssimmigration.com.au/services/detail/temporary-skills-shortage-tss-visa). New Zealand has the Essential Skills visa that is based on the Immediate Skill Shortage List (ISSL) and the Long Term Skill Shortage List visa that is based on the Long Term Skill Shortage List (LTSSL) (http://skillshortages.immigration.govt.nz/). New Zealand also has the Skilled Migrant Category (SMC) visa that is based on the List of Skilled Occupations (https://www.immigration.govt.nz/new-zealand-visas/apply-for-a-visa/about-visa/skilled-migrant-category-resident-visa).
[88] APEC Economic Committee (2016).

important step towards enabling businesses to access needed skills so that they may become more productive.

In most APEC economies for which there are data, restrictions on the movement of people contribute the second or third highest share to overall services trade restrictiveness after restrictions on foreign entry and regulatory transparency (Figure 2.21). According to the data, regulatory barriers on the cross-border movement of people are lowest in Canada, while they are highest in Russia. One barrier to greater trade in services involves the recognition of qualifications obtained in another economy. Most APEC economies have laws or regulations that establish a process for recognising qualifications that have been gained abroad, although this varies by services sector. For example, all APEC economies (for which there are data) have a process in place to recognize foreign qualifications in engineering services, while very few have them for insurance brokers. Across the 11 APEC members for which there is data, Indonesia and Mexico have rules or regulations that establish a process to recognize qualifications earned abroad in the greatest number of services sectors.

Figure 2.21. Services Trade Restrictiveness Index (STRI) in selected APEC economies, 2016 (score)



Note: Data shown for each indicator is the simple averages of the scores across 22 services sectors.
Source: OECD, Services Trade Restrictiveness Index (STRI) and author calculations, accessed 1 June 2017.

There are opportunities for cooperation among APEC members in relation to qualification standards. These could take the form of information and knowledge exchange so as to develop high-quality standards, or greater recognition of the qualifications earned across the APEC region that are most relevant in particular services sectors. HRDWG's ongoing work on developing qualifications frameworks can also be pushed forward to improve people-to-people connectivity. In 2016, APEC Education Ministers[89] recognised the need for "effective and rigorous quality assurance systems, qualification frameworks and skills recognition systems" and encouraged economies to work together on knowledge sharing, capacity building, labour mobility, and cross-border education.

[89] 2016 APEC Education Ministerial Meeting. "*An Inclusive and Quality Education*", Lima, Peru, https://www.apec.org/Meeting-Papers/Sectoral-Ministerial-Meetings/Education/2016_education.

3. POLICY DISCUSSION AND THE ROLE OF REGIONAL COOPERATION

INSIGHTS FROM INDIVIDUAL ECONOMY REPORTS

As an integral part of the AEPR, Individual Economy Reports (IERs) were obtained through questionnaires to gather economies' insights on structural reforms in human capital development. The main aim was to identify the policy achievements, challenges and gaps, and opportunities for regional cooperation in this regard. The IER questionnaire defines structural reforms for human capital development as policies aiming to develop skills and productivity within several sectors like education, health, labour and social protection so as to make economic growth more inclusive and markets more efficient. The policies are also intended to make the economy, businesses and households more resilient to structural changes or cyclical shocks. Through education, training and access to markets, inclusive growth ensures that economic growth provides opportunities to all, irrespective of gender, background, race and disabilities. The complete list of IERs can be seen in Annex B.

Policy challenges

More than 40 per cent of the APEC economies[90] reported that they currently do not provide sufficient training and vocational education. This is in part the reason for identifying skill mismatch as a major problem. Another concern is that the needs of industry are not well aligned with educational institutions and curricula taught in schools. In response, more than half of the high- and middle-income economies are tackling the skill mismatch problem by investing in TVET programs to retrain and upgrade workers' skills. High-income economies have additionally considered other measures to prevent mismatch: for instance, advice from industry experts has been incorporated into training and education programs such that graduates are equipped to meet industry demand.

In high-income economies, an ageing population, lack of equal opportunities for women, and youth unemployment have been identified as key policy challenges. An ageing population puts pressure on the working age cohort, health care and the social security system. Youth are facing unemployment due to a skill mismatch causing them to be unprepared to satisfy industry demand. Furthermore, women struggle to balance work and family life. As a consequence, most of the economies have made attempts at increasing labour market participation among the elderly, youth, and women.

Middle-income economies have slightly different sets of issues to deal with. Poor or unstable economic conditions have, in some cases, set back efforts to improve education systems. Economies have identified access to quality education as a gap that needs to be addressed. Lack of appropriate education channels have impacted the economies' competitiveness and ability to innovate. Moreover, there is still inequitable access to human capital services like education

[90] For purposes of analyzing IERs, economies were divided into high-income and (upper and lower) middle-income economies based on World Bank classifications; there are no low-income economies in APEC according to this classification. High income economies are Australia; Brunei Darussalam; Canada; Chile; Hong Kong, China; Japan; Korea; New Zealand; Singapore; Chinese Taipei; and the United States. Middle income economies are China; Indonesia; Malaysia; Mexico; Papua New Guinea; Peru; the Philippines; Russia; Thailand; and Viet Nam.

and healthcare in some middle-income economies, putting poorer segments of the population at a disadvantage. Improving equity in access to and quality of human capital services remains a policy challenge for some middle-income economies.

Policy responses and regional cooperation

To address the challenges of an ageing population, some economies are offering opportunities to retrain and upskill older workers so that they can be rehired. Lifelong learning programmes can also help older workers to adapt to an ever-changing economy. Vocational training, job search assistance services and ensuring greater collaboration between industry and educational institutions are aimed at improving the employment chances of youth. Targeted programs that provide training and financial support can increase both the ageing and youth population's participation in the labour force and entrepreneurship. In this regard, economies are making it easier to start small businesses. More than 70 per cent of economies seek to empower women and provide better opportunities through improved parental leaves, child care facilities, and internships and funding programmes targeted to women.

Implementing structural reforms while promoting inclusive growth is a priority for most APEC members. Economies seek to ensure greater opportunities for the women, youth, the poor, indigenous peoples, immigrants, the disabled, and other marginalised groups. Some high-income economies have introduced or intend to introduce changes to the labour market framework in terms of providing minimum wages and adopting flexible work styles to benefit disadvantaged groups. They have also invested in improved data collection and analysis to better understand their challenges and respond to them. Some middle-income economies are shifting resources towards improving health care (see Case Studies, Annex A). Better healthcare will increase productivity and possibly improve competitiveness.

Over 80 per cent of economies consider sharing of best practices and experiences to have the greatest potential for gains from regional cooperation. Cross-border exchange in apprenticeships and internships is also considered as a potential benefit from regional cooperation by majority of economies. Also, many middle-income economies identify cooperation on labour mobility as an important opportunity in that regard.

POLICIES FOR STRUCTURAL REFORMS, GROWTH AND INCLUSION

Experience throughout the world strongly indicates that facilitating the shift toward the "sunrise" industries (i.e., new and emerging industries) through measures that maintain a level playing field and provide appropriate incentives is far more successful a policy both for growth and for inclusion than measures that bottle up workers and capital in "sunset" industries. Moreover, when workers do become redundant, it is virtually impossible to identify which ones were made redundant because of changing patterns of trade, which ones were made redundant because of economic growth, which ones were displaced by new technologies, and which ones lost jobs because of inefficient management in their former companies. Policies to facilitate the transition of redundant workers to new and more productive employment are desirable regardless of the reason for redundancy. For this reason, in the rest of this section the need for policy adaptation is considered without regard to the factors contributing to that need.

Some policies are important throughout the growth process, while others become more important at later stages of development. There is a labour market even in early stages of

development, in which individuals seek off-farm work, work as labourers on farms owned by others, compete for government jobs, and so on. As development progresses, the importance of the labour market, its complexity, and its functioning increases as workers are increasingly migrating, seeking jobs off-farm, and seeking better jobs after their initial employment. As already noted, more differentiated types of skills are needed as the economy develops. Skills become more differentiated, and the need for information about demand and supply for skills for different types and levels increases. This is true both for workers seeking employment and for employers looking for employees with the skills that they need.

Policy priorities for low-income economies

At early stages of growth, the crucial policies relate to education, and especially primary education. Estimates of real social rates of return to expenditures on primary education in developing economies range from 10 per cent to 60 per cent (Psacharopoulos and Patrinos 2002). Those unable to read or perform basic arithmetic functions are ill-equipped even for many unskilled off-farm jobs (and are, in many cases, also less productive in rural employment). For both inclusion and growth, increasing the number of persons with primary school attainment is perhaps the most urgent policy objective.

Of course, the quality of education always matters and capacity must gradually increase for secondary and tertiary education. It is important to upgrade teacher training at this stage. However, this cannot come at the expense of basic education. In many economies, the rate of expansion of primary school has been slower than it might have been as too much of the available budget has been allocated to secondary and tertiary education at too early a stage of growth. University graduates have difficulty finding employment and when they do, their productivity can be relatively low, as the supply of support staff (e.g., nurse, laboratory technicians, and nurses' aides) is limited and professionals' (e.g., doctors) time is taken performing those functions.

As primary enrolment and completion rates increase, the fraction of educational resources that can be allocated to secondary and tertiary education can likewise increase. Policymakers must decide the appropriate rate of increase, based in part on feedback from labour markets. If employers report that they cannot, for example, meet quality standards for exports because of a shortage of engineers, and engineers' salaries are seen to be rising rapidly, that is a clear signal to expand capacity for engineering education. Likewise, if data indicate that a particular skill group, say nurses, are having difficulty finding jobs, the rate at which spaces in nursing schools increase should slow down.

At this early stage of development, it is important that available and very scarce government resources are allocated efficiently between the public and the private sector and between physical capital (i.e., infrastructure and expansion of non-farm activities) and human capital (i.e., building and expanding schools and other training and health facilities as well as investing in teacher training). A vital prerequisite for inclusion is that access to primary education be expanded for all, especially girls, minorities, and vulnerable groups.

Policy priorities for middle-income economies

Most APEC economies are beyond the stage where the major impetus to growth can occur through creating a healthier and more literate labour force and through migration from

agricultural to non-agricultural employment. Rates of primary school completion are generally high in the APEC region. It is always important, of course, to continue to improve the quality of education and training. Teacher and/or student absenteeism, inadequate teacher training, and poor classroom facilities (especially supplies such as textbooks) can substantially reduce the achievements and employability even of students who have completed primary and secondary school. Moreover, inequality in the quality of education—when elite schools can compete with the best in the world while schools in poorer communities can barely teach basic numeracy—reduces the effectiveness as well as inclusiveness of the educational system.

As wages rise and the supply of new entrants to the labour force diminishes, a higher fraction of investment in human capital shifts to efforts to improving the quality of education and training, especially at the primary level, and to expansion of secondary and tertiary education and training. At this stage, increasing attention must be given to assuring a reasonable balance between types of training and the needs of private firms. Stories of skills mismatch—for example unemployed lawyers alongside shortages of engineers and scientists—are all too frequent and indicative of resource misallocation.

With middle-income status, it becomes very important to encourage formal sector employment and avoid policies that can discourage jobs growth. At the same time, active labour market policies take on increasing importance as growth continues. Hence, in addition to continuing attention to education and training, there are a number of policies that can enhance growth, but there are also pitfalls to be avoided. For example, setting minimum wages too high and over-regulation of the workplace can discourage investment and entrepreneurial activity in certain sectors (Boudreaux and Palagashvili 2016). On the other hand, setting minimum wages too low or under-regulation of labour conditions can endanger workers' welfare and decrease productivity. The art of policy is to find the appropriate trade-off between expanding opportunities and productivity of the labour force and protection of workers in the formal sector.

Occupational safety and health regulations should aim to meet minimum ILO standards. As labour productivity grows, there will be an opportunity to improve regulations and protections beyond the minimum. The World Bank's *Doing Business 2017* reports on the time and effort required for employers to hire a worker. Workers' safety and health need to be guaranteed using the right mix of regulations and other worker protection tools while avoiding the imposition of undue costs on businesses, especially on MSMEs, which can discourage entrepreneurship and formal sector job creation.

Ensuring that regulations and other tools meet international labour standards is critical from an early stage. At later stages of development, active labor market policies become more critical to ensure labour market flexibility. These are policies that enable more flexibility within the labour market by identifying and encouraging the training of the appropriate types and skills for workers, improving the flow of information to workers and employers, and otherwise contributing to the smooth functioning of the labour market. As previously mentioned, primary education is a high priority for low-income economies, while middle-income economies need to avoid policies that can contribute to the middle-income trap. But, at this stage, a start can be made in developing and improving active labour market policies, although they become more crucial as they advance to becoming high-income economies.

Box 3.1. Social safety nets: disability and old age

While this report is focused on human capital development and structural reform for growth, brief mention should be made of cross-cutting issues that are important for inclusive growth such as social safety nets for the disabled and the elderly. At an early stage of development, a large part of the population lives in in rural areas or is otherwise outside the reach of formal institutions. Initially, social protection floors/social safety nets can only be extended to civil servants and employees of large formal sector enterprises. For the majority in such economies, the social safety net must be the family.

But as urbanisation continues and the tax base and capacity of the government to reach its people increases (for purposes of providing services such as education and health as well as for taxation), the desirability and affordability of extending the social safety net increases, including with regard to disability and old age.

As more and more of the population are urban and without familial support, the need for disability insurance increases. Some support can and should be provided either by employers directly for their workers or by financing provided by employers used by the government to support those in need. Here, as elsewhere, there is a need find the right balance: if disability payments are very high relative to wages, the risk is that some of those who could work will instead declare disability. Measures to enforce reasonable standards for disability eligibility are necessary, and, of course, compensation cannot be disproportionate to prevailing wages for those who are employed.

For old age pensions, the considerations are somewhat different. A major concern is determining the age of eligibility. Here there are issues especially in economies where life expectancy is increasing and the rate of population and labour force growth is dropping or even declining. Prospects for labour force capacity, the dependency ratio and the future funding of old-age insurance must be evaluated when determining the age of retirement and the size of pensions. To the extent that pensions are very generous, more may choose to retire early (if eligibility permits) leading to a reduction in experienced members of the workforce just as new entrants are declining. Likewise, the generosity of pensions must be linked to the prospective increase in real wages. If pension costs rise disproportionately, funds may be diverted from public investment in human and physical capital to the detriment of growth (and those young who are excluded from the training and education they might otherwise receive).

Policy priorities for medium- and high-income economies

For high-income economies, the possibilities for growth through the greater productivity of new entrants to the labour force are much smaller than at earlier stages of growth. As already seen, growth potential through migration of workers from low productivity rural jobs to higher productivity urban jobs necessarily diminishes as the fraction of rural population falls. This means that raising productivity of new entrants to the labour force through their training process is crucial. But so is the speed and the degree to which workers who become redundant can find new and productive employment.

Active labour market policies are the policies designed to enable the productive engagement of the labour force through training, retraining, information provision, and other means. They are important in any economy and can serve to support workers whose employment has been or will be terminated (or who want further training to get a better job) as well as new entrants to the labour force. As skills become more differentiated and real wages rise, unskilled labour-intensive activities become less profitable and employers substitute capital (e.g., machines, robots, computers, or forms of technology) for unskilled labour. Enabling a smooth transition of workers who were employed in "sunset" industries or occupations not only benefits the workers but also supports more rapid economic growth.

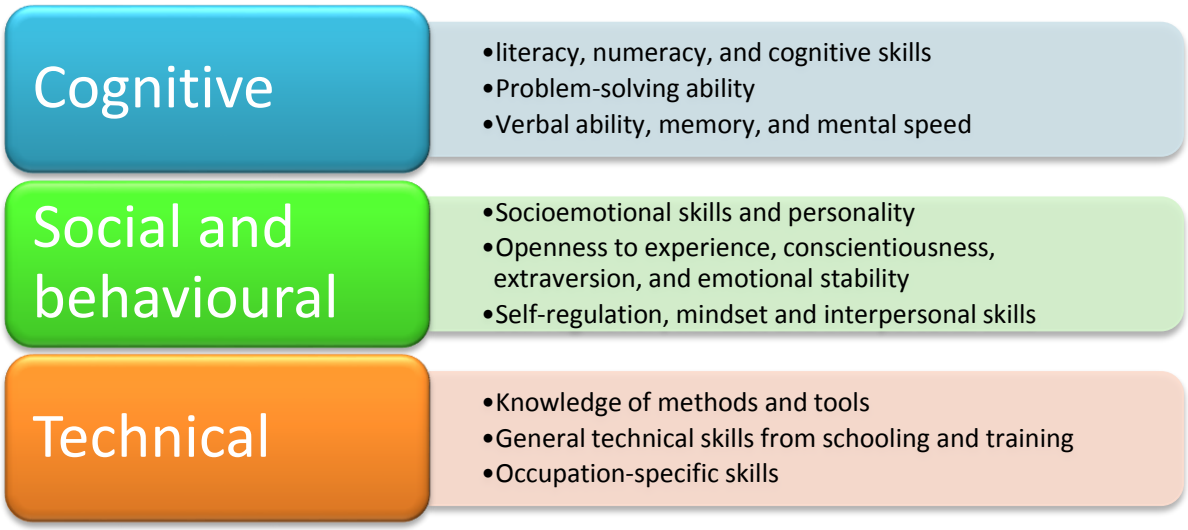
As universal primary education is achieved and secondary enrolments reach high levels, there continues to be a need to make further improvements to the overall quality of the education system. But it is also increasingly important to determine what type of education (in schools) and training (in TVET) are most needed by young people, and what forms of retraining should be available for experienced workers who have become redundant. Critical issues are finding the appropriate role for TVET, including finding the right balance between traditional educational facilities and TVET; types of TVET for different skills; incentives and arrangements for apprenticeships, on-the-job training, and lifelong learning; and the relationship of the private sector to the government in providing TVET.

Turning first to TVET, the needed types of technical training and education vary and increase as economic growth proceeds. If training is of the wrong type, the wrong amount, or of poor quality, resources are inefficiently used. The training staff and facilities are clearly important; but so, too are the time and efforts of trainees. Some types of training are better undertaken in businesses by companies cognizant of their needs, while others are better undertaken in stand-alone facilities.

As economic growth continues, changes in the skill requirements of the labour force occur more quickly. Needs for education and training are of two basic types: learning how to learn (often called "adaptability")—i.e., how to take on new information within one's skill set, including learning different components of a given type of skill— and learning a new skill altogether. These different needs can be illustrated with auto mechanics. Clearly, some basic skills (e.g., literacy and numeracy) are needed. Then comes learning about how to address a given problem (e.g., engine malfunction). Even more specific learning can focus on particular makes of automobiles, or on particular auto components. Of course, auto mechanics trained in the 1970s, for example, learned little about digital technology or programming. More recently-trained mechanics had an easier time adapting when those technologies were introduced into cars.

Technological advancement is also changing what skills need to be taught and how they are taught. Digital technology has lowered the costs of accessing information, but it is still left to the worker to distinguish reliable information from misinformation and to utilise information productively and creatively. Employment in the digital age requires basic cognitive skills, such as literacy and numeracy, but in a fast-changing economy a well-equipped worker also needs skills that are easily transferable across jobs and occupations. A worker needs to be adaptive and flexible, being quick to learn new skills as they are required by the job market. As the World Bank (2016) puts it, workers in the digital age require higher-order cognitive, socioemotional, and technical skills (Figure 3.1).

Figure 3.1. Skills needed in a digital economy



Source: World Bank (2016).

Important questions also include where and how these skills should be taught, and to whom. There is general agreement that basic literacy and numeracy are essential for virtually all jobs, even at the entry level for unskilled factory workers. These abilities are much the same in all fields of endeavour and can, therefore, usually best be taught in primary schools available to all as discussed above. Beyond the requirements for basic entry-level jobs, various approaches are possible. Some technical schools can teach software development for many uses, while some large firms (such as Google and Microsoft in the United States) have their own "universities." Other types of skills may be best taught in apprenticeship programmes. Some apprenticeships are offered within firms, and others are offered jointly with continuing education, where students attend classes part of the time and receive on-the-job training by employers as well.

Economies need to find the right balance between apprenticeships, apprenticeships with schooling, technical training institutes, and other types of TVET. Balance is important so that the supplies of various types of skills grow roughly in proportion with demand; that the training is of the type needed by employers; and that the allocation of resources to various types of training programmes is appropriate. On one hand, this requires recognition of the needs of existing employers, particularly those involved in exporting goods and services to stay competitive. On the other hand, an attempt should also be made to anticipate future skills needs for businesses. Policy makers need to find the right balance of access and incentive compatibility for TVET provision, with focus on maximizing the role of the private sector in providing and funding training that is relevant to their needs. A robust policy framework and incentive structure allows the private sector to both contribute to and benefit from workers' training.

Policies for structural change and inclusion

Most of the topics covered in this report on structural reform in human capital development promote inclusion. NEETs are typically disproportionately found among those from disadvantaged homes, regions or groups. Educational opportunities are, of course, key to providing a stepping stone to a more productive life. When access to primary school is not available or when the young do not attend, the chances of their becoming NEETs rise sharply.

More rapid growth is needed to expand opportunities and provide the fiscal space to implement policies that promote inclusiveness. Greater growth enables more resources for education and training and more employment opportunities. The role of active labour market policies is to incentivise and assist people to take up opportunities, and advise them on how to take advantage of them.

It should be remembered that support of MSMEs can enhance inclusion, both because MSMEs provide jobs and accelerate growth, and because policies that discourage MSME establishment and development mean that there will be less chance for their growth to encompass those left behind in remote areas and in rural settings.

Care should be taken to ensure that policies do not inadvertently favour the economically included, for example by pouring too many resources into additional vocational training (for those who by definition have completed their primary education), while others remain unschooled. Skills of literacy, numeracy, and comprehension that are learned in primary and secondary education are the bedrock and prerequisite of further skills development in tertiary education, TVET, or apprenticeship.

In the longer run, overall living standards will improve if economic growth enables all groups to benefit from increased human capital and openness. Polices that ensure inclusiveness will be more readily achieved in a more rapidly growing economy, which in turn implies an economy open to international trade and investment.

REGIONAL COOPERATION

There are numerous opportunities for cooperation among APEC members. In some instances, there may be groups of members finding cooperation useful, while in other cases, all APEC members may wish to participate. Opportunities include information collection and sharing, developing shared training facilities, setting up exchange programmes (in training and work experience), and establishing credential standards for different types of skills that can be mutually recognized and accepted.

The desirability of appropriate collection and dissemination of information on types of skills, skill qualifications, job availability and the like through labour market information systems has already been mentioned. Developing an LMIS for Asia Pacific would enable a regional view of skills gaps and aid policymaking and policy coordination in addressing these gaps. This is an area where a further exchange of information could be beneficial to many APEC members and could lead to further cooperation.

An initial step could involve improving information exchanges on skill shortages and surpluses in member economies. One way of achieving this is through further development of the APEC Labour Market Portal, which provides an initial resource by hosting data and reports on labour market conditions and workforce skills using economy-specific classifications.[91] Relevant international organisations, such as the ILO, OECD, or Asian Development Bank (ADB), could also potentially facilitate further exchanges.

[91] The APEC Labour Market Portal is available at: http://skillsmap.apec.org/

An important longer term step might be to agree on skill categories and classifications, perhaps taking advantage of a classification system used by ILO or by one or more members of APEC. Agreeing on skill categories and classifications, on the abilities entailed in various certificates of completed training, and mutual recognition of skill certificates in certain sectors could be beneficial for all economies in the region. Members with well-established statistical reporting services could be consulted as to good practices by those where improvements are deemed desirable. Within each economy, it would be essential to ensure that employers are consulted and actively involved in these efforts.

Some more ambitious members may wish to consider developing exchange programmes, under which there could be mutual flows of trainees and instructors. This would be especially beneficial in areas where the number of workers needed in a given skill category is limited but where training is specialized somewhere else. Skill sets might be identified in which training is needed but where the required number of trainees in any one location is relatively small. For example, in the United States not every university has a veterinary college. Exchange programmes are sometimes negotiated whereby students from a state without a veterinary programme receive training in a state that has one, and the other state reciprocates with a specialised programme that it possesses. A similar programme could be envisaged in the APEC region in terms of cross-border educational exchanges not only for tertiary and graduate studies but also for TVET and teacher training. It might be possible to identify situations where each member's skill training needs are not expected to be large, and then work to identify cross-border training opportunities. Especially for more specialised skills, there could be considerable benefits to pooling training facilities (especially as otherwise the teacher-student ratio in each economy would be very high).

The Role of APEC

Although APEC's focus has historically been on cross-border economic issues such as trade and investment liberalisation, issues of inclusiveness and human capital development have always been in the forefront of the region's agenda. Inclusiveness was discussed as early as 1994 as part of the Bogor Goals Declaration, when Leaders stated their goal to "attain sustainable growth and equitable development of APEC economies, while reducing economic disparities among them, and improving the economic and social well-being of our people".[92] The Human Resources Development Working Group (HRDWG) was established in 1990—just one year after APEC itself was founded—to discuss issues and implement initiatives relating to education and training, employment and labour markets, and capacity building.

Although the Economic Committee (EC) has not traditionally focused on human capital development issues, Leaders and Ministers have increasingly included structural reforms in labour markets and issues of inclusiveness as part of its work. The APEC New Strategy on Structural Reform (ANSSR), implemented in 2010-2015, called for structural reforms that promote (1) labour market opportunities, training, and education; (2) sustained SME development and enhanced opportunities for women and vulnerable populations; and (3) effective and fiscally sustainable social safety net programs. This is reiterated in the Renewed APEC Agenda on Structural Reform (RAASR), which was endorsed during the Structural Reform Ministerial Meeting (SRMM) in Cebu in 2015 and defines the focus of EC's

[92] APEC, *1994 Leaders' Declaration*, Bogor, Indonesia, http://www.apec.org/Meeting-Papers/Leaders-Declarations/1994/1994_aelm.aspx.

current work. RAASR aims to promote balanced, inclusive, sustainable and innovative secure growth through structural reforms guided by the following pillars:

(1) more open, well-functioning, transparent and competitive markets;
(2) deeper participation in those markets by all segments of society, including MSMEs, women, youth, older workers and people with disabilities; and
(3) sustainable social policies that promote the above mentioned objectives, enhance economic resiliency, and are well-targeted, effective and non‑discriminatory.

Pillars (1) and (2) directly relate to structural reforms in the labour market to promote efficiency as well as employment among disadvantaged groups. Pillar (3) has implications with regard to reforms for social protection and safety net programmes. EC initiatives focus on making markets more open, improving labour market opportunities through training and education, and initiating programmes to empower vulnerable groups through capacity building and training. More open and competitive markets help reduce economic distortions, thereby facilitating local trade-related and other adjustments. Structural reform in human capital development can contribute to making education and labour markets more efficient, reducing frictions in the movement of workers from one sector to another.

While structural reform issues are EC's main mandate, human capital development issues are the focus of HRDWG's work. Cooperation between the two fora in the area of structural reform and human capital development has great potential to generate synergies and improve coordination of initiatives. Important guideposts for HRDWG's human capital development work are the APEC Human Resources Development Action Plan 2015-2018, which aims to promote people-to-people connectivity and quality employment in the region; the APEC Education Strategy 2016, which aims to have a cohesive education community that supports sustainable economic growth by 2030; and the 2017 APEC Framework on Human Resources Development in the Digital Age, which fosters research and cooperation to address the changes and disruptions due to digital technology. The aim is for APEC economies to be better equipped to provide human resources with the skills needed by labour markets. HRDWG is also in the forefront of knowledge sharing and capacity building on ALMPs, LMIS, labour mobility, cross-border education, and social protection programmes.

Table 3.1 summarises some possible areas for collaboration and future initiatives for EC and HRDWG to progress work on structural reform and human capital development in APEC.

Table 3.1. Possible work areas for EC and HRDWG

	EC	HRDWG
Human capital and skills development	- Regulatory reform to increase private sector participation in skills training including TVET apprenticeship programmes - Regulatory reform to increase competition in the education and training sector - Policy reform to incentivise firms to provide worker	- Alignment of training to industry needs as well as digital skills - Establish systems to minimise skills gaps and mismatches - Cross-border education exchange, including TVET and apprenticeships - Cross-border teacher training and development

	EC	HRDWG
	training, especially for disadvantaged groups - Liberalisation of education and training services	
Labour, employment, and entrepreneurship	- Use/apply regulations, standards and other instruments as appropriate to best achieve sought outcomes on labour standards and protections, with emphasis on inclusion of vulnerable workers in the informal sector - Use/apply instrument choice to best achieve sought outcomes on occupational safety and health, with emphasis on inclusion of vulnerable workers in the informal sector - Policy reform to incentivise hiring of disadvantaged and vulnerable workers (women, youth, elderly, minorities, disabled) - Modernisation of labour market regulations to cover jobs through digital platforms (i.e., the gig economy) - Regulatory reform to facilitate business processes, with emphasis on barriers faced by MSMEs - Regulatory reform to improve access to credit among MSMEs and disadvantaged groups	- Knowledge sharing on needs and requirements of disadvantaged and vulnerable workers (women, youth, elderly, minorities, disabled) - Further development of the APEC Labour Market Portal and comparable resources, including by publishing further information on skills gaps and mismatches and investigating options to improve the consistency of data collections and skills classifications. - Capacity building to collect accurate and timely data from supply and demand side of the labour market - Knowledge sharing on the economic costs and benefits of labour mobility and the impact of barriers to mobility - Promoting labour mobility and connectivity, including work on increasing mutual recognition agreements in the region - Capacity building and knowledge sharing on implementing effective and cost-efficient ALMPs - Capacity building and knowledge sharing on accreditation and skills recognition, with focus on developing an APEC regional qualifications framework - Capacity building and knowledge sharing on policy responses to structural change

	EC	HRDWG
Social protection and safety nets	- Policy reform of social protection programmes, with emphasis on sustainability - Reforms to modernise insurance and pension systems to account for digital technology and the gig economy	- Knowledge sharing on portability of benefits, with emphasis on implications of labour mobility and the gig economy - Knowledge sharing on implementing social protection and safety nets, with emphasis on implications of labour mobility and changing employment relationships

In addition to cooperation between APEC economies and across APEC fora, APEC could also work with other international organisations and multilateral institutions to advance structural reform and human capital development in the region. APEC can leverage on the body of research and experience by organisations such as ASEAN, ILO, OECD, PECC, and UN, for example, to learn about priorities and trends. One possibility would be for the EC and the HRDWG to hold formal policy dialogues or periodic informal meetings to share experience and work related to improving the outcomes of structural change. This would increase coordination and enable the two bodies to avoid duplication of effort in this area. Finally, there is a lot to learn from field experiences and studies by multilateral development banks such as AIIB, ADB, EBRD, IsDB, and WB to learn what works—and what does not—on the ground.

4. POLICY RECOMMENDATIONS

The following policy recommendations are proposed for APEC economies to consider, where relevant and appropriate:

1. ***Improve access to and quality of education and training.*** This is especially important for excluded groups and regions. Improving the quality of education should be a continuing process and intensify once 100 per cent enrolment in primary school has been achieved. Expansion of capacity in secondary schools and lifelong training programs should be accelerated as primary enrolment gets to 100 per cent. Categories of expansion should be coordinated with apparent and forecast skill requirements and geared towards inclusion (in coordination with an ALMP plan as discussed below).

2. ***Develop labour and educational reforms with a view to reaching appropriate active labour market policies (ALMPs).*** ALMPs coordinate all aspects of skills and employment and the policies suggested below could each be a part of a fully functional AMLP. Coordination of various policies and actions on skills development and employment—e.g., training and education, unemployment compensation, job vacancies, job search and matching, retraining for redundant workers, and training to upgrade skills—can improve labour productivity, allocation, and utilisation while contributing to inclusive growth.

3. ***Involve the private sector in training and skills development.*** The private sector has an important role to play in skills development of the workforce and is the best informed on their labour market needs. Advisory committees could advise officials on skills abundance and shortages, needed additional training facilities, expectations on growth areas, course content, etc. Where appropriate, apprenticeships could be encouraged with financial support for workers, and perhaps even for businesses that hire and retain those they train.

4. ***Reform labour market regulations and protection as needed.*** APEC economies have committed to ensuring worker protections and rights; thus, in line with these commitments, reforms need to be pursued in accordance with internationally agreed and recognised fundamental principles of rights at work. Nevertheless, economies should be mindful not to over-regulate their labour market. For example, policy reforms may be established to ensure that minimum wages, employees' rights to leave, hours of work, and other labour regulations guarantee fair compensation and safe working conditions. Yet, economies would want to structure these reforms so as not to induce shifts to the informal sector or discourage job creation.

5. ***Develop and improve data on all aspects of the labour market.*** Developing timely and accurate data on the labour market is an important step toward effective ALMPs. In addition to data from labour force surveys, data on job vacancies and redundancies from employers, data on qualification and standards that can be shared and disseminated, and other data will need to be regularly collected to inform policymakers, educators, and labour markets.

6. ***Develop definitions of skills and appropriate certification mechanisms.*** Having common definitions of skills is crucial so that employers and employees can be better informed as to job matching needs and as an input to ALMPs. These definitions are also an important input for education and training systems so they can develop appropriate curricula and pedagogies and issue certifications that are relevant to labour market needs.

7. ***Enhance social protection and safety nets for all, with an emphasis on inclusion.*** Social protection and safety net programmes play a crucial role in helping workers and households adapt to cyclical and structural unemployment. They also provide opportunities for unemployed workers to search for appropriate jobs and invest in human capital. Social protection and safety nets need to be enhanced while taking into account both the benefits and the costs. Linking unemployment benefits to job search and training or retraining as needed, in economies where these benefits exist, can improve outcomes for workers, employers, and the economy. To remain sustainable and responsive, programmes need to be adaptable to changing technologies, employment relationships, and demographic trends.

8. ***Establish employment centres, especially in areas where information is poor and where exclusion is a significant issue, and provide support for displaced workers and those at risk of displacement due to structural unemployment.*** This should be coordinated as a significant step toward a full ALMP, with unemployment benefits conditional on job search or retraining as agreed with a counsellor. Information from employers can be disseminated through employment centres. With better information flows, periods of unemployment post-training or after redundancy can be significantly reduced, with simultaneous benefits to inclusion and economic growth.

9. ***Improve people-to-people connectivity through cross-border training exchange, labour mobility, and regulatory coherence.*** Economies can consider upgrading cooperation on people-to-people connectivity in line with current commitments. As globalisation and digital technologies are increasingly making labour markets international, cooperation on labour mobility and employment regulatory coherence becomes vital. APEC economies could also consider cooperation on cross-border education exchange—including for TVET, apprenticeships, and teacher training—to enhance skills development capacity building in the region.

REFERENCES

Abel, Jaison R., Richard Deitz, and Yaqin Su (2014). Are Recent College Graduates Finding Good Jobs? , *Current Issues in Economics and Finance*, Vol. 20, No. 1, January 2014, United States Federal Reserve Bank of New York.

APEC (1994), *1994 Leaders' Declaration*, Bogor, Indonesia, 15 November 1994, para. 8, http://www.apec.org/Meeting-Papers/Leaders-Declarations/1994/1994_aelm.aspx.

APEC SOM Steering Committee on Economic and Technical Cooperation (2010). *2010 APEC Senior Officials' Report on Economic and Technical Cooperation*, November 2010, APEC Secretariat, Singapore.

APEC Economic Committee (2016). *APEC Economic Policy Report 2016: Structural Reform and Services*, November 2016, APEC Secretariat, Singapore.

2016 APEC Education Ministerial Meeting. *An Inclusive and Quality Education*, 5th -6th October, Lima, Peru, https://www.apec.org/Meeting-Papers/Sectoral-Ministerial-Meetings/Education/2016_education.

APEC Labour Market Portal, http://skillsmap.apec.org/.

Arulampalam, Wiji, Paul Gregg, and Mary Gregory (2001). Unemployment Scarring, *The Economic Journal*, Vol. 111, No. 475, November 2001, pages 577-584.

Keating, J. (2002). *Comparative Study of Vocational Education and Training Systems: National Vocation and Training Systems Across Three Regions Under Pressure of Change*, Australian National Centre for Vocational Education Research, Leabrook SA.

Australia Labour Market Information Portal, www.lmip.gov.au.

Autor, David H. and David Dorn (2013). The Growth of Low-Skill Service Jobs and the Polarization of the US Labour Market, *American Economic Review*, Vol. 103, No. 5, August 2013, pages 1553-97.

Barrientos, A. and S.W. Barrientos (2002). *Extending Social Protection to Informal Workers in the Horticulture Global Value Chain*. Social Protection Discussion Paper Series No. 0216, June 2002.

Bell, David N. F. and David G. Blanchflower (2011a). *Youth Unemployment in Europe and the United States*, Institute for the Study of Labour (IZA) Discussion Paper 5673, April 2011.

Bell, David N. F. and David G. Blanchflower (2011b). *Young People and the Great Recession*, Institute for the Study of Labour (IZA) Discussion Paper No. 5674, April 2011.

Boudreaux, D.J. and L. Palagashvili (2016). *An Economic Analysis of Overtime Pay Regulations*. Mercatus Working Paper, Mercatus Center at George Mason University, Arlington, Virginia.

Broecke, S., A. Forti and M. Vandeweyer (2017). The effect of minimum wages on employment in emerging economies: a survey and meta-analysis. *Oxford Development Studies* 45(3): 366-391.

Caliendo, Marco, Konstantinos Tatsiramos, and Arne Uhlendorff (2009). *Benefit Duration, Unemployment Duration and Job Match Quality: A Regression-Discontinuity Approach*, Institute for the Study of Labour (IZA) Discussion Paper No. 4670, December 2009.

Card, David, Jochen Kluve, and Andrea Weber (2015). *What Works? A Meta Analysis of Recent Active Labour Market Programme Evaluations*, NBER Working Paper No. 21431, July 2015.

Causa, Orsetta, Alain de Serres, and Nicolas Ruiz (2015). *Structural reforms and income distribution*, OECD Economic Policy Papers, No. 13, April 2015, OECD Publishing, Paris.

Centeno, Mário (2004). The Match Quality Gains from Unemployment Insurance, *The Journal of Human Resources*, Vol. 39, No. 3, Summer 2004, pages 839-863.

Chinese Taipei's Ministry of Education online statistics, http://english.moe.gov.tw/.

Canagarajah, S. and S.V. Sethuraman (2001). *Social Protection and the Informal Sector in Developing Countries: Challenges and Opportunities*. Social Protection Discussion Paper Series No. 0130, December 2011.

Denmark.dk: The official website of Denmark, http://denmark.dk/en/society/welfare/flexicurity.

Donovan, Sarah A., David H. Bradley, and Jon O. Shimabukuro (2016). *What Does the Gig Economy Mean for Workers?*, February 2016, Congressional Research Service, Washington, DC.

Edelman Berland (2014). *Freelancing in America: A National Survey of the New Workforce*, Nationwide Survey, http://fu-web-storage-prod.s3.amazonaws.com/content/filer_public/c2/06/c2065a8a-7f00-46db-915a-2122965df7d9/fu_freelancinginamericareport_v3-rgb.pdf.

Edwards, S. (1997), *Openness, productivity and growth: what do we really know?*, Working paper, Cambridge, MA: National Bureau of Economic Research.

Escudero, Verónica (2015). *Are active labour market policies effective in activating and integrating low-skilled individuals? An international comparison*, ILO Research Department Working Paper No. 3, February 2015.

Farrell, Diana and Fiona Greig (2016). *The Online Platform Economy: Has Growth Peaked?*, JPMorgan Chase Institute, November 2016.

Fernández-Macías, E. and Hurley, J. (2014). *European Jobs Monitor 2014: Drivers of Recent Job Polarisation and Upgrading in Europe*, Dublin: European Foundation for the Improvement of Living and Working Conditions.

Frey, Carl Benedikt and Michael A. Osborne (2013). *The Future of Employment: How Susceptible are Jobs to Computerisation?*, Oxford University, September 2013.

Frankel, J.A. and D. Romer (1999), *Does trade cause growth?*, American Economic Review 89, no. 3 (June 1999): 379–99.

Gindling, T.H. (2014*). Does increasing the minimum wage reduce poverty in developing countries?*. IZA World of Labor 2014: 30. https://wol.iza.org/uploads/articles/30/pdfs/does-increasing-the-minimum-wage-reduce-poverty-in-developing-countries.pdf.

Goldberg, P.K. and N. Pavcnik (2007). Distributional Effects of Globalization in Developing Countries. *Journal of Economic Literature* 45(1), pp. 39-82.

Gollin, D., Lagakos, D. and Waugh, M.E. (2013). *The Agricultural Productivity Gap*, NBER Working Paper Series, Cambridge, November 2013.

Gregg, Paul (2001). The Impact of Youth Unemployment on Adult Unemployment in the NCDS, *The Economic Journal*, Vol. 111, No. 475, November 2001, pages 626-653.

Gregg, Paul and Emma Tominey (2004). *The Wage Scar from Youth Unemployment*, CMPO Working Paper Series No. 04/097, February 2004.

Gries, T. and M. Redlin (2012), *Trade openness and economic growth: a panel causality analysis*, Working paper, Paderborn: University of Paderborn, Center for International Economics.

Hall, J.V. and Krueger, A.B. (2015). *An Analysis of the Labor Market for Uber's Driver-Partners in the United States*, Working paper No. 587, Princeton University, January 2015.

Harrison, A., J. McLaren and M.S. McMillan (2010), *Recent findings on trade and inequality*, Working Paper, Cambridge, MA: National Bureau of Economic Research.

Hawley, J. (2007). *Public Private Partnerships in Vocational Education and Training: International Examples and Models*, World Bank.

Henrekson, Magnus (2014). *How labour market institutions affect job creation and productivity growth*, IZA World of Labour 2014, May 2014.

Hicks and Devaraj (2015). *The Myth and the Reality of Manufacturing in America*, Ball State University, June 2015.

International Labour Organization (ILO). *Minimum Wage Policy Guide*, Geneva, http://www.ilo.org/wcmsp5/groups/public/---ed_protect/---protrav/---travail/documents/genericdocument/wcms_508566.pdf

International Labour Organization (ILO) (2014). *World Social Protection Report 2014/15: Building economic recovery, inclusive development and social justice*, International Labour Office, Geneva.

International Labour Organization (ILO) (2016). *Non-standard employment around the world: Understanding challenges, shaping prospects*, International Labour Office, Geneva.

ILO, ILOSTAT.

ILO, Key Indicators of the Labour Market (KILM) online database, http://www.ilo.org/global/statistics-and-databases/research-and-databases/kilm/lang--en/index.htm.

ILO, NORMLEX database, http://www.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:1:0::NO:::.

ILO, Social Security Inquiry (SSI), http://www.social-protection.org/gimi/gess/ShowTheme.action?id=10.

IMF, World Bank and WTO (2017), *Making Trade an Engine of Growth for All*: *The Case for Trade and for Policies to Facilitate Adjustment*, Policy paper, Washington, DC: IMF.

International Monetary Fund (IMF) (2017). *World Economic Outlook: Gaining Momentum?*, IMF, Washington, DC.

Jacobs, Elisabeth and Joshua Bleiberg (2013). *Addressing Long-Term Unemployment for America's Next Generation of Workers*, The Brookings Institution Op-Ed, March 2013.

Japan International Cooperation Agency, https://www.jica.go.jp/project/english/.

Kahn, Lisa (2010). The Long-Term Labour Market Consequences of Graduating from College in a Bad Economy, *Labour Economics*, Vol. 17, Iss. 2, April 2010, pages 303-316.

Katz, Lawrence F. and Alan B. Krueger (2016). *The Rise and Nature of Alternative Work Arrangements in the United States, 1995-2015*, NBER Working Paper No. 22667, September 2016.

Levine, L. (2010), *Unemployment through layoffs and offshore outsourcing*, Washington, DC: Congressional Research Service.

Lewis, W. A. (1954). Economic Development with Unlimited Supplies of Labour. *The Manchester School* 22: 139–191.

Lewis, W. A. (1979). The Dual Economy Revisited. *The Manchester School* 47: 211–229.

Manpower (2016). "*2016/2017 Talent Shortage Survey*", http://manpowergroup.com/talent-shortage-2016.

Marimon, Ramon and Fabrizio Zilibotti (1999). Unemployment vs. Mismatch of Talents: Reconsidering Unemployment Benefits, *The Economic Journal*, Vol. 109, No. 455, April 1999, pages 266-291.

McGregor, J. and Gray, L. (2002). Stereotypes and older workers: the New Zealand experience. *Social Policy Journal of New Zealand* 18:163-177.

McKinsey Global Institute (2015). *The power of parity: How advancing women's equality can add $12 trillion to global growth*, September 2015.

Meer, J. and West, J. (2015). Effects of the Minimum Wage on Employment Dynamics, *The Journal of Human Resources*, November 2015.

Nagler, Paula (2013). *How unemployment insurance savings accounts affect employment duration: evidence from Chile*, IZA Journal of Labour & Development, Vol. 2, No. 9, December 2013.

Neumark, D. (2015). *The Effects of Minimum Wages on Employment*. FRBSF Economic Letters 2015-37, http://www.frbsf.org/economic-research/publications/economic-letter/2015/december/effects-of-minimum-wage-on-employment/.

New Zealand Immigration, https://www.immigration.govt.nz/new-zealand-visas.

OECD (2011). *When students repeat grades or are transferred out of school: What does it mean for education systems?*, PISA in Focus, No. 6, OECD Publishing, Paris.

OECD (2012). *Does Money Buy Strong Performance in PISA?*, PISA in Focus, No. 13, OECD Publishing, Paris.

OECD (2015). *In It Together: Why Less Inequality Benefits All*, May 2015, OECD Publishing, Paris.

OECD (2016a). *Getting Skills Right: Assessing and Anticipating Changing Skill Needs*, April 2016, OECD Publishing, Paris.

OECD (2016b). *PISA 2015 Results in Focus*, Programme for International Student Assessment, December 2016.

OECD (2016c). *Society at a Glance 2016: OECD Social Indicators*, October 2016, OECD Publishing, Paris.

OECD (2016d). *Entrepreneurship at a Glance 2016*, September 2016, OECD Publishing, Paris.

OECD (2017a). *Education at a Glance: OECD Indicators*. OECD Publishing, Paris.

OECD (2017b). *Financial Incentives for Steering Education and Training, Getting Skills Right*, OECD Publishing, Paris.

OECD Employment and Labour Market Statistics, https://data.oecd.org/

OECD Gender Data Portal (Employment Indicators), http://www.oecd.org/gender/data/.

OECD/IAB Employment Protection Database, http://www.oecd.org/employment/emp/oecdindicatorsofemploymentprotection.htm.

OECD PISA 2015 online database, http://pisadataexplorer.oecd.org/ide/idepisa/.

OECD Services Trade Restrictiveness Index (STRI), http://www.oecd.org/tad/services-trade/services-trade-restrictiveness-index.htm.

OECD Statistics, http://stats.oecd.org/.

Panagariya, A. (2003), *Miracles and debacles: do free-trade skeptics have a case?*, Policy paper.

Psacharopoulos, G. and Patrinos, H.A. (2002). *Returns to Investment in Education: A Further Update*, Policy Research Working Paper, The World Bank, September 2002.

Ranis, G. and Fei, J.C.H. (1961). A Theory of Economic Development. *American Economic Review*, 51: 533-565.

Reyes Hartley, Gonzalo, Jan C. van Ours, and Milan Vodopivec (2010). *Incentive Effects of Unemployment Insurance Savings Accounts: Evidence from Chile*, Institute for the Study of Labour (IZA) Discussion Paper No. 4681, January 2010.

Rolf, David, Shelby Clark, and Corrie Watterson Bryant (2016). Portable Benefits in the 21st Century: Shaping a New System of Benefits for Independent Workers, Future of Work Initiative, June 2016, The Aspen Institute.

Roser, M. (2017). *Economic Growth*, Our World in Data, based on World Bank and the New Maddison Project Database, https://ourworldindata.org/economic-growth.

Roser, M. and E. Ortiz-Ospina (2017), *Global extreme poverty*, Our World in Data, 27 March 2017, https://ourworldindata.org/extreme-poverty/ (accessed 5 May 2017).

Rostow, W.W. (1960). *The Stages of Economic Growth: A Non-Communist Manifesto*, Cambridge University Press: Cambridge, England.

Schleicher, Andreas (2015). *Viet Nam's 'stunning' rise in school standards*, BBC News, 17 June 2015.

Silverstein, M. (2008). Meeting the challenges of an aging workforce. *American Journal of Industrial Medicine*, 51(4): 269-80.

Smith, A. (1776), *The Wealth of Nations*, Book IV, Chapter V.

Singapore's online data portal, https://data.gov.sg/dataset/combined-and-gross-enrolment-ratio-for-primary-secondary-tertiary-education.

Stuart, Mark, Danat Valizade, and Ioulia Bessa (2015). Skills and training: the union advantage, Centre for Employment Relations, Innovation & Change, Research paper 21, May 2015.

Sugiyarto, G. and B. Endriga (2008). *Do Minimum Wages Reduce Employment and Training?*. ERD Working Paper Series No. 113. https://www.adb.org/sites/default/files/publication/28371/wp113.pdf

The Economist (2011). "*Are ATMs stealing jobs?*". https://www.economist.com/blogs/democracyinamerica/2011/06/technology-and-unemployment

The Conference Board, Total Economy Database., https://www.conference-board.org/data/economydatabase/.

UNESCO Institute for Statistics (UIS) online database, http://data.uis.unesco.org/, accessed 20 April 2017.

UNESCO World Inequality Database on Education (WIDE), http://www.education-inequalities.org/, accessed 1 June 2017.

UN Women. *Facts and Figures: Economic Empowerment*, http://www.unwomen.org/en/what-we-do/economic-empowerment/facts-and-figures, accessed 1 June 2017.

United States Environmental Protection Agency, www.epa.gov/international-cooperation.

van Praag, C. Mirjam and Peter H. Versloot (2008). *The Economic Benefits and Costs of Entrepreneurship: A Review of the Research*, Foundations and Trends in Entrepreneurship, Vol. 4, Iss. 2, pages 65-154, 2008.

Vincent-Lancrin, Stéphan (2008). *The Reversal of Gender Inequalities in Higher Education: An On-going Trend*, Higher Education to 2030, Volume 1, Demography, OECD Publishing, Paris.

Wacziarg, R. and K.H. Welsh, *Trade liberalization and growth: new evidence*, The World Bank Economic Review 22, no. 2 (2008): 187–231.

Walther (2011). *Building Skills in the Informal Sector*, Background Paper prepared for the Education for All Global Monitoring Report 2012, UNESCO, Paris.

Weiner R. and S. Willborn, eds. (2011). *Disability and Aging Discrimination: Perspectives in Law and Psychology*, Springer: New York.

World Bank (2015). *Women, Business and the Law 2016: Getting to Equal*, Washington, DC.

World Bank and WTO (2015), *The Role of Trade in Ending Poverty*, (Geneva, WTO, 2015), 19–25.

World Bank (2016). *World Development Report 2016: Digital Dividends*, Washington, DC: World Bank.

World Bank (2017). *Doing Business 2017: Equal Opportunity for All*, 14th edition, Washington, DC: World Bank.

World Bank Doing Business 2017: Labor Market Regulation Data, http://www.doingbusiness.org/data/exploretopics/labor-market-regulation.

World Bank Doing Business online database, http://www.doingbusiness.org/data.

World Bank PovcalNet, http://iresearch.worldbank.org/PovcalNet/povOnDemand.aspx.

World Bank World Integrated Trade Solution (WITS), UN Comtrade, http://wits.worldbank.org/.

World Bank World Development Indicators, https://data.worldbank.org/data-catalog/world-development-indicators.

World Economic Forum (2014). *Matching Skills and Labour Market Needs: Building Social Partnerships for Better Skills and Better Jobs*, Global Agenda Council on Employment, 22-25 January 2014, Davos-Klosters, Switzerland.

World Economic Forum (2016), *The Future of Jobs: Employment, Skills and Workforce Strategy for the Fourth Industrial Revolution*, Geneva, January 2016.

World Economic Forum (2016). *The Global Gender Gap Report 2016*, October 2016, Geneva.

Schwab, K. (2016). *The Global Competitiveness Report 2016–2017*, World Economic Forum, Geneva.

World Economic Forum (2017). *The Inclusive Growth and Development Report 2017*, January 2017, Geneva.

World Economic Forum Human Capital Index 2016, https://widgets.weforum.org/human-capital-2016/.

World Economic Forum Inclusive Development Index 2017, https://widgets.weforum.org/inclusive-development-index-2017/.

World Trade Organization (2017). *World Trade Report 2017: Trade, technology and jobs*. WTO, Geneva.

Asia-Pacific
Economic Cooperation

Prepared or Printed by

Asia-Pacific Economic Cooperation Secretariat

35 Heng Mui Keng Terrace, Singapore 119616

Telephone:(65) 6891 9600 Facsimile: (65) 6891 9690

Email: info@apec.org Website: www.apec.org

 APEC#217-EC-01.2 ISSN: 0218-9763