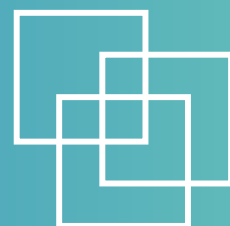




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Labour mobility and labour market data: **A baseline study of APEC economies**

International Labour Organization (ILO),
Regional Office for Asia and the Pacific, Bangkok

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List of abbreviations and acronyms

ANZSCO	Australian and New Zealand Standard Classification of Occupations
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
CAD	Canadian dollar
CES	Current Employment Statistics [United States]
CPS	Current Population Survey [United States]
BNP2TKI	Badan Nasional Penempatan dan Perlindungan Tenaga Kerja Indonesia (National Board on the Protection and Placement of Indonesian Overseas Workers)
CARICOM	Caribbean Community
COL	Critical Occupation List [Malaysia]
DGBAS	Directorate General of Budget Accounting and Statistics [Chinese Taipei]
DGFPCL	Dirección General de Formación Profesional y Capacitación Laboral (General Directorate of Vocational Training and Labour Training) [Peru]
DOL	Department of Labor [United States]
DOLAB	Department of Overseas Labour [Viet Nam]
ENVME	Encuesta Nacional de Variación Mensual del Empleo (National Survey of Monthly Variation of Employment) [Peru]
EU	European Union
FTA	free-trade agreement
GATS	General Agreement on Trade in Services
HRDWG	Human Resources Development Working Group
HSFP	Highly Skilled Foreign Professional [Japan]
ICLS	International Conference of Labour Statisticians
ICSE	International Classification of Status in Employment
ILMS	international labour migration statistics
ILO	International Labour Organization
ISCE	International Classification of Status in Employment
ISCED	International Standard Classification of Education
ISCO	International Standard Classification of Occupations
ISIC	International Standard Industrial Classification of All Economic Activities
IT	Information Technology
LFS	labour force survey
LMIS	Labour Management Information System
LOA	latest observation available
MLTS	Multi-Tier Levy System [Malaysia]
MLTSOL	Medium Long-Term Strategic Skills List [Australia]

MRA	mutual recognition agreement
MTPE	Ministerio de Trabajo y Promoción del Empleo (Ministry of Labour and Employment Promotion) [Peru]
NAFTA	North American Free Trade Agreement
NOC	National Occupational Classification
NZD	New Zealand dollar
OFW	Overseas Filipino worker
OSEL	Observatorios Socio Económico Laborales (Socio-Economic Labour Observatories) [Peru]
POEA	Philippines Overseas Employment Administration
PPP	purchase power parity
RAASR	Renewed APEC Agenda for Structural Reform
ROL	Regional Occupations List [Australia]
SAWP	Seasonal Agricultural Worker Program [Canada]
SDG	Sustainable Development Goal
SENCE	Servicio Nacional de Capacitación y Empleo (National Training and Employment Service) [Chile]
SEPH	Survey of Employment, Payrolls and Hours [Canada]
SNA	System of National Accounts
STSOL	Short-Term Skilled Occupations List [Australia]
SWIID	Standardized World Income Inequality Database
TN	trade-NAFTA
TVET	technical and vocational education and training
UN	United Nations
USMCA	United States–Mexico–Canada Agreement
USTR	United States Trade Representative



01

Introduction

1.1. Background and purpose of the report

Better labour market information and labour migration data can connect businesses and workers to new economic opportunities. Most Asia-Pacific Economic Cooperation (APEC) economies collect labour market and migration data, but these data are not always complete, comparable, or widely available, limiting their ability to link workers and employers across borders.

Australia, in collaboration with APEC economies and international organizations, promotes the development of regional principles and best practices to collect and share labour market and mobility data. The key objective is to improve the availability and accessibility of comparable data as the APEC region seeks to address the increasing demand for new skills, persistent high youth unemployment, and the impact of population ageing on labour supply. These challenges have generated new demands and needs for timely, reliable, and comparable data.

This project builds on international benchmarks and ongoing multilateral efforts, including the outcomes of the 20th International Conference of Labour Statisticians (ICLS). During the first phase of the project, from December 2018 to May 2019, the International Labour Organization (ILO) undertook a baseline study of labour migration (stocks and flows) and labour market data (focusing on key indicators in relation to labour mobility) currently collected in the 21 APEC economies. The study mapped the data being collected and shared, and identified gaps and capacity-building needs.

APEC leaders and ministers have long recognized the value of labour market information systems and mobility data to enhance the region's capacity to develop and use its human resources more effectively. While many APEC economies have established effective mechanisms to collect labour market information and mobility data, the statistical capacities of economies and the accessibility or sharing of labour market information are uneven across the economies. The use of international standards for statistical data collection is often not consistent within – across domestic data sources – and/or between economies in the region. Incomplete, inaccessible, or incomparable labour market and mobility statistics on the sub-regional or regional levels can lead to the underutilization of human capital and persisting skills shortages that can retard competitiveness and economic growth.

In face of these challenges, accurately pinpointing and analysing current labour movements and shortages are crucial to realize emerging opportunities from labour mobility within and between economies, and to inform labour market policies, as well as for broader aspects of regional socio-

economic development. When established, regional labour market and mobility information systems can help to expand decent work opportunities for the labour force, as they keep up with the pace of ongoing transformation and provide timely and reliable information to serve as basis for policy and planning.

The *APEC Economic Policy Report 2017* made several recommendations, including developing and improving data on all aspects of the labour market. The APEC Skills Mapping Project in 2014, and the development of an APEC Labour Market Portal, were important steps forward in regional cooperation on data sharing. However, major data gaps exist, e.g., to understand the digital-skills gap, emerging and declining occupations, skills shortages, and the influence of the “gig” and “platform” economy on the virtual movement of labour. Rapid demographic changes have created further demand for reliable data and expectations for sound evidence-based policy responses to the impact of population ageing on the labour market.

As the APEC region transitions to the digital age and becomes more connected, the availability of reliable and comparable data will play a significant role to highlight emerging labour market opportunities and to help design programmes that better connect workers with decent jobs, and businesses with skilled workers. Better data can provide the evidence for structural reforms in education and training to address growing demands for new skills. The APEC Framework on Human Resources in the Digital Age, which was adopted by APEC Leaders in 2017, calls for more concerted efforts to improve the availability of labour market information and our understanding of the changing nature of labour mobility. Similarly, the APEC Workshop on Addressing Structural Barriers to Human Resource Development (November 2017) noted improvements in labour market information systems as a key priority for the region. In March 2018, a joint dialogue between the APEC Economic Committee and the Human Resources Development Working Group (HRDWG) on the implementation of the *APEC Economic Policy Report 2017* reiterated the role of labour market information and mobility in advancing human capital development and inclusive growth.

This paper summarizes the migrant labour data available in some of the 21 APEC economies to improve data collection and to facilitate data sharing. The goal is to help develop comparable data and encourage governments to collect and provide timely data to improve skills matching across borders, thus for example, helping to mitigate youth unemployment in labour-sending economies and to fill job vacancies in labour-receiving economies.

1.2. Structure and outline of the report

This is a descriptive baseline report on current APEC economy-specific data collection practices related to international labour migration statistics and labour market indicators, based on the use of United Nations (UN)/ILO principles and standards. The report assesses data collection periodicity, types of data sources used, scope, quality and usefulness of the indicators and estimates produced, as well as data-sharing practices and overall availability of data.

The conceptual framework for the Baseline Report has four parts:

1. an overview of labour market and labour migration trends in the APEC region;
2. general labour market statistics;
3. international labour migration statistics; and
4. approaches to identify labour and skills shortages.

The first, second, and third parts of the report are based largely on the ILO labour market (decent work) statistical indicators and the ILO Statistics database. The third part draws on ILO and ICLS guidelines and the establishment of the ILO International Labour Migration Statistics (ILMS) Database in ASEAN (Association of Southeast Asian Nations). The ASEAN ILMS database includes seven of the 21 APEC member economies. The fourth part is based on domestic practices on identifying labour and skills shortages and assessing requirements for the admission of migrant workers.

Following these four sections, the paper lays out the regional dimensions and offers conclusions and recommendations.

1.3. Methodology of the report

The baseline study used a combination of primary data collection; use and analysis of the ILO databases; and literature review. The report was produced in a short time-frame of four months (December 2018–March 2019).

The study of labour market indicators was based on the ILO Statistics database on labour market (decent work) statistical indicators. A priority list of 15 statistical indicators was initially proposed by the ILO. Following consultations with the sponsor of the baseline report (the Department of Jobs and Small Business, Australia), a final list of 13 statistical indicators was adopted for the study. Information of the sources, collection, comparability, and gaps concerning these indicators was obtained from the ILO Statistics database.

The 13 statistical indicators selected are as follows:

1. Employment-to-population ratio;
2. Unemployment rate;
3. Labour force participation rate;
4. Youth unemployment rate;
5. Proportion of own-account workers and contributing family workers in total employment;
6. Average hourly earnings by occupation group;
7. Average real wages;
8. Occupational segregation by sex;
9. Unemployment by level of educational attainment;
10. Time-related underemployment rate;
11. Labour productivity;
12. Employment by branch of economic activity; and
13. Real GDP per capita.

For the study on international labour migration statistics, two sources were used: firstly, the ILO ILMS Database in ASEAN, and secondly, primary data collection by the ILO Statistics Department.¹ To gather information for the final part of the study – approaches to identifying labour and skills shortages and assessing labour market requirements for migrant workers – a questionnaire was developed and administered.² This was supplemented by a literature review.

One regional researcher (North America) and one national researcher (the Russian Federation) were engaged to supplement the two lead researchers on the labour market and labour migration areas.

1.4. Scope of the report, further research, and terminology

The report does not aim to scope or assess labour migration policies in the APEC region. Rather, it looks at data which underpins policy – the state of labour market and labour migration data collection and sharing against key indicators. International labour migration statistics (ILMS) collected by the ILO fall into three modules – international migrant stock; international migrant flow; and citizens abroad. ILMS for APEC members were examined for the baseline report under the three modules and provide a picture of what labour migration statistics are being produced and shared within APEC. The ILO has a list of 60 Decent Work Indicators. The study has examined data collection by APEC economies against 13 of these indicators around employment, earnings, gender equality, labour productivity, and the economy.

¹ Economies that responded to the ILOSTAT data request or economies that are part of the ILO ASEAN ILMS are: Australia, Brunei Darussalam, Canada, Chile, China, Hong Kong (China), Indonesia, Japan, Republic of Korea, Malaysia, Mexico, Peru, the Philippines, the Russian Federation, Singapore, Thailand, the United States of America, and Viet Nam.

² Economies that responded were Australia, Hong Kong (China), Republic of Korea, Malaysia, Papua New Guinea, Peru, the Russian Federation, Chinese Taipei, and Thailand.

Labour demand and supply indicators, migration statistics, and macro-economic trends all need to feed into assessing labour and skills shortages. The study does not examine the availability of all labour market indicators. In addition to basic indicators (Chapter 4), Chapter 6 makes a beginning in outlining the types of data that are required and the types of assessments being undertaken in APEC economies. This may be studied further.

As far as statistics are concerned, the terms “labour migration” and “labour mobility” are used interchangeably in the report, noting there is no statistical definition of the term “labour mobility”. However, migration policies generally aim to welcome or facilitate the entry and stay of desired immigrants and workers, and restrict that of others. Labour mobility, on the other hand, is a sub-set of migration, and is concerned with the facilitation of movement of persons across borders for the purpose of employment.



02

Macro-economic and labour market overview

This chapter provides a review of recent economic and labour market trends across two data points – the years 2012 and 2017.¹² This review of recent trends serves two purposes. First, to provide a brief context of the economic and labour market dynamics in the APEC economies to set the stage for the subsequent chapters on data collection and data sharing practices. Second, to demonstrate the importance of harmonized data for key indicators such as labour productivity growth and employment-to-population ratios for cross-country comparisons of APEC economies' macro-economic and labour market situations.

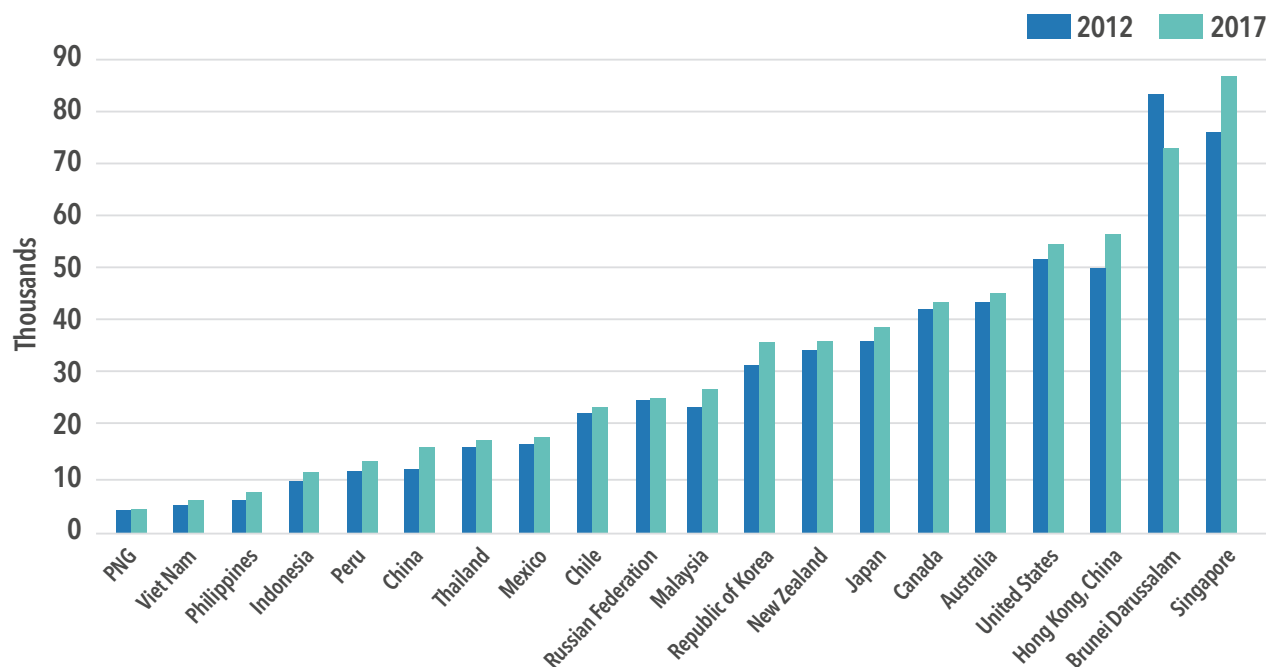
Whenever possible, the analysis conducted in this chapter makes use of ILOSTAT estimates that allow comparability. ILOSTAT provides the series of ILO modeled estimates for the following indicators:

- a. employment-to-population ratio;
- b. status in employment;
- c. employment by sector;
- d. employment by occupation;
- e. unemployment rate; and
- f. labour productivity.

For the remaining set of indicators, for which ILO modeled estimates are not available, the “national collection” series of ILOSTAT are used. ILOSTAT national collection was the source for: (i) real wage; (ii) earnings by occupation; and (iii) time-related underemployment. The World Bank database was instead used for data on gross domestic product (GDP); whereas data on Gini coefficient were taken from the Standardized World Income Inequality Database (SWIID), which represents the most widely quoted source on issues relating to inequality when a large sample of countries is taken into account.

APEC economies present a high degree of heterogeneity across several dimensions. First, their populations vary widely in size, ranging from those of China (1.4 billion) to Brunei Darussalam (429,000). Second, they belong to different development tiers. The labour markets of advanced economies such as those of Australia, Canada, Hong Kong (China), Japan, Republic of Korea, New Zealand, Singapore, and the United States are different from those in emerging and fast-growing economies such as China, Indonesia, the Philippines, and Viet Nam. Other economies are characterized by growth that relies on oil extraction such as Brunei Darussalam, or by a development stage characterized by low- or middle-income

Figure 1 • Per capita GDP levels, 2012 and 2017³



Source: World Bank.

¹ Two data points across a five-year interval were seen to be optimal for the purpose of the overview.

² Data observations are mostly taken from ILO modeled estimates to ensure international comparability (see Chapter 4 for further details). ILO modeled estimates are different from the data published by national bureaus of statistics, which are also published by the ILO in the national collection series.

³ Chinese Taipei is not listed as a separate economy for World Development Indicators. For most indicators, Chinese Taipei data is not added to the data for China, but Chinese Taipei is added to the world aggregate and the high-income economies aggregate.

levels such as the economies of Mexico, Papua New Guinea, and Peru.

The analysis underlines that APEC economies register relatively low unemployment rates compared to other regions of the world – below 7 per cent in all of the 21 economies in 2017. Employment-to-population ratios have largely remained stable or slightly increased for most APEC members.

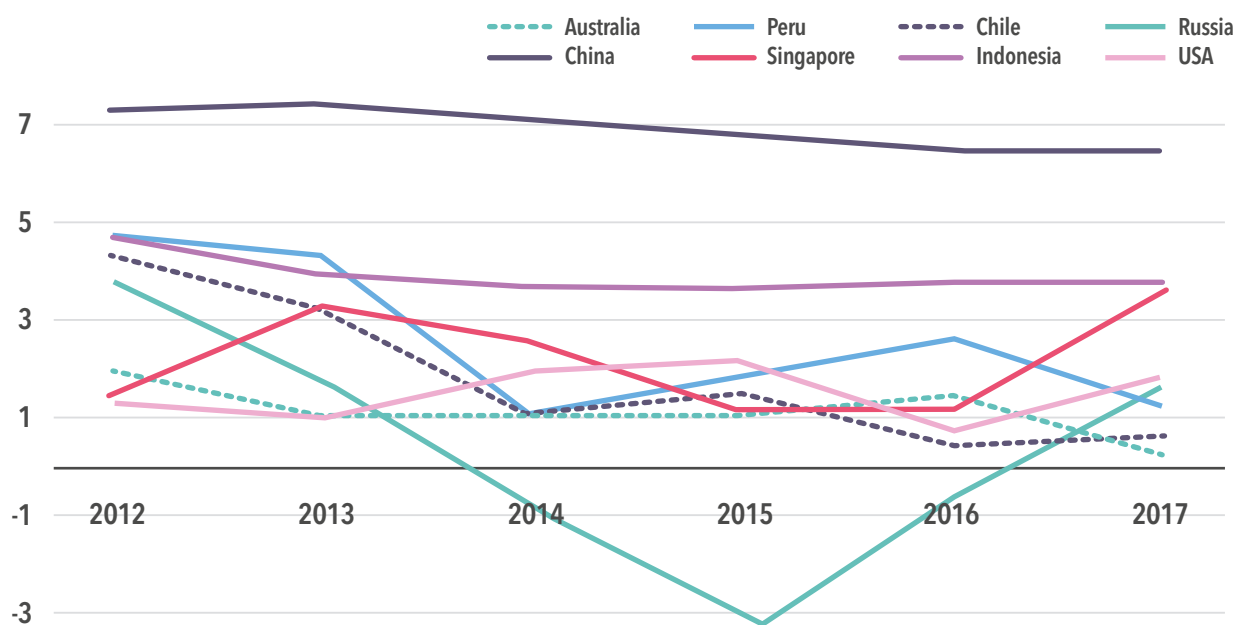
Figure 1 shows the level of per capita GDP for 2017, the most recent data available for all APEC economies, and for 2012, the year of general recovery from the 2008–09 global financial and economic crisis around the Pacific Ocean. Brunei Darussalam, Hong Kong (China), Singapore, and the United States show average income levels of more than US\$50,000, whereas Indonesia, Papua New Guinea, Peru, the Philippines, and Viet Nam range around or below the US\$10,000 mark. GDP per capita rose between 2012 and 2017, except in the oil exporting economies of Brunei Darussalam and the Russian Federation.

It should be noted that GDP per capita focuses on production of final goods and services, and does not reflect the distribution of resources across the income ladder.⁴

GDP per capita growth rates vary among APEC member economies. Developing economies that are in the process of catching up and that are characterized by a low level of GDP per capita grew faster than advanced economies in 2012 and in 2017, with the exception, for instance, of Singapore, which witnessed robust growth in the period of reference. However, figure 2 offers a mixed picture. Economies in Asia were characterized by buoyant growth rates above or around the 4 per cent mark. All other APEC economies, especially the Russian Federation and those in the Americas, experienced a reduction of growth between 2012 and 2017.

Looking at the evolution of per capita GDP growth rates from 2012 to 2017, East and South-East Asian economies, such as China and Indonesia, maintained high growth but with a decreasing trend. Most other economies present trends similar to that shown in figure 2 for Singapore and the United States, with positive yet fluctuating growth rates. The degree to which China will be able to sustain its high levels of growth rates in the future will affect the world economy due to its central position in the global trade system.

Figure 2 • Per capita gross domestic product (GDP) growth rates for selected economies, 2012–17 (%)



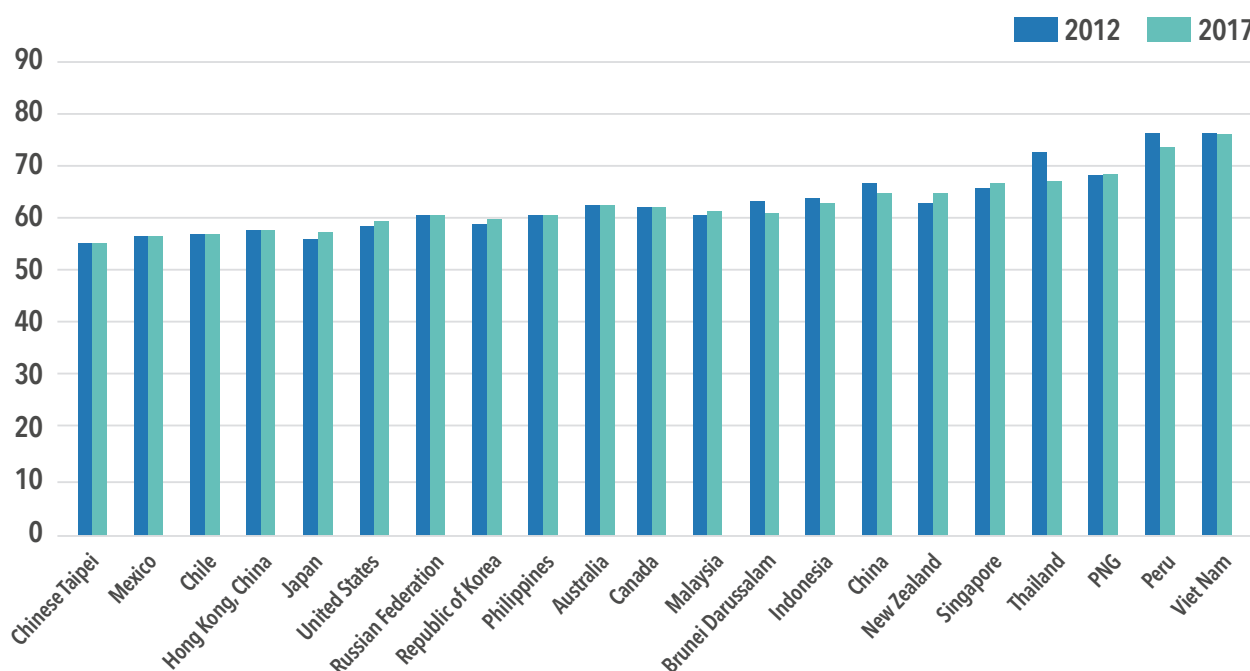
Source: World Bank.

⁴ The Organisation for Economic Co-operation and Development (OECD) has developed indicators to evaluate economic well-being from broader perspectives, with quality of life variables that take into account aspects of health, work-life balance, education and skills, social connections, civil engagement and governance, environmental quality, personal security, as well as subjective well-being. Material conditions are also looked upon with indicators that provide a more comprehensive picture if compared to the gross domestic product, such as income and wealth and housing, in addition to aspects relating to jobs and earnings, which are reviewed in this study. The United Nations Development Programme Human Development Index is also a more broad-based indicator.

When looking at the linkages between the economy and the labour market, employment-to-population ratios are more similar, with values ranging from 56.0 per cent for Chinese Taipei and 67.8 per cent for Thailand. Viet Nam (76.6 per cent) and Peru (73.9) have a high share of workers in agriculture, which contributes to high employment-to-population ratios. Employment-to-population ratios have remained stable

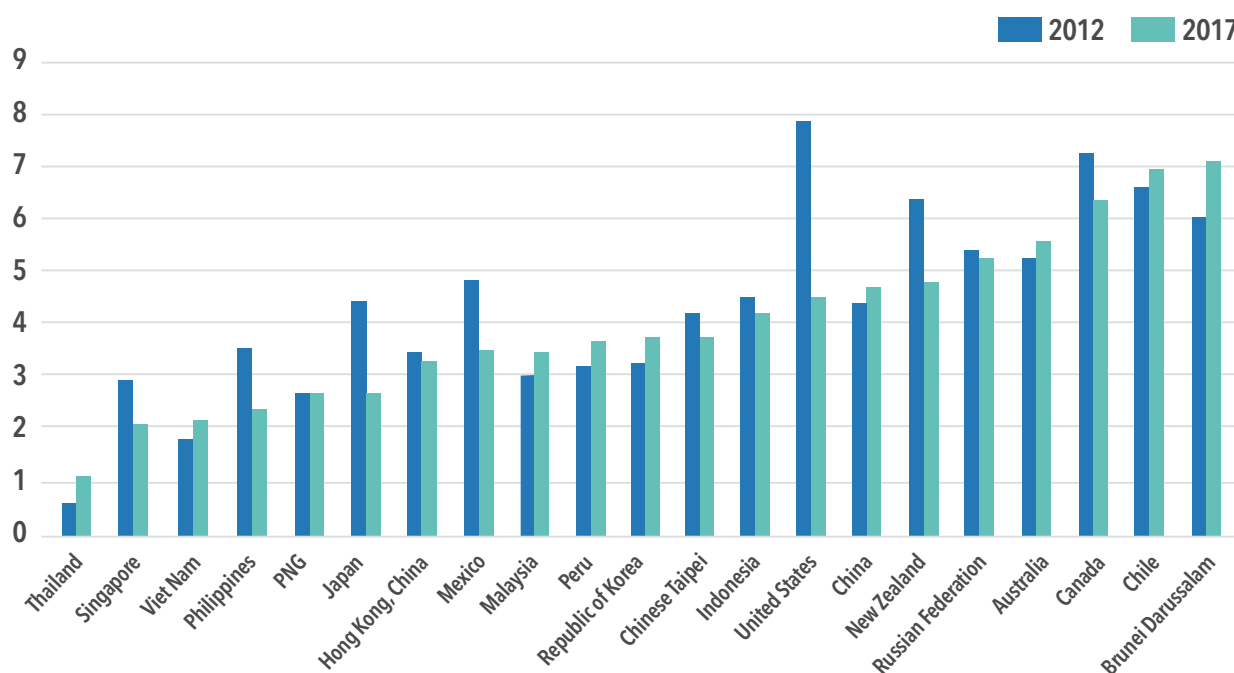
or slightly increased for most of the economies. However, economies such as China, Thailand, and the United States have declining employment-to-population due to the ageing of the population. Other economies have experienced a decrease due to more youth staying in school longer, such as Indonesia and Peru.

Figure 3 • Employment-to-population ratios, 2012 and 2017 (%)



Sources: ILOSTAT (ILO modeled estimates) and World Bank.

Figure 4 • Unemployment rates, 2012 and 2017 (%)

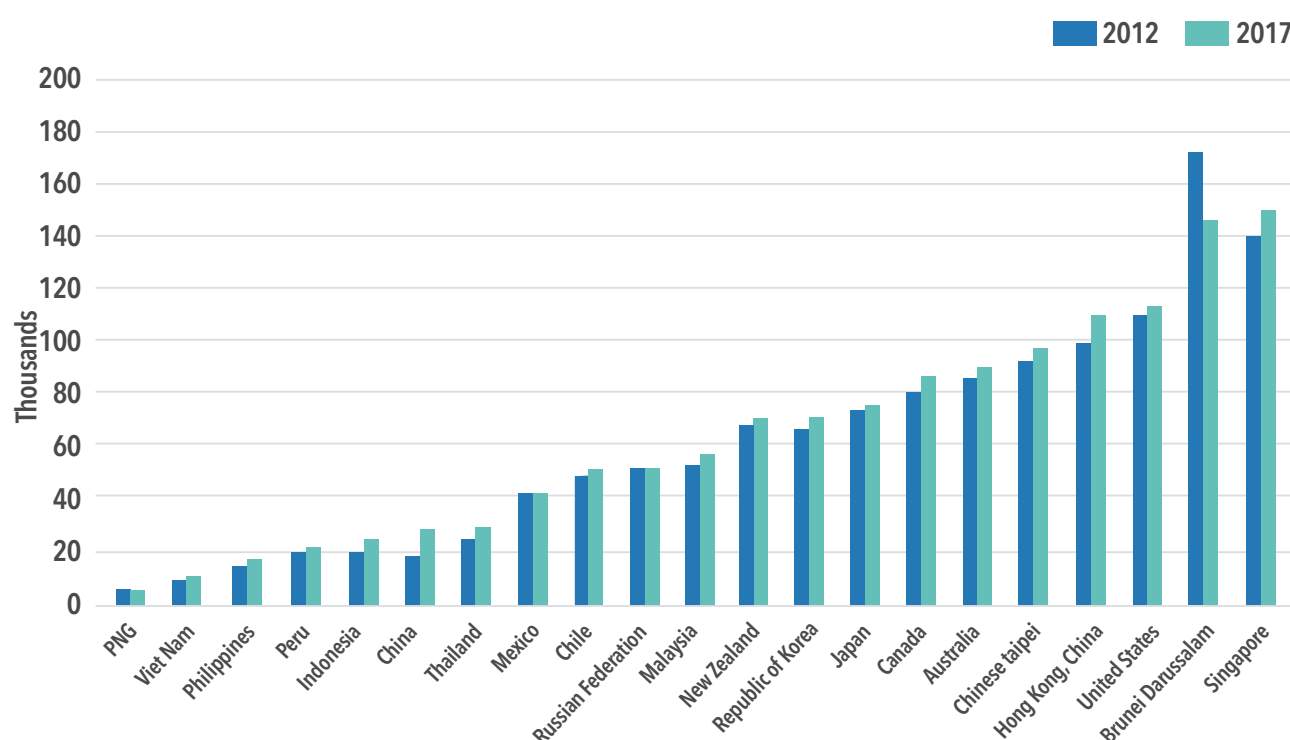


Source: ILOSTAT (ILO modeled estimates).

Compared to other regions of the world, APEC economies have relatively low unemployment rates, below seven per cent in all of the 21 economies in 2017 (figure 4).⁵ Two factors explain the low levels of unemployment in the APEC region. First, their economies are dynamic, with relatively easy entries to and exits from employment during the business cycle and fewer employment protections than in other regions of the world. The second factor is represented by the sizeable rural economy in many APEC economies – such as in China, Mexico, and Peru – also characterized by high incidences of low-quality jobs. In

addition, the recent period of economic growth contributed to reductions of unemployment in several economies: primarily in the United States, where the unemployment rate almost halved from 7.9 to 4.4 per cent between 2012 and 2017, but also in other economies, such as Canada, Japan, Mexico, New Zealand, the Philippines, and Singapore.⁶ Unemployment is a counter-cyclical variable, and it is likely that it will grow in periods of economic downturn, hence creating pressures to release joblessness in certain economies via workforce mobility (domestic and international workforce mobility).

Figure 5 • Output per worker, 2012 and 2017



Source: ILOSTAT (ILO modeled estimates).

Labour productivity, measured in this review as output per worker (see figure 5), increased across all APEC economies.⁷ Economies more reliant on natural resources and commodities' markets appear to have registered more modest productivity gains, as it is the case, for instance, of the Russian Federation.

Turning our attention to the wages–productivity nexus, data show a correlation between economic development and wages, with more developed economies on both shores of the

Pacific Ocean registering higher average real wages. Wages increased in almost all APEC economies between 2012 and 2017, with the exception of Mexico and the Philippines. Figure 6 below provides an overview of monthly average real wages in the APEC region, although the dataset of comparable statistics is incomplete, and hence, the latest observation available (LOA) – 2017 for most economies, and 2016 and 2015 for others – is compared with that of five years before the LOA. International comparable data for the United States and Canada are missing.

⁵ The exception is Brunei Darussalam, which registered a value of 7.08 per cent during 2017. However, the small size of the economy and the high dependence on oil production makes its welfare system and its economy in general an outlier also when presenting unemployment rates.

⁶ However, since an individual's registration as employed only requires them to have worked one hour during the previous week, one would have to look at the quality of contracts and the number of hours worked in order to have a more complete overview.

⁷ The values provided for Brunei Darussalam show a reduction. It is however recommended to review the consistency of the series.

Figure 6 • Average real wages (constant 2011 PPP¹\$), latest observation available (LOA), and five years before LOA, selected economies

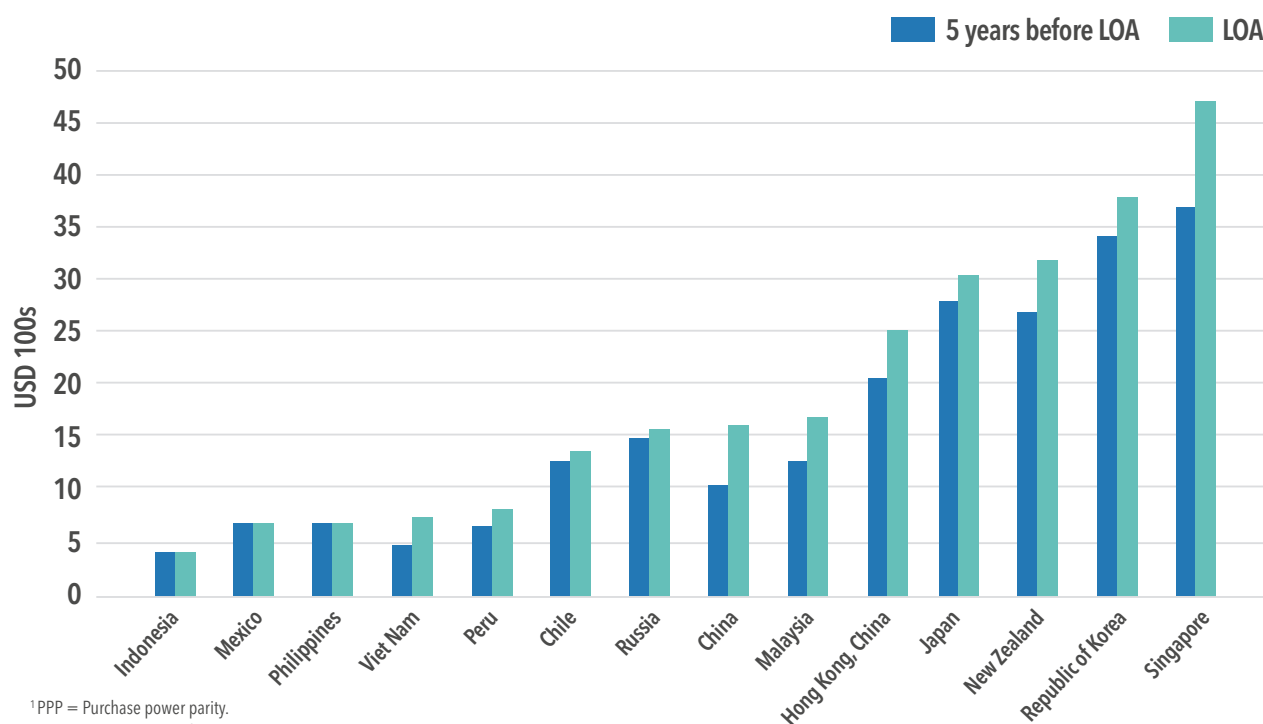
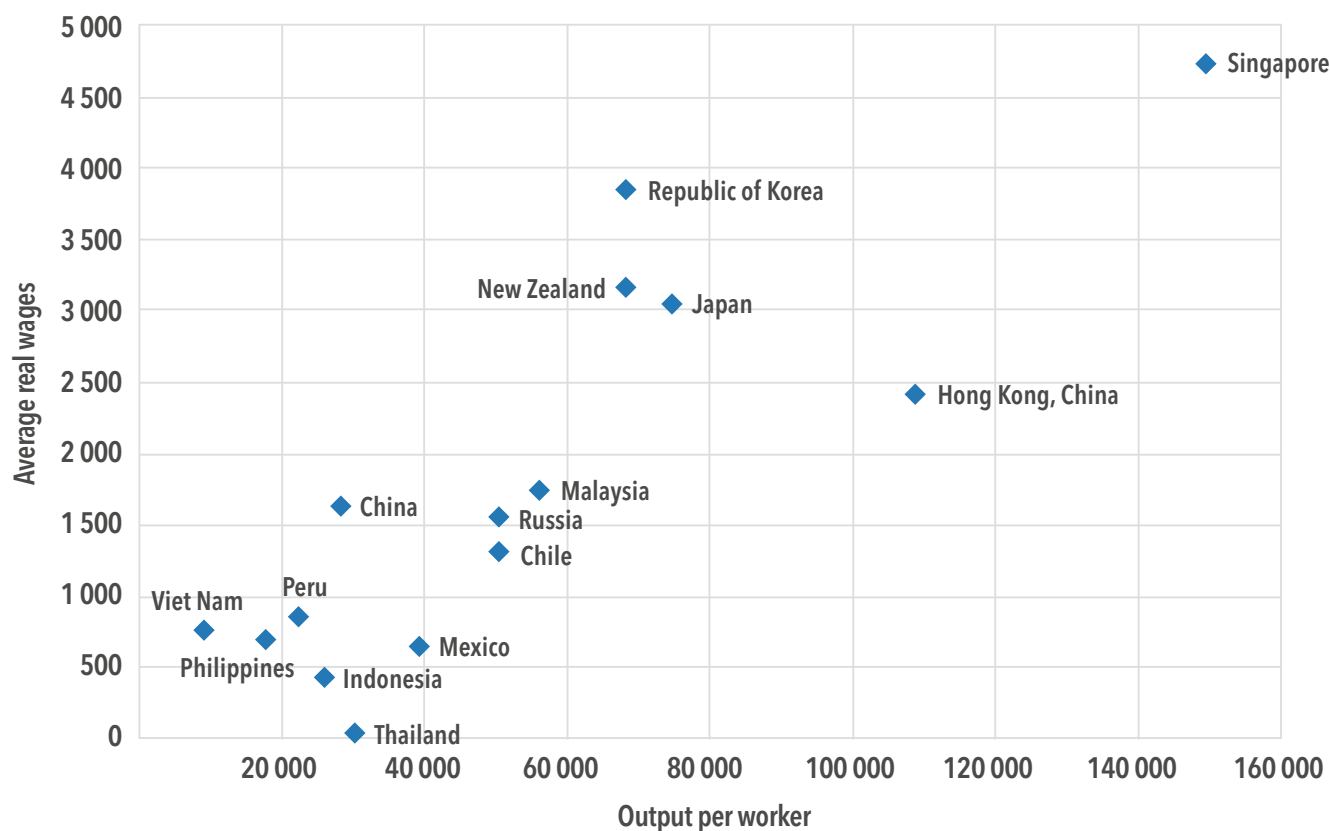


Figure 7 • Output per worker and average real wages (constant 2011 PPP \$), LOA

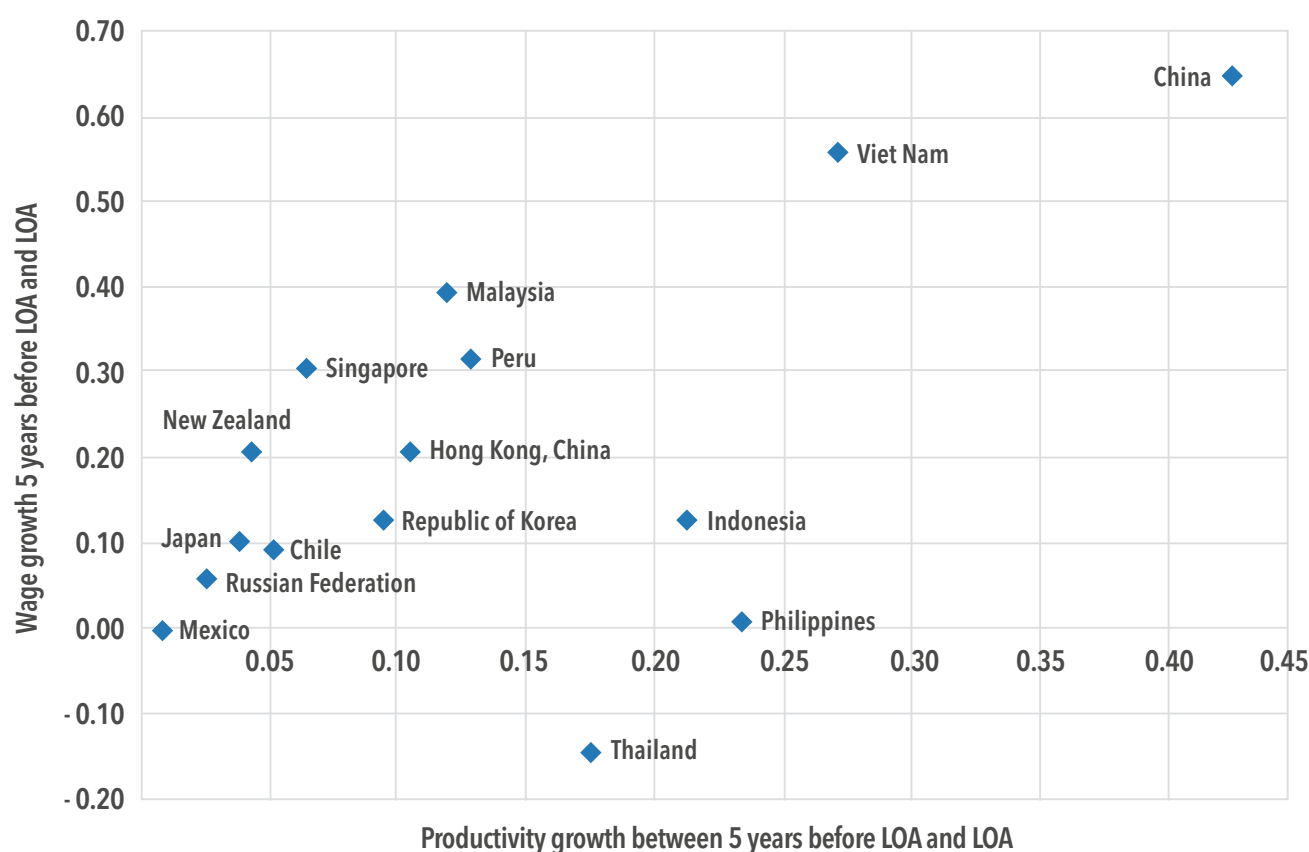


Source: ILOSTAT (interpolation of ILO modeled estimates and national sources).

The more productive an economy, the higher are real wages, as shown in figure 7, which compares output per worker and real wages. The same positive relation is reflected in the growth rate of productivity and the growth rate of real wages (figure 8). In fact, the higher the growth in productivity, the higher

the growth rate in the average real wage. Moreover, it is worth noting that the growth in real wages has been higher than the growth in productivity for the majority of the economies under study. Therefore, the rise in productivity has also resulted in an improved condition for workers, at least on average.

Figure 8 • Labour productivity growth and real wages growth (constant 2011 PPP \$), between five years before LOA and LOA

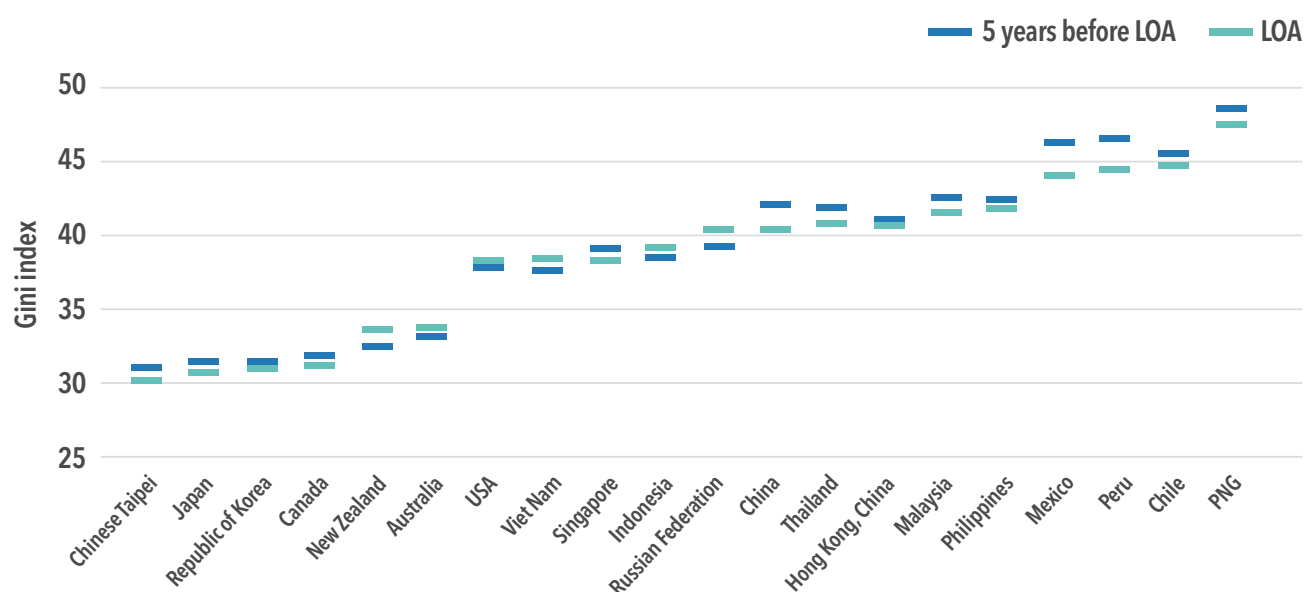


Source: ILOSTAT (interpolation of ILO modeled estimates and national sources).

As is visible from figure 9, the distribution of household income has become slightly more egalitarian between the LOA and five years prior for the majority of the economies. This figure shows the Gini coefficients at these two points in time, calculated from the disposable income of households. Since it is calculated on disposable income and not on market income, this measure takes into account the different tax policies and welfare regimes. The most unequal economies are mainly located in Latin and Central America, including

Chile, Mexico, and Peru, which have low average real wages and low GDP per capita growth rates. On the other side of the Pacific, Papua New Guinea and the Philippines have highly unequal economies and low real wages. Nevertheless, even the least unequal economy in this geographic area, the Republic of Korea, displays a value of the Gini coefficient that is quite high compared to less unequal economies in the world, as for example, the Scandinavian economies.

Figure 9 • Gini coefficients (disposable incomes), LOA and five years before LOA



Source: SWIID database, as cited in Solt, 2009.

2.1. Labour market indicators – Gender and youth

This sub-section provides an overview of selected labour market indicators for the APEC region, with a focus on women and men in labour markets and youth employment patterns and trends. Across all APEC economies, employment-to-population ratios are higher for men than women.

Figure 10 shows variance in employment rates for women across countries. Papua New Guinea, Peru, and Viet Nam have sizeable agricultural sectors and employment-to-population ratios are higher because a large share of women in traditional societies are often counted as contributing family workers, hence as employed.⁸ Economies where women's participation in the labour market is rooted in traditions, such as China, Singapore, and Thailand, and where gender equality policies have contributed to close gender gaps in recent decades, as in Australia, Canada, New Zealand, and the United States, also have high female labour force participation. Some economies have female employment-to-population ratios below 50 per cent, including Chile, Indonesia, Japan, Malaysia, Mexico, the Philippines, and Chinese Taipei.

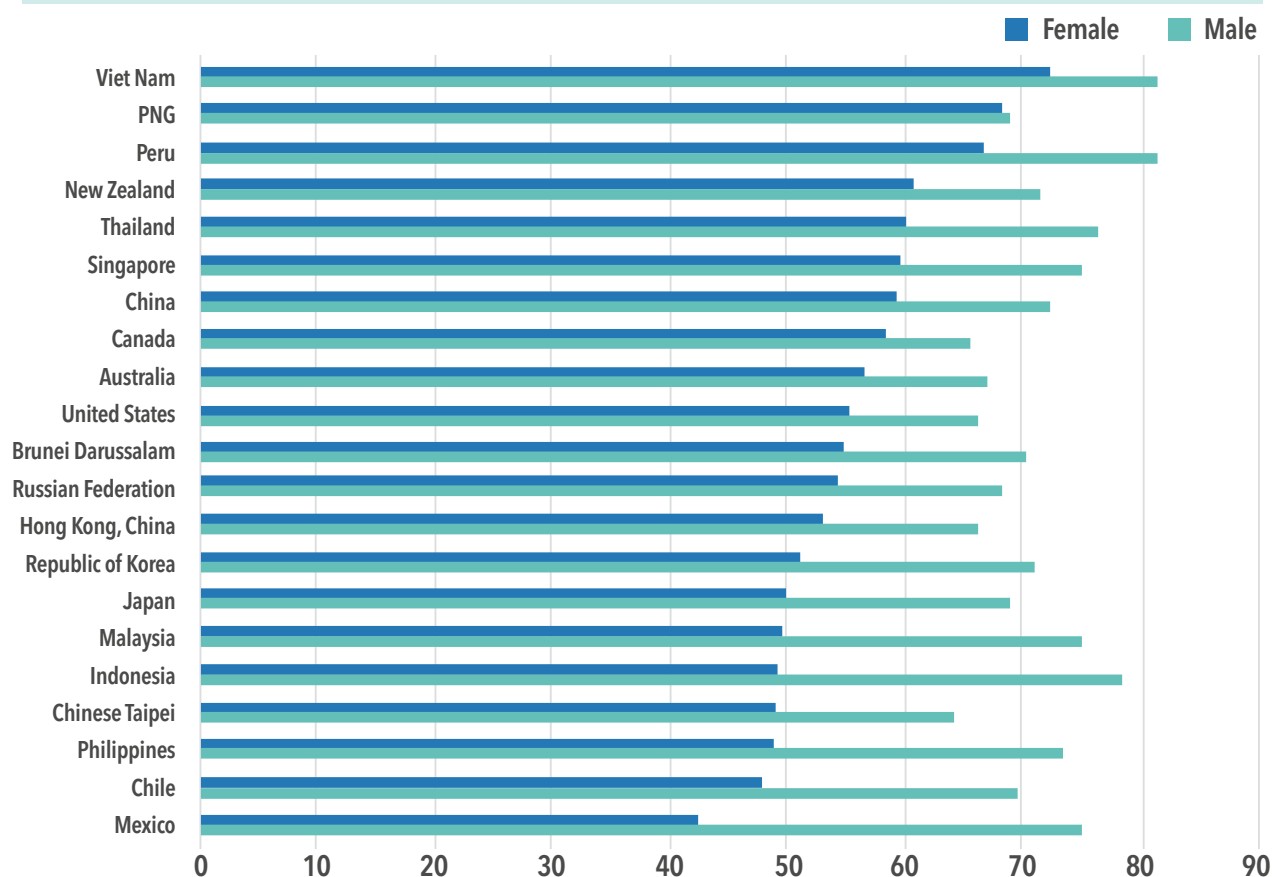
Gender gaps in employment are above 10 per cent for all economies, except those with a high share of workers in agriculture and traditional family structures. The Canada, Hong Kong (China), New Zealand, and the United States have gender gaps in labour force participation between men

and women of less than 15 per cent, as do economies such as China and the Russian Federation that share a past during which socialist systems promoted equal participation of women and men in the labour market. Indonesia, Malaysia, Mexico, and the Philippines were in 2017 characterized by gender gaps exceeding 25 per cent, where cultural features of dominant religions have retained marked differences of participation and employment between women and men.

During the period 2012–17, some economies have had an increase of gender differences in employment-to-population ratios, primarily the Russian Federation and Thailand (1.1 per cent over five years), as well as China, Mexico, and Viet Nam, through showing increases by less than 1.0 per cent (see table 1). Gender gaps have witnessed a sharp reduction mainly in Chile (-3.0 per cent), as well as in the ASEAN region, especially in Malaysia (-4.0 per cent), Indonesia (-2.4 per cent), and Singapore (-2.3 per cent).

⁸ It has to be noted that some economies have moved towards the 19th ICLS, in which own-use production work is no longer considered as employed in the labour force. Therefore, the over-representation of women in non-salaried employment in labour markets characterized by a high incidence of agriculture and rural activities is likely to decrease as new ICLS standards are adopted by members.

Figure 10 • Employment-to-population ratios by gender, 2017 (%)



Source: ILOSTAT (ILO modeled estimates).

Table 1 • Gender gaps in employment-to-population ratios (EPR) in 2017 – Variation in the EPR gap between 2012 and 2017 (%)

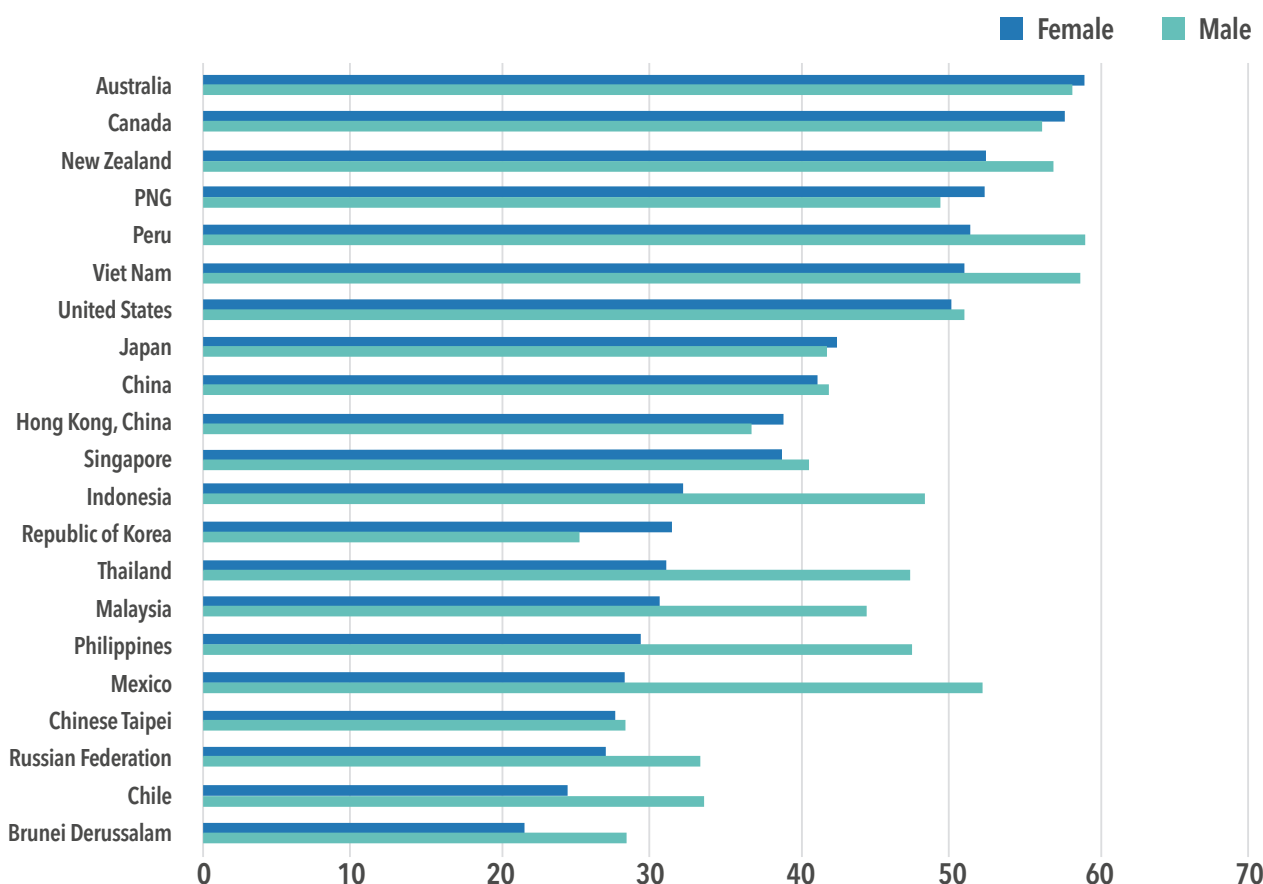
Economy	Gender gap 2017	Gap variation 2012 to 2017
Mexico	33.6	0.4
Indonesia	29.5	-2.4
Malaysia	26.2	-4.0
Philippines	25.2	-1.4
Chile	22.7	-3.0
Republic of Korea	20.0	-1.4
Japan	19.3	-2.1
Thailand	16.7	1.1
Singapore	16.0	-2.2
Brunei Darussalam	15.8	-1.5
Peru	15.1	0.1
Chinese Taipei	14.9	-0.8
Russian Federation	14.2	1.1
China	13.4	0.5
Hong Kong, China	13.2	-0.8
United States	11.4	-0.2
New Zealand	11.0	-0.5
Australia	10.8	-1.6
Viet Nam	9.8	0.7
Canada	7.5	-0.1
Papua New Guinea	0.5	-0.5

Source: ILOSTAT (ILO modeled estimates).

Youth employment-to-populations ratios are high for both genders in Australia, Canada, and New Zealand, with values above 50 per cent, followed by Papua New Guinea, Peru, and Viet Nam, which show similarly high values between 40 and 50 per cent of the population of their cohorts. Differences between the participation of young women and young men

are more pronounced in Indonesia, Malaysia, Mexico, the Philippines, and Thailand, with gender gaps higher than 20 percentage points. Finally, Brunei Darussalam, Chile, and the Russian Federation show particularly low values, with ratios between 20 and 30 per cent of the working age population (figure 11).

Figure 11 • Youth employment-to-population ratios by gender, ages 15–24, 2017



Source: ILOSTAT (ILO modeled estimates).

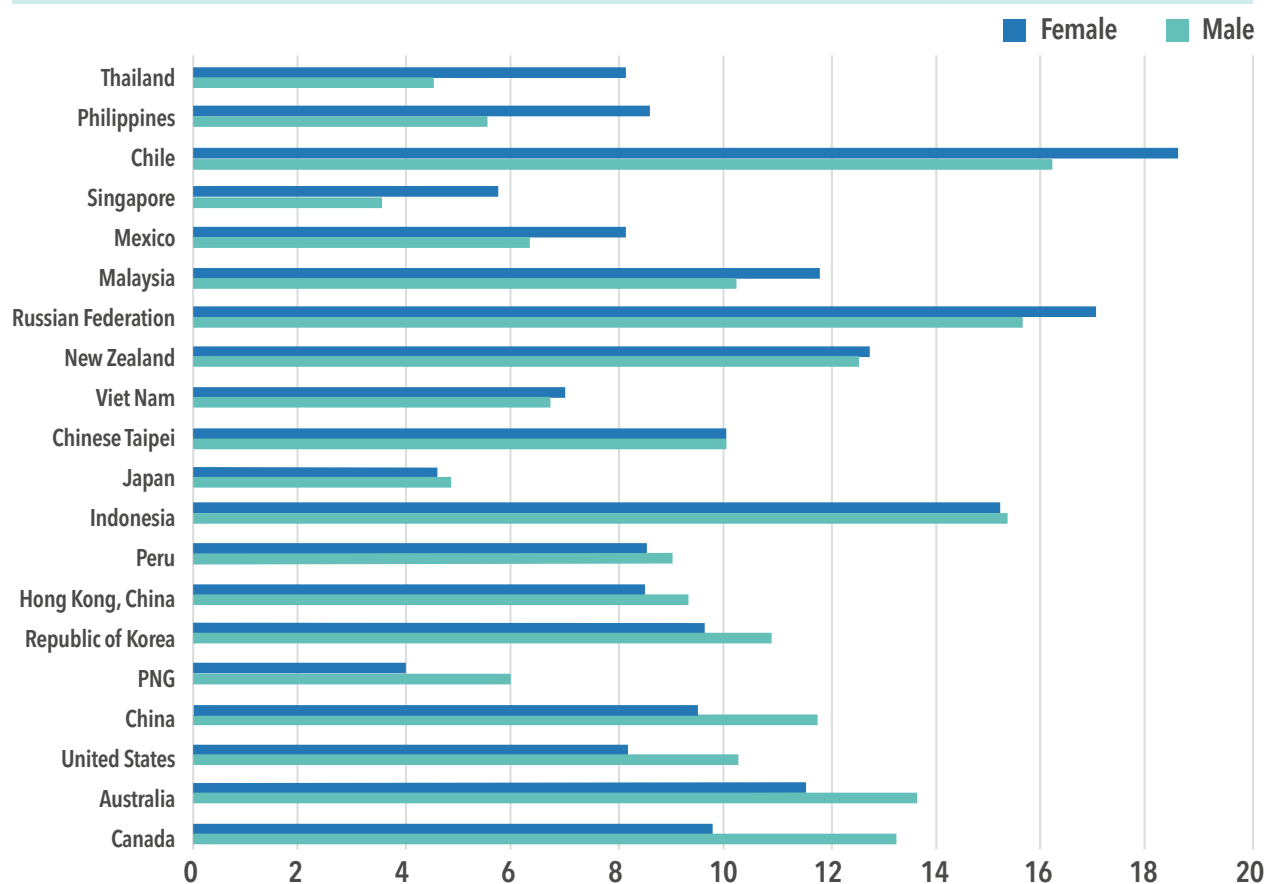
Youth unemployment affects women and men differently (see figure 12). In 2017, female unemployment ranged from 31.1 per cent in Brunei Darussalam⁹ and 18.7 per cent in Chile, to 4.1 per cent in Papua New Guinea. Chile's male unemployment rate was 16.1 per cent, whereas in Singapore it was 3.4 per cent. Figure 12 divides youth unemployment rates by gender in two groups of economies: those where unemployment rates of young women are higher compared to that of their male counterparts – Malaysia, Mexico, the Philippines, Singapore, and Thailand – and those where the male unemployment rate is higher than the female rate, including Australia, Canada, China, and the United States.

Being in employment is not in the same has having decent work. The time-related under-employment measure counts those who are working less than the part-time threshold

number of hours, but are available to work full time. In 2017, the economies with the highest under-employment were Australia (9.1 per cent), the Philippines (8.9 per cent), and Chile (8.5 per cent), whereas the Russian Federation, Thailand, and the United States had under-employment rates below the 1 per cent mark (see figure 13). Between 2012 and 2017, most economies experienced a reduction in time-related underemployment, except for Australia and New Zealand. The most noticeable reductions were registered in Indonesia, Mexico, and Peru. The overall reduction of under-employment in the APEC region is linked to the buoyant economic growth that followed 2012, as this labour market indicator can also be interpreted as a measure of under-utilization of the labour factor; hence, the analysis highlights the anti-cyclical trend of under-employment in most economies.

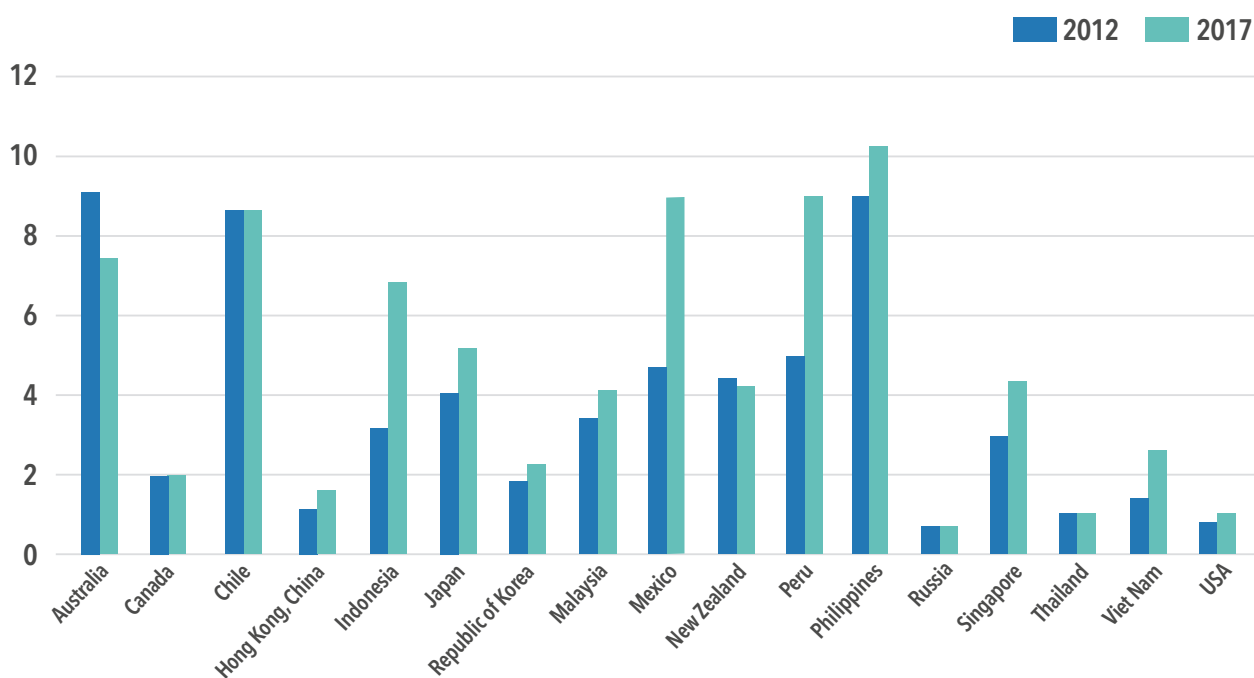
⁹ The values for Brunei Darussalam are not presented in figure 12.

Figure 12 • Youth unemployment rate ranked by gender gap – Women and men, 2017 (%)



Source: ILOSTAT (ILO modeled estimates).

Figure 13 • Time-related under-employment, 2012 and 2017 (%)

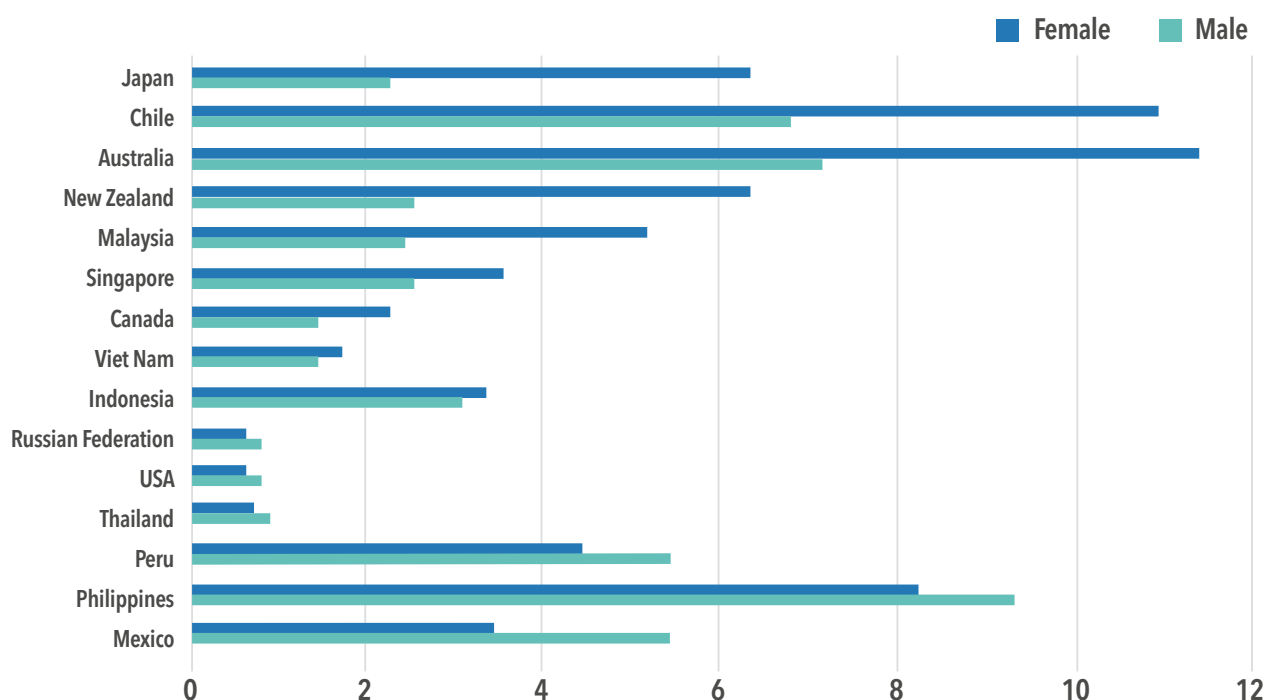


Source: Comprehensive Labour Force Survey, Manpower Research & Statistics Department (for Singapore); for all other economies, ILOSTAT (national sources).

Not all economies in the APEC region show gender differences in time-related under-employment. In general, all those economies in which under-employment is low also tend to

register low rates both for women and for men. Conversely, the higher the aggregate time-related underemployment rate, the higher the gender gap (see figure 14).

Figure 14 • Time-related under-employment rates ranked by gender gap – Women and men, 2017 (%)



Source: Comprehensive Labour Force Survey, Manpower Research & Statistics Department (for Singapore); for all other economies, ILOSTAT (national sources).

A first group of economies presents a considerably higher time-related under-employment for women than for men, including Australia, Chile, Japan, and New Zealand, with more than a 4-percentage-point gap between women and men. The other group, which includes Mexico, the Philippines, and Peru, has male under-employment rates higher than those presented of women, though with gender gaps ranging between 1 and 2 per cent.

2.2. Employment by sector

This sub-section reviews labour market indicators by economic sector to highlight structural changes in the APEC economies. The service sector¹⁰ is the main source of employment in most APEC economies – particularly in highly industrialized economies such as Canada, Hong Kong (China), Singapore, and the United States; while agriculture is a major employer in Indonesia, Peru, Thailand, and Viet Nam (see figure 15).

Most economies with a high share of workers employed in the industry sector are in East and South-East Asia (see figure 16). In 2017, industry in Chinese Taipei accounted for more than 35 per cent of total employment. Many advanced economies, such as those of Australia, Singapore, and the United States, have a lower share of employment in industry, but a higher share of employment in services. Economies with very low employment in industrial activities include those with large services sectors (for instance, Hong Kong, China with its sizeable financial sector) or economies with significant agricultural sectors, as in the case of Peru. Economies such as Mexico, the Philippines, Thailand, and Viet Nam, which traditionally have a long history of agrarian-based economic systems, have registered a considerable increase in participation in the industrial sector.

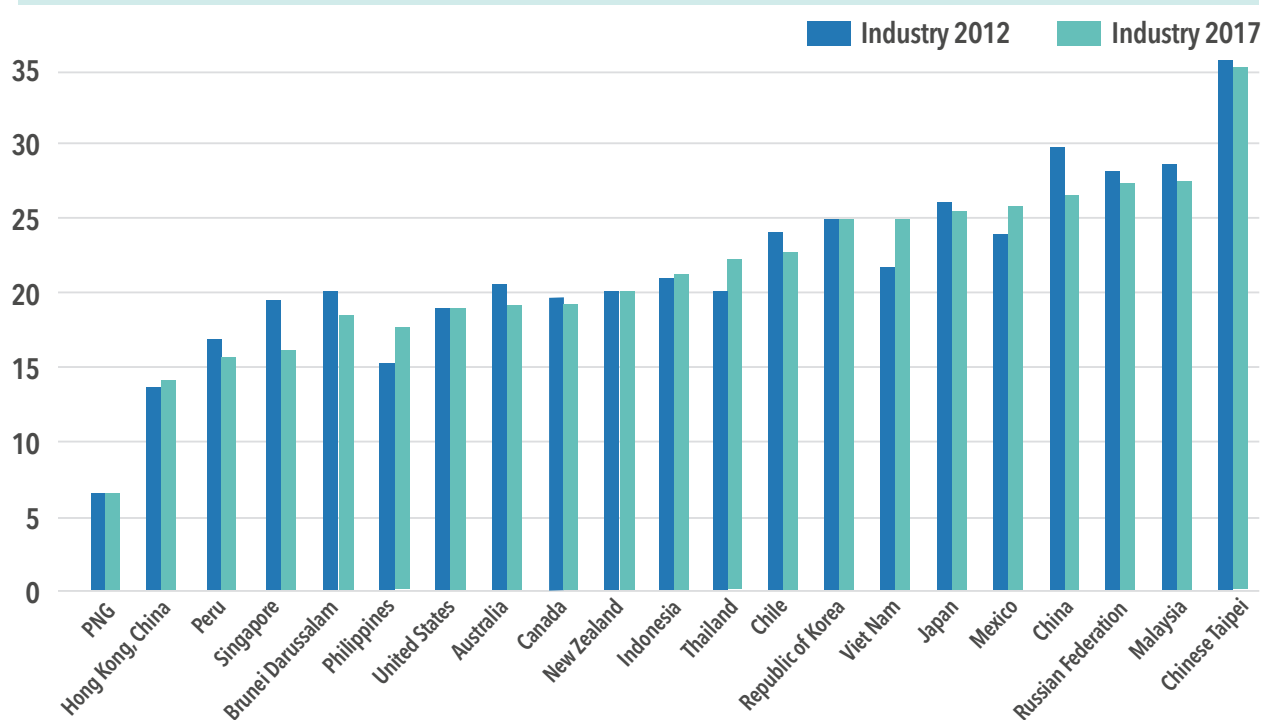
¹⁰ As per ILOSTAT definition, the aggregate sector categories are based on the International Standard Industrial Classification of All Economic Activities (ISIC).

Figure 15 • Employment by branch of economic activity, 2017 (%)



Source: ILOSTAT (ILO modeled estimates).

Figure 16 • Employment in the APEC economies by sector - Industry, 2012 and 2017 (%)

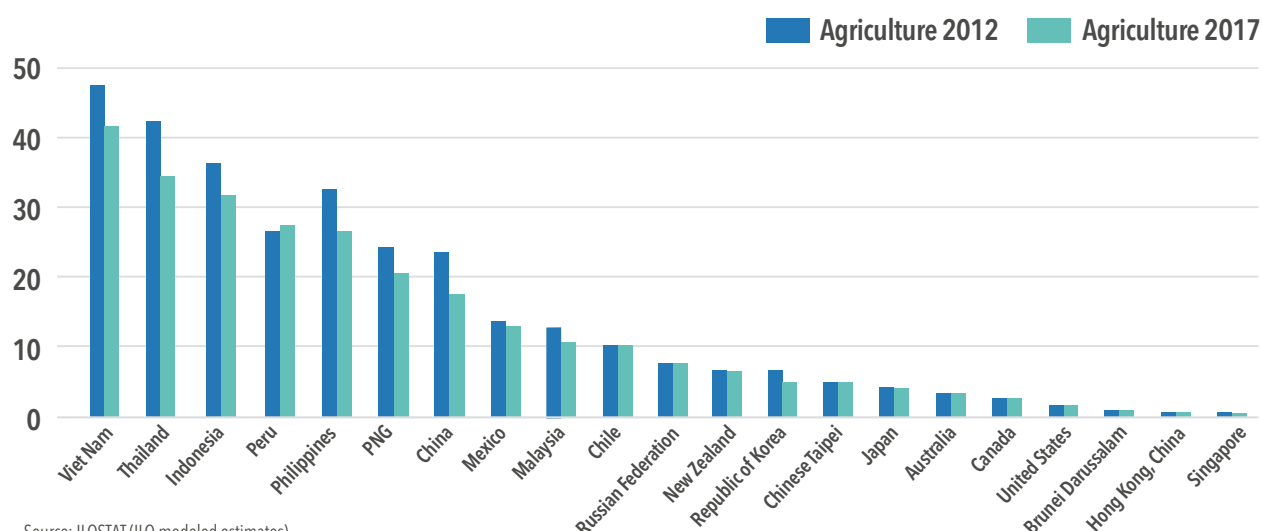


Source: ILOSTAT (ILO modeled estimates).

With the notable exception of Peru, which shows a slight increase in the sectoral share of agricultural employment, all APEC economies witnessed either constant or decreasing participation in the agriculture sector between 2012 and

2017 (see figure 17). Key underlying reasons include productivity gains in the agriculture sector, as well as inter-sectoral employment shifts towards burgeoning industry and service sectors.

Figure 17 • Employment in the APEC economies by sector - Agriculture, 2012 and 2017 (%)

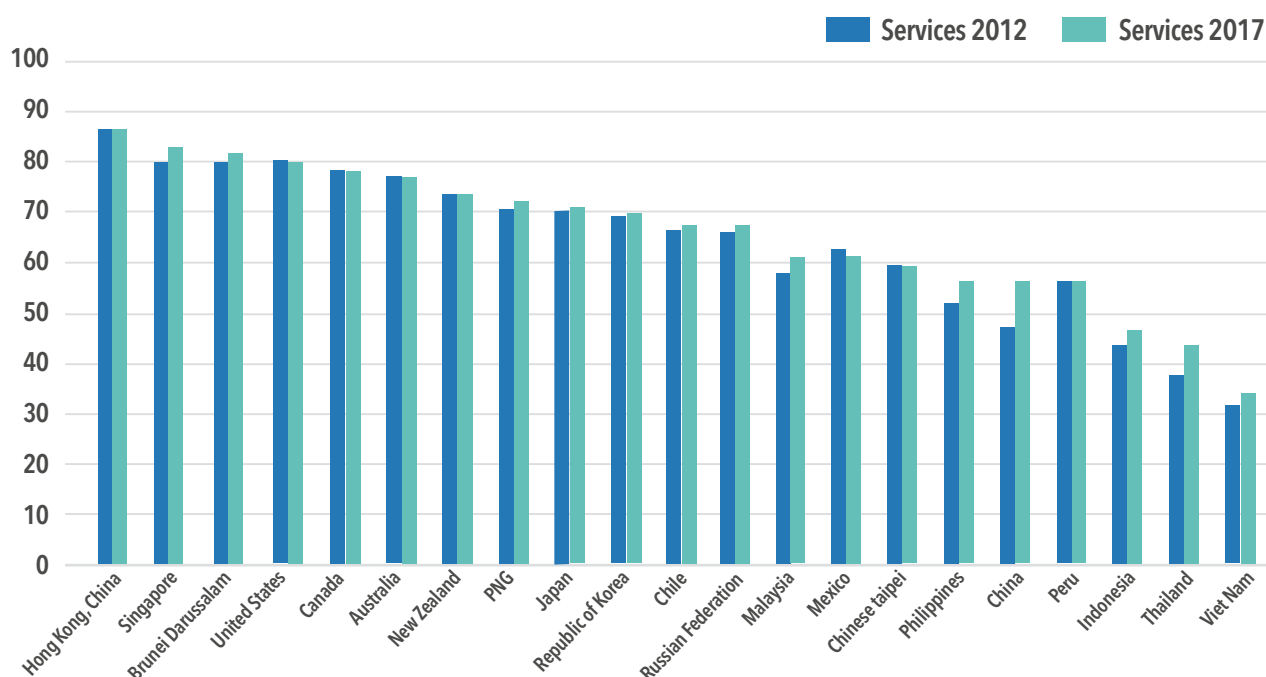


Source: ILOSTAT (ILO modeled estimates).

By contrast, employment in the services sector shows a steady increase of more than 1 per cent for most economies, with the exception of Mexico (see figure 18). With an almost non-existent agricultural sector and a burgeoning specialized services sector in the finance, trading, and logistics domains, Hong Kong, China features the highest services share of

86.7 per cent. Post-industrial economies – including those of Canada, Japan, New Zealand, Singapore, and the United States – feature employment shares of over 70 per cent in the services sector. Indonesia, Thailand, and Viet Nam, with their sizeable agricultural workforces, have lower shares of employment in the services sector.

Figure 18 • Employment in the APEC economies by sector - Services, 2012 and 2017 (%)



Source: ILOSTAT (ILO modeled estimates).

Table 2 shows trends in sectoral employment over time. With the exception of the already highly diversified economies of Malaysia and Singapore, the ASEAN economies and China witnessed a marked decrease in agricultural employment and increased employment in industry (Viet Nam) or in services (China, Indonesia, the Philippines, and Thailand). By contrast, sectoral employment in highly advanced economies of Australia, Canada, Hong Kong (China), Japan, the Republic

of Korea, New Zealand, the Russian Federation, Chinese Taipei, and the United States changed only slightly. With the exception of Hong Kong (China) and the United States, all other advanced economies have seen a shift in favour of employment in the services sector. Finally, the increased share of employment in the service sectors in Brunei Darussalam may reflect the Government's efforts to diversify the economy away from oil production activities.

Table 2 • Variation in share of employment by sector between 2012 and 2017 (%)

Economy	Agriculture	Industry	Services
Australia	-0.2	-1.6	1.8
Brunei Darussalam	-0.1	-1.9	2.0
Canada	-0.2	-0.3	0.5
Chile	-0.4	-1.0	1.4
China	-5.7	-2.9	8.5
Hong Kong, China	0.2	0.3	-0.5
Indonesia	-4.8	0.6	4.1
Japan	-0.4	-0.6	1.0
Republic of Korea	-1.3	0.3	1.0
Malaysia	-1.7	-1.1	2.8
Mexico	-0.4	2.0	-1.6
New Zealand	-0.2	-0.1	0.2
Papua New Guinea	-3.1	0.3	2.8
Peru	1.0	-1.1	0.2
Philippines	-6.2	2.5	3.7
Russian Federation	-0.6	-0.9	1.5
Singapore	1.0	-3.1	4.1
Chinese Taipei	-0.2	-0.7	0.9
Thailand	-9.3	2.7	6.6
United States	0.1	0.4	-0.4
Viet Nam	-7.0	4.1	2.9

Source: ILOSTAT (ILO modeled estimates).

2.3. Conclusion

The buoyant growth of the period following the financial and economic crisis of 2009 was widespread throughout the region and contributed not only to improved productivity and reduced unemployment and time-related under-employment, but also to an overall reduction of the gender gap in employment, as well as a convergence between activity patterns of women and men.

Positive labour market determinants brought about by the business cycle affected structural change in many countries, with inter-sectoral shifts from agriculture to manufacturing

and services, especially in countries where this transition did not occur in the previous decades. While the share of workers in the services sector increased across most member economies, manufacturing employment augmented in economies that count as emerging hubs of industrial production, notably the Philippines, Thailand, and Viet Nam. Conversely, traditional centres of manufacturing production, such as China, Malaysia, and Singapore, moved on the path of tertiarization, with inter-sectoral shifts from industry to services. These trends are likely to affect not only the extent to which countries will seek stronger mobility agreements and partnerships, but also to anticipate the specific skills and competences required to prevent labour shortages.



03

International labour migration trends in the APEC region

3.1. Introduction

This chapter presents currently available international labour mobility data from APEC economies. The selection of indicators analysed is drawn primarily from the ILMs Database and include both data that have been shared by APEC members' statistical offices with ILOSTAT and data gathered from official online portals and publications. The indicators and variables provide an overview of potential gaps in some of the basic labour mobility data being collected on the regional level, and the economy-specific cases described were used as bases for most of the domestic-level recommendations proposed in the final chapter of this report.

APEC includes both labour-sending and labour-receiving economies (or origin and destination economies), defined as whether an economy has a negative or positive net international migration flow or net migration rate. In table 3, rates of international migrants as a percentage of total population in 2000 and 2017 are shown for each economy to compare origin and host economies in terms of the characteristics of international migrant stock. There are seven APEC origin economies: China, Indonesia, Mexico, Papua New Guinea, Peru, the Philippines, and Viet Nam, and there are 14 destination economies: Australia, Brunei Darussalam, Canada, Chile, Hong Kong (China), Japan, Republic of Korea, Malaysia, New Zealand, the Russian Federation, Singapore, Chinese Taipei, Thailand, and the United States.

Table 3 • International migrant stock in APEC economies, 2000 and 2017

APEC member	Number of international migrants (000)		International migrants as percentage of total population		Percentage of women among international migrants		Median age of international migrants	
	2000	2017	2000	2017	2000	2017	2000	2017
Australia	4 386	7 036	23.0	28.8	50.1	51.1	45.8	44.8
Brunei Darussalam	96	109	28.9	25.3	44.1	43.4	33.7	35.8
Canada	5 512	7 861	17.9	21.5	51.8	52.1	45.5	44.6
Chile	177	489	1.2	2.7	52.2	52.9	29.6	32.3
People's Republic of China	508	1 000	0.0	0.1	50.0	38.6	34.8	36.8
Hong Kong, China	2 669	2 883	40.1	39.1	54.1	60.5	47.9	46.1
Indonesia	292	346	0.1	0.1	47.6	41.8	25.5	29.8
Japan	1 687	2 321	1.3	1.8	52.7	55.0	33.1	34.3
Republic of Korea	244	1 152	0.5	2.3	41.4	43.9	30.3	35.4
Malaysia	1 277	2 704	5.5	8.5	44.2	39.6	27.6	33.0
Mexico	538	1 224	0.5	0.9	49.7	49.3	14.8	13.3
New Zealand	679	1 067	17.6	22.7	51.4	51.6	41.1	42.8
Papua New Guinea	25	32	0.5	0.4	37.8	36.5	33.8	31.6
Peru	66	94	0.3	0.3	50.3	49.9	34.7	35.4
Philippines	318	219	0.4	0.2	49.1	48.2	31.0	34.0
Russian Federation	11 900	11 652	8.1	8.1	49.7	50.9	40.4	44.5
Singapore	1 352	2 623	34.5	46.0	55.5	55.9	37.0	39.4
Thailand	1 258	3 589	2.0	5.2	48.5	49.8	26.1	33.5
United States	34 814	49 777	12.3	15.3	50.3	51.4	37.5	44.7
Viet Nam	57	76	0.1	0.1	42.2	42.1	27.2	36.5

Notes: Blue font indicates receiving economies, and black font indicates sending economies.
Source: UN DESA Population Division 2017.

For labour-receiving economies, the following sub-section provides an overview of key labour market statistics disaggregated by international migration status in order to profile the stock of international migrants within APEC. There are also brief descriptions of economy-specific issues encountered during the baseline research on current APEC labour mobility data, including issues related to data availability, data sharing, sources, and use of common standards and definitions. Moreover, analyses of international migration flows show the latest trends of incoming international labour for these destination economies.

For labour-sending economies, sub-section 3.1.2 analyses key characteristics of intraregional and other outflows of migrant workers, as well as some statistics collected at origin concerning the stock of these workers abroad and return migration.

3.1.1. Inward labour migration trends – Labour-receiving economies

Most statistical offices profile their resident labour force by personal characteristics, such as age, sex, highest education/training completed. Some countries identify international migrants within the working-age population and labour force. Migration or migratory status has become a mandatory data disaggregation variable to monitor progress toward the Sustainable Development Goals (SDGs) Agenda, an additional factor encouraging the identification of international migrants in domestic statistical processes.

Some countries do not monitor international labour migration through official and labour market statistics. Some of the obstacles identified include limited collection of international labour migration statistics; limited cooperation efforts for sharing and monitoring regional movements and trends; and limited and/or inconsistent use of international definitions and standards that would allow for international comparisons and analyses within an APEC-wide labour market information system.

Table 4 contains key labour market indicators that are widely collected by labour-receiving economies for migrant, non-migrant, and total resident populations. The data in table 4 are derived from one single data source for each APEC economy. Complete and recent data for this table are currently available for Australia, Brunei Darussalam, Canada, Japan, Republic of Korea, Malaysia, the Russian Federation, and the United States, albeit for varying reference years and sources, and based on two different definitions of international migrants (e.g., Australia, Canada, and the United States use birthplace as basis for migrant definition in latest labour force survey available, while Japan, Malaysia, and the Russian Federation use citizenship or nationality to define an international

migrant). Hong Kong (China), New Zealand, and Singapore are some of the few economies where it seems that migrant workers can be identified in official statistics to a certain extent. But, for these economies, limited data-sharing practices and/or the use of non-standard labour market variable definitions do not allow for compilation of the general information for migrant workers included in table 4. For Chinese Taipei and Thailand, there remains a gap in the identification of international migrants through labour force surveys (LFSs); there are currently no questions included to profile the stock of migrant labour in these economies' LFSs. In Chile, issues with the LFS sample do not currently allow for robust conclusions on the topic of international labour migration.

The absolute numbers and percentages in table 4 allow comparisons of the size of the migrant and non-migrant populations in the labour market.

The definition of international migrant varies across APEC destination economies. Some use place of birth as basis for the definition in their main surveys, namely Australia, Canada, Hong Kong (China), New Zealand, and the United States; while others use citizenship or residency status, namely, Brunei Darussalam, Japan, Republic of Korea, Malaysia, the Russian Federation, and Singapore. This variation in definitions can produce inaccuracy in comparisons that mixes them, but is, at the same time, quite common at the global level (see discussion in ILO, 2015a), as well as accepted according to the 20th ICLS guidelines.

Some APEC destination economies have recent and comparable data to describe stocks of international migrant workers according to broad sectors of economic activity, and show how international labour migration statistics that follow international standards can be compared by data users and policy-makers on the regional level. These data also constitute a baseline for economies in APEC.

Table 4 • Selected labour market indicators for the total, non-migrant, and migrant populations in receiving APEC economies (in thousands), latest year

Receiving APEC economies		Australia	Brunei Darussalam	Canada	Chile	Hong Kong, China	Japan	Republic of Korea	Malaysia	New Zealand	Russian Federation	Singapore	Chinese Taipei	Thailand	United States
Reference year	Type of source	2017 LFS	2017 LFS	2017 LFS	2017 LFS	2016 Census	2015 Census	2016 LFS	2017 LFS	2017 LFS	2017 LFS	2017 LFS	2017 LFS	2017 LFS	2016 LFS
Aggregates (thousands)															
Labour force		13 002	206	19 663	8 885	-	61 523	27 247	14 952	2 698	76 285	3 657	11 795	38 099	159 187
- Non-migrants		9 029	158	14 469	-	-	60 571	26 242	12 678	-	76 026	2 269	-	-	132 236
- Migrants		3 967	49	5 193	-	-	854	1 005	2 274	-	258	1 387	-	-	26 951
Employed		12 276	187	18 416	8 290	3 756	58 919	26 235	14 450	2 575	72 315	3 550	11 352	37 458	151 436
- Non-migrants		8 532	139	13 579	-	2 302	58 018	25 273	12 214	-	72 082	2 175	-	-	125 657
- Migrants		3 738	47	4 837	-	1 453	807	962	2 235	-	233	1 374	-	-	25 779
Unemployed		726	19	1 246	595	-	2 604	1 012	502	123	3 969	106	443	642	7 751
- Non-migrants		496	18	890	-	-	2 552	969	463	-	3 944	94	-	-	6 580
- Migrants		228	1	356	-	-	46	43	39	-	25	12	-	-	1 172
Outside the labour force		6 924	122	10 238	5 997	2 749	41 022	16 504	7 361	1 124	45 275	-	8 254	17 857	94 351
- Non-migrants		4 238	114	7 254	-	1 394	40 611	16 084	6 909	-	45 156	-	-	-	79 980
- Migrants		2 423	8	2 984	-	1 355	370	420	452	-	118	-	-	-	14 370
Rates (per cent)															
Employment-to-population ratio		61.5	56.9	61.6	55.7	51.2	53.7	60.0	64.8	-	59.5	-	56.6	66.9	59.7
- Non-migrants		64.5	51.4	62.5	-	62.3	53.9	59.7	62.4	-	59.5	-	-	-	59.2
- Migrants		55.6	83.0	59.2	-	51.8	51.5	67.5	82.0	-	61.9	-	-	-	62.4
Labour force participation rate		65.1	62.7	65.8	59.7	-	56.1	62.8	67.0	70.6	62.8	67.7	58.8	68.1	62.8
- Non-migrants		68.2	58.1	66.6	-	-	56.3	62.0	64.7	-	62.7	-	-	-	62.3
- Migrants		59.0	84.8	63.5	-	-	54.5	70.5	83.4	-	68.5	-	-	-	65.2
Unemployment rate		5.6	9.3	6.3	6.7	-	4.2	3.7	3.4	4.6	5.2	2.9	3.8	1.2	4.9
- Non-migrants		5.5	11.5	6.2	-	-	4.2	3.7	3.7	-	5.2	4.2	-	-	5.0
- Migrants		5.8	2.1	6.9	-	-	5.4	4.3	1.7	-	9.7	0.9	-	-	4.3
Youth unemployment rate		12.5	28.9	11.6	-	-	6.8	10.7	10.8	-	16.1	-	11.9	5.2	10.4
- Non-migrants		12.1	31.7	11.4	-	-	6.9	11.5	13.2	-	16.1	-	-	-	10.6
- Migrants		14.4	6.7	12.9	-	-	4.8	5.9	3.4	-	15.0	-	-	-	8.5
Migrant shares															
Total population		29.0	-	-	-	39.3	-	-	9.5	-	-	-	-	-	16.3
Labour force		30.5	23.5	26.4	-	-	1.4	3.7	15.2	-	0.3	37.9	-	-	16.9
Employed		30.5	25.4	26.3	-	38.7	1.4	3.7	15.5	-	0.3	38.7	-	-	17.0
Unemployed		31.5	5.3	28.6	-	-	1.8	4.2	7.7	-	0.6	11.3	-	-	15.1
Youth Unemployed		19.2	2.6	17.7	-	-	1.7	8.8	7.9	-	0.5	-	-	-	7.2

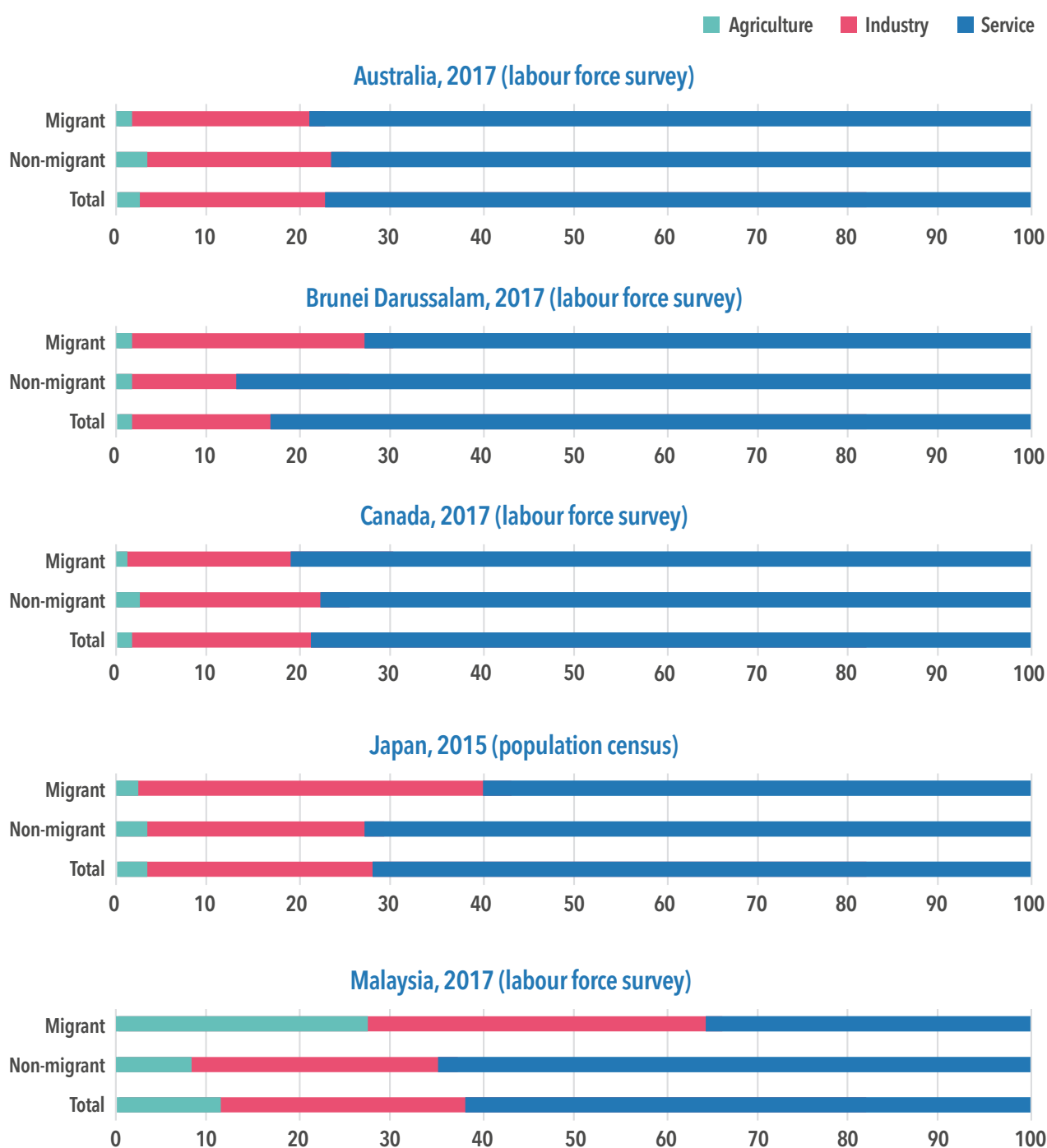
Notes on the table 4: - = not available.

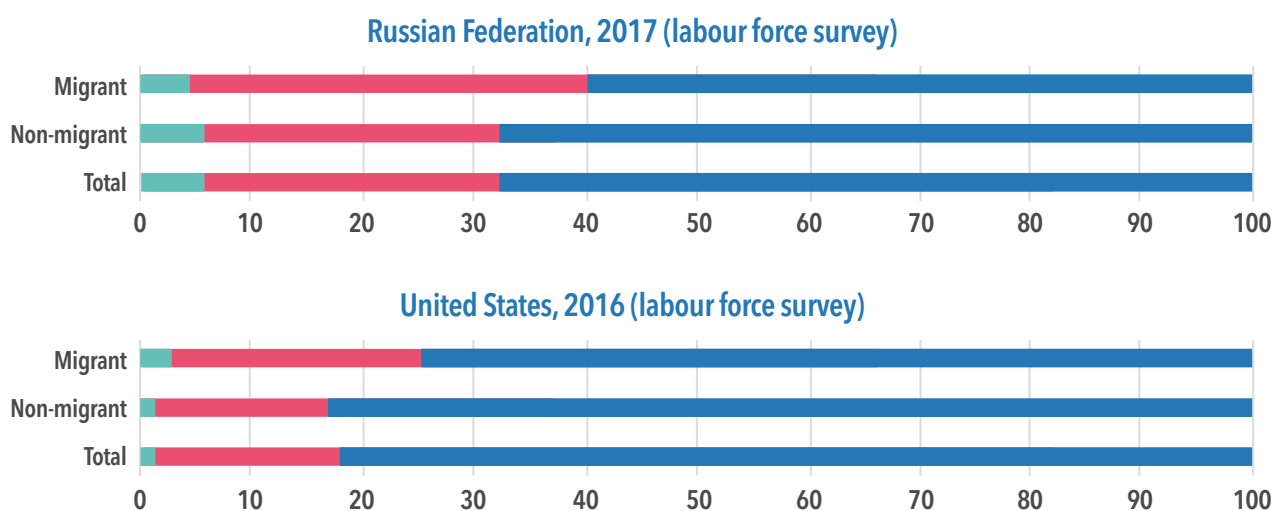
Australia, Labour Force Survey 2017, international migration defined on the basis of place of birth; Brunei Darussalam, Labour Force Survey 2017, international migration defined on the basis of citizenship; Canada, Labour Force Survey 2017, international migration defined on the basis of place of birth; Chile, Nueva Encuesta de Empleo 2017 (third quarter), survey sample size does not seem sufficiently representative to allow for conclusions/estimates on international migration; Hong Kong, China, Population By-census 2016, international migration defined on the basis of place of birth; Japan, Population Census 2015, international migration defined on the basis of citizenship; Republic of Korea, Survey on Immigrant's Conditions and Labour Force 2016, international migrants defined as foreigners with residency/work permit; Malaysia, Labour Force Survey 2017, international migration defined on the basis of citizenship; New Zealand, Household Labour Force Survey (September 2017 quarter), international migration data (defined on the basis of place of birth) from LFS are not published; the Russian Federation, Labour Force Survey 2017, international migration defined on the basis of citizenship; Singapore, Comprehensive Labour Force Survey 2017 (June), international migration defined on the basis of citizenship; Chinese Taipei, Manpower Survey 2017, international migration not currently included in survey; Thailand, Labour Force Survey 2017, international migration not currently included in survey; the United States, Current Population Survey 2016, international migration defined on the basis of place of birth.

Figure 19 shows recent estimates of migrant and non-migrant employment shares in agriculture, industry, and service sectors for seven APEC members. For Australia, Canada, and the United States, the migrant and non-migrant shares of labour does not differ significantly across sectors; while for Brunei Darussalam, Japan, and the Russian Federation, the share of migrant labour is higher in industrial activities. In Malaysia, agriculture and industrial activities include 70 per

cent of migrant labour, versus 35 per cent of non-migrants, who are mostly working in the services sector. For Chile and the Republic of Korea, data seem to be available, but were not accessible (see details in Chapter 2). For Hong Kong (China) and Singapore, some data are available, but are produced under standards that are not consistent with international standards used by the other destination economies.

Figure 19 • Employment by broad economic activity for the migrant, non-migrant, and total populations in selected APEC economies, latest available year (%)





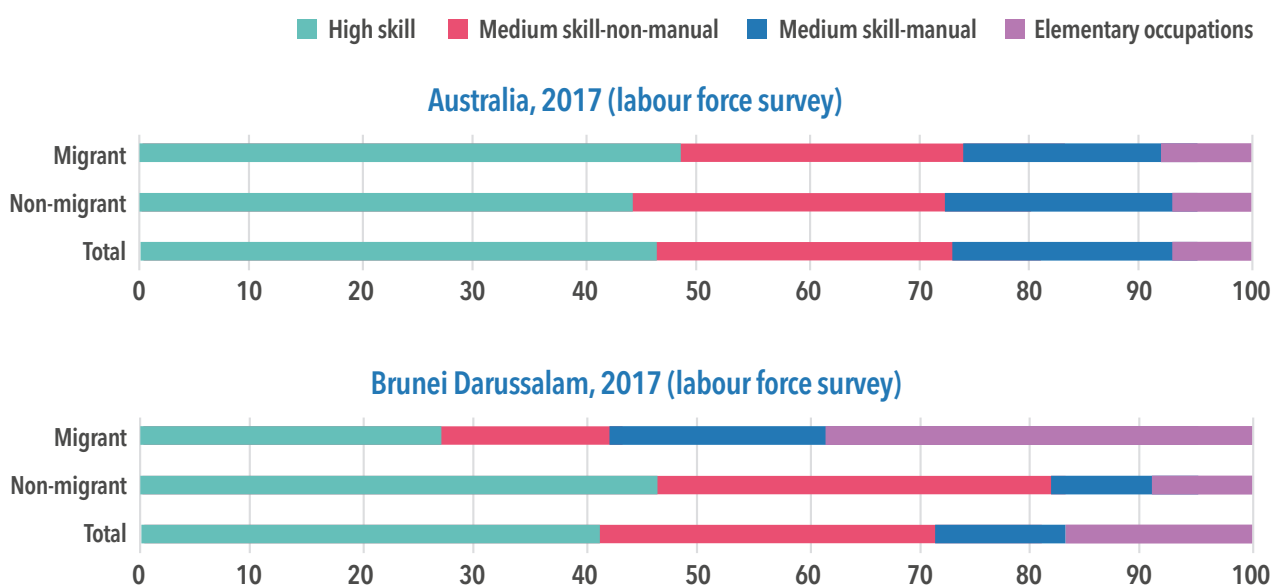
Notes: Broad economic activity sectors defined as: agriculture (International Standard Industry Classification (ISIC) Rev. 4 section A); industry (ISIC Rev. 4 sections B to F); and services (ISIC Rev. 4 sections G to U).

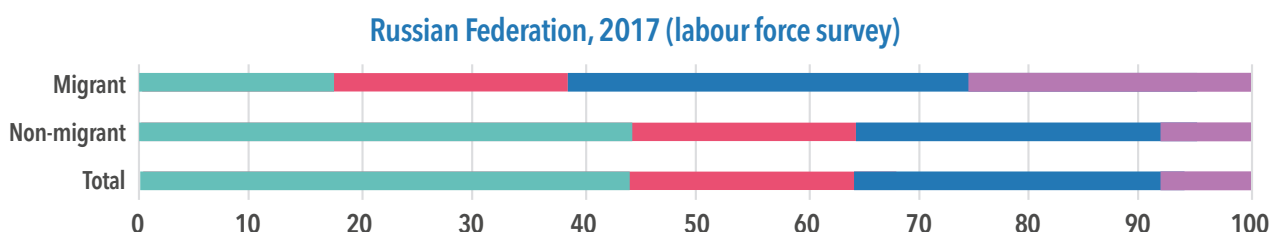
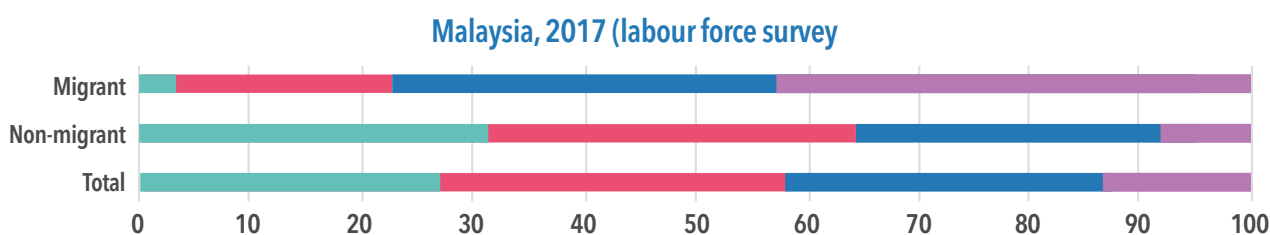
Australia, Labour Force Survey 2017, migrant definition based on birthplace; Brunei Darussalam, Labour Force Survey 2014, migrant definition based on citizenship; Canada, Labour Force Survey 2017, migrant definition based on birthplace; Japan, Population Census 2015, migrant definition based on citizenship; Malaysia, Labour Force Survey 2017, migrant definition based on citizenship; the Russian Federation, Labour Force Survey 2017, migrant definition based on citizenship; and the United States, Current Population Survey 2016, migrant definition based on birthplace.

Figure 20 shows 2017 labour force survey data on stocks of migrant workers by level of job skills for four economies. In Brunei Darussalam, Malaysia, and the Russian Federation, it is observed that migrant labour is overrepresented in medium- and low-skill jobs, with 74, 95, and 82 per cent of migrant occupying such posts, respectively; while the same non-migrant labour shares correspond to 54, 68, and 55 per cent

of total wage employment, respectively. In Australia, the share of migrant workers in high-skill occupations is higher than the share of non-migrant workers in those occupations, which reveals quite a contrast between the profile of the current stock of migrant workers in Australia, and these other economies in APEC.

Figure 20 • Employment by broad skill level for the migrant, non-migrant, and total populations in selected APEC economies, latest available year (%)



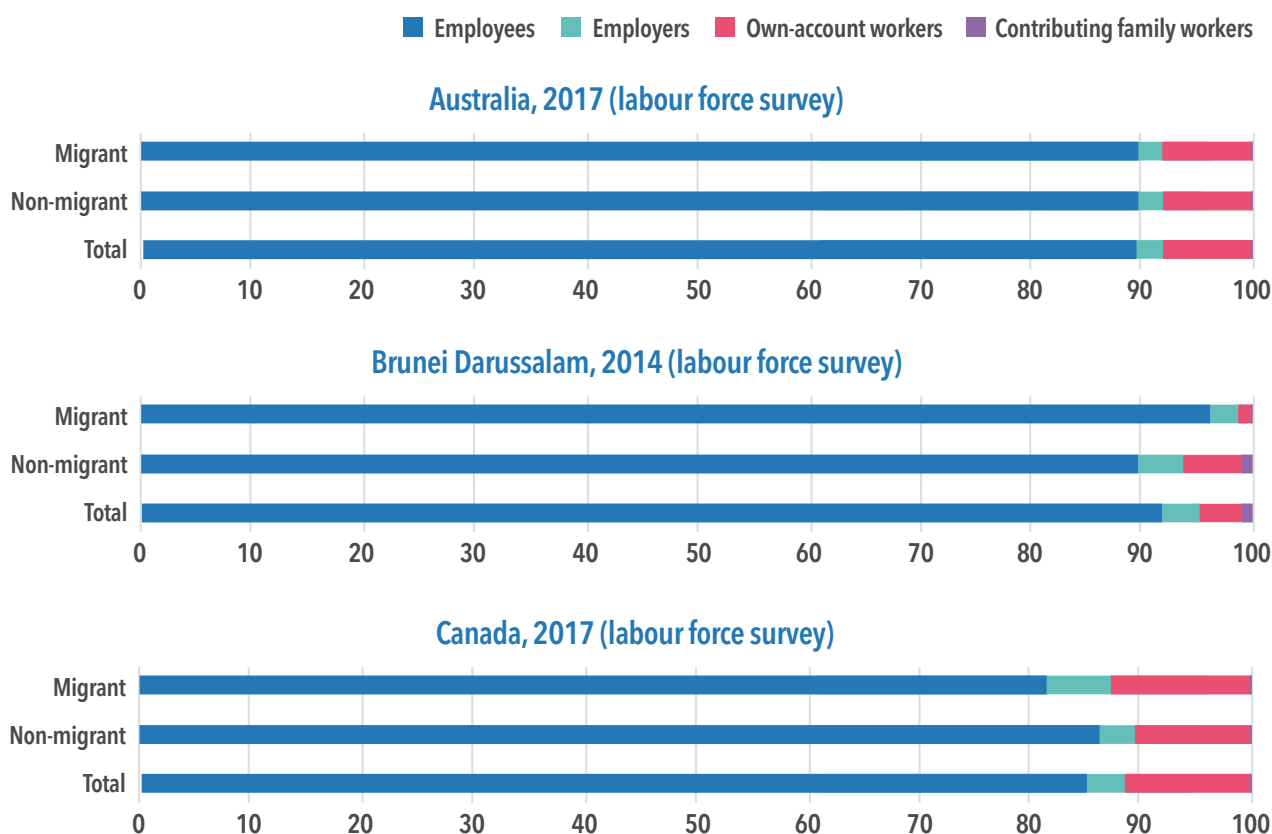


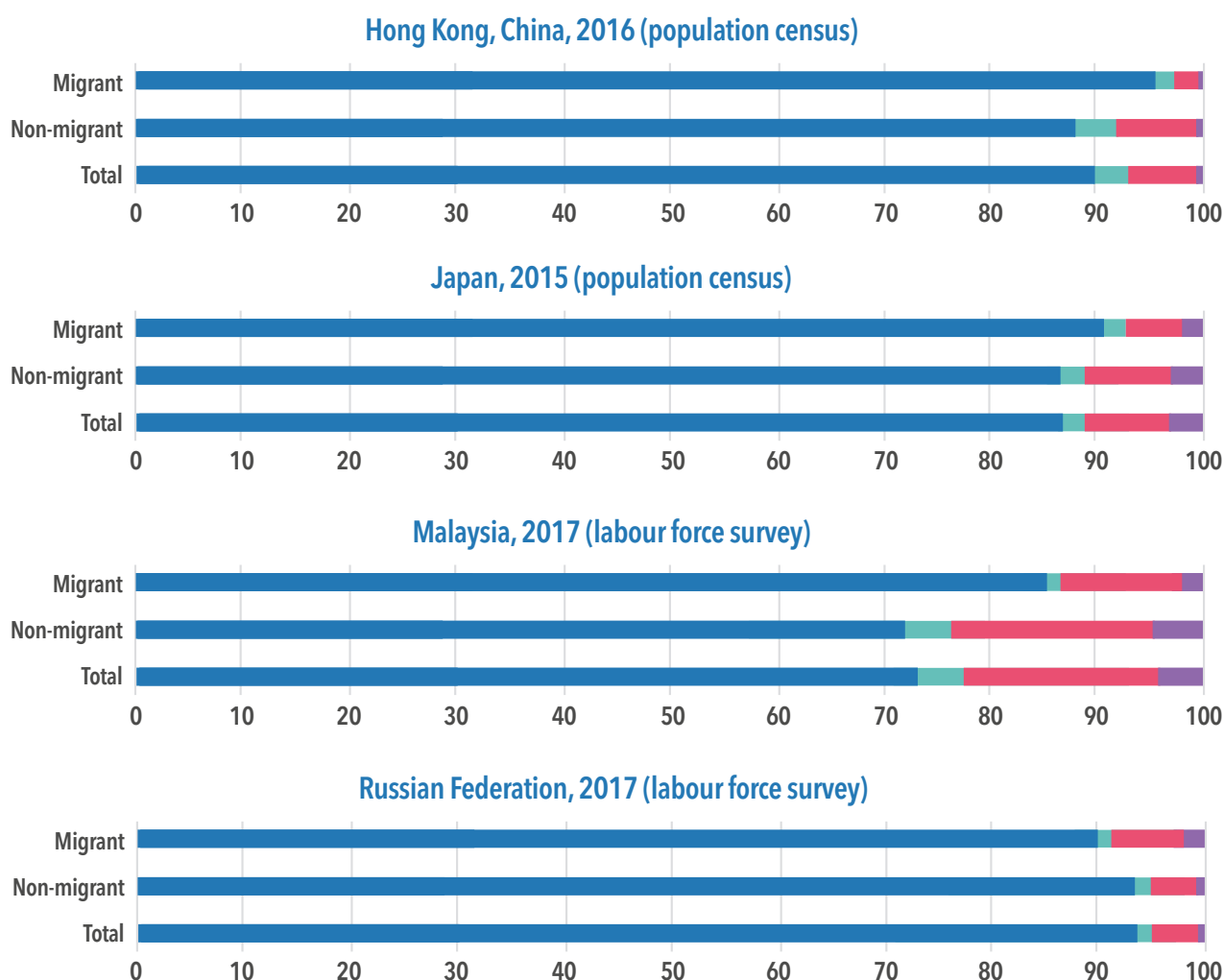
Notes: Data refer to wage employees. High-skill occupations correspond to International Standard Classification of Occupations (ISCO-08) categories: (1) managers; (2) professionals; and (3) technicians and associated professionals. Medium-skill non-manual occupations correspond to ISCO-08 categories: (4) clerical support workers; and (5) service and sales workers. Medium-skill manual occupations correspond to ISCO-08 categories: (6) skilled agricultural, forestry, and fishery workers; (7) craft and related trade workers; and (8) plant and machine operators, and assemblers. Australia, Labour Force Survey 2017, migrant definition based on place of birth; Brunei Darussalam, Labour Force Survey 2014, migrant definition based on citizenship; Malaysia, Labour Force Survey 2017, migrant definition based on citizenship; and the Russian Federation, Labour Force Survey 2017, migrant definition based on citizenship.

Data for seven labour-receiving APEC economies highlight vulnerable employment, defined as own-account workers or contributing/unpaid family workers among migrants and non-migrants (figure 21). For Canada and the Russian Federation, the share of vulnerable employment is higher among migrant

workers, and Japan and Malaysia have the highest number of contributing family workers – mostly among non-migrant workers, but including some among international migrant workers.

Figure 21 • Employment by status in employment for the migrant, non-migrant and total populations in selected APEC economies, latest available year (%)





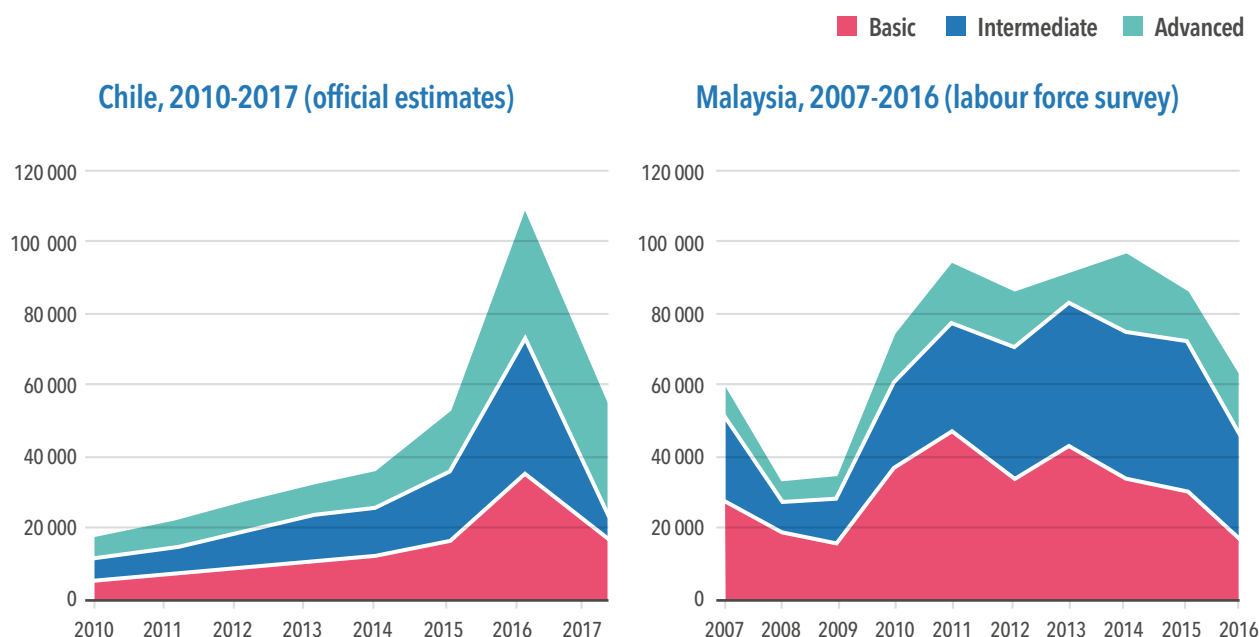
Notes: Status in employment categories are defined according to the International Classification of Status in Employment (ICSE-93): employees, employers, own-account workers, members of producers' cooperatives, contributing family workers, and workers not classifiable by status. Data sources: Australia, Labour Force Survey 2017, migrant definition based on birthplace; Brunei Darussalam, Labour Force Survey 2014, migrant definition based on citizenship; Canada, Labour Force Survey 2017, migrant definition based on birthplace; Hong Kong, China, Population By-census 2016, migrant definition based on birthplace; Japan, Population Census 2015, migrant definition based on citizenship; Malaysia, Labour Force Survey 2017, migrant definition based on citizenship; the Russian Federation, Labour Force Survey 2017, migrant definition based on citizenship.

Annual inflows of working-age migrants to Chile and Malaysia – high-income and upper-middle income economies, respectively – show economy-specific trends for migrants. Malaysia's total migrant inflows have mostly increased from 2009 to 2014, as seen in figure 22, but inflows dropped in 2013/14 and are currently at the 2007 levels. And although inflows of working-age migrants with intermediate and advanced education oscillated, these increased by a factor of 1.4 as flows of migrants with basic education decreased – meaning that migrants with better education are entering the economy in more recent years. For Chile, the total inflow of working-age migrants almost tripled from 2010 to 2017 and for all levels of education, according to official estimates based on 2017 population census data. For both of these economies, annual inflows of working-age migrants mostly have intermediate and basic levels of education.

Comparable data for incoming migrant workers in Malaysia and Thailand, collected from labour force surveys, are shown in panel A, figure 23. Most employed migrants are in lower-skill

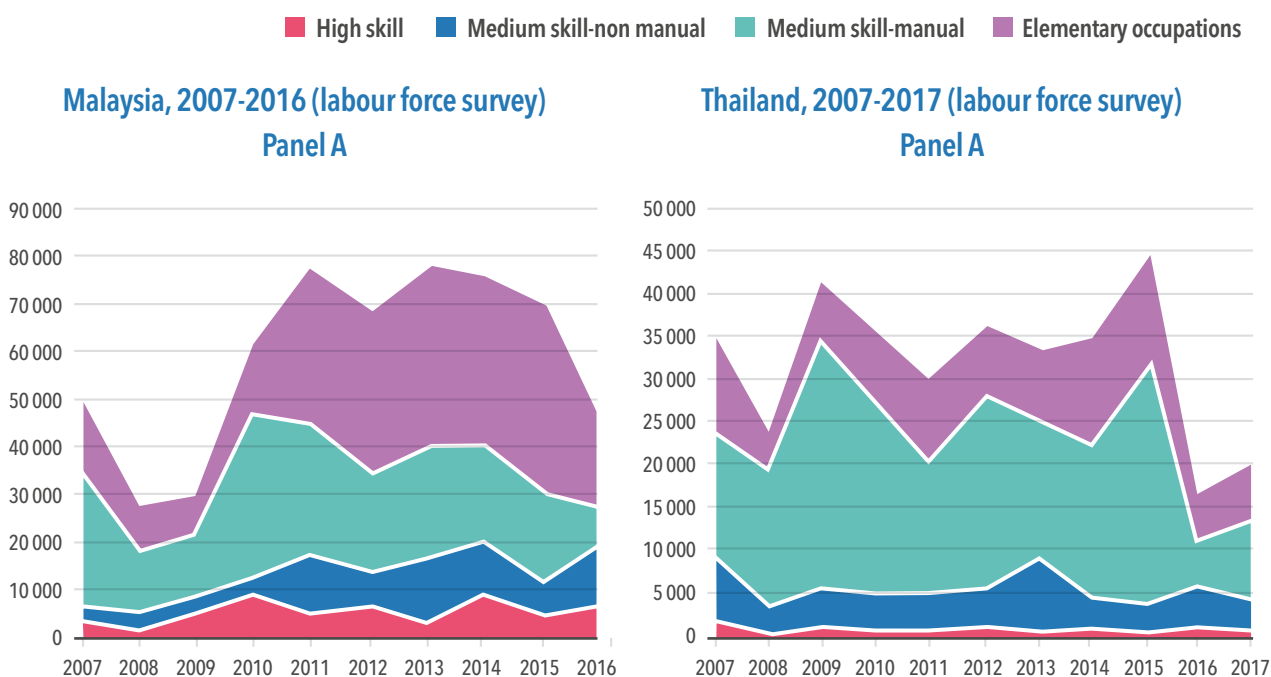
jobs (elementary and medium manual) for both economies. In Malaysia, the number of migrant workers in high-skill jobs tripled between 2007 and 2016, but the share of migrants in these jobs remains the smallest. For Thailand, medium- and high-skill occupations among incoming migrant workers decreased between 2007 and 2017, while elementary occupations increased. In the case of Thailand, figure 23 displays data are from two different sources, the labour force survey (panel A) and administrative records from the Ministry of Labour (panel B). It should be noted that the sample surveys here often cannot capture all registered migrant workers, while administrative records of registered migrants miss irregular migrant workers (see further discussion in Chapter 5). Both the total inflows of migrant workers and the disaggregation by job occupations differ between the two Thai sources, with the LFS estimating a much smaller total inflow and a larger proportion of migrant workers in medium- and low-skill jobs; while the administrative data shows large inflows of high-skill migrants, as well as a big increase in the number of workers taking elementary-skills jobs from 2007 to 2017."

Figure 22 • Annual inflow of working-age migrants by education attainment, Malaysia (2007–16) and Chile (2010–17)



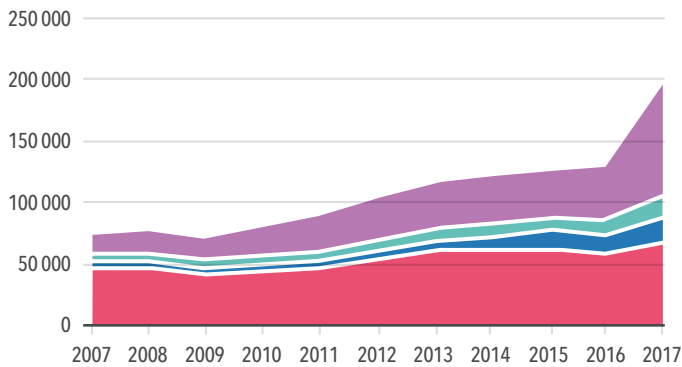
Notes: Basic education is defined as International Standard Classification of Education (ISCED 2011) groups: 0 (less than primary education); 1 (primary education); and 2 (lower-secondary education). Intermediate education is defined as International Standard Classification of Education (ISCED) groups: 3 (upper-secondary education); and 4 (post-secondary non-tertiary education). Advanced education is defined as ISCED groups: 5 (short-cycle tertiary education); 6 (bachelor's or equivalent level); 7 (master's or equivalent level), and 8 (doctoral or equivalent level). Malaysia, data are based on place of birth and correspond to those residing in private living quarters, Labour Force Survey 2016, Department of Statistics Malaysia; Chile, data are based on place of birth, official estimates based on 2017 population census, Instituto Nacional de Estadísticas Chile.

Figure 23 • Annual inflows of migrant workers by occupation, Malaysia (2007–16) and Thailand (2007–17)



Thailand, 2007-2017 (administrative records)

Panel B

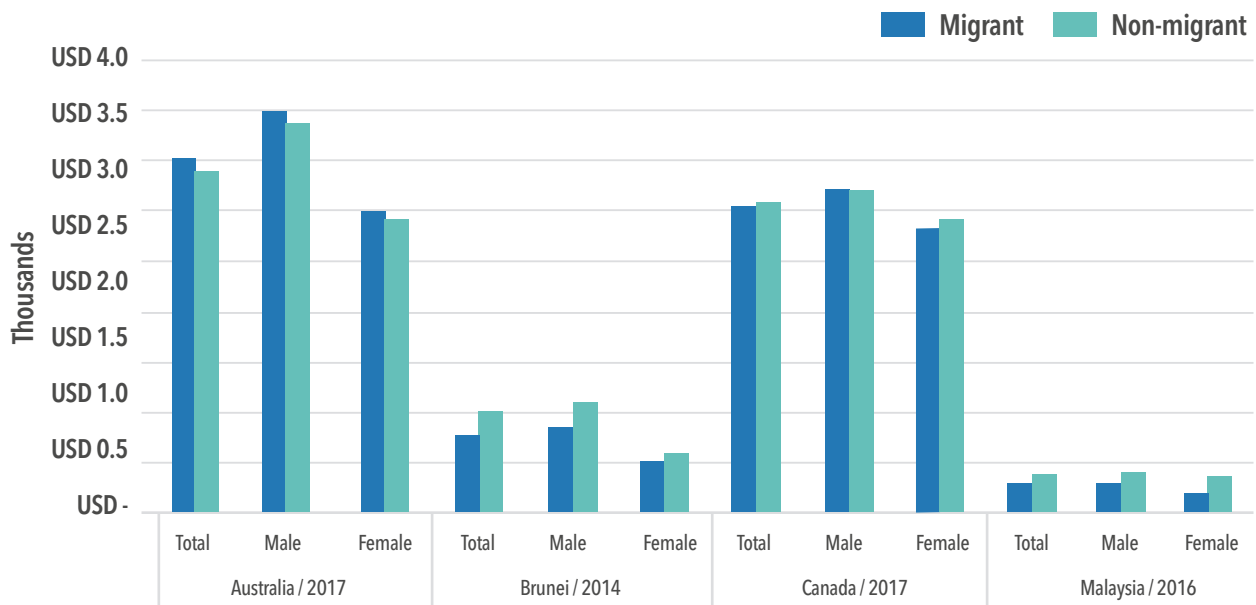


Notes: Data refer to wage employees. High-skill occupations correspond to ISCO-08 categories: (1) managers; (2) professionals; and (3) technicians and associated professionals. Medium-skill non-manual occupations correspond to ISCO-08 categories: (4) clerical support workers; and (5) service and sales workers. Medium-skill manual occupations correspond to ISCO-08 categories: (6) skilled agricultural, forestry, and fishery workers; (7) craft and related trade workers; and (8) plant and machine operators, and assemblers. Malaysia, migrant definition based on place of birth; data correspond to those residing in private living quarters, Labour Force Survey 2016, Department of Statistics Malaysia Thailand, migrant definition based on Administrative records of the Office of Foreign Workers Administration, Department of Employment, Ministry of Labour.

Five APEC destination economies – Australia, Brunei Darussalam, Canada, Hong Kong (China), and Malaysia – share with ILOSTAT some sex-disaggregated data on wages for migrant and non-migrant workers (Hong Kong, China shares median rather than average wages). As seen in figure 24, for Australia, Brunei Darussalam, and Canada, male and female

average monthly wages have greater discrepancies than do non-migrant and migrant populations. For Brunei Darussalam and Malaysia, average wage gaps between migrant and non-migrants are significant, with migrant workers earning less than non-migrants.

Figure 24 • Average monthly earnings from main job by sex for migrant and total populations in selected APEC economies, latest available year, current US\$ (in thousands)



Notes: Local currency units converted into current USD units. Source: International Monetary Fund, International Financial Statistics "Official exchange rates (local currency unit per US\$, period average)". Australia, Labour Force Survey (2017), migrant defined on the basis of place of birth, original wage data are for weekly gross earnings from main job. Weekly averages were converted into monthly averages by multiplying figures for 52 (weeks) and dividing by 12 (months). Brunei Darussalam, Labour Force Survey 2014, original data are for monthly earnings from main job, migrant defined on the basis of residency status (non-permanent residents); Canada, Labour Force Survey 2017, original data are for average hourly gross earnings from main job. Hourly earnings were converted into monthly averages by multiplying them for 40 (hours) and for 52 (weeks), and dividing by 12 (months); Malaysia, Labour Force Survey 2016, data for international migrant workers in Malaysia are based on place of birth and corresponds to those residing in private living quarters.

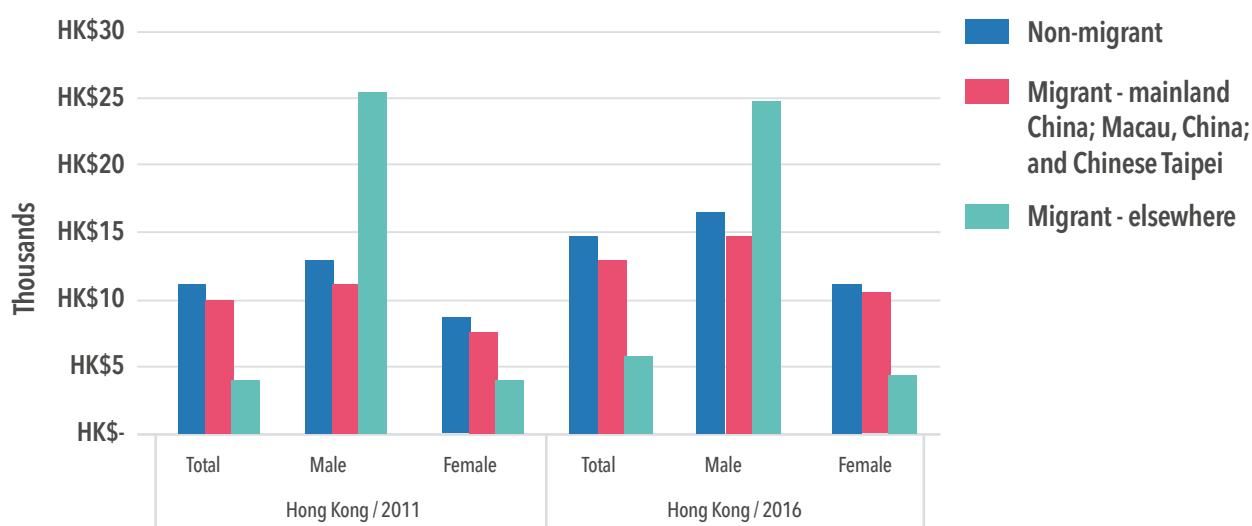
For Hong Kong, China, figure 25 shows two data points for median wages by sex from population censuses for three groups:

- non-migrants;
- migrant workers born in mainland China, Macau (China), and Chinese Taipei; and
- migrant workers born elsewhere.

Gender wage gaps are significant. Male migrants earn the highest wages and women migrants the lowest. In other

words, the median male “migrant workers from elsewhere” earn at least 1.5 times the wages of the median non-migrant or migrant from mainland China, Macau (China), and Chinese Taipei. The median female migrant earns less than 20 per cent of the median male “migrant from elsewhere”. Over time, the wage gap between median male wages between migrant and non-migrant groups has decreased; the wages of non-migrants have risen; and the gap in median wages between female migrants and female non-migrants has decreased, but less than for men.

Figure 25 • Median monthly wages by sex of migrant and non-migrant workers in Hong Kong, China, local currency units (in thousands), 2011 and 2016



Notes: Data refer to median monthly income (in Hong Kong dollars) from main employment of working population (persons aged 15 or older) who should: (a) be engaged in performing work for pay or profit during the seven days before census; or (b) have formal job attachment during the seven days before the census.
Data sources: Population Census 2011 and Population By-Census 2016.

3.1.2. Outward labour migration trends – Labour-sending economies

APEC’s labour-sending economies are China, Indonesia, Mexico, Papua New Guinea, Peru, the Philippines, and Viet Nam. Table 5 has the main labour market statistics for the total, migrant, and non-migrant populations in these economies. Indonesia, Mexico, and Peru are the economies where labour

force and employment key indicators from the latest official sources are available. This was not the case for the Philippines and Viet Nam, economies where international migration is not fully integrated into the latest labour force surveys. China publishes official estimates for labour market indicators that do not disaggregate by migratory status. For Papua New Guinea, key labour market indicators could be accessed only for 2011.

Table 5 • Selected labour market indicators for the total, non-migrant, and migrant populations in labour-sending APEC economies (in thousands), latest available year

Sending APEC economies	China	Indonesia	Mexico	Papua New Guinea	Peru	Philippines	Viet Nam
Reference year	2016	2017	2017	2011	2017	2017	2017
Type of source	Official estimate	LFS	LFS	Census	Census	LFS	LFS
Aggregates (thousands)							
Labour force	806 940	128 062	54 068	3 215	13 020	42 775	54 823
- Non-migrants	-	-	53 849	3 207	12 930	-	-
- Migrants	-	-	220	8	89	-	-
Employed	776 030	121 022	52 198	3 126	12 290	40 334	53 703
- Non-migrants	-	120 921	51 988	3122	12 207	-	-
- Migrants	-	100	210	4	83	-	-
Unemployed	30 910	7 040	1 870	89	730	2 441	1 120
- Non-migrants	-	-	1 860	85	723	-	-
- Migrants	-	-	10	4	7	-	-
Outside the labour force	335 950	64 017	37 050	-	8 608	27 116	17 068
- Non-migrants	-	-	36 828	-	8 559	-	-
- Migrants	-	-	222	-	49	-	-
Rates (per cent)							
Employment-to-population ratio	67.9	63.0	57.3	-	56.8	57.7	74.7
- Non-migrants	-	63.1	57.3	-	56.8	-	-
- Migrants	-	55.3	47.5	-	60.1	-	-
Labour force participation rate	70.6	66.7	59.3	-	60.2	61.2	76.3
- Non-migrants	-	-	59.4	-	60.2	-	-
- Migrants	-	-	49.8	-	64.5	-	-
Unemployment rate	3.8	5.5	3.5	-	5.6	5.7	2.0
- Non-migrants	-	-	3.5	-	5.6	-	-
- Migrants	-	-	4.5	-	7.9	-	-
Youth unemployment rate	-	20.4	6.8	-	10.8	14.4	7.5
- Non-migrants	-	-	6.8	-	10.8	-	-
- Migrants	-	-	7.3	-	10.3	-	-
Migrant shares							
Total population	-	0.1	-	0.3	-	-	0.0
Labour force	-	-	-	0.3	0.7	-	-
Employed	-	0.0	0.4	0.1	0.7	-	-
Unemployed	-	0.0	0.5	-	1.0	-	-
Youth unemployed	-	0.0	0.6	-	0.9	-	-

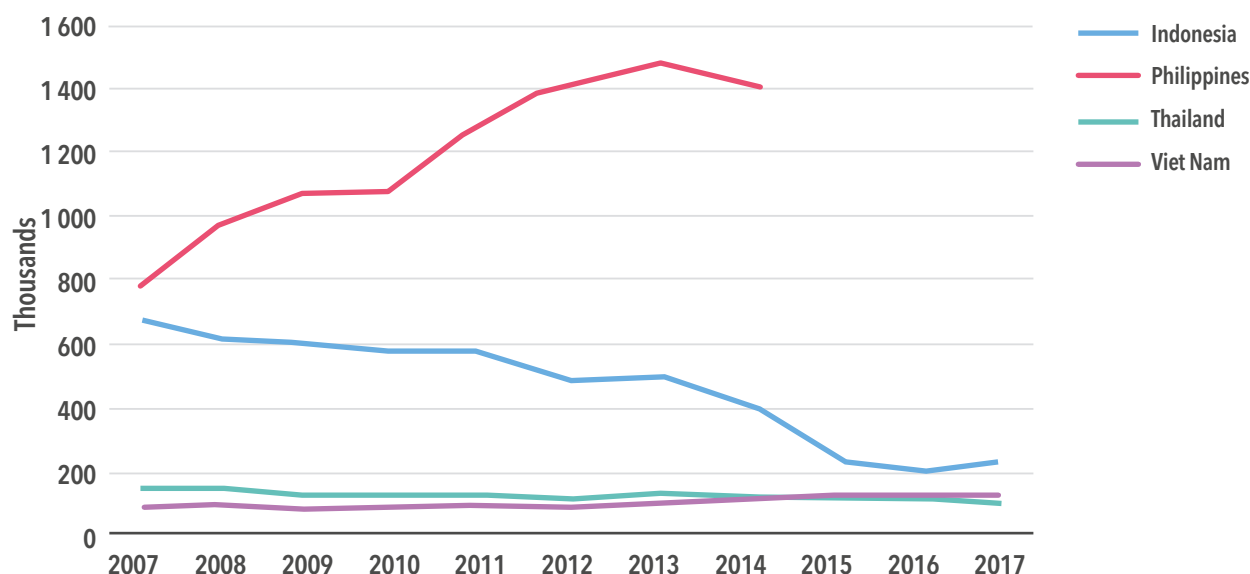
Notes: - = not available.

China, official estimates; Indonesia, Labour Force Survey 2017, international migration defined on the basis of place of birth; Mexico, Encuesta Nacional de Ocupación y Empleo 2017, international migration defined on the basis of place of birth; Papua New Guinea, Population Census 2011, definition of international migration not specified; Peru, Censo de Población 2017, international migration defined on the basis of place of birth; the Philippines, Labour Force Survey 2017, international migration not include in survey; Viet Nam, Labour Force Survey 2017, international migration not included in survey.

Data collected at origin for individuals migrating for work reveal important characteristics of outward labour migration. Four APEC sending economies currently collect and share administrative data, collected on the domestic level, of annual outflows of nationals for employment, namely Indonesia, the Philippines, Thailand,¹ and Viet Nam. Trend lines in figure 26

show both size and changes in outflows of migrant workers from these economies over a 10-year period. Among these economies, the Philippines and Indonesia have the biggest outflows, in spite of continued decrease in the Indonesian numbers over the period. At the same time, Thailand and Viet Nam had practically constant outflows of migrant workers.

Figure 26 • Annual outflows of regular labour migration in selected APEC economies, 2007–14/17



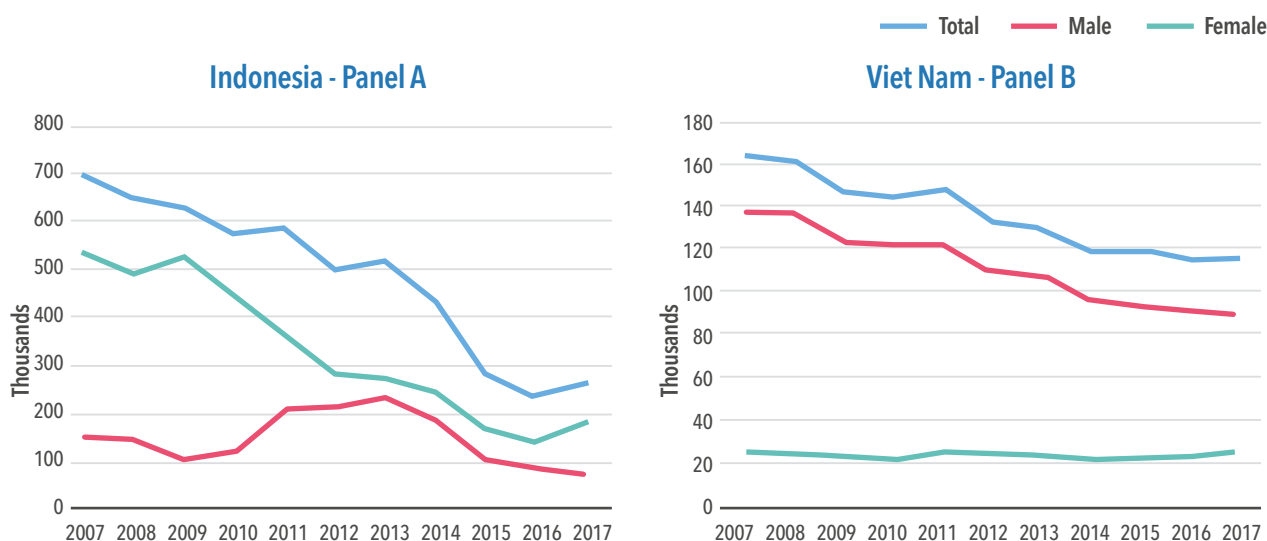
Notes: Indonesia, nationals registering to work abroad, administrative records of the Badan Nasional Penempatan dan Perlindungan Tenaga Kerja Indonesia (BNP2TKI, or National Board on the Protection and Placement of Indonesian Overseas Workers); the Philippines, number of registered land-based overseas Filipino workers, administrative records of the Philippines Overseas Employment Administration (POEA); Thailand, nationals registering to work abroad, administrative records of the Office of Overseas Employment Administration, Department of Employment, Ministry of Labour. Viet Nam, nationals registering to work abroad, administrative records of the Department of Overseas Labour (DOLAB).

Characteristics of outflows of migrant workers in Indonesia and Viet Nam by gender are found in figure 27. For both economies, 2017 saw flows at the lowest level in the 10-year period since 2007. In Indonesia, women workers have been the majority of migrants leaving over the period, and in Viet Nam, men account for the vast majority of registered outflows. Similarly, for Thailand, regular outflows of workers have been relatively smaller in recent years (figure 28). Disaggregation

of the outflows of Thai workers by education shows a shift from 2011 in the education profile of nationals going abroad for work. Since then, more Thai nationals with intermediate education attainment have been migrating through regular channels, as compared with previous years when nationals with lower education attainment were the majority of these outflows.

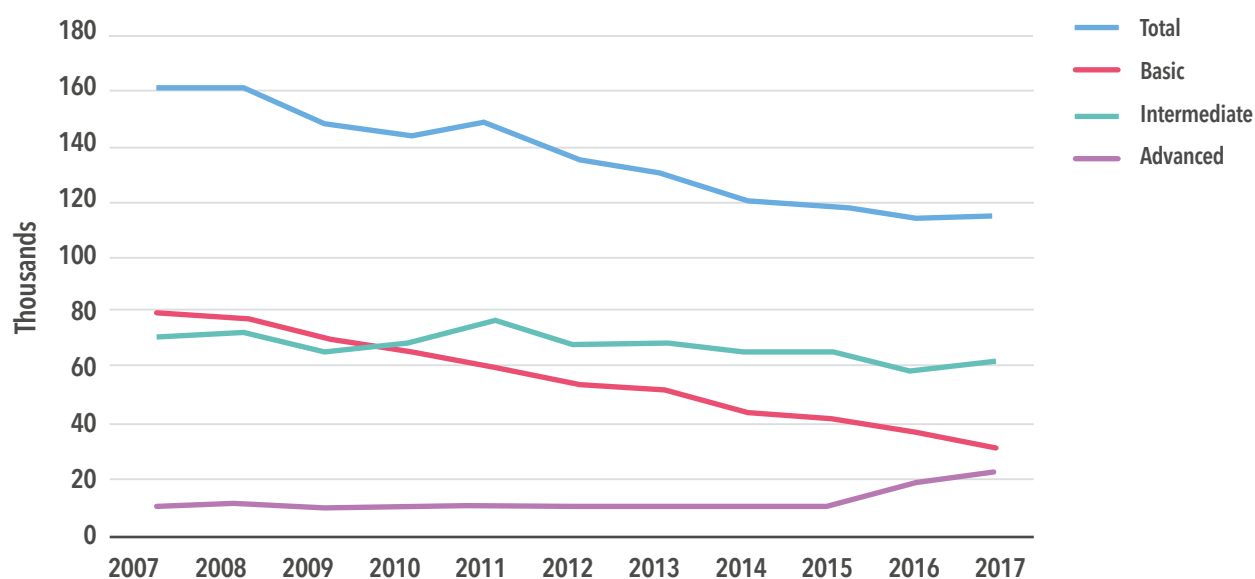
¹ While Thailand is a net labour-receiving economy, it is also a labour-sending economy.

Figure 27 • Annual outflows of nationals registering to work abroad in Indonesia and Viet Nam, 2007–17



Notes: Indonesia, nationals registering to work abroad, administrative records of the BNP2TKI; Viet Nam, nationals registering to work abroad, administrative records of the DOLAB.

Figure 28 • Annual outflows of Thai nationals registering to work abroad by educational attainment, 2007–17

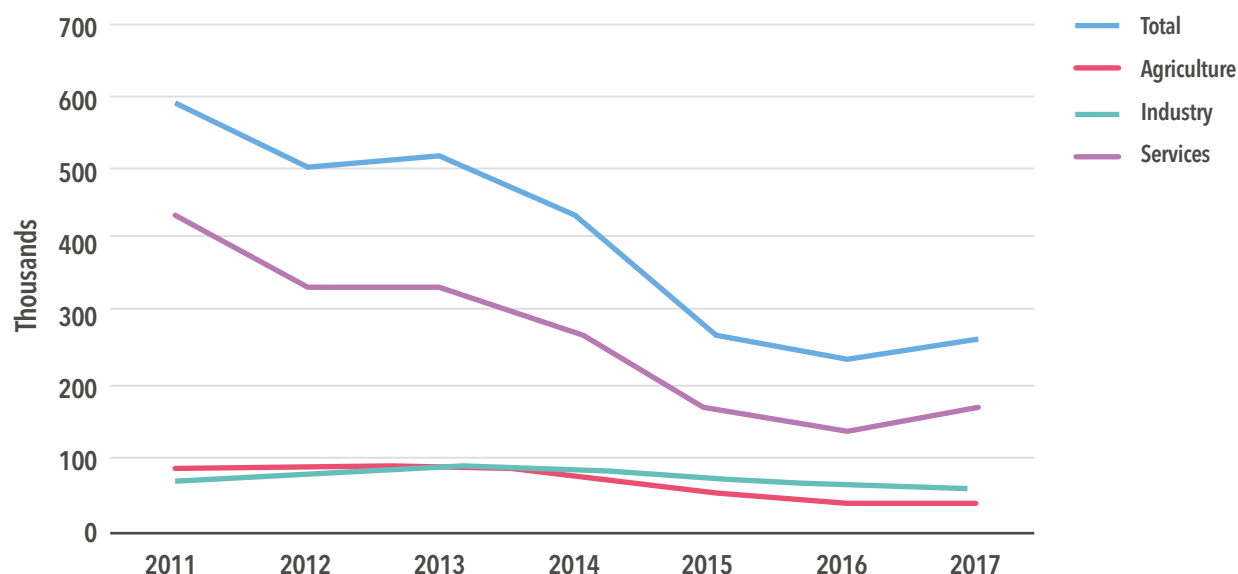


Notes: Data correspond to highest aggregate level of education completed, classified according to the International Standard Classification of Education (ISCED). Basic is defined as groups: 0 (early childhood education); 1 (primary education); and 2 (lower secondary education). Intermediate is defined as groups: 3 (upper-secondary education); and 4 (post-secondary non-tertiary education). Advanced is defined as groups: 5 (short-cycle tertiary education); 6 (bachelor's or equivalent level); and 7 (master's or equivalent level). Data on nationals registering to work abroad, administrative records of the Office of Overseas Employment Administration, Department of Employment, Ministry of Labour.

Further disaggregation of annual outflows in Indonesia show that majority of Indonesians migrate abroad to work in the service sectors (figure 29), and in elementary and medium-manual-skill occupations (figure 30, panel A). For comparison purposes, figure 30 panel B shows that Thai registered outmigration of workers was consistently dominated by workers in medium-skill manual jobs during the same period.

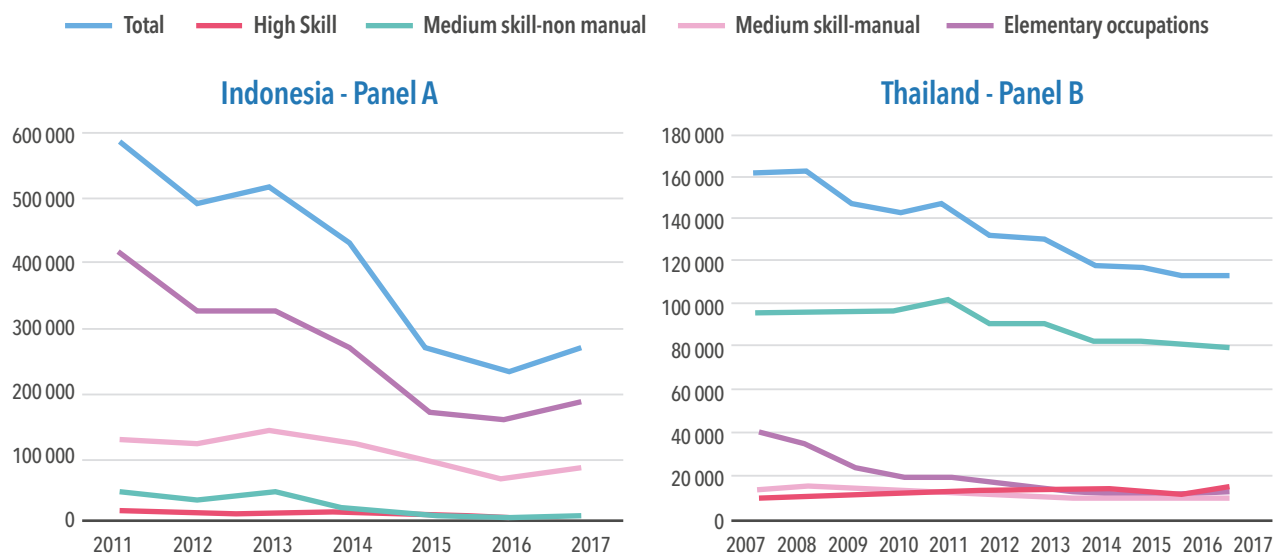
With regards to intra and extra-APEC flows of workers, the destination of majority of migrant workers from Indonesia, Thailand and Viet Nam has been within APEC from 2008 to 2017 (figure 31, panels A, C, and D), and in the case of the Philippines, the destination of workers was mainly to non-APEC economies from 2007 to 2014 (figure 31, panel B).

Figure 29 • Annual outflows of regular labour migration in Indonesia by broad sector of economic activity, 2007–17 (in thousands)



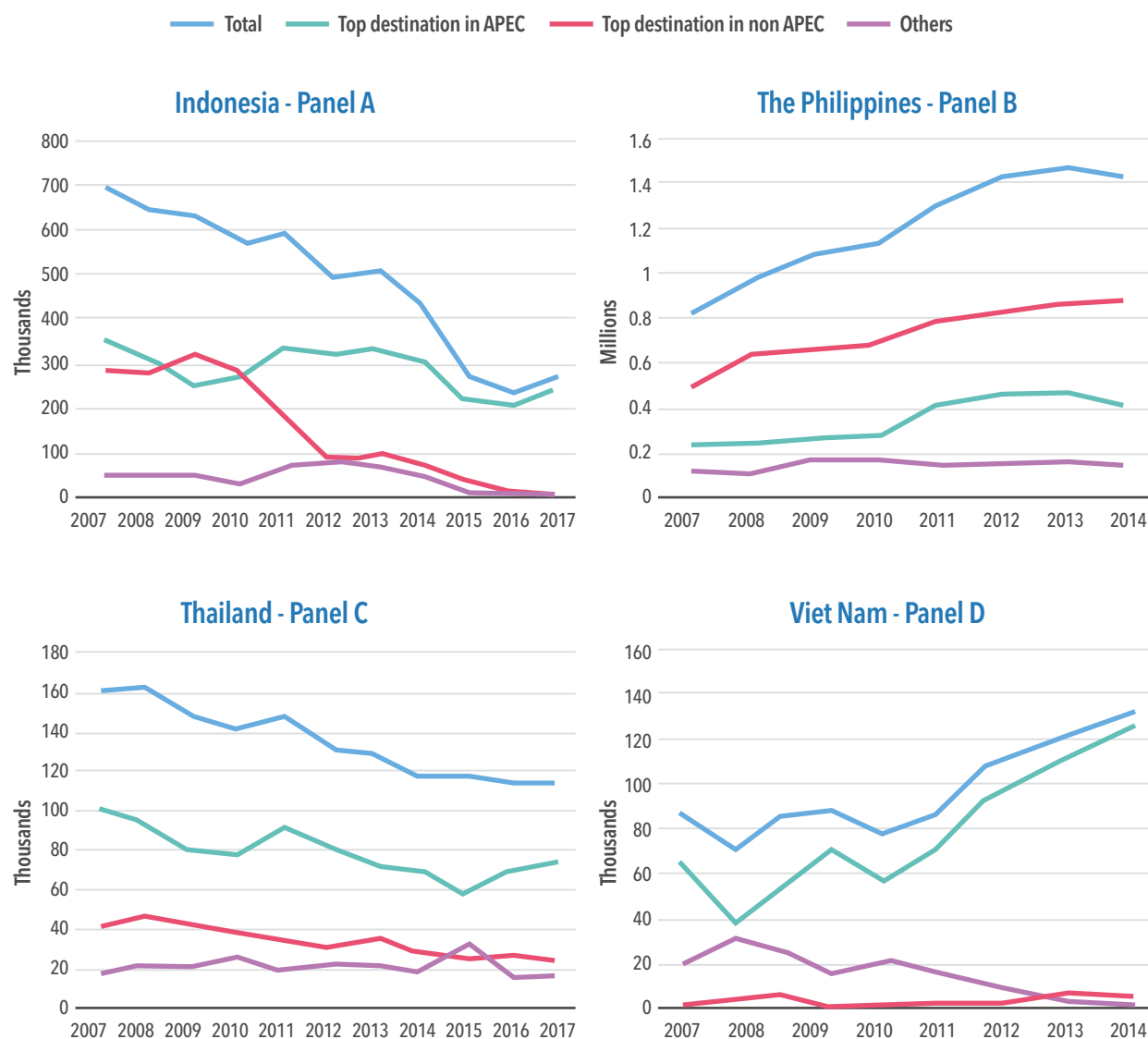
Notes: Broad economic activity sectors defined as: agriculture (ISIC Rev. 4 section A); industry (ISIC Rev. 4 sections B to F); and services (ISIC Rev. 4 sections G to U). Data refer to nationals registering to work abroad.
Data source: Administrative records of the BNP2TKI.

Figure 30 • Annual outflows of nationals registering to work abroad by skill level in Indonesia and Thailand, 2007–17



Notes: Data refer to wage employees. High-skill occupations correspond to ISCO-08 categories: (1) managers; (2) professionals; and (3) technicians and associated professionals. Medium-skill non-manual occupations correspond to ISCO-08 categories: (4) clerical support workers; and (5) service and sales workers. Medium-skill manual occupations correspond to ISCO-08 categories: (6) skilled agricultural, forestry, and fishery workers; (7) craft and related trade workers; and (8) plant and machine operators, and assemblers. Indonesia, data on nationals registering to work abroad, administrative records of the BNP2TKI; Thailand, data on nationals registering to work abroad, administrative records of the Office of Overseas Employment Administration, Department of Employment, Ministry of Labour.

Figure 31 • Annual outflows of nationals registering to work abroad by place of destination – intraregional and others – for selected APEC economies



Notes: Indonesia, data on nationals registering to work abroad, administrative records of the BNP2TKI; the Philippines, data on number of registered land-based overseas Filipino workers, administrative records of the POEA; Thailand, data on nationals registering to work abroad, administrative records of the Office of Overseas Employment Administration, Department of Employment, Ministry of Labour; Viet Nam, data on nationals registering to work abroad, administrative records of the DOLAB.

3.2. Conclusion

As illustrated in this chapter, many indicators recommended by the UN for measurement of international labour migration are widely available for APEC members and offer relevant estimates of labour migration stocks and movements, while other indicators are scarcer and only available for very few economies in the group, or at varying levels. Although the available indicators are already very useful for painting a picture of APEC's labour migration movements, the scarcer indicators often provide information that is not sufficient to characterize the region as a whole and that could be misleading in the identification of specific APEC labour market challenges and opportunities. Much of the data that are currently available might show only limited, one-sided labour migration trends without necessarily or sufficiently mapping labour migration corridors or uncovering the socio-economic characteristics of cross-border workers, which are essential for informing policy on the regional level.

Data used for building the indicators assessed throughout this chapter and overall international labour migration data for both destination and origin economies in APEC vary in terms of sources, availability, scope, comparability, and completeness, as will be detailed in Chapter 5. For all economies there remains effort to be made in harmonizing the production and sharing of these data in order to improve the regional labour market information system. At the same time, data gaps in this chapter also point towards the diverse capacity of economies in APEC in terms of relevant, timely, and good quality labour market statistical production and sharing. Overall, the illustration of currently available data and gaps, as shown in this chapter, helps to highlight issues in the latest available statistical sources relevant to the measurement of labour migration in APEC, as well as the challenges in harmonization and sharing practices that are relatively more pressing within the regional context.



04

Data collection and sharing on selected labour market indicators

This chapter presents an overview of the sources and completeness of labour market information that are regularly collected by each of the 21 APEC economies, starting from the building block of the 13 key indicators for the study, as listed below:

1. Employment-to-population ratio;
2. Unemployment rate;
3. Labour force participation rate;
4. Youth unemployment rate;
5. Proportion of own-account workers and contributing family workers in total employment;
6. Average hourly earnings by occupation group;
7. Average real wages;
8. Occupational segregation by sex;
9. Unemployment by level of educational attainment;
10. Time-related underemployment rate;
11. Labour productivity;
12. Employment by branch of economic activity; and
13. Real GDP per capita.

The 13 indicators have been selected to provide a framework of comparison for the labour markets of the APEC economies. GDP per capita informs on labour market determinants, whereas unemployment and time-related underemployment rates express aggregate measures of the effects of the business cycle on the labour market. Data on wages and labour productivity can provide indications on the competitiveness of economies. Gender- and youth-specific labour market indicators shed light on how key socio-demographic groups perform in the labour markets. Finally, employment by sector helps to monitor changes in the industrial structure of economies and the employment patterns induced by these changes.

The baseline assessment has found that data is being collected across APEC economies as far as the above indicators are concerned.¹ However, more work needs to be done with respect to harmonization of concepts and definitions. Further, this chapter also provides a review of the comparability of the National Occupational Classifications (NOCs) used by APEC economies for their labour market statistics.

4.1. Sources

Economic statistics – For the majority of the economies in the APEC region, the two key sources for these indicators are the Labour Force Surveys (LFSs) and the System of National Accounts (SNA). All APEC economies collect and publish basic economic statistics, in particular those used to calculate the indicators of labour productivity (no. 11) and real GDP per

capita (no. 13), according to the most recent SNA methodology agreed upon in its 2008 revision.² GDP data, and GDP by sector, can be considered harmonized and comparable across economies.

Statistics on employment and unemployment – All APEC economies, with the exception of Papua New Guinea, have a regular LFS. Some economies have a continuous survey, which allows employment and unemployment aggregates to be published monthly (such as Australia, Canada, New Zealand, and the United States). Others, for reasons detailed in the gap analysis of section 4.3 of this chapter, conduct quarterly LFSs (China and Chinese Taipei). Finally, some economies, such as Chinese Taipei and Singapore, have a full-fledged LFS administered by the Ministry of Labour (Chinese Taipei) or Ministry of Manpower (Singapore) rather than by the national statistics office.

Wages and income statistics – Most LFSs include a section providing basic information on wages. Most APEC economies have at their disposal wage statistics, based on data obtained from employees, which are required to calculate indicators nos. 5 and 6 of the list.

4.2. Collection against selected indicators and comparability

As shown in Chapter 2, which includes tables presenting the selected indicators for key sectors, the collection of indicators is complete for all APEC economies. Data collected through the ILOSTAT database yields, for all APEC economies, quarterly observations of relevant Labour Force Survey statistics, which made the labour market analysis in Chapter 2 possible. For some economies, for example Papua New Guinea and Peru, these values are different from those found in the websites of their national statistical offices, mainly for data on International Standard Classification of Occupation (ISCO) classifications at the three-digit level. To harmonize these statistics, it would be beneficial to establish a policy dialogue to produce comparable statistics based on ISCO classifications.

Further, some APEC economies have transitioned to the 19th International Conference of Labour Statisticians (ICLS) conceptual framework, whereas others, such as Indonesia, Malaysia, the Philippines, Thailand, and Viet Nam, still use the 13th ICLS conceptual framework. However, there are discrepancies, and these are listed in Appendix I. The appendix also provides ILO definitions for the selected indicators, as well as the discrepancies that are listed in the ILOSTAT website.

¹ Appendix I contains the definitions of the indicators as per ILO standards.

² See: *System of National Accounts 2008*. Available at: <https://unstats.un.org/unsd/nationalaccount/docs/SNA2008.pdf>.

ILOSTAT provides the series of ILO modeled estimates for the following indicators:

- a. employment-to-population ratio;
- b. status in employment;
- c. employment by sector;
- d. employment by occupation;
- e. unemployment rate; and
- f. labour productivity.

These are comparable. However, for the remaining indicators, ILO modeled estimates are not available, and the national collection is provided on the ILOSTATS database with red flags and discrepancies noted (see table 6).

Table 6 • Summary of the indicators

Indicators for which ILO modeled estimates are available	Indicators for which ILO modeled estimates are deductible	Indicators for which ILO modeled estimates are not available
1. Employment-to-population-ratio 2. Unemployment rate 3. Labour force participation rate 4. Youth unemployment rate 5. Labour productivity (output per worker) 6. Employment by branch of economic activity	7. Proportion of own-account workers and contributing family workers in total employment (total figures are available)	8. Average hourly earnings by occupation group 9. Average real wages 10. Occupational segregation by sex 11. Unemployment by level of educational attainment 12. Time-related underemployment rate 13. Real GDP per capita

4.3. Gaps and capacity-building needs

4.3.1. APEC region as a whole

All APEC economies need to continue their efforts to improve labour statistics, especially the extent to which labour mobility is affecting the functioning of domestic labour markets.

The methods and accuracy of labour statistics change as new phenomena in the world of work emerge and as the characteristics of employment relations evolve in tandem with economic activities and new patterns of work organization. These changes are taken into consideration in the outcomes of the 20th ICLS.

The 13 selected indicators are the essential diagnostic tools to assess the quantity and quality of employment of an economy. Hence, all economies, including all APEC members, should continue to review methods and practices to harmonize information in such a way that labour mobility patterns are taken into account more accurately when assessing the population of usual residents and those in employment and unemployment. Reference is made to indicators 1 to 13 of the list presented at the beginning of this chapter.

Regarding the indicators calculated from employment statistics, all economies should continue to document the different types of employment relations. Resolution I of the 20th ICLS Conference provides guidance on how to improve methods to better identify the 'work relationships', i.e., the type of authority and the type of economic risk in the relationships between persons who work and the economic units in which or for which the work is performed. These improvements in the measurement of employment – along with implementing standards from the 19th ICLS – will help APEC economies to increase comparability of statistics by discerning atypical forms of employment from own-use production work, unpaid trainee work, volunteer work, and other forms of work.

Another issue relevant for all APEC economies relates to monitoring the youth labour market, and the pertinent guidance provided in Resolutions II and III of the latest ICLS Conference on the methodology of the SDG Indicators 8.8.2 and 8.b.1 (youth employment issues). Implementation of the guidance is likely to improve measurements of indicators 1, 2, 3, 4, 8, 9, and 10 from the list provided at the beginning of this chapter.

Further, as noted in *A Report on the APEC Region Labour Market* (APEC, 2014), while all APEC economies collect basic labour market data, many do not collect complementary data, which is essential to identify the scale and causes of labour market imbalance.

4.3.2. Economy-specific observations

Brunei Darussalam – Brunei Darussalam produces a comprehensive array of disaggregated statistics and reports on domestic and foreign workers, jobseekers, labour underutilization, and vacancies. In 2017, the Government established an annual system of LFSs, and the Department of Statistics has refined and harmonized the methodology for the LFSs of 2014 and 2017 to update information on the size, structure, distribution, and characteristics of the labour force, as well as employment, unemployment, and other economic characteristics of the population to assist in the planning, research, policy-making, and management concerning the economy's labour force. In March 2018, the Legislative Council announced that the Manpower Planning Council will establish a comprehensive Labour Management Information System (LMIS) to monitor and reduce graduate unemployment and to adapt skills development pathways in the economy to labour market needs. The LMIS will be designed with the aim to provide data on labour demand from different industries and the private sector (Abu Bakar, 2018). Capacity-building programmes similar to those conducted through the ILO Pilot Study Programme may prove beneficial to harmonize labour statistics with those of other APEC economies.³

Canada – The Federal Government collects data from households via LFS and from establishments with the Survey of Employment, Payrolls, and Hours (SEPH). Other labour market data are from Employment Insurance Statistics and the Job Vacancy and Wage Survey. The LFS generates monthly estimates of employment and unemployment of persons 15 and older. It is based on dwellings or housing units, and revisits sampled dwellings each month for six months, collecting labour force data on all persons living at the house. The data are available separately for men and women, by various age groups, and by province. They show the labour force growing by about 150,000 a year, but declining for youths between 15 and 24 years of age.

The SEPH collects data from employers or establishments for the last pay period of the month. They report the number of employees, earnings, and hours worked by industry and geography. There were almost 17 million employees in October 2018, including 3 million in goods-manufacturing

industries (half manufacturing) and 13.6 million in services, including 2.8 million in trade. Only 9.7 million of these employees are paid by the hour; the others are salaried or paid in another manner. The SEPH also generates average hourly earnings for employees paid by the hour, which were 25.38 Canadian dollars (CAD) in October 2018, with a range from under CAD20 in trade to over CAD44 in mining.

The Job Vacancy and Wage Survey is a quarterly survey of employers to determine how many job vacancies they have and the average hourly wage they are offering to fill the job. During the second quarter of 2018, Canadian employers had 547,000 job vacancies and were offering an average CAD20.65 per hour to attract workers to fill them.

The LFS collects data on place of birth, allowing for the identification of workers born outside Canada. Immigrants have a lower employment rate than Canadians, 79 per cent versus 84 per cent in 2017. Immigrants born in the Philippines, however, had significantly higher employment rates – higher than persons born in Canada. Those born in Europe also had higher employment rates than those born in Canada. Immigrants born in Africa had the lowest employment rates.

Labour market information is processed and disseminated through the Labour Market Information Council, which is co-managed by both national and provincial/territorial authorities, and which aims to improve the accessibility, timeliness, and reliability of the data produced.⁴

China – The National Bureau of Statistics of China publishes quarterly data on the labour market as part of a comprehensive array of statistics on economic and social development in China. This data features a high level of disaggregation. In addition, there are a large number of reports and analyses conducted by external partners and private sector entities on the skills and labour needs of the economy, differentiating by sector, industry, and occupation. China's LFS is based on census maps, which may be outdated as a result of rapid economic development and internal migration from rural to urban areas. The consistency of indicators 1, 2, 3, 4, 8, and 10 may suffer from these phenomena, and ad hoc programmes are recommended to support an LFS that is tailored to the size and diversity of the economic activities it needs to represent.

Indonesia – The Central Bureau of Statistics produces labour market information through its biannual LFSs, as well as monthly reports of socio-economic data. Moving towards a quarterly survey would allow Indonesia to produce quarterly data on the 13 selected indicators, as well as on other more

³ See: https://www.ilo.org/stat/Areasofwork/Standards/lfs/WCMS_484799/lang-en/index.htm.

⁴ See: www.lmic-cimt.ca.

sophisticated tools of labour and skills needs assessment.

Japan – The Statistics Bureau under the Ministry of Internal Affairs and Communications produces a regular and comprehensive LFS. While in 2018, the scope of the LFS was enlarged by the introduction of new questionnaires, it has been ensured that the existing information remains consistent to allow for long-term comparability. However, comparability with observations relating to the old questionnaire needs to be continuously monitored.

Mexico's major source of labour data from households is the quarterly Encuesta Nacional de Ocupación y Empleo (National Survey in Occupation and Employment), which replaces 20 per cent of the sample each quarter.⁵ There are almost 25 million private homes in Mexico, and each quarter 120,000 are selected for interviews.

Papua New Guinea – The National Statistics Office of Papua New Guinea produces relevant statistics on migration and conducts a regular Household Income and Expenditure Survey. However, Papua New Guinea does not conduct a regular LFS. With the exception of the health-care sector, most reports on the labour and skills needs of Papua New Guinea are conducted by international organizations and consultancies. The National Statistics Office may consider exploring the possibility of conducting a regular LFS and establishment surveys in order to autonomously produce statistics on employment, unemployment, and wages required for the selected indicators.

Russian Federation – The definitions of employment and unemployment in LFSs in the Russian Federation are consistent with ILO guidelines in the 13th ICLS. The standards adopted in the form of Resolution I by the ICLS have been introduced into statistical practice during the LFS. The survey is carried out by professional interviewers who interview members of households and record the answers. The LFS samples the resident population but does not, however, include sampling of atypical households. The LFS is carried out monthly.

Singapore and Chinese Taipei – Singapore's LFS and Chinese Taipei's LFS are not produced by the national statistics office, but by the Ministry of Manpower (Singapore) and the Ministry of Labour (Chinese Taipei). Both economies provide comprehensive and highly disaggregated statistics on

migration, labour, and skills shortages, capturing regularly updated statistics both on foreign workers in their economy and on workers with atypical employment relations.

The United States – There are several major sources of labour-related data on foreign-born or migrant workers. The United States Department of Labor (DOL) collects key labour market data from a sample of households and employers, and distinguishes workers born abroad from those born in the United States once a year in the household survey. Most migration data are from the administrative records of the Department of Homeland Security, supplemented by administrative data from DOL and the Department of State.

The major United States source of labour force and labour market data is the Bureau of Labor Statistics,⁶ a DOL agency that analyses data collected by the Census Bureau⁷ of the Department of Commerce. The Bureau of Labor Statistics' headline report is the monthly *Employment Situation*,⁸ which presents key labour force data drawn from the Current Population Survey (CPS), a monthly survey of 60,000 households, and the Current Employment Statistics (CES) survey, a monthly establishment survey of 149,000 businesses with 651,000 worksites.

Key labour market indicators, such as employment status, are collected from households (CPS); while average hourly earnings data are collected from establishments (CES).

Many of the key labour market indicators dealing with foreign-born or migrant workers are from a once-a-year supplement to the monthly CPS. The most recent data on foreign-born workers were published in May 2018 and relate to the characteristics of foreign-born workers in 2017.⁹

4.4. Outlook on harmonization of National Occupational Classifications with ISCO

This section presents a review of the comparability of National Occupational Classifications (NOCs) used by the different APEC economies for their labour market statistics, including a comparison across the APEC region and high-level recommendations to harmonize national classifications of occupations according to ILO's International Standard Classification of Occupations (ISCO).

⁵ See: www.inegi.gob.mx.

⁶ See: www.bls.gov.

⁷ See: www.census.gov.

⁸ See: www.bls.gov/news.release/empstoc.htm.

⁹ See: <https://www.bls.gov/news.release/forbrn.toc.htm>.

ISCO is a tool for organizing occupational profiles according to tasks and duties undertaken during employment. It classifies occupations from a one-digit level to a four-digit level, with each level more detailed in terms of the description of tasks and duties categories. The main aims of the ISCO classification are to provide:

- i. a basis for the international reporting, comparison and exchange of statistical and administrative data about occupations;
- ii. a model for the development of national and regional classifications of occupations; and
- iii. a system that can be used directly in countries that have not developed their own national classifications (APEC, 2016a).

As summarized in table 7, most APEC economies have NOCs systems that are aligned with the ISCO, but many are more detailed and some have different criteria for defining occupations. Data are therefore often only partially comparable with ISCO, as there are varying details of occupational distribution provided with the use of different (i) classification and (ii) frequency of data collection. Some economies have produced concordances that permit a complete or partial conversion from the economy's system to the international equivalent (APEC, 2014). Converting NOCs to ISCO for comparative purposes may, however, lead to a loss or distortion of information (OECD, 2013). Alignment refers to a National Occupational Classification that is based on ISCO.¹⁰

Table 7 • ISCO comparability of the National Occupational Classifications of APEC economies

Economy	National Occupational Classifications	ISCO comparability	Comments
Australia ¹	ANZSCO ² (Australian and New Zealand Standard Classification of Occupations)	ISCO-08 concordance published Concordance is also required at two-digit level	Occupational categories in Australia are classified according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO). The Australian Bureau of Statistics published correspondence tables (concordances) for ISCO-08 and ANZSCO 1.2. The ANZSCO review has been introduced in 2006.
Brunei Darussalam	BDSOC (Brunei Darussalam Standard Occupation Classification)	Aligned with ISCO-08	/
Canada	NOC (National Occupational Classification)	Largely aligned with ISCO-08 Concordance between NOC 2011 and ISCO 2008 can be used for purposes of showing the relationship between NOC 2016 Version 1.0 and ISCO 2008 since the structure is the same in both NOC 2011 and NOC 2016 Version 1.0.	The similarities between the NOC and ISCO increased in latest structural revisions (ISCO-08 and NOC 2011) cycle. However, certain conceptual differences between the NOC 2016 Version 1.0 and ISCO-08 limit comparability. For instance, differences in skill level definitions and classification structure exist between NOC 2016 Version 1.0 and ISCO-08, especially in the trades occupations. Subsistence occupations included in ISCO are not part of the NOC. For economies and regions in which subsistence activities are virtually non-existent, the ILO affirms that such activities may be excluded without loss of international comparability.
Chile	CIUO (Clasificador Chileno de Ocupaciones)	Aligned with ISCO-08	CIUO allows the international comparison of the surveys that statistically measure this variable. During the adaptation process of CIUO 08.CL, an intense interdisciplinary research work was generated, which involved the participation of experts and external entities forming a technical working group and two discussion committees.

¹⁰ For further information, please refer to <https://www.ilo.org/public/english/bureau/stat/isco/>.

China	CSCO (Chinese Standard Classification of Occupation)	ISCO concordance	CSCO has eight categories with 595 occupations.
Hong Kong, China	ISCO-08 with local adaptations	Aligned with ISCO-08	The ISCO-08 was first adopted by the Census and Statistics Department for use in the 2011 Population Census (11C) with local adaptations. After the 11C and with some further revision, the classification was adapted for use in the 2016 Population By-census and the General Household Survey. The occupation classification of Hong Kong, China is mainly based on ISCO-08 with local adaptation.
Indonesia	KBJI-14 (Klasifikasi Baku Jenis Pekerjaan Indonesia)	Aligned with ISCO-08	KBJI 2014 is the NOC of Indonesia, and is based on internationally agreed concepts, definitions, principles, and classification procedures. KBJI was compiled based on ISCO-08.
Japan	JSOC (Japan Standard Occupational Classification)	Aligned with ISCO-08	The JSOC was established in 1960 and has frequently been refined in response to changing occupations and to enhance its comparability with ISCO.
Republic of Korea	KSCO 7th version (Korean Standard Classification of Occupations)	Aligned with ISCO-08	KSCO has been established on the basis of the ISCO.
Malaysia	MASCO (Malaysia Standard Classification of Occupations)	Aligned with ISCO-08	There are 10 major groups, 51 sub-Major Groups, 146 Minor Groups, 490-unit Groups, and 6,366 Occupations.
Mexico	SINCO (Sistema Nacional de Clasificación de Ocupaciones)	Aligned with ISCO-08	It has used codes from "1111 high governmental and jurisdictional authorities" to code "2992 other technicians not previously classified".
New Zealand	ANZSCO (Australian and New Zealand Standard Classification of Occupations)	ISCO-08 concordance published. Concordance also required at two-digit level	Occupational categories in New Zealand are classified according to the Australian and New Zealand Standard Classification of Occupations (ANZSCO).
Peru	ClaNAE-Perú (Clasificación nacional de actividades económicas del Perú)	N/A	Peru, like Chile and Mexico, uses the standard regional CEPA classification system. But this economy has a more decentralized system of observatories at regional and local levels coordinated by the Ministry of Labour.
Philippines	PSOC 2011 (Philippines Standard Occupational Classification)	Aligned with ISCO-08	The Philippines uses the Philippines Standard Occupational Classification (PSOC 2011), which is based on ILO's ISCO. The 2011 PSOC is identical to the 2008 ISCO up to the four-digit level or unit group level, except in Major Group 6.
Papua New Guinea	PNGCO (Papua New Guinea Classification of Occupations)	Aligned with ISCO-08 (aligned also with ANZSCO)	The four-level PNGCO is based on the ISCO and the ANZSCO. These classification systems have been changed slightly to create an occupation listing that suits Papua New Guinea's labour market.
Russian Federation	OKZ (Obshcherossiyskiy klassifikator zanyatiy [National Classification of Occupations])	Aligned with ISCO 1988	At the level of three digits, the OKZ is analogous to ISCO-88 (GKS, n.d.).
Singapore	SSOC (Singapore Standard Occupational Classification)	Aligned with ISCO-08	The SSOC 2010 is based on ISCO-08. There are five levels (Major Group, Sub-major Group, Minor Group, Unit Group, and Occupation): 10 Major Groups; 43 Sub-major Groups; 104 Minor Groups; 400 Unit Groups, and 1,124 Occupations.

Chinese Taipei	CSCO (Chinese Standard Classification of Occupation)	ISCO concordance	CSCO has eight categories with 595 occupations.
Thailand	TSCO (Thailand Standard Classification of Occupation)	Aligned with ISCO 1988	The TSCO 2001 now comprises 10 major groups, which are then further subdivided into a total of 28 sub majors, 116 groups, and 391 units.
United States	SOC (Standard Occupational Classification)	Concordance (crosswalk) published on 2010 SOC to ISCO-08	The Department of Labor's Bureau of Labor Statistics has developed a "crosswalk" (concordance) between the 2010 US Standard Occupational Classification (SOC) system and the ISCO-08 (Bureau of Labor Statistics, 2013). In ISCO-08, the minor groups for engineers are split into 214 "Engineering Professionals (Excluding Electrotechnology)" and 215 "Electrotechnology Engineers". This creates boundary issues for cross-discipline engineering occupations. In some national occupational classifications (for example the Canadian NOC 2016, United Kingdom SOC 2010, and the US SOC 2018) engineers are not delineated into such minor groups.
Viet Nam	VOSC (Viet Nam Occupational Standard Classification)	Aligned with ISCO-08	Links to ISCO-08. The level of correspondence at which the link is made is the four-digit level.

¹ Australia and New Zealand have created a common labour market as a result of the Australia and New Zealand Closer Economics Relations Agreement and the Trans-Tasman Travel Arrangement.

² While the Australia Bureau of Statistics has decided not to commit to undertaking a review of ANZSCO at this time, it will however reconsider its position after the 2021 Australian Census. This may present an opportunity to look at the issue of ISCO-08 comparability.

Sources: APEC, 2014; Economy-specific sources include Australia (OECD, 2017); Brunei Darussalam (ANCSDAAP, 2016); Chile (INE, 2018); Hong Kong, China (CSD, 2018); Indonesia (BPS, 2014); Japan (MIAC, 2009); Mexico (Del Castillo Negrete Rovira, 2017); Papua New Guinea (Department of Labour and Industrial Relations, 2009); the Russian Federation (GKS, n.d.); the United States (ILO, 2018b); Viet Nam (ILO, 2011).

One problematic issue is that NOCs build on different ISCO revisions. For instance, the Russian Federation and Thailand continue to use NOCs that are aligned with ISCO-1988 rather than the current ISCO-08 (APEC, 2014; GKS, n.d.). This makes reliable comparisons difficult, even when the pertinent statistics offices publish updated concordances. In addition, several concordances may be required to update an older version of ISCO to the most current version, with each step introducing more assumptions and errors (APEC, 2014).

There are frequent changes to NOCs due new occupations being created, as well as frequent changes to the job content and qualification requirements of existing occupational classes. As an example, the Canadian NOC was revised three times between 2016 and 2018. The 2016 revision was conducted to update the classification to incorporate emerging occupations and new job titles while maintaining historical comparability and to remove redundant or obsolete job titles. The 2017 revision (V1.1) saw the addition of 11 new job titles and the deletion of 27. Finally, the 2018 revision

was completed in response to the legalization of cannabis for non-medical use. This has resulted in 25 new job titles being created in NOC 2016 (V1.2) (Statistics Canada, 2019).

Analogous to Canada, many APEC economies conduct regular revisions of their NOCs, e.g., every five years. However, smaller non-structural updates (generally additions/differentiations at the four-digit level, rarely at the three-digit level) may occur more frequently. For this reason, APEC's NOCs are generally not compatible with ISCO-08 at the three- and four-digit levels. In APEC economies lacking this type of expertise, such changes may not reflect international statistical standards or may only be effectuated with considerable delay (APEC, 2014).

Finally, not all APEC economies have NOCs at a four-digit level. Hong Kong, China, for instance, only uses a three-digit level NOC (CSD, 2018).¹¹ The Korean Classification of Occupations, by contrast, comprises differentiation at a five-digit level.¹² The differing levels of disaggregation at which occupational data are collected have implications both for comparability and

¹¹ The classification consists of three levels: major groups, sub-major groups and minor groups. There are 10 major groups, a maximum of six sub-major groups in each major group, and a maximum of eight minor groups in each sub-major group.

¹² This includes 10 major groups; 52 sub-major groups; 156 minor groups; 450-unit groups; and 1,231 sub-unit groups.

for the identification of occupational imbalances. Data at the one- or two-digit level are less useful for identifying specific occupational imbalances than those available at a three- or four-digit level. However, employment data is generally not available below the ISCO three-digit level, and one- or two-digit data are most readily available (OECD, 2019).

4.5. Towards a harmonization of National Occupational Classifications

This review of APEC members' NOCs and their comparability with ISCO-08 aims to support ongoing efforts aiming to reach a common understanding of standard classifications of occupations and competency standards to support the recognition of competencies across APEC economies.

A pragmatic rationale for the harmonization of NOCs is the advantage of peer-to-peer learning. Aligning NOCs with ISCO-08 would allow APEC economies to learn from experiences and avoid potentially costly mistakes brought about by insufficient technical expertise. Harmonization of NOCs would also allow economies to better tailor and coordinate labour market policies, vocational training strategies, and migration governance. Economies with similar (and comparable) skills needs could benefit from peer-to-peer learning in attracting foreign workers or in developing the required skills in the domestic workforce through targeted technical and vocational education and training (TVET) reforms. Alignment with ISCO at three- and four-digit levels would also enable economies to better target training programmes and incentives to develop the skills that suit current and emerging labour market needs.

Most labour and skills needs assessments are conducted at sectoral level for specific occupations, which requires data on occupational classes at a three-digit level. Some skills needs assessment exercises may require four-digit level disaggregation. For instance, data to the three-digit level are necessary for identifying specific shortages, e.g., welders, as opposed to a shortage of metal workers generally (two-digit level). If APEC economies start aligning NOCs for occupations where labour shortages are *common* (e.g., construction, elderly care), the direct comparability of statistics could help economies to better assess their needs (through peer learning) and to share compatible information on labour and skills needs. Making NOCs compatible also with ISCO-08 would thus provide a common ground to better understand occupational trends across the APEC region. In addition, by using the breakdown of citizen/foreign born, this

harmonization would allow greater insights across the region into the degree to which occupations are attractive to locals, and which are instead more attractive to foreign workers. Thus, harmonization of NOCs could also contribute to the cost-effectiveness and responsiveness of regular revisions of NOCs based on changes in occupational profiles.

Finally, the review of APEC member's NOCs also aims to feed into the ongoing development of an APEC Occupational Standards Framework, which directly addresses the need to ease existing barriers to interaction and mobility by establishing a common understanding of skills required for specific occupations and determination of relevance of skills held by individuals (APEC, 2016).¹³

4.6. Recommendations

All APEC economies use occupational and industry classification systems that are adapted from or aligned with ISCO-1988 or ISCO-08 standards. Recommendations to be considered during the harmonization of NOCs among APEC economies and based on the *Report on the APEC Region Labour Market* (APEC, 2014) take into account ongoing processes of dialogue and harmonization at APEC and Organisation for Economic Co-operation and Development (OECD) levels:

- For occupational data to be comparable, there should be greater alignment of NOCs with the most recent ISCO-08.¹⁴ On the basis of the alignment, a corresponding statement of concordance between ISCO and the APEC economies' NOCs could be produced. As a starting point, APEC economies could align NOCs for selected occupational profiles with high *common* labour shortages.
- APEC economies should develop concordances between economies' NOCs to enable the production of truly comparable datasets. Online publication of these data would be one way to ensure accessibility for all member economies and other stakeholders.
- Each APEC economy should take steps to publish their concordance online in internationally consistent formats, either individually or in cooperation with multilateral bodies, to better inform stakeholders.

¹³ The APEC Occupational Standards Framework aims to support the development and validation of regional occupational standards across APEC. The occupational standards

¹⁴ developed under the Framework provide a reference point for benchmarking the skills held by workers and/or the content of qualifications with a view to improving transparency for individuals, businesses, governments, and training providers (APEC, 2018).

Though such a change would be time and resource intensive in some economies.



05

Data collection and sharing: An assessment of international labour migration statistics (ILMS) in APEC members

This chapter provides an overview of current data collection practices related to international labour migration in each APEC economy. It highlights various dimensions of the production and quality of these data, including types of data sources or survey instruments; availability of core ILO indicators of labour migration and their sharing practices; adherence to international statistical standards for related concepts, definitions, and classifications; and the comparability of the data collected at the domestic level within APEC.

This report is based on data from:

1. the ILO's Statistics Department labour migration data and metadata collection templates (or questionnaires), which are regularly sent to ILO Member States' statistics focal points;
2. the current ILO databases, namely ILOSTAT and the ILMS Database in ASEAN;
3. international statistics publications; and
4. APEC economies' official statistics portals and publications.

The data received from ILO Member States through ILOSTAT questionnaires are validated by ILOSTAT through rounds of clarification and consistency checks of statistical figures, definitions, and sources provided.

5.1. Labour migration statistics within APEC

The establishment of the ILO ILMS Database in ASEAN responded to requests for improved sub-regional labour mobility information systems. It includes tables that contain international migration and international labour migration data, including a number that are sex-disaggregated, as listed in box 1. Since 2013, the ILO prepares the latest available international labour mobility data in ASEAN Member States.¹

Box 1

Indicators in the International Labour Migration Statistics (ILMS) Database

The ILMS Database is a collection of gender-disaggregated data consisting of three modules and 20 statistical tables:

Module A: International Migrant Stock

- 1.1 Population by sex, age, and place of birth/citizenship
- 1.2. Working-age population by sex, labour force status, and place of birth/citizenship
- 1.3. Working-age population by sex, education, and place of birth/citizenship
- 1.4. Foreign-born/non-citizen population by sex and place of birth/citizenship
- 1.5. Employed foreign-born/non-citizens persons by sex and place of birth/citizenship
- 1.6. Employment by sex, economic activity, and place of birth/citizenship
- 1.7. Employment by sex, occupation, and place of birth/citizenship
- 1.8. Employment by sex, status in employment, and place of birth/citizenship
- 1.9. Mean nominal monthly earnings of employees by sex and place of birth/citizenship

Module B: International Migrant Flow

- 2.1. Inflow of foreign-born/non-citizen population by sex and place of birth/citizenship
- 2.2. Inflow of foreign-born/non-citizen working-age population by sex and education
- 2.3. Inflow of foreign-born/non-citizen working-age population by sex and economic activity
- 2.4. Inflow of foreign-born/non-citizens employed persons by sex and occupation

¹ The Member States of ASEAN are Brunei Darussalam, Cambodia, Indonesia, the Lao People's Democratic Republic, Malaysia, Myanmar, the Philippines, Singapore, Thailand, and Viet Nam.

Module C: Citizens Abroad

- 3.1. Stock of citizens abroad by sex and place of residence
- 3.2. Inflow of citizens returned from abroad by sex and place of previous residence
- 3.3. Outflow of citizens by sex and place of destination
- 3.4. Outflow of citizens for employment by sex and place of destination
- 3.5. Outflow of citizens for employment by sex and education
- 3.6. Outflow of citizens for employment by sex and economic activity
- 3.7. Outflow of citizens for employment by sex and occupation

Given its recent contribution to improve labour mobility information systems among South-East Asian economies – at both local and regional levels – the ILMS Database in ASEAN has been used in this study as background for concepts and the scope of variables to be assessed, along with the most up-to-date template of the ILO Statistics Department.

The next sub-sections will provide brief explanations of the purpose of the main official statistical data sources in the APEC region: labour force surveys, population censuses, and administrative records. There will also be an examination of the results from the project baseline survey to describe:

- how each APEC member is currently measuring international labour migration on the domestic level;
- how each member defines international migration and international labour migration for these measurements;
- whether they are collecting the core ILO ILMS indicators on the topic; and
- whether common statistical standards and definitions are being used.

These will allow for assessments of completeness and comparability of core information available, and highlight opportunities for improving institutional capacities related to labour mobility statistics in many APEC economies, including in terms of:

1. adjusting or complementing current survey questionnaires to increase availability of relevant international labour mobility indicators and respective disaggregation;
2. adjusting frequency of surveys to comply with regional and international standards and agreements, such as the SDGs Agenda and its Global Indicators Framework; and
3. assessing current accessibility aspects of labour mobility data on the international level.

Box 2

The 20th International Conference of Labour Statisticians (ICLS) guidelines on labour migration data collection items

The 20th ICLS guidelines on measurement of labour migration provide a detailed list of main items of data collection to be considered and included in statistical data collection instruments that would allow for core indicators on labour migration to be constructed. These are:

(a) Main socio-demographic characteristics:

- sex;
- age or date of birth;
- marital status;
- level of education attained;
- type of living quarters (private household, collective or institutional household, other type of living quarters, non-residential accommodation);
- country of birth and country of birth of parent(s);
- country of citizenship;
- country of usual residence;
- country of last usual residence (or country of previous labour attachment for return international migrant workers);
- proficiency (speaking, reading, writing) in a language of the country of labour attachment.

(b) Main migration characteristics:

- purpose of migration (declared or documented reason for first entry into the country, specifically the country of actual or intended labour attachment); and also, for return international migrant workers, the main reason for last departure from the country of previous labour attachment;
- type of visa, residence permit, work permit;
- permanent, temporary, or circular nature of migration;
- duration of stay: date of first entry into the country of labour attachment; and also, for return international migrant workers, date of last departure from the country;
- any restrictions in the rights to residence in the country of actual or intended labour attachment (such as concerning place of residence, duration of stay, mobility).

(c) Main work characteristics:

- labour force status (employed, unemployed, outside the labour force);
- branch of economic activity;
- occupation;
- status in employment;
- working time, including hours usually worked, contractual hours of work;
- duration of employment in months or years;
- employment-related income;
- remittances sent outside the country of labour attachment;
- social security entitlements in the country of labour attachment;
- any restrictions of the right to employment (e.g., concerning undertaking or seeking work, changing employer or work performed).

Source: ILO, 2018a.

5.1.1. Labour force surveys

Labour force surveys (LFSs) collect data from a sample of households, usually monthly, quarterly, or annually, to obtain labour market information such as labour force status, educational attainment, industry and occupation of employment, status in employment, and wages.

In most economies, labour force surveys are the main source of labour market data for labour market and other public policies, including international labour mobility policies. As long as they are based on appropriate sampling methods and cover all the reference population, these surveys can be used in labour-receiving economies to estimate the stock of international migrant and migrant workers within the total population, as well as annual inflows, and to generate key labour market variables collected through the same questionnaire. For sending economies – provided that they include some data collection items (see box 2 and ILO, 2018a), including on household members who are or were living and/or working abroad (“reason for moving/moved for employment purposes”) – labour force surveys can be used to estimate outflows of migrant workers, as well as stocks of return migrants according to key labour market characteristics of interest.

Comparability of labour force surveys at the APEC regional level might be compromised by different geographical and population coverage parameters of samples. As an example, some sampling methods might exclude foreign residents, non-household populations, or those who do not speak the official language(s). The definitions of labour market indicators might also vary among economies, and the types of questions asked to arrive at employment estimates, for instance, sometimes vary in a way that the resulting figures cannot be compared on the regional level. Further research can be done to uncover these conceptual issues within labour migration statistics in APEC, according to the 20th ICLS labour migration guidelines for concepts and definitions.

Table 8 shows that labour force surveys are carried out every one to three months in most APEC economies, except Brunei Darussalam and Papua New Guinea. In Brunei Darussalam this type of survey has been conducted on an ad hoc basis, with latest data available being from the years 2014 and 2017. In Papua New Guinea it seems that an LFS is not conducted regularly, and there is very limited information available on labour migration data and metadata collected via household-based surveys. Table 8 also contains results from the baseline survey concerning:

- what key information on migration and labour migration is being collected through LFSs in each APEC economy;
- which key labour market indicators are being collected; and
- respective adherence to international standards.

Despite almost all APEC economies having LFSs, some of the key questions on migration are still missing in the surveys of a significant number of economies in the group, which can impact the capacity of these economies to produce estimates of international labour migrant stocks (nationality/citizenship and birthplace) and flows (previous residence), as well as estimates of stocks of citizens abroad and outflows of citizens (household members abroad). Overall, information is being collected following international statistical standards, but a few economies are still lagging behind in terms of including some of the key data collection items in their LFS to characterize the domestic working-age population and labour force. In general terms, and taking into account each economy's context and domestic priorities, LFSs in the APEC region can still be adjusted and improved towards more comprehensive, more frequent, and more harmonized labour migration data.

Table 8 • Labour force survey data on international labour migration, APEC members

APEC members	Frequency of data collection	Key questions on migration				Key labour market indicators					
		Nationality	Birthplace	Previous residence*	Household members abroad	Labour force status	Education	Economic activity	Occupation	Status in employment	Monthly wages
Australia	Monthly	–	•	–	–	•	–	•	•	•	•
Brunei Darussalam	2017	•	•	–	–	•	•	•	•	•	•
Canada	Monthly	–	•	–	–	•	•	•	•	•	•
Chile	Quarterly	•	–	–	–	•	•	•	•	•	•
China	Annually	–	–	–	–	•	–	•	•	–	–
Hong Kong, China	Quarterly	–	–	–	–	•	•	•	•	–	•
Indonesia	Quarterly	–	•	–	–	•	•	•	•	•	•
Japan	Monthly	–	–	–	–	•	–	•	•	•	•
Republic of Korea	Monthly	•	–	–	–	•	•	•	•	•	•
Malaysia	Monthly	•	–	One year	–	•	•	•	•	•	•
Mexico	Quarterly	–	•	–	•	•	•	•	•	•	•
New Zealand	Quarterly	–	•	0	•	•	•	•	•	•	–
Papua New Guinea	–	–	–	–	–	–	–	–	–	–	–
Peru	Quarterly	–	–	–	–	•	•	•	•	•	•
Philippines	Quarterly	–	–	–	+	•	•	•	•	•	•
Russian Federation	Monthly	•	–	–	–	•	•	•	•	•	•
Singapore	Annually	•	–	–	–	•	•	•	•	•	•
Chinese Taipei	Monthly	–	–	–	–	•	–	–	–	–	–
Thailand	Monthly	–	–	One year	–	•	•	•	•	•	•
United States	Monthly	•	•	–	–	•	•	0	0	0	•
Viet Nam	Quarterly	–	–	Previous	–	•	•	•	•	•	•

Notes: • indicates the variable is collected; 0 indicates the variable is collected but not based on a common standard; – indicates the variable is not collected. * Text indicates the length of time in the question (e.g., "previous" indicates the survey inquires where respondents' last previous place of residence was; "one year" indicates the survey inquires where respondents were living one year ago).

Sources: Australia, Labour Force Survey, Australian Bureau of Statistics; Brunei Darussalam, Labour Force Survey 2017, Department of Economic Planning and Development, Prime Minister's Office; Canada, Labour Force Survey, Statistics Canada; Chile, Encuesta Nacional del Empleo, Instituto Nacional de Estadísticas Chile; China, Urban Labour Force Survey and Rural Social and Economic Survey, National Bureau of Statistics; Hong Kong, China, General Household Survey, Census and Statistics Department; Indonesia, National Labour Force Survey – SAKERNAS, Statistics Indonesia; Japan, Labour Force Survey, Statistics Bureau, Ministry of Internal Affairs and Communications; Republic of Korea, Economically Active Population Survey and Survey on Immigrant's Living Conditions and Labour Force, Employment Statistics Division, Statistics Korea (KOSTAT); Malaysia, Labour Force Survey and Migration Survey, Department of Statistics Malaysia; Mexico, Encuesta Nacional de Ocupación y Empleo, Instituto Nacional de Estadística y Geografía; New Zealand, Household Labour Force Survey, Statistics New Zealand, for migrant flows the survey inquires length of residence in the country where the survey is being conducted; Papua New Guinea, no labour force survey has appeared in the baseline mapping; Peru, Encuesta Permanente de Empleo, Instituto Nacional de Estadística e Informática; the Philippines, Labour Force Survey, Philippines Statistics Authority; the Russian Federation, Labour Force Survey, Federal State Statistics Survey; Singapore, Comprehensive Labour Force Survey (annual), Department of Statistics Singapore (there is also a monthly Labour Force Survey in Singapore that does not collect international migration data); Chinese Taipei, Manpower Survey, National Statistics, Directorate General of Budget Accounting and Statistics (DGBAS); Thailand, Labour Force Survey and Migration Survey, National Statistical Office, Ministry of Digital Economy and Society; the United States, Current Population Survey, Census Bureau, Bureau of Labor Statistics; Viet Nam, Labour Force Survey, General Statistics Office, Ministry of Planning and Investment.

5.1.2. Population censuses

Population census data collection instruments also gather information on the household level but, unlike sample surveys, they have exhaustive coverage of observation units as they generally enumerate all households in an economy at a point in time, and can include all individuals who reside in the economy regardless of their presence in the household on census day (or only the ones who are physically present during census, depending on the specific methodological approach adopted by each economy). In terms of estimating international labour mobility, population censuses can collect detailed information in both receiving and sending economies due to their complete territorial and resident population coverage. All individuals residing in the economy participate in censuses, regardless of registration under specific regulatory systems in which irregular migrants are generally not counted.

Censuses take place much less often than labour force surveys and cannot usually provide annual or more time-sensitive estimates for migrant flows or other important data series, although some economies, e.g., Hong Kong (China) and Mexico, currently conduct intercensal surveys allowing for more frequently updated information systems that are (close to) nationally representative. In receiving economies, population censuses can collect information on labour migrants' origin economies, and key labour market variables, as well as estimate inflows of labour migrants over five or 10-year periods, in most cases. And in sending economies, they can be an important source of return migration data, and stocks and outflows of citizens abroad for employment.

Table 9 shows information from the most recent populations census in each APEC economy, and flags whether or not they included key questions on international migration and key labour market indicators, which, among others, allow for the identification of three main reference groups: migrant stocks, migrant flows, and citizens abroad. In general, population censuses are more comprehensive than other data collection instruments, and economies are recommended by the UN to measure international migration through them. More often than not, population censuses contain questions on nationality/citizenship or place of birth, which are essential criteria for defining international migrants according to UN standards.²

From information collected in the APEC baseline survey, almost all economies can derive estimates of international labour migrant stocks, as well as profile them according to some of the key labour market indicators collected from their latest population censuses. However, one aspect of these censuses – which might affect comparability of estimates on the regional level – is the varying reference years for which the latest census data are available, namely 2010, 2016, 2017, 2018, or 2019. Other aspects that might compromise comparability of estimates from censuses are the use of different definitions of key labour market concepts and indicators, and different standards used for classifying them. Table 9 contains information about whether or not the economies are using common statistical standards to classify information gathered via population census.

² These international standards and definitions come from the UN Recommendation on Statistics of International Migration 1998; the UN Principles and Recommendations for Population and Housing Census Rev. 2 (2007) and Rev.3 (2014); the Migrant Workers (Supplementary Provisions) Convention, 1975 (No. 143); and the UN International Convention on the Protection of All Migrant Workers and Members of Their Families, 1990. See also ILO, 2018a.

Table 9 • Census data on international labour mobility, APEC members

APEC members	Latest year(s)	Key questions on migration				Key labour market indicators				
		Nationality	Birthplace	Previous residence*	Household members abroad	Labour force status	Education	Economic activity	Occupation	Status in employment
Australia	2011, 2016	•	•	One/Five years	–	•	•	•	•	•
Brunei Darussalam	2011, 2016	•	•	Five years	•	•	•	•	•	•
Canada	2011, 2016	•	•	One/Five years	–	•	•	•	•	•
Chile	2017	–	•	Five years	•	•	•	•	–	–
China	2000, 2010	–	–	–	–	•	•	•	•	•
Hong Kong, China	2011, 2016	•	•	Five years	–	0	0	0	•	•
Indonesia	2000, 2010	•	–	Five years	–	•	•	•	–	•
Japan	2010, 2015	•	–	Five years	–	•	•	•	0	–
Republic of Korea	2016, 2017	•	–	One year	–	•	•	•	•	•
Malaysia	2000, 2010	•	•	Five years	–	•	•	•	•	•
Mexico	2000, 2010	–	•	Up to five years	•	•	•	•	–	•
New Zealand	2013, 2018	–	•	One/Five years	•	•	•	•	•	•
Papua New Guinea	2000, 2011	–	–	–	–	•	–	–	–	–
Peru	2007, 2017	•	•	Five years	–	•	•	•	•	•
Philippines	2000, 2010	•	–	Five years	•	0	•	•	•	•
Russian Federation	2002, 2010	•	•	One year & duration	•	•	0	–	–	•
Singapore	2000, 2010	•	–	–	•	•	•	•	•	•
Chinese Taipei	2000, 2010	•	–	–	–	•	–	–	–	–
Thailand	2000, 2010	•	•	Previous	–	–	•	0	•	•
United States	2000, 2010	•	•	Five years	–	•	•	•	•	•
Viet Nam	2009, 2019	–	–	Five years	–	•	•	•	–	0

Notes: • indicates the variable is collected; 0 indicates the variable is collected but not based on a common standard; – indicates the variable is not collected. * Text indicates the length of time in the question (e.g., “previous” indicates the survey inquires where respondents’ last previous place of residence was; “one year” indicates the survey inquires where respondents were living one year ago).

Sources: Australia, Census of Population and Housing, Australian Bureau of Statistics; Brunei Darussalam, Population and Housing Census 2016, Department of Statistics, Department of Economic Planning and Development; Canada, Census of Population, Statistics Canada; Chile, Censo de Población y Vivienda Chile 2017; China, Population Census 2010, National Bureau of Statistics; Hong Kong, China, 2016 Population By-Census, Census and Statistics Department; Indonesia, Indonesia Population Census 2010, Statistics Indonesia; Japan, Population Census, Statistics Bureau, Ministry of Internal Affairs and Communications; Republic of Korea, Population and Housing Census 2010, Department of Statistics; Malaysia, Population and Housing Census 2010, National Statistical Office; Mexico, Censo de Población y Vivienda 2010, Instituto Nacional de Estadística y Geografía; New Zealand, 2018 Census of Population and Dwellings, Stats NZ; Papua New Guinea, National Population and Housing Census 2011, National Statistical Office; Peru, Censo Nacional de Población 2017, Instituto Nacional de Estadística e Informática; the Philippines, Census of Population and Housing 2010, Philippines Statistics Authority; the Russian Federation, Census of Russia's Population 2010 (IHSN, 2014); Singapore, Census of Population 2010, Department of Statistics Singapore; Chinese Taipei, 2010 Population and Housing Census, Directorate General of Budget Accounting and Statistics (DGBAS); Thailand, Population and Housing Census 2010, National Statistical Office; the United States, Decennial Census of Population and Housing 2010, Census Bureau; Viet Nam, Population and Housing Census 2009, General Statistics Office, Ministry of Planning and Investment.

5.1.3. Administrative records

Administrative records can be any data record used for administrative processes from which statistics can be compiled as a by-product. A few examples include population registers, employment office records, border admission records, and records of work permits issued. They are one of most accurate sources for registered international labour migration if governments from both sending and receiving

economies adopt regulatory frameworks that require locals who go abroad for work to register upon exit, entry, during the stay, and/or after returning to origin, under a determined administrative system.

Administrative records of international migration and labour migration can be based on different approaches, they can require (i) one-time-only registration; (ii) regularly renewed registration; or (iii) registration and deregistration of individual

Table 10 • Administrative data on international labour mobility, APEC members

APEC member		Agency responsible	Available since	Published	Scope	Key labour market variables				
Administrative records on incoming international migrants										
Australia	Overseas Arrivals and Departures, Department of Home Affairs		1976	-	-	-	-	-	-	-
Brunei Darussalam	Department of Statistics, Department of Economic Planning and Development Department of Immigration and National Registration, Ministry of Home Affairs		2006 2009	Statistical Yearbook Unpublished	All non-nationals	-	-	-	-	-
Canada	Landing Record, Immigration, Refugees and Citizenship Canada Immigration Database Employment Permits, Immigration, Refugees and Citizenship Canada		- - -	- - -	All non-nationals All non-citizens Workers	0	-	-	-	-
Chile	Segundo Registro de Chilenos en el Exterior, Dirección para la Comunidad de Chilenos en el Exterior y Instituto Nacional de Estadísticas, Ministerio de Relaciones Exteriores (Second Registry of Chileans Abroad, Directorate for the Community of Chileans Abroad and National Statistics Institute, Ministry of Foreign Affairs)		-	Online	Nationals abroad	•	•	-	-	-
China										
Hong Kong, China										
Indonesia	Administrative records for TKI and Foreign Workers, Directorate of Controlling of Foreign Employment, Ministry of Manpower and Transmigration		2009	-	Workers	-	0	0	-	-
Japan	Record of Border/Admission Statistics, Administrative records of the Ministry of Justice Statistics on the Foreigners Registered in Japan, Ministry of Justice Annual Report of Statistics on Legal Migrants Annual Report of Statistics on Japanese Nationals Overseas		1950 1947 - -	- - - -	- All non-citizens All non-citizens Nationals abroad	-	-	-	-	-
Republic of Korea	Statistics of Arrivals and Departures, Korea Immigration Service International Migration Statistics, Statistics Korea		1960 2000	- -	- -	-	-	-	-	-
Malaysia	Immigration Bureau, Ministry of Home Affairs		-	-	Workers	-	0	-	-	-
Mexico	Migration Policy Unit, National Migration Institute, Ministry of Interior		-	-	-	-	-	-	-	-
New Zealand										
Papua New Guinea										
Peru	Input and output movement, National Superintendence of Migration		2004	-	-	-	-	-	-	-
Philippines	Bureau of Immigration, Department of Justice Bureau of Local Employment, Department of Labour and Employment Registered Aliens, Bureau of Immigration Alien Employment Permits (AEPs) Issued to Foreign Nationals		2006 1978 1940 1990	Unpublished Unpublished - -	Workers Workers - -	• - - -	• - - -	• - - -	- - - -	- - - -
Russian Federation	Statistical Migration Records, Ministry of Internal Affairs Automated System of Analytical Reporting, The Federal Migration Service		- 1994	- -	- -	- -	- -	- -	- -	- -
Singapore	Department of Statistics Singapore and Ministry of Manpower		1991	Statistical Yearbook	Temporary residents	-	•	-	-	-
Chinese Taipei	Stock of Foreign Workers, Ministry of Labour The Stock of Foreign Workers for Special Professions or Technical Assignments, Ministry of Labour		1991 2004	- -	Workers Workers	- •	• •	- •	• •	- -
Thailand	Department of Employment, Ministry of Labour		2002	Unpublished	All non-nationals	-	•	•	-	-
United States										
Viet Nam	Ministry of Labour, Invalids and Social Affairs		2008	Online	Workers	-	-	-	-	-

Administrative records on outgoing citizens abroad

[illegible]

Notes: ● indicates the variable is collected; 0 indicates the variable is collected but not based on a common standard; – indicates the variable is not collected.

migrants. In the case of APEC, further research is needed on which administrative databases exist and to what extent they count.

Table 10 shows preliminary results from the baseline survey undertaken for this project. It shows, whenever the information was available:

- the name of records being compiled and the agency responsible for them;
- the year the source started;
- whether it is published; and
- its scope of data collection, whether on citizens, non citizens, residents, workers, etc.

The economies where administrative sources could not yet be mapped are China, Hong Kong (China), New Zealand, Papua New Guinea, and the United States. For the remaining APEC economies, administrative sources have been mapped predominantly in receiving economies, which are mostly measuring incoming international migrants and/or migrant workers. Nonetheless, some origin economies, like Indonesia, Mexico, the Philippines, and Viet Nam, are also gathering administrative data on outgoing nationals abroad for work and (some of them) on return workers as well.

Table 11 • Summary of main available data sources on international labour migrant stocks, flows and citizens abroad, by APEC member

APEC members	Labour force surveys			Population census			Administrative sources		
	Migrant stock	Migrant flow	Citizens abroad	Migrant stock	Migrant flow	Citizens abroad	Migrant stock	Migrant flow	Citizens abroad
Labour-receiving economies									
Australia	1	1	-	2016	2016	-	-	R	-
Brunei Darussalam	2017	2017	2017	2016	2016	2016	R	R	-
Canada	1	1	1	2016	2016	-	R	R	-
Chile	1	-	-	2017	2017	2017	-	-	R
Hong Kong, China	-	-	-	2016	2016	-	-	-	-
Japan	-	-	-	2015	2015	-	R	R	R
Republic of Korea	1	-	-	2017	2017	-	-	R	R
Malaysia	1	1	-	2010	2010	-	W	W	-
New Zealand	1	1	1	2018	2018	2018	-	-	-
Russian Federation	1	-	-	2010	2010	2010	-	R	-
Singapore	1	-	-	2010	-	2010	R	R	R
Chinese Taipei	-	-	-	2010	2010	2010	W	-	W
Thailand	-	*	-	2010	2010	-	R	R	W
United States	1	-	-	2010	2010	-	-	-	-
Labour-sending economies									
China	-	-	-	-	-	-	-	-	-
Indonesia	1	-	-	2010	2010	-	-	W	Wr
Mexico	1	-	1	2010	2010	2010	R	-	R
Papua New Guinea	-	-	-	-	-	-	R	-	-
Peru	-	-	-	2017	2017	-	R	-	-
Philippines	-	-	1	2010	2010	2010	R	W	W
Viet Nam	1	1	-	-	2009	-	-	W	W

Notes: - = the information appears not to be collected or has not been shared.

"Migrant stock" indicators considered here are included in ILMS module A; "migrant flow" indicators correspond to ILMS module B; and "citizens abroad" indicators correspond to ILMS module C (see Box 1 above). Table prepared by author based on research findings presented in section 5.1 of this report.

"1" indicates data are collected regularly on all international migrants (including undocumented migrants and non-workers). A given year indicates the data are collected infrequently and shows the latest year for which they are available. "R" indicates data are collected regularly but only on registered migrants. "W" indicates data are collected regularly but only on registered migrant workers. "r" indicates data are collected regularly on return migration. * Some data are collected on the inflow of international migrants and return migrants combined.

5.1.4. Summary of main types of data sources

This section summarizes the metadata presented in the previous sub-sections on international labour migration. Based on the baseline survey, Table 11 shows a summary of the latest available instruments for estimating stocks and flows of international labour migrants, as well as citizens abroad (either their stock or the outflow), by type of data source and APEC economy.

5.2. Recommendations on economy and regional levels to improve data availability and comparability

5.2.1. Recommendations by source of data

Labour force surveys

Australia, Brunei Darussalam, Canada, the Republic of Korea, Malaysia, the Russian Federation, Singapore, and the United States are the APEC receiving economies whose labour mobility statistics from their latest LFS are the most thorough according to the set of core indicators and variables assessed in this baseline report. Among these economies, however, there exists variation of the definition of 'international migration', which can affect comparability of domestic estimates on the regional level, but does not conflict with general 20th ICLS guidelines for labour migration statistics. In fact, the latest guidelines recommend that international migrants may be considered as those residents who have changed their country of usual residence, and who, for practical reasons and for the purposes of measurement, can be defined based on birthplace, citizenship, or last usual residence (ILO, 2018a). LFSs in economies like Brunei Darussalam and the United States contain information on both definitions widely used in APEC – i.e., nationality/citizenship and birthplace – which allows for wider scope and more accurate data analyses across economies.

Measurement of flows of international migrants – namely (i) the inflow of for-work international migrants; (ii) the inflow of international migrant workers; and (iii) the outflow of international migrant workers (ILO, 2018a) – through LFSs in these destination economies could be complemented with the inclusion of relevant question items as listed in Box 2 above, according to the 20th ICLS guidelines on labour migration statistics.

Brunei Darussalam's LFS is considered one of the most complete within APEC; however, it has taken place much less frequently than in other economies, which puts a constraint on both domestic and regional labour market information systems. Thus, in addition to the recommendations above, increasing the frequency of the LFS in Brunei Darussalam, as well as assuring that Papua New Guinea can also collect

regular and reliable labour market statistics, seem paramount for improving the availability and quality of information produced from LFSs within the economies in the region.

For Chile, Japan, Chinese Taipei, and Thailand, current LFSs still have large space for improvement in terms of identification of international migrant workers within the resident labour force, as these economies either:

1. do not cover foreign residents in survey samples, i.e., samples are only covering citizens or the sample needs to be updated to include more recent labour migration movements and become representative of the total resident population; or
2. do not currently contain main data collection items necessary to build core indicators on labour migration, such as residents' citizenship/nationality, place of birth and place of usual residence (INE 2018; Statistics Bureau Japan 2018; National Statistics 2019).

Chile and Mexico are among the economies where current survey samples do not seem to allow for reliable estimates on international labour migration, even with the topic being included in the surveys to some extent.

Hong Kong, China currently collects quarterly labour force data through the General Household Survey, which also collects demographic and socio-economic characteristics of the population but does not identify international migrants or international migrant workers. Nor does the survey contain data collection items sufficient to estimate cross-border movements of citizen workers. The economy does not seem to have a separate labour force survey that is specifically designed to derive labour market statistics.

Among migrant worker origin economies in APEC, Indonesia, Mexico, and Viet Nam are collecting some information through quarterly LFSs, but in the case of Mexico, international labour migration estimates from the LFS are poor due to the sample issues mentioned above. The Philippines' LFS collects data for an "Overseas Filipino Indicator" that can produce estimates on Filipino workers abroad. In addition, the Survey on Overseas Filipinos, which is based on the sample of the LFS, produces quarterly estimates of "overseas Filipino workers" according to their socio-economic and remittances characteristics.

China and Peru are the current APEC labour-sending economies where basic data collection items on international migrant workers seem to be missing from the latest LFSs. And for Papua New Guinea, no relatively recent LFS has been conducted.

To improve labour mobility information within APEC and to facilitate monitoring of recent cross-border movements of workers, all the sending economies can improve on their latest LFS data on stocks and flows of household members abroad for work, and stocks and inflows of return international migrant workers (ILO, 2018a). The Philippines seems to be the only APEC origin economy where citizen workers abroad and remittances are currently being estimated through a specific household-based sample survey.³

Analyses of other household-based surveys from the APEC economies, e.g., socio-economic surveys, can add to the findings of this section of the baseline report, as many economies conduct relevant surveys that can provide valuable statistics on labour migration, at least to some extent, which could complement findings and potentially close information gaps from the LFSs, population censuses, administrative records, and other sources.

Population censuses

All APEC destination economies latest population census cover two of the main reference groups summarized in Table 11 – namely international migrant stocks and flows – with the exception of Singapore's population census, which covers stocks and citizens abroad. Brunei Darussalam, Chile, New Zealand, the Russian Federation, and Chinese Taipei censuses cover all three groups – that is, international migrant stocks, international migrant flows, and citizens abroad. However, only Brunei Darussalam and New Zealand's population censuses also cover all key labour market indicators assessed in this baseline study and follow international standards for concepts, definitions, and classifications for these indicators (as seen in table 9). The other economies where current data collection from censuses follows common standards for the key labour market indicators (even if the census does not cover all reference groups) are Australia, Canada, China, Indonesia, Republic of Korea, Malaysia, Peru, Singapore, and the United States.

In general, population census data collection in the APEC region can be improved in terms of measurement of core indicators of international migration and of international labour migration stocks and movements. The 14 economies whose censuses are not yet producing these core estimates for all of the three main reference groups – i.e., stocks, flows, and workers abroad – can increment current questions or

include additional ones to assure these essential population and labour estimates will be part of future censuses, and that they will be comparable with estimates from other economies in order to improve and assure quality and completeness of regional labour market information systems.

Administrative sources

For 11 APEC destination economies, at least one administrative data source has been identified that collects data about international labour migration, covering the identification of migrant stocks or flows to a certain extent – though not necessarily disaggregated by key labour market variables. For almost all origin economies, with the exception of China and Papua New Guinea, administrative records have been mapped and are also covering at least one of these two reference groups. With regards to coverage of citizens abroad, four APEC origin economies have at least one administrative source covering outflow of citizens to some extent – with Indonesia, the Philippines, and Viet Nam having consistently collected data on the outflow of citizens for employment in recent years. Economies that are outside of the baseline mapping of administrative sources measuring labour outmigration include Australia, Brunei Darussalam, Canada, Hong Kong (China), Malaysia, New Zealand, the Russian Federation, and the United States. These economies likely do collect information on outgoing citizens for work; however, extensive information for some of these economies could not be gathered during the baseline research.

In general, further multilateral efforts will be important in moving ahead to complete the mapping of these administrative sources within APEC economies, and to assess possible gaps in the information currently collected by their administrative systems, as well as gaps in domestic and regional labour migration information systems. From then, it will be possible to make complete assessments on whether inward and outward labour migration movements are being monitored, and according to which socio-economic or labour market characteristics, if any. Assuring that these statistics are consistent – and based on agreed international standards – within and across economies in the APEC region (or at least identifying ways in which consistency can be improved) will also further and strengthen the development of a regional labour market information system.

³ Survey on Overseas Filipinos, Philippines Statistics Authority. Overseas Filipino workers (OFWs) include overseas contract workers who were presently and temporarily out of the Philippines during the reference period to fulfill an overseas contract for a specific length of time, or who were presently at home on vacation during the reference period but still had an existing contract to work abroad. Also included were other Filipino workers abroad with valid working visas or work permits. Those who had no working visa or work permit (tourists, visitors, students, those seeking medical treatment, and other types of non-immigrants) but were presently employed and working full time in other economies were also classified as OFWs.

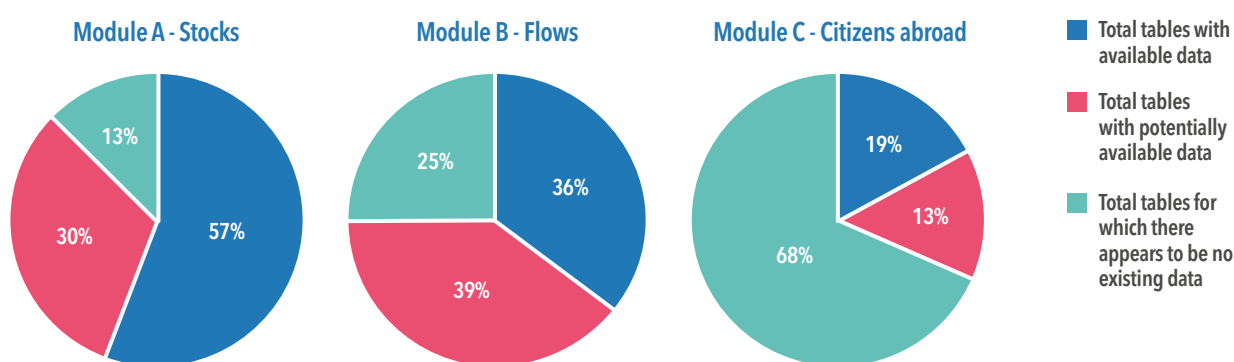
5.2.2. Recommendations by ILMS module

As stated in box 1 above, core international labour migration statistics (ILMS) collected by the ILO fall into three modules – international migrant stocks; international migrant flows; and citizens abroad – which are further sub-divided into 20 statistical tables. ILMS for APEC members that were examined for the baseline report under the three modules give an approximation of what labour mobility statistics are being produced and shared within APEC. Further research and input from the economies should add to these baseline findings.

Findings from the baseline research show mapped data gaps that can potentially be filled with stronger cooperation efforts and improved data-sharing and harmonizing practices, as well as gaps for which there appears to be no existing data, and which would require stronger, more focused domestic and regional efforts and technical capacity building.

Table 12 below summarizes all the data for the core ILMS indicators for each APEC member, according to whether the data is available or missing, and if missing, whether or not the gap can be closed using existent data mapped by the baseline

Figure 32 • Completeness of ILMS data collection in APEC, by module



Module A is on "international migrant stock"; Module B "international migrant flow"; and Module C "citizens abroad". Dark blue indicates at least one observation (i.e., one year) has been collected for a given ILMS table by economy; light blue indicates that the relevant data have been mapped and appear to exist but are produced under national standards or were not shared; grey indicates that the relevant data could not be mapped and appear not to exist.

Notes: Data for 19 APEC economies were used for estimating these figures (China and Papua New Guinea are not included due to insufficient information publicly available). Sources considered were population censuses, labour force surveys and administrative sources, as cited in section 5.1.

Data source: Author's calculation.

research. Table 12 is organized along the lines of the ILMS collected by the ILO, presenting the three modules and their associated statistical tables, and indicating for each statistical table the current availability of the relevant data from each APEC economy. Figure 32 presents a broad overview of the completeness of ILMS data collection across the whole of the APEC region for each of the three modules.

Module A: International migrant stock

ILMS data collection Module A, on international migrant stocks, is the module for which the core indicators assessed are the most shared and widely available among APEC economies, and thus data for this module have been more easily mapped. Only 13 per cent of the data in this module could not be mapped during baseline research or does not seem to exist. Table 12 shows the Module A indicators that are more often collected by economies within APEC, these include: (i) stock of international migrants by sex and age; and (ii) stock of working-age migrants by sex, age, and labour force status.

More than a third, 43 per cent, of indicators by economy in this module have gaps (figure 32). Gaps in this regard refer to two possible types: (i) unmapped gaps, wherein the data for a given indicator does not exist or could not be found during the baseline mapping, or (ii) mapped gaps, wherein the relevant data have been mapped and appear to exist, but were either not shared or were collected under national standards that may not be wholly compatible with international standards.

Unmapped gaps within measurement of stocks correspond to economies like Chile, Chinese Taipei, Thailand, and Viet Nam, and mainly for the indicator on average wages by sex and birthplace or citizenship status. Eight economies do not have data for this measure (or at least data could not be found during the baseline mapping). Indicators on (i) stock of employed migrants by occupation and (ii) stock of employed migrants by status in employment are second in terms of the number of economies where data do not exist or have not been mapped, as seen in table 12.

Mapped gaps in ILMs Module A amount to 30 per cent of its data across the APEC region, and these gaps correspond mainly to the following economies: Hong Kong (China), Peru, the Russian Federation, Singapore, and the United States. The top two core indicators with the most mapped gaps are on (i) stock of employed migrants by economic activity; and (ii) stock of employed migrants by status in employment, which are classified in the ILO ILMs based on latest ISIC and ICSE, respectively.

Module B: International migrant flow

More than one third of data under Module B on international migration flows is currently collected and shared by APEC economies, as seen in table 12. The one indicator that is most often collected in APEC – by 9 out of 21 economies – is on inflow of migrants by sex and place of birth or citizenship.

Total gaps in Module B correspond to 64 per cent of indicators per economy (figure 32). Moreover, Module B has the biggest number of mapped gaps in relation to the other ILMs modules, with almost 40 per cent of data corresponding to data that exist but have not been shared or are not collected based on international statistical standards. The majority of APEC economies have mapped gaps on the following two indicators: (i) inflow of working-age migrants by sex and education; and (ii) inflow of employed migrants by sex and economic activity. Canada, Hong Kong (China), Japan, Mexico, New Zealand, Peru, and the United States are some of the economies where mapped gaps in this module are more numerous.

Module B data that are not being collected by APEC economies correspond to 25 per cent of total data for the module. The indicator on inflow of employed migrants by occupation or job skills-level – which is based on the ISCO – is collected by the fewest economies in the region, as it has not appeared in the baseline mapping of one third of APEC economies, including: Brunei Darussalam, Chile, Republic of Korea, Mexico, the Russian Federation, Singapore, and Chinese Taipei.

Module C: Citizens abroad

Module C on citizens abroad is the module in which the least data have been shared or produced by APEC economies, with only roughly 20 per cent of the module completed. The indicator most often collected is on outflow of migrant workers by sex and place of destination, and only five out of the 21 APEC economies seem to be able to estimate this indicator, namely Chile, Indonesia, the Philippines, Thailand, and Viet Nam.

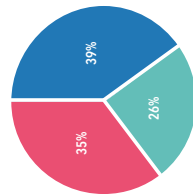
Total gaps in this module make up more than 80 percent of indicators by economy (figure 32). Only 13 percent of data for indicators in this module correspond to mapped gaps. The indicator with most mapped gaps is on return migrants by sex and place of previous residence, for which data either remain to be shared or to be harmonized according to international standards by eight economies: Chile, Hong Kong (China), Japan, New Zealand, Peru, the Russian Federation, Singapore, and the United States.

The remaining gaps – or 68 per cent of the module – are unmapped gaps, or gaps for which no data seem to be currently available. At least two-thirds of APEC economies have unmapped gaps for the following three indicators: (i) outflows of migrant workers by sex and education; (ii) outflows of migrant workers by sector of economic activity; and (iii) outflows of migrant workers by occupation or job-skill level. Economies that have data for at least one of these indicators are Chile, Indonesia, the Philippines, and Thailand.

Table 12 • Concise summary of the ILMS data collected, by APEC economy (2019)

MODULE/TABLE		TOTAL (•)	TOTAL (o)	TOTAL (-)
MODULE A. International migrant stock				
Population by sex, age, and place of birth or citizenship	•	•	•	•
Working-age population by sex, age, labour force status, and place of birth or citizenship	•	•	•	•
Working-age population by sex, education, and place of birth or citizenship	•	•	•	•
Foreign-born/non-citizen population by sex and place of birth or citizenship	•	•	•	•
Employed foreign-born/non-citizen persons by sex and place of birth or citizenship	•	•	•	•
Employment by sex, economic activity, and place of birth or citizenship	•	•	•	•
Employment by sex, occupation, and place of birth or citizenship	•	•	•	•
Employment by sex, status in employment, and place of birth or citizenship	•	•	•	•
Mean nominal monthly earnings by sex and place of birth or citizenship (Local currency)	•	•	•	•
MODULE B. International migrant flow				
Inflow of foreign-born/non-citizen population by sex and place of birth or citizenship	•	•	•	•
Inflow of foreign-born/non-citizen working-age population by sex and education	•	•	•	•
Inflow of foreign-born/non-citizen employed persons by sex and economic activity	•	•	•	•
Inflow of foreign-born/non-citizen employed persons by sex and occupation	•	•	•	•
MODULE C. Citizens abroad				
Stock of citizens abroad by sex and place of residence	-	•	-	•
Inflow of citizens returned from abroad by sex and place of previous residence	•	•	•	•
Outflow of citizens by sex and place of destination	-	-	•	-
Outflow of citizens for employment by sex and place of destination	-	-	•	•
Outflow of citizens for employment by sex and education	-	•	-	•
Outflow of citizens for employment by sex and economic activity	-	•	-	•
Outflow of citizens for employment by sex and occupation	-	-	•	-
TOTAL NUMBER OF TABLES COLLECTED BY 2019 (•):	14	9	11	9
TOTAL POTENTIAL TABLES STILL TO BE COLLECTED (O):	0	1	3	6
GAPS	6	10	6	5
Total tables for which there appear to be no existing data (-):				

<



Notes: • indicates at least one observation (i.e., one year) has been collected for a given table.
+ indicates at least one observation has been partially collected, but the data for the missing part does not appear to exist (i.e., for tables with "total and migrants")
o indicates that the relevant data appear to exist but are produced under domestic standards or were not shared so far.
- indicates that the relevant data appear not to exist (to the best of our knowledge).



06

Identifying labour and skill shortages in APEC economies

Labour shortages occur when the supply of persons does not meet labour demand. Such shortages can be absolute – that is, skilled persons required by employers simply do not exist in the numbers required – or relative, which means there could be various reasons (mobility, wages, conditions of work, etc.) that discourage local workers from filling certain jobs.

Labour shortages are hard to forecast. It has been argued that often analysing trends and changes in the labour market is more useful than carrying out mechanistic forecasts (ILO, 2009b). Flexible mechanisms for identifying and meeting labour demand that are close to economic realities and that involve social partners in decision-making on migration planning are often the most effective.

There are many ways for governments to react to labour and skills shortages. Many economies use certification systems that require employers to try first to recruit local workers while offering government-set wages and working conditions. Under these systems, employers are certified to recruit foreign workers if this recruitment effort fails. Alternatively, many economies have established a quota system for selected occupations, in which a specified number of migrant workers are admitted in shortage occupations, which are identified based on available labour market information and forecasts. Yet another approach is to charge a levy on employers as a disincentive for hiring migrant workers and to encourage domestic hiring. This approach dispenses with quotas at an economy or sector level, and instead puts it at an enterprise level linked to the number of locals employed (called a dependency ratio).

All of the above approaches are employer led; that is, subject to an individual or generalized labour market test, or a levy and enterprise level quota, admission depends on a job offer. Economies like Australia and Canada, however, also have a points-based system that is not employer led. Points based selection assigns applicants points for a variety of attributes (including in particular skills) and characteristics deemed essential to policy-makers. Successfully admitted workers join the national labour pool and apply for jobs.

Linking labour mobility policy to the domestic labour market is a complex task (ILO, 2009a). This complexity is particularly related to the concepts and measures required. Taking labour shortages measurement as an example, there is no unanimously agreed definition or measurement method at the international level. Nonetheless, operative definitions are generally agreed and established in line with policy objectives and tools in place. This chapter presents an overview of the data sources and methodologies used by APEC economies to conduct systematic assessments of their labour and skills shortages.

Information on current tools and practices in section 6.2 are based on economy-level feedback provided by APEC members as well as from secondary sources.¹

6.1. APEC-commissioned studies

The APEC Human Resource Development Working Group has conducted a few thematic cross-country reviews with the aim to share knowledge among member economies on specific tools to counter unemployment and to face talent mismatch (APEC, 2012). This section provides a review of relevant APEC publications on trends and best practices in the identification and mitigation of labour and skills shortages.

Across APEC economies, skills shortages inhibit economic development and investments, and prevent businesses from scaling up operations, meeting demand in new markets and introducing new products and services (APEC, 2014). Skills shortages thus directly hamper business competitiveness and productivity (APEC, 2017d). A key driver of skills mismatches in the APEC region is the information asymmetry between the suppliers and users of labour services. This market imperfection may best be addressed by public sector agencies, as private sector entities engaged in labour market transactions tend not to provide the adequate level of information, particularly if lacking the incentives to do so. While APEC governments are increasingly assuming the responsibility of addressing this information asymmetry with a view to correct market imperfections and promote public interest, there is ongoing debate on which type of labour market information is required and how, when, and by whom the relevant information should be disseminated (APEC, 2012).

¹ A questionnaire on indicators, methodologies and data sources for identifying labour and skills shortages was sent to 17 APEC economies. Replies were received from Australia, Hong Kong (China), Republic of Korea, Malaysia, Papua New Guinea, Peru, the Russian Federation, Chinese Taipei, and Thailand. For Canada, Mexico, the Russian Federation, and the United States, the information was gathered and analysed directly by national/regional experts.

Regarding the required type of labour market information, the literature suggests that information is required at macro, industry, and firm levels both on the demand and supply dynamics. Accordingly, data on the demand side should include:

- macro-economic and labour force data that can be provided by government agencies;
- industry-level data on the state of employment, skills needs of the industry, and skills shortages in the medium term;
- and to the degree feasible, firm-level data on skills requirements, on type of occupations, on wage rates, and on the working environment.

Data on the supply side should include:

- macro-economic data comprising educational trends such as enrollment trends, graduates by programmes, and school participation rates at national and regional level;
- industry-level data on graduates of technical and vocational courses and graduates of higher education institutions;
- and information from higher education institutions on the number and quality of graduates, performance in exams, programmes offered, as well as the skills and aptitude of graduates.

While the data producers for the respective levels of information are easily identified, a key challenge lies in ensuring that these entities generate the appropriate information in a regular and timely manner (APEC, 2012). As outlined in section 6.3, the emergence of new data sources, such as big data analytics and private sector data aggregated by international recruitment and staffing companies may contribute to reducing information asymmetry.

In addition, a major challenge for the APEC economies is to develop a region-wide measure of skills mismatches that can be used by all member economies. While most APEC economies have occupation and industry classification systems that are aligned with the ISCO and ISIC (see chapter 4.4), the data is often only partially comparable, as periods of data collection are infrequent and national systems differ with regards to emerging occupations, and often lack up-to-date concordances. Also, there are currently no on-going multilateral data collection that are adequate for monitoring labour market imbalances across APEC. The absence of a regional national qualifications framework further complicates

the identification of skill imbalances and the compilation of reliable data on the stocks and flows of qualifications (APEC, 2014).

Concerning the channels of transmission of labour market information, best practices point to the integrated use of online (dedicated job portals, social media) and offline (classified ads, job fairs, face-to-face contacts at Public Employment Services) dissemination channels. APEC economies have explored different strategies to facilitate the dissemination of pertinent labour market information. For instance, in New Zealand a user-friendly online skills shortage checker has been developed to allow potential foreign applicants to check if their occupation of choice is on any of the skill shortage lists.² In Australia, the Australian Jobs publication provides an overview of trends in the Australian labour market aimed at supporting a wide range of users, including jobseekers, recruiters, businesses, and training providers.³ In the Philippines, the private sector is represented in the technical panels of various disciplines in higher education, in order to facilitate the development of curricula offered by various training and educational institutions.

In addition to deploying multiple channels of transmission to optimize dissemination, maintaining an adequate frequency of transmission is key to ensuring that users receive relevant and up-to-date labour market information. However, increasing the frequency of transmission of labour market information to address information asymmetry is beneficial only if the underlying data is adequate and up-to-date. Indeed, the dissemination of outdated information may increase, rather than decrease information asymmetry (APEC, 2012).

The presence of comprehensive, adequate, and up-to-date labour market information in and of itself is not sufficient to address skills shortages and mismatches. Most industrialized APEC economies already address identified skills shortages through the combined use of training and mobility programmes. Skills-sensitive mobility frameworks require the creation of mutual recognition arrangements (MRAs) between APEC economies. Numerous bilateral and multilateral initiatives involving APEC economies have already shown promising results in terms of increasing the mobility of skilled migrant workers; enhancing the identification and benchmarking of occupational skills; improving national standards for professional education; encouraging cooperation between government agencies, academia, and industry partners; and helping international employers to identify and recruit skilled local employees in countries of origin. Findings suggest that the elaboration of MRAs benefits

² See: <https://skillshortages.immigration.govt.nz/>.

³ See: <https://australianjobs.employment.gov.au/>.

from the involvement of a wide range of stakeholders (e.g., multiple governmental departments/ministries, regulatory bodies, employer organizations, professional organizations, educational and training institutions, etc.) and from gradual expansion through small groups of economies with similar characteristics and priorities (APEC, 2017e).

6.2. Systematic assessments of labour market requirements

In most APEC economies admission for work is employer-led, and often begins with an employer's request. However, data and systematic assessment can help governments respond to employer requests for migrant workers more effectively through shortage lists and similar initiatives. APEC economies making a systematic assessment (to a lesser or greater extent) of skills and labour shortages include Australia, Canada, China, Hong Kong (China), Japan, Republic of Korea, Malaysia, the Russian Federation, Singapore, and the United States.

The Australian Government has skilled occupation lists that – in combination with other requirements in migration law – subject Australia's skilled permanent and temporary visa applicants to labour market needs. Information on these lists – comprising the Short-Term Skilled Occupations List (STSOL); Medium Long-Term Strategic Skills List (MLTSSL); and Regional Occupations List (ROL) – and their application to permanent and temporary visa programmes is available on the Department of Home Affairs' website.⁴ The Department of Jobs and Small Business regularly reviews these lists and conducts consultations to determine Australia's skilled workforce needs and whether occupations need to be added to or removed from the lists to meet these needs. The website of the Department of Jobs and Small Business includes information on its role in the skilled occupations lists, including an information paper on the labour market analysis methodology.⁵

Also, it should be noted that labour market testing requirements mainly apply to the employer-sponsored skilled categories, and not to other categories of temporary visa holders with a work rights (which in total numbers contribute significantly to both net overseas migration to Australia and to the workforce available to Australian industry).

Frequency: In April 2017, the Australian Government announced reforms to its permanent and temporary skilled visa programmes, including the timeframe for implementation and updates to the STSOL, MLTSSL, and ROL. The STSOL and MLTSSL officially replaced the Consolidated Sponsored Occupation

List on 18 April 2017, with updates conducted in July 2017, January 2018 and March 2018, when the ROL was introduced. Henceforth, the Department of Jobs and Small Business will regularly undertake labour market analysis for all ANZSCO Skill Level 1 to 3 occupations and other occupations that were previously on the Consolidated Sponsored Occupation List for skilled migration – about 650 skilled occupations.

Canada: Beginning 1 January 2015, immigrants may be admitted under the Express Entry Pool of the Federal Skilled Worker or Trades Program or the Canadian Experience Class to cope with skill shortages.⁶ There are over 300 express-entry occupations drawn from the National Occupational Classification list, with highest priority for accountants, nurses, and engineers.

Foreigners who qualify must have at least one year of experience in one of these occupations at Skill Type 0 (Managerial Occupations), Skill Level A (Professional Occupations), or Skill Level B (Technical Occupations and Skilled Trades), and score at least 67 points on the 100-point test that awards points for education, youth, English or French language ability, and other factors. The highest-ranked candidates in the Express Entry Pool are invited to apply for immigrant visas.

There are three routes into the Express Entry Pool from which candidates for immigrant visas are drawn. The Canadian Experience Class requires at least one year of recent Canadian work experience, but no job offer. The Federal Skilled Worker Program requires one year of experience in Canada or elsewhere and awards more points if the candidate has a Canadian job offer. The Federal Skilled Trades Program requires two years of recent work experience and a Canadian job offer or Canadian license or certificate attesting to worker skills. Hundreds of agents advertise the occupations that qualify for the Express Entry Pool and offer to help would-be immigrants to navigate the process of securing an immigrant visa. Canada generates extensive labour market data, including on open jobs and the wages employers are offering to fill them. The federal immigration programme offers expedited immigrant visas to foreigners with skills and experience in over 300 occupations, provided the foreigner also qualifies for entry under the points system that awards points for English or French, youth, and education.

Chile: The Government of Chile, through the Labor Observatory of the Servicio Nacional de Capacitación y Empleo (SENCE – National Training and Employment Service), systematically generates information on the gaps between supply and

⁴ See: <https://immi.homeaffairs.gov.au/visas/working-in-australia/skill-occupation-list>.

⁵ See: <https://www.employment.gov.au/SkilledMigrationList>.

⁶ See: www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/express-entry.html.

demand for occupations and skills at the regional and sectoral levels. The key mission of the regional network of observatories is to generate primary information on human capital gaps according to a standardized methodology, with a focus on short-, medium- and long-term labour and skills mismatches. Based on the labour market statistics, the observatory produces regional forecasts on labour demand by occupational profiles and provides data on the wages employers are offering to fill them.⁷ This information in turn is used to create a list of critical occupations and skills that are most in demand by region,⁸ as well as to determine the entry requirements for SENCE's training portfolio (OECD, 2016).

Frequency: The information generated by the SENCE includes multiple sources with different periodicity. The National Labour Demand Survey and in-depth interviews with sectoral stakeholders are conducted annually, targeting four different economic sectors each year. The National Employment Survey is conducted on a monthly basis. The forecast for occupational labour demand (with a three-year horizon) is updated at an annual rate.

China: The gradual restructuring of the Chinese economy, which requires large numbers of educated and skilled workers, coincides with a contraction of the size of China's domestic workforce. While initiatives to attract talent from overseas have hitherto focused on highly-skilled Chinese citizens living abroad, current and future labour shortages in key sectors require the recruitment of foreign workers. As a consequence, from 2015 onwards, local authorities in Beijing and Shanghai have launched initiatives to recruit highly skilled foreigners, including through facilitated visa acquisition, relaxed rules for permanent residency, and better provisions for spouses and children.

In 2016, the State Administration of Foreign Experts Affairs began a database of overseas talent to improve their integration into the Chinese workforce. Based on the identification of labour and skills needs deemed critical for the Chinese economy, central, regional (provincial), and local (city) governments have developed foreign talent attraction schemes (ILO, 2017a). However, official websites do not provide evidence of the Government engaging in systematic monitoring of labour market shortages across occupations or industry sectors.

Frequency: There does not appear to be any regular comprehensive monitoring of labour market shortages by occupations or industry sectors.

Hong Kong, China: The Government of Hong Kong, China has begun to publish a "Talent List" of specific high-skilled profiles required by the labour market in Hong Kong, China. In addition, the Government occasionally conducts studies and surveys to, inter alia, assess the supply of and demand for manpower. For example, the Government of Hong Kong, China has been conducting Manpower Projections to assess the future manpower supply of Hong Kong, China at the macro level and demand in the medium term, and to assess whether there is any potential imbalance between the supply and demand of manpower across different educational levels. The Quarterly Report of Employment and Vacancies Statistics published by the Census and Statistics Department of the Government of Hong Kong, China presents up-to-date statistics on persons engaged and vacancies analysed by industry.

For high-skilled talents who can support the development of Hong Kong, China into a high value-added and diversified economy, a consultancy study on drawing up a talent list for Hong Kong, China was conducted. The finalized first Talent List containing 11 professions was promulgated in August 2018.

Frequency: Surveys are mostly done quarterly. Starting from 1989, the Manpower Projection Reports were published in 1990, 1992, 1994, 2000, 2003, 2012, and 2015. Also, the Quarterly Report of Employment and Vacancies Statistics published by the Census and Statistics Department are released in March, June, September, and December each year. The Talent List will be regularly updated to ensure that it can keep up with the latest economic developments and the changing needs for different talents in Hong Kong, China.

Japan has the highest old-age dependency ratio of all OECD countries, with a ratio in 2017 of over 50 persons aged 65 and above for every 100 persons aged 20 to 64 (OECD, 2018). Faced with a structural shortage of labour driven primarily by low demographic growth, Japan established the Highly Skilled Foreign Professional (HSFP) visa scheme in 2012 as part of its Points-based Preferential Immigration Treatment for Highly Skilled Foreign Professionals programme (Kitao, 2018). This new scheme, administered by the Ministry of Justice, is a hybrid approach combining market- and skills-based systems. In line with other market-based systems, prospective foreign workers must first obtain a job from a Japanese employer but, the HSFP visa also requires the applicant to score above a certain threshold of points in a range of categories in order to qualify (ILO, 2017a). The Government of Japan enacted a new

⁷ See: <http://www.observatorionacional.cl/ocupaciones>.

⁸ Available on the Labour Observatory website: www.observatorionacional.cl.

The Government of Japan invests considerable resources into assessing the state and directions of Japan's long-term employment systems in order to develop evidence-based strategies aimed to cope with an ageing population and a changing industrial structure. However, the most detailed information on labour and skills shortages in Japan is produced by private sector stakeholders and human resource companies, which generally rely on micro surveys in combination with official labour market statistics.

In order to address labour shortages in critical industrial fields, the Government of Japan established a system in which the heads of the administrative organizations in charge of specific industrial fields monitor the labour shortage situation in each field. When a change is observed, the relevant administrative organizations of the system and those who are in charge of the specified industrial fields will discuss future policies. For this purpose, the Japan Institute for Labour Policy and Training conducts inter-disciplinary research in cooperation with relevant line ministries on issues including employment systems, technological innovation, needs-based skills development, worker and corporate behaviour strategies, and other strategic domains that inform policy formulation and action planning. However, as noted above, the most detailed information on labour and skills shortages in Japan is produced by private sector stakeholders and human resource companies.

Frequency: Labour Force Surveys are conducted monthly, and additional reports are published quarterly and annually. In addition, irregular ad hoc studies are conducted to assess labour and skills needs.

Republic of Korea: The Korean Government, through the Foreign Workforce Policy Committee, sets a quota for foreign workers for the next year by soliciting opinions from industry and experts. Every year, the relevant government authorities draw up a list of companies seeking to hire foreign workers that is used to allocate foreign workers among the companies in the order of their employment eligibility. The Foreign Workforce Policy Committee convenes a working group meeting prior to its decision on the year's quota for foreign workers to gather the opinions and thoughts of employers and trade unions. The Foreign Workforce Policy Committee, which is led by the Ministry of Employment and Labor, consists of high-ranking officials from 12 government ministries. The Committee deliberates and decides on matters such as the annual quota and management of foreign workers.

Frequency: Most surveys are done annually, with several publications made monthly. The Report on the Occupational Labour Force Survey at Establishments is a biannual, open source publication that identifies the number and rate of vacancies by industry and occupation. The decisions are made by the Foreign Workforce Policy Committee at the end of each year.

Malaysia develops a Critical Occupations List (COL), which is a list of occupations for which there is strong evidence of a significant labour market shortage that may be alleviated through government action. Occupations on the COL meet the criteria of being skilled, sought after, and strategic, and the list has been updated yearly since 2015. Similar to Singapore's twin-track policy on labour migration, Malaysia maintains a distinction between migrants who are "contract foreign workers" (workers in elementary occupations) and those who are "expatriates" (high-skilled workers in managerial, professional, or technical positions). The COL pertains to the latter. A Multi-Tier Levy System (MTLS) will be applied in the six approved economic sectors and subsectors in which foreign workers may be employed. These are the economic sectors covering: agriculture, plantations, manufacturing, mining and quarrying, construction, and services. For the services sector, certain sub-sectors are authorized to employ foreign workers. The MTLS combines a pricing mechanism (levy) and enterprise level quota (dependency ratio) to regulate the employment of foreign workers.

Mexico: There are many articles about skills shortages in particular sectors, but no government lists of occupations and industries with skill shortages.⁹ Some private recruitment and staffing firms – including Manpower, Michael Page, and Hays – make labour market assessments that highlight skills mismatches between the skills workers have and what employers demand.¹⁰ Most analyses of the Mexican labour market begin with the fact that a majority of employees are not in formal sector jobs, and conclude that Mexico must raise the quality and quantity of education for its workers.¹¹

The OECD reviews of Mexico's labour market highlight the fact that better educated workers do not necessarily have lower unemployment rates because most workers are employed in the informal sector. The OECD calls for changes in government policies to upgrade educational systems, and calls on business to provide training to their current employees. In 2015, the OECD found that almost a third of Mexican firms reported difficulty finding the skills they want – twice the 15 per cent average among all firms in OECD countries – but noted that

⁹ See <https://www.bakerinstitute.org/news/mexicos-skilled-labor-shortage/>.

¹⁰ See: <http://www.hays-index.com/country/mexico>.

¹¹ See: www.weforum.org/agenda/2017/03/in-latin-america-companies-still-can-t-find-the-skilled-workers-they-need/.

Mexican firms also invest less than the OECD average in their employees' training (OECD, 2015). Mexico does not maintain any type of skills shortage list that could be the basis for other economies' education and training systems. Instead, there are private assessments of needed skills and employer complaints of skill shortages, but as previously noted, Mexican employers are also investing less in their employees than employers in other OECD economies.

President Andres Manuel Lopez Obrador, who took office 1 December 2018, has identified the high share of Mexican workers in informal jobs and the difficulty many Mexican youths have in making the school-to-work transition as major priorities for his government. The President has proposed new scholarship and internship programmes for youths so they can get experience in the formal job market, and new job-training programmes to help unemployed youths get formal-sector jobs.

New Zealand has a skills-sensitive immigration system based on skills shortage lists, which are derived from vacancy analyses in combination with a National Survey of Employers. To capture urgent labour demand, the Ministry of Business, Innovation and Employment maintains an Immediate Skill Shortage List, which includes occupations (i) for which skilled workers are immediately required, and (ii) for which there are no New Zealand citizens or residents willing or available to fill the vacancy. The application of foreign workers applying for vacancies on the Immediate Skill Shortage List are processed faster. On the other hand, the Long-Term Skill Shortage List identifies occupations where there is a sustained and on-going shortage of highly skilled workers both globally and in New Zealand. A user-friendly online skills shortage checker allows potential foreign applicants to check if their occupation of choice is on either of the lists.

In addition to competency-based classifications, the Government has introduced remuneration thresholds as an additional way of defining skill. To be classified as skilled for the Skilled Migrant Category an applicant needs to be either at Australian and New Zealand Standard Classification of Occupations (ANZSCO) level 1–3 and paid at or above 25.00 New Zealand dollars (NZD) per hour; or be at ANZSCO level 4–5 and paid at or above NZD37.50 per hour.

Peru: The Ministerio de Trabajo y Promoción del Empleo (MTPE – Ministry of Labour and Employment Promotion) maintains a decentralized system of employment observatories at regional and local level known as OSEL (Observatorios Socio Económico Laborales). OSEL is a network of observatories that aims to monitor employment trends and linkages to vocational training. The network combines information and diagnosis from several locations in the economy with local experiences and interpretations of labour and education indicators

(APEC, 2014). The MTPE does not, however, currently produce key indicators to systematically determine the situation of labour and skills shortages in Peru. Nonetheless, the annual Occupational Demand Survey enables the MTPE to identify employers' short-term needs for additional employees by qualifications requirements.

Frequency: The Occupational Demand Survey is conducted annually. The National Survey of Monthly Employment Variation is conducted monthly.

Russian Federation: The Government of the Russian Federation conducts assessments of labour and skills shortages, on the basis of which an Interdepartmental Commission establishes quotas for the issuance of invitations to work and work permits to foreign citizens. The list of vocational qualification groups for determining the needs of employers and quotas for attracting foreign labour is annually approved by a Government Resolution and detailed by the Order of the Ministry of Labour and Social Protection.

At present, there are three categories of foreign citizens with different access to the Russian labour market:

1. citizens of the Eurasian Economic Union (Armenia, Belarus, Kazakhstan, and Kyrgyzstan), who can enter the Russian Federation without a visa and who account for approximately 17 per cent of foreign labour migrants (2017);
2. citizens of Azerbaijan, Moldova, Tajikistan, Ukraine, and Uzbekistan, who can come to work in the Russian Federation without a visa, and who constitute 76 per cent of the foreign labour force in the Russian Federation; and
3. citizens of other economies who can come to work in the Russian Federation only if they secure a work visa, and who account for 7 per cent of the foreign labour force in the Russian Federation.

For this final cohort, the employer must submit an application for the recruitment of such a foreign worker to the employment service, after which the employer may get a permission to attract a foreign worker within the established quota. The quota is established by a Decree of the Government of the Russian Federation (signed by a decree of the Prime Minister of the Russian Federation) at the end of the year for the following year. The quota is detailed by region, employer, and profession.

In 2019, the Government of the Russian Federation decreed the need for foreign workers (in the third category) in seven vocational groups. Further, the maximum permissible share of foreign workers in Russian industries, overall, in 2018 and 2019 (for categories one and two) were established as per type of economic activity.

Frequency: The Government of the Russian Federation annually determines the need and quotas for foreign workers by priority vocational qualification groups, guided by the “political, economic, social and demographic situation in the country”.

Singapore: For Work Permit and S Pass holders, the dependency ratio ceilings and levies on the employment of foreign workers are periodically reviewed by the Ministry of Manpower and adjusted as it sees necessary considering the macroeconomic goals of raising overall productivity and maintaining sustainable manpower growth. Dependency ratio ceilings and levies are determined with a view to incentivize enterprises to be more efficient in their use of foreign labour. Levies increase progressively based on the share of foreigners in the establishment’s workforce, but are lower for higher-skilled foreign workers (OECD, ILO, and ADBI, 2016). In summary, the stringency of entry requirements and the generosity of terms and rights both increase with skill level (Testaverde et al., 2017). More skilled and Employment Pass holders face no labour market tests. Applicants’ eligibility for different passes is mainly based on income levels, experience, and qualifications (ILO, 2017b).

Chinese Taipei: The admission of foreign workers centres around labour-intensive or less-skilled work that are not attractive to local workers. The Ministry of Labour approves the supplementation of the local labour force through admission of foreign blue-collar migrant workers in certain industries that face an under-supply of labour. Due to long-standing structural labour demand in the care sector, the admission of foreign nurses and domestic care workers is facilitated to address the basic caring needs of elderly, ill, and disabled persons. The admission and entry of foreign workers in manufacturing, construction, fishery, and butchery is contingent on the absence of local job applications.

Frequency: Specific information was not cited in the questionnaire response on the frequency of the assessment, except to say that the number of foreign workers admitted is reviewed regularly. The Ministry of Labour does not prepare a regularly updated occupations or skills shortage list.

In **Thailand**, the recently enacted provisions of Foreigners’ Working Management Emergency Decree B.E. 2560 (2017) and its amendment B.E. 2561 (2018) stipulate the conditions for foreign workers to access the Thai labour market. For all categories of migrant workers, conditions include:

- Position and job description are not pursuant to list of occupations and professions appended to the Occupations and Professions Prohibited for Foreign Workers Royal Decree B.E. 2522;
- The consideration for work permit issuance is in accordance with the need and propriety as described in the Rule of the Department of Employment on the Criteria for the Consideration for Work Permit Issuance B.E. 2522.

Workers in elementary occupations are to work in Thailand as per applicable bilateral agreements on labour between Thailand and sending economies, notably including Cambodia, the Lao People’s Democratic Republic, Myanmar, and Viet Nam.

The United States has an employer-driven certification system to determine whether there are skills shortages. This means that employers begin the process of bringing foreign skills into the United States by requesting permission from Department of Labor (DOL) to fill particular jobs with foreigners. In order to be certified, the DOL normally monitors, on a job-by-job basis, efforts of employers to try and fail to find local workers while offering prevailing wages and satisfying other conditions so that local workers are not adversely affected by the presence of the foreign workers. For two occupations, physical therapists and professional nurses, the DOL has determined that there are not enough local workers who are able, willing, qualified, and available. Therefore, aliens in such occupations will not adversely affect the wages and working conditions of local workers similarly employed. Employers seeking to hire physical therapists and professional nurses do not have to first try and fail to find local workers.¹²

There have been many proposals to establish a commission or agency to study the labour market and recommend occupations to put on shortage lists so that employers seeking workers in these occupations would undergo no or an abbreviated search for local workers. Former DOL Secretary Ray Marshall proposed a Foreign Worker Adjustment Commission to measure labour shortages and recommend the numbers and characteristics of employment-based temporary and permanent immigrants to fill those shortages.¹³ The proposed Border Security, Economic Opportunity, and Immigration Modernization Act of 2013 (S 744) would have created a new Bureau of Immigration and Labor Market Research located in the Department of

¹² See: www.foreignlaborcert.doleta.gov/perm_detail.cfm#schedule.

¹³ Seminar presentations on Marshall’s proposal are at: <https://migration.ucdavis.edu/rs/more.php?id=183>.

Homeland Security's Citizenship and Immigration Services agency to determine how many low-skilled guest workers with W-visas could be admitted.¹⁴ However, while the proposed bill passed the Senate, it was never taken up by the House of Representatives, and therefore never approved by the US Congress.

General demographic projections predict a slower-growing and ageing labour force in the United States, and there are projections from various private firms of shortages in occupations ranging from doctors to farm workers to in-home care aides. However, when employers request foreign workers in these occupations, there is often resistance from unions and other labour groups who argue that employers should raise wages or take other steps to make their jobs more attractive to local workers.

6.3. Main sources for data being used

Determining skills and labour market needs is an essential instrument for effective policy-making in a number of areas. It supports the functioning of labour markets, as well as the internal mobility of labour and foreign labour recruitment (ILO, 2009a). Specifically with regard to labour mobility, it is important to assess the nature of existing and potential labour shortages on the basis of robust labour market information. Generally, two of the most commonly used indicators for labour or skills shortages are:

- unfilled vacancies (and a range of related indicators), which are meant to point to difficulties in obtaining skills from the labour market; and
- skills gaps, which reflect a lack of skills among those currently employed, and thus, reflecting skill deficiencies and mismatch.

APEC economies use one or more of the following data sources for assessing labour and skills shortages. The advantages and disadvantages are noted below.

6.3.1. Administrative data about vacancies

Information on unfilled vacancies is frequently obtained from administrative sources, i.e., vacancy registers at public employment services. Most APEC economies have public employment services, and they can be comprehensive for certain types of jobs and sectors. However, public employment services tend not to be representative of the labour market as a whole, especially for higher-level vacancies, which are often advertised through private rather than public agencies. Also, hiring by households for domestic services are underestimated,

and this is also the case in those sectors for which private employment agencies are more used among employers.

6.3.2. Employer surveys

Employer surveys focus on difficulties recruiting workers for particular job vacancies, but they also provide crucial insights on current trends as well as providing elements for projecting data into the future. They are particularly advantageous for labour migration-related monitoring when they collect detailed information (i.e., broken down by occupation) about changing patterns in demand, as well as wages, which can be of help to identify occupations where there is a case for allowing for inward migration (ILO, 2009a).

6.3.3. Household surveys and censuses

Household surveys (such as the LFS) and censuses provide the richest source of labour supply-side and demographic information, which is fundamental to assess trends in skills and occupations profiles of learners and workers. All APEC economies undertake LFSs and censuses.

6.3.4. Quantitative model-based projections

A more sophisticated and data-demanding method for labour market needs assessment are model-based projections. A range of medium- and long-term forecasting activities of different types are being carried out in many economies. Such models are necessary to estimate robust and consistent sectoral employment scenarios, which are the starting point for any comprehensive assessment of changing skill needs. In the United States, the Bureau of Labor Statistics has conducted projections since the 1950s to guide decision-making by policy-makers and others. They are currently carried out on a biannual basis. Similar projections are made in other economies, such as Australia and Canada.

6.3.5. Comprehensive sectoral analysis

At the European Union (EU) level, there is recognition of the need for carrying out specific sectoral studies to gather information about current and emerging labour shortages and skill needs. For instance, the European Commission has commissioned a number of sectoral studies using a common foresight methodology (ILO, 2009a). In these types of exercises, the scenarios are not built on the basis of an extrapolation of past trends, but rather, build upon the drivers of the future evolution of the sector, which mostly respond to structural factors (rather than cyclical).

¹⁴ Fees paid by W-visa guest workers would provide funding for the Bureau. For details, see: <https://migration.ucdavis.edu/mn/more.php?id=3838>.

6.3.6. Private sector assessments

Large international recruitment and staffing companies, such as Manpower Group, generate extensive data on labour market and skills needs at global, regional, and national levels. Through the combination of big data analytics and large-scale employers' surveys, these private sector companies can provide valuable insights on skills shortages at sectoral and occupation levels.¹⁵ New forecasting methods support the assessment of the current and future impacts of emerging technology trends such as automation, digitization, and machine learning on labour market needs and required skills profiles, possibly enabling public authorities and employers to adjust mobility initiatives, recruitment efforts, and training frameworks, including upskilling and re-skilling schemes.

6.3.7. Big data analytics

Some government agencies in the APEC region increasingly complement official data sources with big data analytics, which provide real-time job market analytics based on multi-platform vacancy analysis and other available sources. Big data analysis is becoming an important new source of timely information for labour market analysis, especially for labour and skills needs assessments and for adapting reviews of occupational classifications to emerging labour market trends.

The process of collecting labour market data involves parsing online job sites, collecting and de-duplicating vacancies, and finally tagging and normalizing job posting to generate data in a standardized format. The normalization of millions of vacancies from various sources requires sophisticated algorithms for tagging and structuring the metadata according to a unique taxonomy that allows valid comparisons. Important metadata elements include skill type, industry hiring, and average salary.

Big data-driven vacancy analysis can supplement traditional data sources to address a versatile range of analytical challenges, for instance by enabling the identification of future skills demands disaggregated by parameters such as average wage growth and severity of labour supply shortage. International organizations such as the European Centre for the Development of Vocational Training (CEDEFOP) already rely on private sector big data firms to develop integrated models for the analysis of job posting data in various languages.

The integration of big data analysis with traditional methods of data elicitation, such as surveys, can enrich the analytical value of existing data elicitation strategies while reducing the overall research costs. For instance, the US Bureau of Labor Statistics has supplemented its occupational requirements survey with skills demands, activities, and role qualifications, which both reduced costs and improved the range of survey questions. Malaysia's TalentCorp has cooperated with big data analysts to identify critical occupations for the elaboration of shortage lists.

Australia: For the elaboration and updating of skilled occupation lists, the Department of Jobs and Small Business uses domestic datasets that are underpinned by ANZSCO Classifications at the four- or six-digit level. The Department of Jobs and Small Business uses a range of primary labour market demand and supply factors and datasets, notably the "Department of Jobs and Small Business Occupation projections – five years to May 2023" (based on the Australian Bureau of Statistics data).¹⁶ In addition, the Department of Jobs and Small Business takes into consideration:

- evidence-based submissions that are preferably referenced to ANZSCO skill level 1–3 occupations and, where they refer to survey findings or modelling, this has been undertaken in the preceding six months and includes information on the methodology, assumptions, survey questionnaire, and the response rate; and
- stakeholder views on changes to the skilled occupation lists and caveats as presented in the traffic light bulletin.

As noted in chapter 4, **Canada** generates extensive labour market data, including on open jobs and the wages employers are offering to fill them.

¹⁵See: ManpowerGroup (2018). Skills Revolution 2.0. Accessible at:

https://www.manpowergroup.com/wps/wcm/connect/59db87a7-16c6-490d-ae70-1bd7a322c240/Robots_Need_Not_Apply.pdf?MOD=AJPERES

¹⁶It is worth noting that other exercises related to skills mismatches can be found in the Department of Jobs and Small Business Internet Vacancies Index for occupations by skill level, as well for all states/territories; as well as in the Department of Jobs and Small Business Workforce Shortage research (largely based on the Survey of Employers who Recently Advertised).

Chile: The information generated by the SENCE Labor Observatory on short-, mid-, and long-term skills needs at sectoral and regional levels is based on multiple sources, both primary and secondary. The main sources of information that are used and implemented by SENCE to generate information on the short-, medium-, and long-term skills needs of the labour market include:

- the National Labor Demand Survey;
- the National Socioeconomic Survey;
- the National Employment Survey;
- the survey of companies that export goods and services abroad;
- the forecast for occupational labour demand;
- in-depth interviews with sectoral stakeholders; and
- data analysis of information gathered by employment exchanges.

Key indicators used to assess the shortage of labour and skills include:

- jobs in which vacancies are difficult to fill, differentiating by cause of supply scarcity;
- occupations in which employers are expected to hire in the next 12 months;
- occupations and skills that will be impacted as a result of digitalization, automation, or demographic and climate change;
- variation in the number of employed persons and their real income;
- identification of technical and professional careers with higher and lower employability and income rates;
- identification of occupations and skills that are in high demand by employers who publish their vacancies publicly; and
- qualitative studies that do not allow a quantification of the demand for skills, but which are useful for understanding the phenomenon of skills mismatches in more depth.

China: There is currently no designated public entity conducting systematic and regular assessment of labour and skills shortages in China. The most detailed information on labour and skills shortages is elicited by private consultancies and research institutes, which generally rely on nationally representative micro-level surveys and on macro Chinese labour market data (JPMorgan, 2016).

Hong Kong, China: The Census and Statistics Department of Hong Kong, China has been producing highly comprehensive and disaggregated quarterly statistics on labour and skills shortages ever since 1980.¹⁷ This reliable demand-driven set of statistics provides valuable information on short-term changes in labour demand in sectors that are relevant to the diversified economy of Hong Kong, China. In addition, the Government of Hong Kong, China has been conducting forecasts to assess the economy's future labour supply and demand in the medium term with a view to assess potential imbalances between the supply and demand of labour across different educational levels.

Based on the interpolation of these information, the Government – following consultations with relevant tri-partite stakeholders – formulates a regularly updated Talent List to ensure that it can keep up with latest economic developments and the changing needs for different high-skilled migrant workers in Hong Kong, China.

Japan: The Statistics Bureau and the Director-General for Policy Planning of Japan produce and disseminate official statistics on the labour market, including the monthly LFSs aimed to assess the employment/unemployment situation.¹⁸ The Japan Institute for Labour Policy and Training conducts non-regular inter-disciplinary research in cooperation with relevant line ministries on issues including employment systems, technological innovation, needs-based skills development, worker and corporate behaviour strategies, and other strategic domains that inform policy formulation and action planning.¹⁹ Relevant sources include LFSs and Employment Status Surveys.

Republic of Korea: The statistics and indicators used by the Government of the Republic of Korea to assess labour and skills shortages include the number and rate of vacancies by industry and occupation (including the prospects in the medium and long term, and in the subsequent year), and relevant information from the Report on the Occupational Labor Force Survey at Establishments. The number and rate of vacancies by industry and occupations is obtained from employers' surveys. The government-to-government recruitment system established by the Republic of Korea through the Employment Permit System is supported by a system of statistics and analytical intelligence providing a comprehensive mapping of those labour and skills needs for which the domestic labour force is either not sufficient or unwilling to take certain categories of jobs. A survey on migrants living and working in the Republic of Korea has been conducted annually since 2016, and other sample surveys map out internal migration

¹⁷ See the website of the Hong Kong Census and Statistics Department: <https://www.censtatd.gov.hk/hkstat/sub/sp452.jsp>.

¹⁸ See the website of the Statistics Bureau and the Director-General for Policy Planning: <https://www.stat.go.jp/english/info/guide/201503ver/03.html#c30201>.

¹⁹ See the website of the Institute, especially: https://www.jil.go.jp/english/organization/research_activity.html.

patterns. Tripartite approaches are adopted to formulate migration policies.

Malaysia: The Government of Malaysia establishes its forecasts of future demand for foreign workers (disaggregated by sector and industry) based on a variety of sources, including:

- employers' surveys (National Employment Returns and Enterprise Surveys);
- employers requests for migrant workers;
- administrative data on vacancies (e.g., from public employment services); and
- the LFS.

In addition, assessments are made through Human Capital Studies conducted on a regular basis to detect which jobs are in demand and where there are vacancies that are not easily filled with local jobseekers. An additional Environmental Scan study profiles jobs in specific sub-sectors and identifies pertinent needs for foreign labour. On the supply side, the Government of Malaysia regularly assesses the number of foreign workers in Malaysia by sectors and occupations.

Peru: While the MTPE does not produce key indicators to determine the shortage of labour and skills, it nonetheless identifies employers' short-term needs for additional employees based on the annual Occupational Demand Survey. The Survey targets private companies employing 20 or more workers. In addition, the Government conducts irregular ad hoc labour and skills needs assessments. These are predominantly based on the Encuesta Nacional de Variación Mensual del Empleo (ENVME – National Survey of Monthly Variation of Employment) and electronic forms collected by the MTPE. The MTPE is the ministry in charge of governing employment promotion, vocational training certification of work skills, and labour migration. The Occupational Demand Survey is conducted annually, and is the only regular research conducted by the MTPE on employers' short-term needs for additional employees. In addition, the Government issues ad hoc studies irregularly. Most recently, by initiative of the Dirección General de Formación Profesional y Capacitación Laboral (DGFPC – General Directorate of Vocational Training and Labour Training), information was collected on the difficulties of companies to fill jobs. Based on the ENVME, the DGFPC and the Directorate of Labour Socioeconomic Research identified job vacancies that are difficult to fill, disaggregated by sex, region, company size, economic activity, and other factors. This research was conducted only once in 2016, and as a result, the technical document *Gaps in skills and difficulties of labor demand* was published in 2018. The National Institute of Statistics and Informatics together with the Inter-American

Development Bank have carried out the survey Skills to Work in Peru 2017. This survey aimed to generate specific evidence on the skills gap in the Peruvian productive sector, the consequences of this gap for companies, and the strategies they adopt to resolve this situation. However, the MTPE is not yet aware of the results of this survey. The assessment of labour and skills needs in Peru is primarily used to inform changes in the vocational training system, in particular curricula design, as deemed necessary by the DGFPC.

Singapore: About one third of the Singaporean workforce is composed of foreign workers, and the Ministry of Manpower produces comprehensive and highly disaggregated statistics on the domestic labour force, on foreign workers, and on skills shortages. The Singaporean database includes two decades of data, enabling the analysis of long-term trends, and hence opening the possibility for forecasting exercises that do not use ad hoc surveys. The Ministry of Manpower determines labour and skills needs through the combined use of a variety of statistical sources, including the monthly LFS, a survey of working conditions, and a highly disaggregated quarterly analysis of job vacancies.

Chinese Taipei: The growing high-tech industry of Chinese Taipei generates a demand for technical professionals. In combination with a gradually falling birth rate (National Statistics Office, n.d.), the economy is facing a structural labour shortage in critical occupational sectors that will require the import of foreign workers (Lin, 2018). To facilitate the assessment of labour and skills needs, the Directorate General of Budget, Accounting and Statistics (DGBAS) conducts a regular wage survey and an employment status survey. On the basis of these surveys, available labour supply statistics and the regular input from employers, the DGBAS establishes quotas for foreign workers by priority vocational qualification groups.

As a potentially promising avenue for the recruitment of highly skilled foreign workers, government authorities could consider a user-friendly online skills shortage checker, which would allow potential foreign applicants to check if their occupation of choice is included in the DGBAS' quotas. Such a portal is already operated by the Ministry of Business, Innovation and Employment of New Zealand.

United States: The United States Government does not produce data on skills shortages. Instead, the Job Openings and Labor Turnover Survey asks employers about job openings, hires, and separations.²⁰ The number of job openings (7.1 million in October 2018) is sometimes compared to the number of unemployed (6.1 million in October 2018) to provide an overall indicator of labour market balance. In

²⁰ See: www.bls.gov/jlt

October 2018, employers hired 5.9 million workers and there were 5.6 million separations, including quits, layoffs, and discharges. During the 12 months ending in October 2018, there were 67.8 million hires and 65.3 million separations, so net employment rose by 2.5 million (see table 13).

Viet Nam: The size of Viet Nam's workforce is expanding, but the youth population is shrinking. Consequently, the Government has placed a priority on increasing the skills and productivity of its workforce, as reflected in the 2014 Viet Nam Development Report *Skilling up Vietnam: Preparing the*

Workforce for a Modern Market Economy (Smith, 2016). The Ministry of Planning and Investment conducts a quarterly LFS that compiles national statistical indicators on labour, employment, unemployment, and income to support ministries in developing and planning policies on human resource development, activities of investment, production, and business (ILO Microdata Repository, n.d.). However, the Government currently lacks a mechanism for the regular assessment of labour and skills needs, which would enable it to develop evidence-based education and skills pathways for the present and the future.

Table 13 • Key data on job openings, hires, and separations in the United States by industry (in thousands)

Category	Job openings			Hires			Total separations		
	Oct. 2017	Sep. 2018	Oct. 2018	Oct. 2017	Sep. 2018	Oct. 2018	Oct. 2017	Sep. 2018	Oct. 2018
Total	6 059	6 960	7 079	5 600	5 696	5 892	5 272	5 641	5 556
Total private	5 515	6 340	6 489	5 267	5 358	5 537	4 929	5 306	5 210
Mining and logging	28	34	29	32	44	33	31	34	29
Construction	233	272	292	372	369	349	344	343	315
Manufacturing	410	485	522	343	322	384	314	315	345
Durable goods	248	307	332	195	184	227	177	179	200
Nondurable goods	162	178	189	148	138	157	137	136	145
Trade, transportation, and utilities	1 031	1 282	1 280	1 059	1 167	1 273	1 014	1 192	1 183
Wholesale trade	152	230	231	156	137	170	138	137	146
Retail trade	655	772	802	693	806	790	691	848	792
Transportation, warehousing, and utilities	223	280	247	210	224	314	185	207	244
Information	96	104	149	82	78	80	81	81	68
Financial activities	365	345	375	235	225	190	219	209	183
Finance and insurance	254	264	256	158	148	122	152	143	120
Real estate and rental and leasing	111	81	119	77	77	68	67	66	62
Professional and business services	1 084	1 248	1 227	1 141	1 180	1 184	1 077	1 161	1 131
Education and health services	1 127	1 278	1 297	679	692	721	669	646	659
Educational services	93	83	103	86	92	97	102	89	89
Health care and social assistance	1 034	1 195	1 194	593	601	625	567	557	570
Leisure and hospitality	850	1 058	1 044	1 074	1 079	1 103	968	1 097	1 090
Arts, entertainment, and recreation	82	95	76	180	171	176	155	164	170
Accommodation and food services	768	963	968	894	908	927	812	933	920
Other services	292	234	273	249	201	219	212	228	207
Government	544	620	590	333	338	355	342	335	347
Federal	87	89	80	41	38	35	42	34	31
State and local	457	531	510	292	300	320	301	301	316
State and local education	156	200	217	153	159	165	158	157	169
State and local, excluding education	301	331	293	139	141	155	142	144	147

Source: US Bureau of Statistics Job Openings and Labor Turnover Survey, as presented in Martin, 2019.

As a result, the Government of Viet Nam may consider establishing a system of regular labour and skills needs assessments to align skills development policies with the future labour demand. At the same time, overseas labour demand should be assessed in a more systematic manner in order to more effectively position regular labour migration as a management strategy for the domestic labour surplus.

Developing economies such as Papua New Guinea, Peru, and the Philippines do not conduct structural and seasonal assessments of labour and skills needs. One of the reasons is that large cohorts of young people are entering the labour market, as well as the marginal presence of skills shortages in the formal labour market. Instruments tailor-made for these economies should take into account their stage of development, as well as considerations of brain drain for specific sectors and occupational profiles. APEC opens the opportunity for these economies to join forces in the development of systems of skills assessments. For example, the "Pacific Islands Jobs" online portal for the recruitment of foreign workers in occupational domains that are not easily filled with local jobseekers has proven to be an effective tool of regional cooperation on recruitment and placement.

6.4. Consultation with social partners – Employers and trade unions

As mentioned at the outset of this chapter, admission for work is employer-led and most often begins with an employer's request. Employers are key stakeholders in the labour mobility process and most APEC economies have a consultation process. Trade unions also have an important voice as they usually have a say in the admission of foreign workers given the potential impact on local workers.

Australia: The Department of Jobs and Small Business consults with industry, employers, unions, and individuals in developing advice for the Australian Government on the occupations required to meet the labour market needs of the Australian economy.

Canada has formal mechanisms to interact with employers to administer the Seasonal Agricultural Worker Program (SAWP), which brings Caribbean and Mexican workers into Canada to fill seasonal jobs. Employer input into the design and operation of the SAWP is credited with making the programme one that is often heralded as a good practice. However, unions are not consulted in this particular scheme, resulting in complaints about the programme.

Canada's other temporary worker programmes respond to employer requests for foreign workers and union reactions to labour shortage claims, but the Parliament and ministers make decisions on exactly how to respond. Canadian unions were

generally receptive to employer requests for foreign workers to fill jobs in construction. However, there was a general outcry, including from trade unions, after several banks in 2016–17 replaced Canadian information technology (IT) workers with foreign IT workers, leading to a tightening of regulations requiring that Canadians have first priority to fill jobs in Canada.

Chile: SENCE relies on in-depth interviews with enterprises and other sectoral stakeholders as a key source of information for its labour and skills needs forecasts.

Hong Kong, China: Regarding the importation of labour, the relevant policy bureaux/departments of the Government of Hong Kong, China may consult relevant stakeholders as appropriate. In drawing up the Talent List, the appointed consultant conducts extensive consultations with the stakeholders, including human resources companies and industry stakeholders, as well as relevant advisory bodies. When processing applications under the Supplementary Labour Scheme, the Labour Department will consult relevant trade unions on the availability of local workers for the concerned job categories. In addition, all applications under Supplementary Labour Scheme are passed to members of the Labour Advisory Board, a tripartite consultative body on labour matters in Hong Kong, China, for views before the Labour Department approves or refuses the applications, as appropriate.

Republic of Korea: The Foreign Workforce Policy Committee convenes a working group meeting prior to its decision on the annual quota for foreign workers to gather the opinions and thoughts of employers and trade unions.

Malaysia: In order to get an overview of employers' demands and expectations, as well as to understand employee needs and expectations, focus group discussions are held periodically with trade unions and employers. Trade unions will occasionally express their views during periodic engagement with the Ministry of Human Resources on labour market requirements.

Peru: Labour needs assessments in Peru are employer-driven and mainly based on the Occupational Demand Survey, which targets companies with 20 or more employees. There is no evidence of tripartite consultations during the elaboration of labour needs assessments in Peru.

Russian Federation: Employers in the Russian Federation are directly involved in the process of establishing needs and quotas for foreign labour. Employers wishing to attract workers from abroad must submit an application for their need of foreign labour for the next year to the authorized body of their region by 1 May. In addition, representatives of employers – the Russian Union of Industrialists and Entrepreneurs – are a part of the Interdepartmental Commission for determining the needs and quotas for attracting foreign workers.

Regional trade union federations are also members of interdepartmental regional commissions, including the largest trade union organization, the Federation of Independent Trade Unions of the Russian Federation. The trade unions uphold a position aimed at ensuring priority employment of citizens of the Russian Federation over foreign workers through defining an anti-dumping minimum level of foreign labour cost, as well as increasing the requirements for employers that attract foreign workers, in terms of compliance with labour, immigration, and other laws.

Singapore uses an employer-driven recruitment system, in which income levels, experience, and qualifications determine eligibility for different passes (ILO, 2017b).

Chinese Taipei: In order to determine the eligible number of foreign workers to be admitted to the labour market of Chinese Taipei, the Ministry of Labour has established a coordination and counselling panel on cross-border workforce policy comprising stakeholders from different sectors, including trade unions, employer organizations, academics, experts, and representatives from Ministry and other government units. Foreign labour policies are discussed in a social dialogue, and policies are established based on the results.

Thailand: The Department of Employment consults with employers in order to assess labour shortages and to identify the need for foreign workers. This is particularly the case in the fishery sector, in which regular consultations with employers and relevant trade associations are conducted.

United States: The United States does not have formal mechanisms to consult employers and unions on an ongoing basis about the operation of temporary worker programmes. Employers and unions influence bills that create or modify guest worker programmes in Congress and have opportunities to comment on regulations proposed by the agencies that administer the programmes. Under the United States administrative law, government agencies must respond to all public comments, but do not have to accept them.

The major influence of employers and unions is in Congress. United States immigration law governing all aspects of migration is very complex, and items that would be left to ministerial discretion in Canada and many other economies, are spelled out in law in the United States. For example, the law regulating the H-2A guest worker programme spells out in law how many days before the employer's need date the employer must begin to look for local workers (45) and that the employer must continue to accept locals who apply for the job until 50 per cent of the employer-specified contract period is completed. This means that, if the employer specifies a 10-month contract for migrant workers, they must accept local applicants until five months of that contract period have been completed, even if accepting a local applicant requires the employer to lay off a guest worker and pay to return that worker to the sending economy. Employers would like to eliminate this 50 per cent rule, while unions say it is necessary to ensure that that locals have priority to fill labour shortages in the United States.



07

**Regional
dimensions:
Current APEC and
regional initiatives**

7.1. Regional cooperation and labour market information: A role for APEC

"Understanding and anticipating the trends and needs in human resources development is vital for all aspects of economic growth. This requires the analysis of regional labor market to allow sound forecasting and policy formulation by member economies."
– APEC Osaka Action Agenda (APEC, 1995)

Regional cooperation and economic integration are at the core of APEC's work. Since its founding in 1989, APEC has not only been pushing to lower tariffs, reduce the costs of doing trade and business, and ease restrictions to cross-border trade and investment, but has also worked to improve standards and conformance, facilitating trade and enhancing connectivity. In all of these areas, data has been a crucial ingredient to develop evidence-based policy solutions and to monitor progress. Data helps APEC economies to get an accurate picture of the situation and to coordinate economy-level and regional policy responses.

Trade and investment liberalization have also been integral for APEC's work, but APEC has been at the forefront of regional cooperation for human resources development as well. Since the 1990s, the Human Resources Development Working Group (HRDWG) has been discussing mutual recognition and qualifications frameworks to facilitate cross-border mobility, especially among professionals. Under the 1995 Osaka Action Agenda, which implements the 1994 Bogor Goals declaration, APEC economies agreed to pursue actions and policies to promote the mobility of business people and professionals; support training and skills development at a regional level; and develop labour market information systems. Initiatives such as the APEC Business Travel Card, APEC Architects and APEC Engineers have been implemented to facilitate the movement and employment of traders, businesspeople, and skilled professionals around the region.

Starting in 2013, labour mobility has been discussed within the scope of people-to-people connectivity. The 2014 Leaders' Declaration and the APEC Connectivity Blueprint 2015–2025¹ emphasized the work needed to improve people-to-people mobility, including the development of accurate and timely labour market skills monitoring mechanisms. In 2016, a Workshop on the Development of an APEC Labour Mobility Framework² was conducted to facilitate the creation of a project advisory team and to provide direction for future work in the development of

the framework. The importance of this work was reflected in the 2016 APEC priorities (APEC, 2016b), which included the development of human capital and the need to promote and facilitate skilled human capital mobility.

Work on labour mobility has been hindered by the lack of timely and accurate labour market information. Labour market information improves labour mobility through reduced information asymmetry and transaction costs in the labour market and facilitates the matching of labour demand and supply (Krueger et al., 2017). Likewise, better data on skills demand and supply can help to identify skills imbalances and equip employers with greater information to guide investment and hiring decisions (Lanzona, Jr, 2017). Similarly, regional policy can be better coordinated if there is greater access to information on key labour institutions, migration patterns, and skills deficits and surpluses.

Such information is especially important when globalization and technological advancement have impacted the types of jobs available. Fewer job opportunities in the formal manufacturing sector have resulted in workers accepting more informal forms of service employment or part-time jobs. Strack et al. (2014) project a loss of US\$10 trillion between 2020 and 2030 due to unfilled jobs or unemployed workers. As such, the matching of worker skills to jobs is necessary to ensure the efficiency of the labour market, and this can be greatly supported by the availability of timely and accurate labour market information. Data on the number of workers employed in the so-called "gig" or "sharing" economies, which are often informal and straddle several jurisdictions, will also provide a better picture of the labour market and help economies coordinate policies with cross-border implications.

7.1.1. Labour market information in APEC's work

Labour market information is a key contributor to implementing and monitoring APEC's work. In 2010, Leaders endorsed the APEC Growth Strategy (APEC, 2010) that aims to achieve balanced, inclusive, sustainable, innovative, and secure growth. This strategy was assessed in 2015 to evaluate the region's progress: in the assessment, employment statistics were used to evaluate trends in labour force participation; unemployment among youth and women; and sectoral employment, among others. Following the assessment, leaders initiated the APEC Strategy for Strengthening Quality Growth that covers the five growth attributes. An assessment of this strategy – including the Key Accountability Areas of social cohesion, institutional development and environmental impact – is due in 2020.

¹ See: https://www.apec.org/Meeting-Papers/Leaders-Declarations/2014/2014_aelm.

² See: <https://aimp2.apec.org/sites/PDB/Lists/Proposals/DispForm.aspx?ID=1949>.

Labour mobility is an important priority under the APEC Connectivity Blueprint 2015–2025, which was endorsed by Leaders in 2014. The Senior Officials' Meeting (SOM) Friends of the Chair on Connectivity's Yearly Review Framework for the APEC Connectivity Blueprint, which monitors relevant progress and identifies new opportunities across the three connectivity pillars, utilizes labour market information in its analyses. A mid-term assessment of progress on people-to-people connectivity – including business mobility, skilled labour mobility and cross-border education – is due in 2020.

At the Economic Committee, several studies on structural reform have benefitted from labour market statistics. The 2017 Annual Economic Policy Report (Krueger et al., 2017) focused on structural reform and human capital development and used statistics on the employment of women, youth, elderly, and informal workers; minimum wages; unemployment benefits; employment protection laws; and spending on active labour market policies, inter alia, to understand past trends and the current status of human capital development in the region and to improve labour market regulations, social protection programmes, and active labour market policies. The Renewed APEC Agenda for Structural Reform (RAASR) identified three pillars to guide structural reform in economies, namely: open, well-functioning, transparent, and competitive markets; deeper participation in markets by all segments of society; and sustainable social policies that are effective, targeted and non-discriminatory. Employment statistics and productivity data were used to assess the second pillar, which focuses on inclusiveness in the labour market in the 2018 RAASR mid-year review report by the Policy Support Unit. However, the report also acknowledged the lack of comparable baseline indicators for several indicators and the lack of timely statistics across all the economies.

At the working group level, considerable work has been done to facilitate labour mobility through projects that aim to improve recognition of qualifications, develop standards, and collect labour market data. The APEC (2016c) Services Competitiveness Roadmap (2016–2025) had two APEC-wide actions out of 19 that focused on improving mobility through mutual recognition agreements (MRAs). The first one aims to support cross-border movement of professionals by expanding initiatives like the APEC Architects and Engineers Registers to facilitate MRAs. The second action intends to support cooperation in the education sector in part by exploring mutual recognition options for APEC using the ASEAN Qualifications Reference Framework as a starting point. The report also lists indicators corresponding to each APEC-wide action as a tool to evaluate performance.

Under the Human Resources Development Working Group (HRDWG), a project on the comparability and benchmarking of competencies and qualification frameworks was conducted with a focus on the construction and welding industry (APEC, 2011). The project resulted in a compilation of career and technical education/TVET systems in the region, and a report on a survey evaluating the comparability of welding qualifications and quality assurance, among other things. The HRDWG's report on *Mapping qualifications frameworks across APEC economies* (APEC, 2009) similarly aimed to improve the transparency and quality of information on knowledge and skills in the region. The APEC Occupational Standards Framework: Test in the Travel, Tourism and Hospitality Industry project by the HRDWG and the Tourism Working Group addressed existing mobility barriers and encouraged establishing a common understanding of occupations and their corresponding skills. A pilot was conducted to test the Occupational Standards Framework concept in five economies and to develop regional occupational standards for some industries.

However, the lack of timely, accurate, and comparable labour market information continues, and can pose challenges APEC's work. Numerous APEC projects aimed at embracing the new digital economy can be constrained by existing data gaps. The APEC Internet and Digital Economy Roadmap (APEC, 2017c) – whose key focus areas include improving data on digital economy measurements and facilitating the free flow of data for the development of the digital economy – would benefit from data that helps better understand the growth of gig and sharing economy job opportunities in platforms like Uber, Airbnb, TaskRabbit, and GO-JEK.

Labour market information on skills is beneficial to evaluate the preparedness of the workforce, and in turn, develop policies to ensure efficient labour market matches. The Action Plan of APEC Education Strategy, a follow up to the APEC Education Strategy, aims to develop a stronger and more cohesive education community that provides inclusive and quality education. One of the actions within the strategy aims to promote the study of science, technology, engineering, and mathematics (STEM) subjects to create a technologically literate population that is able to embrace the changes brought by the digital economy (APEC, 2017a). In addition, the core aim of the APEC Framework on Human Resource Development in the Digital Age is to address common policy challenges in adapting and developing human capital that is ready for the digital age. In fulfilling that objective, one of the focus areas is to explore the role of labour market information systems and data (APEC, 2017b).

The Action Plan of APEC Education Strategy has two relevant targets to enhance competencies. The first is for APEC economies to have improved quality assurance systems, skills recognition, and qualification frameworks by 2030. The second is to achieve enhanced cross-border education, academic mobility and individual pathways across education levels by 2030 (APEC, 2017a). These targets will be measured by using indicators like the number of economies with quality assurance standards; with qualification frameworks that acknowledge global competencies; and with government initiatives that promote academic mobility, among others. Information on the comparability of educational standards and national qualification frameworks will be useful for economies to better analyse the academic backgrounds of potential employees and match them with appropriate jobs.

The APEC Strategy for Strengthening Quality Growth (APEC, 2015) will benefit from more comprehensive labour data, particularly in assessing the Key Accountability Areas relating to social cohesion and institution building, both of which can look into ways all people can contribute to and benefit from emerging economic opportunities. Labour market information on employment of various groups in society will also be useful in measuring the progress of the inclusive aspect of the APEC Growth Strategy. Under the innovative growth aspect of the APEC Growth Strategy, leaders also acknowledge the need to develop a skilled and adaptable workforce, and as an action recommend that economies recognize differences in education and training, share information on qualifications and licensing, and facilitate labour mobility.

Benefits of greater access to labour market information are expected to be derived from other future projects as well, particularly since two of APEC's 2019 priorities relate to the challenges faced by the labour market – namely, Digital Society and Integration 4.0.³ Among other actions, the former priority aims to prepare the labour force for opportunities brought by new technologies, while the latter intends to facilitate labour mobility within the region. Labour market information will be useful to get an overview of the current labour market, make rigorous projections of future demand, and consequently form and evaluate policies to reskill the workforce and enable their employment.

7.1.2. APEC's role in improving labour market information

Although the bulk of labour market data gathering and analysis is done at the domestic level – usually by statistical and labour agencies – regional cooperation and APEC in particular can play a key role in making sure these efforts are

coordinated and coherent. In the 1995 Osaka Action Agenda, one of the eight priority actions under human resource development was “analyzing the regional labor market to allow sound forecasting of trends and needs in HRD [human resource development]” and APEC joint activities were envisioned to “support the development of useful labor market information and policy”, among others.

Capacity building for labour market information:

All APEC economies already collect labour market data through regular LFSs, usually covering areas such as labour participation, employment, gender, and educational attainment. However, there are still some differences in the frequency and quality of this data, and published analyses of collected data vary by economy. In the same way that APEC has contributed to improving economies' technical capacities for trade facilitation (e.g., see work on single windows and Authorized Economic Operators), more work could be done to improve statistical capacity, particularly for labour market data gathering and analysis. APEC has lots of experience in regional cross-pollination of ideas and sharing best practices, even in highly technical areas of product standards and metrology – regional cooperation in capacity building for labour market information systems could be developed as well.

Standard methodologies and definitions for labour market information:

A key constraint to analysing labour markets at a regional level is the lack of standard definitions and methodologies for gathering, analysing, and reporting labour market data. Ensuring that labour market information is comparable across economies requires improved coordination and a unified methodology in gathering data from survey to analysis. APEC's previous work on standards and conformance can provide a useful model for regional cooperation on standardizing labour market information and surveillance.

Digital economy jobs and employment: Current methodologies and reporting do not fully account for the new opportunities in the digital economy. Technology-enabled job opportunities in the gig economy and sharing economy can lead to virtual labour mobility, as when workers in one country work virtually in another, but are not accurately captured in current employment statistics. APEC can work with international organizations such as the ILO to develop definitions and methodologies that can provide accurate, timely, and relevant information on employment in the digital economy.

³ See: <https://www.apecchile2019.cl/apec/apec-chile/priorities-apec-2019>.

Demand-side statistics and forecasting: While there is a relative abundance of supply-side information on the labour market – e.g., educational attainment, type of work, hours worked, etc. – there is not much data on the demand side. Timely and accurate data from firms and employers could provide information on labour demand, shortages, and skills required to forecast future trends in jobs demand and skills requirements for industries. While there are some demand-side surveys, they are often irregular. APEC can work with international organizations such as the ILO to develop and implement methodologies that can monitor demand-side trends in the labour market. Coupled with existing supply-side data, this demand-side data can contribute to the detection of skills gaps and mismatches and guide regional policy-making for skills training and labour mobility.

Regional cooperation for data sharing: Regional benefits from labour market data and information are maximized if data are shared, but not all APEC member economies are committed to data sharing. The APEC Labour Market Portal,⁴ started in 2013, is an initiative to gather regional labour market data and make them available to employers, researchers, and policy-makers. Although the initiative has received considerable support, the lack and non-compatibility of data demonstrates that there is mixed commitment to cooperate on data sharing – only seven out of 21 member economies currently provide data to the portal. APEC can work towards promoting data sharing – and improving the quality of this shared data – to meaningfully contribute towards the analysis of regional labour markets.

7.2. Labour mobility initiatives in the ASEAN region

Labour migration is a key feature of economic and social development in ASEAN. Labour migration from and within the region has increased over the past 17 years, from 2.9 million migrants in 1990 to 9.9 million in 2017 (UN DESA, 2017). Intra-ASEAN migration is high, with about 6.8 million migrants migrating within the region (UN DESA, 2017). An important part of the ASEAN Community vision is a globally integrated and competitive single market, built on the principles of equitable economic development and shared prosperity, through the ASEAN Economic Community (ADB and ILO, 2014). According to the ASEAN Economic Community Blueprint, the single market and production base will comprise five core elements: the free flow of goods, services, and investment; a freer flow of capital; and the freer flow of skilled labour (ADB and ILO, 2014). With respect to the last, ASEAN Member States have a framework for MRAs for eight high-skill professions – although the impact of these agreements on migration trends so far is limited.

The seven occupations currently covered by the MRAs account for 0.3 to 1.4 per cent of total employment in Member States (the eighth MRA refers to tourism professionals and includes a range of occupations) (ADB and ILO, 2014). The ILO has been advocating for the mutual recognition of skills in middle and elementary occupations, and this has been integrated as a component of the ASEAN Labour Ministers Workplan for 2016–2020. As a result of technical assistance, there is improved capacity in Cambodia, the Lao People's Democratic Republic, and Myanmar on the development of skills standards and an increased number of qualified trainers and assessors, and regional cooperation has resulted in the establishment and evolution of a regional skills technical working group as an effective mechanism for dialogue. The work on mutual recognition of skills has so far focused on improving "readiness" at the domestic level and "coordination" at the regional level. Currently, two sets of pilot projects are underway – Thailand with Cambodia and the Lao People's Democratic Republic on masonry/brick-laying; and the Philippines, Thailand, and Viet Nam with a focus on transport and logistics skills development. In addition, Indonesia, Malaysia, the Philippines, and the ASEAN Secretariat will work on the integration of mutual recognition of skills processes with the "ASEAN Guiding Principles for Quality Assurance and Recognition of Competency Certification Systems".⁵

The recognition of skills of returning migrant workers is just as important (ILO, 2010). Many migrant workers return without the opportunity to have their newly acquired skills and work experience formally acknowledged in their home economies. As a result, the competencies they have acquired during their migration may be not valued properly. This would have a negative impact on their employability and on labour market outcomes.

ILO guidelines on the subject recommend:

- a. provision of advice prior to departure to encourage the creation of a portfolio of evidence attesting to the migrant worker's new skills;
- b. evaluation of the portfolio data upon return against identified national or international competency standards;
- c. provision of affordable assessment services to complement the evidence portfolio; and
- d. official recognition of new skills and work experience, coupled with employment profiling and placement services.

⁴ See: <http://skillsmap.apec.org/>

⁵ The work on the mutual recognition of skills has been supported by the ILO and the governments of Australia, Canada, and Republic of Korea.

Lowering the barriers to mobility in ASEAN would increase the welfare gains to workers and to sending and receiving economies (Testaverde et al., 2017). Economic modelling by the World Bank shows that trade integration has a larger positive effect across all ASEAN economies when barriers to mobility are lowered for skilled workers, as the ASEAN Economic Community envisions (Testaverde et al., 2017). However, there are barriers to mobility, including cumbersome regulations and high migration costs (ILO, 2017b). Further, the occupations reserved for domestic jobseekers are quite numerous and include those for which MRAs have been agreed.⁶

As illustrated in the SDGs (Goal 8 and Target 8.8), labour protection needs to go hand-in-hand with well-managed labour mobility (Goal 10 and Target 10.7) and data collection (Goal 17 and Target 17.18). The labour protection of all workers, including migrants, is integral to labour mobility. Ensuring equal protection for migrant workers promotes economic equity and makes labour markets more efficient (ADB and ILO, 2014). Enforcing protection for migrant workers ensures that employers who do not comply with domestic labour standards cannot compete unfairly against those who do.

In November 2017, ASEAN Member States adopted the ASEAN Consensus on the Protection and Promotion of the Rights of Migrant Workers, which builds on the 2007 ASEAN Declaration on the Protection and Promotion of the Rights of Migrant Workers (the 'Cebu Declaration'). The Cebu Declaration established general principles; set out the obligations of receiving and sending States; and tasked the relevant ASEAN bodies to develop a regional instrument. The ASEAN Consensus expands the obligations of ASEAN Member States and highlights basic migrant rights, including the right to an employment contract; the right to file a complaint or grievance; the right to join a trade union; the right to retain personal documents; the right to be visited by family members; and the right to the same treatment as nationals during imprisonment or detention. The instrument is non-binding, and gives governments discretion over how rights and obligations are implemented. An Action Plan (2018–2025) to implement the ASEAN Consensus was developed during 2018 and was notated or adopted during the 33rd ASEAN Summit on 13 November 2018 in Singapore.

Box 3

Labour mobility in regional integration and free-trade agreements

There are at least 20 major multilateral free-trade agreements (FTAs), and an even longer list of bilateral FTAs, and many include labour mobility provisions. The General Agreement on Trade in Services (GATS) aims to make it easier for service providers to cross national borders.

The major purpose of FTAs is to promote the freer flow of goods and investment between member economies. By contrast, migration policies aim to welcome desired immigrants and visitors, and restrict the entry and stay of the undesired. This dual purpose of welcoming some people and restricting or expelling others makes bilateral, regional, and global migration agreements fundamentally different from FTAs, and helps explain why most FTAs do not have migration provisions and why the GATS has found it difficult to stimulate the freer movement of service providers.

A common metaphor helps to capture the difference in the thinking of many trade and migration policy-makers. Proponents of freer trade often invoke the bicycle theory, which argues that policy-makers must constantly strive to open more free trade and investment channels to offset the efforts of protectionists, making FTAs analogous to canals that must be dug as widely and deeply as possible, and constantly enlarged, to ensure a free flow of goods and services over national borders. Migration policy-makers, on

⁶ Migrants are not permitted to work in 39 occupations, including accounting, engineering, and architecture for which MRAs have been reached (Testaverde et al., 2017).

the other hand, often have the opposite mentality. In a world of demographic and economic inequalities that is being transformed by communications and transportation revolutions, migration policy-makers often believe that doors for migrants must be small and opened cautiously to prevent migration from getting “out of control”.

Many FTAs include provisions aimed at expediting the cross-border movement of business investors, service providers, and sometimes workers employed for wages in an FTA partner. Most FTAs include contiguous or neighboring economies, and some aim to be more than simply free-trade areas, as with the EU.

A brief review of three FTAs highlights the labour mobility linked to freer trade. CARICOM is liberalizing labour mobility in a top-down fashion beginning with professionals; the EU allows freedom of movement for all types of workers and tries to narrow economic differences before the entry of new Member States; and NAFTA limits labour mobility to professionals.

CARICOM

The Caribbean Community (www.caricom.org) is an organization of 15 Caribbean nations created by the 1973 Treaty of Chaguaramas that aims to promote economic integration, including freedom of movement, between Member States.⁷ The population of CARICOM is 7 million (excluding Haiti), but three Member States include almost three-fourths of CARICOM's residents: Jamaica with 2.7 million people,⁸ Trinidad and Tobago with 1.3 million, and Guyana with 800,000.

CARICOM includes two major approaches to freedom of movement: (1) facilitation of travel with common travel documents and equal treatment for CARICOM nationals at ports of entry (Article 46 of the CARICOM Single Market and Economy agreement, or CSME of 2006); and (2) the free movement of skills (articles 32, 34d, 36, and 37 of the CSME). CARICOM members began issuing a common passport in 2005.

Article 45 of the revised Treaty of Chaguaramas says: “Member States commit themselves to the goal of the free movement of their nationals within the Community.” CARICOM began the freedom-of-movement process in January 1996 with five types of workers: graduates of approved universities,⁹ media workers, musicians, artists, and sports persons certified by professional bodies. Subsequent discussions extended free mobility to three more occupations: teachers, nurses, and domestic workers (Girvan, 2007, p. 39).¹⁰

Skilled workers wishing to move between CARICOM Member States must first obtain a Certificate of Recognition of CARICOM Skills Qualification, usually from their home Ministry of Labour, and present it to immigration authorities upon arrival in another CARICOM Member State to receive six-month temporary work-and-residence permits while the certificate is reviewed. After their credentials are verified, CARICOM skilled workers receive indefinite work-and-residence permits. CARICOM recognized the importance of

⁷ The treaty establishing the Caribbean Community and Common Market was signed at Chaguaramas, Trinidad and Tobago, on 4 July 1973. CARICOM Member States are: Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, St. Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname, and Trinidad and Tobago. Associate members are Anguilla, Bermuda, British Virgin Islands, Cayman Islands, and Turks and Caicos Islands.

⁸ Jamaica has a very high emigration rate – about 20,000 people a year, almost 1 per cent of the 2.6 million residents, are accepted as immigrants each year; 80 per cent by the United States. Short-term, seasonal movements to the United States are even more common. Lucas and Chappell (2009, p. 4) reported that 15 per cent of Jamaican households had a member who was outside Jamaica, and 28 per cent had a returned migrant.

⁹ The University of West Indies began as an external college of the University of London in 1948, and became fully independent in 1962. Today it has about 39,000 students on three campuses: Cave Hill, Barbados; Mona, Jamaica; and St. Augustine, Trinidad. There is also an open campus, and the University graduates about 5,800 students a year.

¹⁰ It is not clear how many domestic workers have moved since 2010. Antigua, Barbuda, and Belize were allowed to study the socio-economic impacts of free mobility for domestic workers for up to five years before adding them to the freedom of movement list.

skills certification and social security transferability for wage earners, and created a register of the self-employed, although progress in achieving full transferability of social security benefits has been slow.

Family members of skilled migrants are to have access to education on the same basis as nationals and access to emergency health care. A CARICOM register listing self-employed service providers is to be developed so that self-employed persons can move between CARICOM Member States to provide services that are in demand. Migrant service providers have the right to have their family members accompany them.

European Union

Freedom to move goods, capital, workers and services between Member States was a founding principle of the then European Communities in 1957. The EU says:

Free movement of workers entitles EU citizens to look for a job in another country, to work there without needing a work permit, to live there for that purpose, to stay there even after the employment has finished and to enjoy equal treatment with nationals in access to employment, working conditions and all other social and tax advantages that may help integrate in the host country.

In addition, "certain rights are extended to family members of the worker ... the right to live with the worker in the host Member State and the right to equal treatment as regards, for example, education and social advantages. Some members of the family have also the right to work there."¹¹ An EU migrant worker employed at least five years continuously in another Member State automatically acquires the right to permanent residence in that State.¹²

The major surprise is how few people move from one EU Member State to another. Fewer than 5 per cent of working age (15–64) EU citizens live in another EU State.

There are several limitations on freedom of movement. First, EU Member States may restrict jobs in the public sector that involve the exercise of national sovereignty to their own nationals, although the privatization of railroads, airlines, and other industries, as well as court decisions have reduced the number of jobs that are off-limits to citizens of other EU Member States. Second, existing EU Member States may choose to restrict freedom of movement for citizens of new Member States to prevent "disruptive migration" after enlargement. For example, Italians had to wait 10 years before they got freedom of movement rights (until 1967), and Greeks, Portuguese, and Spaniards had to wait seven years, but there were no restrictions on freedom of movement for Britons, Austrians, Swedes, and other later EU entrants of the so-called EU-15.

Freedom of movement is well established as a principle in the EU, but experience shows that encouraging movement requires continued monitoring to deal with issues that arise. For example, posted workers, i.e., those employed by a firm in one EU Member State and posted or sent to work in another, raise issues. Under the freedom to provide services, employers based in one EU State may win a contract in another

¹¹ See: European Commission, Employment, Social Affairs and Equal Opportunities at <http://ec.europa.eu/social/main.jsp?catId=458&langId=en>

¹² The European Free Trade Association (EFTA), established in 1960 by seven then-non-EEC members, today has four members, Iceland, Liechtenstein, Norway, and Switzerland. There is limited freedom of movement between the EU and EFTA. For example, the Swiss government in April 2013 announced that it would limit the number of long-term residence permits for EU citizens from the 15 long-term EU members to 53,700 for 2013, and the number for citizens of the so-called A8 members that joined the EU in 2004 to 2,180.

and send employees over borders to “service the contract”, which often means constructing or refurbishing a building or working in a factory or service business. The European Commission in 2008 estimated that 1 million workers were “posted” at least temporarily to an EU Member State of which they were not a citizen (Migration News, 2008).

Some of the richer EU Member States fear “social dumping” or an influx of posted workers from poorer States. To avoid downward pressure on wages, governments can require that posted workers be paid at least the local minimum wage, if there is one, prompting more EU countries – 21 of 27 in 2009 – to adopt national minimum wages. Germany did not have a national minimum wage until 2014, but developed one to deal with subcontracting that included the posting of workers from lower-wage EU Member States to Germany.

The European Commission (2007, p. 2) highlighted obstacles to freer movement of workers ranging “from legal and administrative obstacles, housing costs and availability, employment of spouses and partners, portability of pensions, linguistic barriers, and issues on the acceptance of qualifications in other Member States”. Regulation 492/2011 of 5 April 2011 detailed the rights of EU nationals moving within the EU, and a proposed directive issued 30 April 2013 (9124/13) outlined steps to reduce “practical obstacles” to intra-EU labour mobility by requiring, inter alia, each Member State to create an ombudsman to whom EU citizens can turn when they encounter obstacles to working in another EU country.

NAFTA

The North American Free Trade Agreement (NAFTA), which went into effect 1 January 1994, aimed to free up trade and investment between Canada, Mexico, and the United States. A Canada–United States FTA went into effect 1 January 1989, and the 1990 request of Mexican President Salinas for an FTA with the United States eventually led to NAFTA.

The purpose of NAFTA was to free up trade and investment, which it did. Canada, Mexico, and the United States are each other’s major trading partners, and several industries, particularly autos, have developed North American production systems, meaning that production activities occur in all three countries, and parts and assembly operations are closely integrated. Auto production is a showcase for the trade and investment promises of NAFTA, since autos that have at least 62.5 per cent North American components can be sold freely in the three partner countries.

NAFTA has 22 chapters, and Chapter 16 – Temporary Entry for Business Purposes¹³ – aimed to facilitate the entry of business visitors, traders and investors, intra-company transferees, and “specified professionals”, which are defined in the agreement as follows:

- business visitors are those who are primarily paid in their country of residence;
- a treaty trader or investor is an executive or supervisor moving to the country to engage in trade or manage an investment;
- an intra-company transferee is a manager or worker with specialized knowledge moving to a branch of a multinational to provide services; and

¹³ See the text of Chapter 16 at:
http://tcc.export.gov/Trade_Agreements/Exporters_Guides/List_All_Guides/NAFTA_chapter16_guide.asp

- NAFTA professionals are persons with at least a first university degree in 70+ occupations who have a job offer from an employer in the NAFTA country they are seeking to enter.¹⁴

The United States is the major destination for NAFTA-related business visitors (Martin and Ruhs, 2011). The first three groups of NAFTA-related migrants enter the United States with visas that existed before NAFTA went into effect, e.g., business visitors use B-1 visas to enter the United States; treaty traders and investors use E-1 and E-2 visas; and intra-company transferees of multinationals use L-1 and L-2 visas.

NAFTA created a new TN (trade-NAFTA) visa for the fourth group, NAFTA professionals, which allows employers in the United States to make job offers to Canadians and Mexicans who have college degrees and are coming to the United States to fill jobs that require college degrees. There has never been a quota on the number of TN visas available for Canadians, but there was a 5,500 per year quota on TN visas available to Mexicans between 1994 and 2004.

NAFTA was replaced in August–September 2018 by the 16-year United States–Mexico–Canada Agreement (USMCA), which raised the local content requirements for autos to trade freely in North America from the current 62.5 per cent to 75 per cent and requires 40 to 45 per cent of car components to be made by workers earning at least US\$16 an hour. However, the USMCA did not change NAFTA's labour mobility provisions, suggesting there was far more interest in auto manufacturing jobs than in the mobility of professionals.

There has been controversy in the United States over including free mobility provisions in FTAs. The United States signed bilateral FTAs with Chile and Singapore effective 1 January 2004 that provide up to 1,400 new-entry H-1B1 visas a year for Chilean professionals and 5,400 H-1B1 visas for Singaporean professionals, with H-1B1 visas taken from the 65,000 per year pool available to workers from all economies. H-1B workers can adjust from temporary to immigrant while in the United States via marriage or sponsorship from an employer; while H-1B1 workers must demonstrate that they plan to return to Chile or Singapore to get visas and cannot generally adjust their status while in the United States on an H-1B1 visa.

This H-1B1 “carve out” for Chile and Singapore prompted a backlash in Congress, which has traditionally taken the lead on immigration policy, while the executive branch via the United States Trade Representative (USTR) (www.ustr.gov) takes the lead in negotiating trade agreements.¹⁵ Senators amended the appropriation for the USTR to deny the USTR authority to negotiate future immigration-related provisions in FTAs.¹⁶

Source: Martin, 2013, updated for this paper.

¹⁴ See the list of professionals covered by NAFTA Appendix 1603.D.1 at:

<http://canada.usembassy.gov/business/doing-business-in-america/professions-covered-by-nafta.html>

¹⁵ Trade Promotion Authority gives the US President the authority to negotiate trade agreements and present them to Congress for expedited consideration (within 90 days).

¹⁶ This effort was led by US Senator Diane Feinstein, who in a 25 July 2003 speech announced that she would vote against the Chile and Singapore FTAs because they impinged on Congressional powers with “stealth immigration agreements”. She emphasized that the H-1B1 provision in the Singapore and Chile FTAs added new occupations to the list eligible for H-1B visas, including management consultants, disaster relief claims adjusters, physical therapists, and agricultural managers. Those receiving H-1B visas must normally have a bachelor's degree or “highly specialized knowledge” in the occupation in which they will work in the United States; the H-1B1 visa requires only “specialized knowledge” if the applicant does not have a bachelor's degree.



08

Conclusions and recommendations

APEC is an inter-governmental forum that has been a pioneer in forging consensus on many issues since 1989 among 21 economies that share a Pacific Ocean coastline. APEC's significant accomplishments include the development of the APEC Business Advisory Council in 1995, which led to the APEC Business Travel Card that allows visa-free travel between APEC member economies for business persons who apply for the card from their home government and are pre-cleared for visa-free entry by other APEC governments. The APEC Business Travel Card is an example of what APEC does best – facilitating cross-border activities among APEC member economies, which reduces transaction costs.

The purpose of this baseline report is to help improve labour market and labour mobility data collection, reliability, sharing, and comparability. Better labour market information and labour mobility data can better connect businesses and workers to new economic opportunities. The majority of APEC economies collect labour market and migration data, but the data is not always complete, comparable or widely available, limiting their ability to link workers and employers across borders.

8.1. Labour market information

The report examined the sources and completeness of the labour market information collected regularly by each of the 21 APEC economies. The focus was on 13 key labour market indicators. The baseline assessment has found that some data are being collected in all APEC economies, but more work needs to be done to harmonize concepts and definitions.

While some APEC economies have transitioned to the 19th International Conference of Labour Statisticians (ICLS) conceptual framework with regards to employment, others still use the 13th ICLS conceptual framework. There are discrepancies from the standard (ILO) definitions with respect to some economies.

There are six indicators for which ILO modeled estimates are available (and hence comparable).

Resolution I of the 20th ICLS Conference provides guidance on how to improve methods to update statistical programmes that include information on “work relationships”. In this regard, with respect to future work, the Resolution calls for the ILO to work collaboratively with countries and regional organizations, among others, to “undertake further conceptual and methodological work on the measurement of workers whose employment is intermediated through Internet-based platforms or apps” (ILO, 2018a, p. 68).

8.2. Comparability of National Occupational Classifications

The study reviewed the comparability of the National Occupational Classifications (NOCs) used by APEC economies. All APEC economies use occupational and industry classification systems that are adapted from or aligned with the ILO's ISCO-1988 or ISCO-08 standards. For occupational data to be comparable, greater alignment of NOCs with the most recent ISCO-08 is required to allow comparison of ISCO and the APEC NOCs. As a starting point, APEC economies could align NOCs for selected occupations experiencing labour shortages.

8.3. International labour migration statistics

Almost all APEC economies can generate estimates of international labour migrant stocks and profile migrants according to key labour market indicators from population censuses. However, censuses are conducted in different years, which might affect comparability of estimates on the regional level. Comparability would be enhanced by common definitions of key labour market indicators. Data collection and sharing efforts in ILMS need to be strengthened, particularly with regard to citizens abroad and international migration flows.

Labour force surveys are carried out every one to three-months in most APEC economies, except Brunei Darussalam. However, some of the key questions on migration are missing in some of the surveys.

Administrative records of international migration and labour migration can be based on different approaches: (a) one-time-only registration; (b) regularly renewed registration; or (c) registration and deregistration of individual migrants. In the case of APEC, further research is needed on the information in administrative databases, especially in China, Hong Kong (China), Mexico, New Zealand, Papua New Guinea, Chinese Taipei, and the United States. For the remaining APEC economies, some labour mobility statistics are collected (mostly by receiving economies) on incoming international migrants and/or migrant workers. Most APEC economies are producing a host of data around labour migration stocks, flows, and citizens abroad.

In July 2018, the ILO Statistical Department's ILOSTAT restarted the collection of ILMS at a global level – supported by Statistics Korea (KOSTAT). The ILMS database was created in 1998 by ILOSTAT, EUROSTAT, the United Nations Statistics Division and United Nations Economic Commission for Europe, and was regularly updated for 94 economies until 2006. Instead of creating a separate platform, it may be optimal for APEC economies to participate and share data

on this database.¹ Further, in order to build more capacity in the collection of comparable labour mobility data, it may be considered to develop a tool on: International Migration Statistics in APEC Economies – Guidelines for Improving Data Collection.

Migration status has become a mandatory disaggregation variable for monitoring progress of the SDG Agenda, which means that all economies are or should be moving towards identification of international migrants for official reporting processes in their own statistical processes. Gender is also a mandatory disaggregation variable under the SDGs and international labour migration statistics.

Five APEC destination economies – Australia, Brunei Darussalam, Canada, Hong Kong (China), and Malaysia – currently share data on wages by sex for total, migrant, and non-migrant populations; with Hong Kong, China being the only one to share median rather than average wages. Such information is essential to track gender wage gaps across domestic and migrant populations and examine their causes.

The APEC region has labour market gaps at various skill levels. In Brunei Darussalam, Malaysia, and the Russian Federation, migrant labour is over-represented in medium- and low-skill jobs, with 74, 95 and 82 per cent of migrants occupying such posts, in each respective economy; while the same non-migrant labour shares are 54, 68, and 55 per cent of total wage employment. In Australia, the share of migrant workers in high-skill occupations is higher than the share of non-migrant workers, a significant contrast to other APEC economies.

8.4. Labour mobility

When the labour migration processes of a receiving economy are employer-led, admission for work often begins with an employer's request. However, data and systematic assessment can help governments respond to employer requests for migrant workers more effectively via shortage lists and similar initiatives. APEC economies making a systematic assessment (to a lesser or greater extent) of skills and labour shortages include: Australia, Canada, China, Hong Kong (China), Japan, Republic of Korea, Malaysia, the Russian Federation, and the United States.

Determining skills and labour market needs is essential for effective policy-making in a number of areas. It supports the functioning of labour markets, the internal mobility

of labour, and foreign labour recruitment. Specifically with regard to labour mobility, it is important to assess the nature of existing and potential labour shortages on the basis of robust labour market information.

Employers claim there are labour shortages, forcing governments to react, which means admitting migrant workers or denying employers' access to migrant workers and encouraging other adjustments. There are a number of ways for governments to react. Flexible mechanisms for identifying and meeting labour demand that are close to economic realities and that involve social partners in decision-making on migration planning are often the most effective.

All APEC member economies collect labour market data, and most labour-receiving economies have data that member economy governments can use to respond to employer complaints of labour shortages. The integration of big data analysis with traditional methods of data elicitation – such as surveys – can enrich the analytical value of existing data elicitation strategies, while reducing the overall research costs. There are also private sector assessments that can provide valuable insights on skills shortages at sectoral and occupation levels

Labour-receiving APEC economies need to determine the industries, occupations, and areas likely to face labour shortages on an ongoing basis. International attempts to identify labour shortages are based on different methods, and most approaches do not rely on a single indicator. Clearly, labour demand indicators (job vacancies and hard to fill vacancies) are critical; however, labour supply indicators (e.g., unemployment rate and the size of the informal economy), labour matching indicators, macro-economic trends, and migration statistics need to be taken into account as well (ILO, 2009a).

Governments in sending economies also face challenges preparing workers for jobs abroad. When doctors and engineers cross borders and find that their skills are not recognized, they work in jobs that do not require the credentials they have earned, and the result is termed as "brain waste". The brain waste in lower-skill occupations is often overlooked. Better labour market data and the alignment of occupational training could minimize brain waste for many health-care workers and construction trades, but have more limited effects when sending and receiving economies are very different.

¹ APEC economies that are participating in the ILOSTAT portal/database include: Australia, Brunei Darussalam, Canada, Chile, China, Hong Kong (China), Indonesia, Japan, Republic of Korea, Malaysia, Mexico, Peru, the Philippines, the Russian Federation, Singapore, Thailand; the United States, and Viet Nam.

Labour shortage complaints in APEC economies are frequent in several industries and occupations, and better data can help to pinpoint exactly which sub-sectors are most likely to complain of labour shortages. This also throws up an important policy challenge as to how member economy governments should respond. Should governments take employer labour shortage complaints at face value and admit the number of migrants requested, or should they require employers to first raise wages, restructure work, or take other steps that may reduce the demand for labour and thus the number of migrant workers requested? APEC economies are grappling with these questions even as they take steps to relieve labour and skills shortages. Guidelines and tools for APEC economies on "Assessing Labour Market Requirements for Migrant Workers" and "Policy Options in Responding to Employer Complaints on Labour Shortages" may be considered for development.

Better data availability and standardization will provide a platform for governments to make more informed choices on labour mobility. This in turn could spur actions addressing other barriers to mobility, including cumbersome immigration regulations and high migration costs. Further, in some economies the occupations reserved for domestic jobseekers are quite numerous, and mutual recognition arrangements nascent. Lowering the barriers to mobility among APEC economies and in regional communities like ASEAN would increase the welfare gains workers receive from economic integration.

The labour protection of all workers, including migrants, is integral to labour mobility and is line with the SDGs. Regional communities like ASEAN (where seven out of ten members are APEC economies) have developed regional instruments and processes to promote the protection of the rights of migrant workers.

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Appendix

A. ILO definitions

Unemployment rate (UR)

The unemployment rate is the number of persons who are unemployed as a per cent of the total number of employed and unemployed persons (i.e., the labour force).

$$UR (\%) = \left(\frac{\text{Persons unemployed}}{\text{Labour force}} \right) \times 100$$

$$UR (\%) = \left(\frac{\text{Persons unemployed}}{\text{Persons employed} + \text{persons unemployed}} \right) \times 100$$

Labour force participation rate (LFPR)

The labour force participation rate is a measure of the proportion of a country's working-age population that engages actively in the labour market, either by working or looking for work; it provides an indication of the size of the supply of labour available to engage in the production of goods and services, relative to the population at working age. The labour force comprises all persons of working age who furnish the supply of labour for the production of goods and services during a specified time-reference period. It refers to the sum of all persons of working age who are employed and those who are unemployed.

$$LFPR (\%) = \left(\frac{\text{Labour force}}{\text{Working-age population}} \right) \times 100$$

$$LFPR (\%) = \left(\frac{\text{Persons employed} + \text{persons unemployed}}{\text{Working-age population}} \right) \times 100$$

Youth unemployment rate

The youth unemployment rate is the number of persons aged 15–24 who are unemployed as a per cent of the total number of employed and unemployed persons aged 15–24.

Proportion of own-account workers and contributing family workers in total employment

The rate of own-account workers is the share of own-account workers in total employment. "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 a "self-employment jobs", and have not engaged on a continuous basis any employees to work for them.

The rate of contributing family workers is the share of contributing family workers in total employment. "Contributing family workers" are those workers who hold "self-employment jobs" as own-account workers in a market-oriented establishment operated by a related person living in the same household.

Additional information: The classification by status in employment refers to inherent characteristics of the jobs held by the employed population. Jobs can be classified with respect to the type of explicit or implicit contract of employment the person has with other persons or organizations. The basic criteria used to define the groups of the classification are the type of economic risk and the type of authority over establishments and other workers which the job incumbents have or will have.

Average hourly earnings by occupation group

The earnings of employees relate to the gross remuneration in cash and in kind paid to employees (as a rule, at regular intervals) for time worked or work done together with remuneration for time not worked, such as annual vacation, other type of paid leave or holidays. Earnings exclude employers' contributions in respect of their employees paid to social security and pension schemes and also the benefits received by employees under these schemes. Earnings also exclude severance and termination pay. This is a harmonized series: (1) data reported as weekly, monthly, and yearly are converted to hourly using data on average weekly hours if available; and (2) data are converted to a common currency, using exchange rates for the series in US dollars and using 2011 purchasing power parity (PPP) rates for the series in constant 2011 PPP \$. The latter series allows for international comparisons by taking account of the differences in relative prices between countries.

Average real wages

The concept of earnings, as applied in wages statistics, relates to gross remuneration in cash and in kind paid to employees (as a rule, at regular intervals) for time worked or work done together with remuneration for time not worked, such as annual vacation, other type of paid leave or holidays. Earnings exclude employers' contributions in respect of their employees paid to social security and pension schemes and also the benefits received by employees under these schemes. Earnings also exclude severance and termination pay. Statistics of earnings presented in ILOSTAT refer, to the extent possible, to employees' gross remuneration, i.e., the total before any deductions are made by the employer in respect of taxes, contributions of employees to social security and pension schemes, life insurance premiums, union dues, and other obligations of employees. Earnings include direct wages and salaries, remuneration for time not worked (excluding severance and termination pay), bonuses and gratuities, and housing and family allowances paid by the employer directly to this employee.

Occupational segregation by sex

Occupational segregation by sex is the distribution of workers across and within occupations, based upon sex. Occupational segregation levels differ on a basis of perfect segregation and integration.

Employment-to-population ratio

The employment-to-population ratio is defined as the proportion of a country's working-age population that is employed.

$$EPR(\%) = \left(\frac{\text{Persons employed}}{\text{Working-age population}} \right) \times 100$$

Unemployment by level of educational attainment

The unemployment rate is the number of persons who are unemployed as a per cent of the total number of employed and unemployed persons (i.e., the labour force). Data by level of education are provided on the highest level of education completed. Data presented by level of education is based on the International Standard Classification of Education (ISCED). The ISCED is a statistical framework for organizing information on education maintained by the United Nations Educational, Scientific and Cultural Organization (UNESCO).

Time-related underemployment rate

The time-related underemployment rate is a measure of labour underutilization that *provides information* regarding the share of employed persons who are willing and available to increase their working time and worked fewer hours than a specified threshold. It complements other indicators of labour underutilization such as the unemployment rate.

$$TRU(\%) = \left(\frac{\text{Persons in time-related underemployment}}{\text{Persons employed}} \right) \times 100$$

Additional information: Persons in time-related underemployment comprise all persons in employment, who satisfy the following three criteria during the reference period:

- a. are willing to work additional hours;
- b. are available to work additional hours, i.e., are ready, within a specified subsequent period, to work additional hours given opportunities for additional work; and
- c. worked less than a threshold relating to working time, i.e., persons whose hours actually worked in all jobs during the reference period *were below a threshold*, to be chosen according to national circumstances.

Labour productivity

Labour productivity represents the total volume of output (measured in terms of gross domestic product, or GDP) produced per unit of labour (measured in terms of the number of employed persons) during a given time reference period.

$$\text{Labour productivity} = \left(\frac{\text{GDP at constant prices}}{\text{Number of employed persons}} \right) \times 100$$

Additional information: In ILOSTAT's indicator, output is measured as GDP for the aggregate economy expressed at purchasing power parities (PPP) to account for price differences in countries. The GDP represents the monetary value of all goods and services produced within a country over a specified period of time.

Employment by branch of economic activity

This indicator provides information on the relative importance of different economic activities with regard to employment. The classification by economic activity refers to the main activity of the establishment in which a person worked during the reference period. The branch of economic activity of a person does not depend on the specific duties or functions of the person's job, but on the characteristics of the economic unit in which this person works. Data presented by branch of economic activity is based on the International Standard Industrial Classification of All Economic Activities (ISIC).

B. Discrepancies with ILO Definitions in Selected Labour Market Indicators in APEC Economies

The below discrepancies, according to ILOSTAT, have been identified in "Type of Source: Labour Force Survey" for the selected indicators:

Employment-to-population ratio

- a. Brunei Darussalam: "Employment definition: Excluding own-use production workers"
- b. Peru: "Geographical coverage: Main city or metropolitan area"
- c. Singapore:
 - "Employment definition: Excluding own-use production workers"
 - "Population Coverage: Nationals; Residents"
- d. United States of America: "Nonstandard age group: Excluding age 15"

Unemployment rate

- a. Brunei Darussalam: "Employment definition: Excluding own-use production workers"
- b. Peru:
 - "Unemployment definition: Two criteria (not in employment and seeking or currently available)"
 - "Geographical coverage: Main city or metropolitan area"
- c. Singapore: "Population Coverage: Nationals; Residents"
- d. United States of America: "Nonstandard age group: Excluding age 15"
- e. Thailand (only until 2012): "Unemployment definition: Two criteria (not in employment and seeking or currently available)"

Labour force participation rate

- a. Brunei Darussalam: "Employment definition: Excluding own-use production workers"
- b. Peru: "Geographical coverage: Main city or metropolitan area"
- c. Singapore:
 - "Employment definition: Excluding own-use production workers"
 - "Population Coverage: Nationals; Residents"
- d. United States of America: "Nonstandard age group: Excluding age 15"

Youth unemployment rate

- a. Brunei Darussalam: "Employment definition: Excluding own-use production workers"
- b. Peru:
 - "Unemployment definition: Two criteria (not in employment and seeking or currently available)"
 - "Geographical coverage: Main city or metropolitan area"
- c. United States of America: "Nonstandard age group: Excluding age 15"

Proportion of own-account workers and contributing family workers in total employment

- a. Brunei Darussalam: "Employment definition: Excluding own-use production workers"
- b. Canada (for own-account workers): "Nonstandard status in employment group: including employers"
- c. Peru: "Geographical coverage: Main city or metropolitan area"
- d. Singapore:
 - "Employment definition: Excluding own-use production workers"
 - "Population Coverage: Nationals; Residents"
- e. United States of America: "Nonstandard status in employment group: including employers"

Average hourly earnings by occupation group

- a. Viet Nam: "Geographical coverage: Excluding overseas territories"

Average real wages

- a. Brunei Darussalam: "Employment definition: Excluding own-use production workers"
- b. Hong Kong, China: "Central tendency measure: Median"
- c. Singapore: "Central tendency measure: Median"
- d. Viet Nam: "Including overtime and and/or irregular bonuses"

Occupational segregation by sex

- a. Australia: "Total national, excluding overseas territories"
- b. Brunei Darussalam: "Employment definition: Excluding own-use production workers"
- c. Japan: "Employment definition: Excluding own-use production workers"
- d. Republic of Korea:
 - "Employment definition: Excluding own-use production workers"
 - "Total national, excluding overseas territories"
- e. Peru: "Geographical coverage: Main city or metropolitan area"
- f. Singapore: "Population Coverage: Nationals; Residents"

Unemployment by level of educational attainment

- a. Australia: "Total national, excluding overseas territories"
- b. Brunei Darussalam: "Employment definition: Excluding own-use production workers"
- c. Canada: "Advanced Education: Nonstandard education level: Including 4 (Post-secondary non-tertiary education)"
- d. Hong Kong:
 - "Geographical coverage: Government controlled areas"
 - "Nonstandard education level, including 0-2 and 6-8"
- e. Japan: "Employment definition: Excluding own-use production workers"
- f. Peru:
 - "Unemployment definition: Two criteria (not in employment and seeking or currently available)"
 - "Geographical coverage: Main city or metropolitan area"
- g. Singapore:
 - "Population Coverage: Nationals; Residents"
 - "Nonstandard education level: Including X-0"
- h. Thailand (only until 2012): "Unemployment definition: Two criteria (not in employment and seeking or currently available)"
- i. United States of America: "Nonstandard age group: Excluding age 15"

Time-related underemployment rate

- a. Brunei Darussalam: "Employment definition: Excluding own-use production workers"
- b. Japan: "Employment definition: Excluding own-use production workers"
- c. The Russian Federation (for 25+): "Nonstandard age group: Excluding age 73+"
- d. Singapore: "Population Coverage: Nationals; Residents"
- e. United States of America: "Nonstandard age group: Excluding age 15"

Labour productivity

- All data are based on ILO modeled estimates

Employment by branch of economic activity

- All data are based on ILO modeled estimates

Real GDP per capita

- Not applicable

Labour mobility and labour market data: A baseline study of APEC economies

This report was prepared for the APEC Labour Mobility Statistics Forum held on 2-3 May 2019 in Viña del Mar, Chile. The report was commissioned by the Department of Jobs and Small Business, Government of Australia, and prepared by the ILO Regional Office for Asia and the Pacific, with contribution from the APEC Secretariat, Policy Support Unit.

The paper summarizes the migrant labour and key labour market data available in some of the 21 APEC economies with a view to improve data collection and to facilitate data sharing. The aim is to help develop comparable data and encourage governments to collect and provide timely data to improve skills matching across borders, thus for example, helping to mitigate youth unemployment in labour-sending economies and to fill job vacancies in labour-receiving economies.

The Baseline Report is conceived in four parts:

- an overview of labour market and labour migration trends in the APEC region;
- data collection and sharing on labour market indicators;
- international labour migration statistics; and
- approaches to identify labour and skills shortages.

Following these four areas, the paper lays out the regional dimensions and offers conclusions and recommendations.

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