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GLOBAL EMPLOYMENT TRENDS FOR YOUTH 2017

Paths to a better working future

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Abbreviations

apps	applications
ALMP	active labour market policy
ASEAN	Association of Southeast Asian Nations
EPR	employment-to-population ratio
EU-28	European Union 28 member states
GET	Global Employment Trends (series)
ICT	information and communications technology
IT	information technology
ILO	International Labour Office, International Labour Organization
ISCO	International Standard Classification of Occupations
LFPR	labour force participation rate
NEET	not in employment, education or training
OECD	Organisation for Economic Co-operation and Development
OSH	occupational safety and health
PIAAC	Programme for the International Assessment of Adult Competencies
SDGs	Sustainable Development Goals
STEM	science, technology, engineering and mathematics
UN	United Nations
WHO	World Health Organization

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1. Introduction

1.1 Overview

There has been a modest economic recovery, though youth unemployment remains high and employment quality a concern.

The global economic outlook for 2017 and 2018 is positive and growth is projected to accelerate modestly due to moderate pickups in investment and trade, mainly led by advanced economies. However, job growth does not always accompany economic recovery, a situation which affects, especially, young people who are entering the job market in record numbers.

The global youth unemployment rate is expected to rise slightly in 2017, reaching 13.1 per cent, although the expected 70.9 million young unemployed is well below the crisis peak of 76.7 million in 2009. In Latin America and the Caribbean, the youth unemployment rate is expected to continue increasing, while European youth will see further improvement in unemployment, both trends being present since 2013. Youth unemployment rates are likely to remain stable in sub-Saharan Africa, and Eastern and Southern Asia. They will increase slightly in other parts of Asia and the Pacific and Northern America while falling slightly in Northern Africa and the Arab States. Despite this improvement, the Arab States (closely followed by Northern Africa) continues to be the region with the highest youth unemployment rate at 30.0 per cent in 2017.

Youth are three times as likely as adults to be unemployed. Globally, the ratio of youth to adult unemployment rates has changed very little in recent years, serving to illustrate the particularly disadvantaged situation of young people in the labour market.

When young women and men do find employment, quality remains a concern. In emerging and developing countries, 16.7 per cent of young workers live on income below the extreme poverty threshold of US$1.90 a day, partly because they often start their working lives in the informal economy. Globally, three out of four employed young women and men are in informal employment, compared to three in five for adults. In developing countries, this ratio is as high as 19 out of 20 for young women and men.

Youth labour force participation declined sharply in the past 20 years …

In terms of numbers, the youth labour force shrank by 34.9 million between 1997 and 2017, even though the youth population grew by 139 million persons. Around half of the world's young people (aged 15–24) are in the labour force. Over the last twenty years, however, the proportion of youth who actively engaged in the labour market, either by working or looking for work (the global labour force participation rate), declined from 55.0 per cent to 45.7 per cent. This trend was partly driven by the positive development of young people remaining longer in education. The less positive immediate implication is the consequent reduced availability of human resources for global production and greater dependency on productive resources.

However, it is projected that this decreasing trend will be reversed in the coming years. Between 2017 and 2030, the global youth labour force aged 15–24 will increase by

41.8 million people, driven by trends in Africa. Young people aged 15–24 in Africa and Asia and the Pacific will comprise 77.0 per cent of the world's youth labour force by 2030. For the labour force aged 25–29, a declining trend will continue, with a projected reduction of 16.2 million during the same period. Therefore, for the larger youth cohort of 15–29, the labour force expansion by 2030 will be 25.6 million (see box 3.2 on defining age groups for young people, in Chapter 3).

... and many young women and men are out of the labour market for reasons other than education.

An estimated 21.8 per cent of young people are neither in employment nor in education or training (NEET), most of them female. Male NEET rates are lowest in developing countries at 8.0 per cent, followed by emerging countries at 9.6 per cent, and developed countries at 11.3 per cent. NEET rates are lower in developing countries where, in the absence of social protection mechanisms, people cannot afford not to work, even if such work is vulnerable and does not provide adequate earnings. Regionally, male NEET rates are lowest in Eastern Asia at 3.7 per cent, followed by Southern Asia at 5.8 per cent. Rates are highest in Northern Africa at 16.7 per cent, followed by Central and Western Asia at 14.8 per cent.

Female NEET rates are much higher. Globally, the female NEET rate is 34.4 per cent, compared to 9.8 per cent for males. Young women comprise three out of every four young NEETs, and the disparity is greatest in emerging countries where four out of five young NEETs are female. In Southern Asia, in particular, nine out of ten young NEETs are women.

The high NEET rates in emerging and developing countries are driven by the large numbers of young men and, above-all, young women, who are inactive and thus do not participate either in the labour force or in education. This contrasts with developed countries where around half of NEETs are unemployed, but available and looking for employment.

Reducing youth NEET rates is one of the primary targets of the 2030 Agenda for Sustainable Development under Goal 8 on "Promoting sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all". However, given the huge gender disparity in emerging and developing countries, the goal of reducing the youth NEET rate is also directly linked to SDG 4, "Ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all", and SDG 5, "Achieving gender equality and empower all women and girls" (see box 1.1).

As the global population ages, young workers will need to support more elderly people …

The global population is ageing. In 2015, youth aged 15–24 constituted 16.2 per cent of the total population, while adults aged 65 or older amounted to 8.3 per cent. By 2030, the share of youth will fall slightly, to 15.2 per cent, while the share of people aged 65 or older will rise to almost 12 per cent. By 2050, the older population is projected to outnumber young persons and this implies that the active workforce must sustain the pension and health-care schemes for a growing number of retired workers. In developed countries, in particular, migration may partially offset the effects of an aging population and shrinking labour force. Today, around 70 per cent of migrant flows are people younger than 30.

… yet transitions to decent work can be long and difficult …

The school-to-work transition is a critical stage for many young workers, and should ideally lead to a stable and satisfactory job. In higher-income countries, the first transition is more likely to be into stable wage employment. In low-income countries, however, the young people quickest to find jobs may be those who have not gone to school or who have moved directly

Box 1.1 Youth employment features prominently in the Sustainable Development Goals

The 2030 Agenda for Sustainable Development places full and productive employment and decent work for youth at the centre of the new development vision. It emphasizes the catalytic power of youth employment in poverty alleviation, economic growth, and peace and prosperity for all. Targets under Goal 8 in particular, as well as several other goals, recognize the centrality of youth employment challenges, and open pathways for consistent and focalized action on decent jobs for youth, and youth development overall.

Key youth-specific targets include:

- 4.4: "By 2030, increase the number of **youth** and adults who have relevant skills, including technical and vocational skills, for employment, decent jobs and entrepreneurship";
- 4.6: "By 2030, ensure that all **youth** and a substantial proportion of adults, both men and women, achieve literacy and numeracy";
- 8.5: "By 2030, achieve full and productive employment and decent work for all women and men, including for **young people** and persons with disabilities, and equal pay for work of equal value";
- 8.6: "By 2020, substantially reduce the proportion of **youth** not in employment, education or training";
- 8.b: "By 2020, develop and operationalize a global strategy for **youth** employment and implement the Global Jobs Pact of the International Labour Organization"; and
- 13.b: "Promote mechanisms for raising capacity for effective climate change-related planning and management in least developed countries and small island developing States, including focusing on women, **youth** and local and marginalized communities."

Source: United Nations: *Transforming our world: The 2030 Agenda for Sustainable Development*, General Assembly, 70th session, Resolution adopted by the General Assembly on 25 Sept. 2015, A/RES/70/1 (New York).

from school into irregular employment, often self-employed, and they continue in this form of employment over their lives. A rapid and direct entry into the workforce in these countries, thus, is not necessarily a sign of success.

These differences are revealed by the International Labour Organization's (ILO) School-to-Work Transition Surveys (SWTS). Findings from 34 countries surveyed between 2012 and 2016 indicate that the average time for the full transition to a stable and satisfactory job was 13.8 months – 14.4 months for females and 13.7 months for males. Young people living in rural areas had a longer transition, 15.4 months, compared to their urban counterparts, 13.3 months. The longest average transition time was in Eastern Europe and Central and Western Asia, at 17.9 months. A glimpse at transitions among those aged 25–29 shows that, overall, 34.3 per cent in upper middle-income countries transited into stable employment, while in low-income countries it was only 11.2 per cent. For self-employment, the pattern is reversed: in upper middle-income countries, only 6.8 per cent of young adults transited into satisfactory self-employment, but in low-income countries it was 23.0 per cent.

It is important to note that, across countries, youth transitions into the labour market are shaped not only by their personal characteristics (e.g. education level) but also depend on the number and kind of jobs available in the market.

… but improve with higher levels of education and by combining work and study.

Young people who are more likely to start their careers in stable, satisfactory employment are those who have relevant education and training. Globally, for primary school graduates the transition took 22.2 months on average (based on the data from 2012–16), for secondary graduates it was 14.3 months, and for tertiary graduates, it was 8.5 months. On average, the duration was 1.6 times longer for primary than secondary graduates, 1.7 times longer for secondary than tertiary graduates, and 2.6 times longer for primary than tertiary graduates.

Many young people also combine work and study. A quarter of those still in school (on average from 2012–16) are working or had worked at some point. In all regions, the transition to work was shortest for young people who combined work with study.

To add to the complexity, new automation and digital technologies pose further challenges – though their impact will be uneven across countries, sectors, younger and older workers.

Historically, many waves of technological change have transformed the world of work. The current phase of technological progress, being referred to as the Fourth Industrial Revolution, will likely have far-reaching impacts on both the quantity and nature of jobs available. Some of the new and emerging technologies substitute labour, others complement it. Although the net impact of such change is impossible to predict, it is clear that these future changes will affect different people in different ways.

Robots and automation technologies for manufacturing and services are still significantly concentrated in developed countries, whereas developing and emerging countries continue to rely on low-skilled and low-waged workers. As technologies evolve, costs will likely decrease, and diffusion increase, reducing the comparative advantage of low-cost labour, with important implications for young workers entering the labour market. At the same time, new technologies and automation of more complex and non-routine tasks will impact employment in countries across all economic levels.

The impacts of technology on jobs and workers will be uneven. They will depend on a country's level of development, the structure of its economy and on how well prepared the workforce is to adapt to changing labour market requirements. There are many young women and men in developing countries who will for some time to come remain unaffected by the frontline technological changes taking place – but who will nevertheless need to adapt to a world being transformed by digitalization and automation.

The recent past provides some clues about which sectors young workers are moving into – and clearly the trend is towards services, as manufacturing jobs contract.

Trends from the last decade suggest prominent growth sectors for young workers include: financial services; trade, hotels, and restaurants; transport and storage, information and communications; and health services (including care work and social work activities). The percentage share of young workers in financial services has grown in Asia and the Pacific, Eastern Europe, Central and Western Asia, and Latin America and the Caribbean while it has declined in Northern, Western and Southern Europe and Northern America. Across the board, there has been growth in the trade, hotel and restaurant sector, in transport and storage and information and communication, as well as in the health services sector. Future job prospects, however, will depend on how technological change evolves in these sectors.

In the developing regions of Africa, Asia and the Pacific, and Latin America and the Caribbean, employment in agriculture is declining for both young and older workers, though a sizable number of young workers remain in agriculture. In Africa, the percentage point decline of young workers in agriculture is small, relative to adults, and raises questions about productive transformation and non-farm employment opportunities for youth in the region. On the other hand, young workers in Africa are increasing their share of employment in construction at a faster rate than older workers.

Manufacturing employment has declined in most regions in recent years, though it remains a significant employer – accounting for roughly 10 per cent of employment in Africa, 20 per cent of employment in Eastern Europe and Central and Western Asia, and approximately 17 percent in Asia and the Pacific. In Asia and the Pacific, in particular, the employment share of young workers in the manufacturing sector has increased much more than for older workers, driven by trends in China. Manufacturing has always involved mechanization and automation, but the industry is now being transformed by new technologies that are taking on a wider range of tasks formerly performed exclusively by humans, as robots do more of the work that requires dexterity and flexibility.

Demand will increase for science, technology, engineering and mathematics, as well as transversal skills, and decrease for some medium-level skills …

The implications of adopting new technologies will vary depending on the skills being replaced by automation. It is easiest to automate manual and cognitive tasks that consist of routine and repetitive steps. Machines are, however, still less able to perform non-routine, non-repetitive, more complex cognitive and social tasks that require skills such as problem-solving, critical thinking, and creativity.

Technology will substitute labour in some tasks, but increase the demand for labour in others. Trends from the last decade point towards an increase in share of high-skilled workers in most sectors, while the share of semi-skilled workers is declining. Trends in emerging technologies and the changing skill composition of sectors in which youth are increasingly engaged support these findings. However, especially in developing countries of Africa and Asia and the Pacific, the share of low-skilled workers has been increasing in some sectors, and will likely continue in the near future. These sectoral shifts and the changing composition of skills could contribute to increasing inequality.

… and young workers who grew up as "digital natives" should be well-placed to adapt to new jobs and continuous change.

Young workers are thus embarking upon a new world of work, often doing jobs that did not exist in the past. On average, young workers are now better educated than previous generations. In addition, having grown up in an environment that is more open to technology, they are better placed than adults to reap opportunities arising from the current wave of technological change, and can more easily adapt to new jobs and digital disruptions. Young workers have a comparative advantage in computer use compared to older workers, and analysis of Organisation for Economic Co-operation and Development (OECD) data suggests young workers are better equipped to solve problems in technology-rich environments than older workers.

The way in which young workers engage in the labour market is also changing, with a clear move towards less secure forms of work …

The world of work for today's youth is quite different from that experienced by their parents. Previous generations of young workers, particularly in developed countries, might have looked forward to a "job for life". Today, more young people are starting their working lives with short-term work arrangements, increasingly in the platform and gig economies.

Nowadays, fewer young people are in vulnerable employment, defined as own-account workers or contributing family workers. Instead, most young women and men aged 15–29 are now employees and the proportion has been increasing, particularly in low- and middle-income countries globally. This boom in wage employment is, however, not necessarily reflecting more secure or better quality jobs. In low and lower middle-income countries, this growth of young employees has led to more casual wage employment, while in upper middle-income countries there has been growth in temporary, casual and gig work. In high-income countries, one in three young workers does not have an employment contract. In upper middle-income countries, it is one in two, and in low and lower middle-income countries, three out of four young workers have no contract. Young people in rural areas are one-third as likely to have contracted employment compared to their urban counterparts, and 40 per cent more likely to be in casual wage work without a contract.

… often facilitated by internet technology.

In high-income countries, a rapidly increasing proportion of the labour force is in internet-related employment, including crowd work and the gig economy. In many developing and emerging countries this trend is being encouraged because of its potential to provide job opportunities for young people. Such work, if well managed, has the potential to improve the work-life balance and offer greater independence and self-reliance. Nevertheless, some of these new forms of employment are associated with lower wages, fewer opportunities for training and limited access to social protection and other work-related benefits. The inherent uncertainty of securing the next work assignment can heighten job-related stress among young people.

While young women and men are ready to ride the wave of new technologies, they value stability and security in their working lives.

The ILO's Future of Work Survey asked young people how they envision their work life in the next ten to 15 years. Many regarded the future either "with fear" or "with uncertainty" – and this response was more prevalent in developed countries. They also believed that new technology will both create and destroy jobs, though again, the job destruction view was stronger amongst young people in developed countries. Few young people reported that they have security in their current job, although around a third of them expected to find a secure occupation within the next ten years. Young people want jobs that provide good wages and possibilities for career development, as well as social protection and benefits. They value flexibility but prioritize job security and income.

Technology can be divisive but also inclusive. Realizing potential opportunities for youth in a technology-rich labour market requires clear strategies and policies …

New technologies are reshaping jobs, and that change is happening rapidly, adding to existing challenges in the labour market. It remains uncertain if there will be enough decent employment opportunities for the 25.6 million more young persons in the labour market between 2017 and 2030. Achieving the Sustainable Development Goal (SDG) 8 vision of full and productive employment and decent work for all women and men, including for youth, will be a major challenge unless demand for work increases along with skills and productivity.

In the past decade, there has been a trend towards job polarization, with increasing employment of low- and high-skilled workers, potentially adding to existing inequalities. In addition to changing the jobs that young people do, new technology is creating different forms of employment that offer both opportunities and risks, and this will require strengthened regulation and more comprehensive labour market governance.

A favourable future of work for young women and men can be achieved but it will require political will and focused action. Young people must have a voice in the decision-making processes that shape their future, and must have their rights and well-being protected, especially the disadvantaged and vulnerable among them. Coordinated and coherent strategies are needed based on research and dialogue with workers' and employers' organizations and youth groups. Pro-employment economic and labour market policies will figure prominently in such a strategy, as will skills development, robust labour market institutions and a strong commitment to tripartism. The exact policy mix will depend on the country context, but it is essential that the youth employment agenda is integral to the national and global development agendas.

… along with global partnerships to ensure a better future for youth.

Decent Jobs for Youth is the global initiative to scale up action and impact on youth employment under the 2030 Agenda for Sustainable Development. It brings together the vast resources and in-depth expertise of multiple partners to create linkages and synergies that maximize the effectiveness of youth employment investments. Launched in 2016 with the endorsement of the executive heads of the United Nations, *Decent Jobs for Youth* addresses fragmentation and catalyses effective, innovative and evidence-based action at country and regional levels. Key thematic priorities include: digital skills for youth; quality apprenticeships; green jobs for youth; youth in the rural economy; youth's transition from the informal to the formal economy; youth in fragile situations; youth entrepreneurship and self-employment; and youth, 15 to 17 years of age, in hazardous occupations.

1.2 Organization of the report

The 2017 edition of the series *Global Employment Trends for Youth: Paths to a better working future* provides an update on key youth labour market indicators, trends and policies, focusing both on continuing labour market instability and on structural issues faced by young workers in the labour market. This report analyses data from the ILO's Trends Econometric Models, ILO's SWTS, Labour Force Surveys and other national surveys, as well as the ILO's 2017 Youth and the Future of Work Survey.

Chapter 2 sets the stage with an overview of youth labour markets at the global and regional levels, with a focus on declining labour force participation, continuing unemployment among youth, concerns about the quality of jobs for youth, and the implications of changing demographic patterns. Chapter 3 outlines different youth pathways to the world of work and key factors determining transitions to decent work. Chapter 4 examines the future of work for young women and men, in particular, the link between new automation and digital technologies and youth employment prospects. It identifies growth sectors for youth employment and the changing skills requirements across and within industries. Chapter 5 addresses the ongoing rearrangement of the job landscape, particularly new and emerging diverse forms of employment. It also examines youth perceptions about the future of work. Finally, Chapter 6 highlights that paths to a better working future rely on clear, coherent and coordinated policies and partnerships. They are paramount to create more and better jobs for young workers, and ultimately realize an inclusive future for youth as envisaged in the 2030 Agenda for Sustainable Development. It presents policy options for achieving this, especially in the context of the rapidly changing technologies that impact labour markets.

Box 1.2 GET Youth 2017 main findings

Global and regional trends for youth employment

- Between 1997 and 2017, the youth population grew by 139 million people, while the youth labour force shrank by 34.9 million people. This dynamic is also reflected in a declining youth proportion of the overall global labour force, from 21.7 per cent to 15.5 per cent.
- The global youth labour force participation rate has declined in the past 20 years from 55.0 per cent to 45.7 per cent.
- Globally, 70.9 million young people are estimated to be unemployed in 2017.
- The youth unemployment rate is 13.1 per cent globally in 2017 – and it is highest in the Arab States, at 30.0 per cent.
- In developing countries, the unemployment rate among youth is expected to remain stable at 9.5 per cent in 2017, while in emerging countries it is expected to rise to 13.8 per cent. In developed countries it is expected to decline from 14.0 per cent in 2016 to 13.4 per cent in 2017.
- Across OECD countries, almost 18 per cent of unemployed youth have been without work for a year or longer.
- The latest data shows that 76.7 per cent of working youth are in informal jobs, compared with 57.9 per cent of working adults.
- Youth in informality as a percentage of employed youth is 96.8 per cent in developing countries, 83.0 per cent in emerging countries, and slightly less than 20 per cent in developed countries.
- Globally, it is estimated that 21.8 per cent of youth are NEET, 76.9 per cent of which are female.
- In 2017, 16.7 per cent of working youth in emerging and developing countries live below the extreme poverty threshold of US$1.90 per day.
- The bulk of international migrant flows consists of young people – around 70 per cent are younger than 30.
- Between now and 2030, the global youth labour force will expand by 25.6 million, driven by trends in Africa; these young people will need jobs.
- By 2030, 77.0 percent of the youth labour force aged 15–24 will be in the developing countries of Africa and Asia and the Pacific.

Measuring transitions: pathways to decent work

- Young people are more likely to transition to stable and satisfactory employment in developed and emerging countries than in developing countries.
- In countries with high youth unemployment rates, people are less likely to leave their jobs voluntarily.
- In developing countries, young persons are more likely to settle definitively into self-employment.
- The longer a young person studies, the shorter the transition time into employment.
- For all levels of education, the transitions into employment tends to be longer in emerging countries than in developing countries.
- Combining work with study substantially shortens the transition period in all regions.

Future of work for youth: Technology and sectoral shifts

- The impact of new automation and digital technologies on employment prospects for young workers will differ across countries, sectors and skill groups.
- Compared to older workers, young workers are more comfortable with new technologies and likely to adapt faster.
- The sectors identified as an expanding source of youth employment are: financial services; human health and social work activities; trade, hotels and restaurants; transport and storage and information and communications.
- Financial intermediation is booming in developing countries while health services are absorbing young workers in more developed countries. Transport and storage, information and communications, as well as trade, hotels and restaurants are absorbing young workers across the globe.
- Manufacturing employment has declined in most regions, but remains important, especially in Asia and the Pacific, and particularly for young workers. However, skills requirements are changing, with more demand for high- and low-skilled workers, and less demand for semi-skilled workers. This trend towards job polarization may be accentuated by new technology which could potentially exacerbate existing inequalities.
- Overall, constant innovation will require a strong need for core work skills such as complex problem-solving, openness to learning and adaptability, across all education levels.

Box 1.2 (cont'd)

New forms of youth employment

- Own-account workers and contributing family workers are being substituted by employees, primarily those who have no written contract or are in formal temporary jobs.
- Young people are twice as likely as adults to be in temporary employment.
- New forms of work like crowd working and the gig economy present opportunities because of their flexibility, but also dangers because of the lack of regulation.
- Young people value job security and expect to achieve it in the future.

Policies for a better future of youth employment

- The ILO's *Call for Action*,* which sets out a strategy for holistic, multi-pronged action to address the youth employment challenge, has been reiterated in recently held national consultations on the Future of Work.
- Global alliances such as the *Global Initiative on Decent Jobs for Youth*, launched in 2016, are critical for scaling up action and impact to advance the SDGs.
- Macroeconomic policies, complemented by sectoral policies, will play an important role in supporting this, particularly as technology affects demand for labour.
- Expansionary fiscal policy and sectoral development policies can be combined with Active Labour Market Programmes to establish a coherent overall strategy to facilitate the transition of young people to decent work.
- Skills development systems will need to adapt to changing demands for skills. But it will also provide opportunities, such as the expansion of training to disadvantaged groups.
- Governments, firms and workers' organizations need to collaborate on identifying and developing relevant skills. Youth voices and aspirations must also be taken into consideration.
- New technology can be used to increase young people's access to finance, as well as encourage green jobs and platform-based cooperatives that promote entrepreneurship.
- Labour market institutions and information systems must adapt to rapid changes and take advantage of technological innovation. This will help to improve profiling of young people in youth employment programmes, expand programme delivery and promote better coordination and monitoring for improved labour market governance.
- New and diverse employment forms must be reflected in new and updated mechanisms for ensuring young workers' rights. The active participation of the social partners will be crucial.

* ILO: *The youth employment challenge: A call for action* (Geneva, 2012).

2. Global and regional trends for youth employment

Around one fifth of the world's young people are not in employment, education or training. Despite economic recovery, unemployment remains high, and youth are more likely to be unemployed than adults around the world. Low productivity levels, informality and working poverty remain major challenges, and as populations age, today's young workforce will have to increasingly support elderly persons. These global conditions require concerted efforts to ensure that young women and men have access to decent jobs.

Following stronger than expected economic performances in the second half of 2016, the global economic outlook remains positive in 2017 and into 2018. World economic growth is projected to accelerate, from 3.2 per cent in 2016 to 3.6 per cent in 2017 and 3.7 per cent in 2018 (IMF, 2017a). These improvements are largely driven by recovering commodity prices and growing global trade (IMF, 2017b; UNDESA, 2017a). In particular, greater business confidence and a cyclical recovery in aggregate demand are supporting economic activity in developed countries, which are expected to see real output growth improve, from 1.8 per cent in 2016 to 2.0 per cent in 2017 and 2018.

The economic prospects in emerging countries are mixed, with overall output expected to expand by 4.6 per cent in 2017 and 4.7 per cent in 2018, up from 4.3 per cent in 2016. Growth is set to stay strong in many emerging countries of Southern Asia and Eastern Asia, including China, where private investment has slightly rebounded. Nevertheless, the outlook is projected to remain fragile, despite the recent pickup in commodity prices in Brazil, the Russian Federation, Saudi Arabia and South Africa. In developing countries, growth is expected to increase from 3.9 per cent in 2016 to 4.9 per cent in 2017, reaching 5.2 per cent by 2018.

Despite the recent acceleration, the latest trends do not suggest that the global economy is returning to the strong growth of the pre-crisis period. Medium-term risks to growth remain, among which are a slowdown in global trade, tightening financial conditions and deepening geopolitical tensions (IMF, 2017b; UNDESA, 2017a). Economic growth continues to be unfortunately disconnected from employment growth. In fact, labour force participation is on the decline, while global unemployment rates and levels will remain high over the near term. The quality of employment also remains a concern.[1]

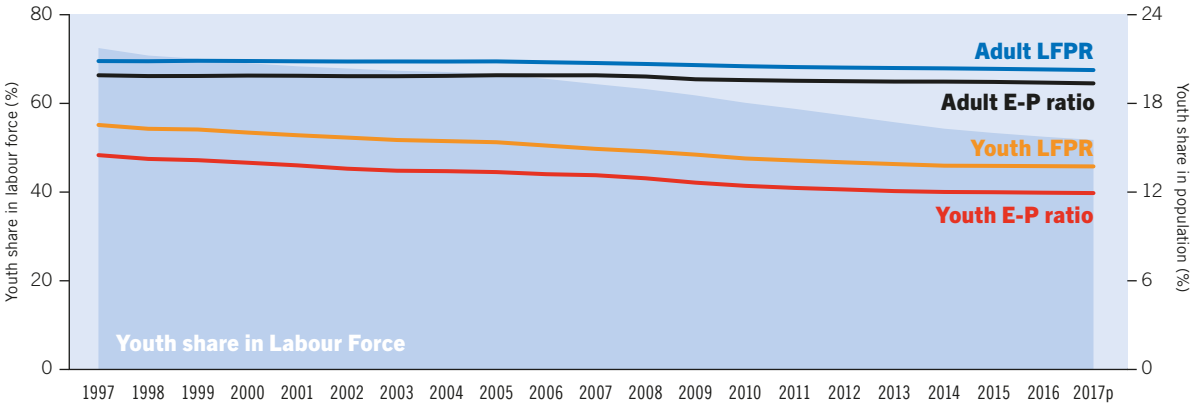
2.1 Sharp declines in youth labour force engagement

The dynamics of labour force participation has shifted remarkably between 1997 and 2017. At the global level, there has been a significant decrease in the proportion of youth who are either employed or unemployed (the labour force participation rate, or LFPR).[2] Between 1997 and 2017, the youth LFPR declined by 9.3 percentage points (from 55.0 per cent to 45.7 per cent), while the adult LFPR dropped only 2.0 percentage points (figure 2.1). In terms of volume, the

[1] For more information on quality of employment issues, see ILO: *World employment and social outlook: Trends 2017* (Geneva, 2017).

[2] Unless otherwise specified, all data in this section refer to "youth" as the age cohort between 15–24 years.

Figure 2.1 Global labour force participation rates and employment-to-population ratios, by youth (15–24) and adults (25–64), 1997–2017



Source: Calculations based on ILO Trends Econometric Models, April 2017.

youth labour force shrank by 34.9 million over the same period, even though the youth population grew by 139 million persons. When viewed as the share of the total available labour force (aged 15 or older), the declining tendency of youth to engage in the labour market is clear. In 1997, people in the 15–24 age cohort made up more than one fifth (21.7 per cent) of the total labour force; in 2017, that share is less than one sixth (15.5 per cent).

There are, however, significant regional differences. In 2017, participation rates range from 30.6 per cent in the Arab States to 54.3 per cent in sub-Saharan Africa. Youth LFPRs also remain at more than 45 per cent in Eastern Asia, Latin America and the Caribbean, Northern America, South-Eastern Asia and the Pacific (see Annex C, table C2).

Trends in employment-to-population ratios (EPR) measured as the share of the population (aged 15 or older overall or 15–24 for youth) in employment are similar, given that in all but a handful of countries globally, the overall labour force consists of at least 90 per cent employed and less than 10 per cent unemployed people. At the turn of the century, the EPR of youth was 46.5 per cent. By 2014, the global youth EPR had fallen to less than 40 per cent. The decline continues, with 39.6 per cent of the youth population employed in 2017.

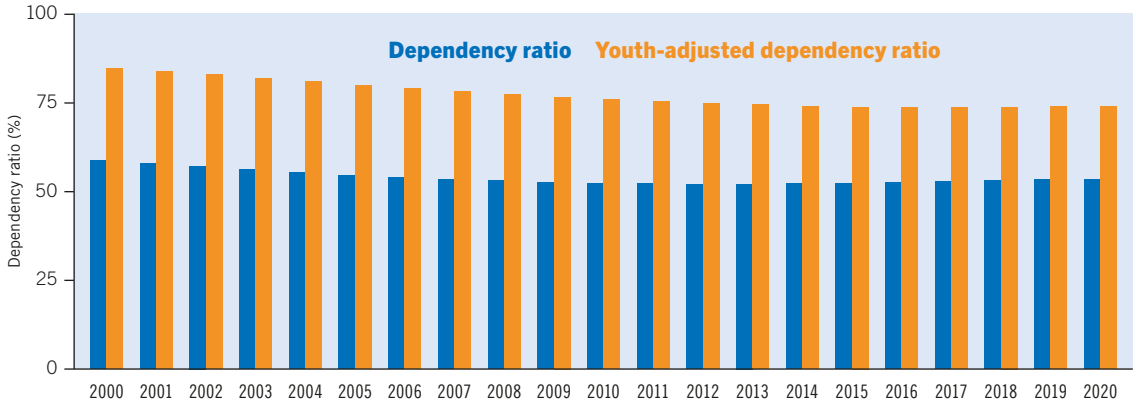
2.1.1 Dependency ratios are rising

While the changes in youth LFPRs and EPRs are largely driven by positive changes, with more youth able to stay in school, there are fewer positive consequences in terms of the shrinking availability of resources for global production and greater dependency on productive resources. The dependency ratio is an indicator of the size of potential productive resources in an economy relative to non-productive resources. The measure typically defines the age group 15–64 as "productive" and adds together persons aged 0–14 and 65 or older as "non-productive" ages.[3] With that definition and based on United Nations population estimates, the dependency ratio between 2000 and 2020 reflects a decline, from 58.7 per cent to 53.4 per cent (figure 2.2).

Given the steadily decreasing tendency of youth aged 15–24 to participate in the labour force (as evidenced in figure 2.1), there is reason to now consider an adjustment in the standard dependency ratio. As more and more young people postpone labour market entry or work in non-career, part-time positions while they study (discussed in Chapter 3), the cohort becomes more "dependent" than "non-dependent" on the productive resources of family or

[3] There are recognized limitations of this measure in capturing the employed and the not-employed. Several studies highlight limitations associated with age-based dependency. For instance, Loichinger and Skirbekk (2016), Sanderson and Scherbov (2015) and Spijker (2015) all suggest that, beyond age, individual and economic characteristics (consumption, human capital, employment) can be just as, or more, important determinants of dependency than age.

Figure 2.2 Global dependency ratio and youth-adjusted dependency ratio, 2000–20



Note: The dependency ratio is defined as: 100 × [(population aged 0–14 + population aged 65+) ÷ population aged 15-64]. The youth adjusted dependency ratio is measured as: 100 × [(population aged 0–14 + (0.5 × population aged 15–24) + population aged 65+) ÷ ((0.5 × population aged 15–24) + population aged 25–64)].

Source: Calculations based on UNDESA, 2017a.

community (Loichinger and Skirbekk, 2016; Sanderson and Scherbov, 2015; Spijker, 2015). The United Nations now also calculates an alternative ratio that assumes all persons 24 years old or younger (in addition to persons aged 65 or older) are dependent.

We propose a more moderate approach that considers half of all persons aged 15–24 to be dependent; thus, all children younger than 15 years, half of youth aged 15–24 and all persons 65 years or older comprise the dependent population. The 50 per cent threshold is simple and corresponds to the average global youth labour force participation rate over the last 20 years which, as noted above, has fallen from 55.0 per cent to 45.7 per cent. In turn, the denominator encompasses half of the population aged 15–24 and all persons aged 25–64. This adjusted dependency ratio adds as much as 20 percentage points to the global dependency ratio for 2020. In other words, if we accept that only half of all young people are economic actors, the dependency ratio at the global level could be as high as 74.0 per cent.

2.1.2 Gender participation gaps are narrowing

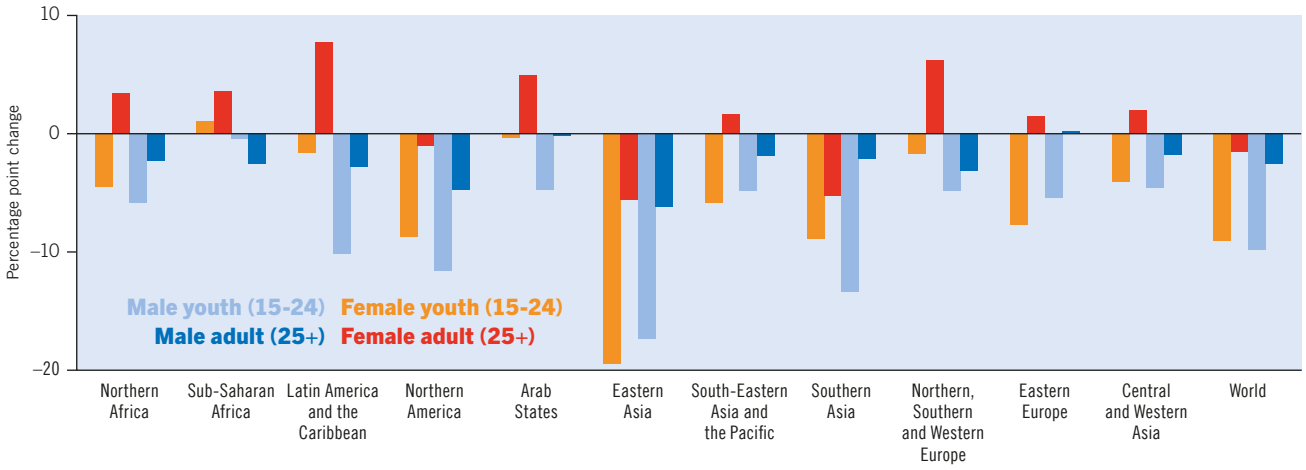
The decline in participation among youth is almost universal. Only for young females in sub-Saharan Africa did the LFPR increase over the period 1997 to 2017 (albeit by a modest 1.0 percentage points). In most regions shown in figure 2.3, the declining trend is steeper for young men than young women. The global fall in the male youth LFPR is 9.8 percentage points, compared with 9.1 points for young women. There is a declining trend of LFPRs for men, both young and adult, in sharp contrast with the trends for women. In seven regions, the female LFPR increased for adults between 1997 and 2017 but decreased for youth.[4] Increasing labour force participation among adult women is a positive trend and is likely to signify that gains in education among young women (reflected in declining youth female LFPRs) serve as a pull factor for female LFPR upon exit from education.[5]

With adult male and female LFPRs moving in opposite directions in most regions, there is a long-term trend towards a narrowing of the gender participation gap at the global level. Still, gender norms rooted in cultural and social traditions remain an instrumental factor behind women's engagement in the labour market. In far too many regions, the gender gap is

[4] Exceptions are Northern America, Eastern Asia and Southern Asia, where female LFPRs declined for both female youth and adults, and sub-Saharan Africa, where rates increased for both groups.

[5] Other factors behind the declining trends, and which are less positive for female empowerment, include the reproductive and household responsibilities of girls and women, cultural influences, lack of agricultural opportunities and, potentially, underreporting of female employment (Saha et al., 2016).

Figure 2.3 Change in female and male labour force participation rates, by youth (15–24) and adults (25–64) and by region, from 1997–2017



Source: Calculations based on ILO Trends Econometric Models, April 2017.

stubbornly wide among adults and youth alike.[6] Among the youth cohort, where both male and female LFPRs decreased over time, the LFPR of young men is 16.6 percentage points higher than that of young women in 2017 (table 2.1). In the same year, the gender gap endures at about 30 percentage points in Northern Africa, the Arab States and Southern Asia.

Nonetheless, the gender gaps in women's participation are improving over time. In these regions and all others but Eastern Asia, South-Eastern Asia and the Pacific and Eastern Europe, the size of the gender gaps is smaller in 2017 than it was in 1997.

It is important to keep in mind that progress in narrowing the gender gaps on labour force participation does not necessarily mean young women are making progress in the fight for equal access to decent work. Increasing female labour force participation could simply mean that young women are becoming increasingly unemployed. After all, unemployment rates are higher for young women than men in seven of 11 regions in 2017.

Table 2.1 Youth labour force participation rates and gender gaps, by region and sex, 1997–2017

Region	Subregion	LFPR 1997 (%)			LFPR 2017 (%)			Gender gap (male-female, pp)	
		Total	Male	Female	Total	Male	Female	1997	2017
Africa	Northern Africa	37.0	52.5	21.1	31.9	46.6	16.6	31.4	30.0
	Sub-Saharan Africa	53.9	57.3	50.6	54.3	56.9	51.6	6.7	5.3
Americas	Latin America and the Caribbean	55.6	69.4	41.7	49.8	59.3	40.1	27.7	19.2
	Northern America	62.5	65.0	59.9	52.3	53.4	51.2	5.1	2.2
Arab States		33.1	51.0	13.9	30.6	46.2	13.5	37.1	32.7
Asia and the Pacific	Eastern Asia	69.7	70.0	69.4	51.4	52.6	50.0	0.6	2.6
	South-Eastern Asia and the Pacific	56.5	63.3	49.7	51.3	58.4	43.8	13.6	14.6
	Southern Asia	48.2	66.2	29.0	37.2	52.9	20.1	37.2	32.8
Europe and Central Asia	Northern, Southern and Western Europe	47.7	51.6	43.6	44.4	46.7	41.9	8.0	4.8
	Eastern Europe	42.1	45.5	38.7	35.6	40.0	31.0	6.8	9.0
	Central and Western Asia	47.5	58.3	36.6	43.3	53.6	32.4	21.7	21.2
World		55.0	63.5	46.2	45.7	53.7	37.1	17.3	16.6

Note: LFPR= labour force participation rate; pp = percentage points.

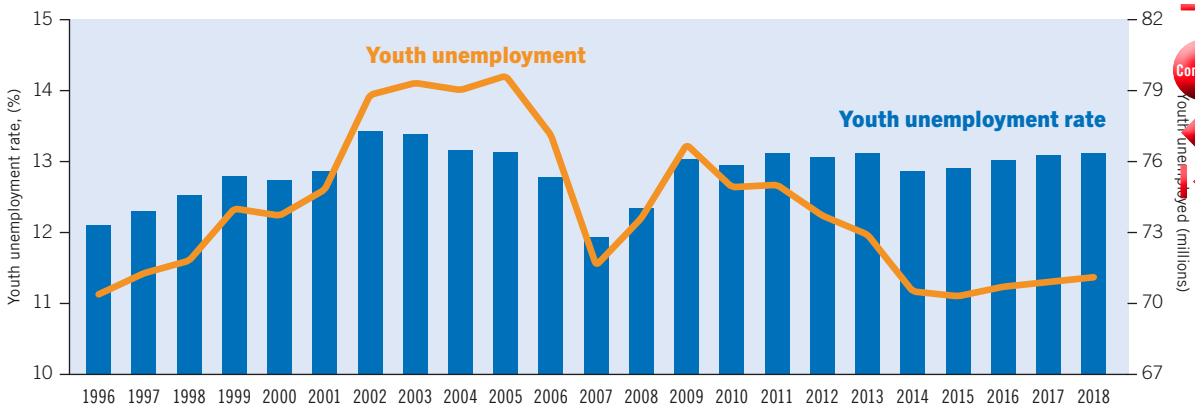
Source: Calculations based on ILO Trends Econometric Models, April 2017.

[6] See Chapter 2 in ILO (2016a) for a full discussion on gender gaps in labour force participation. Elder and Kring (2016) also discuss how gender gaps change over the life span of men and women.

2.2 Global youth unemployment expected to rise slightly

The latest ILO estimates put the global youth unemployment rate for 2016 at 13.0 per cent, just below the crisis peak of 13.1 per cent between 2011 and 2013, but rising again to 13.1 per cent in 2017 and 2018 (figure 2.4). At the same time, although the number of unemployed youth decreased to a low of 70.3 million in 2015 for the first time in more than two decades, the decline has since reversed. While the estimated 70.9 million unemployed youths in 2017 represent a strong improvement from the crisis peak of 76.7 million in 2009, it is a slight increase from the previous year. The number of unemployed youth worldwide is expected to rise by another 134,000, to reach 71.1 million in 2018.

Figure 2.4 Global youth unemployment and unemployment rate, 1998–2018



Source: Calculations based on ILO Trends Econometric Models, April 2017.

The deteriorating global youth labour market conditions in 2017 are driven by the increasing unemployment rates in emerging countries. The youth unemployment rate in these countries is expected to rise, from 13.6 per cent in 2016 to 13.8 per cent in 2017 – adding two hundred thousand young people to the unemployed tally (table 2.2). The youth unemployment rate in emerging countries should stabilize in 2018, although remaining at its highest level since 2003.

In developing countries, the unemployment rate among youth is expected to remain stable at 9.5 per cent in 2017 and 2018. However, considering the large cohort of young people entering the labour force each year, the number of unemployed youth in developing countries is projected to increase by half a million between 2016 and 2018. The youth unemployment rate is expected to fall in developed countries, declining from 14.0 per cent in 2016 to 13.4 per cent in 2017, increasing again slightly in 2018.

Table 2.2 Youth unemployment projections, 2016–18

Country/region	Unemployment rate, 2007–18 (percentages)				Unemployed youth, 2016–18 (million)		
	2007–18	2016	2017	2018	2016	2017	2018
WORLD		**13.0**	**13.1**	**13.1**	**70.7**	**70.9**	**71.1**
Developed countries		14.0	13.4	13.5	9.5	9.0	9.0
Emerging countries		13.6	13.8	13.9	53.5	53.9	53.8
Developing countries		9.5	9.5	9.5	7.7	8.0	8.2

Source: Calculations based on ILO Trends Econometric Models, April 2017.

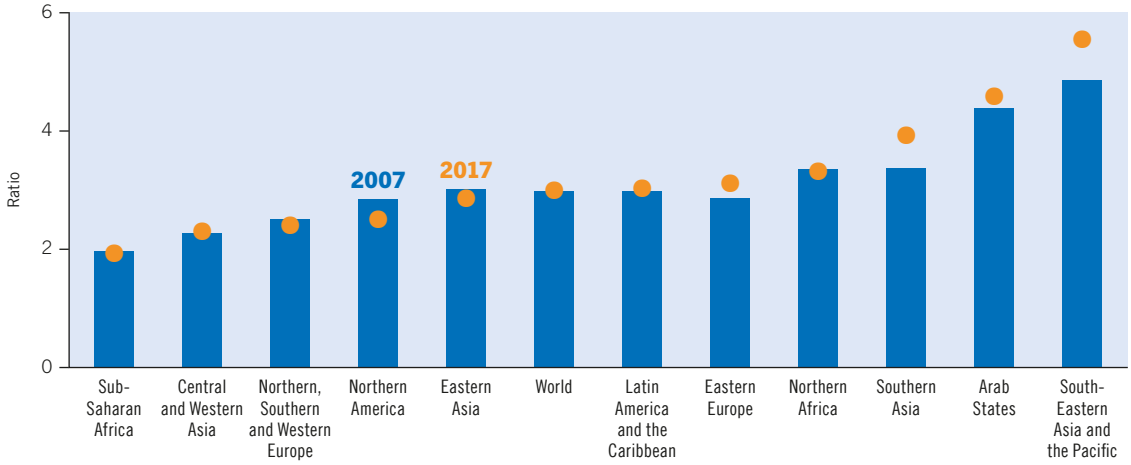
2.2.1 Young people continue to be over-represented among the unemployed

The probability of young, economically active, people finding themselves in unemployment remains considerably higher than for the rest of the population. In such regions as the Arab States, Northern Africa and Southern Asia, youth comprise more than 40 per cent of the total unemployed population, despite representing only 17 per cent or less of the labour force within their respective regions. In Northern, Southern and Western Europe, youth represent around 20 per cent of the total unemployed and around 10 per cent of the total labour force.

The ratio of the youth-to-adult unemployment rate at the global level is an estimated 3.0 in 2017, with no change from the ratio ten years prior (figure 2.5), due in part, to improvements in Eastern Asia and Northern America. However, over the past decade, youth unemployment rates have risen faster than the adult rates in half of the regions analysed. The most severe growth in the ratio took place in Southern Asia and South-Eastern Asia and the Pacific. In South-Eastern Asia and the Pacific, youth unemployment rates are more than five times higher than the adult rates. Not far behind are the Arab States and Southern Asia, where the ratios are 4.5 and 3.9, respectively, in 2017.

At the same time, especially in developed countries, many young people experience extended periods of unemployment, which can potentially hinder their skills development, future employability and earning capacity. For instance, across Organisation for Economic Co-operation and Development (OECD) countries, almost 18 per cent of unemployed youth were without work for a year or longer in 2016. In the first quarter of 2017, this share was nearly 29 per cent of unemployed youth in the 28 member countries of the European Union (EU-28), reaching almost 33 per cent in the euro area. Long duration of unemployment spells risk leading to youth labour market detachment, especially among young women and men seeking their first job. Across OECD countries, there are 2.8 million youth in 2017 marginally attached to the labour market – neither employed nor actively looking for work but willing to work and available to take a job.[7]

Figure 2.5 Youth-to-adult unemployment rate ratios by region, 2007–17



Source: Calculations based on the ILO Trends Econometric Models, April 2017.

[7] The OECD defines the "marginally attached" as persons neither employed nor actively looking for work but willing to work and available to take a job during the survey reference week. Additionally, when this applies, the person has looked for work during the previous 12 months. Data available in OECD Statistics.

2.2.2 Regional youth unemployment trends vary but are largely negative in emerging regions

While the global youth unemployment rate is expected to remain at 13.1 per cent over the next couple of years, considerable heterogeneity in trends across regions persist (table 2.3). In particular, the increase in the 2017 global youth unemployment rate is driven primarily by the exacerbated youth unemployment situations in emerging regions, such as Latin America and the Caribbean, Central and Western Asia, and South-Eastern Asia and the Pacific. Changes in youth unemployment rates are expected to be marginal in most of the other regions, with the exception of Europe and Northern America, where the decline in youth unemployment is expected to be sizable, at least in 2017.

At 28.8 per cent in 2017, the youth unemployment rate in Northern Africa is set to remain the second highest across all regions. The regional rate is expected to decline slightly in 2018, while the youth unemployment rate in large countries of the region will remain well above 30 per cent.

In sub-Saharan Africa, the youth unemployment rate is expected to rise for the second consecutive year, reaching 11.1 per cent in 2017. With the expectations of a further increase in 2018, this represents an end to the positive developments observed between 2012 and 2015, when the youth unemployment rate declined by almost 1 percentage point to reach 10.7 per cent in the latter year. Within the region, a continued worsening of youth labour market conditions in South Africa is also expected.

Latin America and the Caribbean is expected to show the largest increase in the youth unemployment rate. The rate is projected to increase by almost a full percentage point, to reach 19.6 per cent in 2017, the highest rate since 2004 and well above the low of 14.5 per cent registered in 2013. This means that an additional half a million young people will become unemployed in 2017. The regional youth unemployment rate is expected to remain stable in 2018. The region's projections are driven in part by the weak economic outlook of Brazil, where the youth unemployment rate is expected to reach 30 per cent in 2017, the highest value ever recorded since 1991. This increase is only partially offset by the anticipated decline in youth unemployment rates in Argentina and Mexico.

Table 2.3 Youth unemployment trends and projections, by region, 2016–18

	Unemployment rate (%)			Unemployment (millions)		
	2016	2017p	2018p	2016	2017p	2018p
World	**13.0**	**13.1**	**13.1**	**70.7**	**70.9**	**71.1**
Africa						
Northern Africa	29.0	28.8	28.6	3.7	3.6	3.6
Sub-Saharan Africa	11.0	11.1	11.2	11.5	12.0	12.4
Americas						
Latin America and the Caribbean	18.7	19.6	19.5	10.3	10.7	10.7
Northern America	10.6	10.4	11.1	2.7	2.6	2.8
Arab States	30.4	30.0	29.7	2.7	2.7	2.7
Asia and Pacific						
Eastern Asia	10.4	10.4	10.5	10.9	10.5	10.2
South-Eastern Asia and the Pacific	11.7	12.0	12.2	7.0	7.2	7.3
Southern Asia	10.9	10.9	10.9	13.8	13.9	13.9
Europe and Central Asia						
Northern, Southern and Western Europe	19.3	18.2	17.8	4.2	4.0	3.9
Eastern Europe	17.0	15.2	14.2	1.9	1.6	1.4
Central and Western Asia	16.9	17.5	17.4	2.1	2.2	2.2

Source: Calculations based on ILO Trends Econometric Models, April 2017.

In Northern America, in contrast, the youth unemployment rate is projected to reach the lowest point since 2000, attaining 10.4 per cent in 2017, which is down from 10.6 per cent in 2016. However, and despite the relatively positive economic outlook, the region's youth unemployment rate is expected to rise to 11.1 per cent in 2018.

At 30.0 per cent, the youth unemployment rate in the Arab States will remain the highest globally in 2017, although at a slight improvement from its 2016 rate. While some positive developments are expected as well for 2018, slower growth in some oil-exporting countries, notably Saudi Arabia, will contribute towards keeping the youth unemployment rate at high levels. Geopolitical tensions will likely continue to harm youth employment prospects in the rest of the region.

In Eastern Asia, the youth unemployment rate is expected to remain at 10.4 per cent in 2017 and edge up slightly to 10.5 per cent in 2018. The slight increase from 2016 reflects primarily the economic slowdown in China, only partially compensated by the expectations of falling youth unemployment rates in Japan and the Republic of Korea. However, because a growing number of youth in the region remain in education rather than join the labour force (see section 2.4), the pool of unemployed youth is set to decrease, from 10.9 million in 2016 to 10.2 million in 2018.

The incidence of unemployment among youth in Southern Asia is expected to remain stable, at 10.9 per cent in 2017 and 2018. This is because fast economic growth in India, the region's largest economy, will be compensated by slightly worsening labour market conditions in the rest of the region. In absolute terms, the challenge of youth unemployment in Southern Asia will remain pressing. Almost 14 million economically active youth will be without a job in 2017, representing nearly 20 per cent of unemployed youth worldwide.

South-Eastern Asia and the Pacific is expected to show the second-largest increase in the youth unemployment rate, moving from 11.7 per cent in 2016 to 12.0 per cent in 2017 and reaching 12.2 per cent in 2018. Despite some improvement in 2017, the youth unemployment rate will remain high in Indonesia, while it is expected to rise in Malaysia and the Philippines.

The youth unemployment rate is expected to decline in Eastern Europe more than in any other region of the world, both in 2017 and 2018. The youth unemployment rate is expected to drop, from 17.0 per cent in 2016 to 15.2 per cent in 2017 and to 14.2 per cent by 2018. Recovering economic and labour market conditions in the Russian Federation are the main factors behind the region's progress, but rates are declining also in the Czech Republic, Hungary and Poland. Conversely, youth unemployment in Central and Western Asia is projected to rise to 17.5 per cent in 2017, more than half a percentage point higher than in 2016. This will be largely driven by the rising youth unemployment rate in Turkey.

Youth labour market conditions in Northern, Southern and Western Europe appear to be slowly but gradually healing. The region's youth unemployment rate is projected to fall by a full percentage point, to reach 18.2 per cent in 2017. This will represent the fourth consecutive decline in the regional youth unemployment rate since the record high 23.3 per cent in 2013. Much of the anticipated decline in the regional figures is due to positive developments in certain high-unemployment countries, notably France, Italy and Spain. The reduction in the youth unemployment rate is expected to continue in 2018, but to a lesser degree, to 17.8 per cent. Youth unemployment rates reflect structural issues and remain stubbornly high in some countries. As of 2017, as many as one third of the countries in the region are expected to show youth unemployment rates that range between 15 per cent and 20 per cent. Another one third of countries in the region are expected to show rates of 30 per cent or more.

2.3 Employment quality remains a major concern

Youth face many challenges in the labour market. While finding employment is a major concern, the quality of jobs is just as prominent a challenge. Many young people who have found employment are unable to lift themselves and their families out of poverty. Often, their jobs are informal, and thus they have limited legal and social protection. Additionally, many youths today are not in employment, education or training and thus constitute an untapped resource, with possible long-term implications for their career prospects.

2.3.1 Working poverty disproportionately affects youth

The incidence of working poverty remains pervasive among youth, who continue to exhibit consistently higher working poverty rates than their adult counterparts. In particular, an estimated 16.7 per cent of employed youth in emerging and developing countries in 2017 are living on income below the extreme poverty threshold (US$1.90 per day), while only around 10.6 per cent of employed adults live in such a situation (table 2.4 and figure 2.6). This translates to around 70 million young workers living in extreme poverty; the number reaches more than 160 million if the threshold is raised to include employed youth living in moderate poverty (US$3.10 per day). A closer look at the global figures reveals that youth working poverty rates and the extent to which they differ from those of adults vary considerably across regions (figure 2.6).

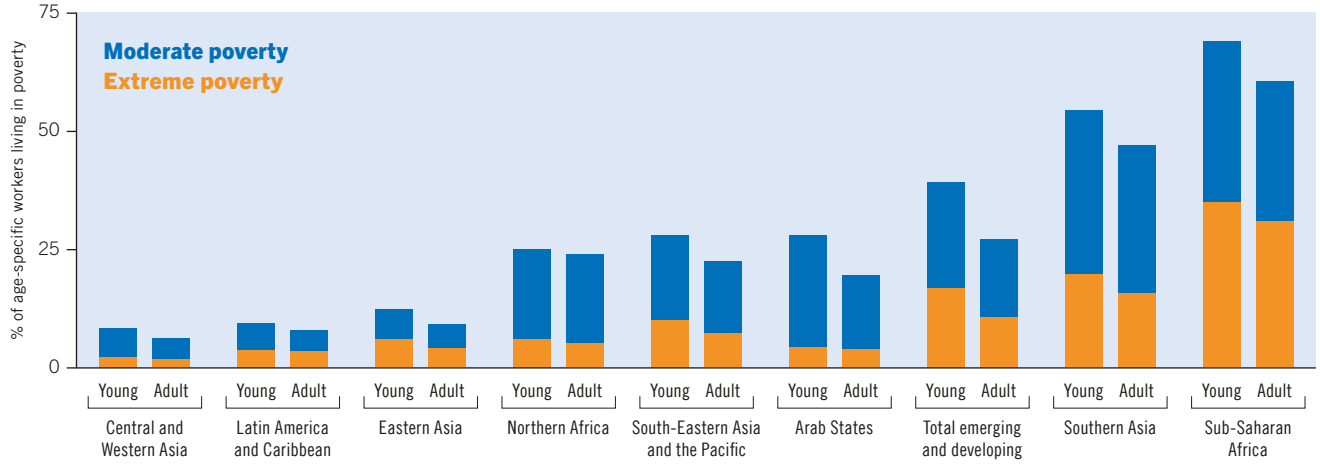
Over the past decade, there has been considerable improvements in working poverty in Northern Africa. In 2017, approximately one in four employed youths in the region is in

Table 2.4 Youth working poverty trends and projections, 2016–18 (<US$ PPP 3.10/day)

Country/region	Working poverty rate, 2007–18 (percentages)				Working poverty, 2016–18 (million)		
	2007–18	2016	2017	2018	2016	2017	2018
Total emerging and developing		**39.4**	**39.0**	**38.5**	**162.9**	**160.6**	**158.5**
Emerging countries		32.4	31.8	31.2	109.8	106.8	104.1
Developing countries		71.8	70.7	69.6	53.1	53.8	54.4

Source: Calculations based on the October 2015 update of the model in Kapsos and Bourmpoula (2013) and ILO Trends Econometric Models, April 2017.

Figure 2.6 Extreme and moderate working poverty rates, by region and age group, 2017 (percentage of employed population)



Note: The chart displays the share of the employed youth and adult populations living in extreme and moderate poverty. The extreme working poverty rate is defined as the share of the employed population with per capita income or consumption of less than US$1.90 per day. The moderate working poverty rate refers to the share of the employed population with per capita income or consumption at between US$1.90 and US$3.10 per day.

Source: Calculations based on the October 2015 update of the model in Kapsos and Bourmpoula (2013) and ILO Trends Econometric Models, April 2017.

working poverty, compared with one in three in 2007.[8] The gap between the youth and adult working poverty rates remains narrow, but there has been virtually no improvement in the working poverty situation for youth since 2012.

Sub-Saharan Africa continues to report the highest youth working poverty rates globally, close to 69 per cent in 2017. In spite of a decline of more than 7 percentage points since 2007, the number of sub-Saharan youth in working poverty increased by more than 10 million in the past decade, to 65.8 million, more than in any other region of the world. Young workers in the region also have a high probability of living in poverty relative to adults.

In the Arab States, the situation of young workers in poverty has deteriorated since 2007, when their share was 3 percentage points lower. Over the same period, working poverty among adults has remained stable. In 2017, youth continue to fare worse than adults – approximately 28 per cent of young workers are poor, compared with about 19 per cent of adults.

Youth working poverty rates continue to decline in Eastern Asia. Whereas in 2007 one in three employed youth was poor, the share has declined to one in eight in 2017. Although young workers remain more likely than adults to be in working poverty, the gap has been shrinking: from 7 percentage points in 2007 to 3 percentage points in 2017, suggesting working poverty rates for youth in the region may soon approach the adult rate.

The incidence of working poverty among youth in Southern Asia remains high, at 54.2 per cent in 2017, second only to sub-Saharan Africa. The pace of poverty reduction has been sustained since 2007, with working poverty among youth declining by 16 percentage points. But poverty reduction among working adults has been twice as fast, suggesting that the gap in the incidence of working poverty between the two groups is unlikely to close in the near future.

In South-Eastern Asia and the Pacific, nearly 28 per cent of employed youth are in working poverty in 2017. Although this share remains considerable, the youth working poverty rates have remarkably dropped by almost 25 percentage points in the past ten years.

The rate of youth working poverty in Central and Western Asia remains the lowest, at approximately 8 per cent in 2017. The youth situation in the region has improved substantially since 2007, when almost 19 per cent of working youth lived on less than US$3.10 per day. Compared with adults, youth in the region remain slightly more likely to be in working poverty, a gap that has steadily narrowed since 2007.

The second-lowest incidence of working poverty is found in Latin America and the Caribbean. In 2017, less than 10 per cent of working youth are extremely or moderately poor, nearly on par with adults. This represents marked improvements over the past decade and reflects efforts that effectively halved the incidence of working poverty among youth. However, the pace of reduction in youth working poverty appears to have slowed considerably. The proportion of working youth is estimated to have fallen by less than 1 percentage point since 2012.

Meanwhile, many youth in developed countries are also living in poverty despite having a job. For instance, in 2015, the share of young workers in the EU-28 categorized as being at risk of poverty – measured as earning less than 60 per cent of the median income – was 12.5 per cent, compared to 9.5 per cent among prime-age workers (25–54 years old).[9] The challenge is especially acute in some high-youth unemployment countries, such as Greece and Spain where at-risk-of-poverty for young workers is close to 20 per cent.

[8] Working poverty data in the remainder of this section refer to moderate working poverty (<US$ 3.10/day).

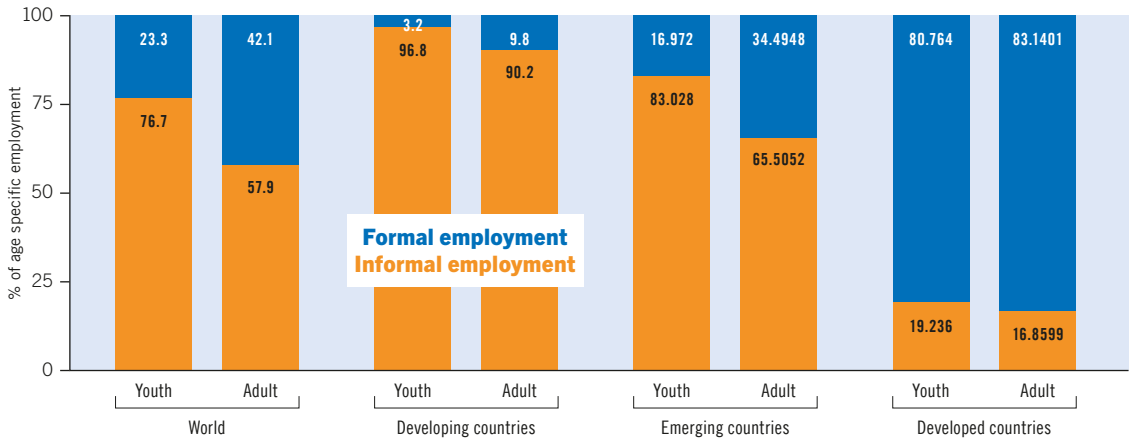
[9] Data from Eurostat (accessed 20 May 2017).

2.3.2 Majority of employed youth are in the informal economy

That young workers are more likely to be in working poverty than adults in virtually all regions is connected to the higher incidence of young workers in the informal economy, notably in developing and emerging countries. Globally, more than three-quarters (76.7 per cent) of working youth are in informal jobs (figure 2.7). Informality is comparatively less pervasive among employed adults, although the rate of informally employed adults is still 57.9 per cent. The proportions are extremely large in the developing countries, where informality affects 96.8 per cent and 90.2 per cent of employed youth and adults, respectively. Across the emerging countries, youth in informal employment account for 83.0 per cent of total working youth, nearly 20 percentage points higher than for adults. Informality is considerably less widespread, but still relevant, in the developed countries, where it concerns slightly less than 20 per cent of working youth.

The higher prevalence of working poverty and informality among younger, relative to older, workers partly reflects the large shares of young workers engaged in domestic services and contributing family work, especially in developing countries (ILO, 2013). In 14 Latin American countries, for instance, the proportion of young unpaid family workers in total youth employment exceeds the corresponding share in adult employment (ILO, 2015b).

Figure 2.7 Share of youth in formal and informal employment, 2016



Note: The global estimates for 2016 are based on 110 countries, representing more than 85 per cent of total employment.
Source: ILO, *Women and men in the informal economy. A statistical perspective* (forthcoming).

2.3.3 Many young people are neither in employment nor in education or training

The proportion of the youth population who are neither in employment nor in education or training (the NEET rate) captures the share of youth who are inactive for reasons other than education or skills development, as well as young people who are without work and looking for work (the unemployed). More specifically, the NEET rate includes youth who are unemployed, unavailable to work due to illness, disability or family responsibilities, discouraged, or voluntarily NEET. Discouraged youth who are NEET are available but not looking for work because they do not believe there are jobs available or were unable to find jobs in previous searches or do not know how or where to look for jobs, among other reasons (Elder, 2015). In turn, youth who are voluntarily NEET can either be waiting to re-enter employment, education or training or be inactive for other reasons (Eurofound, 2012 and 2016). Re-entrants have already accepted a job offer or pre-enrolled in an education or training programme. Other youth may be inactive for a number of reasons, including seeking work or training but waiting for an opportunity that matches their aspirations or constructively engaged in an

activity, such as art, music or independent learning. It is thus a diverse group that results from different determinants and responds to different policies.

The NEET rate has gained prominence as an indicator of one of only two youth-specific targets (8.6 and 8.B) under the 2030 Sustainable Development Goal (SDG) 8 to "Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all".[10] The NEET measure does not relate specifically to youth employment, nor does it specifically address national capacity to increase opportunities for decent work for youth. What it does do, however, is to invoke discussions on issues of exclusion from decent work – touching on matters of unemployment, early school leaving and labour market discouragement. It thus points to actions for engaging the more vulnerable population groups in labour market activity. In other words, the youth NEET rate is a broad measure of the underutilization of youth, who could potentially contribute to national development and growth through their work or by furthering their qualifications in education.

The ILO estimates that 21.8 per cent of youth in countries with available data are not in employment, education or training (table 2.5). More than three in four (76.9 per cent) of NEET youth are women, which strongly relates to social norms driving the unequal labour market outcomes between men and women. The ILO *World Employment and Social Outlook: Trends for Women 2017* report analyses in depth the various drivers and constraints that affect gender disparities in educational attainment and labour market outcomes. As table 2.5 shows, differences in the aggregate NEET rates across regions and income groups are mostly driven by differences in the female NEET rates. The only regions showing a near-equal gender distribution among the youth NEET rates are Eastern Europe, Northern, Southern and Western

Table 2.5 NEET rates and the female share in total NEET, latest year (per cent)

Region	NEET Rates, latest year (%)			Female share
	Total	Male	Female	
World	**21.8**	**9.8**	**34.4**	**76.9**
Developing countries	**12.1**	**8.0**	**16.0**	**66.1**
Emerging countries	**25.2**	**9.6**	**41.8**	**80.3**
Developed countries	**13.1**	**11.3**	**14.9**	**55.7**
Northern Africa	26.1	16.7	36.0	67.6
Sub-Saharan Africa	15.5	11.2	19.0	61.4
Latin America and the Caribbean	19.4	11.9	27.0	68.6
Northern America	16.3	14.1	18.6	55.8
Arab States	18.2	9.9	27.1	71.8
Eastern Asia	3.7	2.8	4.7	61.8
South-Eastern Asia and the Pacific	18.0	13.4	22.6	61.5
Southern Asia	28.6	5.8	53.3	89.5
Northern, Southern and Western Europe	12.3	12.2	12.4	49.2
Eastern Europe	15.6	13.8	17.4	54.5
Central and Western Asia	23.4	14.8	32.1	67.5

Note: The table shows the share of youth not in employment, education or training (NEET) as a percentage of total youth population in the regions, using youth population weighted averaging. The number of countries with available data in the regions: world (98), developing countries (12), emerging countries (46), developed countries (40), Northern Africa (3), sub-Saharan Africa (16), Latin America and the Caribbean (16), Northern America (2), Arab States (5), Eastern Asia (4), South-Eastern Asia and the Pacific (8), Southern Asia (6), Northern, Southern and Western Europe (27), Eastern Europe (7), and Central and Western Asia (4). Latest year is 2015 (67 observations), 2014 (15 observations) and between 2009 and 2013 (16 observations).

Source: NEET rates based on ILOSTAT and ILO School-to-Work Transition Surveys. Population estimates based on ILO Trends Econometric Models, April 2017.

[10] SDG Target 8.6: By 2020, substantially reduce the proportion of youth not in employment, education or training. SDG Target 8.B: By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization.

Europe and Northern America. In contrast, Southern Asia features an extreme gender disparity in its NEET rates with nine out of ten young NEETs being women.

The NEET rates for young men are lowest in developing countries, at 8.0 per cent, followed by emerging countries, at 9.6 per cent, and then the developed countries, at 11.3 per cent. The lower NEET rates in the developing countries, compared with emerging countries, especially for women, are also a reflection of poor young people having to work out of necessity, thus raising their employment rate. Across the regions, the NEET rates for young men are lowest in Eastern Asia, at 2.8 per cent, followed by Southern Asia, at 5.8 per cent, while they are highest in Northern Africa, at 16.7 per cent, followed by Central and Western Asia, at 14.8 per cent.

The previous edition of this report (ILO, 2015a) discussed the sensitivity of the NEET rates to economic recessions, demonstrating how the indicator mirrored increased youth unemployment in the developed regions. The share of youth who are NEET in most developed countries peaked in 2010 in the wake of the global financial and economic crisis (a sovereign debt crisis affected parts of the European Union in 2012). The share of youth who are NEET in the EU-28 declined, from the peak of 13.2 per cent in 2012 to 12.0 per cent in 2015. In the emerging and developing regions, the trend in NEET rates reflect movements in the component of youth not unemployed – youth who remain out of school and outside the labour market (inactive non-student youth). Data from the ILO School-to-Work Transition Surveys conducted in 2014 and 2015 show a breakdown of 4:1 of inactive non-students to unemployed non-students in the NEET rates among developing countries. The ratio is narrower, at 3:1, among the emerging countries, where the School-to-Work Transition Survey was conducted, and for developed countries. Based on the EU-28 average for 2015, the distribution of subcomponents was at near equity.[11] Because it is predominantly young women who find themselves excluded from both school and work in emerging and developing countries, tackling the issue of youth who are NEET links closely to SDG 4: "Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all", and SDG 5: "Achieve gender equality and empower all women and girls".

2.4 Demographic shifts, desires to migrate and implications for youth

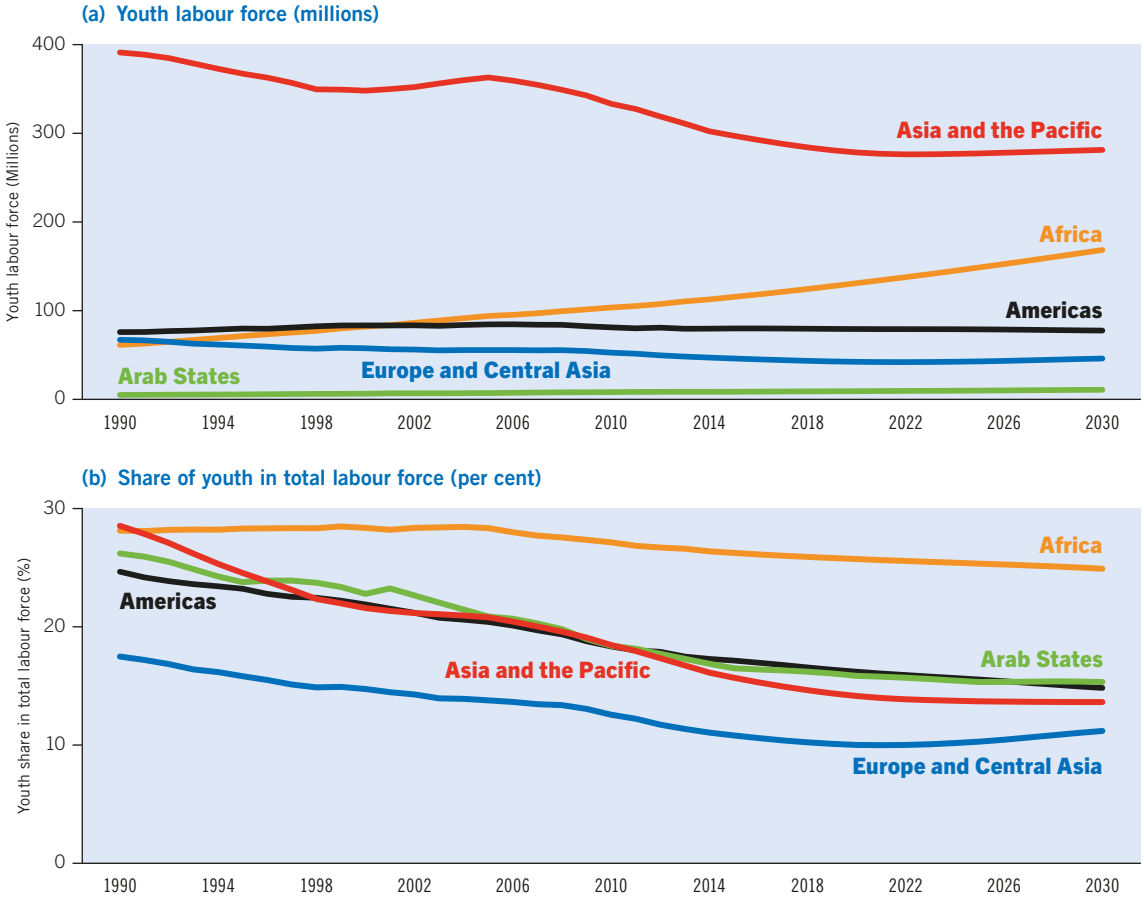
The employment prospects for young people are also influenced by population and labour force trends. Increases in the labour force, as young people enter working age or through labour migration, may increase competition for jobs in certain countries. In other contexts, as populations age and older workers exit the labour force, migration may help address labour shortages and sustain output levels.

2.4.1 Population and labour supply increasing in developing and emerging countries

By 2030, the global population is projected to reach 8.5 billion people, and by 2050, it will be 9.8 billion people (UNDESA, 2017b). This growth will increasingly be driven by longer life expectancies rather than new births. As a result, the proportion of persons aged 65 or older will continue to grow while that of young people will shrink in most of the world. Youth populations, however, will continue to expand in some regions.

[11] There were 25 countries covered by the School-to-Work Transition Survey, conducted between 2014 and 2015 through the ILO Work4Youth project (www.ilo.org/w4y). Among them, 18 countries were within the emerging countries grouping and seven countries were developing countries. The EU-28 distribution of subcomponents of NEET rates (50.9 per cent inactive and 49.1 per cent unemployed youth) is taken from Eurofound (2016).

Figure 2.8 Youth labour force trends and projections, by region, 1990–2030



Note: Youth is defined as persons 15–24 years old. Total labour force is measured as persons aged 15–64 years.
Source: ILO Labour Force Estimates and Projections, July 2015.

In 2015, young people (aged 15–24) made up 16.2 per cent of the global population, while older adults (aged 65 or older) were only 8.3 per cent, equivalent to about half of the youth population. By 2030, that gap will be much narrower. The youth population is expected to increase by 101.7 million persons, while the number of older adults is projected to grow by 385 million persons. As a result, the global proportion of youth will decline to 15.2 per cent, while the proportion of persons aged 65 or older will expand to almost 12 per cent. With these trends continuing, the population aged 65 or older is expected to outnumber young people by 2050. The fast pace of population ageing is made even more apparent by the decline in the proportion of children aged 14 years or younger, which is expected to shrink from 26.1 per cent in 2015 to 23.7 per cent by 2030 and then to 21.3 per cent by 2050.

Although this global picture reflects the reality in most of the world, one continent stands out: Africa. Sizeable increases in the youth population, e.g. sub-Saharan Africa, will outweigh decreases in all other regions, most notably in Eastern Asia. The youth population in Africa is projected to increase by 105 million people by 2030, 94 million of whom will live in the sub-Saharan subcontinent. The older persons population, however, is expected to expand by only 29 million people in that same time period.

In terms of labour supply, more than 481 million workers of all ages will enter the global labour force between 2017 and 2030; most of them will be in sub-Saharan Africa, at 198 million people, and Southern Asia, at 166 million people (figure 2.8). The global labour force will be increasingly weighted towards developing countries. In contrast to recent trends, the labour force aged 15–24 will expand by 41.8 million people between 2017 and 2030; since, the number of labour force participants aged 25–29 will fall by 16.2 million, overall, the number of young labour force participants aged 15 to 29 will increase by 25.6 million by 2030.

Approximately 86 per cent of the young labour (15–29) force will be in emerging and developing countries by 2030. This increase in the youth labour force will be almost entirely in Africa. Elsewhere, the youth labour force is stable or declining, partly because more young people are staying in higher education (as highlighted in section 2.1.1).

2.4.2 Ageing societies influence youth labour markets

The extent to which societies are ageing varies considerably by region, and, as previously noted, some parts of the world will remain markedly young. In 2015, in Northern, Southern and Western Europe, the ratio of older adults to young people was 1.8:1, the highest of all regions, and by 2030 is expected to increase to 2.4:1 (figure 2.9). The ratio will also remain high in Northern America and Eastern Europe, as well as in Eastern Asia where it is expected to double, from 0.8:1 to 1.7:1, between 20I5 and 2030. In Southern Asia over the same period, the ratio of older adults to youth will rise from 0.3:1 to 0.5:1, although it will still be lower than the global ratio of 0.8 older adults per young person in 2030. In Northern and sub-Saharan Africa, however, a fast-growing youth population will ensure that there are more young people than adults. Indeed, the ratio of older adults to young people aged 15–24 in sub-Saharan Africa will remain at 0.2.

An ageing population means that working persons must sustain the pension and health care schemes for a growing number of retired workers. It will become increasingly important to expand youth labour force participation, especially for women, and to promote swift school-to-work transitions. At the same time, in the context of Africa's expanding youth population and labour force, investments in youth and decent job creation will be paramount to harness the potential benefits of a demographic dividend.

Figure 2.9 Ratio of individuals aged 65 or older to youth aged 15–24, 2015–30

Source: ILO calculations based on UNDESA, 2017b.

2.4.3 Youth and labour migration

Against the backdrop of rapid population ageing in much of the world, the migration of young workers, particularly to developed countries, can soften the adverse growth and labour market effects of the ageing population. Considering the low fertility rates, net migration is today one of the main drivers of population growth in many developed countries. And it is likely to become the only factor contributing to the expansion of the population in these countries over the near future (Zaiceva and Zimmermann, 2016).

The economic benefits of migration are numerous for migrant workers, their families, the communities of origin and host communities (ILO, 2017). Migrants and their households

benefit primarily from increases in income and remittances. In host countries, migrant workers contribute positively to productivity and public finance sustainability. However, emigration from emerging and developing countries risks exacerbating the "brain drain", which may lead to labour shortages and changes in the skill structure of the workforce in the long term (Docquier, 2014).

Young people make up the bulk of the international migrant flow – around 70 per cent of them is younger than 30 (S4YE, 2017).[12] In terms of stock, young people aged 15–29 accounted for 21.2 per cent of the 244 million international migrants worldwide in 2015 (UNDESA, 2015). This translated to over 51 million international migrants aged 15–29 years – more than half of them aged 15–24. More than 52 per cent of youth who left their country of origin relocated in developed countries, often in search of better life prospects and higher standards of living (UNDESA, 2015).

The ILO (2016b) noted that an increasing proportion of youth desire to move permanently to another country. Using data from the Gallup World Poll, the share of youth expressing desire to migrate was more than 36 per cent in 2016, which was 3 percentage points larger than the share in 2009. The largest increase was in the Arab States, at 9 percentage points, followed by Northern Africa, at 7 percentage points. Willingness to move abroad was highest at 44.3 per cent in sub-Saharan Africa, followed closely by Northern Africa, Latin America and the Caribbean and then Eastern Europe, at around 40 per cent or slightly more. The lowest inclination to migrate was found in Northern America, where only 17.1 per cent of youth wanted to move abroad permanently.[13]

Macro-level studies have shown that a country's level of unemployment and working poverty are good predictors of young people's desire to migrate abroad (Mascherini and Ledermaier, 2016). But it is youth with full-time or voluntary part-time jobs who are the ones who want to migrate abroad permanently, especially in countries with an increasingly large number of highly educated young people but where a depressed labour market offers limited job prospects. Employed youth with tertiary education are often more willing to migrate abroad than persons with a secondary or lower education in both higher- and lower-income countries. For instance, in developing countries, the share of employed youth with tertiary education who would like to migrate abroad was 52.6 per cent in 2016, whereas the same share among persons with less than secondary education was lower at 37.0 per cent. Across emerging countries, this difference is less marked, although the share of employed youth who desire to migrate remains around 5 percentage points higher for persons with a tertiary education than for persons with less than secondary education.

It is also important to bear in mind that growing numbers of youth are migrating in search of better educational opportunities, to reunite with their families or for humanitarian reasons related to the presence of armed conflict, geopolitical tensions and the persecution of cultural minorities in their country of origin. Furthermore, youth outside the labour force are relatively willing to migrate abroad, especially young people in developing countries.

2.5 It is not easy to be young in the labour market today

In sum, despite the positive global economic outlook, it is not easy to be a young woman or man in the labour market today. On one hand, youth are staying longer in education, and thus human capital is increasing. Labour force participation rates for youth are declining, although

[12] For more detailed estimates on international migrant flows by age and a discussion of their implications, see S4YE (2017), figure 8.

[13] The figures represent an update to ILO (2016b), figure 4. Regional figures report the average share of youth willing to migrate in each country of the region. These cannot be interpreted as the propensity of youth to migrate out of the region but, rather, as the average young persons' tendency to move abroad across countries in the region.

gender gaps are narrowing. On the other hand, once in the labour market, young people face significant challenges in finding employment, with unemployment once again on the rise; and employment quality is a major concern. Young people are often informally employed or do not earn enough to lift themselves and their families out of poverty. The transition into the labour market is critical in a young person's life and could have long-term socio-economic effects.

In this context, the next chapter elaborates on the school-to-work transition of young people.

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3. Measuring transitions: pathways to decent work

A smooth transition to decent work sets young women and men on a path to productive adulthood and achieving their life goals. Multiple factors play a role in securing a successful transition, from the strength of youth labour market demand, skills and work experience and the availability of labour market information and other services to support young jobseekers. Better education and training and working while studying can facilitate a smooth passage to the labour market.

3.1 Transitions to work and beyond

Youth employment should be considered in a broad life-cycle framework. This means taking into account the impact of experiences in childhood, adolescence and early adulthood on future success (ILO, 2004). Obstacles such as exclusion from education or early engagement in work, for example, not only diminish children's prospects, but can transmit cumulative disadvantages from one generation to the next. If, instead, young school leavers can enter the labour market easily and effectively, they are more likely to establish positive pathways throughout life, as well as for the next generation of youth.

This edition of *Global Employment Trends for Youth*, as with previous editions, maps transition pathways using indicators generated from the ILO's School-to-Work Transition Surveys (SWTS) (box 3.1). This chapter continues the story with a fuller exploration of how, and how well, young people integrate into the labour market. It then reflects on the main socio-economic challenges that influence youth transitions and links these to the changing employment environment. Because many young people are staying in education throughout "youth", statistically defined as aged 15–24, the transitions to work are getting longer; so, in this and the following Chapter, coverage is extended to include young people up to the age of 29 (see box 3.2).

How easily and effectively young people make this transition depends on the demand for labour; how well prepared they are for the labour market (skills and experience); and the availability of information and assistance on employment opportunities. The

Box 3.1 ILO School-to-Work Transition Surveys

The school-to-work transition can be a long and difficult process. At the same time, improving such transitions is a policy priority for many countries. Traditional labour market surveys do not provide sufficient data for designing and monitoring responses on this important subject. The School-to-Work Transition Surveys aim therefore to strengthen the evidence base. Covering young women and men aged 15–29 years, the SWTS are detailed national household surveys that cover young people's current and past labour market experiences, along with their perceptions and aspirations. It encompasses indicators that define the stages and quality of transition (box 3.2), applying the concept of decent work.

Note: See also Annex D, and ILO's website on SWTS at http://www.ilo.org/employment/areas/youth-employment/work-for-youth/WCMS_191853/lang--en/index.htm.

Box 3.2 How old are the young – defining youth

According to the standard United Nations definition, established more than a quarter of a century ago, "youth" comprises young people aged from 15 to 24 years inclusive (United Nations, 1992). This has traditionally been used to capture the period of transition between childhood and full adulthood. One aspect of this transition concerns the movement from education to employment. Conceptually, the school-to-work transition refers to the period between leaving (usually full-time) education and entering (usually full-time) employment. Not all children participate in education, nor do all those who leave education enter the labour market. Nevertheless, the age-range was intended to encompass the normal school-leaving age and the typical age of entering the labour market.

Over the last two decades, more children are going to school and more young people go onto tertiary education. According to the SWTS data, at age 25 over 10 per cent of young women and young men in low- and middle-income countries were still in full-time education with a significant minority (over 5 per cent) staying there throughout their twenties. Moreover, it takes until age 24 until the majority of young people are in employment. There are also gender differences. For young men, half were in employment by age 23; for young women, the 50 per cent threshold was only reached by age 29.

Not only are young people spending more time in education they are also taking longer to enter the labour market. Both phenomena make the use of a slightly broader age-range, including also those aged 25 to 29, more sensible in operationally defining young people. This also conforms to national practice in many countries throughout the world where youth employment policies and programmes are often aimed at young labour market entrants aged under thirty; as with for example, the Youth Guarantee programme in a number of European countries discussed further in Chapter 6 (box 6.3).

Source: O'Higgins (2001, 2017)

following discussion assumes that a "young person" (aged 15–29) will have completed the transition ("transited") when she or he is settled in stable employment (box 3.3). Stable employment is defined as a job with an employment contract (written or verbal) lasting for 12 or more months (ILO, 2013 and 2015), or for those who do not have long-term wage employment, a job with a self-perception of continuity. A "satisfactory" job is thus based on a combination of employment status, self-reported desire to change jobs, and the perceived likelihood of keeping the job.

In principle, a short transition time to a first job should indicate an efficient labour market, capable of absorbing jobseekers. However, a rapid and direct entry into the workforce is not necessarily a sign of success. The young people quickest to get jobs may also be the most disadvantaged. Perhaps they have not gone to school or have moved directly from school into irregular work that they are likely to continue for a lifetime.[1] Even in developed countries, a short transition to the first job may not offer a good foundation for the broader transition to adulthood.

Transition data need, therefore, to be interpreted carefully. In some cases, it makes sense to look at the overall transition period, from entry to the labour market through to a decent job. In other cases, especially where unemployment rates are high, it may be more meaningful simply to consider the first job. Moreover, the lack of desire to change jobs, will depend not only on the quality of employment, but also on young peoples' labour market expectations. If they see few jobs available, as during economic downturns, they are likely to be realistic about prospects for a better job, and therefore more likely to be satisfied with the job that they have.

[1] Youth in irregular employment engaged either in own-account work, contributing family work, casual paid employment or temporary (non-casual) labour.

Box 3.3 Stages of the transition from school to work

I. Transited – A young person who has transited is one not in school and who is currently employed in either:

a. a stable job
   i. based on a written contract of duration at least 12 months; or
   ii. based on an oral agreement and likely to keep the job over the next 12 months; or

b. a satisfactory temporary job
   i. based on a written contract of duration less than 12 months and does not want to change the job; or
   ii. based on an oral agreement; not certain to keep the job over the next 12 months and does not want to change the job; or

c. satisfactory self-employment (in self-employed status and does not want to change the job).

II. In transition – A young person still "in transition" is one who is currently either:

a. an active student (employed or unemployed); or

b. unemployed (non-student, relaxed definition); or

c. employed in a temporary and non-satisfactory job
   i. based on a written contract of duration less than 12 months and wants to change the job; or
   ii. based on an oral agreement; not certain to keep the job over the next 12 months and wants to change the job; or

d. in non-satisfactory self-employment (in self-employed status and wants to change the job); or

e. inactive and not in education or training, with the aim of looking for work later.

III. Transition not yet started – A young person whose "transition has not yet started" is one who is currently:

a. still in school and inactive (inactive student); or

b. inactive and not in education or training (inactive non-student), with no intention of looking for work.

Note: ILO's definition of labour market transitions has been adapted over the course of the research programme accompanying the implementation of the SWTS in 34 countries. For a full description of how the concepts and definitions have evolved, see ILO (2015, Chapter 4).

Evidence from the SWTS shows that in countries with youth unemployment rates of 25 per cent and above, people were indeed less likely to leave their jobs voluntarily, whereas in countries with low unemployment there is less friction in the labour markets and more "space" to move between jobs (table 3.1). In countries with low unemployment rates, young women were more likely than those in high-unemployment countries to leave a job for family reasons, for example, to have a child or look after the family.

Table 3.1 Job leavers by reason, high and low youth-unemployment countries, percentage

Sex	Youth unemployment rate, country grouping	Voluntary non-family-related	Voluntary family-related	Involuntary	Other
Female	High	31.6	16.6	38.1	13.8
	Low	41.7	24.6	18.1	15.6
Male	High	44.8	0.8	38.2	16.2
	Low	54.2	5.3	26.1	14.3

Note: Countries are grouped according to youth unemployment rates greater than 25 per cent (high: Armenia, the former Yugoslav Republic of Macedonia, Jamaica, Jordan, Montenegro, Occupied Palestinian Territory, Republic of Congo, Serbia and Tunisia) and less than 25 per cent (all other SWTS countries). Among the voluntary (non-family-related) reasons for leaving a job are: left for better job; unhappy with workplace; moved; and started education or training. Voluntary family-related reasons include: left to have a baby or to look after the family. Involuntary reasons include: being dismissed or let go; end of a temporary contract; and health reasons.

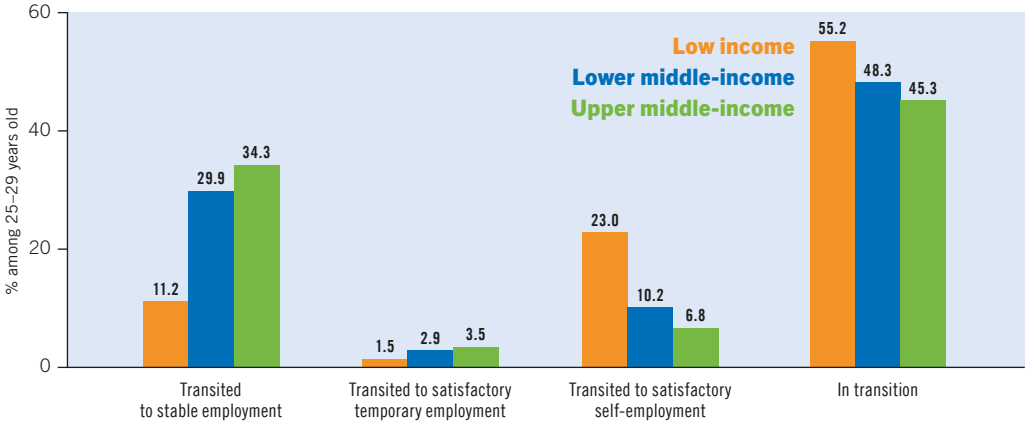
Source: Elder and Nilsson (forthcoming), table 3; calculations based on ILO SWTS. See Annex D for methodological details.

3.2 Factors influencing transitions

3.2.1 Socio-economic factors

Transition outcomes also depend on a country's level of development. In low-income countries where stable wage employment is rare and own-account work rife, young persons are more likely to settle definitively in self-employment – with little prospect or desire to change their job (Burchell et al., 2015). Of young adults (25–29 years) who might be expected to have completed the transition to a stable job, only 11.2 per cent had done so in low-income countries, compared to 34.3 per cent in upper middle-income countries. For self-employment on the other hand, the picture is different: the transition to satisfactory self-employment had been completed by 23.0 per cent of young adults in low-income countries, compared with only 6.8 per cent in upper middle-income countries (figure 3.1).

Figure 3.1 Stages of transition for young adults (25–29) by country income group



Note: The graph includes data from 33 countries. The residual category – transition not yet started – is not shown. Calculations are based on ILO SWTS. See Annex D for methodological details.

Source: Elder and Nilsson (forthcoming), figure 2; calculations based on ILO SWTS.

Table 3.2 summarizes the length of school-to-work transitions in the developing countries covered by the SWTS carried out between 2012 and 2016 (see list of countries in Annex D). It presents two statistics: the average time from leaving school to the first job; and the average time from leaving school to the first transited job.[2] For the 33 countries, the average time for the full transition was 13.8 months – 14.4 months for females and 13.7 months for males. For those living in rural areas it was 15.4 months, and for those in urban areas, 14.3 months.

The longest transitions were identified in Eastern Europe and Central and Western Asia – 17.9 months. Many of these countries have high unemployment rates for 25–29 year-olds, for example: 37 per cent in the former Yugoslav Republic of Macedonia in 2014; 38 per cent in Montenegro in 2015; and 26 per cent in Serbia in 2015. Even finding a first job, regardless of its characteristics, took 17.2 months, during which time a young person would have remained dependent on family, or even State, support. The shortest transitions, at 9.6 months, were in Asia and the Pacific, followed by sub-Saharan Africa at 12.5 months.

[2] When a first job overlaps with schooling, i.e. when work is combined with studying, a duration of zero is used.

Table 3.2 School-to-work transitions, 33 countries

Characteristic		Time to first job (months)	Time to first transited job (months)	Age at first job (years)	Age at first transited job (years)
Total (33–country average for both sexes)		11.6	13.8	19.2	19.4
Sex	Male	11.3	13.7	18.8	19.0
	Female	12.5	14.4	18.6	18.8
Regions	Sub-Saharan Africa (10 countries)	7.9	12.5	17.8	18.1
	Latin America and the Caribbean (6 countries)	13.9	14.6	18.7	18.8
	Middle East and North Africa (5 countries)	12.4	13.4	19.2	19.3
	Asia and the Pacific (4 countries)	7.6	9.6	17.5	17.6
	Eastern Europe and Western and Central Asia (8 countries)	17.2	17.9	20.9	21.0
Income grouping	Upper middle-income	15.4	16.3	20.1	20.2
	Lower middle-income	12.4	14.5	19.3	19.5
	Low-income	6.8	10.4	17.0	17.3
Area of residence	Rural (28 countries)	13.0	15.4	18.3	18.5
	Urban (29 countries)	12.0	14.3	19.6	19.8
Level of completed education	Primary	19.6	22.2	17.0	17.2
	Secondary	12.4	14.3	19.2	19.4
	Tertiary	6.5	8.5	22.1	22.3

Note: Transitions are measured from the date of exit from schooling to entry in a first job or first transited job (in stable wage employment or satisfactory temporary or self-employment). Young persons who held a first job but not a first transited job are excluded from the calculation. Direct transitions from school to first job or first transited job are included with a duration of zero. When a first job overlaps with schooling – i.e. when a young person combines work with studying – a duration of zero is used. Calculations based on ILO SWTS (33 countries; the latter year is used in countries with two rounds of the SWTS). See Annex D for methodological details.

Source: Elder and Nilsson (forthcoming, table 1).

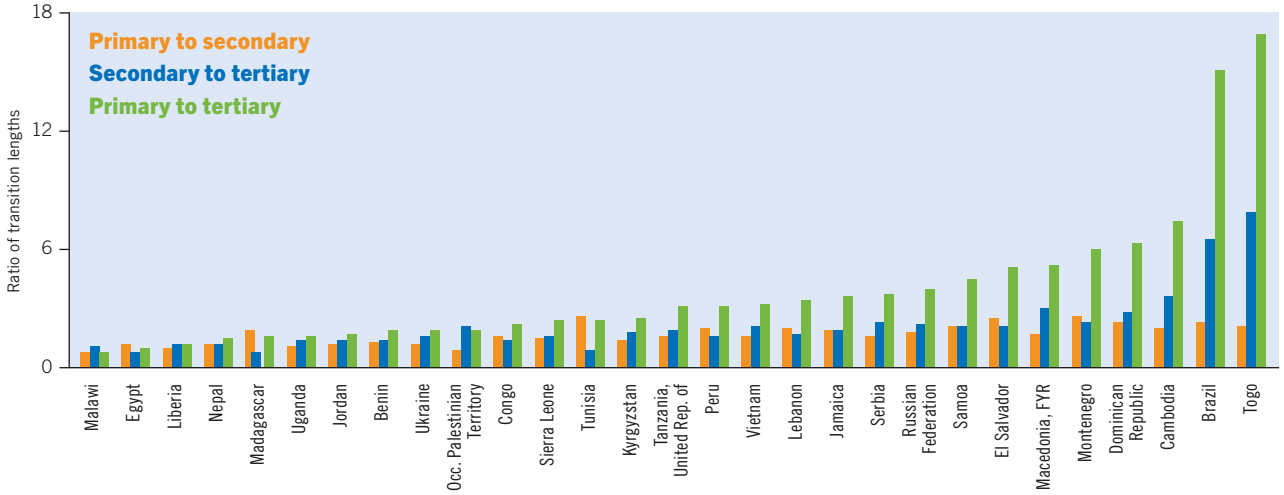
3.2.2 Educational factors

Table 3.2 also highlights the value of education. The longer a young person studies, the shorter the transition (figure 3.2). For primary school graduates, the transition took 22.2 months, for secondary graduates 14.3 months, and for tertiary graduates 8.5 months. This education advantage was more marked in some countries, particularly for tertiary education. On average, the duration was 1.6 times longer for primary than secondary graduates, 1.7 times longer for secondary than tertiary graduates, and 2.6 times longer for primary than tertiary graduates. But there were some notable differences between countries. In Malawi, for example, moving from secondary to tertiary education actually increased the transition time, while it reduced it dramatically in Togo.

Examining education and gender, Elder and Kring (2016) find that the link between education and transitions is clear for both young men and young women, but stronger for the latter. Whereas young men with tertiary education were 1.5 times more likely than those with primary education to have completed the transition, young women with tertiary education were 1.9 times more likely to have transited than their less educated counterparts. Yet, having tertiary education is not enough to level the playing field, as transition rates are higher for young men in most countries.

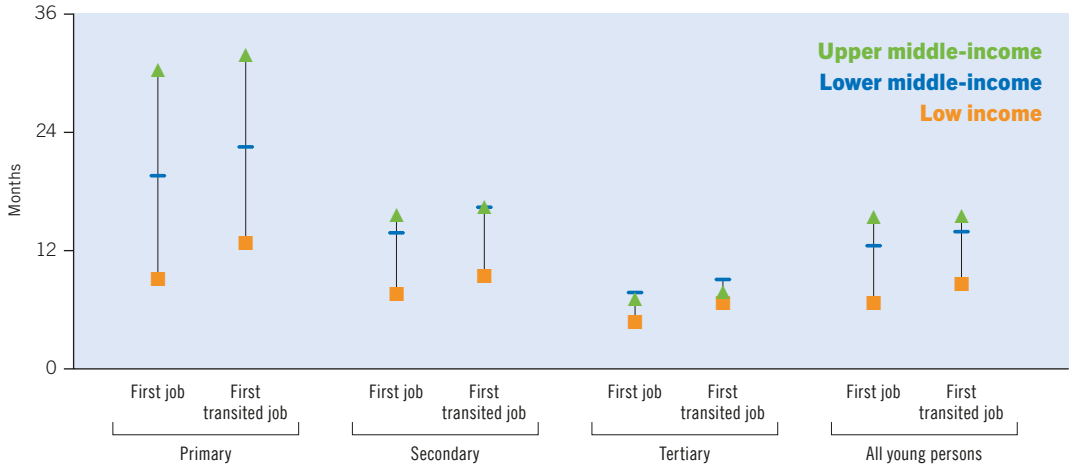
For all levels of education, transitions tend to be longer in middle-income than in low-income countries (figure 3.3). This is because young people in middle-income countries are in a better position to wait until a suitable waged or salaried job becomes available. In poorer countries, without this prospect, young people are more likely to settle rapidly for self-employment, which may depend only on the time needed to assemble the necessary materials. In upper middle-income countries, for example, obtaining a university degree provided a fourfold advantage over primary-level education, while for low-income countries the advantage was only twofold.

Figure 3.2 Length of transition, ratios by level of completed education



Source: Elder and Nilsson (forthcoming), figure 3; calculations based on ILO SWTS. See Annex D for methodological details.

Figure 3.3 Length of transition by level of completed education and country income group



Source: Elder and Nilsson (forthcoming), figure 4; calculations based on ILO SWTS. See Annex D for methodological details.

Another concern is whether the skills of young people match those in demand in the labour market. Alignment would facilitate transitions, whereas misalignment is expected to hinder transitions. In their analysis of the SWTS, Sparreboom and Staneva (2014) show that over half of youth have skills that do not match job requirements. In higher (upper-middle) income economies, skills mismatch is primarily related to "overeducation", meaning that limited availability of jobs for higher skilled youth leads them to engage in employment for which they are over-qualified. In low-income economies, the issue of a lack of qualifications, with young people taking up jobs for which they are "undereducated", is a bigger concern. Moreover, across income levels, mismatch is more common for youth in vulnerable employment.[3]

[3] Vulnerable employment amongst young people is discussed further in Chapter 5. This category of employment comprises own-account workers plus contributing family workers. For more on the definition and purpose of the term, see: http://www.ilo.org/global/about-the-ilo/newsroom/features/WCMS_120470/lang--en/index.htm (accessed 31 Aug. 2017).

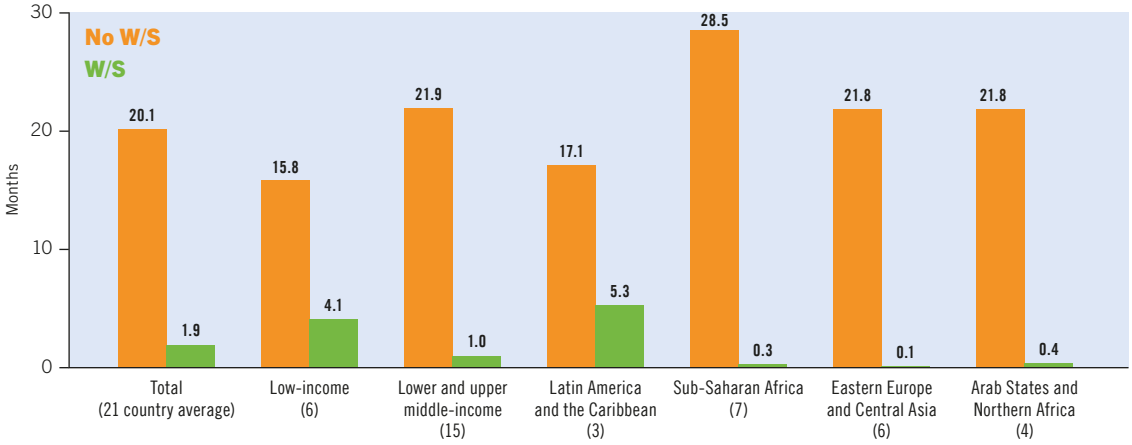
3.2.3 Work–study combination and work-based learning

Some youth will combine school and work, often through work-based training schemes. For centuries, there have been apprenticeship systems in both formal and informal economies. Over the last ten years or so, policies addressing employment, education, training and youth transitions have involved combining work and learning in the classroom and workplace (UNESCO, 2015). In its 2012 Resolution to address the youth employment crisis, the ILO called on governments to improve the range and types of apprenticeships by, inter alia: complementing workplace learning with more structured institutional learning; upgrading the training skills of those overseeing apprenticeships, including literacy training and livelihood skills; and by regulating and monitoring apprenticeship, internship and other work-experience schemes (ILO, 2012).

Two studies based on the SWTS found that on average 24 per cent of those still in school were working, or had worked at some point (Nilsson, 2015 and 2016). Among those who had completed their schooling, about 19 per cent had combined work with schooling. The work–study combination was more common for young persons engaged in education at the secondary level. It was also more common in Cambodia, Dominican Republic, El Salvador, and in sub-Saharan Africa. Work–study was least likely in the Arab States, North Africa, Europe and Central Asia.

Many young people engaged in work–study will continue in the same job after graduation – so the transition duration is zero months. In all regions, the work–study combination substantially shortened the transition period. On average across 21 countries, the duration for work–study combiners was 1.9 months – compared with 20.1 months for non-combiners (figure 3.4). The longest transition for work–study combiners was in sub-Saharan Africa at 5.3 months, and the shortest was in Eastern Europe and Central Asia at less than a month.

Figure 3.4 Length of transition by work–study combination



Note: No W/S = non work–study combiners; W/S = work–study combiners, excluding apprenticeships.
The number in parentheses is the number of countries covered.
Source: Nilsson (2016), figure 8. Calculations are based on the ILO SWTS (2014–15) in 21 countries.

3.3 Smoothing the path

The pathway to decent work can thus be direct and smooth, or more extended and difficult. Indeed, many workers may never achieve stable decent employment. Young people are more likely to be successful at starting work if they are in developed countries with better organized labour markets, and if they have relevant education and training. In recent years, it has become increasingly important for workers to deal with higher levels of technology. In this respect at least, as explained in the next chapter, young people may be in a stronger position than their parents.

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4. Future of work for youth: Technology and sectoral shifts

New technology both creates and destroys jobs. In developed countries, young people may find themselves working alongside robots, while in developing countries, the impact of technological disruptions will be slower and vary across sectors. Youth employment is growing in the services sector – financial intermediation is booming in developing countries, while the health and social work sector is absorbing large numbers of young workers in developed and developing countries alike. These sectoral shifts in the world of work often push young people to acquire higher levels of technical and soft skills, though in some developing country contexts the demand for low- and semi-skilled youth labour is still strong, and will likely remain so for some time.

4.1 New technologies and job creation and destruction

The world of work is transforming and the future is being sculpted by several drivers of change, including demography, changing women's aspirations and cultural norms, and rapidly evolving and diffusing technology. This chapter focuses on the latter. The next section presents a brief overview of literature and outlines three dimensions along which impacts of technology in the world of work will vary. Following, the chapter analyses changes in sectoral employment over the last decade to shed light on potential growth sectors for young workers (15–29) across the globe. It then delves into a few key emerging sectors for youth employment, with a focus on technological developments, in order to throw some light on the likely nature and extent of potential future sectoral employment opportunities for young persons.

Time and again, technology has transformed the way we work, and this current phase of technological change will similarly have far-reaching impacts on the quantity and quality of jobs (ILO, 2016a; ILO, 2016b; Kucera, 2017; Nübler, 2016). Since at least the late-1960s, productivity enhancing new technologies have become progressively cheaper and have led to capital–labour substitution. Some studies suggest that this is reflected in the long-term decline of the "employment elasticity of growth" – the percentage change in employment associated with a one percentage point change in economic growth.[1] This measure has been falling globally for decades, although with significant variations across regions. At the same time, there has been a decline in the share of gross domestic product (GDP) going to labour (ILO, 2016c).

Previous technological revolutions generally automated only routine and repetitive tasks. The latest "disruptive" technologies, which include hardware and software, are now taking on non-routine and complex manual and cognitive tasks that previously could be done only by humans since they require flexibility, judgement and common sense (box 4.1) (Autor, 2015). The question is whether today's technological revolution is inherently different from the past in its labour–replacing potential (ILO, 2015a) and what are the implications for the future of work of young people.

[1] See for instance, Chandy (2017) highlighting that technology has made capital goods cheaper and has thus encouraged substitution of workers; or Dasgupta, Kim and Pinedo (forthcoming) for an analysis of the elasticity of growth. The role of technology in determining the declining employment elasticity, however, is still a matter of debate.

Box 4.1 Four technologies that will shape the future of work

Several key areas of innovation will affect future systems of production. They are, however, at different stages of technical development, readiness for commercial roll-out, and adoption by end-users. Moreover, they will not affect all sectors and industries – or countries – in the same way or at the same pace.

Artificial intelligence (AI)

This relates to machines capable of simulating human intelligence. Machine learning is a core aspect of AI, analysing large quantities of data and identifying patterns for machines to carry out tasks without being explicitly programmed where to look, such as Google's DeepMind. Other AI examples include smart personal assistants such as Apple's Siri; self-driving vehicles and Tesla's autopilot feature; and purchase prediction software used by online merchants, such as Amazon.

Robotics

Robots are machines programmed to perform tasks with a minimum of human intervention.[1] They work with high degrees of accuracy and consistency and can undertake hazardous tasks. Robots can substitute for or operate alongside workers. The newer generation are lighter, nimble and adaptable, and fitted with vision, force, and other sensors that allow them to perform a wider range of tasks in closer proximity to humans. Traditionally associated with industrial activities, robots are increasingly present in agriculture and the services sector – for example, in surgery and logistics. There are also a range of domestic applications from automated vacuum cleaners to socially interactive robots to keep people company.

Internet of things

This concerns devices connected to the Internet that can communicate with other devices and with humans. This technology has been evolving fast and is now found in private homes, industry, and services. For instance, the Nest home thermostat alerts users through a mobile app if there are any issues with home heating or cooling systems. Companies such as Philips and VitalConnect produce biosensors that outpatients can wear to allow physicians to monitor their health remotely.[2] In agriculture, sensors allow for remote real-time monitoring of factors such as soil temperature and humidity for improved productivity.

3D printing

3D printing builds objects from digital files by adding layers over layers of material. The technology has been around since the mid-1980s, but as costs have dropped it has become more accessible, with a wide range of applications.[3] For example, leading sports footwear brands, such as Adidas, have announced mass production of 3D printed shoes.[4] Recently, scientists have 3D printed artificial skin to use in research and on patients, or in the testing of cosmetics, in chemical and pharmaceutical products.[5] In construction, 3D printed moulds are currently being used, for example, to cast concrete panels for the tunnels of a new underground railway across London.[6]

[1] This is a broad definition based on the International Federation of Robotics (IFR) and the International Organization for Standardization (ISO)'s definitions of industrial and service robots. [2] J. Enriquez: "GE Developing wireless patch that analyses sweat, tracks vitals", in *Med Device Online*, 13 June 2017 (https://www.meddeviceonline.com/doc/ge-developing-wireless-patch-that-analyzes-sweat-tracks-vitals-0001) [3 Aug. 2017]. [3] D. Hendricks: "3D printing is already changing healthcare", in *Harvard Business Review*, 4 Mar. 2016 (https://hbr.org/2016/03/3d-printing-is-already-changing-healthcare) [13 July 2017]. [4] F. Tepper: "Adidas' latest 3D-printed shoe puts mass production within sight", in *TechCrunch*, 7 Apr. 2017 (https://techcrunch.com/2017/04/07/adidas-latest-3d-printed-shoe-puts-mass-production-within-sight/) [3 Aug. 2017]. [5] Universidad Carlos III de Madrid, Oficina de Información Científica: "3-D bioprinter to print human skin", in *ScienceDaily*, 23 Jan. 2017 (www.sciencedaily.com/releases/2017/01/170123090630.htm) [13 July 2017]. [6] The Economist: *3D printing and clever computers could revolutionise construction*. 3 June 2017 (https://www.economist.com/news/science-and-technology/21722820-think-spiderweb-floors-denser-skyscrapers-and-ultra-thin-bridges-3d-printing-and) [12 July 2017].

Several studies have attempted to assess how technology is affecting jobs (Frey and Osborne, 2013; Arntz, Gregory and Zierahn, 2016; Chang and Huynh, 2016; World Bank, 2016; Acemoglu and Autor, 2011). However, these studies generally only model the impact of technology on job destruction; they do not usually assess job creation (Kucera, 2017). In fact, technology-driven job displacement has historically been accompanied by job creation in other, often new, sectors so that the net employment effect has been positive (Nübler, 2016; Perez, 2002; Vivarelli, 2014). Even if the net impact of the current technological change is yet unknown, it is clear that the new wave of technological progress will have far reaching implications for future employment, though these will not be evenly distributed.

It is also important to note that the effects on employment prospects will differ across countries, sectors and between younger and older workers, depending on the level of development, the economic structure and how well prepared the workforce is to adapt to new technologies.

4.1.1 Impacts will vary with the level of development and economic structure of countries

Robots and other automated technologies for manufacturing and services are still significantly concentrated in developed countries, whereas developing and emerging countries continue to rely on often low-skilled and low-waged labour. Indeed, more than half of the global population remains offline, mostly in developing and emerging countries (World Bank, 2016). In Africa, in particular, Internet diffusion and access are far lower than the world average, though there are variations across countries.[2] As technologies evolve, costs likely decrease, diffusion increases, and any current comparative advantage of low-cost labour in lower-income countries is likely to decline. Automation of routine and repetitive labour-intensive work – deemed easiest to automate based on current technologies – will have important implications for employment generation for young workers entering the labour market in developing and emerging countries (UNCTAD, 2016). New technologies and automation of more complex and non-routine tasks will impact employment in countries across all economic levels. Relative costs of labour, machines and technologies replacing labour will vary amongst countries based on level of development and economic structure, which will determine at what point, how and to what extent workers may be affected. Most of the research on likely impacts of technology has focused on developed countries and although developing and emerging countries have been the focus of a few studies (e.g. Chang and Huynh, 2016; Frey and Osborne, 2016; World Bank, 2016) the full scale of the challenge is yet to be completely understood, especially in regards to agriculture and low-productivity informal sector activities.

4.1.2 Impacts will vary by skill levels

It is easiest to automate manual tasks and cognitive tasks that consist of routine and repetitive steps that are codifiable and can be translated into an algorithm – such as bookkeeping and even low-skilled jobs in the automobile and textile industries where there is high potential for automation (Autor, Levy and Murnane, 2003; Acemoglu and Autor, 2011; Autor, 2015; Frey and Osborne, 2013; World Bank, 2016; Goos, Manning and Salomons, 2014). Machines are, however, still less able to perform non-routine, non-repetitive, more complex cognitive and social tasks that require problem-solving, pattern recognition, communication, critical thinking, creativity and imagination, such as in the care economy where soft skills play a vital role. Thus far, therefore, technology has and will continue to increase the comparative advantage of workers who can carry out such tasks, often at both ends of the skill spectrum. This is referred to as labour market polarization (Autor, 2015; Arntz, Gregory and Zierahn, 2016; Frey and Osborne, 2013; Goos and Manning, 2007; Smith, 2013) or routine-biased technological change (Goos, Manning and Salomons, 2014). To the extent that the labour market is segmented along gender lines, with women and men often specializing in certain skills or occupations, it is also expected that technology will impact women and men differently.

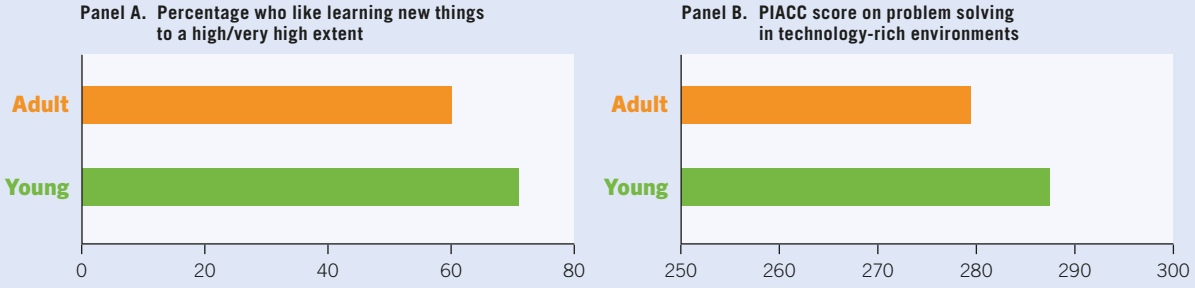
[2] See for example: Internet World Statistics, http://www.internetworldstats.com/stats1.htm, (accessed 18 Aug. 2017).

Box 4.2 Young workers perform better that adults in technology-rich environments

The Programme for the International Assessment of Adult Competencies (PIAAC) is a worldwide study of cognitive and workplace skills conducted by the Organisation for Economic Co-operation and Development (OECD). Results for eight countries suggest youth are better able to deal with new technologies (figure 4.1).

A closer analysis of six countries on problem solving in technology-rich environments shows that young workers (16–29) are better equipped to solve problems using technology than adult workers (30+). This holds true in all sectors except public administration. Young workers in Chile and Turkey, however, still lag well behind the average (figure 4.2) What particularly stands out is the substantial use of technology in the financial intermediation and education sectors amongst young workers compared to adult workers (figure 4.3).

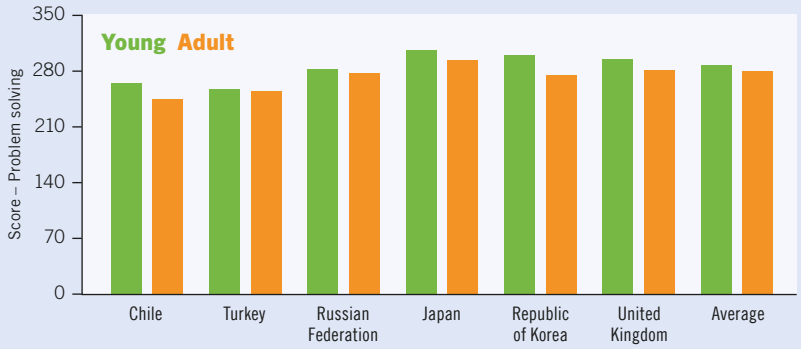
Figure 4.1 Ability to deal with new changing technologies by age group



Note: The figure reports: (1) the age-specific percentage of respondents who enjoy learning new things to a high or a very high extent; and, (2) the average score obtained on problem solving skills in technology-rich environments by age group. Countries covered are Canada, Chile, Germany, Japan, the Russian Federation, the Republic of Korea, Turkey and the United Kingdom.

Source: ILO calculations based on OECD, PIACC survey results.

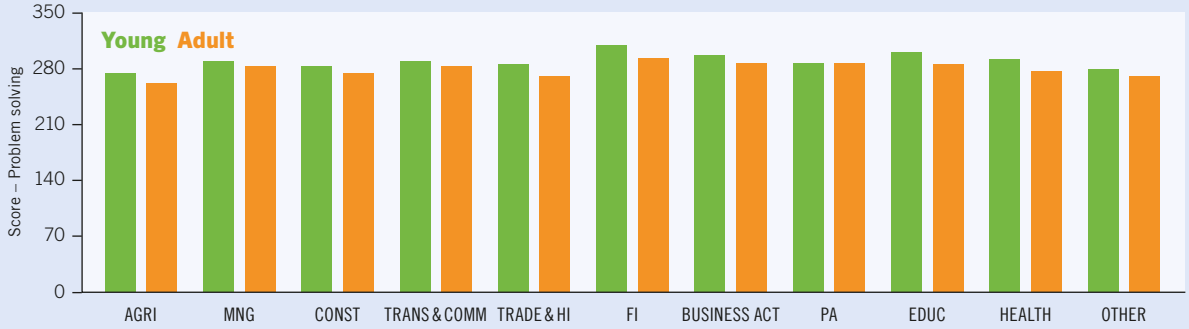
Figure 4.2 Test score results for problem solving in technology-rich environments, young workers/adult workers, by country



Note: Data for Chile and Turkey come from the second round of the PIACC (between 2012– 2016); data for the Russian Federation, Japan, the Republic of Korea and the United Kingdom come from the first round (between 2008–2013); see www.oecd.org/skills/piacc/aboutpiaac (accessed on 22 Sep. 2017).

Source: ILO calculations based on OECD, PIACC survey results.

Figure 4.3 Test score results for problem solving in technology-rich environments, young workers/adult workers, by sector



Note: Data for Chile and Turkey come from the second round of the PIACC (between 2012–2016); data for the Russian Federation, Japan, the Republic of Korea and the United Kingdom come from the first round (between 2008–2013).

Source: ILO calculations based on OECD, PIACC survey results.

4.1.3 Impacts will vary between generations

There will also be generational differences. On average, young workers are better educated,[3] and having grown up in a technology-rich environment, are better placed than adults to deal with rapid technological change (box 4.2). As *Technology Society* reports: "Technology is a normal facet in [young people's] lives, and they're fearless about pushing buttons and experimenting. Where older people fear they'll either break something or change the settings beyond repair, the young understand that everything can be put back the way it was quite easily. Technology doesn't scare them." (Nickson, 2016). A recent study on computer use and productivity in China also confirmed that young workers were more likely to use computers and had more advantages in computer use over older workers (Du, Jia and Park, 2017).

4.2 Growth sectors for young workers in the past decade

Successful youth transitions into the labour market will depend in part on where jobs are available. An examination of changes in sectoral employment over the last decade provides insights into the sectors that may be absorbing young people (aged 15–29) in the near future. These shifts in sectoral employment are influenced by a variety of factors including macroeconomic and sectoral policies, skills and human capabilities policies, and access to markets (Salazar-Xirinachs, Nübler and Kozul-Wright, 2014). Figure 4.4 shows the patterns across different regions, and table F1 in Annex F highlights trends across countries.[4]

In Africa (figure 4.4), agriculture continues to be the leading sector in employment generation despite a decreasing share that fell from 54.7 per cent in 2005 to 44.2 per cent in 2015. This was primarily due to a 13.6 percentage point drop for adults. The decline was much smaller for young people, 2.3 percentage points, with large numbers entering the workforce and being employed in, often low-productivity, agriculture. Construction, on the other hand, has attracted young workers, much more than adults (box 4.3). In Nigeria, for example, it tripled overall and increased fivefold for youth in particular, although it remains relatively small in terms of overall employment. In Zambia, where total construction employment doubled, young workers account for almost half of the new jobs. There were also increases in employment for youth in real estate, business activities and in manufacturing, albeit smaller than for adults.

Box 4.3 The challenge of youth employment in construction in Ghana

Over the past decade, construction has been booming in Africa, and the share of employment in construction among youth is growing faster than among adults (figure 4.4). Yet, a recent study suggests, there is a shortage of skilled artisans and tradespeople in construction. This deficit is expected to reach 300,000 by 2020 in Ghana, opening up important opportunities for young people entering the labour market.

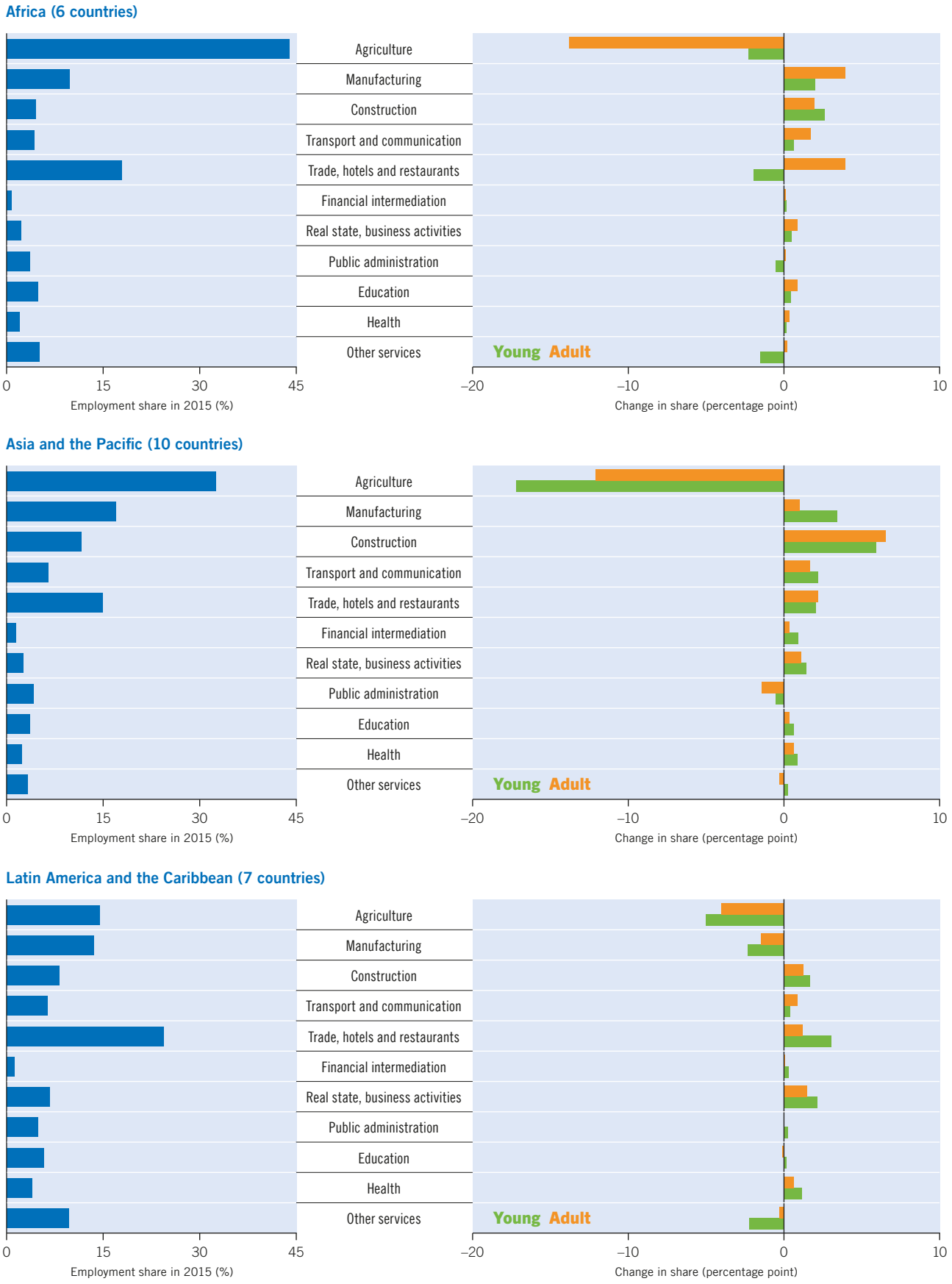
On the other hand, the study found that the interest among youths in formal construction-related vocational training has declined. The lack of enforcement mechanisms on occupational health and safety standards and low wages characterize the informal nature of the sector in parts of Africa. Skills and training systems need to be strengthened, more formal apprenticeship opportunities for those who cannot forgo income in the pursuit of education need to be created, and regulations on wages and working standards need to be strengthened and better enforced.

Source: Darko, E.; Lowe, A. 2016. *Ghana's construction sector and youth employment* (London, Overseas Development Institute).

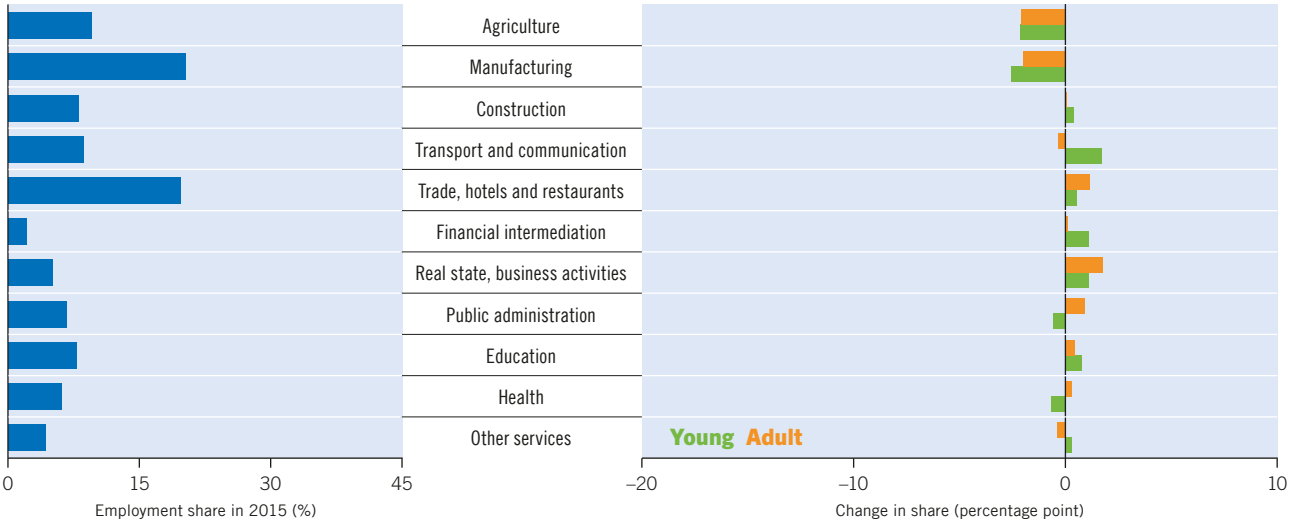
[3] See for instance UNESCO's literacy rate statistics, http://uis.unesco.org/sites/default/files/documents/fs38-50th-anniversary-of-international-literacy-day-literacy-rates-are-on-the-rise-but-millions-remain-illiterate-2016-en.pdf (accessed 18 Aug. 2017).

[4] The sectoral analysis considers people within the age bracket of 15–29. Together, the 49 countries under analysis account for about 83 per cent of the global labour force, including 81 per cent of Europe and Central and Western Asia, 91 per cent of Asia and the Pacific, 86 per cent of the Americas and 44 per cent of the labour force in Africa. See Annex E for details on the dataset and definition of different sectors and Annex F for country-level sectoral shifts.

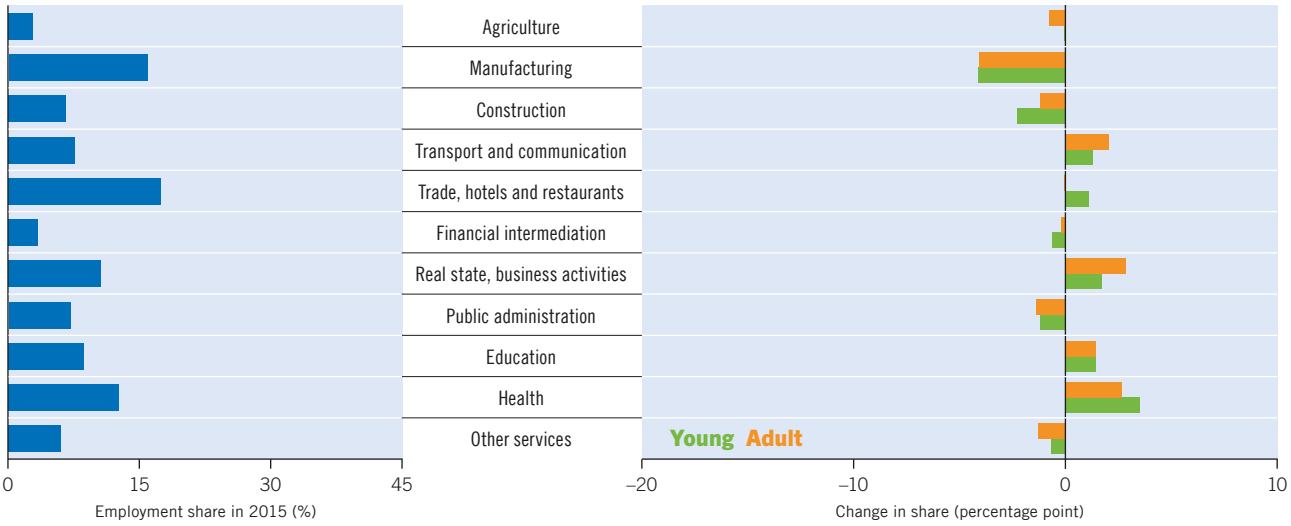
Figure 4.4 Sectoral distribution of employment in 2015 and percentage point changes in sectoral employment shares for young people and adults by region, 2005–15



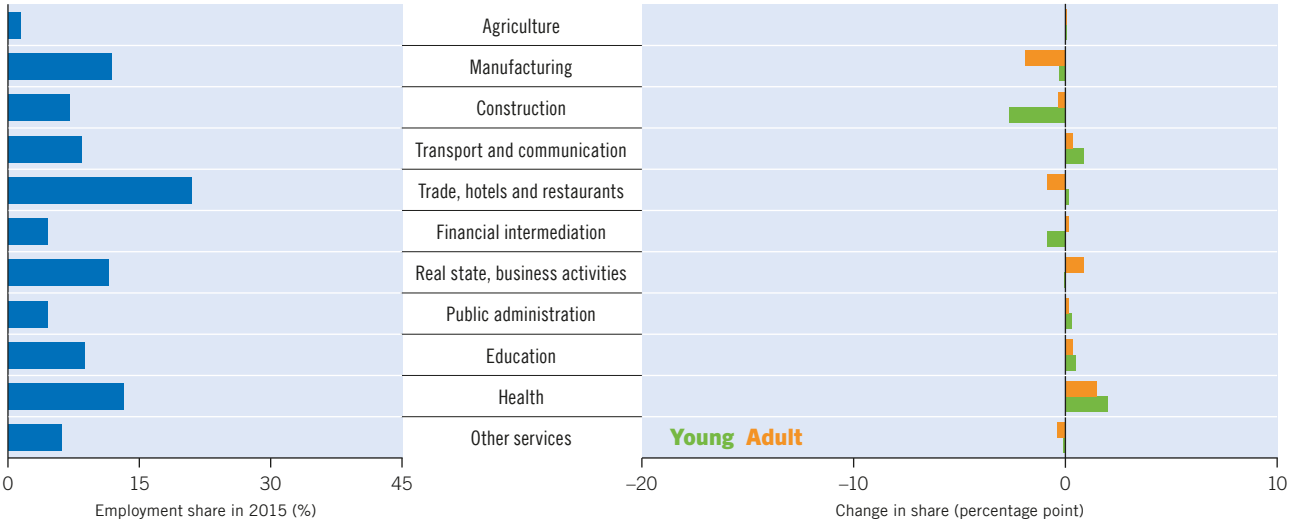
Eastern Europe and Central and Western Asia (9 countries)



Northern, Southern, and Western Europe (20 countries)



Northern America (2 countries)



Note: The figure reports regional estimates of: i) the number of people (both young people and adults) employed in each sector as a percentage of total employment in 2015; ii) the percentage point change between 2005–15 in each sector's employment share for young people (15–29); and iii) the percentage point change between 2005–15 in each sector's employment share for adults (30–64). Years vary slightly according to data availability. See Annex E for more details on the dataset.

Source: Calculations based on the Labour Force Micro Database.

In Asia and the Pacific, young workers' percentage point share in manufacturing employment increased by three percentage points while that for older workers rose just under one percentage point. Whether this will be sustained will depend on which manufacturing subsectors grow, as well as on technological change and the resulting skills needs. Younger workers have also been advancing significantly faster in transport and storage and information and communications, financial intermediation, real estate and business activities. Construction and trade, hotels and restaurants are increasingly absorbing younger and older workers alike, with interesting trends for young women in construction (box 4.4). Youth are also increasingly gaining employment in health-related[5] services, surpassing adult employment growth. This is partly explained by ageing societies, particularly in Eastern Asia, and suggest potentially positive prospects for young women – for instance, young women accounted for approximately 90 per cent of youth employment in the sector in the Republic of Korea in 2015.[6] In turn, young people's involvement in agriculture exhibited a drastic fall of 17 percentage points. Nevertheless, agriculture remains a major employer in Asia and the Pacific as well as in other developing and emerging regions such as Latin America and the Caribbean and Africa. Improving agricultural productivity using new technologies will be needed to make agriculture more attractive to young workers (box 4.5). There is also much scope for additional employment to deal with climate change adaptation.

In the three Latin America and the Caribbean countries studied, there are signs of deindustrialization, with young people exiting manufacturing faster than adults. For instance, in Colombia, employment in manufacturing declined only for youth. In fact, although the share of manufacturing in adult employment declined, the actual number of adults working in manufacturing increased by approximately 5 per cent. Young Latin American and Caribbean workers are now increasingly found in services, such as in real estate and business activities; trade, hotels and restaurants; transport and storage and information and communications; financial intermediation; and health. The health sector in particular, has opened significant opportunities for young women in Brazil, where nearly 70 per cent of young workers are female (box 4.4). The trade, hotels and restaurants sector exhibits the largest expansion for younger relative to older workers, which could be linked to the movement from agriculture to services. There was also a drive towards the formalization of the informal economy in the region (Gómez Ramírez, 2016; ILO, 2015b). Expansion in construction was also strong in Latin America and the Caribbean. In Colombia, youth employment in construction increased by 72.1 per cent compared to 64.7 per cent for the sector overall. In turn, in Brazil, the number of young workers in construction rose 30.0 per cent while total employment in the sector expanded to 51.6 per cent. However, given the lower starting point, youth employment growth surpassed adults in terms of the percentage point increase.

In Eastern Europe and Central and Western Asia, the transport and storage and information and communications' employment share has declined for adults, but has expanded significantly for young women and men. In financial intermediation, the employment share expanded overall, but much faster for young workers. Conversely, similar to Latin America and the Caribbean, the region shows signs of deindustrialization. There has been an overall decline in manufacturing employment, but more so for younger than older workers. For instance, in Romania, the proportion of young workers in manufacturing declined by 46.0 per cent while adult workers decreased by 1.6 per cent; in Poland, the number of young workers in manufacturing contracted by 9.1 per cent whereas adult workers' share expanded by almost 30 per cent.

[5] Health is a shorthand for the human health and social work activities and refers to ISIC rev.4 codes 86–88.

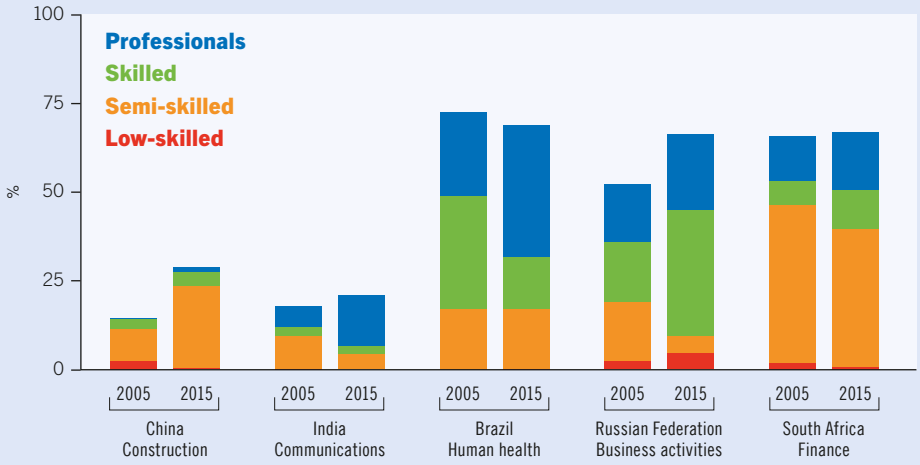
[6] Calculations from Labour Force Surveys. See Annexes E and F.

Box 4.4 Young women in Brazil, the Russian Federation, India, China and South Africa (BRICS) are moving into non-traditional sectors

Sectoral changes are influenced by changing work aspirations and increased educational attainment and skills acquisition of young women. Globally, between 2005–2015, the proportion of young female employees with tertiary education went from nearly 30 per cent to 42 per cent, while for young men it rose from 18 to 25 per cent.

In most BRICS countries, educated and empowered young women are gaining presence in sectors traditionally dominated by men. In China, for example, the female share of young workers employed in construction increased from 14.4 to 28.9 per cent, mostly in semi-skilled employment. In India, young women are increasing their employment share in communications, mostly at the professional level. The human health sector in Brazil, following the global pattern, is female dominated: seven out of every ten young workers in the sector are women. More and more of these women are now highly-skilled professional workers. In South Africa, young women's share in the finance sector has remained somewhat stable in the past decade, but their make-up has shifted towards skilled and professional workers, although semi-skilled employment remains strong. In the Russian Federation, there has been a sizeable increase in women's share in business activities, primarily for higher-skilled young women at the skilled and professional levels.

Figure 4.5 Sector and age-specific employment share and skills distribution of young women, selected sectors and countries, 2005–15



Note: Skill level is defined based on ISCO 08 occupations. ISCO major group 2 and sub-major groups 11, 12 and 13 are categorized as Professionals. ISCO major group 3 and sub-major group 14 are categorized as Skilled. ISCO major groups 4 to 8 are categorized as Semi-skilled. The ISCO major group 9 is categorized as Low-skilled. The ISIC rev.4 codes used for defining the sectors are: for "construction" 41–43, for "communications" 58–63, for "human health" 86, for "business activities" 68–82 and for "finance" 64–66.

Source: Calculations based on the Labour Force Micro Database. See Annex E.

In Northern, Southern, and Western Europe, young people were hit hard by the economic crisis and resulting job losses. The share of employment in manufacturing, construction, public administration, and financial intermediation declined. In Spain, for example, between 2005–2014, the age and skill specific employment share of low and semi-skilled young workers employed in construction fell from roughly 18 per cent to 4 per cent; this was equivalent to 514,000 lost jobs.[7] The reduction in the number of public sector workers was likely driven by austerity measures that prompted cuts in public expenditure.[8] Sectors

[7] The construction sector in 2005 was providing employment to 575,632 low-skilled and medium-skilled jobs to young people, but in 2014 only to 61,025. All calculations are based on the Labour Force Micro Database.

[8] Analysis of the Labour Force Micro Database shows that the number of young people working in the public sector decreased more than the number of adults in many European Union countries. In part this may be due to a slow down or complete block on new hires in the public sector in some countries. See Kickert and Randma-Liiv (2015) for a summary of austerity measures in Europe.

Box 4.5 Rising agricultural productivity: A hope for rural youth

In developed countries, agriculture is highly mechanized, employing relatively few people. In developing countries, however, agriculture is still often low-tech, employing large numbers of low-skilled workers. In sub-Saharan Africa and parts of Asia and the Pacific, given the limited capacity of other sectors to absorb the growing labour force, agriculture will remain important for employment and livelihoods in the near future (Losch, 2016).

Agriculture remains a major employer of African youth. A survey of young people in Africa found that nine in ten believed their prospects would improve if general conditions in rural areas improved (BMZ, 2017). Agriculture could be more attractive for youth by using technology such as robots and sensors to reduce drudgery and improve productivity and profitability. This would also support the development of up- and down-stream activities.

Technology can also drive job growth in off-farm activities, including processing, storage, and distribution, as well as in related activities, such as agribusiness, agro-tourism, and mechanical and agricultural engineering.

In many cases, young people have been spearheading agricultural technology development and dissemination,[1] often addressing gender and other barriers. In Kenya, for example, young entrepreneurs have started companies such as UjuziKilimo, which uses sensors to analyse soil and farm conditions to offer affordable real-time recommendations over mobile phones to smallholder farmers. In Indonesia, a young entrepreneur developed an automated fish feeding system, eFishery, which reduces feed usage by 20 per cent. In Ethiopia, blueMoon is a youth agribusiness incubator and seed investing platform. In the Philippines, AGREA offers training – by youth, for youth – and promotes sustainable agricultural technologies. In Malawi, young women can access Bunda Female Students Organization scholarships at the Lilongwe University of Agriculture and Natural Resources in exchange for training poor female farmers in climate-smart technologies.

Prospects for youth in agriculture should also improve as financial services expand and reach underserved areas and populations. Here too, young people can play a key role. In Kenya, the youth-led FarmDrive uses data analytics and mobile phone technology to connect smallholder farmers with financial institutions. Capitalizing on these opportunities will require strong technical skills development at both secondary and tertiary levels, as well as a youth-friendly financial system that understands the needs and constraints of young people in the rural economy.

[1] See for instance P. Sawa: *Young Africans chart new path for agriculture as climate heats up.* Reuters News Agency, 18 Apr. 2017 http://www.reuters.com/article/africa-agriculture-youth/feature-young-africans-chart-new-path-for-agriculture-as-climate-heats-up-idUSL8N1HL2UN (accessed 14 Sep. 2017).

Source: Losch, B., 2016; Federal Ministry for Economic Cooperation and Development (BMZ), 2017.

showcasing employment growth for young people include trade, hotels and restaurants, as well as health, and transport and storage and information and communications. In the case of the Spanish trade and hospitality sector, the age and skill-specific employment share of low-skilled and semi-skilled workers went up from approximately 31 per cent to 41 per cent.[9] With ageing societies driving demand, the age specific share of workers in health services has been rising for younger and older workers alike, but faster for those aged 15–29.

Young workers in Northern America were also affected by the crisis and ensuing unemployment. The proportion of young people employed in manufacturing declined, albeit less than for older workers. Conversely, the proportion of young people employed in construction and financial intermediation decreased much more sharply than for adults. At the same time, health, transport and storage and information and communications, and education have emerged as sectors where the proportion of young people employed is increasing in the region.

[9] Labour Force Surveys, see Annex E.

4.3 Sectoral spotlight: Technology and young workers' prospects for the future

It is difficult to forecast the future, yet the analysis of recent trends in the previous section suggest a few specific sectors which are emerging as sources of youth employment, and this will likely remain so in the near future. These are sectors which are growing, and rapidly absorbing large shares of young women and men, often faster than adult workers, as presented in the previous section. These sectors are largely aligned with projections to 2025 by CEDEFOP Skills Forecast (2016).[10] These include financial intermediation; transport and storage, information and communications; trade, hotels and restaurants; and health and care services. The manufacturing sector has traditionally been central to youth transitions into the labour market, and has contributed to successful productive transformations of economies, and despite recent declines in the percentage share of manufacturing employment in most regions (except Africa and Asia and the Pacific), the sector is likely to remain important, especially in developing and emerging countries.

However, in the medium to long term, the employment potential and the nature of employment in these sectors, will largely depend on the speed of technological change which will be reflected in the skills demanded by these sectors, as has been repeatedly highlighted by researchers.[11] The changes which have already occurred in the sector-specific skills composition provide useful pointers as to the direction of changes in quantity and quality of employment. These trends in skills composition of wage employment are analysed below.[12]

4.3.1 Financial services

Financial services[13] are an important source of employment for young people, they have been increasingly absorbing young workers in Asia and the Pacific, Latin America and the Caribbean, as well as in Eastern Europe and Central and Western Asia. In China, Indonesia and the Philippines, young people accounted for half of employment growth in this sector between 2005–15. The number of young workers employed in finance more than tripled in China and more than quadrupled in Indonesia (Annex F). New technologies affect employment in financial services in two main ways. The first generally involves job replacement. Step-based, non-subjective processes are more and more being managed by software robots that have been automating and increasingly managing workflow – as in claims processing for insurance companies (e.g. UIPath).[14] This has already happened to some extent in advanced countries such as those in Northern America and Northern, Southern and Western Europe. Technologies also create jobs: financial technology (FinTech) firms operating at the intersection of financial services and technology are creating new services and new jobs (box 4.6).

With greater automation, some of the back-office work that has been offshored from developed to developing and emerging countries may return in-house. This would reduce such employment opportunities in developing countries, particularly for young workers. On the other hand, automation may increase job opportunities for young people, by reducing the

[10] These sectors are largely aligned with projections to 2025 by CEDEFOP Skills Forecast (2016). See for instance, CEDEFOP: *Future employment growth.* http://skillspanorama.cedefop.europa.eu/en/indicators/future-employment-growth (accessed 25 Sep. 2017).

[11] See for instance, Frey and Osborne (2016); Shook and Knickrehm (2017); UNCTAD (2016); World Bank (2016), World Economic Forum (2016).

[12] The analysis focuses on wage workers due to constrains in defining skills levels for own-account and contributing family workers.

[13] Financial and insurance services, ISIC rev.4 codes 64–66.

[14] See UIPath: *Intelligent Process Automation: Automation enabled by context-aware robots*. https://www.uipath.com/automate/intelligent-process-automation (accessed 10 Aug. 2017).

Box 4.6 Fintech start-ups are expanding finance and job opportunities for young people

FinTech firms can take advantage of sizeable untapped customer bases in developing and emerging countries. However, such markets also face significant obstacles, including limited cloud infrastructure, and lack of connectivity among users who largely operate in informal settings.[1] The Nigerian FinTech firm Moneywave is creating payment interfaces to facilitate multiple-form transactions in Africa's fragmented payment systems, for instance allowing money transfers between mPesa accounts and bank accounts.[2] In India, Fingpay and S2Pay allow businesses to accept payments from customers without cards or cash – the first does so through biometrics, while the latter is based on a mobile application that can be used without an internet or network connection.

Technology is also facilitating lending transactions, for both individuals and businesses. Barriers to credit for young people are being increasingly lifted through FinTech solutions. For instance, the Indian start-up LendingKart offers finance to small and medium enterprises, while Kueski in Mexico offers immediate short-term personal loans within 30 minutes to be repaid within 30 days. In Brazil, Geru connects borrowers and investors as lenders online.

In the developing world, FinTech is going further and generating new data on "digitally invisible" people who would otherwise have been unable to access traditional financial services.[3] Start-ups such as Creditfix in Pakistan use income data generated from rickshaw hailing services such as Oddjobber or Rixi to verify and generate credit scores and extend lending services to a majority of the population excluded from formal traditional credit systems.

[1] J. Kendall: "Fintech companies could give billions of people more banking options", in *Harvard Business Review*, 20 Jan. 2017 (https://hbr.org/2017/01/fintech-companies-could-give-billions-of-people-more-banking-options) [23 June 2017]. [2] D. Coldewey: "Flutterwave aims to unify Africa's fragmented systems and empower small businesses" in *TechCrunch*, 5 Dec. 2016 (https://techcrunch.com/2016/12/05/flutterwave-aims-to-unify-africas-fragmented-payment-systems-and-empower-small-businesses/) [23 June 2017]. [3] J. Kendall, op. cit.

cost of banking and financial services operations and thus facilitating expansion. This would be similar to what happened after the introduction of automated teller machines, which decreased the number of bank tellers per branch, but also increased the number of branches, with positive net employment benefits.[15] This trend has been observed in India, where large banks are rapidly increasing their presence in underserved rural areas.[16]

Young people will also get more opportunities in FinTech companies, most notably in developing and emerging countries in Africa, Asia and the Pacific, and Latin America and the Caribbean, where large populations have been historically unable to access financial services and are thus currently underserved. In addition to offering direct employment, by offering new forms of credit management, FinTech firms should also help spur entrepreneurship and self-employment among youth who lack collateral and traditionally have had limited access to credit.

To take advantage of these opportunities, young people will need to improve or acquire the right skills and certifications to respond to increasing skills demands from the sector, as shown in figure 4.6. Many of the skills traditionally associated with finance will still be needed – such as management, finance or accounting, though these may be for higher-value advisory roles (Oliver, 2016). On the other hand, there will also be greater demand for technical skills such as data management and analysis, and knowledge of mobile technology. At the same time, constant innovation will require a strong need for softer skills such as complex problem solving, openness to learning, adaptability, and languages.

In India, Poland, South Africa, and the United States, for example, there have been increases in the hiring of high-skilled young wage workers in the financial sector (figure 4.7), with sizable employment growth, especially among young university graduates.[17] At the same

[15] ATMs decreased the number of bank tellers per branch, and thus reduced branch operating costs and resulted in a larger increase in the number of branches, with positive net impacts. See Bessen (2015).

[16] For instance, N. Singh: "Rural youth can bank on finance sector for jobs". *The Times of India,* 5 Oct. 2015, http://timesofindia.indiatimes.com/business/india-business/Rural-youth-can-bank-on-finance-sector-for-jobs/articleshow/49221215.cms (accessed 11 July 2017).

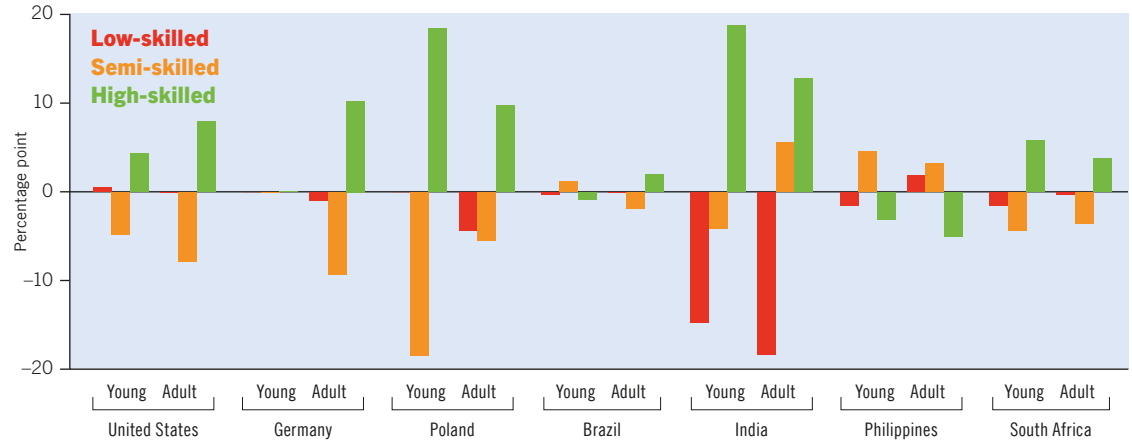
[17] For example, university graduate wage employment in financial intermediation increased 131 per cent in India and 100 per cent in South Africa, while the increase in graduate wage employment for the economy overall was 84 per cent in India and 61 per cent in South Africa. (Source: Calculations based on Labour Force Micro Database.)

Figure 4.6 Skill composition of wage employment in financial intermediation, selected countries, 2005–15

Note: The figure reports the distribution of wage workers by broad skill level in the financial intermediation sector. Years vary slightly according to data availability. Skill level is defined based on ISCO 08 occupations. ISCO major groups 1, 2 and 3 are categorized as High-skilled (it puts together the professionals and the skilled categories). ISCO major groups 4 to 8 are categorized as Semi-skilled. The ISCO major group 9 is categorized as Low-skilled. See Annex E for details.

Source: Calculations based on the Labour Force Micro Database.

Figure 4.7 Change in skill composition of young and adult wage employment in the financial intermediation sector, selected countries, 2005–15 (percentage points)



Note: The figure reports the percentage point changes of young (15–29) and adult (30–65) wage workers' skill shares in the financial intermediation sector. Years vary slightly according to data availability. See Annex E for details.

Source: Calculations based on the Labour Force Micro Database.

time, there is likely to be continuing demand for semi-skilled wage workers with technical and vocational knowledge of electronics hardware and specialized software – as evidenced by the significant shares of semi-skilled wage employment (figure 4.6). This also applies to front-office positions in emerging and developing countries which have low labour costs.

Despite the numerous opportunities that the financial sector offers young people, the growth of employment in this sector has been correlated with increasing inequality. This is a cause for concern in developing and emerging economies, and deserves further research (Dasgupta, Kim and Pinedo, forthcoming).[18]

[18] The study explores the sectoral contributions to Gini coefficients and their relationship with youth employment.

4.3.2 Health services

The ageing of the global population will increase the demand for health and other care services. The human health and social work activities sector[19] encompasses healthcare provided by trained medical professionals in hospitals and related facilities, residential activities connected to healthcare, and other social work activities that do not necessarily involve healthcare professionals (UNDESA, 2008). The ILO estimates a global shortage of 13.6 million formal long-term care workers today (ILO, 2016d), while the World Health Organization (WHO) forecasts that by 2030 there will be an additional demand for 40 million new health workers (WHO, 2016).

Employment in this sector has been expanding across the globe, most often rising faster for young people than for adults. Over the period 2005–15, the number of young people employed in health services tripled in Bangladesh, doubled in the Philippines and Tanzania and increased by almost 90 per cent in Colombia. At the same time it increased significantly – if more modestly – in the United Kingdom and Mexico (approximately 38 per cent in each country) and Canada (30.5 per cent) (see Annex F).

Technological progress is transforming the sector in many ways: how patients interact with medical professionals and caregivers; how medical data are gathered; and how professionals and caregivers are trained. As in other sectors, there will be automation in business processing and administration – in hospitals, private practices and labs. These changes may in some cases reduce employment, but in others result in productivity gains and improved services. Advances in electronic medical record systems, for example, allow artificial intelligence and machine learning applications to analyse large medical datasets to support diagnosis and treatment design. In general, technology will complement rather than substitute the work of health professionals who can then spend more time with patients, explaining diagnoses and treatments. Smaller and more transportable healthcare equipment may also extend services in developing countries. Technology is also changing care and support services, and facilitating communications between caregivers and families, with the use of robots, for instance, in elderly entertainment and to support child development.

Over the past decade, the health sector has been increasingly employing higher-skilled wage workers who often require post-secondary education (figure 4.8). These include workers in health administration positions, doctors, nurses and other professionals – in spite of

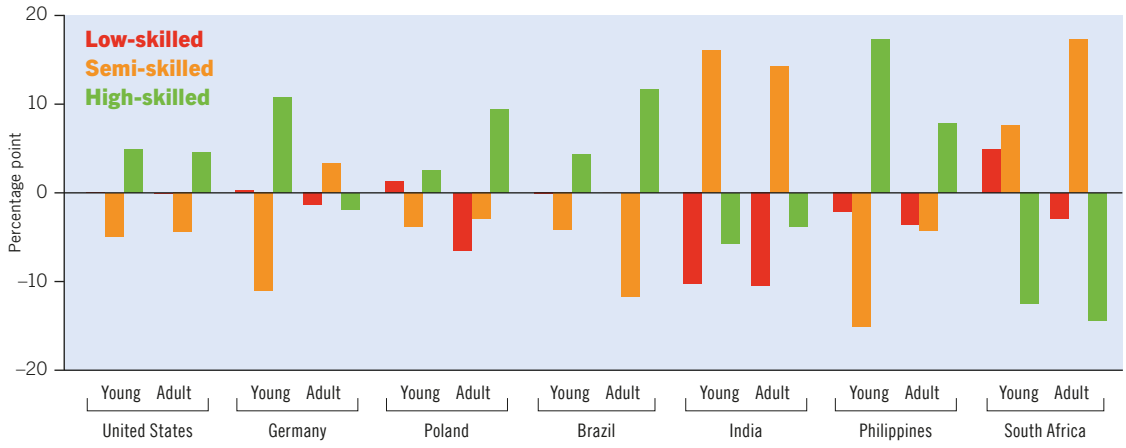
Figure 4.8 Skill composition of wage employment in the health sector, selected countries, 2005–15

Note: The figure reports the distribution of wage workers by broad skill level in the health sector. Years vary slightly according to data availability. See Annex E for details.

Source: Calculations based on the Labour Force Micro Database.

[19] Human health and social work activities, ISIC rev. 4 codes 86–88, also referred to as "health services" throughout the chapter.

Figure 4.9 Change in skill composition of youth and adult wage employment in the health sector, selected countries, 2005–15 (percentage points)



Note: The figure reports the percentage point changes of young (15–29) and adult (30–65) wage workers' skill shares in the health sector. Years vary slightly according to data availability. See Annex E for details.

Source: Calculations based on the Labour Force Micro Database.

significant cross-country differences (figure 4.9). Employment of high-skilled young employees in health services increased, for instance, in Brazil, Germany, the Philippines, Poland and the United States (figure 4.9). However, recent trends also suggest that the demand for semi-skilled wage workers is likely to remain strong, as evidenced in sustained high shares in countries such as Brazil and the United States over the past decade (figure 4.8), and by the rise in demand in India and South Africa (figure 4.9). Overall, future jobs will require workers that are fluent in technology, and have strong core work skills, e.g. in communications, customer service, and problem solving.[20]

In developed countries human health and social work is typically provided through public and private agencies (ILO, 2016d). In many developing and emerging countries, however, it is predominantly provided by informally employed domestic workers, most of whom are women, working with limited regulation and protection (ILO, 2017). This sector has the potential to create decent jobs for young women and men, but only if regulated and monitored, with particular attention to the gender dimensions.

4.3.3 Manufacturing

Although manufacturing[21] has declined in most regions in recent years, it remains a significant employer – accounting for between 9.7 per cent of employment in Africa and 20.7 per cent of employment in Eastern Europe and Central and Western Asia. In Asia and the Pacific, where it accounts for 17.0 per cent of total employment, the employment share of young workers in the sector has increased much more than for older workers. Manufacturing has always involved mechanization and automation, but the industry is now being transformed by new technologies that are taking on a wider range of tasks formerly performed exclusively by humans, as robots do more of the work that requires dexterity and flexibility (ILO, 2016a). This will not necessarily displace humans. On the contrary, it often complements them. In the automotive industry, for example, collaborative robots working alongside humans have been found to be more efficient than teams of workers or robots alone (Tobe, 2016).

[20] According to CEDEFOP: *European skills and jobs surveys (2016)*, the five most important skills for care workers include teamwork, problem solving, communication, learning, and customer service.

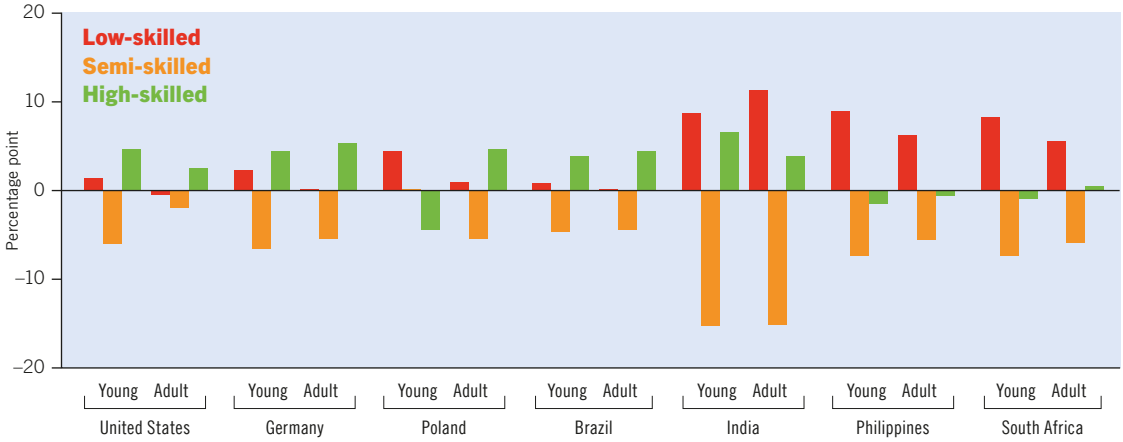
[21] Manufacturing, mining and quarrying, energy and water supply, sewerage and waste collection, ISIC rev.4 codes 5–39.

Figure 4.10 Skill composition of wage employment in manufacturing, selected countries, 2005–15

Note: The figure reports percentage point changes in skills composition of wage employment in the manufacturing sector. Years vary slightly according to data availability. See Annex E for details.

Source: Calculations based on the Labour Force Micro Database.

Figure 4.11 Change in skill composition of young and adult wage employment in manufacturing, selected countries, 2005–15 (percentage points)



Note: The figure reports the percentage point changes of young (15–29) and adult (30–65) wage workers' skill shares in the manufacturing sector. Years vary slightly according to data availability. See Annex E for details.

Source: Calculations based on Labour Force Micro Database.

Technological progress is, however, likely to shift the demand for skills. Previously, global manufacturing was often structured as a two-tier system: developed countries specialized in capital-intensive activities carried out by a higher-skilled workforce, while developing and emerging countries relied on labour-intensive, lower-skilled activities. Over the past decade, in both developed and developing countries there has been greater polarization towards high- and low-skilled wage workers, with a decline in semi-skilled wage employment, consistent with the hypothesis of routine-biased technological change (figure 4.10). In high-income countries growth has been much more pronounced at the high-skilled level, e.g. Germany and the United States. In developing and emerging countries there has been a rise in the high-skill segment, such as in Brazil and India, but also a rise in low-skill wage work, such as in India, the Philippines and South Africa (figure 4.11).

In developed countries, as investment in research and development and advanced manufacturing technologies continues, there will be an increase in the demand for workers with engineering-related skills at the graduate and technical levels. Technical skills of all levels will be in higher demand, especially digital skills, computing, machine ergonomics and analytical thinking. Across the skill spectrum, manufacturing occupations will increasingly involve non-routine tasks (CEDEFOP, 2014).

Box 4.7 Employment of young women in garments and textiles in Cambodia and in business-process outsourcing (BPO) in the Philippines

Many young female workers in the countries of the Association of Southeast Asian Nations (ASEAN) are employed in the textile, clothing and footwear industries and BPO. Both sectors are affected by technological change, albeit differently.

Garments in Cambodia

The garment sector accounts for approximately 60 per cent of manufacturing jobs, or 749,000 workers. Eight in ten workers are women, with an average age of 25 years. Estimates suggest roughly 88 per cent of wage employment in Cambodia's garment sector are at high risk of automation. In this context, the deployment of automated processes could be particularly disruptive for young women, and progress is under way. For instance, Hung Wah Garment Manufacturing reported that automated garment machines have eliminated manual labour from the cutting process. Addressing these risks requires focus on upgrading skills to create a workforce capable of working alongside machines in more automated processes.

BPO in the Philippines

The Philippines was one of the top destinations for BPO as firms in developed countries sought lower costs. It is also the second-largest outsourcing destination, behind India. In 2014, BPO providers employed over 1 million workers with an average age of 23 years, of whom almost 60 per cent were women. A large part of these young women have university degrees and earn relatively high incomes. In spite of technological advances, BPO providers continue to grow through movement towards higher-value, more specialized, knowledge-based services. Future development will hinge on continued capacity-building in specialized skills in, for example, engineering, finance, and health.

Source: Chang, Huynh, and Rynhart, 2016.

Historically, globalization and the search for lower costs drove manufacturing from developed to developing and emerging countries to take advantage of low-cost labour. It is still unclear what the employment impact in the developing world will be as manufacturing technologies improve and become cheaper, eroding the comparative advantage of low-cost labour. Part of the developing world, such as Latin America and the Caribbean is already experiencing deindustrialization (Rodrik, 2016; Salazar-Xirinachs, Nübler and Kozul-Wright, 2014; UNCTAD, 2016). In other regions, however, as in Asia and the Pacific, the decline in manufacturing has been smaller, and manufacturing will likely continue to serve as a socio-economic development stepping stone for some time, and thus remain an opportunity for economic growth. This is reflected in recent trends (figure 4.10); indeed, the share of low-skilled wage employment in manufacturing in developing and emerging countries such as India, the Philippines and South Africa, has increased in the past decade.

The viability of re-shoring manufacturing from lower- to higher-income countries will depend not only on the relative costs of labour and technology, but also on the availability of inputs and skills, and the size of the local market (Kucera, 2017). Manufacturing will thus remain an important employer, especially for young Asians. In the last decade in Bangladesh, for example, manufacturing employment for young workers nearly doubled; in Indonesia it increased by 29.9 per cent and in the Philippines by 26.6 per cent (see Annex F). It has also been suggested that times of rapid technological change provide opportunities for catching-up countries to build on relatively low-skill/low-technology activities and gradually develop capabilities to diversify into more sophisticated and technology-rich activities (Nübler, 2017). Manufacturing is also likely to offer employment opportunities to many young people in developed countries in coming years, where a slowdown in hiring has resulted in a rapidly ageing manufacturing workforce that will require replacement.[22]

The polarization of manufacturing jobs at the two ends of the skill spectrum will also have implications for wage inequality, and the resulting job polarization at an economy-wide

[22] For instance, over 80 per cent of the manufacturing workforce in the United States are currently aged 45–65 years, one-third of which is nearing retirement (Bupp, 2014).

level has been documented by several authors in the United States, Europe and Japan.[23] It is now also rising in emerging and developing countries with known consequences for wage distribution, in particular an increasing ninth decile/fifth decile wage ratio (Dasgupta, Kim and Pinedo, forthcoming).

4.3.4 Transport and storage, information and communications

Transport and storage, information and communications[24] are at the forefront of technological progress. They are central to many of the technologies that affect how people interact and how businesses in other economic sectors operate. The industry is being transformed by mobile technology, wifi, Internet, cloud technology and satellite communications. Parts of the world that have been underserved by land-based telecommunications are increasingly being connected by mobile technology. In Africa a decade ago, there were 129 million mobile phone subscriptions; today, there are over 1 billion, though less than half of these get 3G data signals.[25] Increased connectivity, along with the Internet of things, is creating vast amounts of data (Big Data) that are opening up new services and new business models across industries (e.g. FinTech, box 4.6). Young women and men are in a strong position to benefit from this digital transformation. Indeed, transport and storage, information and communications are expanding sectors for young people's employment in Asia and the Pacific, Eastern Europe, Central and Western Asia, Northern, Southern and Western Europe, and Northern America. In Canada, for example, young workers account for 40.9 per cent of new jobs in the sector and 51.6 per cent in the Russian Federation (Annex F). In China, the proportion of young workers in the sector as well as the number of young workers in transport and storage, information and communications, more than doubled in the past decade.

For years, the Information Technology (IT) jobs likely to be offshored from developed to developing countries were lower-skill jobs such as IT services. More recently, outsourcing has also been expanding in higher value-added activities in research and development and systems integration (Holtgrewe, 2014). This is partly because the destination countries not only offer lower wages, but also skilled workforces and large domestic markets. Indeed, in countries such as India, and the Philippines, as well as in some developed countries such as Poland, the proportion of wage workers in transport and storage, information and communications who are high-skilled has increased (figure 4.12).

Young women and men, who have been socialized in a technological world, and thus adapt to technological innovation more easily than older workers, are especially well positioned to benefit. Over the past decade, in India, the Philippines, and Poland, the share of high-skilled new recruits among young people was much higher than among adults. In Brazil, changes in this sector were small, but high-skilled wage employment among those aged 15–29 increased while that of adults declined (figure 4.13). In OECD countries, over half of adults have no Information and Communications Technology (ICT) skills, or have skills only for the simplest tasks in a technology-rich environment, while young people are much more proficient (OECD, 2016).

To seize future opportunities, young people need the appropriate combination of skills. Young workers will need technical ICT skills and have strong complementary soft skills, such as adaptability, critical thinking, problem solving and creativity (Holtgrewe, 2014). At the same time, medium-skill wage employment remains robust, suggesting opportunities for young workers with technical and vocational education.

[23] See, for instance, Goos and Manning (2007) for the United Kingdom; Goos, Manning and Salomons (2009) for Europe; Ikenaga and Kambayashi (2016) for Japan; and Autor (2010) for the United States.

[24] Transportation, storage, information and communications, ISIC rev.4 codes 49–53 and 58–63.

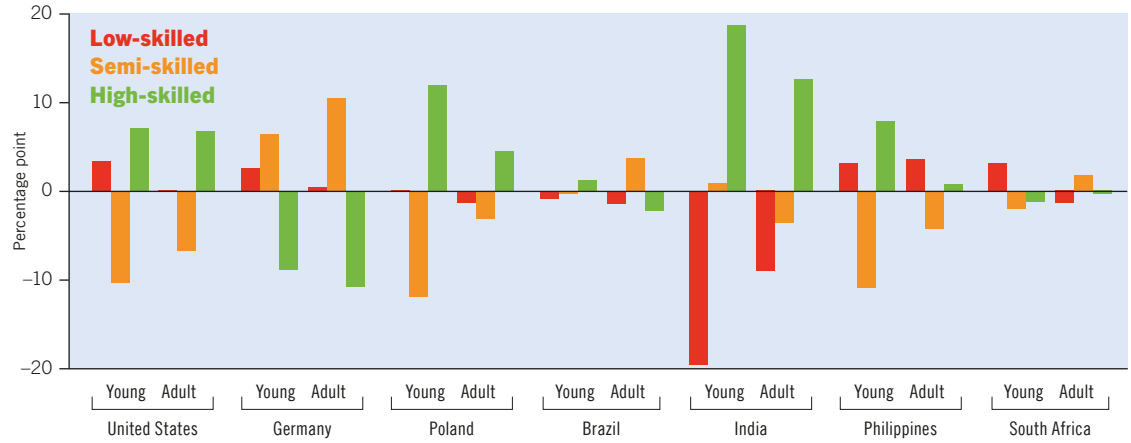
[25] The Economist: *Mobile phones are transforming Africa*. 10 Dec. 2016. https://www.economist.com/news/middle-east-and-africa/21711511-mobile-phones-are-transforming-africa-where-they-can-get-signal-mobile-phones (accessed 07 Aug. 2017).

Figure 4.12 Skill composition of wage employment in transport and storage, information and communications, selected countries, 2005–15

Note: The figure reports percentage point change in skills composition of wage employment in the transport and storage, information and communications sector. Years vary slightly according to data availability. See Annex E for details.

Source: Calculations based on the Labour Force Micro Database.

Figure 4.13 Change in skill composition of young and adult wage employment in transport and storage, information and communications, selected countries, 2005–15 (percentage points)



Note: The figure reports the percentage point changes of young (15–29) and adult (30–65) wage workers' skill shares in the transport and storage, information and communications sector. Years vary slightly according to data availability. See Annex E for details.

Source: Calculations based on the Labour Force Micro Database.

4.3.5 Trade, hotels and restaurants

Technology use in trade, hotel and restaurant activities[26] is not new – vending machines are commonplace in many parts of the world, and self-booking websites for flights and hotels have been online since the mid-1990s – but new kinds of digital and automation technologies and a wider range of applications are gaining space. Digital technologies are driving the rapidly spreading trend of "multi-channel" businesses, i.e. businesses increasingly allow customers to make purchases and get assistance through multiple channels seamlessly, including in-stores and online, through websites and apps. Retail consumers can order goods online through specialized online retailers as well as on web versions of traditional brick-and-mortar merchants. Customers can use digital technologies to place food orders through mobile phones with app or chat bots, and in-store self-ordering screens. In hospitality, centralized reservations systems and chat bots are relatively common in large hotel chains. There is also a growing trend towards automation technology in customer service as well as in warehouses and other

[26] Wholesale and retail trade, accommodation and food services activities, ISIC rev.4 codes 45–47 and 55– 56.

aspects of the supply chain. Fleets of robots complement workers in retailer warehouses, and customer-service robots can interact with customers and provide context-specific support in shops. In food services, robot-baristas can make coffee drinks with consistent quality and robot-cooks can flip burgers and help prepare pizzas, alerting human cooks when it is time to add cheese or condiments. In hospitality, butler robots can be found roaming hotels hallways, while maid robots are currently being tested to clean rooms.[27]

As with other sectors, technologies in trade, hotels and restaurants can be labour-saving but also labour-complementing, substituting for some tasks and freeing workers to focus on higher value-added tasks. At the same time, technology facilitates customer feedback and increases customer expectations and accountability in trade, hotels, and restaurants via numerous websites where customers provide reviews and express grievances accessible to anyone who wants to read them. Tech-savvy young people, who grew up in a world of multi-channel service provision, may be better able than older workers at improving customer experiences across different channels, be it in-store or online.

Indeed, trade, hotels and restaurants has been an expanding sector for young people's employment in all regions but Africa – despite cross-country differences. In Latin America and the Caribbean and Northern, Southern and Western Europe, the percentage change in young people's employment in the sector over the last decade was much higher than for adults. In Northern America, the adult share of employment in the trade, hotels and restaurants decreased, while the youth share increased slightly. In Asia and the Pacific, young people's and adult's employment in the sector increased at somewhat similar rates. In turn, in Eastern Europe, Central and Western Asia, both groups shares increased, but more so for adults. In developing and emerging countries, it is increasingly attracting workers away from agriculture; in developed countries, it is progressively absorbing workers from manufacturing. Young people's employment in trade, hotel and restaurants expanded by over 50 per cent in Indonesia, the Philippines, and Tanzania. It also expanded significantly in China (25.5 per cent), Colombia (43.2 per cent), Mexico (10.3 per cent), Pakistan (36.5 per cent), Republic of Korea (20.1 per cent), the Russian Federation (21.5 per cent), and South Africa (14.3 per cent).

The bulk of these jobs are at the semi-skilled level (figure 4.14), though demand for semi-skilled wage workers in the sector has declined in high-income countries such as Germany, Poland and the United States (figure 4.15). In India, demand for semi-skilled

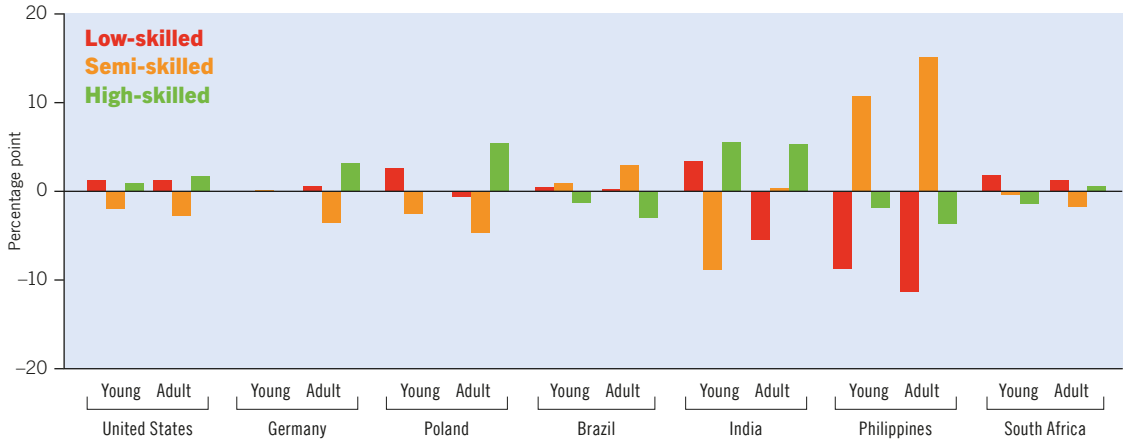
Figure 4.14 Skill composition of wage employment in trade, hotel and restaurants, selected countries, 2005–15

Note: The figure reports percentage point change in skills composition of wage employment in the trade, hotels and restaurants sector. Years vary slightly according to data availability. See Annex E for details.

Source: Calculations based on the Labour Force Micro Database.

[27] Examples are based on numerous webpages and news articles. These technologies are at different development and roll-out stages and while some are relatively widely implemented, many are yet incipient.

Figure 4.15 Change in skill composition of young and adult wage employment in trade, hotel and restaurants, selected countries, 2005–15 (percentage points)



Note: The figure reports the percentage point changes of young (15–29) and adult (30–65) wage workers' skill shares in the trade, hotels and restaurants sector. Years vary slightly according to data availability. See Annex E for details.

Source: Calculations based on the Labour Force Micro Database.

wage workers declined for those aged 15–29 only, whereas in South Africa it decreased much less for young people than for adults; in turn, in Brazil and the Philippines, demand for semi-skilled workers increased. In Poland and South Africa, young workers who gained employment in the sector in the past decade were primarily low-skilled. In India and the United States, young wage workers at both ends of the skill spectrum were absorbed by the sector. In Germany, the skill composition of young employees remained unchanged over the past decade, while for adults demand increased for high-skilled wage workers and decreased for the semi-skilled. Work quality is, however, a concern as many of the jobs in this sector are part-time or temporary, and often informal. In most developing countries this sector is in fact characterized by a high degree of informality (ILO, 2010), and in the absence of other growth sectors of employment, will likely remain a major employment sector. A similar trend appears to be emerging in some developed countries (European Commission, 2009). To what extent technological change will affect employment in the informal segment of the sector remains to be seen.

The sector's transformation means that the trade, hotel and restaurant workforce will need to adapt. Demand for technology-related workers will likely increase for the set-up and maintenance of new technologies, and traditional roles may change, requiring new skills (Williams, Ni Luanaigh, and Garrett, 2012). Increased technology adoption will require generally higher skill levels, with a growing focus on digital literacy, including the ability to operate smart devices, and soft skills such as flexibility, communications, and interpersonal skills. The bulk of employment will likely remain at the semi-skilled level in the coming years. At the same time, particularly in developed countries, growing demand for higher-skilled wage workers, experienced in many countries over the past decade, is likely to continue. In emerging and developing countries, low-cost labour will likely delay adoption of labour-saving technologies and continued demand for low-skilled wage workers can be expected.

4.4 New technology for a new generation of workers

Technological change over the years has impacted the quantity and quality of jobs. Whether this current round of technological change will be different is still difficult to say, but it is clear that technologies will reshape jobs, and that change is happening rapidly, adding to existing challenges in the labour market. It therefore remains uncertain if there will be enough decent employment opportunities for the 25.6 million young persons aged 15–29 entering the labour market between 2017–2030. Achieving Sustainable Development Goal (SDG) 8 of full productive and freely chosen employment for all women and men, including for youth, will be a major challenge unless demand for work increases, along with productivity. Ensuring more and better jobs for young women and men, and in doing so considering the implications of technological change, will be a critical policy concern.

The skills required of future workers will doubtless change. Many young workers are embarking on a new world of employment, in some cases doing jobs that did not exist when their parents entered the labour market. With better standards of education, young women and men, growing up as "digital natives", will be in a strategic position to adapt to new jobs and to continuous changes in the requirements of jobs, old and new, as the chapter finds. Tapping into emerging opportunities will require that young women and men have the right skills set. Clearly, it will be necessary to revisit education and skills development systems, as well as approaches to lifelong learning.

Moreover, the impacts of technology on jobs and workers will be uneven. They will depend on a country's level of development, the structure of its economy and on how well prepared the workforce is to adapt to changing labour market requirements. There are many young women and men in developing countries who will, for some time to come, remain unaffected by the frontline technological changes taking place, but who will nevertheless need to adapt to a world transformed by digitalization and automation. Additionally, in the past decade, there has been a trend towards job polarization, with increasing employment of low- and high-skilled workers, which can potentially add to existing inequalities. As well as changing the jobs that young people do, new technology is creating different forms of employment that offer both opportunities and risks, and the need for improved governance as the nature of jobs change. These are the subject of the next chapter.

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5. New forms of youth employment

Previous generations of young workers, particularly in developed countries, might have anticipated a "job for life" and young people still aspire primarily to stable and secure jobs. The current rapidly changing labour market is, however, rearranging the job landscape and the expectation of a traditional stable or permanent job is increasingly becoming less realistic in both developed and developing countries. Emerging job opportunities, especially those facilitated by digital technologies, are linked to a wide range of new and diverse forms of employment which offer greater flexibility, particularly for young women, but also pose greater risks of stress and provide lower job security.

Today, the majority of workers aged 15–29 around the globe are employees (in wage employment). That proportion steadily increased between 2005–2015, from about 58 per cent to 69 per cent of young working people. This change in employment status among young people is mainly driven by the shifts occurring in middle- and low-income countries, as shown in figure 5.1, panels (b) and (c). Both panels depict a sharp increase in the share of wage employment, making the percentage of employees in these economies converge towards the one observed in high-income countries. In principle, the convergence in the share of wage employment seems faster among upper middle-income countries, but this is due to a massive absorption of Chinese young people into wage employment. Excluding China, the share of wage employees in low and lower middle-income countries increased between 2005–2015 by 8 percentage points, from 42 per cent to 50 per cent, while in upper middle-income countries (without China), the change was only 4 percentage points, from 73 per cent to 77 per cent.

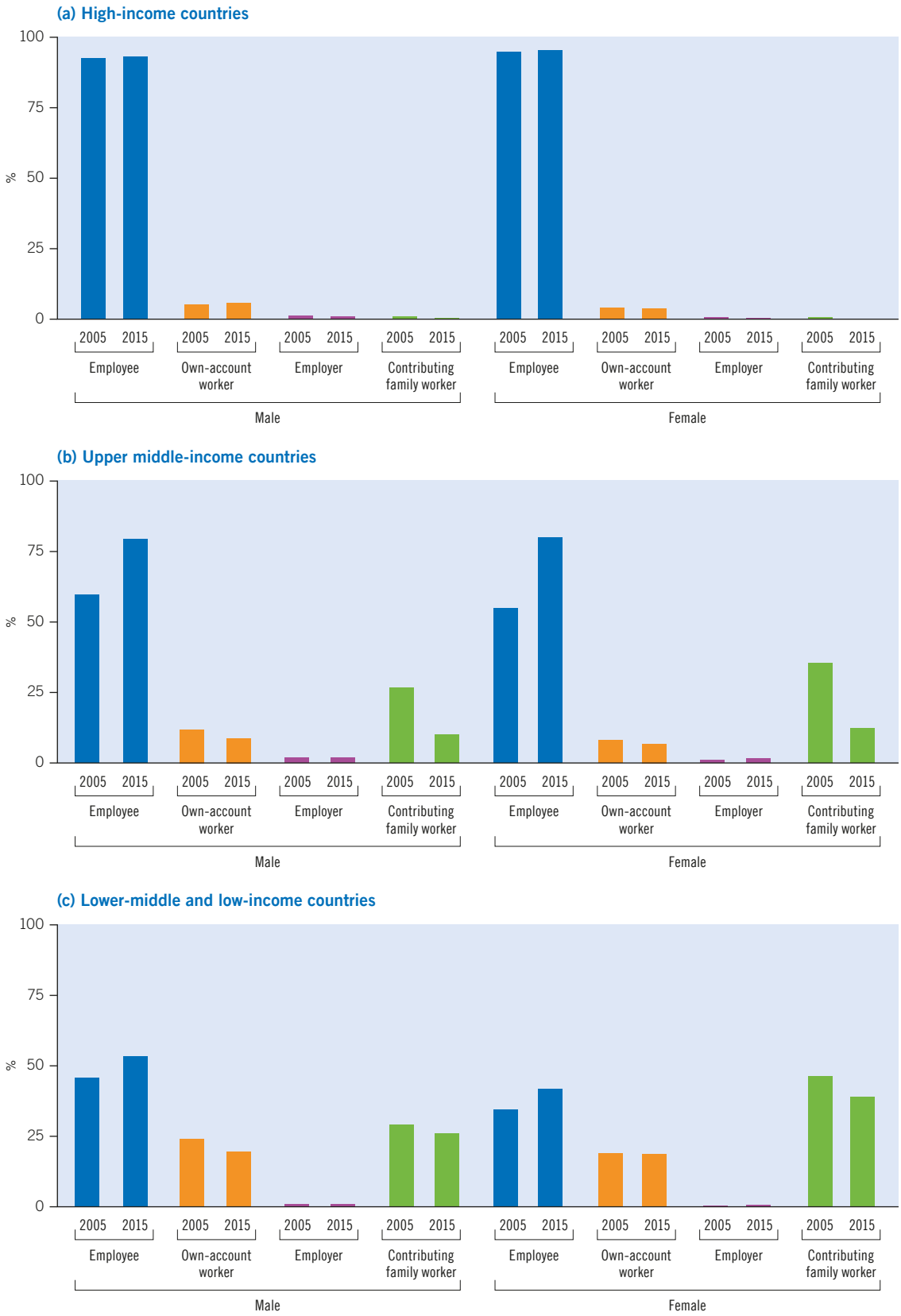
Figure 5.1 also illustrates the significant move away from vulnerable employment, statistically defined as the sum of own-account workers and contributing family workers, over the past decade.[1] In particular, the proportion of young people engaged as contributing family workers has declined, partly as a result of decreasing employment in agriculture and the associated migration to cities. The proportion of own-account workers is also decreasing, although at a much lower rate, due to two opposing forces. On one hand, a lower employment share in the agriculture sector, a major employer of own-account workers, tends to reduce the percentage of independent workers. On the other hand, technological advancements, especially those related to communication, are facilitating the creation of own-account work, especially in high-income countries.

While there are important gender differences in these trends, with young women still lagging behind young men, there have nevertheless been some improvements between 2005–15. Young women have moved into wage employment and away from vulnerable employment faster than young men. Globally, their participation in contributing family work has drastically fallen, from 31 per cent of young female workers in 2005 to 19 per cent in 2015. Despite these advancements, young women are still slightly more likely than young men to be contributing family workers and less likely to be either own-account workers, employers or employees.

The expansion of wage employment and the corresponding contraction of vulnerable employment among youth has not, however, necessarily meant greater job security and

[1] For the ILO definition and purpose of the concept of vulnerable employment, see http://www.ilo.org/global/about-the-ilo/newsroom/features/WCMS_120470/lang--en/index.htm (accessed 31 Aug. 2017).

Figure 5.1 Employment status of young people, by sex, and income level, 2005–15 (per cent)



Note: The figure reports the number of young workers (aged 15–29) in each status as a percentage of all young workers. See Annex E for more details on the dataset employed.

Source: Calculations based on the Labour Force Micro Database.

stability.[2] This is because wage employment generally, but particularly for young people, is becoming more flexible but also, in consequence, less stable. The sharp growth of unemployment prompted by the financial and economic crisis coupled with technological development and diffusion, has encouraged the expansion of a range of more flexible working arrangements. In low- and middle-income countries, the vast majority of the substantial growth in wage employment among young people (evidenced in figure 5.1) is accounted for by increases in non-permanent wage work.[3] Young workers are also more likely than adults to engage in non-standard forms of employment (box 5.1), where jobs are less secure and less protected (ILO, 2016a). In the European Union, where the trend towards temporary employment is particularly pronounced, one in two youth workers were in temporary employment by 2015, whereas it was one in ten for prime-age adults (O'Higgins, 2017). More generally, the involvement in non-standard employment is more pronounced among young people than adults, also in low- and middle-income countries (OECD, 2015; ILO, 2016a).[4]

5.1 Diverse, non-standard forms of work

For today's new labour market entrants, the prospect of lifetime employment with the same employer has all but disappeared, and the attainment of a permanent job is more elusive than ever before.[5] Young people are increasingly engaged in multiple non-standard jobs, sometimes working for many employers simultaneously (box 5.1).

A closer look at the type of wage employment contracts young people sign reveals important insights about youth engagement in non-standard employment relationships. Contract types include: permanent, temporary, and without a written contract. As explained in box 5.1, temporary work, with or without a written contract, falls under the umbrella of non-standard employment. Work without a written contract also broadly corresponds to "informal wage employment".[6] Figure 5.2 highlights changes in contractual arrangements in employment for young workers over the past decade for a selection of countries.

Most countries have experienced a reduction in vulnerable employment – although some have had a modest increase, as in Colombia and Egypt, as well as in several European countries (France, Italy, Spain and the United Kingdom). The reduction in vulnerable employment corresponds to a drop in contributing family workers in China and, to a lesser extent, in India and Viet Nam. Youth in self-employment has also declined, largely because of a reduction in own-account work in Africa. In both cases, however, this does not reflect a movement

[2] See Chapter 3 for more on youth transitions to the labour market, based on data from ILO School-to-Work Transition Surveys.

[3] That is, temporary work plus work without a contract. Specifically, 69.2 per cent of the increase in wage employment among young people in upper middle-income countries and 83.7 per cent of the corresponding increase in low and lower middle-income countries was accounted for by the increase in these less secure forms.

[4] Calculations on the Labour Force Micro Database suggest that only one in three young wage workers has a permanent contract in upper middle-income countries, while in low and lower middle-income countries, the figure is one in seven. In comparison, one in two adult (aged 30–64) wage workers in upper middle-income countries and one in four in low and lower middle-income countries has a permanent contract.

[5] For example, many countries involved in the recent national dialogues on the future of work, organized by the ILO, recognize that the notion of a single job throughout a working life has already become outmoded in today's world of work.

[6] Nowadays, the primary means of identifying informal wage employment is by determining whether an employee has access to employment-related benefits (see Chacaltana, Bonnet and Leung, forthcoming). However, there is a close correspondence between informal wage employment and wage employment without a written contract, which is defined by the absence of a written employment contract. In Mexico, for example, where both types of information were collected in the 2016 Labour Force Survey, the possession or not of a contract corresponds to informal wage employment – defined on the basis of access to employment-related benefits – in more than 90 per cent of cases (calculated on weighted Labour Force Survey micro data). Work without a written contract is also sometimes referred to as "casual work". The more precise term, "work without written contract", is preferred to the more common casual work because the latter can have different meaning across national contexts. Informal employment as a whole is much larger, including also all contributing family workers and a significant part of own-account workers, the precise proportion of which varies widely from country to country.

Box 5.1 ILO definitions for non-standard employment

The ILO classifies non-standard employment in the following four categories: (i) temporary employment; (ii) part-time work; (iii) temporary agency work and other forms of employment involving multiple parties; and (iv) disguised employment relationships and dependent self-employment. The categories reflect the conclusions of the February 2015 ILO Meeting of Experts on Non-standard Forms of Employment and capture various arrangements, some of which are specific to particular countries.

i. *Temporary employment* – Workers are engaged for a specific period of time. This includes fixed-term, project or task-based contracts, as well as seasonal or casual work, including day labour. Casual work is a prominent feature of informal wage employment in low-income developing countries, but it has also emerged more recently in developed countries, particularly in jobs associated with the "gig economy", also called the "on-demand economy" or "platform economy".

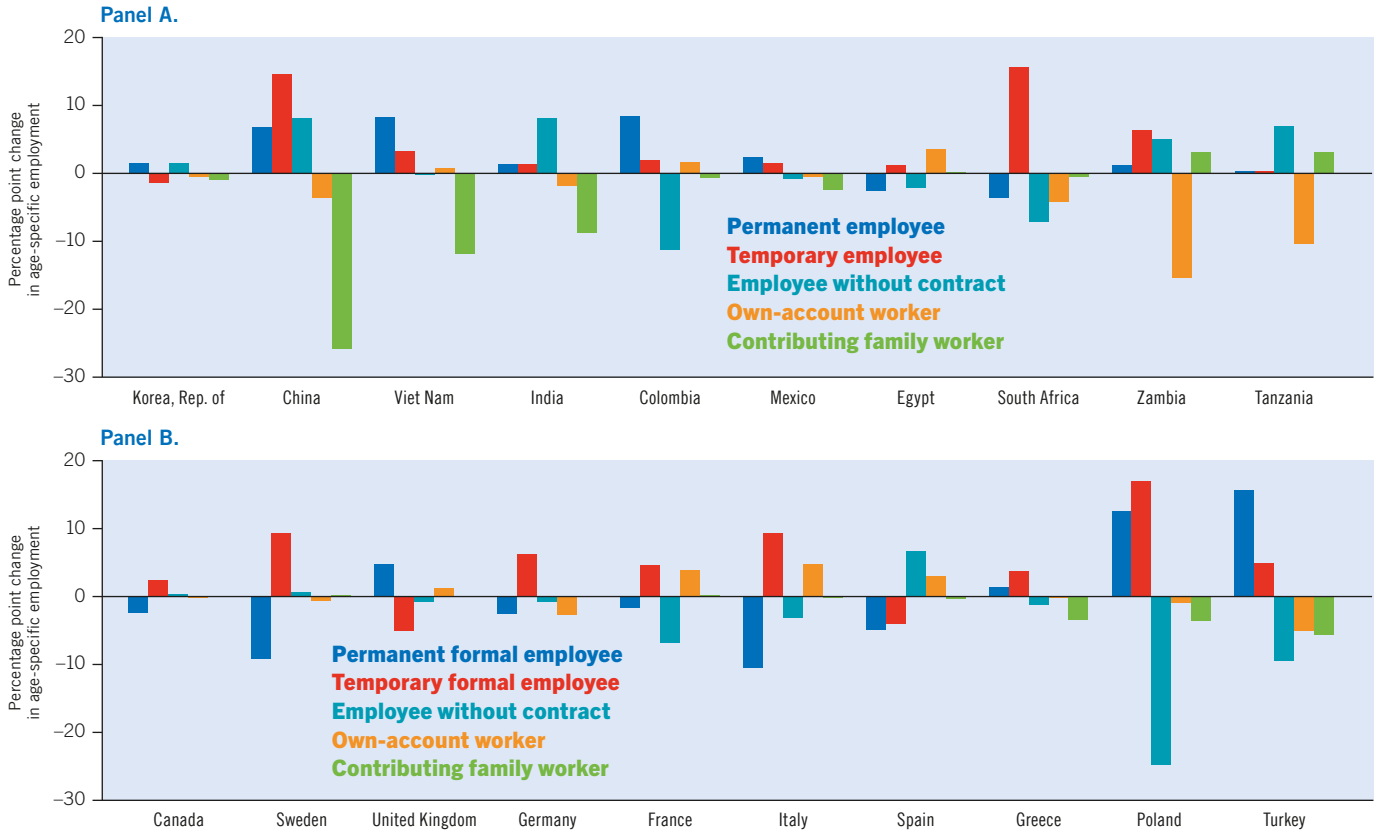
ii. *Part-time employment* – The normal hours of work are fewer than those of comparable full-time workers. For statistical purposes, part-time work is usually considered as working fewer than 30 to 35 hours per week. In some instances, working arrangements may involve short hours or no predictable fixed hours, and the employer has no obligation to provide a set number of hours of work. These arrangements, known as "on-call work", come under different contractual forms, depending on the country, and include "zero-hours contracts".

iii. *Contractual arrangements involving multiple parties* – Workers are not directly employed by the company to which they provide their services, such as when a worker is deployed and paid by a temporary work agency, though the work is performed for a user firm.

iv. *Disguised employment* – This is work that lends "an appearance that is different from the underlying reality, with the intention of nullifying or attenuating the protection afforded by law". It can involve masking the identity of the employer, by hiring workers through a third party or engaging a worker in a commercial or cooperative contract instead of an employment contract and at the same time directing and monitoring the working activity in a way that is incompatible with the independent status of the worker. *Dependent self-employment* – Workers perform services for a business under a commercial contract but depend on one or a few clients for their income, or receive direct instructions with respect to how the work is carried out. This is an area sometimes lacking legal clarity. These workers are typically not covered by the provisions of labour law or employment-based social security, although a few countries have adopted specific provisions to extend some protections to dependent self-employed workers.

Source: ILO, 2016a.

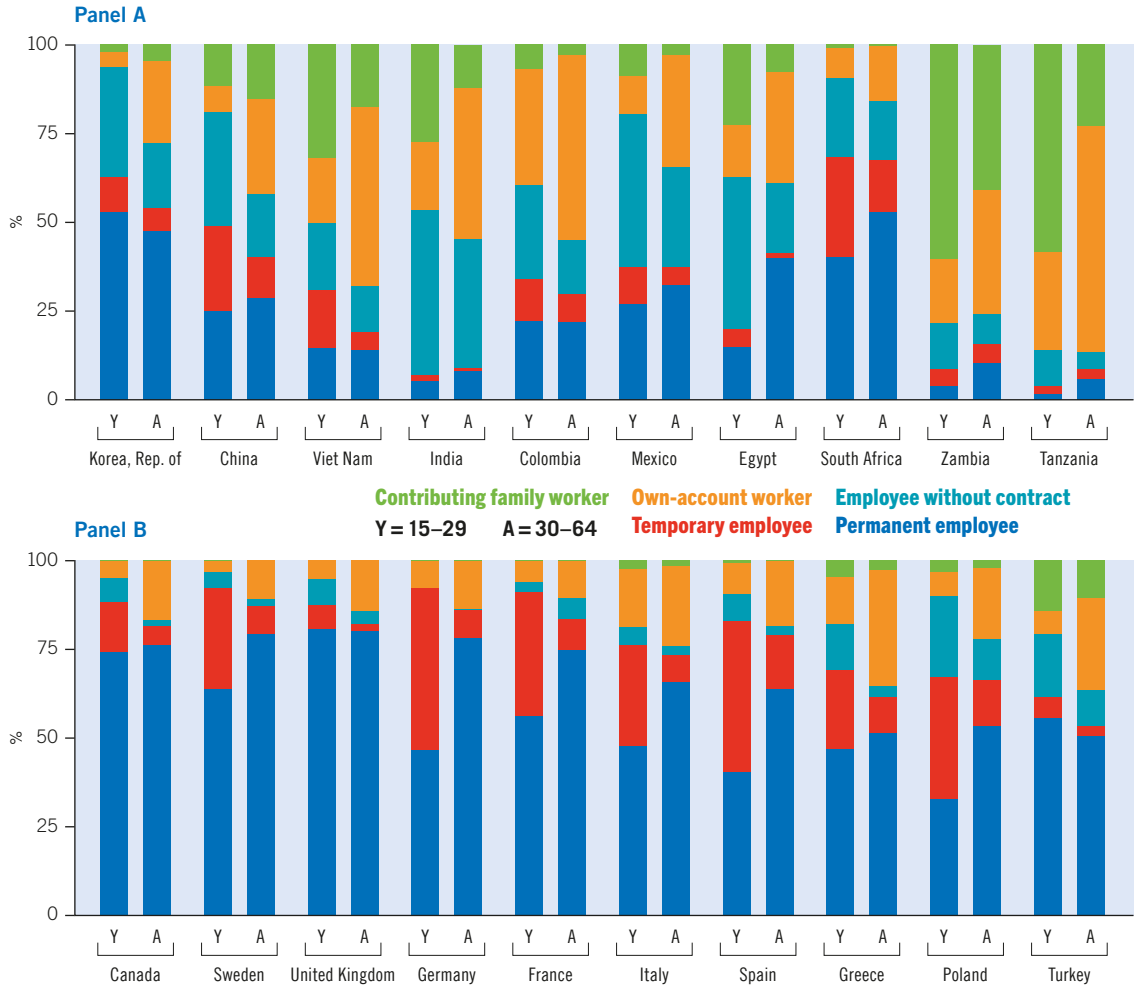
Figure 5.2 Changes in the forms of youth employment, 2005–15



Note: The figure reports the percentage point change in the share of different employment forms between 2005–2015 for young people (aged 15–29). The divisions broadly correspond to the standard ILO classification of status in employment; however: (i) employees are divided into three categories according to their contract status – permanent employees are those whose contracts have no time limit, temporary employees are those with fixed- or short-term contracts, and employees without contract are those who have no written contract; and (ii) own-account workers (OAW) include employers and cooperative members. Years vary slightly according to data availability in selected countries. See Annex E for more details on the dataset employed.

Source: Calculations based on the Labour Force Micro Database.

Figure 5.3 Forms of employment, by age group, 2015



Note: The figure reports the number of young (aged 15–29) and adult (aged 30–64) workers in different employment forms as a percentage of total age-specific employment in 2015. See Annex E for more details on the dataset employed.

Source: Calculations based on the Labour Force Micro Database.

to longer-term more secure jobs but primarily to temporary as well as other forms of wage employment without written contracts.

In Latin America, there have been major efforts towards formalization. Colombia, for example, has experienced a significant shift among young people, from wage employment without written contract towards contract-based jobs, largely through regular "permanent" jobs.[7] A similar, albeit less marked, trend is also discernible in Mexico.[8] Several other countries have also recorded considerable reductions in young people's employment without a written contract, notably France, Italy, Poland, South Africa, Turkey and, marginally, Greece. However, in all these countries except Turkey, this is largely accounted for by increases in the share of temporary employment rather than a movement towards more stable permanent employment.

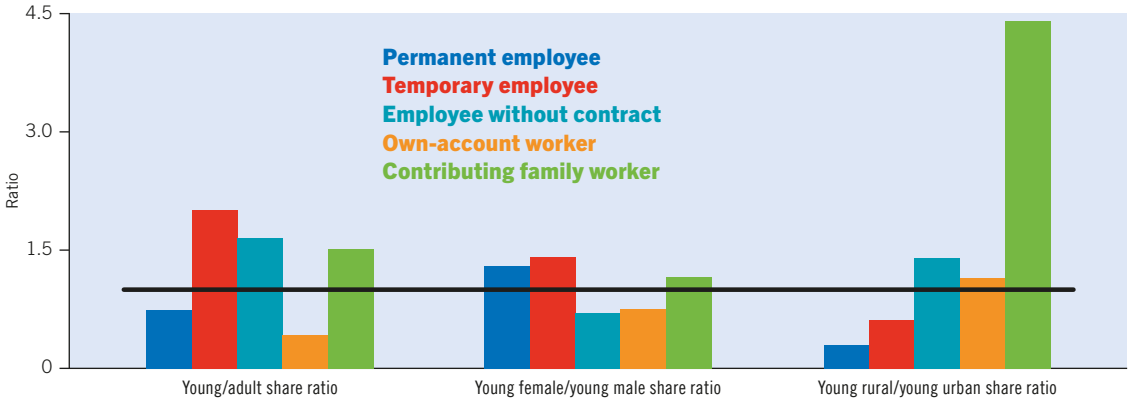
Changing employment forms also can be seen in the differences between young (aged 15–29) and older (aged 30–64) workers. In all the countries in figure 5.3, young workers are more likely than older workers to be in temporary work.[9] They were also typically much

[7] Kugler, Kugler and Prada (2017) report evidence on how the positive impact of payroll tax reductions is increasing in both formal and permanent employment in Colombia. O'Higgins, Bausch and Bonomelli (2017) provide a more extensive discussion of informality and policies to combat it.

[8] For more information on recent efforts to combat informality in Mexico, see https://mastercardcenter.org/action/making-mexicos-formalization-reforms-work-youth/ (accessed 31 Aug. 2017).

[9] The exception to this is Tanzania and Zambia. In both countries, temporary employment is low for adults and young people. In Tanzania, it was 2.1 per cent among younger workers (aged 15–29) and 2.6 per cent among workers older than 30 years; in Zambia, the analogous figures were 4.9 per cent and 5.3 per cent, respectively.

Figure 5.4 Employment ratios for five employment statuses and three comparisons, 2015



Note: The figure reports the ratio of the relative employment shares of five forms of employment for three different categories of worker; young (compared with adult) workers, young females (compared with young males) and young rural (compared with young urban) workers. A value of more or less than one (above or below the black line) indicates that that type of individual is over-represented or under-represented in that form of employment. Thus, the figure shows that young people are twice as likely as older workers to be in temporary employment and half as likely to be self-employed (own-account workers), on average. Similarly, young rural workers are four times more likely than their young urban counterparts to be contributing family workers and a third as likely to hold a permanent contract. Years vary slightly according to data availability. Urban and rural areas are defined on the basis of national definitions. See Annex E for more details on the dataset employed.

Source: Calculations based on the Labour Force Micro Database.

less likely to be in self-employment and more likely to be contributing family workers than their older counterparts. At the same time, young workers in most countries were less likely to be in permanent wage employment than older workers. The dominant emerging source of jobs for young people is temporary employment, employment without a written contract, or both. Given the direction of current technological changes, which has facilitated the development of very short-term and task-based employment (meaning that it is increasingly harder for new labour market entrants to find stable long-term employment), it is likely that this divergence between young and older workers will widen.

The general pattern of employment for both young and older workers varies widely across countries and, to a large extent, depends on the level of development. India, Tanzania and Zambia all have an extremely low prevalence of formal wage employment; in all three countries, fewer than one in ten young workers are in wage employment with a contract. However, whereas in Tanzania and Zambia almost all youth and adult employment is vulnerable, in India, a large proportion of young workers are engaged in wage labour without a written contract. This means that the majority of employed young people in India are no longer in vulnerable employment. Almost half of all young Indian workers are employed as wage labourers without a written contract. The extensive engagement of young people in this form of wage employment is also found in Egypt, where 43 per cent of young workers are wage labourers without written contracts. In both cases, the proportion is much larger for young people than for adult workers, confirming the emerging general trend towards insecure forms of employment.

Figure 5.4 depicts the ratios of employment share in different forms of employment for different groups: young people (aged 15–29) compared with adults (aged 30–64), young women compared with young men, and young rural people compared with young urban people. This indicates the extent to which young workers are over-represented or under-represented in different types of employment. The greater concentration of young people in temporary employment and in contractual arrangements without a written contract is evident, as is their corresponding limited presence among workers with permanent contracts. Additionally, young people are more likely to be contributing family workers and less likely to be in self-employment than their older counterparts. Figure 5.4 also shows, as might be expected, that young women are still (albeit only by a small margin) more likely than young men to be contributing family workers and less likely to be self-employed; they are also more likely to have some type of employment contract.

Finally, the paucity of decent work in rural areas emerges in the data. Young rural workers are much less likely to have an employment contract, particularly a permanent one, than their urban counterparts. They are also four times more likely to be contributing family workers.

5.2 New forms of employment and the platform economy

The growth of the Internet has resulted in new forms of employment, with highly varied characteristics, and hence presents new opportunities and challenges for participating individuals and firms, with regard to social and employment protection. These forms imply a break with traditional employment relations based on a long-term link between employer and worker and thus the prospect of a lifetime of stable work and income (ILO, 2016a; Jeannet-Milanovic, O'Higgins and Rosin, 2017). It is therefore not surprising that most of the new forms of employment are associated with increased instability and unpredictability in the career paths of young workers and in the size and regularity of earnings over their working lives. They are also associated with less employer-sponsored training and lower wages (ILO, 2016a; OECD, 2015).[10]

An important new form of employment is crowd work, whereby work is posted on internet platforms to the "crowd" and delivered or managed through a digital platform.[11] Crowd work is characterized by low hourly earnings which vary significantly by the country in which such workers are located.

American crowd workers typically earn more than twice as much per hour as workers based in India; and the geographical gap is greater for women than for men (Berg, 2016). Given that the gap in average pay rates between the United States and India is much larger than this, crowd workers in India can potentially earn a relatively attractive salary, compared with their compatriots working in more conventional jobs.[12] Younger crowd workers (aged 15–29) also earn higher wage rates than older workers (aged 30 or older) (see figure 5.5 in box 5.2).

Box 5.2 Young people and crowd work: Evidence from an ILO survey

A recent ILO survey undertaken in 2016 (see Berg, 2016 for details) found that young people were more likely than older workers to work in the gig economy. For 52 per cent of young respondents (aged 15–29), crowd work was their primary source of income, compared with 28 per cent for older workers (aged 30 or older) (Berg et al., forthcoming).

The wage rates of crowd workers are often below the prevailing minimum wage, but the hourly wages of young people in crowd work are around 18 per cent higher than those for workers aged 30 or older – after controlling for other factors, such as educational attainment, location and sex. This is because young people's wage rates from crowd work increase with experience more quickly than those of older workers (figure 5.5).

Young people tend to learn crowd work tasks faster than older workers and become more productive more quickly. This is not related to educational attainment; it is primarily because, on average, they are more comfortable with the technology and quicker at learning by doing. In lower-income countries, more than 40 per cent of young respondents reported that they are involved in crowd work because it offers higher wages than other opportunities. Young people also appear to derive greater job satisfaction from crowd work than their older colleagues.

Even controlling for other factors, there is a significant gender gap: young women earned around 22 per cent less than young men. This is largely because some combine crowd work with childcare and other household responsibilities, which can interfere with their ability to take on higher-paying tasks (Adams and Berg, 2017).

Figure 5.5 Returns to experience for young and adult crowd workers

Note: The figures are based on econometric estimates of the determinants of hourly wage rates, including interaction terms for age and crowd work experience.

Source: Berg et al., forthcoming.

[10] In the gig economy, where workers are often classified by the platforms as self-employed, young "giggers" must also take care of many arrangements and costs that in the standard employment relation would be borne by the employer, including social security and pension contributions, work space and working equipment, sick leave and annual leave.

[11] For more background on this form of work, see http://faircrowd.work/what-is-crowd-work/. Well known examples of such platforms include Amazon Mechanical Turk, CrowdFlower, Upwork, Uber and Deliveroo. See also https://www.eurofound.europa.eu/observatories/eurwork/industrial-relations-dictionary/crowd-employment.

[12] Hourly wage rates for all medium-skilled employees in the United States are around 30 times that of India (calculations based on the Labour Force Survey).

Data on the extent of internet-related employment, including crowd work and the gig economy, is scarce (De Stefano, 2016; Berg, 2016).[13] Reliable estimates are hard to come by, partly because such employment is often not an individual's primary source of income and thus not reflected in survey data. But it appears to involve a moderate though rapidly growing proportion of the labour force in high-income countries.[14] Internet-related work is less prevalent in developing and emerging countries, but many countries are encouraging its growth, particularly because of its potential to offer job opportunities to young people. In January 2017, the Government of Kenya, for example, launched a digital skills training programme with the intention of enabling one million young Kenyans to obtain freelance online work within one year.[15]

Non-standard forms of employment, when appropriately regulated, have the potential to provide decent work. More flexible hours can improve the work–life balance and offer greater independence and self-reliance. For some, especially younger workers based in low- and middle-income countries, the earnings opportunities offered by crowd work may be attractive, given the relative paucity of alternative sources of stable employment and income. On the other hand, the inherent uncertainty regarding the next work assignment can cause stress; zero-hours contracts have been associated with worsening physical and mental health among young people (box 5.3).

Box 5.3 Young workers and zero-hours contracts

On-call work and its variant, zero-hours contracts, have become increasingly widespread, particularly in Northern Europe. In the United Kingdom, there have been fierce debates over the use and rights of workers on zero-hours contracts. The Office of National Statistics estimated that, in November 2016, 905,000 workers, or 2.8 per cent, were on such contracts. Young people were heavily over-represented, at almost 300,000, or 7.3 per cent of the youth (aged 16–24) workforce. One third of all zero-hours workers were younger than 25 years.

Such contracts denote a continuous employment relationship between employer and employee, but with no obligation – or expectation – of continuous work or pay. The employer can call the employee in as and when needed. Some on-call work contracts specify the minimum and maximum number of working hours; but zero-hours contracts, as their name implies, have no minimum hours. In general, on-call work gives a high degree of flexibility for employers but at the cost of a high degree of instability and lack of security in employment and income for workers (Eurofound, 2015).

Such employment can allow young workers the opportunity to combine work with education or care responsibilities. But the insecurity concerning when and if another assignment will arrive can cause stress. In the United Kingdom, for instance, young people on zero-hours contracts were more likely to suffer from poor physical and mental health than young people with regular employment contracts.

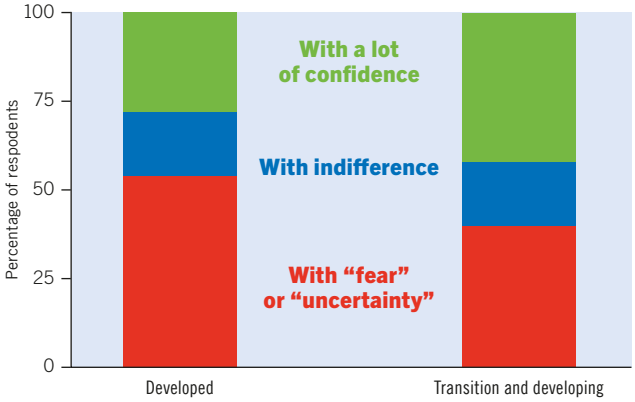
Source: United Kingdom Office for National Statistics, 2017; Centre for Longitudinal Studies, 2017.

[13] One issue that has been raised, driven primarily by controversy over the status of Uber and Lyft drivers, regards whether there is a need for a new category of worker falling somewhere between employee and self-employed. De Stefano (2016) argues, however, that creating such a third category of worker is fraught with practical difficulties regarding classification and might well have the unintended consequence of weakening protections for workers who would otherwise be classified as employees. It should be recalled that the expansion of work in the gig economy is but part of an economy-wide trend towards the expansion of casual and informal work. In this sense, efforts to provide protections for workers in the gig economy need to be mindful of the situation of workers facing similar challenges, but who are not part of the gig economy as such (ILO, 2016b).

[14] Summing up the numbers reported by Smith and Leberstein (2015), as cited in De Stefano (2016), gives an estimate of more than 20 million gig workers worldwide, while Harris and Krueger (2015), cited in Berg (2016), report an estimate of around 600,000 gig workers in the United States alone (or 0.4 per cent of the workforce).

[15] See http://www.reuters.com/article/kenya-internet-idUSL5N1FA1ZQ (accessed 2 Aug. 2017).

Figure 5.6 How young people view their future employment prospects, 2017



Note: The figure reports the percentage share of grouped replies to the question, "How do you envision your future work life?" Respondents who replied, "with fear" or "with uncertainty" were grouped together. There was a fourth possible answer, "with indifference", that is included only implicitly in the figure as the gap between the height of the bars and 100 per cent. See Annex G for a brief description of the survey.

Source: Calculations based on the ILO Youth and Future of Work Survey, 2017.

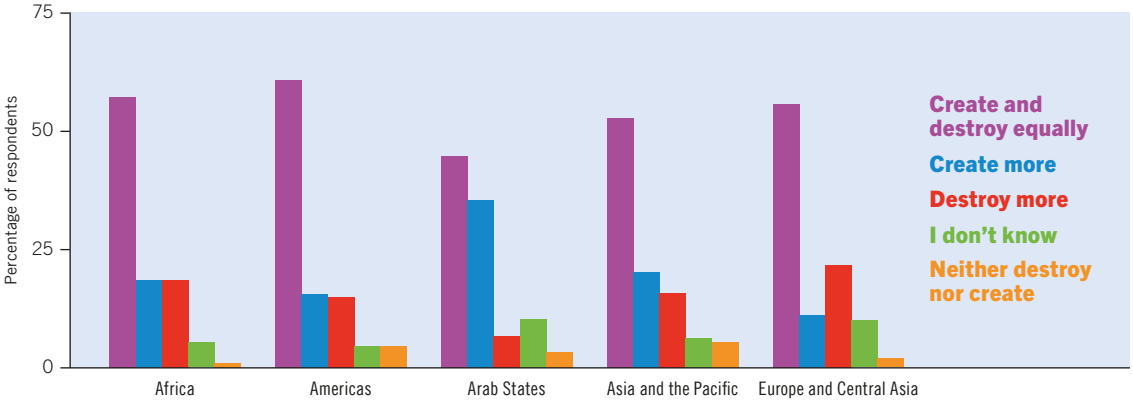
5.3 The work that young people want

The ILO's Youth and Future of Work Survey asked young people how they envisioned their work life in the next ten to 15 years. Many respondents said that they thought about their future "with fear" or "with uncertainty" (figure 5.6). Most of the worried respondents lived in Europe and Central Asia and in the Americas, where there has been the greatest technology diffusion (McKinsey Global Institute, 2016; World Bank, 2016).[16] Robots and other automation technologies are still concentrated in developed countries, whereas developing and emerging economies continue to rely mostly on low-skilled and low-cost labour.

Overall, most young people said that technological change would equally destroy and create jobs (figure 5.7). In Europe and Central Asia, however, 21 per cent of respondents thought that technological change would destroy more jobs, while only 9 per cent thought that it would create them.

As indicated in the previous section, many young people are starting their working lives in diverse forms of unstable and insecure employment. However, young people's ideal jobs typically possess characteristics associated with more traditional forms of employment: good wages and possibilities for career development, as well as social protection and benefits (figure 5.8). They do want flexibility, but they value it less than job security and income.

Figure 5.7 Perceived effects of technological change on jobs among young people (aged 15–29), 2017

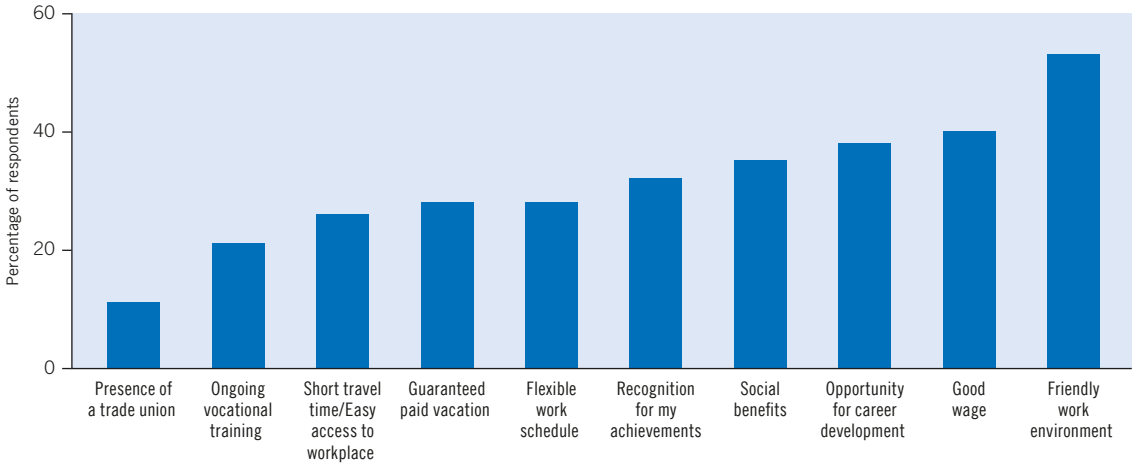


Note: The figure reports the distribution of the responses to the question, "Do you think that new technologies will create or destroy more jobs?", for each region separately. See Annex G for a brief description of the survey.

Source: Calculations based on the ILO Youth and Future of Work Survey, 2017.

[16] The values for the Americas were driven by respondents from the North American Free Trade Agreement (NAFTA) region.

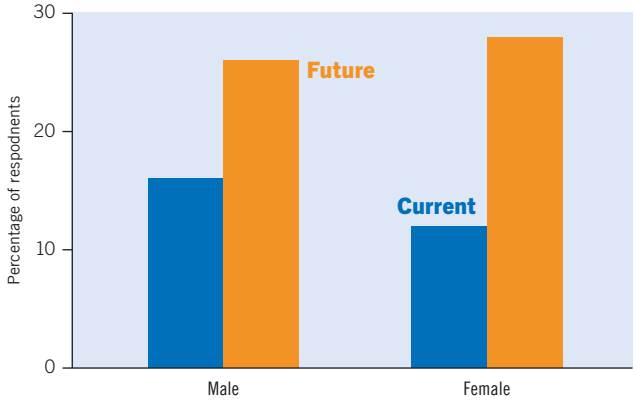
Figure 5.8 Young people's ideal job, 2017



Note: The figure reports the percentage of replies to the question, "What characteristics would your ideal job have?" Respondents could list a maximum of three characteristics. See Annex G for a brief description of the survey.

Source: Calculations based on the ILO Youth and Future of Work Survey, 2017.

Figure 5.9 Young people's expectations of job security, 2017



Note: The figure reports the percentage of replies to the question, "What best describes your current work and what are your expectations for [ten years in] the future?" A variety of possible characteristics were listed. See Annex G for a brief description of the survey.

Source: Calculations based on the ILO Youth and Future of Work Survey , 2017.

Few young people said that they had security in their current job. But almost 30 per cent of respondents expected to find secure work within the next ten years – with some differences between men and women (figure 5.9). A similar desire for stability emerged from other ILO surveys in Latin America and the Caribbean and in the Association of Southeast Asian Nations region, as well as the global School-to-Work Transition Surveys (box 5.4). This desire for stability was corroborated in the annual social survey in the Republic of Korea, in which respondents reported that work was becoming more unstable. From 2006 to 2015, more than two-thirds of various survey respondents stated that they wanted to work for the government, public enterprises or large private enterprises, where job security is likely to be higher.

5.4 An uncertain future

The job landscape for young people entering the world of work is undergoing radical transformation. Contributing family work, particularly among young women, is decreasing while wage employment is becoming prevalent all around the world. These changes, however, do not necessarily entail an improvement in the working conditions of young people; wage employment is being created mainly in temporary and other insecure forms of work.

The move towards more flexible, and less secure, forms of wage work has both positive and negative implications. As shown above, such jobs entail weaker long-term employment

Box 5.4 Young women and men desire stable employment: Findings from ILO surveys

Latin America and the Caribbean – To better understand young people's perceptions of ongoing changes and expectations for the future world of work, the ILO Regional Office for Latin America and the Caribbean administered two surveys in 2016. A paper survey was conducted in Peru and an online survey was accessible across the Latin America and Caribbean region. The surveys included questions on social and educational backgrounds and individual perceptions and expectations for the future of work. Although the survey results are not representative of all young people, they do suggest how young women and men view the evolution of the world of work.

Young women and men would like good jobs, with a good salary, working for a large enterprise, with social protection, greater responsibilities and acquisition of more skills. Almost all expected their working conditions to improve, despite significant discontent with current conditions, including social protection, wages and job satisfaction. In general, they agreed that the future of work trends will generate winners and losers, but they do not see themselves on the losing side because they see themselves as better prepared than previous generations for these trends.

In response to ongoing trends, youth are increasingly choosing science, technology, engineering, and mathematics (STEM) careers. Young women and men who had pursued business or STEM studies often cited good career opportunities as their main motivation. At the same time, a large share of STEM-educated youth suggested a mismatch between education and jobs – which could be associated with a lag in changes in the economic structure for countries still highly based on commodity exports.

Association of Southeast Asian Nations (ASEAN) region – In 2016, the ILO published *ASEAN in Transformation: How Technology is Changing Jobs and Enterprises* (ILO, 2016c). The analysis was based on more than 300 interviews, 4,000 survey replies from ASEAN enterprises in the manufacturing and service industries, and 2,700 survey replies from university and technical and vocational training students. The goal was to better understand the perspectives of enterprises and students on the future of work.

Around 60 per cent of students said they wanted a regular, paid job. The others said they either wanted to further their education, travel or run their own business. Ideal sectors for employment cited were information and communications technology services, financial or insurance services, manufacturing and education. The top three immediate work priorities for students in ASEAN were secure stable employment, a high salary and a good work–life balance. When asked about longer-term priorities, the students added health and family-oriented benefits.

Global – Between 2012 and 2015, ILO conducted 53 School-to-Work Transition Surveys in 34 low-and middle-income countries. Many of the young respondents wanted stability, even if they were ready to ride the various technology-induced changes. The dominant type of work desired by those who had not yet left education was a stable government or public sector job; while in practice, among respondents who were already working, only one in five had such employment. The desire to work for the government was strongest among young Africans.

Source: ILO's Latin America and Caribbean survey [Los jóvenes peruanos y su futuro laboral: Se emplearon técnicas cuantitativas y cualitativas]; (ILO, 2016c); and ILO School-to-Work Transition Surveys (see Annex D).

and income security with the stress and hardship this may entail – and typically means less job-related training and lower wages. They also imply greater volatility in youth labour markets as a whole. However, much depends on the point of comparison. In low- and middle-income countries, where alternative forms of youth employment are more limited and entail relatively low pay, opportunities offered in the internet-based gig economy and crowd work, for example, may be relatively attractive.

Technological change offers potential for greater flexibility and autonomy, but also for uncertainty and insecurity, making young people face an increasingly unclear future. In the voice of one youth, "It is a scary world out there, and young people are going to have to find new ways on how to tackle the issue of 'getting a job' and 'keeping a job' because there is no one that will help us to do that."[17]

The final chapter of the report considers new policies that can foster more and better jobs for young women and men in the context of the fast-changing technological landscape.

[17] See UNICEF Voices of Youth online platform, *Being "at the right time at the right place" to get a job!*, http://www.voicesofyouth.org/en/posts/being-at-the-right-time-at-the-right-place-to-get-a-job (accessed 17 July 2017).

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6. Policies for a better future of youth employment

Investing in youth employment will not only fulfil the rights of young women and men to decent work but will also help drive national economies. In an era of automation and digital technology and new and diverse forms of work, coordinated and integrated policies as well as strong partnerships are required to address the challenge of more and better jobs for youth. Economic policies, continuous training and retraining in relevant skills, the promotion of youth entrepreneurship and the protection of youth rights at work are all critical in this context.

Youth are a key resource for the present and future of our society, accounting, in 2017, for 15.5 per cent of the world's labour force. Yet, full and productive employment for millions of young women and men remains a challenge – globally two out of five economically active young people are either unemployed or work but live in poverty – whilst many more face a long and difficult transition into the labour market. At the same time, the current wave of technological change is transforming the quantity and quality of jobs available to young people, while affecting the institutions established to promote decent work for youth.

Investing in youth, addressing their employment and labour market challenges, particularly in the context of changing technology, is paramount. This will not only ensure the well-being of young people but also promote sustainable and inclusive growth and improve social cohesion worldwide. This is particularly relevant in the context of ageing societies, which will likely place pressure on a shrinking workforce to, among other things, finance social protection schemes. Technological change must be managed and channelled to benefit young workers, and markets cannot accomplish this alone. New technology, if well managed, can also improve labour market information and aid policy implementation. As the ILO Director-General has stated, "... notwithstanding already observable dynamics of change and some very harsh realities, the future of work is what we will make it. The challenge is to make it the one we want." (ILO, 2015a, p. 7).

The ILO has been supporting constituents to develop national strategies and action plans for youth employment. *The Youth Employment Crisis – A Call for Action* adopted by the International Labour Conference in 2012, provides a sound framework for decisive policy action. It calls for a holistic, multi-pronged approach to foster youth employment through education and skills development, employment and economic policies, labour market measures, support to youth entrepreneurship and self-employment whilst guaranteeing the rights of young workers. These priorities for action have recently been reiterated by governments, social partners, civil society, academics and young people in the national dialogues launched by the ILO Future of Work Centenary Initiative, in 2016 (box 6.1).

Youth employment also figures prominently in the global agenda charted in the SDGs, across a number of goals and targets (see box 6.1). For instance, SDG target 8.6 aims at "substantially reducing the proportion of youth not in employment, education or training" by 2020. The importance of youth employment strategies and policies is noted in SDG target 8.b: "By 2020, develop and operationalize a global strategy for youth employment and implement the Global Jobs Pact of the International Labour Organization".

Box 6.1 Issues identified by the Future of Work Initiative

The world of work is being transformed by new forms of production and work organization, the flexibilization of the labour market and the fragmentation of enterprises and workplaces. This is posing fundamental questions concerning the adequacy of national and international standards, systems and institutions, the role of industrial relations, and the effectiveness of policy frameworks.

The Future of Work Centenary Initiative is one of seven initiatives that mark the ILO's 100th anniversary in 2019. The Initiative tackles these issues and challenges, facilitating dialogue and policy action on the impacts of technology, demography, climate change, and globalization on labour markets. The Initiative carried out multi-stakeholder national dialogues on work and society, decent jobs for all, the organization of work and production, and the governance of work. The following critical measures and next steps were identified through these dialogues:

- Develop national employment strategies and policies to enhance job creation in a coherent and coordinated manner;
- Develop appropriate macroeconomic and sectoral policies, such as industrial policy, relevant to the future of work;
- Develop well-functioning and targeted active and passive labour market policies;
- Develop adequate policies for skills development, education and training;
- Develop policies to foster entrepreneurship and self-employment;
- Develop policies to promote rights at work;
- Further the expansion of social protection;
- Develop policies to support the transition from the informal to the formal economy;
- Support policies for the greening of the economy; and
- Adapt all these policies to new and future technological realities.

The national dialogues emphasized the importance of collecting evidence, developing the capacity of all stakeholders, including the social partners, and initiating comprehensive policy frameworks that go beyond the labour market, capable of addressing other social and economic realities. To deliver on the above, the ILO has formed the Global Commission on the Future of Work, whose task is to produce an independent report by 2019 on how to achieve a future of work that provides decent and sustainable work opportunities for all.

Note: More information about the Future of Work Centenary Initiative is available at http://www.ilo.org/global/topics/future-of-work/lang--en/index.htm.

Box 6.2 The Global Initiative on Decent Jobs for Youth

In October 2014, the UN High-level Committee on Programmes selected youth employment as a prototype for an issue-based initiative that would mobilize the capacity of the UN and other global actors committed to more and better jobs for youth. Positive collaboration of numerous UN entities led to the development of the Global Initiative on Decent Jobs for Youth, which was endorsed by the UN system Chief Executives Board for Coordination and subsequently launched by the ILO in February 2016.

The Global Initiative is the overarching and inclusive platform for the promotion of youth employment within the 2030 Agenda for Sustainable Development, as well as the implementing arm for youth employment action within the new UN Strategy on Youth developed by the Inter-Agency Network on Youth Development.

The initiative is framed by four interconnected strategic elements:

Alliance – A strategic and inclusive multi-stakeholder alliance carries out advocacy, ensures policy convergence, stimulates innovative thinking and mobilizes resources for more and better investments in youth employment. It comprises government agencies, social partners, the UN system and other multilateral organizations, the private sector, parliamentarians, youth and civil society, foundations, academia and the media.

Action – The Global Initiative scales up evidence-based action at regional and country levels, ensuring ownership and coherence with national development priorities. With the commitment of governments, social partners, regional institutions and the support of UN Country Teams, the Global Initiative engages a diverse set of national and local partners on a range of themes that include: digital skills, quality apprenticeships, green jobs for youth, young people's transition to the formal economy, youth in the rural economy, youth in fragile situations, youth entrepreneurship and self-employment, and youth aged 15–17 in hazardous occupations.

Knowledge – A global knowledge facility will capture, analyse and widely share best practices and innovation, enhance capacity development and facilitate peer learning on what works to improve labour market outcomes for both young women and men.

Resources – The Global Initiative advocates for high-level commitment of local and international actors to increase resources through present and future funding facilities to enable scaling-up activities in support of decent jobs for both young women and men in the most inclusive and transparent manner.

Note: More information about the Global Initiative on Decent Jobs for Youth is available at www.ilo.org/decentjobsforyouth.

To scale up action on youth employment within the 2030 Agenda, the United Nations launched the *Global Initiative on Decent Jobs for Youth* in 2016.[1] Designed under the leadership of the ILO, the Global Initiative is the first-ever, comprehensive UN system-wide effort for the promotion of youth employment worldwide. It brings together the vast global resources and convening power of the UN and other global key partners to maximize the effectiveness of youth employment investments and assist member states in delivering on the 2030 Agenda for Sustainable Development. Partners of the Global Initiative committed to action across a variety of thematic priorities, sharing knowledge and leveraging resources to maximize the impact for young people (box 6.2).

There is therefore momentum for forging partnerships, and developing policies for youth employment now. This chapter discusses relevant policy options to better manage the challenges young women and men face in the world of work.

6.1 Stimulating jobs for youth through pro-employment economic policies

6.1.1 Macroeconomic policies

The overall employment impacts of new technologies are still uncertain, as jobs will be created and lost. But it is clear that while young workers have an advantage over older workers in terms of adapting to new technologies (see Chapter 4) they still face several challenges in the transition to Decent Work. Given the long-term downward trend in the employment elasticity of economic growth, there is an urgent need to strengthen and refine demand-side policies that will stimulate employment generation. Furthermore, the employment prospects of young people are more sensitive than those of older workers to business cycle variations and economic downturns. Countercyclical fiscal policies, including automatic stabilizers to reduce youth labour market volatility and promote youth employment, can play a major role in this context.

Macroeconomic policies support sustained growth in aggregate demand. ILO research has shown that prompt expansionary fiscal policy can promote youth employment during economic downturns (O'Higgins, Ebell and Junankar, 2017). Because young people have relatively low incomes and hence a low propensity to save, the multipliers are likely to be high, transferring the stimulus to the rest of the economy.

Fiscal policy can be supported by monetary policy. Since the 2008 global recession, there has been a reconsideration of the appropriate mandates of central banks.[2] When carrying out monetary policy, central banks often take employment considerations into account. However, more explicit mandates to promote full employment would mean that enterprises could expect a supportive policy environment and would be more likely to invest and hire additional (and young) workers while consumers would feel more confident to spend, also stimulating aggregate demand.

There are opportunities for automatic stabilizers that could operate immediately when economies fall into recession without requiring further deliberation or decision-making (O'Higgins, 2017). For example, subsidized employment or training could be offered to youth when out of work for an extended period of time, especially in times of low labour demand. For instance, since 2014 the European Union has implemented the Youth Guarantee programme that offers young people a job or suitable education or training opportunity within four months of becoming NEET status, i.e. not in employment, education, or training (box 6.3).

[1] For an overview of the ILO Decent Jobs for Youth initiative, see www.ilo.org/decentjobsforyouth.

[2] See, for example, Rosengren, 2014.

Box 6.3 The Youth Guarantee programme in the European Union

Implemented in 2014, the Youth Guarantee programme committed European Union member states to ensure that within four months of leaving school or becoming unemployed, anyone younger than 25 receives either a quality job offer suited to their education, skills and experience or the opportunity to acquire the education, skills and experience needed to find a job in the future through an apprenticeship, a traineeship or continued education. The programme has since been extended to individuals up to age 29 in a number of countries.

The Youth Guarantee programme is more than just a comprehensive active labour market programme (ALMP). It is intended to ensure that all young people who are NEET receive assistance before extended unemployment permanently impairs their chances of finding work. An important innovation is that it aims systematically to reach young people who are not looking for a job and who are not in education or training.

Previous interventions usually targeted only people explicitly seeking work – the young unemployed. The emphasis of the Youth Guarantee programme on young people who are not looking for a job and who are not in education or training (inactive NEETs) significantly extends the initiative to reach the most disadvantaged and discouraged. The range of options also goes well beyond the scope of typical ALMP interventions. In addition to subsidized employment and training opportunities, it includes subsidized participation in general education and apprenticeships. Because it has stimulated national policy reforms, it is better viewed as a youth labour market policy framework rather than simply a large scale ALMP.

The monitoring framework for the Youth Guarantee programme uses national and subnational NEET rates as an aggregate indicator of effectiveness. It is too early to have a systematic evaluation of the programme's impact across the European Union. However, the NEET rate of 15- to 29-year-olds (as well as both of its components, unemployed and inactive youth outside of education) fell from 15.9 per cent in 2013 to 14.2 per cent in 2016, although not necessarily as a result of the Youth Guarantee programme. Indeed, in a number of countries with high youth unemployment and inactivity, such as Italy and Romania, the NEET rate over this period declined little or actually increased.

Source: European Court of Auditors, 2017; European Commission, 2016. NEET rates drawn from the Eurostat youth database, http://ec.europa.eu/eurostat/web/youth/data/database (03 Aug. 2017).

6.1.2 Sectoral strategies

Fiscal and monetary policies need to be combined with a range of sectoral strategies for expanding youth employment. Enhanced local capacity and active social dialogue are needed to nurture debates on the appropriate way forward in each sector (O'Higgins, Ebell and Junankar, 2017; Losch, 2016). The current trends presented in Chapter 4 show that youth employment is growing in the services sector, while it is declining in manufacturing, except in Asia and the Pacific. This is linked to the larger trend towards deindustrialisation in the developing countries of Latin America and the Caribbean and, to some extent, in Africa. Careful positioning, through establishing appropriate sectoral policies along with infrastructure and labour market policies, is needed for sustained employment growth.

The discussion in Chapter 4 identified opportunities in financial and health services, manufacturing, transport and storage and information and communications, and in trade, hotels and restaurants, where appropriate policies can ensure that growth and productivity gains translate into more and better jobs for youth. It is also important to consider the spillover benefits. In some developing countries the growth of agriculture, for example, can have wide-ranging externalities on food processing, storage and distribution. Investments in agricultural development can contribute to rural economic diversification, advancing the structural transformation processes with great potential impact on job creation for youth. Similarly, investment in data systems may support other growing and dynamic sectors that have a significant potential for youth.

Technological development can raise labour productivity, but it may also increase income inequality and hinder employment growth as the findings in Chapter 4 caution. Such outcomes can be prevented by efficient, fair and transparent wage, tax and transfer policies and systems that facilitate an equitable distribution of productivity gains.

6.2 Developing skills strategies to prepare youth for changing labour markets

Businesses, governments and individuals need to adapt to rapid technological change. School curricula will need to change with job requirements in technology-rich environments. This will mean investing in digital skills (box 6.4) and technical competencies, such as in the science, technology, engineering and mathematics (STEM) fields, particularly in secondary and post-secondary education. Skills such as creativity, imagination, openness to new ideas, and social and communication skills should also be included (Brewer, 2013).

Box 6.4 Digital skills for decent jobs for youth

The Global Initiative on Decent Jobs for Youth aims to foster skills development systems and labour markets conducive to job creation in the digital economy. Actions at the country and regional levels include:

(i) equipping 5 million youth by 2030 with digital skills – both technical and core work skills, within education and training systems and on the job for all workplaces;

(ii) bringing together public and private job creators contributing to the digital economy to employ youth with decent jobs; and

(iii) fostering youth-led digital entrepreneurship.

To advance the actions of the Global Initiative, in June 2017, the ILO and the International Telecommunication Union (ITU) launched a campaign to bring the benefits of the digital economy to young people through the promotion of digital skills.

Note: For more information on the ITU and ILO campaign, see http://www.itu.int/en/ITU-D/Digital-Inclusion/Youth-and-Children/Pages/Digital-Skills.aspx, and http://www.ilo.org/employment/areas/youth-employment/WCMS_557881/lang--en/index.htm.

6.2.1 Building technical and core skills

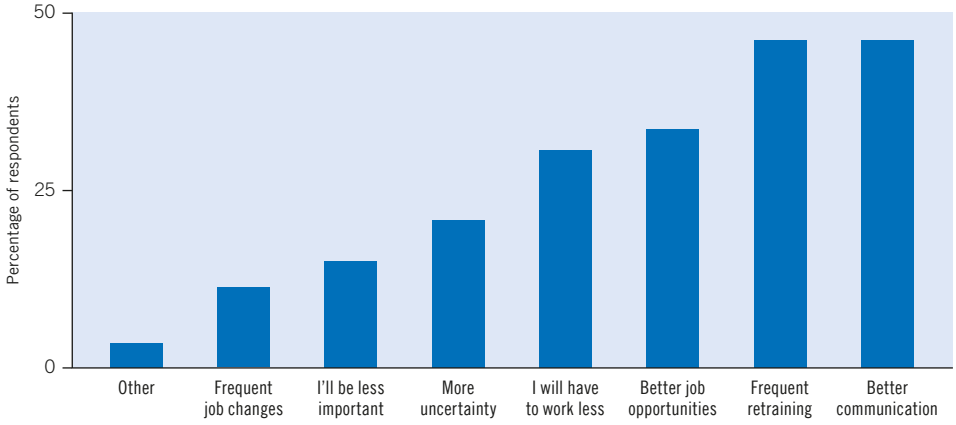
Countries are building STEM skills for youth where demand is high (see Chapter 4), and are reigning in the persistent gender gaps. For instance, in 2011, the Republic of Korea launched the STEAM initiative, which includes "A" for "art" in STEM education, with the aim of fostering creative thinking. In addition, to overcome gender gaps in STEM course enrolment, the Korea Advanced Institute of Supporting Women in Science, Engineering and Technology was established (Jon and Chung, 2015). The Government of Brazil instituted the Science Without Borders programme in 2011 to provide scholarships for students in STEM fields to strengthen skills through international mobility of undergraduate and graduate students and researchers. This focus is in line with increasing demand for STEM skills. In ASEAN, for example, employers are likely to demand more workers with strong STEM education (ILO, 2016a). Boosting employment in occupations related to STEM is also expected to create spillover effects that increase other employment opportunities (Goos, Konings and Rademakers, 2016).

Technology will impact jobs across all skill levels, substituting labour in some tasks (most often repetitive and routine, as noted in Chapter 4) and freeing workers to handle other tasks. Workers with high-, medium- and low-skill levels alike will need training on core skills, such as adaptability and social intelligence (Frey and Osborne, 2014). As a basis for lifelong learning, young people will need these skills to foster creativity, imagination and openness to new ideas as well as social and communication skills (WEF, 2016a and 2016b; UNESCO, 2015; YEFG, 2017).

6.2.2 Lifelong learning and continuous upskilling and reskilling

Fast-paced and continuous technological progress changes skills requirements and thus strengthens the need for lifelong learning. As demand for certain occupations decrease and skills required for other occupations shift, workers will need to reskill and upskill. The ILO's 2017 Youth and Future of Work survey found that young workers are aware of the need for retraining as jobs change due to the impact of technology (see figure 6.1). Most young people believe that professional success will depend on learning new skills throughout their working lives. In emerging countries, most youth agree that young people without technology skills will find it increasingly hard to get a job (Infosys, 2016).

Figure 6.1 Youth perceptions on the implications of technological change



Source: Youth and Future of Work Survey (ILO, forthcoming).

Much of the responsibility for equipping youth with relevant skill sets lies with national education and training systems. These systems will need to broaden their engagement with learners, offer interdisciplinary training and allow students to develop core work skills and knowledge through experiential learning. This should cover a range of subjects, looking beyond narrow occupational classifications to deliver more fluid transdisciplinary skill sets (Infosys, 2016; Brewer, 2013; Brewer and Comyn, 2015; IFTF, 2011).

Many occupations will require new social and cognitive skills, including complex problem solving, reasoning, creativity and emotional intelligence (World Bank, 2016; Brewer, 2013). These can be fostered from the earliest years, in pre-primary through secondary and higher education.

6.2.3 Integrating information and communications technologies (ICT) into education

Integrating ICT into education, training and the management of skills systems will have significant cost implications, especially in less developed countries. This will require political and financial commitment, based on detailed diagnosis and options for reform (ILO, 2016b). Also, rather than targeting specific occupations, training and skills development should cover broader occupational clusters that allow for intra-sector mobility.

One difficulty is that skills systems already experience shortages of teachers, trainers, managers, assessors and instructional designers. However, the greater flexibility afforded by digital technologies should enable education and training institutions to allow for a broader range of modularized offerings. Better use of new technology could also improve access to quality education for disadvantaged children and youth (box 6.5).

Box 6.5 Modern technologies can unlock the potential of disadvantaged youth

Many young women and men in developing countries emerge from education systems without basic skills, making it difficult for them to obtain the technical skills needed to compete in the labour market or make the transition to secondary and tertiary education. The *Education for All Global Monitoring Report 2012* calculates that one fifth of young people aged 15–24 in developing countries have not completed primary school and lack the skills for work. In developed countries, this skills crisis is adding to unemployment. In developing countries, unskilled young people are trapped for life in working poverty.

Modern technologies can improve access to quality education and training for disadvantaged youth. There are many innovative initiatives from high-tech global companies in addition to small-scale pilot projects. What is needed is a systematic review of large-scale strategies to assess the potential of different technologies to (i) improve access and participation to quality education for children and youth in remote areas and (ii) support the transition into the formal economy for disadvantaged youth, including those who suffer discrimination.

Source: UNESCO, 2012.

6.2.4 Work-based training

Employers have an important role to play in skills development and in offering youth a meaningful exposure to the world of work, for instance, by providing quality apprenticeship schemes – a thematic priority of the Global Initiative on Decent Jobs for Youth (see box 6.2). Quality apprenticeships match the skills demanded in the labour market with those acquired in education and training systems. This, in turn, requires a collective effort on the part of governments, social partners and training providers to develop curricula, and classroom and workplace training mechanisms that ensure long-term employment gains for youth (box 6.6). Industry and competitiveness strategies should aim to increase the skill intensity of jobs, thus triggering virtuous cycles of higher quality production, skills and wages (ILO, 2016b; ILO, 2008).

Box 6.6 Quality apprenticeships

The ILO approach to successful quality apprenticeships is based on six building blocks:

- **Meaningful social dialogue** between social partners (governments and employers' and workers' organizations);
- **Regulatory framework** that establishes the overall conditions for designing and implementing systems and secures decent work for apprentices;
- **Support and commitment of numerous stakeholders** who have a clear understanding of their **roles and responsibilities** and who have a common purpose that ensures the coherence of the entire system;
- Clear overall understanding that **costs are shared equitably**, which is required to ensure that all stakeholders are willing to participate on a long-term basis;
- Clarity among employers and apprentices concerning **which occupations and skills are in demand** and **how these skills will be recognized**; and
- **Inclusiveness**, based on positive action to increase diversity, to improve reporting and accountability, to incorporate a level of flexibility and to enhance advice and support so that no one is left behind.

Since 2012, the ILO has promoted and implemented quality apprenticeships at the request of member States. The ILO has provided many countries with technical assistance to put in place or strengthen apprenticeship systems: Algeria, Bangladesh, Costa Rica, Egypt, India, Indonesia, Jamaica, Jordan, Kenya, Mexico, Spain, Tanzania, Uganda and Zambia. In Bangladesh and India, for instance, the ILO contributed to apprenticeship system reform and expansion. In Mexico and Tanzania, the ILO supported the reform and expansion of apprenticeships in tourism. In Jordan, the ILO helped in the creation of a new apprenticeship system in the automotive and manufacturing sectors. Additionally, the ILO has conducted research in countries and developed a guide and tools to build apprenticeship systems.

Under the umbrella of the Global Initiative on Decent Jobs for Youth, the ILO collaborates with UNESCO and other partners to harness innovative demand-driven training models to enhance effectiveness and affordability of quality apprenticeships. Particular attention is given to making apprenticeship systems inclusive by promoting non-discrimination and protecting apprentices rights. Action under this thematic priority of the Global Initiative focuses on country level pilots in selected growth sectors/occupations where technical and professional skills are in shortage or where skills shortage is looming and youth employment creation potential exists.

Note: For more information see Toolkit for Quality Apprenticeships (ILO, forthcoming).

Many enterprises undertake training only for their core permanent workers. (Aleksynska and Berg, 2016; ILO, 2016d; Booth, Francesconi and Frank, 2002; OECD, 2002). Temporary workers and those who are in other forms of contracts are usually not able to avail of such training. These workers also often disproportionately belong to a vulnerable subgroup of the general population, such as women, migrants and young people, exacerbating their disadvantages (Brunello and Sestito, 2008). Targeted subsidized training through ALMPs can help offset this.

Skills strategies and policies require a number of elements as building blocks (ILO, 2011). Mechanisms need to be put in place in order to anticipate skills needs, to collect and disseminate adequate labour market information, to provide employment services and undertake effective monitoring and evaluation. Adequate financing of skills development is critical. Furthermore, the development and implementation of skills strategies must be based on effective social dialogue to guarantee the quality and relevance of training as well as to ensure gender equality in access. The ILO and its partners have developed tools to assist governments, employers' and workers' organizations in addressing future skills needs.[3] Tools relevant for technology-driven transformation include:

- *Skills Technology Foresight Guide* – Identifying future technological skills gaps at the industry level and recommending changes in technical and vocational education and training, and in higher education (Sudahov et al., 2016; ILO, 2016c).
- *Guide to Anticipating and Matching Skills and Jobs* – Methods, processes and institutional mechanisms of skills identification and anticipation. The guide relies on sector-based approaches and methods used in various contexts and offers recommendations for both developed and developing countries (ILO, 2015b).

6.3 Technology and active labour market measures

The employment outcomes and earnings of young people can be improved through ALMPs (Kluve et al., 2016; Betcherman et al., 2007). These include employment services, skills training and entrepreneurship promotion (see discussion below), as well as subsidized employment, including public employment programmes and wage subsidies (table 6.1). Different ALMPs can be combined to address diverse labour market disadvantages for young women and men and are increasingly being used to promote the formalization of employment among youth (O'Higgins, 2017).

No single type of intervention stands out as the most effective. ALMPs need to respond to young people's various needs with tailored and complementary services (Kluve et al., 2016; Bördős et al., 2017) and be adapted to local contexts and constraints. For example, to entice programme participation, in-classroom and on-the-job training can be combined with support services, such as transportation and childcare allowances. Furthermore, it is important to profile the targeted beneficiaries carefully while continuously monitoring the outcomes to facilitate positive feedback loops that improve programme implementation and future policy design.[4]

[3] These include a six-volume compendium of methodological guides on anticipation and matching of skills supply and demand, http://www.ilo.org/employment/Whatwedo/Projects/WCMS_534345/lang--en/index.htm (accessed 6 Oct. 2017).

[4] Programme monitoring and impact research is also at the core of the ILO work on youth employment. Ongoing technical cooperation focuses on enhancing the evidence base on what works to facilitate young people's transition to decent work in the Middle East and Northern Africa through the Taqeem Initiative (www.ilo.org/taqem). Through the What Works in Youth Employment platform (www.wwinye.org), governments have been introducing programmes to promote youth entrepreneurship and self-employment, particularly in lower middle-income countries, although the outcomes have been mixed (Burchell et al., 2017). Entrepreneurship programmes are a useful complement to other, more general, ALMPs. However, it is important to expand the knowledge base on the effectiveness of specific programmes. Some positive examples are outlined in boxes 6.9 and 6.10.

Table 6.1 Youth employment programmes: Advantages and disadvantages of different measures

Type of programme	Strengths	Weaknesses
Employment services	Can help youth make realistic choices and match their aspirations with employment and training opportunities; improves information on job prospects as well as efficiency, effectiveness and relevance of initiatives.	May create unrealistic expectations if not linked to labour market needs and often covers only urban areas and the formal economy.
Public employment programmes	Help young people gain labour market attachment and, at the same time, improve physical and social infrastructure and the environment. These should be combined with development and sector-based strategies and, if combined with training, can enhance employability.	Has low capacity for long-term labour market integration.
Wage subsidies	Can create employment if targeted to specific needs (to compensate for initial lower productivity and training, for example) and to groups of disadvantaged young people.	There is a danger of small net employment impacts (if not appropriately targeted); employment may last only as long as the subsidy.
Skills training	Works better if paired with broader vocational and employability skills that are in demand and includes work-based learning as well as employment services; has positive effects on labour market outcomes. Can enhance the skills of young people and promote their longer-term employability.	May produce temporary rather than sustainable solutions and, if not well targeted, may benefit those who are already "better off". Training alone may not be sufficient to increase youth employment prospects.

Source: Bördős et al., 2017, table 4.1, p. 49 (adapted from ILO, 2016e; Betcherman et al., 2007; Rosas and Rossignotti, 2005). See also ILO, 2004; and Kluve et al., 2016.

6.3.1 Implications and uses of technology for active labour market programmes

As a consequence of various labour market drivers, including technological change, young people today can expect to have many jobs during their lifetime. This has implications for the functions and role of employment services and other ALMPs. The responsible labour market institutions will need to have the capacity to continuously react and adapt to rapid and often radical labour market changes. They will also need to promote equity to ensure that specific groups of young people do not get left behind in the wake of technological advances. They can use technology to increase their efficiency, effectiveness and coverage. For example, they can better diagnose the needs of young people and improve targeting and profiling by using biometric and spatial data as well as real-time labour market information. They can also improve such services as matching and counselling by complementing face-to-face interviews with online interactions. In addition, they can use new technology to improve programme monitoring and coordination with other service providers. This should help tackle both employment and labour market participation barriers in an integrated manner.

The relatively low cost of ICT-based intermediation services allows developing countries to provide services to a wider audience than ever before. The challenge, however, is the low rates of Internet penetration. As part of a multi-channel strategy to deliver employment services, many emerging and developing countries have launched online job portals, such as India (IDB, WAPES and OECD, 2015). Developed countries have adapted their services to provide a combination of online and one-on-one services according to the unemployment spell, such as in the Netherlands.

ALMPs are also reaching out to youth through apps developed and maintained by public employment services. Due to recent reforms to adapt to the labour market, Belgium, for example, now has several options: "Mycoach" offers online coaching on job applications; "Mentor" matches school-leavers with professional mentors; "Mirror" is a collection of mini apps providing insights on mobility and competitiveness; and "Hi-App" networks refugees with volunteers to share information on work opportunities, housing, administration or leisure. Similarly in Colombia, the public training institution, which has increasingly played an

intermediation role, has integrated employment services in an app that allows jobseekers to search and apply for jobs, and employers to check the status of vacancies. In the United Arab Emirates, the government launched the Jobs Abu Dhabi app to facilitate job applications in public and private entities as well as assist in the screening and shortlisting of candidates.

6.4 Youth entrepreneurship and self-employment

Self-employment can be freely chosen and profitable. This may be in own or family business, and is now increasingly facilitated by technology. Entrepreneurship is central to the 2030 Agenda for Sustainable Development, whose target 4.4 aims at increasing skills of youth and adults for employment and entrepreneurship. It is important to distinguish this from self-employment as a coping mechanism used by young people who have no alternative source of income or employment and who thus have become their own "employer" of last resort.[5]

Countries have often promoted entrepreneurship as a way of increasing young people's long-term employment and income prospects. Ideally, such programmes should be part of a more general toolkit of programmes and policies designed to integrate young people into quality employment. Entrepreneurship programmes can have a larger impact when combined with other active labour market measures, such as wage subsidies and training targeted to start-ups. Similarly, the evidence shows improved youth labour market outcomes when entrepreneurship training is combined with access to finance and advisory services (Kluve et al., 2016).

The promotion of digital start-ups – new Internet-enabled businesses – is a promising area for budding young entrepreneurs. In emerging and developing countries, basic infrastructure often remains a major obstacle, including limited internet access. Nevertheless, a number of promising initiatives are thriving, with policy support. As noted in Chapter 5, in Kenya, for example, a digital skills training programme has been launched with the intention of enabling one million young people to obtain freelance online work within a year. A similar emphasis is visible in developed countries. For instance, the UK Government currently offers loans and other support services to young tech entrepreneurs through Innovate UK, Tech City UK and other initiatives.[6] Young people are also increasingly expressing an interest in developing social businesses using internet and platform technology, promoting both individual and social development.

While the potential of entrepreneurship to promote decent employment has been recognized, gender imbalances persist. Young women remain less likely than young men to become entrepreneurs (UNDESA, 2016). They are often at a disadvantage in accessing finance and other services for enterprise development, especially in rural areas. In this context, targeted entrepreneurship opportunities can empower young women to generate employment and income for themselves, and to become job-creators in their communities (box 6.7).

It is also important to ensure access to credit to young entrepreneurs and small and microenterprises. The ILO approach to enhancing finance for small enterprises focuses on building capacity on both the demand and the supply sides. A major activity is providing financial education to prepare young people for financial responsibilities related to their integration into the labour market[7].

[5] With the emergence of the gig economy, there is increasing incidence of disguised employment (defined in Chapter 5, box 5.1), whereby workers are defined as self-employed although their employment relation more closely resembles that of a dependent worker or employee. This has been the subject of much controversy and litigation and is discussed in section 6.5 on protecting young workers.

[6] See for instance http://www.onaplatterofgold.com/uk-government-supports-young-entrepreneurs/.

[7] Making Microfinance Work is a flagship training programme developed jointly by the ILO Social Finance Programme and the ILO International Training Centre (ITC). The programme targets middle and senior managers in banks, microfinance institutions and credit unions. It is designed to strengthen their ability to provide better financial and non-financial services to more small businesses and young entrepreneurs. See the ILO ITC training at http://mmw.itcilo.org/en/home; also Frankiwiecz and Churchill, 2011.

Box 6.7 What works for young women entrepreneurs in rural areas

The ILO's Youth Employment Programme partners with the International Fund for Agricultural Development (IFAD) on the Taqeem (meaning "evaluation" in Arabic) Initiative. The partnership aims to strengthen gender monitoring, evaluation and mainstreaming in rural youth employment in the Middle East and North Africa region. Through enhancing the knowledge base on "what works" and promoting evidence-based policy-making, the ILO-IFAD partnership aims to reduce gender gaps in entrepreneurship participation in this region, which are particularly wide. According to the Global Entrepreneurship Monitor: Women's Entrepreneurship 2016/2017 Report, women start a business at under 60 per cent the rate for men.

Taqeem's work pointed to a number of key policy implications regarding rural women's entrepreneurship. Business and vocational training programmes can improve the economic empowerment of young women. An impact evaluation of a programme implemented in rural Egypt revealed positive impacts on young women's incomes and business knowledge. It also showed that engaging local communities in training programmes prompts an enabling environment for women's empowerment. Moreover, evidence from Egypt and Morocco suggests that microfinance programmes positively impact women and their families, in particular for established women-owned businesses.

Sources: Elsayed, A and R. Roushdy (2017); and Bruer, V. 2017.

The ILO has developed various entrepreneurship promotion tools that have been tested and implemented in different regions, including for environment-friendly employment. This will be increasingly important in light of climate change, which may impact employment and productivity but also offer opportunities for young people. Green entrepreneurship can be an important source of employment for young women and men while also offering youth the space to promote change through activities in climate change mitigation and adaptation (box 6.8).

There is also support for the development of cooperatives, i.e. enterprises collectively owned by an association of individuals. Cooperatives enable young women and men to pool resources, share risks, acquire stronger bargaining power, and enhance access to markets. Indeed, community ownership, worker ownership, cooperatives and social entrepreneurship are growing areas of interest for young people.[8] Most recently, platform cooperatives are gaining space. They organize emerging technologies through online applications that support production, collectively owned and democratically controlled web-based marketplaces and other activities that support this economic model (Gorenflo, 2015). Worker-owners in platform cooperatives share risks and benefits and negotiate better contracts while participating in decision-making on how the platform is organized and managed.

Drawing on the vast experience accumulated in entrepreneurship development by the ILO and partners, the Global Initiative on Decent Jobs for Youth aims to unleash the potential of youth-led enterprises by supporting policies that create an enabling regulatory environment. It fosters networks, peer-to-peer support and access to information, training, finance and technology.

[8] The ILO has worked with youth on developing financial cooperatives (in Kenya and Zambia) and social economy enterprises (in Algeria, Morocco and Tunisia). For instance, an ongoing project in Algeria, A'AMAL, encourages collaboration among local actors, more specifically civil society, for the professional integration of young people. A cooperative in Tunisia, PROMESS, aims to create sustainable and decent jobs for young people by promoting social and solidarity organizations and mechanisms.

Box 6.8 The ILO Green Entrepreneurship Programme

The ILO has developed entrepreneurship promotion packages, some of which are targeted at youth, such as: the entrepreneurship education tools Know About Business (KAB), GET Ahead for Women in Enterprise Training Package and Resource Kit, and the Start and Improve Your Business (SIYB) training package. Elements of these packages have also been incorporated into the ILO Green Entrepreneurship Programme, which comprises four areas of action:

Knowledge and research products – These introduce the concept of green entrepreneurship and show good practices and types of intervention and potential impacts and challenges. A global database of literature is collected and analysed, including opportunities for green business start-ups. This important background information supports policy formulation and implementation.

Technical cooperation – Programmes on green entrepreneurship are implemented globally. Countries supported include China (Green Business Options), Indonesia (Start Your Business in Renewable Energy, Waste, Sustainable Tourism and Agriculture), Kenya, Uganda and Tanzania (Youth Entrepreneurship Facility) and Zambia (Start Your Green Construction).

Training tools – This consists of the ILO global signature business development material, SIYB, which was reviewed in 2014 to incorporate environmental issues and introduce green entrepreneurship. In addition, sector- and country-specific green entrepreneurship training tools were developed to tap into local opportunities (in China, Eastern Africa, Indonesia and Zambia).

Capacity building – This is targeted at policy-makers, workers' and employers' organizations, industry actors and practitioners to enhance their capacity to put into practice policies, business practices and programmes that promote green entrepreneurship. The ILO International Training Centre (ITC) offers regular courses on green jobs that include a standard learning track on green entrepreneurship as well as targeted courses on entrepreneurship, such as courses available from the ITC's Academy on the Green Economy.

Note: For more information, see http://www.ilo.org/global/about-the-ilo/artworks/topics/green-jobs/lang--en/index.htm.

6.5 Rights at work for young women and men

The ILO Call for Action on youth employment states, "Tackling youth unemployment should not disregard and weaken the protection to which young workers are entitled ... policies facilitating access to jobs should not lead to discrimination at work ... youth employment policies should also encourage the transition from temporary to more stable jobs" (ILO, 2012). Technological change is creating new and diverse employment forms, with greater use of more flexible, short-term employment relations, also referred to as non-standard forms of work (Chapter 5). This has profound implications for the way in which young workers can affirm their rights at work.

Although it is not yet clear whether this will require new institutional approaches, it is crucial to ensure the active participation of social partners in order to achieve the goal proclaimed in the ILO Future of Work Centenary Initiative of "making technology work for all" (ILO, 2016b). Social dialogue will be required at the national level to devise the appropriate normative and policy instruments and to put in place the practices and supervisory mechanisms that can offer protection to all young workers.

6.5.1 Enabling transition to formality

Informality remains a concern in new and diverse, as well as traditional, forms of employment. Worldwide, three out of four young people work in informal jobs (Chapter 2). To combat informality, it is important to intervene early. There have been many promising initiatives to promote formal employment as a young person's first job, particularly in Latin America and the Caribbean (O'Higgins, Bausch and Bonomelli, 2017).

Box 6.9 Young people's transition to the formal economy

Today, half of the labour force is working and producing in the informal economy, with an over-representation of young women and men. At the aggregate level three out of four young workers aged 15–24 are engaged in informal employment. Informality largely affects vulnerable groups, such as migrants, and exhibits important negative spill-overs within households and across generations.

There have been several innovative policy frameworks to facilitate the transition from the informal to the formal economy, notably in Latin America. These are based on the understanding that interventions are more effective when they tackle different drivers of informality, addressing the diversity and scale of the informal economy with a comprehensive set of instruments. An integrated strategy should: (i) promote access to a quality first-job experience (as in Brazil, Jamaica and Uruguay); (ii) ensure proper formalization (as in Colombia and Paraguay); and, (iii) promote formal entrepreneurship (as in Chile and Mexico).

The Global Initiative on Decent Jobs for Youth is promoting decent work for young women and men who are engaged in the informal economy, with the aim of facilitating a positive transition to formality. It focuses on providing innovative technology tools to: (i) improve intermediation between employers and young people looking for their first formal job experience; (ii) recognize prior learning and upgrade informal apprenticeships; and (iii) assist young people in starting their first formal business through access to digital financial systems.

Source: ILO, 2015c; ILO, 2014.

In 2015 at its 104th Session, the International Labour Conference adopted *Recommendation No. 204 concerning the Transition from the Informal to the Formal Economy*.[9] The Recommendation offers a normative framework to support national efforts towards formalization. The Global Initiative on Decent Jobs for Youth builds on this, setting out a series of actions to facilitate young people's transition to the formal economy, and supporting new and pioneering youth employment solutions (box 6.9).

6.5.2 New forms of employment and protecting young workers

Emerging new and diverse forms of employment, such as crowd work and the gig economy, can offer flexibility, ease entry into labour markets currently offering limited opportunities, and expand income earning opportunities. Young crowd workers can also earn higher wage rates than older workers in the platform economy and amongst a majority of the young gig workers in the ILO crowd work survey, employment in the platform economy is their principal source of earnings (see chap. 5, box 5.2). But there are also risks: low incomes, and often no guarantee of any continuity in employment or income, as well as challenges in ensuring access to work related benefits.

One possible solution is to make work related benefits portable, linking benefits directly to workers rather than through the employer, though there may still be challenges in ensuring basic income security for these workers (Berg, 2016)[10]. There is also the question of whether legislation on minimum wages should apply to crowd workers and, if so, whose nation's legislation is applicable; the worker's, the task setter's or the platform's which, given the internationalisation of gig work, may all be different.

[9] For the full text of the Recommendation, see http://www.ilo.ch/ilc/ILCSessions/104/texts-adopted/WCMS_377774/lang--en/index.htm (accessed 11 Oct. 2017).

[10] Specifically, "establishing some sort of portable security account for on-demand economy workers, regardless of who finances it, will not provide sufficient income security for these workers, as the main problem is not the portability of benefits, but rather the unsteady income associated with 'gig' work" (Berg, p. 25).

Box 6.10 Rights@work4youth

The ILO has developed a mobile app, "Rights@work4youth – A guide to labour rights at young people's fingertips" based on the manual, *Rights@work for Youth: Decent work for young people* (Corbanese and Rosas, 2016). The app allows young people to access information on international labour standards, test their knowledge of rights at work and review case studies. The manual has also been useful for trade unions, employers' organizations, employment services and other institutions to advocate for young people's rights at work. There are six modules: (1) Young people and work; (2) Employment contract; (3) Social security; (4) Conditions of work: hours of work, wages and leave; (5) Occupational safety and health; and (6) Exercising rights at work.

Training programmes based on the manual have been organized for tripartite constituents (government, workers' and employers' representatives) in Cambodia, China, Indonesia and the Marshall Islands. Other countries in Asia and the Pacific have expressed interest in similar training.

Source: ILO Rights@work4youth, http://www.wwinye.org/by-theme/rights-for-youth; also Corbanese and Rosas, 2016.

Another concern is a lack of voice in dealing with the ultimate employer.[11] Typically, workers engaged in the platform economy have little or no contact with the task requestor, even for clarifications regarding the specific work to be undertaken. Decisions are generally made by the platforms, which essentially arbitrate between employers and workers (Berg, 2016). A related issue is that online work has further blurred the boundary between self-employment and dependent employment (ILO, 2016b). Should independent workers who only work for a single employer be classified as employees or self-employed? Or should there be a third category of employment between the two? While these questions are being debated in national and international contexts, in some countries, workers' organizations have been engaging with and developing tools to support workers in the gig economy. In Germany, the labour union IG Metall created the platform Fair Crowd Work and is collaborating with some of the creators of Turkopticon, a platform for workers on Amazon Mechanical Turk (De Stefano, 2016).

To ensure that employment-related risks are not borne solely by workers, different forms of work would need to be brought within the scope of regulation (De Stefano, 2016). Innovative solutions can take advantage of new technologies for organizing workers and ensuring the portability of legal obligations and benefits. It is also vital that young workers understand their rights (box 6.10). In addition, there have been calls for the introduction of social protection floors and the strengthening of social protection systems, including basic income schemes, which can reduce the economic insecurity associated with non-standard employment (UN General Assembly, 2017; ILO, forthcoming).

6.5.3 Young worker's safety and health

With new technologies and often increased competition, it is likely that psychosocial stress at work will increase. This can be attributed to: increasing labour market fragmentation; the growing prevalence of flexible, temporary and irregular work in its myriad forms; the consequent blurring of the workplace and home; long working hours; and inadequate earnings linked to working poverty. It is therefore important to understand the interaction of these forms of employment and broader socio-economic issues, in particular, poverty and violence. Indeed, the psychosocial risks associated with labour market transformation has become an emerging global health concern, especially for young workers (ILO, 2016f).

[11] See ILO: *Decent work training package*, Geneva, 2016. A recent survey of independent workers in the United States found that 70 per cent of freelancers desired greater discussion on how to empower the independent workforce, https://www.upwork.com/i/freelancing-in-america/2016/ (accessed 15 July 2017).

Preventing and mitigating stress-related diseases will require a collective approach based on worker participation and social dialogue. It will be important to invest in occupational safety and health (OSH) for young workers, with a focus on preventive measures, including risk assessment and management, and policies to improve working environments and conditions. Groups of employers, workers, youths and government representatives must work together. The ILO's *Youth 4 OSH: OSH for young workers and young employers in global supply chains – Building a culture of prevention* has been implemented in Indonesia, Myanmar, the Philippines and Viet Nam, with the intent to reduce workplace injuries, fatalities and occupational diseases through preventive actions undertaken by young workers and young employers.[12]

6.6 Shaping the future of work

Automation and technological change are transforming youth labour markets. The pace of the adoption of new technologies will differ across countries and regions. Just how it influences the future of work will depend on demography and levels of development. Action is needed to ensure that the gains can be shared as equitably as possible, and the negative impacts mitigated. The surpluses from productivity gains that result from technological change must promote full and productive employment for all to achieve inclusive growth. Public policy has a critical role to play in this. If well managed, new technology can aid action and programme delivery.

This chapter discussed policies for the future of work for young people, highlighting challenges, opportunities, innovation and evidence to facilitate a smooth transition to decent work. Promoting full and productive employment and efficiency and equity in the pursuit of further economic development will require strong labour market institutions, and coordinated policies based on robust statistics and sound research, as well as dialogue with employers` and workers` associations and youth groups. Regular and reliable data on youth specific labour market and transition indicators is critical for evidence-based policy making and monitoring progress in a fast changing world of work.

The actual policy mix to address the youth employment challenge will depend on the local context but will include a combination of demand- and supply-side policies and interventions, with an emphasis on the rights and protection of young workers, especially the disadvantaged and vulnerable among them. It is also necessary to build partnerships to scale up action. The *Global Initiative on Decent Jobs for Youth* offers a unique platform for youth employment stakeholders to address fragmentation, catalyze effective, innovative and evidence-based action at country and regional levels, and advance the Sustainable Development Goals.

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[12] For more information on this project, see http://www.ilo.org/jakarta/whatwedo/projects/WCMS_551571/lang--en/index.htm.

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Annexes

Annex A. Regional, country and income groupings

Africa

Northern Africa

Algeria
Egypt
Libya
Morocco
Sudan
Tunisia
Western Sahara

Sub-Saharan Africa

Angola
Benin
Botswana
Burkina Faso
Burundi
Cabo Verde
Cameroon
Central African Republic
Chad
Comoros
Congo
Congo, Democratic Republic of the
Côte d'Ivoire
Djibouti
Equatorial Guinea
Eritrea
Ethiopia
Gabon
The Gambia
Ghana
Guinea
Guinea-Bissau
Kenya
Lesotho
Liberia
Madagascar
Malawi
Mali
Mauritania
Mauritius
Mozambique
Namibia
Niger
Nigeria
Rwanda
Sao Tome and Principe
Senegal
Seychelles
Sierra Leone
Somalia
South Africa
Swaziland
Tanzania, United Republic of
Togo
Uganda
Zambia
Zimbabwe

Americas

Latin America and the Caribbean

Antigua and Barbuda
Argentina
Bahamas
Barbados
Belize
Bolivia, Plurinational State of
Brazil
Chile
Colombia
Costa Rica
Cuba
Dominica
Dominican Republic
Ecuador
El Salvador
Grenada
Guatemala
Guyana
Haiti
Honduras
Jamaica
Mexico
Netherlands Antilles
Nicaragua
Panama
Paraguay
Peru
Puerto Rico
Saint Kitts and Nevis
Saint Lucia
Saint Vincent and the Grenadines
Suriname
Trinidad and Tobago
United States Virgin Islands
Uruguay
Venezuela, Bolivarian Republic of

Northern America

Canada
United States

Arab States

Bahrain
Iraq
Jordan
Kuwait
Lebanon
Occupied Palestinian Territory
Oman
Qatar
Saudi Arabia
Syrian Arab Republic
United Arab Emirates
Yemen

Asia and the Pacific

Eastern Asia

China
Hong Kong, China
Japan
Korea, Democratic People's Republic of
Korea, Republic of
Macau, China
Mongolia
Taiwan, China

South-Eastern Asia and the Pacific

Australia
Brunei Darussalam
Cambodia
Cook Islands
Fiji
French Polynesia
Guam
Indonesia
Kiribati
Lao People's Democratic Republic
Malaysia
Marshall Islands
Micronesia, Federated States of
Myanmar
Nauru
New Caledonia
New Zealand
Palau
Papua New Guinea
Philippines
Samoa
Singapore
Solomon Islands
Thailand
Timor-Leste
Tonga
Tuvalu
Vanuatu
Viet Nam

Southern Asia

Afghanistan
Bangladesh
Bhutan
India
Iran, Islamic Republic of
Maldives
Nepal
Pakistan
Sri Lanka

Europe and Central Asia

Northern, Southern and Western Europe

Albania
Andorra
Austria
Belgium
Bosnia and Herzegovina
Channel Islands
Croatia
Denmark
Estonia
Finland
France
Germany
Greece
Iceland
Ireland
Italy
Latvia
Liechtenstein
Lithuania
Luxembourg
Macedonia, the former Yugoslav Republic of
Malta
Monaco
Montenegro
Netherlands
Norway
Portugal
San Marino
Serbia
Slovenia
Spain
Sweden
Switzerland
United Kingdom

Eastern Europe

Belarus
Bulgaria
Czech Republic
Hungary
Moldova, Republic of
Poland
Romania
Russian Federation
Slovakia
Ukraine

Central and Western Asia

Armenia
Azerbaijan
Cyprus
Georgia
Israel
Kazakhstan
Kyrgyzstan
Tajikistan
Turkey
Turkmenistan
Uzbekistan

Developed countries (high income)

Andorra
Antigua and Barbuda
Argentina
Australia
Austria
Bahamas
Bahrain
Barbados
Belgium
Brunei Darussalam
Canada
Channel Islands
Chile
Cyprus
Czech Republic
Denmark
Estonia
Finland
France
French Polynesia
Germany
Greece
Guam
Hong Kong, China
Hungary
Iceland
Ireland
Israel
Italy
Japan
Korea, Republic of
Kuwait
Latvia
Liechtenstein
Lithuania
Luxembourg
Macau, China
Malta
Monaco
Netherlands
Netherlands Antilles
New Caledonia
New Zealand
Norway
Oman
Palau
Poland
Portugal
Puerto Rico
Qatar
Saint Kitts and Nevis
San Marino
Saudi Arabia
Seychelles
Singapore
Slovakia
Slovenia
Spain
Sweden
Switzerland
Taiwan, China
Trinidad and Tobago
United Arab Emirates
United Kingdom
United States
United States Virgin Islands
Uruguay

Emerging countries (middle income)

Albania
Algeria
Angola
Armenia
Azerbaijan
Bangladesh
Belarus
Belize
Bhutan
Bolivia, Plurinational State of
Bosnia and Herzegovina
Botswana
Brazil
Bulgaria
Cabo Verde
Cambodia
Cameroon
China
Colombia
Congo
Cook Islands
Costa Rica
Côte d'Ivoire
Croatia
Cuba
Djibouti
Dominica
Dominican Republic
Ecuador
Egypt
El Salvador
Equatorial Guinea
Fiji
Gabon
Georgia
Ghana
Grenada
Guatemala
Guyana
Honduras
India
Indonesia
Iran, Islamic Republic of
Iraq
Jamaica
Jordan
Kazakhstan
Kenya
Kiribati
Kyrgyzstan
Lao People's Democratic Republic
Lebanon
Lesotho
Libya
Macedonia, the former Yugoslav Republic of
Malaysia
Maldives
Marshall Islands
Mauritania
Mauritius
Mexico
Micronesia, Federated States of
Moldova, Republic of
Mongolia
Montenegro
Morocco
Myanmar
Namibia
Nauru
Nicaragua
Nigeria
Occupied Palestinian Territory
Pakistan
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Romania
Russian Federation
Saint Lucia
Saint Vincent and the Grenadines
Samoa
Sao Tome and Principe
Serbia
Solomon Islands
South Africa
Sri Lanka
Sudan
Suriname
Swaziland
Syrian Arab Republic
Tajikistan
Thailand
Timor-Leste
Tonga
Tunisia
Turkey
Turkmenistan
Tuvalu
Ukraine
Uzbekistan
Vanuatu
Venezuela, Bolivarian Republic of
Viet Nam
Western Sahara
Yemen
Zambia

Developing countries (low income)

Afghanistan
Benin
Burkina Faso
Burundi
Central African Republic
Chad
Comoros
Congo, Democratic Republic of the
Eritrea
Ethiopia
The Gambia
Guinea
Guinea-Bissau
Haiti
Korea, Democratic People's Republic of
Liberia
Madagascar
Malawi
Mali
Mozambique
Nepal
Niger
Rwanda
Senegal
Sierra Leone
Somalia
Tanzania, United Republic of
Togo
Uganda
Zimbabwe

Annex B. Labour market estimates and projections

The source of all global and regional labour market estimates in this *Global Employment Trends for Youth* report is the ILO's Trends Econometric Models (TEM), April 2017. The ILO Research Department has designed and actively maintains econometric models, which are used to produce estimates of labour market indicators in the countries and years for which country-reported data are unavailable. These allow the ILO to produce and analyse global and regional estimates of key labour market indicators and related trends.

The TEM is used to produce estimates and projections – disaggregated by age and sex as appropriate – of unemployment, employment and status in employment. The output of the model is a complete matrix of data for 188 countries. The country-level data can then be aggregated to produce regional and global estimates of labour market indicators, such as the unemployment rate and the employment-to-population ratio.

Prior to running the TEM, labour market information specialists in the Research Department, in cooperation with ILOSTAT and specialists in ILO field offices, evaluate existing country-reported data and select only those observations deemed sufficiently comparable across countries using criteria including: (1) type of data source; (2) geographic coverage; and (3) age group coverage.

- With regard to the first criterion, in order for data to be included in the model, they must be derived from either a labour force survey or a population census. National labour force surveys are generally similar across countries, and the data derived from these surveys are more readily comparable than data obtained from other sources. A strict preference is therefore given to labour force survey-based data in the selection process. However, many developing countries which lack the resources to carry out a labour force survey do report labour market information based on population censuses. Consequently, due to the need to balance the competing goals of data comparability and data coverage, some population census-based data are included in the model.
- The second criterion is that only nationally representative (i.e. not prohibitively geographically limited) labour market indicators are included. Observations which correspond to only urban or only rural areas are not included, as large differences typically exist between rural and urban labour markets, and using only rural or urban data would not be consistent with benchmark data such as GDP.
- The third criterion is that the age groups covered by the observed data must be sufficiently comparable across countries. Countries report labour market information for a variety of age groups and the age group selected can have an influence on the observed value of a given labour market indicator.

Apart from country-reported labour market information, the TEM uses the following benchmark files:

- United Nations World Population Prospects, 2017 revision for population estimates and projections;
- ILO Economically Active Population, Estimates and Projections (EAPEP) for labour force estimates and projections;
- IMF/World Bank data on GDP (PPP, per capita GDP and GDP growth rates) from the World Development Indicators and the World Economic Outlook April 2017 database; and
- World Bank poverty estimates from the PovcalNet database.

Estimates of labour market indicators

The TEM produces estimates of unemployment rates to fill in missing values in the countries and years for which country-reported data are unavailable. Multivariate regressions are run separately for different regions in the world in which unemployment rates, broken down by age and sex (youth male, youth female, adult male, adult female), are regressed on GDP growth rates. Weights are used in the regressions to correct for biases that may result from the fact that countries which report unemployment rates tend to differ (in statistically important respects) from countries that do not report unemployment rates.[1] For 2017, a preliminary estimate is produced, using quarterly and monthly information available up to the time of production of the *World Employment and Social Outlook* report (April 2017). Additional econometric models are used to produce global and regional estimates of working poverty and employment by economic class.[2]

Projections of labour market indicators

Unemployment rate projections are obtained using the historical relationship between unemployment rates and GDP growth during the worst crisis/downturn period for each country between 1991 and 2005, and during the corresponding recovery period.[3] This was done through the inclusion of interaction terms of crisis and recovery dummy variables with GDP growth in fixed-effects panel regressions.[4] Specifically, the logistically transformed unemployment rate was regressed on a set of covariates, including the lagged unemployment rate, the GDP growth rate, the lagged GDP growth rate and a set of covariates consisting of the interaction of the crisis dummy and the interaction of the recovery-year dummy with each of the other variables.

[1] For instance, if simple averages of unemployment rates in reporting countries in a given region were used to estimate the unemployment rate in that region, and the countries that do not report unemployment rates should happen to differ from reporting countries with respect to unemployment rates, without such a correction mechanism the resulting estimated regional unemployment rate would be biased. The "weighted least squares" approach adopted in the TEM corrects for this potential problem.

[2] S. Kapsos and E. Bourmpoula: *Employment and economic class in the developing world*, ILO Research Paper No. 6 (Geneva, ILO, 2013).

[3] The crisis period comprises the span between the year in which a country experienced the largest drop in GDP growth and the "turning point year" when growth reached its lowest level following the crisis before starting to climb back to its pre-crisis level. The recovery period comprises the years between the "turning point year" and the year when growth has returned to its pre-crisis level.

[4] In order to project unemployment during the current recovery period, the crisis-year and recovery-year dummies were adjusted, based on the following definition: a country was considered to be "currently in crisis" if the drop in GDP growth after 2007 was larger than 75 per cent of the absolute value of the standard deviation of GDP growth over the 1991–2008 period and/or larger than 3 percentage points.

Separate panel regressions were run across three different groupings of countries, based on:

(1) geographic proximity and economic/institutional similarities;

(2) income levels;[5] and

(3) level of export dependence (measured as exports as a percentage of GDP).[6]

The rationale behind these groupings is as follows: Countries within the same geographic area or with similar economic/institutional characteristics are likely to be similarly affected by the crisis and have similar mechanisms to attenuate the impact of the crisis on their labour markets. Furthermore, because countries within given geographic areas often have strong World Trade Organization (WTO) and financial linkages, the crisis is likely to spill over from one country to its neighbour (e.g. Canada's economy and labour market developments are intricately linked to developments in the United States). Countries with similar income levels are also likely to have similar labour market institutions (e.g. social protection measures) and similar capacities to implement fiscal stimulus and other policies to counter the crisis impact. Finally, as the decline in exports was the primary crisis transmission channel from developed to developing countries, countries were grouped according to their level of exposure to this channel, as measured by their exports as a percentage of GDP. The impact of the crisis on labour markets through the export channel also depends on the type of exports (the affected sectors of the economy) involved, the share of domestic value added in exports and the relative importance of domestic consumption (for instance, countries such as India and Indonesia, with a large domestic market, were less vulnerable than countries such as Singapore and Thailand). These characteristics are controlled for by using fixed effects in the regressions.

In addition to the panel regressions, country-level regressions were run for countries with sufficient data. The ordinary least squares country-level regressions included the same variables as the panel regressions.

To take into account the uncertainty surrounding GDP prospects, as well as the complexity of capturing the relationship between GDP and unemployment rates for all the countries, a variety of ten (similar) multilevel mixed-effects linear regressions (varying-intercept and varying-coefficient models) are utilized. The main component that changes across these ten versions is the lag structure of the independent variables. The potential superiority of these models lies in the fact that not only is the panel structure fully exploited (e.g. increased degrees of freedom), but it is also possible to estimate the coefficients specifically for each unit (country), taking into account unobserved heterogeneity at the cluster level and correcting for the random effects approach caveat that the independent variables are not correlated with the random effects term.

Overall, the final projection was generated as a simple average of the estimates obtained from the three group panel regressions and also, for countries with sufficient data, the country-level regressions. For a selection of countries (seven out of 192), an average of another set of forecast combinations was made according to judgemental examination in order to represent more realistically the recent trends observed in each country's economic forecast.

[5] The income groups correspond to the World Bank income group classification of four income categories, based on countries' 2008 gross national income (GNI) per capita (calculated using the Atlas method): low-income countries, US$975 or less; lower middle-income countries, US$976–US$3,855; upper middle-income countries, US$3,856–US$11,905; and high-income countries, US$11,906 or more.

[6] The export dependence-based groups are: highest exports (exports ≥ 70 per cent of GDP); high exports (exports < 70 per cent but ≥ 50 per cent of GDP); medium exports (exports < 50 per cent but ≥ 20 per cent of GDP); and low exports (exports < 20 per cent of GDP).

Youth labour market indicators

Labour market indicators for the sub-populations youth-female, youth-male, adult-female and adult-male have been estimated using the same regression techniques as the aggregate indicators. However, the estimates are adjusted using the shares in the population implied by the labour force survey estimates so that the implied sum of the sub-populations equals the aggregate rate. This means that country data on sub-populations could differ from reported rates in other sources when the underlying shares of the sub-population in the labour force differ from the ILO's estimates.

Short-term projection model

For 41 countries, the preliminary unemployment estimate for 2017 and the projection for 2018 are based on results from a country-specific short-term projection model. The ILO maintains a database on monthly and quarterly unemployment flows that contains information on inflow and outflow rates of unemployment, estimated on the basis of unemployment by duration, following the methodologies proposed by Shimer[7] and Elsby, Hobijn and Sahin[8]. A multitude of models are specified that either project the unemployment rate directly or determine both inflow and outflow rates, using ARIMA, VARX and combined forecast techniques. The short-term projection model relies on several explanatory variables, including hiring uncertainty,[9] policy uncertainty[10], macroeconomic forecasts by Oxford Economics and the Manpower Employment Survey Outlook. All estimated models are evaluated on an eight-quarter ahead rolling pseudo out-of-sample forecasting evaluation starting in the first quarter of 2009, among which five models are selected using a weighting of the mean and maximum forecast error. The top five model forecasts are then averaged.

[7] R. Shimer. "Reassessing the ins and outs of unemployment", in *Review of Economic Dynamics* (Amsterdam, Elsevier, 2013), Vol. 15, No. 2, pp. 127–48.

[8] M.W.L. Elsby; B. Hobijn and A. Sahin: *The decline of the U.S. labor share*, Working Paper Series 2013-27 (San Francisco, CA, Federal Reserve Bank of San Francisco, 2013).

[9] E. Ernst and C. Viegelahn: *Hiring uncertainty: A new indicator*, Paper presented at the Project LINK Meeting, United Nations, New York, 23 Oct. 2013 (Geneva, ILO, 2014).

[10] S.R. Baker; N. Bloom and S.J. Davis: *Measuring economic policy uncertainty*, Working Paper No. 21633 (Washington, DC, National Bureau of Economic Research, 2015).

Annex C. Additional tables

Table C.1 Global unemployment and unemployment rates, youth (15–24), adult (25+) and total (15+), 2008–18

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017p	2018p
Youth unemployment (millions)	73.6	76.7	74.9	75.0	73.7	72.9	70.5	70.3	70.7	70.9	71.1
Adult unemployment (millions)	104.8	120.9	120.4	121.4	122.7	124.8	124.3	124.8	128.0	131.3	134.2
Total unemployment (millions)	178.4	197.6	195.3	196.3	196.3	197.7	194.8	195.2	198.7	202.2	205.2
Youth unemployment rate (%)	12.3	13.0	12.9	13.1	13.1	13.1	12.9	12.9	13.0	13.1	13.1
Adult unemployment rate (%)	4.1	4.7	4.6	4.5	4.5	4.5	4.4	4.3	4.4	4.4	4.5
Total unemployment rate (%)	5.7	6.2	6.1	6.0	6.0	5.9	5.8	5.7	5.7	5.8	5.8
Ratio of youth–to–adult unemployment rates	3.0	2.8	2.8	2.9	2.9	2.9	2.9	3.0	3.0	3.0	2.9

Table C.2 Regional youth unemployment rates, 2008–18 (%)

	2008	2009	2010	2011	2012	2013	2014e	2015	2016	2017p	2018p
WORLD	**12.3**	**13.0**	**12.9**	**13.1**	**13.1**	**13.1**	**12.9**	**12.9**	**13.0**	**13.1**	**13.1**
Male	11.9	12.7	12.5	12.7	12.7	12.8	12.5	12.6	12.7	12.7	12.7
Female	12.9	13.5	13.6	13.7	13.6	13.7	13.4	13.4	13.6	13.7	13.7
Northern Africa	**24.4**	**24.5**	**23.5**	**26.3**	**29.7**	**29.3**	**29.1**	**29.0**	**29.0**	**28.8**	**28.6**
Male	19.4	18.0	17.4	21.3	25.0	24.9	25.5	26.4	25.7	25.1	24.5
Female	38.5	42.5	41.4	41.3	43.8	42.0	39.8	36.7	38.7	39.9	40.7
Sub-Saharan Africa	**11.6**	**11.9**	**11.9**	**11.8**	**11.4**	**11.2**	**10.7**	**10.7**	**11.0**	**11.1**	**11.2**
Male	10.4	10.6	10.8	10.4	9.9	9.8	9.5	9.4	9.7	9.8	9.8
Female	13.0	13.2	13.1	13.3	13.1	12.6	12.1	12.0	12.5	12.7	12.7
Latin America and the Caribbean	**16.0**	**16.8**	**16.0**	**15.2**	**14.5**	**14.5**	**14.8**	**16.1**	**18.7**	**19.6**	**19.5**
Male	12.4	13.7	12.8	12.5	12.1	12.2	12.5	13.4	15.9	16.7	16.7
Female	21.3	21.6	21.0	19.4	18.4	18.2	18.3	20.1	23.0	23.9	23.8
Northern America	**12.6**	**17.3**	**17.9**	**16.8**	**16.0**	**15.3**	**13.4**	**11.8**	**10.6**	**10.4**	**11.1**
Male	14.1	19.8	20.3	18.2	17.4	16.9	14.5	13.0	11.7	11.4	12.2
Female	10.9	14.5	15.3	15.2	14.4	13.7	12.1	10.4	9.5	9.2	9.9
Arab States	**26.4**	**25.3**	**26.7**	**29.0**	**28.9**	**29.1**	**29.3**	**29.9**	**30.4**	**30.0**	**29.7**
Male	22.9	21.7	21.3	23.2	23.0	23.2	23.3	24.7	25.7	25.4	25.1
Female	40.3	39.1	47.5	51.2	51.5	51.7	52.0	49.4	48.5	47.3	47.1
Eastern Asia	**10.0**	**10.0**	**9.7**	**10.0**	**10.3**	**10.4**	**10.5**	**10.6**	**10.4**	**10.4**	**10.5**
Male	11.1	11.2	10.8	11.1	11.4	11.6	11.7	11.9	11.9	12.0	12.1
Female	8.6	8.7	8.4	8.6	8.9	9.0	9.1	9.0	8.7	8.6	8.6
South-East Asia and the Pacific	**13.5**	**13.4**	**12.8**	**13.1**	**11.9**	**12.9**	**12.1**	**12.5**	**11.7**	**12.0**	**12.2**
Male	13.2	13.5	13.0	13.1	12.0	12.9	12.2	12.7	11.7	12.0	12.2
Female	13.8	13.2	12.7	13.1	11.8	12.9	12.0	12.2	11.6	12.0	12.3
Southern Asia	**10.0**	**10.2**	**10.5**	**11.1**	**11.2**	**11.1**	**11.0**	**10.9**	**10.9**	**10.9**	**10.9**
Male	9.8	10.0	10.1	10.7	10.9	10.8	10.5	10.5	10.5	10.5	10.5
Female	10.6	10.6	11.9	12.3	12.3	12.1	12.2	12.0	11.9	11.8	11.8
Northern, Southern and Western Europe	**16.0**	**20.1**	**20.9**	**21.4**	**22.9**	**23.3**	**22.0**	**20.6**	**19.3**	**18.2**	**17.8**
Male	16.2	21.3	21.8	22.2	24.0	24.2	23.0	21.6	20.2	18.9	18.5
Female	15.7	18.7	19.9	20.4	21.7	22.1	20.8	19.5	18.1	17.2	17.1
Eastern Europe	**14.3**	**18.2**	**18.0**	**17.7**	**17.5**	**17.2**	**17.4**	**17.7**	**17.0**	**15.2**	**14.2**
Male	13.7	18.4	17.9	17.4	17.3	16.9	17.2	17.3	16.7	14.9	13.9
Female	15.0	18.0	18.1	18.0	17.7	17.7	17.7	18.2	17.4	15.7	14.5
Central and Western Asia	**16.6**	**18.6**	**17.3**	**15.9**	**15.3**	**15.7**	**16.2**	**16.4**	**16.9**	**17.5**	**17.4**
Male	16.7	18.7	17.2	15.3	14.6	15.0	15.5	15.4	15.8	16.6	16.7
Female	16.6	18.4	17.5	16.8	16.4	16.9	17.4	18.1	18.7	19.0	18.7

Table C.3 Global and regional youth labour force participation rates, 2000, 2008–18 (%)

	2000	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017p	2018p
WORLD	**53.3**	**49.1**	**48.3**	**47.4**	**47.0**	**46.6**	**46.2**	**45.8**	**45.8**	**45.7**	**45.7**	**45.6**
Male	61.9	57.4	56.6	55.7	55.2	54.7	54.3	53.9	53.8	53.8	53.7	53.6
Female	44.3	40.3	39.6	38.8	38.4	38.0	37.6	37.3	37.2	37.1	37.1	37.0
Northern Africa	**35.8**	**33.5**	**33.3**	**33.0**	**32.0**	**31.8**	**32.1**	**32.0**	**32.0**	**31.9**	**31.9**	**31.8**
Male	50.8	48.6	48.4	48.4	47.3	46.9	47.1	47.0	46.9	46.8	46.6	46.4
Female	20.3	17.9	17.8	17.1	16.2	16.1	16.6	16.5	16.5	16.6	16.6	16.6
Sub-Saharan Africa	**54.0**	**54.2**	**54.1**	**54.0**	**53.9**	**54.0**	**54.2**	**54.1**	**54.2**	**54.2**	**54.3**	**54.3**
Male	56.9	56.4	56.3	56.3	56.2	56.5	56.8	56.6	56.7	56.8	56.9	56.9
Female	51.1	51.9	51.8	51.8	51.7	51.5	51.6	51.5	51.6	51.6	51.6	51.7
Latin America and the Caribbean	**54.8**	**53.4**	**52.5**	**52.0**	**50.9**	**51.3**	**49.9**	**49.7**	**49.8**	**49.8**	**49.8**	**49.9**
Male	67.2	63.7	62.8	62.4	61.1	61.3	59.6	59.3	59.3	59.3	59.3	59.3
Female	42.1	42.7	42.0	41.3	40.5	41.0	39.8	39.9	40.0	40.0	40.1	40.1
Northern America	**62.6**	**55.9**	**53.8**	**51.9**	**51.6**	**51.7**	**52.0**	**52.1**	**52.2**	**52.3**	**52.3**	**52.2**
Male	64.9	57.5	55.0	53.0	52.8	53.0	53.2	53.1	53.3	53.4	53.4	53.3
Female	60.2	54.2	52.6	50.7	50.3	50.4	50.7	50.9	51.1	51.2	51.2	51.1
Arab States	**32.3**	**30.7**	**30.0**	**30.1**	**30.4**	**30.5**	**30.5**	**30.4**	**30.3**	**30.5**	**30.6**	**30.8**
Male	49.9	46.7	45.9	46.0	46.3	46.2	46.1	46.0	46.0	46.1	46.2	46.4
Female	13.7	13.2	12.8	12.9	13.1	13.2	13.3	13.3	13.3	13.4	13.5	13.5
Eastern Asia	**65.6**	**55.8**	**55.2**	**54.2**	**54.1**	**53.7**	**53.2**	**52.4**	**52.1**	**51.8**	**51.4**	**51.0**
Male	66.1	57.4	56.9	56.1	55.9	55.4	54.6	53.7	53.3	53.0	52.6	52.3
Female	65.1	54.0	53.2	52.1	52.1	51.9	51.6	51.1	50.7	50.4	50.0	49.7
South-East Asia and the Pacific	**56.7**	**53.3**	**53.2**	**52.8**	**52.8**	**52.4**	**51.9**	**51.5**	**51.5**	**51.4**	**51.3**	**51.2**
Male	63.6	60.1	60.0	59.3	59.5	59.3	59.1	58.6	58.6	58.5	58.4	58.3
Female	49.7	46.4	46.2	46.0	45.8	45.2	44.4	44.0	44.0	44.0	43.8	43.7
Southern Asia	**46.9**	**42.6**	**41.3**	**39.9**	**39.0**	**38.0**	**37.6**	**37.2**	**37.2**	**37.2**	**37.2**	**37.3**
Male	65.2	60.1	58.4	56.8	55.5	54.3	53.7	53.1	53.0	53.0	52.9	52.8
Female	27.4	24.0	22.9	21.8	21.1	20.4	20.2	19.8	19.9	20.0	20.1	20.2
Northern, Southern and Western Europe	**48.5**	**48.1**	**47.0**	**45.9**	**45.4**	**45.0**	**44.7**	**44.3**	**44.4**	**44.4**	**44.4**	**44.4**
Male	52.3	51.4	50.1	48.8	48.1	47.7	47.0	46.7	46.7	46.8	46.7	46.7
Female	44.5	44.7	43.8	42.8	42.6	42.3	42.3	41.9	41.9	41.9	41.9	41.9
Eastern Europe	**41.5**	**38.9**	**39.2**	**38.3**	**38.1**	**37.0**	**36.9**	**36.8**	**36.6**	**36.2**	**35.6**	**34.9**
Male	45.1	43.3	43.4	42.8	42.6	41.5	41.4	41.3	41.1	40.7	40.0	39.2
Female	37.7	34.3	34.8	33.7	33.4	32.3	32.1	32.0	31.8	31.5	31.0	30.4
Central and Western Asia	**44.9**	**42.3**	**42.5**	**42.4**	**42.8**	**42.3**	**42.3**	**43.0**	**43.1**	**43.2**	**43.3**	**43.3**
Male	55.4	52.5	52.6	51.8	52.9	52.2	52.2	53.3	53.4	53.6	53.6	53.7
Female	34.3	31.8	32.3	32.7	32.5	32.2	32.2	32.4	32.5	32.5	32.4	32.4

Table C.4 Global and regional ratios of youth–to–adult unemployment rates, 2000, 2008–18 (%)

	2000	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017p	2018p
WORLD	**2.7**	**3.0**	**2.8**	**2.8**	**2.9**	**2.9**	**2.9**	**2.9**	**3.0**	**3.0**	**3.0**	**2.9**
Male	2.8	3.1	2.8	2.9	3.0	3.0	3.0	3.1	3.1	3.1	3.1	3.1
Female	2.5	2.9	2.8	2.7	2.8	2.8	2.8	2.7	2.8	2.8	2.8	2.8
Northern Africa	**3.0**	**3.5**	**3.6**	**3.4**	**3.2**	**3.6**	**3.5**	**3.3**	**3.3**	**3.3**	**3.3**	**3.3**
Male	3.1	3.5	3.5	3.4	3.2	3.9	3.8	3.8	3.9	3.8	3.7	3.7
Female	2.4	3.2	3.4	3.2	3.0	3.0	2.9	2.6	2.3	2.4	2.5	2.6
Sub-Saharan Africa	**1.9**	**2.0**	**2.0**	**2.0**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**	**1.9**
Male	1.9	2.1	2.0	2.1	2.0	2.0	1.9	2.0	2.0	2.0	1.9	1.9
Female	1.8	1.9	1.9	1.9	1.9	1.9	1.8	1.8	1.8	1.8	1.8	1.8
Latin America and the Caribbean	**1.9**	**2.9**	**2.8**	**2.9**	**2.9**	**2.9**	**3.0**	**3.1**	**3.1**	**3.1**	**3.0**	**2.9**
Male	1.9	2.7	2.6	2.6	2.8	2.8	2.9	3.0	3.0	3.1	3.0	2.9
Female	2.0	3.2	3.0	3.2	3.1	3.1	3.1	3.2	3.2	3.2	3.0	2.9
Northern America	**3.0**	**2.7**	**2.2**	**2.2**	**2.3**	**2.4**	**2.5**	**2.6**	**2.7**	**2.5**	**2.5**	**2.4**
Male	3.3	2.9	2.3	2.3	2.4	2.6	2.7	2.8	2.9	2.8	2.7	2.7
Female	2.7	2.5	2.1	2.1	2.1	2.2	2.3	2.4	2.4	2.2	2.2	2.2
Arab States	**4.4**	**4.4**	**4.3**	**4.3**	**4.3**	**4.3**	**4.3**	**4.3**	**4.5**	**4.6**	**4.5**	**4.5**
Male	4.7	4.9	4.8	5.1	5.1	5.2	5.3	5.3	5.4	5.4	5.3	5.1
Female	3.4	3.2	3.1	2.9	3.0	2.9	2.9	2.9	2.9	3.1	3.1	3.2
Eastern Asia	**2.9**	**3.1**	**3.0**	**2.9**	**3.0**	**3.0**	**2.9**	**2.9**	**2.9**	**2.8**	**2.8**	**2.8**
Male	2.9	3.1	3.1	2.9	3.0	3.0	2.9	2.9	3.0	2.9	2.9	2.9
Female	2.8	3.2	3.1	3.0	3.0	3.0	3.0	2.9	2.9	2.8	2.8	2.7
South-East Asia and the Pacific	**5.1**	**4.6**	**4.5**	**4.7**	**5.0**	**5.3**	**5.8**	**5.4**	**5.6**	**5.4**	**5.5**	**5.6**
Male	5.1	4.5	4.4	5.1	5.2	5.2	5.4	5.5	5.8	5.6	5.7	5.7
Female	5.1	4.8	4.7	4.2	4.7	5.4	6.6	5.4	5.3	5.2	5.3	5.4
Southern Asia	**3.9**	**3.6**	**3.4**	**4.0**	**4.1**	**4.1**	**4.2**	**4.2**	**4.1**	**3.9**	**3.9**	**3.8**
Male	3.9	3.7	3.5	4.4	4.6	4.6	4.8	4.9	4.6	4.4	4.3	4.2
Female	3.9	3.4	3.1	3.2	3.3	3.2	3.0	3.0	3.1	3.1	3.1	3.1
Northern, Southern and Western Europe	**2.2**	**2.6**	**2.5**	**2.5**	**2.5**	**2.4**	**2.4**	**2.3**	**2.4**	**2.4**	**2.4**	**2.4**
Male	2.5	2.8	2.7	2.6	2.6	2.6	2.5	2.5	2.5	2.6	2.6	2.6
Female	2.0	2.3	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.1	2.2
Eastern Europe	**2.5**	**2.8**	**2.7**	**2.7**	**2.9**	**3.1**	**3.0**	**3.1**	**3.2**	**3.3**	**3.1**	**3.0**
Male	2.4	2.6	2.6	2.6	2.7	2.9	2.8	2.9	3.0	3.1	2.9	2.8
Female	2.6	3.1	2.9	3.0	3.1	3.3	3.2	3.4	3.5	3.5	3.3	3.3
Central and Western Asia	**2.2**	**2.3**	**2.2**	**2.3**	**2.3**	**2.3**	**2.3**	**2.2**	**2.2**	**2.3**	**2.3**	**2.3**
Male	2.3	2.3	2.2	2.3	2.3	2.3	2.3	2.2	2.2	2.2	2.2	2.3
Female	2.0	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3	2.3

Table C.5 Global and regional youth employment–to–population ratios, 2000, 2008–18 (%)

	2000	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017p	2018p
WORLD	**46.5**	**43.0**	**42.0**	**41.3**	**40.8**	**40.5**	**40.1**	**39.9**	**39.8**	**39.7**	**39.6**	**39.6**
Male	54.2	50.5	49.4	48.7	48.1	47.7	47.3	47.1	47.0	47.0	46.9	46.8
Female	38.5	35.1	34.2	33.4	33.1	32.8	32.4	32.2	32.2	32.0	31.9	31.9
Northern Africa	**25.1**	**25.3**	**25.2**	**25.3**	**23.6**	**22.3**	**22.7**	**22.7**	**22.7**	**22.7**	**22.7**	**22.7**
Male	37.7	39.2	39.7	40.0	37.2	35.2	35.4	35.0	34.5	34.8	34.9	35.0
Female	12.2	11.0	10.2	10.0	9.5	9.0	9.6	9.9	10.5	10.2	10.0	9.8
Sub-Saharan Africa	**47.3**	**47.8**	**47.6**	**47.5**	**47.5**	**47.7**	**48.1**	**48.2**	**48.3**	**48.1**	**48.1**	**48.1**
Male	50.6	50.5	50.3	50.1	50.3	50.8	51.2	51.2	51.3	51.2	51.3	51.3
Female	44.1	45.0	44.8	44.8	44.7	44.7	45.0	45.2	45.2	45.0	45.0	44.9
Latin America and the Caribbean	**45.4**	**44.8**	**43.7**	**43.7**	**43.2**	**43.8**	**42.6**	**42.4**	**41.8**	**40.5**	**40.1**	**40.1**
Male	57.6	55.8	54.1	54.4	53.5	53.9	52.4	51.9	51.3	49.8	49.4	49.4
Female	33.0	33.6	33.0	32.6	32.7	33.4	32.6	32.6	31.9	30.8	30.5	30.6
Northern America	**56.6**	**48.8**	**44.5**	**42.6**	**42.9**	**43.5**	**44.0**	**45.1**	**46.1**	**46.7**	**46.9**	**46.5**
Male	58.4	49.4	44.1	42.3	43.2	43.8	44.2	45.4	46.4	47.1	47.3	46.8
Female	54.7	48.3	44.9	42.9	42.6	43.1	43.8	44.8	45.8	46.3	46.5	46.1
Arab States	**24.5**	**22.6**	**22.4**	**22.0**	**21.6**	**21.7**	**21.6**	**21.5**	**21.3**	**21.2**	**21.5**	**21.6**
Male	39.3	36.0	35.9	36.2	35.6	35.6	35.4	35.3	34.6	34.2	34.5	34.8
Female	8.8	7.9	7.8	6.8	6.4	6.4	6.4	6.4	6.7	6.9	7.1	7.2
Eastern Asia	**59.2**	**50.2**	**49.6**	**48.9**	**48.7**	**48.2**	**47.6**	**46.9**	**46.6**	**46.4**	**46.0**	**45.7**
Male	58.7	51.1	50.6	50.0	49.7	49.1	48.3	47.4	47.0	46.7	46.3	45.9
Female	59.7	49.4	48.6	47.7	47.6	47.3	46.9	46.4	46.2	46.0	45.7	45.4
South-East Asia and the Pacific	**49.5**	**46.2**	**46.1**	**46.0**	**45.9**	**46.1**	**45.2**	**45.2**	**45.0**	**45.4**	**45.1**	**44.9**
Male	55.2	52.2	51.9	51.7	51.7	52.2	51.4	51.5	51.2	51.7	51.4	51.2
Female	43.6	40.0	40.1	40.2	39.8	39.8	38.7	38.7	38.6	38.9	38.6	38.3
Southern Asia	**42.0**	**38.4**	**37.1**	**35.7**	**34.6**	**33.7**	**33.4**	**33.1**	**33.2**	**33.2**	**33.2**	**33.2**
Male	58.5	54.2	52.6	51.0	49.5	48.4	47.9	47.5	47.5	47.4	47.3	47.2
Female	24.4	21.5	20.5	19.2	18.5	17.9	17.8	17.4	17.5	17.6	17.7	17.8
Northern, Southern and Western Europe	**40.3**	**40.4**	**37.6**	**36.3**	**35.7**	**34.7**	**34.3**	**34.6**	**35.2**	**35.8**	**36.3**	**36.4**
Male	43.8	43.1	39.4	38.1	37.4	36.2	35.7	35.9	36.6	37.3	37.9	38.1
Female	36.6	37.7	35.6	34.3	33.9	33.1	32.9	33.1	33.7	34.3	34.7	34.7
Eastern Europe	**32.2**	**33.4**	**32.1**	**31.4**	**31.4**	**30.6**	**30.5**	**30.4**	**30.1**	**30.1**	**30.2**	**30.0**
Male	35.2	37.4	35.4	35.1	35.2	34.4	34.4	34.3	34.0	33.9	34.1	33.8
Female	29.1	29.2	28.5	27.6	27.4	26.6	26.4	26.4	26.1	26.0	26.1	26.0
Central and Western Asia	**37.8**	**35.2**	**34.6**	**35.0**	**36.0**	**35.9**	**35.6**	**36.1**	**36.1**	**35.9**	**35.7**	**35.7**
Male	46.9	43.8	42.7	42.9	44.8	44.6	44.3	45.0	45.2	45.1	44.7	44.7
Female	28.6	26.5	26.4	27.0	27.1	26.9	26.7	26.8	26.6	26.4	26.3	26.3

Table C.6 Youth working poverty (15–24), extreme and moderate (<US$ PPP 3.10/day), 2016–18 (millions)

Region	2016			2017			2018		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Emerging and developing countries	**162.9**	**102.6**	**60.3**	**160.6**	**101.2**	**59.4**	**158.5**	**99.9**	**58.7**
Emerging countries	109.8	74.1	35.7	106.8	72.2	34.6	104.1	70.5	33.6
Developing countries	53.1	28.5	24.6	53.8	29.0	24.8	54.4	29.4	25.0
Arab States	**1.8**	**1.5**	**0.3**	**1.7**	**1.4**	**0.3**	**1.7**	**1.4**	**0.3**
Eastern Asia	**11.8**	**6.3**	**5.4**	**10.4**	**5.6**	**4.8**	**9.2**	**4.9**	**4.3**
Eastern Europe	**0.3**	**0.1**	**0.1**	**0.3**	**0.1**	**0.1**	**0.2**	**0.1**	**0.1**
Central and Western Asia	**0.9**	**0.6**	**0.3**	**0.8**	**0.5**	**0.2**	**0.7**	**0.5**	**0.2**
Latin America and the Caribbean	**4.1**	**2.7**	**1.4**	**4.1**	**2.7**	**1.4**	**4.0**	**2.6**	**1.4**
Northern Africa	**2.2**	**1.7**	**0.5**	**2.2**	**1.7**	**0.5**	**2.2**	**1.7**	**0.5**
South-Eastern Asia and the Pacific	**14.9**	**9.2**	**5.6**	**14.0**	**8.7**	**5.2**	**13.1**	**8.2**	**4.8**
Southern Asia	**62.4**	**45.9**	**16.5**	**61.6**	**45.3**	**16.3**	**60.9**	**44.7**	**16.2**
Sub-Saharan Africa	**64.9**	**34.7**	**30.2**	**65.8**	**35.3**	**30.6**	**66.8**	**35.8**	**31.0**

Source: ILO calculations based on update of the model in S. Kapsos and E. Bourmpoula: *Employment and economic class in the developing world*, ILO Research Paper No. 6 (Geneva, ILO, 2013) and ILO Research Department's Trends Econometric Models, April 2017.

Table C.7 Youth working poverty (15–24), extreme and moderate (<US$ PPP 3.10/day), 2016–18 (%)

Region	2016			2017			2018		
	Total	Male	Female	Total	Male	Female	Total	Male	Female
Emerging and developing countries	**39.4**	**40.1**	**38.4**	**39.0**	**39.6**	**38.0**	**38.5**	**39.1**	**37.6**
Emerging countries	32.4	34.2	29.1	31.8	33.6	28.6	31.2	33.0	28.0
Developing countries	71.8	72.3	71.2	70.7	71.3	70.1	69.6	70.2	69.0
Arab States	**29.1**	**28.6**	**31.7**	**27.8**	**27.4**	**30.1**	**27.1**	**26.8**	**28.8**
Eastern Asia	**13.3**	**13.4**	**13.2**	**12.3**	**12.3**	**12.2**	**11.3**	**11.2**	**11.3**
Eastern Europe	**4.3**	**3.9**	**4.8**	**4.1**	**3.7**	**4.7**	**3.9**	**3.5**	**4.5**
Central and Western Asia	**8.7**	**9.3**	**7.6**	**8.2**	**8.8**	**7.2**	**7.7**	**8.2**	**6.8**
Latin America and the Caribbean	**9.3**	**9.8**	**8.4**	**9.2**	**9.7**	**8.4**	**9.1**	**9.6**	**8.2**
Northern Africa	**25.1**	**24.7**	**27.0**	**24.8**	**24.6**	**26.0**	**24.4**	**24.3**	**25.0**
South-Eastern Asia and the Pacific	**29.4**	**31.2**	**26.8**	**27.8**	**29.7**	**25.1**	**26.2**	**28.1**	**23.4**
Southern Asia	**55.1**	**54.3**	**57.3**	**54.2**	**53.4**	**56.3**	**53.2**	**52.5**	**55.3**
Sub-Saharan Africa	**69.8**	**69.8**	**69.7**	**68.8**	**68.9**	**68.7**	**67.8**	**68.0**	**67.7**

Source: ILO calculations based on update of the model in S. Kapsos and E. Bourmpoula (ibid.) and ILO Research Department's Trends Econometric Models, April 2017.

Annex D. Meta-information on the ILO school-to-work transition surveys

School-to-work transition surveys (SWTS) were carried out between 2012 and 2016 within the framework of the Work4Youth (W4Y) partnership between the ILO Youth Employment Programme and The MasterCard Foundation. Fifty-three school-to-work transition surveys were completed across 34 developing countries, with results representing 335 million young persons between the ages of 15 and 29. The survey data were summarized in 34 country-level analytic reports, eight thematic reports, four regional reports, eight technical briefs and 30 country summaries, all of which are available on the Work4Youth website: www.ilo.org/w4y.

The survey countries, sample sizes and reference periods are summarized in the following table.

Table D.1 ILO school-to-work transition surveys: Meta-information

Country	Implementation partner	Sample size	Geographic coverage	Reference period
Armenia	National Statistical Service	3216	National	Oct–Nov 2012
		2710		Sep–Oct 2014
Bangladesh	Bureau of Statistics	9197	National	Jan–Mar 2013
Benin	Institut National de la Statistique et de l'Analyse Economique	6917	National	Dec 2012
		4306		Dec 2014–Jan 2015
Brazil	ECO Assessoria em Pesquisas	3288	National	Jun 2013
Cambodia	National Institute of Statistics	3552	10 provinces	Jul–Aug 2012
		3396	National	Jul–Aug 2014
Colombia	Departamento Administrativo Nacional de Estadística	6416	Urban	Sep–Nov 2013
Congo, Rep. of	Direction Générale de la Formation Qualifiante et de l'Emploi	3276	National	May–Jun 2015
Dominican Republic	Banco Central	3554	National	Jul–Sep 2015
Egypt	Central Agency for Public Mobilization and Statistics	5198	National	Nov–Dec 2012
		5758		Nov–Dec 2014
El Salvador	Dirección General de Estadística y Censos	3451	National	Nov–Dec 2012
		3604		Oct–Dec 2014
Jamaica	Statistical Institute of Jamaica	2584	National	Feb–Apr 2013
		3666		Jun–Sep 2015
Jordan	Department of Statistics	5405	National	Dec 2012–Jan 2013
		3749		Mar–Apr 2015
Kyrgyzstan	National Statistical Commission	3930	National	Jul–Sep 2013
Lebanon	Consultation and Research Institute	2627	National (Lebanese nationals only)	Nov 2014–Jan 2015

Country	Implementation partner	Sample size	Geographic coverage	Reference period
Liberia	Liberian Institute of Statistics and Geo-Information Services	1876	National	Jul–Aug 2012
		2416		Jun–Jul 2014
Macedonia, FYR	State Statistical Office	2544	National	Jul–Sep 2012
		2474		Jul–Oct 2014
Madagascar	Institut National de la Statistique	3300	National	May–Jun 2013
		5044		Apr–May 2015
Malawi	National Statistics Office	3102	National	Aug–Sep 2012
		3097		Sep 2014
Moldova, Rep. of	National Bureau of Statistics	1158	National	Jan–Mar 2013
		1189		Apr–May 2015
Montenegro	Statistical Office of Montenegro	2998	National	Sep–Oct 2015
Nepal	Center for Economic Development and Administration	3584	National	Apr–May 2013
Occupied Palestinian Territory	Central Bureau of Statistics	4320	National	Aug–Sep 2013
		4141		Jun–Jul 2015
Peru	Instituto Nacional de Estadistica e Informática	2464	Urban	Dec 2012–Feb 2013
Russian Federation	Russian Federal State Statistics Service	3890	11 regions	Jul 2012
		3415		Mar 2015
Samoa	Bureau of Statistics	2914	National	Nov–Dec 2012
Serbia	Statistical Office of the Republic of Serbia	3508	National	Mar–Apr 2015
Sierra Leone	Statistics Sierra Leone	2707	National	Oct 2015
Tanzania, United Rep. of	University of Dar-es-Salaam, Department of Statistics	1988	National	Feb–Mar 2013
Togo	Direction Générale de la Statistique et de la Comptabilité Nationale	2033	National	Jul–Aug 2012
		2708		Mar–Apr 2014
Tunisia	Institut National de la Statistique	3000	National	Feb–Mar 2013
Uganda	Bureau of Statistics	3811	National	Feb–Apr 2013
		3049		Jan–Apr 2015
Ukraine	Ukrainian Center for Social Reform	3526	National	Feb 2013
		3202		Apr–May 2015
Viet Nam	General Statistics Office	2722	National	Dec 2012–Jan 2013
		2234	National	May–Jun 2015
Zambia	IPSOS Zambia	3206	National	Dec 2012
		3296		Oct–Dec 2014

Annex E. Labour Force Micro Database

Data sources

This database harmonizes 17 variables at two points in time using 108 micro datasets from the household and labour force surveys of 54 countries, covering approximately 83 per cent of the current world labour force. The idea behind having two points of data is to shed light on the employment-related changes occurred since the outset of the financial crisis. The selection of countries tried to achieve a balance between data availability, regional diversity and the size of the countries' labour force. The years chosen are 2005 and 2015 but sometimes, and due to data availability constraints, years close to the above-mentioned ones had to be used; details on the exact year and source are provided in table E.1.

Table E.1 Data sources and sample sizes

Country	Years	Source	Survey name	Sample
China	2002	China Institute for Income Distribution	Chinese Household Income Project (CHIP)	63928
	2013			61162
India	2005	ILO microdata repository	Employment and Unemployment (NSSO 61, 68)	602837
	2012			456999
United States	2006	US Bureau of Labor Statistics	Current Population Survey (CPS)	208562
	2016			185487
Indonesia	2005	ILO microdata repository	National Labour Force Survey (SAKERNAS)	202633
	2015			133916
Brazil	2005	Brazilian Institute of Geography and Statistics	National Household Sample Survey (PNAD)	408148
	2015			356904
Bangladesh	2004	ILO microdata repository	Labour Force Survey (LFS)	188487
	2013			156987
Russian Federation*	2004	University of North Carolina at Chapel Hill	Russia Longitudinal Monitoring Survey (RLMS)	12237
	2014			18430
Japan*	2002	JGSS Research Center at Osaka University of Commerce	Japanese General Social Survey (JGSS)	2953
	2012			4667
Pakistan	2006	ILO microdata repository	Labour Force Survey (LFS)	219969
	2015			264136
Nigeria	2006	IPUMS	General Household Survey (GHS)	83700
	2016	World Bank		26176
Viet Nam	2007	ILO microdata repository	Labour Force Survey (LFS)	661321
	2014			746978
Mexico	2006	National Institute of Geography and Statistics	National Survey of Occupation and Employment (ENOE)	440699
	2016			411650
Ethiopia	2004	Central Statistical Agency of Ethiopia	Household Income, Consumption and Expenditure Survey (HICE)	99229
	2016	World Bank	Ethiopia Socio-economic Survey (ESS)	23160
Germany	2004	DIW-Berlin	German Socio-Economic Panel (SOEP)	28462
	2014			42035
Philippines	2003	ILO microdata repository	Labour Force Survey (LFS)	196509
	2013			201623

Country	Years	Source	Survey name	Sample
Thailand	2007	ILO microdata repository	Labour Force Survey (LFS)	222897
	2015			219433
Egypt	2006	Economic Research Forum	Labour Market Panel Survey	37140
	2014		Labour Force Survey	353340
Turkey	2005	Turkish Statistical Institute	Household Labour Force Survey (HIA)	490040
	2015			389035
Republic of Korea	2006	Korean Statistics Department	Economically Active Population Survey (EAPS)	70552
	2016			59681
Tanzania, United Rep. of	2006	ILO microdata repository	Labour Force Survey (LFS)	72441
	2014			47199
Colombia	2005	National Administrative Department of Statistics	Continuous Household Survey (CHS)	50142
	2015		Great Integrated Household Survey (GEIH)	64785
Canada	2007	Statistics Canada	Labour Force Survey (LFS)	102655
	2017			102986
South Africa	2003	DataFirst	Labour Force Survey (LFS)	98748
	2015		Labour Market Dynamics (LMD)	286782
Peru	2006	ILO Microdata Repository	National Household Survey (ENAHO)	90783
	2016			134235
Chile	2006	Ministry of Social Development	Chile National Socioeconomic Characterization Survey (CASEN)	268873
	2015			266968
Zambia	2008	ILO microdata repository	Labour Force Survey (LFS)	156680
	2014			58985
Ecuador	2005	ILO microdata repository	National Survey of Employment and Unemployment (ENEMDU)	77050
	2015			112821
Guatemala	2004	ILO microdata repository	National Survey of Employment and Income (ENEI)	64639
	2014			17307
26 countries	2005	EUROSTAT	Statistics on Income and Living Conditions (SILC)	520466
	2014			520542
Total (sum)	**2005**			**5742780**
	2015			**5724409**

* The data for both the Russian Federation and Japan come from labour force modules of social surveys. Their small sample sizes limited the report's use of these datasets for the analyses.

Fifty-two of the micro datasets come from the European Union Statistics on Income and Living Conditions (EU-SILC); for the purposes of this publication we took the years 2005 and 2014 for the following countries (in alphabetical order): Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Estonia, Finland, France, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden and the United Kingdom; the years 2007 and 2014 for Romania and Bulgaria, and the years 2008 and 2014 for Switzerland.

Figure 4.4 shows sectoral changes in employment by region. The countries included in each of the graphs are the following: Africa is represented by 6 countries, Egypt, Ethiopia, Nigeria, South Africa, United Republic of Tanzania and Zambia, totalling 44 per cent of the region's labour force. Asia and the Pacific is represented by Bangladesh, China, Indonesia, Japan, Pakistan, Philippines, the Republic of Korea, Thailand and Viet Nam, totalling 91 per cent of the region's labour force. Latin America and the Caribbean is represented by Brazil, Chile, Colombia, Ecuador, Guatemala, Mexico and Peru, totalling 78 per cent of the region's labour force. Eastern Europe and Central and Western Asia[1] is represented by Bulgaria, Cyprus, Czech Republic, Hungary, Poland, Romania, Russian Federation, Slovakia and Turkey, covering 67 per cent of the region's labour force. Northern, Southern and Western Europe is

[1] This regional grouping makes reference to two of the three subregions of the Europe and Central Asia ILO region, Eastern Europe and Central and Western Asia, with the third subregion being Northern, Southern and Western Europe (shown separately).

represented by Austria, Belgium, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Portugal, Slovenia, Spain, Sweden, Switzerland and United Kingdom, covering 95 per cent of the region's labour force. At last, Northern America is represented by Canada and the United States of America, covering 100 per cent of the region's labour force.

Moreover, figure 5.1 classifies countries by income level (see also annex A above). The high-income (developed) countries included are Austria, Belgium, Canada, Chile, Cyprus, Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Japan, Latvia, Lithuania, Luxembourg, Netherlands, Norway, Poland, Portugal, Russian Federation, Slovakia, Slovenia, Republic of Korea, Spain, Sweden, United Kingdom and the United States. The countries classified as upper middle-income are Brazil, Bulgaria, China, Colombia, Ecuador, Mexico, Peru, Romania, South Africa, Thailand and Turkey. The countries classified as low or lower middle-income are Bangladesh, Egypt, Ethiopia, Guatemala, India, Indonesia, Nigeria, Pakistan, Philippines, United Republic of Tanzania, Viet Nam and Zambia.

Variable definitions and harmonization process[2]

Urban/Rural areas: There is no standard international classification of urban and rural areas, hence national definitions were used. The criteria used varies across countries. For example, India uses a combination of authority presence (a municipality, corporation), population, economic activity (a minimum of 75 per cent of male occupations must be working in non-agricultural activities) and population density; the United States uses population and commuting time for certain areas to be defined as urban (metropolitan); and, in the European Union, population density is used to identify the distinction.

Labour force status: Labour force status subdivides the population into three mutually exclusive categories: the employed, the unemployed and the inactive. Following standard ILO definitions,[3] a person is defined as employed if at least one hour was worked during the reference period (typically one week).[4] Likewise the person is defined as unemployed if he/she was without work, willing to work and actively looking for a job during the reference period. The inactive status is defined as the remainder of the population who are neither employed nor unemployed.

Employment status: All people in employment are identified as belonging to one of five categories following the standard international classifications (ICSE):[5] employee, own-account worker, employer, cooperative member, or contributing family worker. For the purposes of this report, given their small numbers amongst young workers, members of cooperatives were added to own account workers. On some occasions (generally countries with high rural population shares), the surveys did not always assign an employment status but instead offered the number of hours worked by the person in a variety of tasks, e.g. helping in a family business, working as a dependent employee or as self-employed. In these cases the work intensity (number of hours worked) was used to assign a primary employment status.

[2] Each variable explanation starts with a comment about the population for which the variable is defined (e.g. all individuals, all workers, and so on).

[3] See, the *Resolution concerning statistics of the economically active population, employment, unemployment and underemployment*, adopted by the 13th International Conference of Labour Statisticians (October 1982), http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/normativeinstrument/wcms_087481.pdf.

[4] This requirement was sometimes relaxed and national classifications were used whenever the one hour criterion was not feasible.

[5] Resolution concerning the International Classification of Status in Employment (ICSE) adopted by the 15th International Conference of Labour Statisticians (January 1993), http://www.ilo.org/wcmsp5/groups/public/---dgreports/---stat/documents/normativeinstrument/wcms_087562.pdf.

For the purposes of this report, an additional breakdown was added to employment status to distinguish amongst different contractual forms of *dependent wage employment*. These are,

a) **Permanent employee:** Defined as an employee with a written contract and hired without limit of time.
b) **Temporary employee:** Defined as an employee with a written contract hired for a limited period of time.
c) **Employee without written contract:**[6] Defined as an employee without a written contract independent of the specified duration of the job.

Economic activity: All those in employment distinguished by two variables used to identify the sectoral economic activity; the first uses two digits of ISIC rev.4 codes[7] and is only available for a limited number of countries and years. The second one uses 11 broad categories (derived from ISIC rev. 4) as follows:

A	Agriculture, forestry and fishing
B, C, D and E	Mining and quarrying, manufacturing, electricity, gas, steam and air conditioning supply, water supply, sewerage, waste management and remediation services
F	Construction
G, I	Wholesale and retail trade, repair of motor vehicles and motorcycles, accommodation and food service activities
H, J	Transportation and storage, information and communication
K	Financial and insurance activities
L, M and N	Real estate activities, professionals, scientific and technical activities, administrative and support service activities
O	Public administration and defence; compulsory social security
P	Education
Q	Human Health and social work activities
R, S, T and U	Arts, entertainment and recreation, other service activities, activities of households as employers; undifferentiated goods, activities of extraterritorial organizations and bodies

Some of the surveys included in the Labour Force Micro Database do not classify economic activities using ISIC rev.4 codes. These surveys typically either use an older version of the international standard industrial classification (ISIC rev.3 or rev.2) or their own classifications (like NAICS or its version in Spanish, SCIAN). Whenever NAICS, ISIC rev.3 or ISIC rev.2 were found, official conversion tables were used to convert the codes to ISIC rev.4. In other instances (a minority), a case-by-case judgement, based on the names' similarity between the classification at hand and the ISIC rev.4 codes, was employed.

Occupation: For all those in employment, a variable called "skill" is created based on the ISCO 08 occupational groups and their four related skills levels.[8] The correspondence between ISCO-08 and the skills level is as follows:

– Skills level 4 (Professional): Major group 2 and sub-major group 11, 12 and 13
– Skills level 3 (Skilled): Major groups 3 and sub-major group 14
– Skills level 2 (Semi-skilled): Majors groups 4–8
– Skills level 1 (Low-skilled): Major group 9

[6] Where contractual information was not available, the (non-)payment of, or enrolment in, social security was used in its place. Hence, as noted in the text, employees without a written contract broadly correspond to informal wage workers.

[7] Classification available at http://unstats.un.org/unsd/cr/registry/isic-4.asp.

[8] ILO: *International Standard Classification of Occupations: ISCO-08, Vol. 1 – Structure, group definitions and correspondence tables* (Geneva, 2012), and/or http://www.ilo.org/public/english/bureau/stat/isco/index.htm.

For the purposes of the report, in some figures we further collapse skills levels 3 and 4 into a single 'high-skilled' category giving the following threefold division of skills levels:
– Skills level 3/4 (High-skilled): Major groups 1, 2 and 3
– Skills level 2 (Semi-skilled): Majors groups 4–8
– Skills level 1 (Low-skilled): Major group 9

On weighting

All estimates produced in this report with the above-mentioned microdata are expanded to the actual population size. The expansion factors (or survey weights) are provided by the original sources with the exception of China (both years) and Thailand (2007). In the case of China we use the urban/rural population to impute a weight to each observation. For each area (rural or urban), the weight of the i^{th} person is defined as:

$$weight_i = sample\ size \div population\ size$$

In the case of Thailand we use the Censuses of 2000 and 2010 to estimate the population living in the rural/urban areas of each of the 5 regions of the country in 2007;[9] then, we follow the same procedure that was used for China.

Standardization of reference years

The objective of harmonizing microdata of 54 countries at two points in time is to shed light on the employment-related changes which occurred over the period covered by the global economic and financial crisis (roughly between 2005 and 2015). Due to data availability constraints, national datasets may not perfectly match the targets years (2005 or 2015). The adopted procedure to deal with this was, first, to maintain the 10 year gap where possible (e.g. 2006 and 2016); when this was not possible, to standardize the estimates from the micro datasets to a 10 year time-span so as to render them more comparable.

Thus, for example, a simple linear standardization was used to recalculate the percentage point changes of figures (4.1, 4.4–4.11 and E.1) as follows:
Let n be the desired time span (in this case, 10 years) and g be the actual gap in years for a pair of matched datasets, the country percentage point change is re-calculated as,

$$\%\ point\ change = (share\ in\ latest\ year - share\ in\ first\ year) \times (n/g)$$

The sub-regional estimates are then obtained by weighting on a country by country basis each of the sectoral percentage point changes with the help of the ex-ante and ex-post total country employment. Let c be the country and e_{ca}, e_{cp} denote, respectively the ex-ante and the ex-post employment figure in country c, then, the percentage point change in sector s and sub-region r would be given by:

$$\%\ point\ change_{sr} = \sum_c (\%\ point\ change_{cs} \times (e_{ca} + e_{cp})) \div \sum_c (e_{ca} + e_{cp}),$$

where the sum is over all the countries in the sub-region of interest.

[9] The population of 2007 is calculated by interpolation using the average population growth rate of each rural/urban area of the 5 regions of Thailand between 2000 and 2010. Source: web.nso.go.th.

Annex F. Sectoral employment shares and changes by country

Table F.1 Changes in the age-group specific sectoral employment shares of young people, by country, 2005–15

	Agri.	Manufac.	Construct.	Transport	Trade	Finance	Business act.	Public	Educ.	Health	Other
Egypt	++	−−	++	−	−−−	−	+	−−	−	+	+
Ethiopia	−−	++	+	+	−	+	−	+	+	+	−
Nigeria	++	++	++	−	−−−	−	+	−	−	−	−−
South Africa	−−−	−−	++	+	−	+	++	−	+	+	−
Tanzania, United Rep. of	−−	+	+	+	++	+	+	−	+	+	−−−
Zambia	−−−−	+	++	+	++	+	+	+	+	+	+++
Bangladesh	−−	++	+	−−	−−	−	+	−	+	+	−
China	−−−−	++	++	++	++	+	++	−	+	+	+
India	−−−−	++	++	+	−	+	+	+	+	+	+
Indonesia	−−−−	+	+	−−	++	+	+	+	++	+	+
Japan	−−	−	−−	+	+	−	−	+	++	++	+
Pakistan	−	+	+	−	+	+	+	+	+	+	−−
Philippines	−−−	−	+	−	++	+	++	+	+	+	−
Korea, Republic of	−	−−	−−	−	++	−	+	−	−−	++	−
Viet Nam	−−−	++	+	+	+	+	+	+	+	+	−
Brazil	−−−	−−	++	+	++	+	++	+	+	+	−−
Colombia	−−−	−−	+	+	++	+	++	+	+	+	−−
Mexico	−	−	−	−	+	+	+	−	−	+	−
Bulgaria	++	−−−−	−−−−	++	++	+	++	−	+	+	+
Cyprus	+	−−	−−−	+	++	−	+	−−	+	+	+
Czech Republic	+	++	−−	++	−−	+	+	−−	+	−	−−
Hungary	−	−−	−−	++	+	−	+	++	+	+	−
Poland	−−	+	++	++	−	+	−	+	−	−	−
Romania	+++	−−−	−	−	+	−	++	−	+	−−	−
Russian Federation	−−	−	−	+	+	++	−	−	+	−	+
Slovakia	+	−−	−	++	+	+	−−	+	−	+	−
Turkey	−−−	−−	++	+	−	−	++	+	+	+	−
Austria	−	−−−−	++	++	+	−	−−	++	++	+	−−
Belgium	−	−−−	+	++	++	−	++	−	+	−	−
Estonia	+	−−−	−−	++	++	+	−	+	+	+	+
Finland	+	−−−	+	+	−	++	+	−	−−	++	+
France	−	−−−	−	++	−	−	++	−−	+	++	−−
Germany	+	−	−	−	−−	−	++	−	++	+	+
Greece	−	−−	−−−	+	++	+	+	−−	+	++	−
Ireland	−	−−	−−−−	++	++	−	++	−	+	++	−
Italy	−	−−−	−−	+	++	−	+	−	+	++	+
Latvia	−−	−−−	−−−	++	++	−	++	−−	+	+	+
Lithuania	−−	+	−−	++	−	+	++	−−	+	−	−
Luxembourg	+	−−	−	++	−	+	+	−−	+	++	−−
Netherlands	−	−−−	−	++	−	+	−−	+	++	++	−
Norway	−	++	++	+	−−−−	++	+	++	+	−	−−
Portugal	+	−	−−−	+	++	+	+	−	−−	++	+
Slovenia	+	−−	−	−	−−	+	++	−−	++	++	−
Spain	+	−−−	−−−−	++	++	+	++	−−	+	++	++

	Agri.	Manufac.	Construct.	Transport	Trade	Finance	Business act.	Public	Educ.	Health	Other
Sweden	–	–––	++	+	–––	–	++	+	++	+	–
Switzerland	+	––	–	+	––	++	+	+	+	++	––
United Kingdom	–	––	+	–	+	–	–	–	+	++	–
Canada	–	––	+	+	–	–	–	+	–	++	–
United States of America	+	+	––	+	+	–	+	+	+	+	+

Legend: "––––" = x<–10; "–––" = –10<x<–5; "––" = –5<x<–2; "–" = –2<x<0; "+" = 0<x<2; "++" = 2<x<5; "+++" = 5<x<10; "++++" = x>10

Acronyms and ISIC rev. 4 codes: "Agri.", agriculture, forestry and fishing, 1–3. "Manufac.", mining and quarrying, manufacturing, energy supply, 05–39. "Construct.", construction, 41–43. "Transport", transportation and storage, information and communication, 49–53, 58–63. "Trade", wholesale and retail trade, repair of motor vehicles, accommodation and service activities, 45–47, 55, 56. "Finance", financial and insurance activities, 64–66. "Business act.", real estate activities, professional, scientific, technical activities, administrative and support service activities, 68–82. "Public", public administration and defence; compulsory social security, 84. "Educ.", education, 85. "Health", human health and social work activities, 86–88. "Other", arts, entertainment and recreation, other service activities, activities of households as employers, extraterritorial organizations, 90–99.

Note: The table summarises the size and direction of country-specific percentage point changes in the age-group specific sectoral employment share of young people between 2005 and 2015. Years vary slightly according to data availability. Note that the percentage point changes have been standardized to ten years whenever the actual time span between two surveys was higher or lower, see Annex E above for details.

Source: Calculations based on the Labour Force Micro Database.

Annex G. ILO Future of Work Survey

The **ILO's Youth and the Future of Work** survey was conducted from April to June 2017 and collected responses from 2,300 young people aged 15 to 29 years in 187 countries. The survey investigates young people's aspirations and perceptions on the future world of work. The survey was administered globally, mainly by reaching out to youth-led organizations, with special emphasis placed on young activists from workers and employers organizations. The online survey comprised up to 45 questions, dependent on the employment status of the respondents, and participants used on average 25 minutes to complete the survey.

The goal of the sampling strategy was to reach young people evenly across all regions and where possible, proportionally to the youth population in these countries. A special dissemination strategy for Syria, based on contacting young people in refugee camps, resulted in a large sample from this country, 1000 responses. When looking at the distribution of responses by region, and excluding responses from Syria, participants roughly mirror the population size in the respective regions. More women than men participated, 60 per cent of the respondents are women and 40 per cent are men.

The data collection was also complemented by a series of youth focus group discussions. The survey is intended to complement regional youth surveys by the ILO in ASEAN and Latin America and the Caribbean (LAC) regions. The ASEAN surveyed enterprises and students with the aim to better understand their respective perspectives on the future work. The one done in the LAC region was produced to have greater understanding about the way LAC youth view the evolving world of work; the surveys included questions on social and educational backgrounds, individual perceptions and macro-level expectations for future of work. The Youth and Future of Work survey focuses on two conversations which are central to the Future of Work Centenary Initiative, "Decent Jobs for All" and "Organization of Work and Production".[1]

[1] See the Work4Youth website at http://decentwork4youth.org/.

Global Employment Trends for Youth 2017

Incorporating the most recent employment trends for young women and men, *Global Employment Trends for Youth* sets out the youth labour market situation around the world. It shows where progress has or has not been made, updates world and regional youth labour market indicators, and gives detailed analyses of medium-term trends in youth population, labour force, employment, unemployment, working poverty and informality.

The 2017 edition discusses the implications of technological change for youth labour market prospects, focusing on trends in sectoral employment and on the forms of work available to young people.

The report draws on the extensive range of analyses undertaken by the ILO and others in recent years so as to outline innovative and effective policy responses to the challenges facing young women and men entering the world of work today. It also offers insights into the directions needed for national policies and programmes to meet the challenges the youth of tomorrow will encounter in their search for entry points into decent work.

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